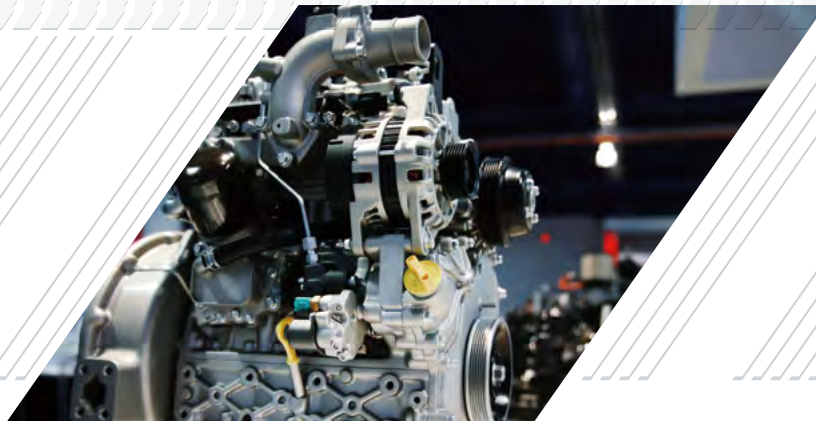


WINNING

TEAM

Doosan Infracore 2017 Integrated Report



About This Report

Reporting Purpose This is Doosan Infracore's sixth Integrated Report. Doosan Infracore publishes an integrated report to share with its stakeholders the processes whereby financial and non-financial performance results are generated through the interaction of diverse corporate social responsibility (CSR) activities, based on which corporate values are created. Doosan Infracore strives to incorporate CSR throughout all business activities and makes continued efforts to improve its integrated report.

Reporting Process To produce a comprehensive report on Doosan Infracore's financial and non-financial performance as well as social and environmental values, various departments related to the company's strategy, sales, investor relations and communications have participated in its planning. 25 working-level teams worked together to compile this Integrated Report, with a focus on performance results and future plans of the company.


Reporting Period This report presents quantitative data about the company's performance during the 2017 calendar year. However, the company's qualitative activities mentioned in the report, including the composition of the BOD, include developments recorded until the end of April 2018.


Reporting Scope This report is mainly on the activities and accomplishments made by the company's worksites in Korea and China. Some qualitative activities, however, include those undertaken at the company's overseas worksites. The CSR Facts & Figures section includes the quantitative outcomes of the worksites in Korea for the last three years. Figures on the worksites in China are on activities and accomplishments since 2016, after the execution of the overseas worksite CSR roll-out.

External Assurance This report has been assured by Samjong KPMG, an independent assurance service provider, to ensure the propriety and integrity of the reporting processes as well as the accuracy and credibility of its contents. Its Assurance Report is attached in the Appendix.

Disclaimer This report contains details of some future activities, events and situations based on the company's plans and estimations of future financial outcomes, which may turn out to be inaccurate in the event of changes in the global business landscape. The plans and estimations draw upon the best information available at the time of completion of this report, with due consideration given to future business environments as well as the company's elaborate business strategies. Doosan Infracore, therefore, would like to remind its stakeholders that this report contains some predictions that may be affected significantly due to the risks, uncertainties and other factors involved in the company's global operations.

Reporting Method

 **Printed Material** This report is published in Korean, English, and Chinese to communicate better with our global stakeholders

 **PDF** This report is available in PDF format which can be downloaded at www.doosaninfracore.com

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The oldest and one of the fastest growing in Korea

Our Heritage With 121 years of history, Doosan is the oldest enterprise in Korea. It is also a company with the great potential, having undergone continuous changes and achieving significant growth throughout the years. Doosan has continued to grow since its inception. In the twentieth century, it emerged as one of the country's strongest consumer goods companies specializing in beer and beverages. At the dawn of the new millennium, however, Doosan embarked on a massive transformation to become a global company by developing new growth engines and entirely overhauling its business portfolio. Through a series of successful mergers and acquisitions, Doosan has completely transformed itself from a consumer goods company into an infrastructure support business (ISB) provider, specializing in a wide range of industrial infrastructure such as construction equipment, energy, and production facilities. Backed by a diverse business portfolio and clear sense of purpose, Doosan continues to pursue innovation and change by focusing on the ISB which is needed to establish and operate social infrastructure, and thus enhances the value of lives of humankind.

Our Growth Engine Behind the success of Doosan is its unwavering “trust in people.” This belief is well summed up in our 2G Strategy – Growth of People, Growth of Business. The 2G strategy has been the driver of our past successes and will guide us through our journey toward prosperity in the future. At the heart of the 2G Strategy is the virtuous circle of “growth of people laying the foundation for the growth of the company, and the latter leading back to the former.” With its trust in its staff and continuous investment in human capital, Doosan was able to successfully complete bold restructuring and innovative business portfolio transformation.

Our Future Doosan hopes to become a ‘Proud Global Doosan,’ with ‘firm belief and trust in people.’ ‘Proud Doosan’ means becoming a company of which all stakeholders are proud, including employees, customers, shareholders, and society as a whole. Our vision is to become a company in which all of our stakeholders can take pride.


Doosan Way – Our Beliefs and Philosophy

Doosan Way
Doosan's unique corporate philosophy and culture and operation method to become a ‘Proud Global Doosan’

Core Values
Doosan people practice the nine core values of the Doosan Credo everywhere we operate. These values guide the way we do business, the way we treat each other, and the way we work with all of our partners. The nine core values of the Doosan Credo are as follows:

People	Cultivating People	Integrity and Transparency
Inhwa	Customers	World-class Technology and Innovation
Profit	Social Responsibility	Safety and Environment


More information on the Doosan Way and our core values is available at <http://www.doosan.com/en/belief/credo>



Affiliates
Doosan is making efforts to improve the foundation for life. Doosan can be found in various fields, ranging from the entire ISB that includes industrial facilities, machinery, equipment, and construction, to the consumer goods business.

Doosan Corporation
Infrastructure Support Business (ISB)
Consumer & Service Business (CSB)
Auxiliary Organizations

More information on the subsidiaries of Doosan Group is available at <http://www.doosan.com/en/intro/affiliate>



2017 Financial Highlights
(Unit: KRW million; based on consolidated financial statements)

Sales
17,585,205

Operating Income
1,179,916

Total Assets
28,769,022

Total Equity
7,603,418

2017 Financial Highlights
(Unit: KRW million; based on consolidated financial statements)

Sales
6,567,897

Operating Income
660,769

Total Assets
10,276,090

Total Equity
3,173,161

A world-leading company in ISB based on world-class competitiveness

Company Profile Doosan Infracore was founded in 1937 as Chosun Machine Works, the first large-scale machine manufacturing factory in Korea. Through continuous growth for the last 80 years, it has become the nation's top machine manufacturing company. Its product line-up includes construction equipment, engines, a variety of attachments, and utility equipment. Based on its world-class competitiveness, Doosan Infracore is moving forward to grow into a global leader in the infrastructure support business (ISB).

More detailed information on Doosan Infracore's 80 years of history is available on page 4 of this report.

Company Name	Doosan Infracore Co., Ltd.
Year Founded	1937
CEO	Sohn Dong-youn
Main Business Areas	Production and sales of construction equipment and engines
Employees	4,027 (Including overseas worksites; as of December 31, 2017)

BUSINESS OVERVIEW

Construction Equipment The Construction Equipment Business Area has supplied high-quality medium and large heavy equipment to industrial sites since 1977, contributing to the development of the global infrastructure industry. The Construction Equipment Business Area has prestigious global brands such as Doosan, Bobcat, and Geith, with product line-up ranging from compact to medium and large construction equipment. It has production bases in Korea, North America, China, and Europe. It provides world-class products in construction equipment and attachments, portable air compressors, lighting systems, and portable power equipment.


Engine Established in 1958, the Engine Business Area produced the first diesel engine in Korea, and has continued to expand its business portfolio. It supplies diesel and gas engines for buses and trucks, power generators and ships, as well as various industrial engines across the world. Based on its product line-up that meets increasingly stringent world-wide environmental regulations, the Engine Business Area is emerging fast as the world's top-tier engine manufacturer. It has been enhancing its global competitiveness by attracting new customers for existing products and exploring new markets and new business opportunities.

Brand

Doosan Infracore's brand represents Doosan's proud history and remarkable growth, and receives worldwide recognition.



For more information on Doosan Infracore's brand, visit our website at www.doosaninfracore.com or scan this QR code with a smartphone



Doosan Group & Doosan Infracore

2017
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CEO Message



I thank you sincerely for your unwavering support and trust in Doosan Infracore.

2017 was a meaningful year for Doosan Infracore, marking the 80th anniversary of our birth as the first large-scale machinery company in Korea. In its early years, the company focused on producing military supplies, including 200-ton submarines, in addition to mining machinery, cast products, and cast steel. In 1958, we became the first company in Korea to launch an engine business when we produced a diesel engine for ships. We began our construction equipment business in 1977, and developed an excavator using our own independent technologies, proving our ability to go beyond technical partnerships with overseas companies, and advanced into the global market. In 2007, we acquired Bobcat, the world's No. 1 in compact construction equipment company, and thus became a truly global company in construction equipment.

Thanks to the support of all of our customers, shareholders, and other stakeholders, in 2017, we also achieved the best sales growth in six years. In this Integrated Report, I would like to look back at last year's achievements, and share with you our plans for the future, as we continue our progress towards a new future.

Market Conditions and Accomplishments in 2017

We have achieved growth by ensuring strong fundamentals in our business and securing fundamental competitiveness.

Most construction equipment markets grew in 2017, with the exception of the Middle East. Doosan Infracore's sales increased substantially year-on-year to reach KRW 6,567.9 billion, thanks to increasing numbers of large-scale infrastructure investments worldwide, rising raw material prices, and the replacement cycle for equipment already sold. Operating income stood at KRW 660.8 billion, mainly attributable to increased sales of mid- to large-sized equipment and other high-margin equipment, as well as profitability improvement in the engine business. In particular, sales of more than 10,000 excavators in China drove the overall performance growth of the company. These improvements in business performance in turn enabled us to strengthen our financial performance, with better profitability, the re-financing or repayment of maturing debts, and the pre-payment of hybrid securities. We were thus able to lift the company's credit rating and stabilize our financial structure.

We also continued to strive to improve the company's fundamental competitiveness and to generate stable revenues. There were challenges in the engine business last year due to sluggish demand and increased competition in the power generator market. However, in partnership with Lovol, a leading agricultural machinery company in China, we successfully established a joint venture – Lovol Doosan Engine Company (LDEC) Joint Venture. We also achieved success in emerging markets for vehicle engines, including Vietnam. We focused on increasing after market (AM) sales by concentrating on improving the competitiveness of our parts and servicing, and we also expanded our offerings of smart solutions, such as system upgrades and the global launch of DoosanCONNECT™. We helped our dealers to strengthen their service capabilities, and partnered with them to offer DoosanCARE services, resulting in increased customer satisfaction.

Outlook and Plans for 2018

We will prepare for the future and offer top-quality products, value, and customer satisfaction as we strive to achieve our vision of becoming a 'Global Leader in Infrastructure Solutions.'

Price and quantity-based competition has been intensifying, even as the market grows. Our competitors are also focusing on attracting customers by launching distinctive products, offering more solutions that are connected to information and communication technology (ICT), and securing future growth drivers by making investments into new technology and through M&As. In this very competitive market environment, Doosan Infracore will solidify our strengths by further focusing on profitability through cost control and innovation in manufacturing, and will diversify our product range and geographical sales in order to be ready for any potential market stagnation or downturn. In addition, we will continue to develop new technologies and identify new business opportunities as part of our preparations for the future.

In 2018, we will continue to strive towards achieving our corporate vision of becoming a 'Global Leader in Infrastructure Solutions' and implement mid- to long-term strategic direction, which was established in 2016, while pursuing three strategies as follows:

First, we will offer maximum customer value through outstanding products and services. We will continue to enhance customer satisfaction by responding quickly to market and customer requirements, constantly improving basic quality, and further upgrading our services.

Second, we will maintain our growth momentum. As the raw materials market has continued to strengthen recently, we have been responding to the growth trend by launching an ultra-large 80-ton excavator which has earned a very positive response from dealers and customers. We are aiming to increase sales of our outstanding, high quality large equipment this year. Sales activities will focus on each region and channel's specific market characteristics, and headquarters will offer extra support where required to win large deals. We have been working at a company level to improve our capabilities in the AM. We expect our AM sales to increase this year, along with stronger profitability and competitiveness in sales channels and parts. We will develop strong global leadership across the entire value chain and all regions by acquiring business rights to sell heavy equipment in the advanced markets, which will enable us to substantially improve both the speed of our corporate decision-making and work efficiency. We will strive to increase the profitability of our heavy business in the advanced market, while accelerating the growth pace by providing rapid expert support from headquarters. In the engine business, we will further support and integrate the joint venture between Doosan Infracore and Lovol, and focus on increasing sales of the compact G2 engine. We will expand the vehicle engine business in Vietnam, and widen the sales network for power generator engines.

Third, we will seek more business opportunities for the future. In the era of the Fourth Industrial Revolution, Doosan Infracore has been strengthening our business by using digital technology, and through direct and indirect investments into new technologies and businesses. More and more construction sites are using the 'connected site' concept, which increases efficiency by making equipment unmanned, automated, and connected. For this reason, we expanded DoosanCONNECT™ globally last year, and also began the Concept-X project as part of our efforts to create a construction site of the future. In addition, we advanced our unmanned, autonomous system technology by investing in an autonomous driving start-up company this year. We plan to make more investments in start-ups related to the Fourth Industrial Revolution, in order to grow our existing businesses, develop new businesses, and expand technological capabilities to areas beyond construction equipment. Information acquired through DoosanCONNECT™ will be used to improve customer satisfaction through the development of new services and products. We will also continue with the successful execution of the Concept-X project.

Doosan Infracore is passionate about engaging in the socially responsible activities that are required of a global corporate citizen, and becoming a truly global leader by building the foundations for sustainable management. We abide strictly by all safety rules at our business sites at home and abroad, and our labor and management are working together to build a win-win labor-management culture that is based on mutual trust and understanding. This is enabling us to establish the world's most productive and efficient plants, and to create a healthy workplace. Doosan Infracore also strives to preserve the environment by developing eco-friendly technologies and products, increasing efficiency in the use of resources, and reducing our overall environmental impacts. In our relationships with our suppliers, we aim for a virtuous cycle of support and success by operating programs for win-win cooperation that build solid, long-term and profitable partnerships. For society as a whole, Doosan Infracore is committed to undertaking heartfelt social contribution activities that will benefit future generations and all of our local communities.

This year, we will look to the past 80 years of our history, and build on that heritage to write the first page in the next 80 years of our history. Over the years, Doosan Infracore has built up and internalized the strengths needed to overcome continuing challenges. Based on those strengths and through seamless cooperation within the 'Winning Team', we will grow into a company with strong competitiveness.

Thank you.

Sohn Dong-young

Chief Executive Officer
Doosan Infracore Co., Ltd.

80

Years of
Innovation & Inspiration

Doosan Infracore was founded in 1937 as the first large-scale machine manufacturing factory in Korea. The company has been growing into a global machinery company that manufactures various compact to large construction equipment, including excavators and loaders, as well as industrial engines and diesel engines for power generators, vehicles, and ships. Launched as a new member of Doosan Group in 2005, Doosan Infracore is emerging as a world-leading company by strengthening competitiveness and developing new growth engines through global M&As.



1937-2004

THE BEGINNINGS The birth of machinery industry in Korea

1937

Established Chosun Machine Works

— Doosan Infracore was initially launched as Chosun Machine Works in 1937. Established in Incheon, Chosun Machine Works was Korea's first large-scale machinery factory.

1942

Built a casting, cast steel, forge welding, and rolling plant

1958

Produced a diesel engine for ships

— Chosun Machine Works signed a technical alliance agreement with Austria's AVL and commenced diesel engine development. It began producing a diesel engine for 25 to 100 horsepower ships.

1963

Launched as Korea Machinery Industries Corp.

— The company was launched as Korea Machinery Industries Corp., a state-operated company, in 1963 and contributed to industrial modernization in Korea.

1970

Made a technical cooperation agreement with MAN of Germany

1975

Completed the construction of the diesel engine factory in Incheon – one of the largest in Asia

1976

Company name was changed to Daewoo Heavy Industries & Machinery Ltd.

1977

Became the first in Korea to mass produce a turbo engine

1978

In-house manufactured the DH07-3 excavator

1981

Established the Central R&D Center

1985

Developed SOLAR, the company's excavator model developed in-house

— Doosan Infracore launched the 'SOLAR project' in 1983 with an aim to develop its own excavators using its accumulated technologies, and succeeded in launching the SOLAR series in 1985. The company exported its SOLAR series excavators to the Netherlands in 1987 – the first ever shipment of Korean heavy equipment overseas.

1986

Began mass production of four models of the STORM engine – the company's own model

1988

Completed development of the electronic power optimizing system (EPOS) for excavators

1990

Became the first company in the Korean heavy industry to establish a production subsidiary in Europe (Belgium)

1992

Developed driving equipment for excavators (hydraulic motor, decelerator)

1993

The company's production subsidiary in Europe received ISO 9002 certification (excavator)

1994

Established Doosan Infracore China Co., Ltd. (Shandong Province, China)

1995

Developed the ultra-compact excavator SOLAR007

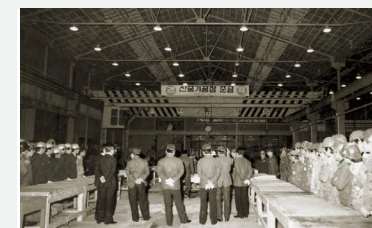
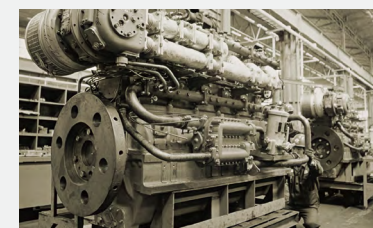
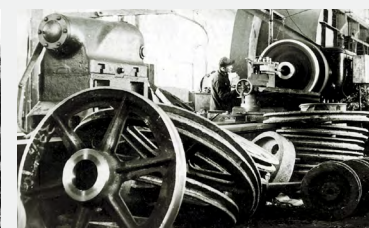
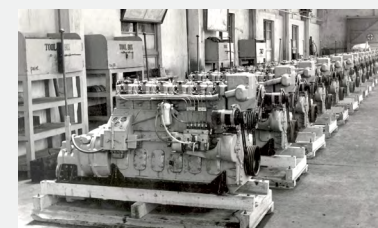
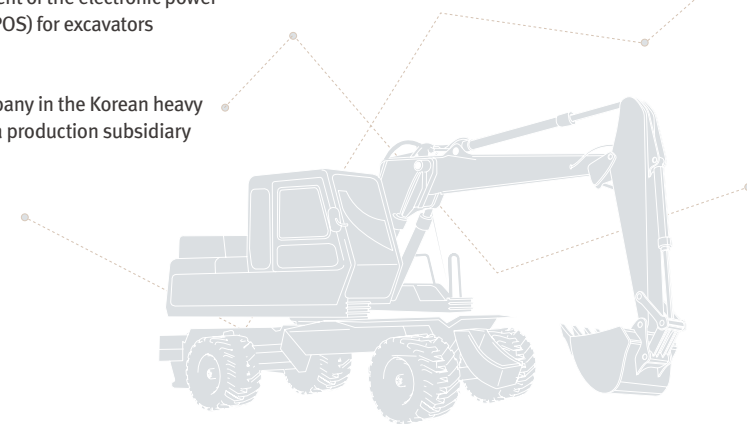
1996

Established the Reliability Evaluation Center at the Incheon Plant

— The company built the industry's first Reliability Evaluation Center, where around 400 types of equipment are used to test machinery and equipment in 13 labs. It earned Electro Magnetic Compatibility (EMC) certification from TUV of Germany, thereby receiving recognition as an international test center.

2001

Daewoo Heavy Industries & Machinery was listed
Began building 'Hope Elementary Schools' in China



2005-2010

GLOBAL GROWTH

Paving the way for a global company

2005

Launched Doosan Infracore Co., Ltd.

Launched DX300LC

— The DX300LC is an early model of the DX Series that was developed to deal with Tier 3 emissions regulations. It offers improved fuel efficiency and performance compared to previous generation products.

Established Doosan Infracore Co., Ltd. (Rep. Office) – a subsidiary in the Middle East

2006

Established Doosan Infracore China Investment Co., Ltd – a holding company in China

2007

Acquired the compact equipment business (Bobcat)

— Doosan Infracore emerged as the No. 7 company in the global construction equipment industry by acquiring Bobcat, which has world-leading competitiveness in compact construction equipment.

Established Doosan Infracore India Private Ltd. – a overseas subsidiary in India

Awarded the USD 2 Billion Export Tower on Trade Day

Released the DX210W, a 21-ton next-generation excavator

2008

Acquired Moxy Engineering A.S., a Norwegian articulated dump truck company

Released the DX225LCA to respond to emerging markets

Provided support for restoration from the large earthquake in Sichuan, China

Established the Warm Process Learning Center to foster technical personnel (Hunan Province, China)

Received the 'Warm Process Public Interest Partner Award' in China

2009

Published the company's first environmental report

Released the DX700LC, the first large equipment of Doosan Infracore

2010

Completed the construction of Gunsan Construction Equipment Plant

— Doosan Infracore completed the construction of a plant in the Gunsan Industrial Complex that can produce more than an annual 4,000 units of large equipment, including six excavator models and four wheel loader models.

Began managing greenhouse gas and energy targets

Cumulative excavator production of Doosan Infracore China Co., Ltd (DICC) exceeded 100 thousand units

2011-2017

SUSTAINABLE FUTURE

A global leader opening a new chapter of sustainability

2011

Published the company's first sustainability management report

Listed in Dow Jones Sustainability Indices Asia Pacific

Created Sustainable Management Part and Social Contribution Part

2012

Completed the construction of the Compact Engine G2 Plant in Incheon

— The company completed the construction of the Compact Engine G2 Plant on a 14,000 m² site in Hwasu-dong, Incheon, which can manufacture 100,000 engines of three types a year. Tier 4 Final compact engines from the plant are also mounted in Bobcat compact equipment.

Rated Class A in the ESG Evaluation by the Corporate Governance Service, Korea

Launched the 'Dream School' – a social contribution project

Launched the Doosan Way

2013

Joined the UN Global Compact

Published the company's first integrated report

Established the CSR Committee

Completed the Construction Equipment Factory in Brazil

Launched the Women's Council

2014

Set the Group Code of Conduct

Completed R&D Centers (Global R&D Center in Incheon; Doosan Bobcat Acceleration Center in the U.S.; and Innovation Center in Dobris, Czech Republic)

— Doosan Infracore established an R&D belt at major overseas worksites. The Global R&D Center in Incheon is a 12-story building with two additional basement floors, a total floor space of 26,163 m², and the capacity to accommodate 1,000 R&D personnel.

Participated in the Doosan Day of Community Service

Received the Safety Zone Certificate

Released the 9C generation, customized for the Chinese market

— The company reflected voice of local customers and launched a model for the Chinese market that deals with Tier 3 regulations.

2015

Released Tier 4 Final product

Implemented strategic tasks by subcommittee of the CSR Committee

Distributed supplier CSR guidelines and operated the supplier carbon partnership

Received the excellent rating in the 2015 Shared Growth Index Evaluation (Korea Commission for Corporate Partnerships)

2016

Completed the advanced Incheon Excavator Plant

Doosan Bobcat listed on the Korean Stock Market

— Doosan Bobcat, the world's leading manufacturer of compact construction equipment, went public on the Korean stock market, thereby paving the way for its contribution to the international development of the country's capital market, while building a momentum for even more impressive corporate growth based on an objective evaluation of its corporate value in the financial market.

2017

Launched DoosanCONNECT™ in the global market

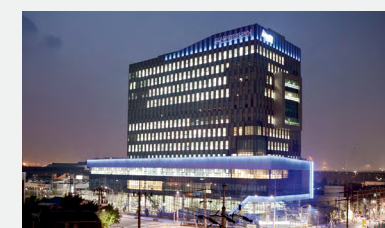
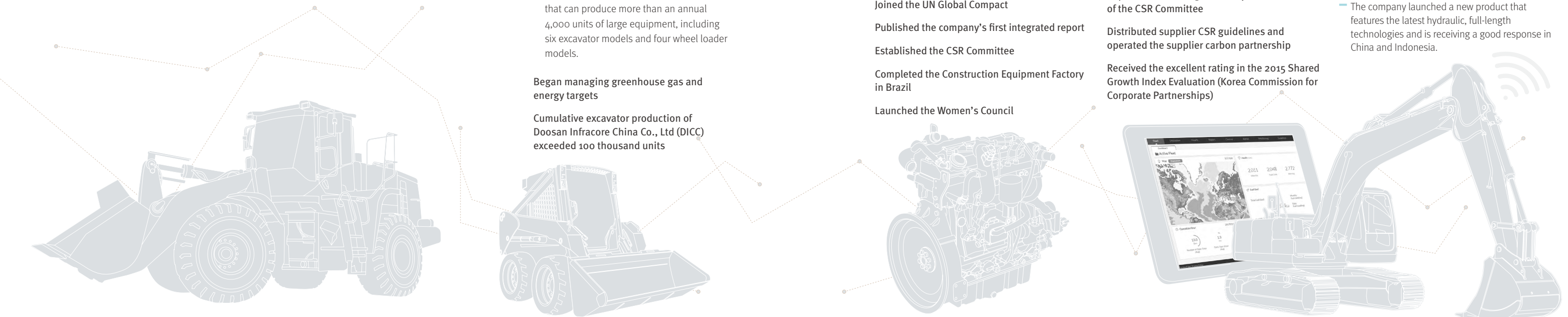
2016 Integrated Report received a Gold Award at the International ARC Awards

Established Lovol Doosan Engine Company (LDEC) Joint Venture

— The company established a joint venture, marking its first technology export.

Released the DX800LC, an 80-ton equipment

— The company launched a new product that features the latest hydraulic, full-length technologies and is receiving a good response in China and Indonesia.



Business Model

Doosan Infracore has been achieving its vision of becoming a ‘Global Leader in Infrastructure Solutions’ and strategic goals by investing its various financial and non-financial resources in the company’s value chain and creating corporate value. In its business model operation process, Doosan Infracore considers social and environmental issues, achieve sustainable growth of the company, and contribute to social development.

CAPITAL INPUT

FINANCIAL

Funds that were procured through management, investments or financing, and that can be used by an organization to produce products or provide services

MANUFACTURED

Manufactured articles, such as facilities and buildings that can be used by an organization to produce products or provide services

INTELLECTUAL

An organization’s knowledge-based intangible assets, such as patents, copyrights, software rights, and licenses

HUMAN

Members’ capabilities, experiences, and drive towards innovation that allow the understanding, development, and execution of organization’s strategies

SOCIAL/NETWORK

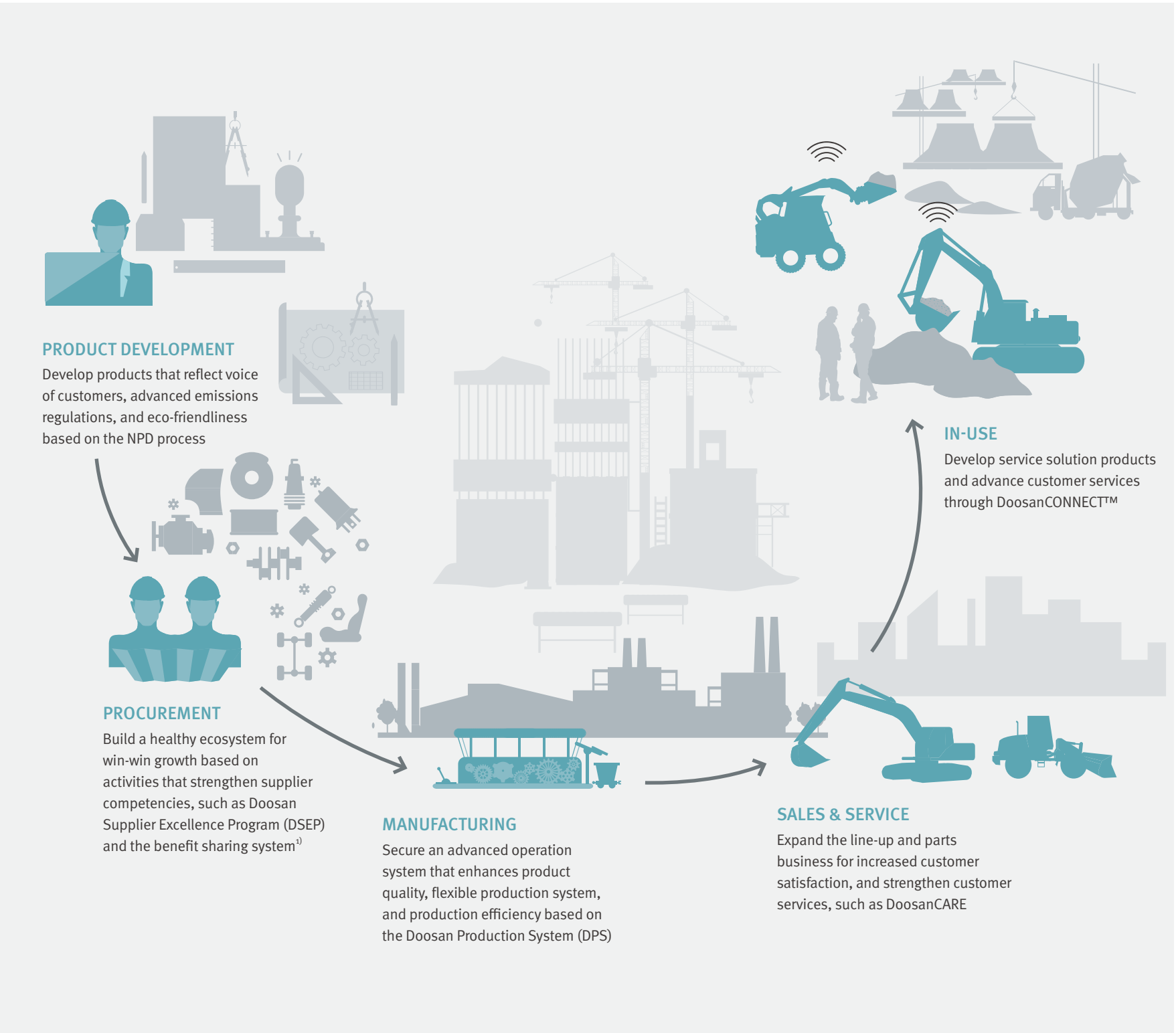
Stakeholder relations and trust, and other intangible assets related to the brands and reputation developed by an organization

NATURAL

All environmental resources that are renewable or not renewable and that are used to provide products or services

¹⁾ A large corporation jointly carries out such activities as developing a new technology, making process improvements, and removing inefficiencies with its supplier, and both parties share the income generated from the activity

VALUE CHAIN



KEY PERFORMANCE IN 2017

FINANCIAL¹⁾

Sales	KRW 6,567.9 billion	Net income	KRW 296.6 billion
Rose 14.6% year-on-year as a result of increased market demand and strengthening of sales channels		Assets	KRW 10,276.1 billion
		Liabilities	KRW 7,102.9 billion
Operating income	KRW 660.8 billion	Equity	KRW 3,173.2 billion
Rose 34.6% year-on-year as a result of increased proportion of the highly-profitable Chinese mid-to large-sized construction equipment business, improved profitability of the engine business, and continued sales of Doosan Bobcat's high-margin equipment		¹⁾ Based on consolidated financial statements	

MANUFACTURED

Production facility investments	KRW 94.3 billion	PRODUCTION	
Investments to increase production capacity and improve the plant environment		Excavators and wheel loaders	20,974
		Engines	81,159

INTELLECTUAL

DOMESTIC AND OVERSEAS INTELLECTUAL PROPERTY RIGHTS	Received the ‘2017 Good Design Award’		
Applications	3,422		
Registrations	2,184		

HUMAN

Establishment of the FC development system for office staff and technical staff	122 master craftsmen and 3 master technicians (cumulative)
Completed the establishment of functional competency (FC) development system for all office staff members; conducted 11 FC assessments for technical staff; and completed building a technical FC system	Nurtured technical staff with advanced skills and competitiveness by offering technical staff FC system-based FC training and operating learning clubs and a system for supporting license acquisition

SOCIAL/NETWORK

Leading Suppliers (cumulative) – 22	Dream School participants (cumulative) – 721
Operate programs to enhance capabilities of suppliers in making improvements, and to support the development of fundamental competitiveness	Mentoring-based dream search program for youth
	Doosan Day of Community Service participants – 511
	Employee volunteer activities for local communities

NATURAL

Reduction in energy expenses – KRW 1.28 billion	Reduction in annual water consumption after wastewater recycling – 7,200 tons
Continued to operate energy consumption reduction tasks, and made investment in energy, such as compressed air pipe separation at the casting plant	Reduction in annual water consumption expenses after wastewater recycling – KRW 135 million
Greenhouse gas emissions – 97,955 tonCO₂eq	
Around 73.7% of the volume allocated by the Korean government	

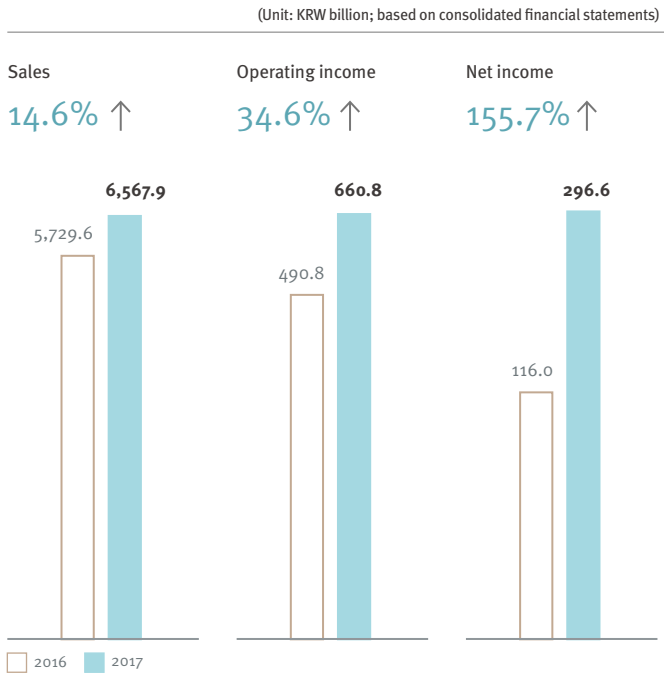
Performance Review 2017

Financial Performance

In 2017, the market for construction equipment grew compared to the previous year. This was the result of an increase in large-scale infrastructure and mining investments as raw material prices rose, backed by the replacement cycle for equipment which was sold previously. Competition in the engine market intensified due to the growth of Chinese companies and increased price- and quantity-based competition from more established companies seeking to offset the impact of higher raw material prices and labor costs as the global economy recovered. Doosan Infracore returned to growth last year after a long period of stagnation. In order to build on this achievement, the company launched a number of equipment products tailored to customer requirements, as well as engines that meet advanced emissions regulations. Doosan Infracore secured new customers by improving the service capabilities of its dealers, offering products and services with cutting-edge technologies, including unmanned autonomous technology and DoosanCONNECT™, and looked at opportunities in new markets by establishing a joint venture with Lovol. Following its return to profitability in 2016, Doosan Infracore was able to further lift sales and substantially strengthen its profitability in 2017, thanks to these fundamental improvements and increased competitiveness.

1. Sales Records

In 2017, Doosan Infracore posted sales of KRW 6,567.9 billion, a year-on-year increase of 14.6%. This was the result of greater market demand and the strengthening of sales channels. Operating income grew by 34.6% to KRW 660.8 billion, which was attributable to the increased proportion of sales of high-margin mid- to large-sized construction equipment in China, improvements in the profitability of the engine business, and continuing high-margin sales at Doosan Bobcat. Net income rose by KRW 180.7 billion to KRW 296.6 billion.



Sales Records

(Unit: KRW million; based on consolidated financial statements)			
	2015	2016	2017
Sales	5,964,894	5,729,550	6,567,897
Cost of sales	4,747,331	4,404,459	5,024,999
Gross profit	1,217,564	1,325,091	1,542,898
Selling and administrative expenses	1,312,651	834,273	882,129
Operating income (loss)	(95,087)	490,818	660,769
Other non-operating income	51,657	56,182	64,153
Other non-operating expenses	346,186	213,312	72,932
Net income (loss) before income tax expense (benefit)	(781,054)	82,050	489,627
Income tax expense (benefit)	161,078	162,640	192,984
Net income (loss)	(859,505)	115,985	296,643

2. Financial Status

At the end of 2017, total assets stood at KRW 10,276.1 billion, an increase of KRW 249.3 billion over the previous year. Total liabilities went up by KRW 524.5 billion to reach KRW 7,102.9 billion, while total equity fell by KRW 275.2 billion to KRW 3,173.2 billion.

Financial Status

(Unit: KRW million; based on consolidated financial statements)			
	2015	2016	2017
Current assets	3,876,021	3,049,571	3,767,434
Non-current assets	7,507,152	6,977,238	6,508,656
Total assets	11,383,173	10,026,809	10,276,090
Current liabilities	3,961,155	3,653,194	3,695,646
Non-current liabilities	4,319,061	2,925,238	3,407,283
Total liabilities	8,280,217	6,578,432	7,102,929
Total equity	3,102,956	3,448,377	3,173,161

3. Performance by Business

In 2017, Doosan Infracore’s Construction Equipment BG achieved substantial increases in both sales and operating income as markets recovered. The Engine BG saw an increase in operating income as a result of more in-house sales and a better product mix.

3-1. Construction Equipment The Construction Equipment BG achieved growth in most markets, excluding the Middle East, where markets were stagnant due to continuing low oil prices. In particular, the company continued to see strong growth in sales and operating income in China and other emerging markets. In China, the market was boosted by a number of factors, including a government-led expansion of investments

into infrastructure, and the replacement cycle for equipment. In order to take advantage of this growth, Doosan Infracore took a number of measures, such as overhauling the dealer network, strengthening its bond management system, improving service capabilities, and offering more competitive financing. As a result, the Construction Equipment BG led corporate-wide growth by more than doubling sales for the year. In emerging markets, the BG implemented a value-selling strategy, which involves offering consulting and other services alongside product sales. By increasing customer trust and meeting their requirements, the BG succeeded in winning large, highly-profitable deals.

In 2017, the Construction Equipment BG generated sales of KRW 2,004.4 billion, a year-on-year increase of KRW 652.7 billion, or 48.29%. Operating income rose by KRW 147.4 billion, or 817.67%, to reach KRW 165.5 billion.

Construction Equipment

(Unit: KRW million)			
	2015	2016	2017
Sales	1,395,250	1,351,718	2,004,427
Operating income	(486,023)	18,031	165,465

3-2. Engine Global economy gradually recovered, however, there was fiercer competition in the market as Chinese companies sought to grow, and established companies competed aggressively on price and quantity in order to mitigate against cost increases, including raw material prices and labor costs. Even in this challenging business environment, the Engine BG strove to increase sales outside the company by expanding its coverage and identifying new customers. It also focused on entering new markets by advancing into a vehicle engine market in Vietnam and establishing LDEC JV – a joint venture between Lovol and Doosan Infracore. As a result, the Engine BG achieved year-on-year growth in both sales and profits, thanks to increased demand from the construction equipment and commercial vehicle markets.

In 2017, the Engine BG generated sales and operating income of KRW 501.8 billion and KRW 75.8 billion, respectively, year-on-year increases of KRW 3.1 billion (0.62%) and KRW 17.1 billion (29.02%).

Engine

(Unit: KRW million)			
	2015	2016	2017
Sales	578,193	498,699	501,792
Operating income	2,361	58,781	75,837

4. Cash Flow & Solvency

In 2017, cash flows from operating activities were KRW 665.7 billion, a year-on-year increase of KRW 152.7 billion. As of the end of 2017, cash and cash equivalents totaled KRW 943.5 billion, inclusive of the effects of foreign exchange.

Liquidity risk may arise when a consolidated entity fails to fulfill a payment obligation for financial debt due to insufficient liquidity, or finds it impossible to raise the funds needed for normal business. Doosan Infracore

draws up three month and annual financial balance plans to minimize the influence of business, investment, and other financial activities on its monetary balance. Through this financial balance planning, the company calculates, secures, and maintains liquidity, in preparation for possible liquidity risks.

Cash Flow

(Unit: KRW million; based on consolidated financial statements)			
	2015	2016	2017
Cash flows			
Cash flows from operating activities	236,685	512,993	665,691
Cash flows from investing activities	(96,938)	909,634	(256,289)
Cash flows from financing activities	82,007	(1,454,380)	32,267
Cash and cash equivalents			
Cash and cash equivalents, beginning of the year	362,953	560,003	538,578
Cash and cash equivalents, end of the year	560,003	538,578	943,481

5. Production Assets

Consolidated entities’ facilities and equipment include land, buildings, structures, machines, and assets under construction. The book value of facilities and equipment was KRW 1,786.9 billion as of the end of 2017, a year-on-year decrease of KRW 36.2 billion. Cumulative new acquisitions and capital expenditures in 2017 were KRW 112.3 billion, and depreciation costs totaled KRW 141.1 billion.

6. Intellectual Assets

Doosan Infracore improves its product competitiveness and builds the foundations for long-term growth by expanding investment into R&D. R&D at the company consists of heavy product development, which undertakes research into the company’s key products, such as excavators and wheel loaders; engine product development, which focuses on meeting emissions and fuel efficiency regulations; product design and high-stiffness materials; and the technology center, which focuses on the virtual verification and analysis of R&D. All these R&D activities are aimed at creating a distinct technological advantage for the company, and establishing an advanced engineering process.

Based on separate financial statements, Doosan Infracore’s R&D expenses in 2017 stood at KRW 112.1 billion, equivalent to 4.2% of total sales. As of the end of 2017, the number of intellectual property rights applications made in Korea and overseas by consolidated entities had reached 3,422, and the number registered totaled 2,184.

Non-Financial Performance

There has been increased societal focus on issues, such as accounting fraud at large companies, corrupt hiring, human rights in the workplace, supplier safety, and climate change. Companies are therefore being required to improve their corporate social responsibilities (CSR), including transparent management, human rights management, supply chain management, energy efficiency, and management of greenhouse gas emissions. In order to meet this social demand and become a truly global leader, Doosan Infracore reviews its CSR risks and opportunities, defines and implements CSR strategies, and discloses all relevant information, led by the CSR Committee. Accordingly, the company strives to ensure that its CSR activities are at the core of company management.

The major eight CSR strategic tasks in 2017 were defined as strengthening monitoring of human rights violations, reducing worksite energy use and increasing energy efficiency, establishing a mid- to long-term roadmap on carbon trading, developing the REACH/RoHS 2 IT system, two tasks relating to advanced emissions regulations, one task relating to smart solutions, and helping overseas worksites disclose their CSR information. As a result of its outstanding CSR achievements, Doosan Infracore has been included in the Dow Jones Sustainability Indices (DJSI)¹⁾ Korea in the machine and electric equipment category for eight consecutive years, including 2017. It also has been rated Class A in the ESG Evaluation by the Corporate Governance Service in Korea²⁾ for seven consecutive years. In addition, our 2016 Integrated Report, which shared the company's achievements for the year, set out its vision for the future and outlined its CSR activities, won the Gold Awards in two categories – ‘manufacturing business’ and ‘eco-friendliness’ – at the Annual Report Competition Awards, one of the world's largest corporate report competitions.

1. Social Performance

1.1 Customers Doosan Infracore has been increasing customer satisfaction by developing products with cutting-edge technologies, offering technological innovation, and strengthening fundamental quality. The company has launched products that reflect customer requirements, including engines that meet the latest emissions regulations, such as the Euro 6 and Stage V engines, as well as the extra-large/20-ton economy excavator and other special equipment. In addition, the company has completed the global launch of the DoosanCONNECT™ service, which improves customer efficiency by providing information on equipment location, operating status, and parts, including engines. The company also expanded the DoosanCARE pre-emptive after-sales service, in partnerships with its dealers, in order to provide better and more convenient services.

1.2 Employees Doosan Infracore established a human rights risk management system in 2015 in order to protect the human rights of its employees and other stakeholders, and the company now undertakes a range of human rights activities, including the distribution of a Human Rights Risk Prevention Manual and the operation of the Human Rights Protection Center. In 2017, the company provided online human rights training to office staff and offline training to technical staff. Doosan Infracore also runs a Women's Council, aimed at ensuring gender equality within the company, and continues to emphasize to employees the importance of human rights.

Fostering technical staff with outstanding professional skills is a vital part in becoming a global company. Since 2016, therefore, Doosan Infracore has been reforming its technical staff personnel system, including strengthening the technical managing director system and the technical expert system. As a result, the first technical executive in 80 years of Doosan Infracore's history was appointed in January 2017.

1.3 Suppliers Doosan Infracore operates a range of programs to improve its suppliers' competitiveness. These include programs on technology development, quality improvement, and financial support. The company is helping to strengthen the fundamental competitiveness of its suppliers through the Doosan Supplier Excellence Program (DSEP) and the Leading Supplier program. The company also supports first- and second-tier suppliers in cooperating with each other to achieve quality goals, and to share profits fairly. In addition, Doosan Infracore helps suppliers to improve their health and safety management, in order to prevent industrial accidents. It does so through a program which provides safety training, risk assessments, and technical support for hazard management. As a result, in 2017, the company was ranked ‘Grade A,’ given only to the top 10% of worksites in Korea, in the ‘2017 evaluation of coexistence and cooperation programs for health and safety.’ In September 2017, the company began operations of a supplier support program which is aimed at building a virtuous cycle that will help not only first-tier suppliers but also second- and third-tier suppliers, in-house subcontractors and service company employees to reduce the income gap and improve labor conditions.

1.4 Local Communities Doosan Infracore undertakes a wide range of social contribution activities, so that it can grow in partnership with local communities, and fulfill its role as a global corporate citizen. Every year, the company hosts the ‘Doosan Day of Community Service’ event, with participation from staff around the world, including Korea, Asia, the Americas, Europe, and the Middle East, helping local communities to develop. Since 2012, the company has run the ‘Dream School’, a program through which our staff and specialist life coaches help young people find the right career paths, including through activities that promote self-growth. This enables young people to develop a positive mindset toward their future and career. In April 2017, Doosan Infracore held a launch ceremony for the fourth group of Dream School, with 41 participants, including 19 staff mentors and 22 mentees in their second year of middle school. In order to promote safety in local communities, the company has signed a ‘safety culture social contribution’ agreement with the Korean Ministry of Public Safety and Security, and carries out a range

¹⁾ Dow Jones Sustainability Indices (DJSI): The DJSIs are a sustainability benchmark developed by Dow Jones of the US and RobecoSAM of Switzerland. They evaluate the sustainability performance of major companies on the basis of an analysis of corporate economic, environmental, and social performance. Korean companies that have passed the institutes' industrial thresholds are included in the DJSI Korea, DJSI Asia Pacific, or DJSI World depending on their corporate size and the stock markets they are listed on.

²⁾ ESG Evaluation by the Corporate Governance Service, Korea: ESG stands for Environment, Social, and Governance. The Corporate Governance Service of Korea has developed its own ESG evaluation model and offered an evaluation service to boost listed local companies' CSR activities and investors' socially responsible investment. Each year, it discloses its evaluation results at seven levels rated from S to D. Companies with B+ (moderate) or above are limited to around 20% of the total assessments.

of activities to create a culture of safety. These include using its health and safety facilities, such as the Disaster Prevention Center, company-affiliated hospitals and other specialist facilities, to provide firefighting, emergency treatment and medical support to residents near its Incheon Plant.

2. Environmental Performance

Korean regulations on the greenhouse gas (GHG) emissions trading scheme have applied to Doosan Infracore since 2015. Accordingly, the company operates an Energy Management System (EMS), uses LED lights and other energy-efficient devices, optimizes the supply of utilities, operates a central control system for air-conditioning and heating, and conducts energy conservation PR campaigns. Over the period of the first plan, which ran from 2015 to 2017, the company's GHG emissions remained within quota. GHG emissions in 2017 were 97,955 tCO₂, which is around 40% of the 243,181 tCO₂ permitted through the emissions trading scheme. By establishing a mid- to long-term roadmap for dealing with the emissions trading scheme, Doosan Infracore has been able to set a pre-emptive and sustainable direction for emissions trading after 2020.

Outlook 2018

1. Financial Outlook

1.1 Construction Equipment The market for mid- to large-sized construction equipment is forecast to continue to grow in most regions in 2018. The Chinese market will likely continue to grow, but there is a risk of a market adjustment caused by a sudden policy changes from the Chinese government, such as real estate or environmental regulations. In emerging markets, demand for construction equipment is forecast to continue to remain strong as a result of increased infrastructure investments and rising raw material prices. The exception may be the Middle East. Steady growth is expected in North America as the oil & gas industry stabilizes, the construction industry grows, and the Trump Administration expands infrastructure investment.

In order to generate stable income even in fast-changing markets, Doosan Infracore will continue to launch products that are tailored to specific market and customer needs, and the company will also diversify its range of products and regional sales. In addition, it will increase after market (AM) sales by improving parts supply, diversifying the AM business, and widening its service marketing. Doosan Infracore will continue to focus on customer satisfaction, by expanding the provision of customer services through DoosanCARE and DoosanCONNECT™, and by improving parts supply and maximizing equipment operation through forward positioning of key parts. Furthermore, the company will increase investments into the development of new, cutting-edge technologies that meet current demand for information and communication technology (ICT), including unmanned autonomous technologies.

1.2 Engine Doosan Infracore's Engine BG will aim to increase exports of the Stage V engine, which meets the latest European emissions regulations, and will also successfully establish the LEDC JV to build sales in China. The company will diversify its vehicle engine business to cover the entire Asian region, including emerging countries such as Vietnam. Doosan Infracore continues to invest in the development of electronic engines and post-processing equipment that will comply with strengthened emissions and hazardous substance regulations in Europe, China, Asia and the Middle East. This has enabled the company to successfully offer engines that meet advanced emissions regulations. In addition, the company will meet mid- to long-term customer requirements by developing LNG engine technologies, expanding the line-up of gas engines, and developing the technologies needed to create the powertrains of the future.

In 2018, Doosan Infracore is aiming to achieve sales that exceed the market growth rate by developing a next-generation Stage V engine, attracting major new customers, quickly stabilizing the LEDC JV in China, improving sales of large power generator engines, and increasing gas engine sales in North America. In addition, the company will widen its product line-up by developing electronic engines and other new technologies, and will strive to be competitive on price by improving productivity and minimizing the impact of cost increases. All of these factors will enable Doosan Infracore to create a mid- to long-term virtuous cycle of increased sales and enhanced customer satisfaction.

2. Non-Financial Outlook

The CSR Committee has finalized the CSR strategic tasks for 2018 through materiality analysis and external evaluations, in line with business unit work plans. The eight tasks are building a management system and strengthening monitoring to enhance the human rights mindset, establishing an emissions reduction goal and an action plan, identifying suppliers' CSR risks and monitoring the implementation of improvement measures, establishing the REACH/RoHS 2 management system, meeting advanced emissions regulations, developing new technology, improving quality, and helping overseas worksites disclose their CSR information. Three in-depth CSR Committee meetings will be held annually, starting in 2018, in order to examine the implementation of each task, study other issues, and ensure that tangible outcomes are achieved.

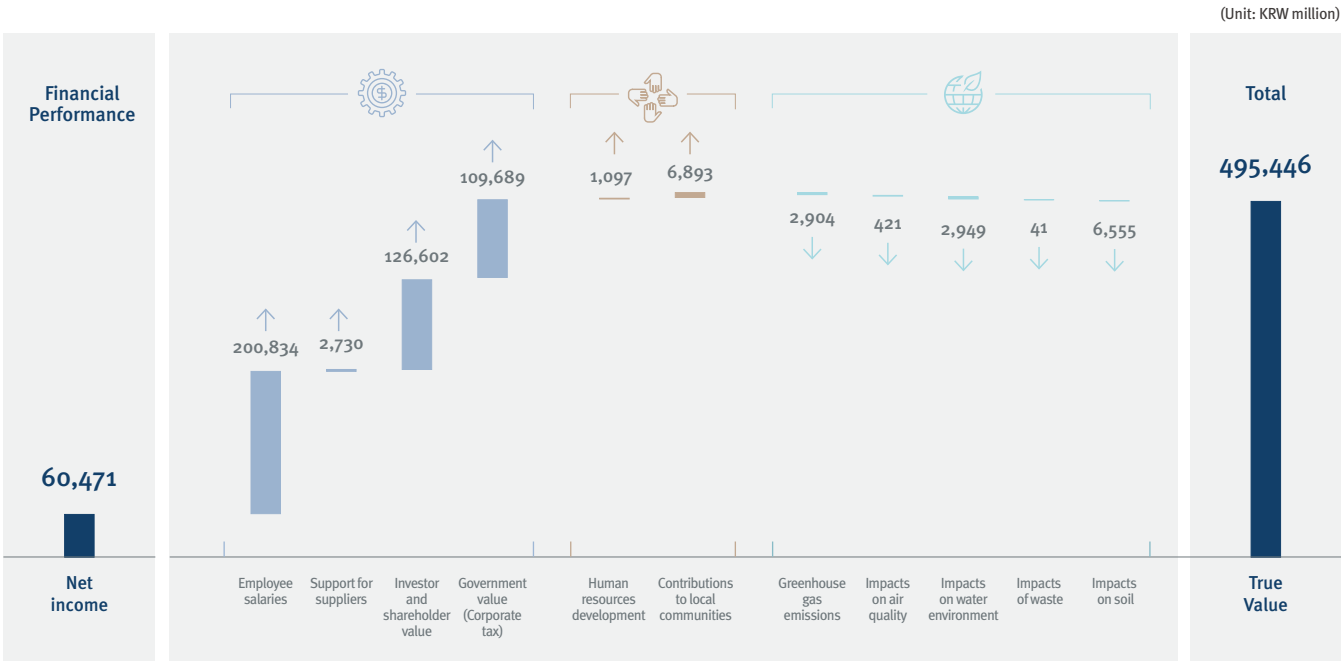
Doosan Infracore is currently reviewing how to implement the Sustainable Development Goals (SDGs) adopted by the UN in 2015 as a follow-up to the Millennium Development Goals (MDGs) which ran from 2000 to 2015. As a first step, Doosan Infracore has analyzed strategic outcomes and connections to social responsibility activities from the perspective of People, Product, and Process (3P), which is how the company is defining its approach to the SDGs. Further relevant information is provided on pages 48-49 of this report. Doosan Infracore will connect the SDGs strategically with its key businesses, and contribute to development by supporting cooperation between advanced and developing nations and by developing new markets and new businesses. The company will then systematically support this strategy by expanding communications and cooperation with all its stakeholders.

Sustainable Value Creation

The positive and negative impacts that a company have on society can be an element that either contributes or hinders development of the global human society, and they are also connected to the value that a company provides to its shareholders. Doosan Infracore pays close attention to the relevance between corporate value and social value, and seeks to enhance its capability in creating social values. As a first step, the company reviewed its performance in creating social values by using the ‘True Value’ methodology developed by KPMG.

1. 2017 performance in generating sustainable values

As of 2017, Doosan Infracore’s true value, including economic, social, and environmental added value, stood at around KRW 495.4 billion – an approximately eight-fold increase compared with its financial value. An analysis of changes in true value in the last three years indicates around 1.8-fold increase.



2. Description of indicators

Doosan Infracore selected major topics and quantitative indicators to identify the societal added value resulting from its management activities, from the economic, social and environmental perspectives. The company’s net income, a financial value, was used as the baseline, and global research materials were analyzed to determine each indicator’s monetary value per unit.

		Index	Type	Details
	Finance	Net income	NA	Net income of the year (Based on disclosed business reports)
		Employee salaries	+	Average annual salaries of the year (Based on disclosed business reports)
	Economy	Support for suppliers	+	Amount of investment in strengthening supplier competency and providing win-win support
		Investor and shareholder value	+	Dividends and interests paid to investors and creditors
		Government value (Corporate tax)	+	Incorporation of the income tax of the year (Based on disclosed business reports)
	Society	Human resources development	+	Amount of investment in human resources development
		Contributions to local communities	+	Return on investment in training projects (118%) ³⁾ , Donation
	Environment	Greenhouse gas emissions	-	Social cost due to greenhouse gas emissions ²⁾
		Impacts on air quality	-	Social cost due to emissions of air pollutants (NOx, SOx, PM) ³⁾
		Impacts on water environment	-	Social cost due to water consumption ⁴⁾
		Impacts of waste	-	Social impacts due to waste disposal method (reclamation, incineration, recycling) ⁵⁾
		Impacts on soil	-	Social cost per soil contamination area ⁶⁾

3. Method to measure values

Economic, social, and environmental costs and benefits were measured by multiplying monetary value, based on the latest global research materials, to quantitative input data. The data includes the amount of money used to support major management activities and make investment, as well as environmental pollutant emissions and contaminated area due to management activities. Monetary value then was adjusted in consideration of the price fluctuation rate depending on the time of research and base country, and exchange rates on the last day of 2017 were used.



4. Activities to manage impacts and link to the content in this report

	Index	Activities	Page
Finance	Net income	Increase the proportion of the mid- to large-sized construction equipment business in China; and improve profitability in the engine business	P. 10
	Employee salaries	Ensure equal pay regardless of the gender (provide fair opportunities); and strengthen management of human rights risks, such as prohibition of forced labor	P. 85
Economy	Support for suppliers	Operate a support team for strengthening suppliers’ competitiveness; and provide the Supplier Academy	P. 82
	Investor and shareholder value	Provide quarterly performance presentation and IR materials; and share business direction	P. 59
	Government value (Corporate tax)	Participate in national projects and government programs	P. 61
		Comply with laws and regulations and practice ethical management through internal control	P. 61
Society	Human resources development	Operate a Functional Competency (FC) development system; and reform the HR system for technical staff	P. 86
	Contributions to local communities	Establish a Social Contribution Committee for transparent management of funds; and operate the Dream School and DDCS	P. 92
Environment	Greenhouse gas emissions	Identify tasks to reduce energy consumption at worksites; and upgrade the Energy Management System (EMS)	P. 73
	Impacts on air quality	Set up dust collectors, new painting facilities, concentration catalytic oxidation facilities, etc.	P. 76
	Impacts on water environment	Automate all processes of wastewater treatment; set up nonpoint pollution source reduction facilities; and install water gates on drains	P. 76
	Impacts of waste	Optimize design; inspect and maintain plant facilities; and diversify recycling methods	P. 76
	Impacts on soil	Conduct a voluntary soil contamination survey and carry out restoration	P. 76

* Calculation results are explicit information that was derived to set up a direction for social impact management and value creation based on several assumptions, and do not indicate integrity. Also, the monetary value applied in the current approach can be additionally complemented or adjusted in accordance with announcement of new research results. There is thus a chance that impact valuation figures of the same year will change. This information therefore cannot be deemed as part of the company’s disclosure of financial performance.

¹⁾ G.Psacharopoulos and H.A. Patrinos, Returns to investment in education: a further update (2004)
²⁾ EPA, Technical update of the social cost of carbon for regulatory impact analysis (2013)
³⁾ EEA, Revealing the cost of air pollution from industrial facilities in Europe (2011)
⁴⁾ TruCost PLC, Natural capital at risk: the top 100 externalities of business (2013)
⁵⁾ A. Rabl, J. V. Spadaro and A. Zoughaib, Environmental impacts and costs of solid waste: a comparison of landfill and incineration (2009)
⁶⁾ TEEB, Climate issues update (2009)

- Strategy Overview 19
- Customer Value 20
- Sustainable Growth 30
- Smart Solution 42
- Contribution to SDGs 48

Doosan Infracore has put its new vision and strategy in place, based on which we have built solid foundations that will enable us to weather any change and remain strong as we develop into a global leader in infrastructure solutions.

Our Strategy



In addition to building a momentum for growth through our new vision and strategic direction, Doosan Infracore pursues socially responsible management, so that we can achieve sustainable growth as a truly global company.

Strategy Overview

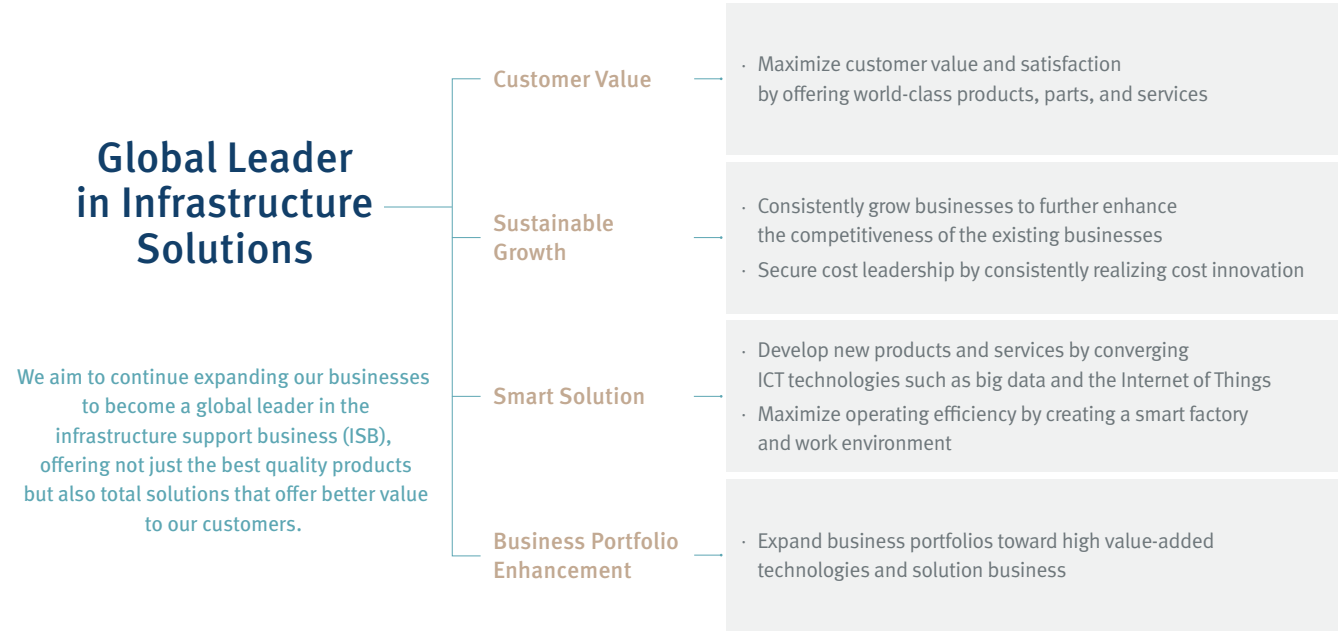
The global market for construction equipment is forecast to grow steadily through 2020 thanks to increased infrastructure investment, especially in the U.S. and China, continued growth in emerging markets, and favorable conditions in the mining industry as a result of rising raw material prices. Against this backdrop, our competitors are in intense competition to secure customers based on price and quantity, and also by providing distinctive products. In the era of the Fourth Industrial Revolution, customers have higher expectations of newer, smarter equipment and applied cutting-edge technologies. To meet these expectations, companies are striving to offer products that are connected to information and communication technology (ICT), while also continually developing new technologies in order to develop their future competitiveness.

In line with these market trends, Doosan Infracore has been further building the core strengths of its business by launching new products that meet customer requirements, strengthening customer service programs such as DoosanCARE, maximizing the profitability of its parts business, and improving its manufacturing and production efficiency and flexibility, including by building a G2 engine plant smart factory. In addition, the company is widening its DoosanCONNECT™ service,

and has launched the ‘Concept-X’ project which involves integrating cutting-edge ICT and unmanned autonomous technologies into construction equipment. In addition, the company focuses on identifying new business opportunities in the fast-changing global business environment.

Doosan Infracore is committed to supporting social development through cooperation between advanced and emerging nations, as well as through the development of new markets and new businesses. All of the company’s key businesses are run in line with the Sustainable Development Goals (SDGs). As a global corporate citizen, Doosan Infracore aims to create social value throughout its value chain, and strives to contribute to the sustainable growth of both the company and wider society.

In 2018, everyone at Doosan Infracore will work in unison in order to provide our customers with top-quality products and infrastructure solutions that offer unique value and convenience. Through these efforts, Doosan Infracore will enhance its corporate value and grow into a total solution provider with fundamental competitiveness.



CUSTOMER VALUE

- 01 Developing Products to Meet Customer Needs
- 02 Strengthening Product Competitiveness
- 03 Strengthening Service Competitiveness

Quality Improvement Performance

Completed **93%** of 73 tasks identified

Countries where DoosanCARE is available

(As of 2017)



ASIA	LATIN AMERICA	MIDDLE EAST	AFRICA
China	Argentina	Bahrain	Algeria
India	Brazil	Israel	Cameroon
Indonesia	Chile	Kuwait	Egypt
Malaysia	Colombia	Qatar	Ghana
Myanmar	Costa Rica	Saudi Arabia	Kenya
Philippines	Cuba	Turkey	Madagascar
Singapore	Ecuador		Morocco
Thailand	Guatemala		Nigeria
Vietnam	Mexico		South Africa
	Panama		Sudan
	Peru		Tunisia

01

Developing Products to Meet Customer Needs

Diversifying Product Portfolio for Greater Customer Satisfaction

Doosan Infracore has been expanding into new markets by launching customized special equipment and diversifying its product portfolio based on preemptive analysis on market needs. The company has developed eight types of special equipment that meet specific local needs and customer work environments, including a material handler, amphibious excavator, demolition, log loader, and electric excavator.

The material handler was developed to transport and load materials at landfill sites, barges, and other locations where work is difficult for regular excavators. It is especially useful in handling scrap iron, industrial waste, and recycling waste. The company’s material handler uses a new engine and a new hydraulic system that can be controlled by an e-OS, and is available in seven models, ranging from 20 to 80 tons.

The amphibious excavator is different from regular excavators in that its lower body has an air tank structure, enabling it to stay afloat. This means that it can do jobs such as landscaping and waterway work in environments like lakes and streams, where regular excavators would be bogged down by wet or muddy ground. The company’s first amphibious excavator, the DX140AM, made its debut at ‘PHILCONSTRUCT 2015’, the largest international construction exhibition in the Philippines, held in October 2015. Since then, the company has applied its amphibious excavator technology to six excavator models, ranging from 8 to 34 tons, and is increasing sales mainly in high rainfall regions such as Southeast Asia and Latin America.

The demolition is an excavator that was developed to accommodate European laws banning the use of high explosives in the demolition of buildings. A scissor-shaped rotating crusher device for cutting is attached to the end of its arm, so that rebar and walls can be cut into small pieces to demolish a building. The company’s demolition is designed to efficiently and safely demolish buildings and other structures. There are five models available, ranging from 30 to 70 tons.

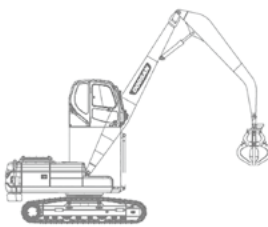
In the forestry equipment sector, the company sells an array of machines that are tailored to the different characteristics of regions around the world, including North America, which requires particularly powerful equipment, due to the ruggedness of its wilderness, and Asia where traction is a critical issue due to the abundance of marshland and rainforest. In 2016, the company successfully entered the forestry equipment market in Malaysia, backed by the performance of its products in the nation’s tropical rainforests. For the North American market, the company has developed a new log loader tailored to working in the continent’s forests. This log loader has a high and wide substructure, strong track links, full-length track guidance protection devices, and top rollers equipped with special cleanout brackets.

With ever-stricter environmental regulations, supported by social demand for lower levels of greenhouse gases and dust, there has been increasing demand for electric excavators. In 2017, Doosan Infracore released the DX300LCE, a 30-ton electric excavator equipped with an eco-friendly electric motor with the highest power output in its class. It has a large-capacity, high-efficiency pump and cooling system, which enables the DX300LCE to effectively control the rate of flow from the electric motor while maintaining outstanding cooling efficiency and minimizing vibration and noise. In addition, maintenance costs are around 60% of those of an engine-type excavator (excluding consumable maintenance costs, such as engine oil and filters), so that it offers both high economic efficiency and outstanding performance.

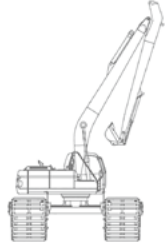
The front shovel, which is used to load stones onto trucks, is different from the front structure of a regular excavator which digs from top to bottom. Instead, it loads from bottom to top like a wheel loader. It is used to load large stones onto trucks in environments such as mountains and mines. Because the front shovel can load stones from one position through swing movements, it requires less work space than a wheel loader and also reduces work time. The company has released four models, ranging from 34 to 80 tons, and has been increasing its sales mainly in Indonesia, Latin America, and the Commonwealth of Independent States (CIS), all of which have fast-growing resource markets.

All cars contain reusable raw materials, including plastic, glass, steel, aluminum, and copper, which means there needs to be a process for collecting these raw materials when cars are disposed of. The car dismantler delivers and dismantles disused cars, and the company has developed 22-ton and 30-ton equipment in response to demand from junkyards in China. While it takes about two man-days to dismantle one car, the company’s car dismantler, such as DX225 CD-9C and DX300 CD-9C, can dismantle 25 to 30 cars a day.

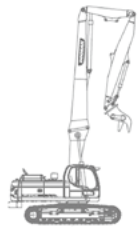
Special Equipment Portfolio of Doosan Infracore




Material Handler



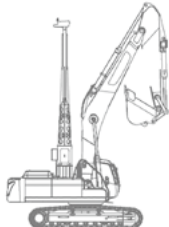
Amphibious Excavator




Demolition



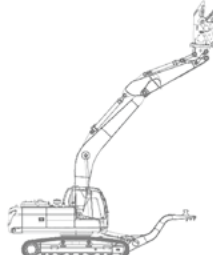
Log Loader



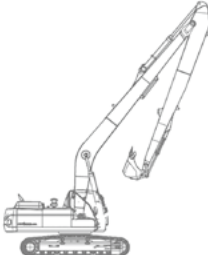
Electric Excavator



Front Shovel



Car Dismantler



Super Long Reach



Video clip of the DX300LCA material handler



The super long reach is specialized equipment for working in areas that regular excavators are unable to reach. It offers a boom and an arm that are 1.5 to two times longer than those of other excavators. The 22-ton super long reach has an 8.5-meter boom and a 6.2-meter arm. It is mainly used to extend its arm out into water to organize river floors or to dig in deep areas.

Doosan Infracore has a portfolio of various special equipment that were developed to meet customer needs and requirements. The company is actively seeking to diversify its markets by providing customized solutions for every work environment.

Providing Distinctive Product Packages

Doosan Infracore offers a wide range of product packages and programs, including financing, extended warranties, preventive maintenance, and fuel efficiency guarantees. These are aimed at meeting the diverse customer requirements that occur during the lifecycle of equipment, from equipment and parts purchase to maintenance and servicing. The company will continue to develop and provide package programs through DoosanCONNECT™ which meet customer expectations and circumstances throughout their ownership of its equipment.

Developing Engines that Meet Advanced Emissions Regulations

Doosan Infracore has been focusing on improving the mid- to long-term roadmap for its engine line-up, thereby developing new engines that meet different emissions regulations around the globe as well as offering improved performance.

In March 2017, the company began using its Euro 6 diesel engine in customer vehicles. This engine was developed in 2016 to boost the competitiveness of the vehicle engine business, and offers improvements in fuel efficiency and low-temperature start-up. Most engines require an auxiliary device called an air heater, as it is difficult to start an engine through internal combustion at temperatures of -20°C or lower. This, however, can lead to quality issues. Through detailed testing of a common rail system, which is a fuel-injection device, the company identified an optimal system called multi-staged analysis, which in turn enabled it to develop an engine that starts smoothly even in very cold weather. In addition, the Euro 6 diesel engine produces more power, in part because it does not require an exhaust gas recirculation (EGR) device, and reduces lubricating oil consumption (LOC). Test drives have confirmed that this engine's fuel efficiency is 10-10% better than that of both Euro 5 engine of the company and the Euro 6 engines offered by other companies. Based on these capabilities, the company is expanding its business in the commercial car sector, and is already developing Euro 7 engines.

In January 2017, Doosan Infracore completed the development of a compact G2 Stage V prototype engine that uses cutting-edge combustion technology, and a ceremony was held in February 2017 to celebrate the production of the very first engine – D24. This engine has been developed in response to Stage V, European emissions regulations that will come into effect in 2019. It uses ultra low fuel-consumption combustion (ULFC) technology, which is an upgrade of the combustion technology used in the previous compact G2 engine. With fuel efficiency improvements of up to 6%, the compact G2 Stage V engine offers global market-leading class performance in terms of power, torque, durability, and reliability. Currently installed on construction equipment, agricultural equipment and forklifts, the new compact G2 engine will soon be supplied to KION, a world-leading forklift company from Germany.

As well as its compact G2 engine, the company is also responding to the Stage V emissions regulations in its mid-sized engines. In March 2017, a start-up ceremony was held for a mid-sized (DLo6/o8) Stage V engine. The mid-sized Stage V engine, which is under development, is different from the previous Stage IV engine, which used both EGR and selective catalytic reduction (SCR) technologies, for it does not use EGR. In addition, the new engine's SCR removes up to 98% of nitrogen oxide, while maintaining strong fuel efficiency. This engine will first be used in Doosan Infracore's excavators and wheel loaders, and in Doosan Corporation Industrial Vehicle's forklifts, then the company plans to offer the engine to customers across the globe.

Doosan Infracore has been also working on developing a new exhaust gas post-processing technology. Diesel particulate filters (DPF) are now essential, in response to the Stage V emissions regulations, which have substantially strengthened regulations on particulate matter (PM). In response, the company completed the development of the SCR on DPF (SDPF)¹⁾ technology in 2017, which integrates SCR and DPF. SDPF is an exhaust gas post-processing technology that has been developed in response to passenger vehicle Euro 6, and has never previously been applied to non-road mass production. The company used an independent concept design process, including catalyst simulation, and through this process, it was able to identify an SDPF concept that could be applied within the space required by the equipment, while also meeting all Stage V regulations. The potential for mass production was then verified through rapid evaluations and analyses of major post-processing performance indicators. Doosan Infracore plans to release a highly efficient SDPF product at the same time as, or even before when major global companies release their own products.



¹⁾ SDPF (SCR on DPF): A technology that coats SCR catalyst in DPF, thus considerably reducing the total volume of the catalyst

02

Strengthening Product Competitiveness

Continuing to Improve Manufacturing Quality

Doosan Infracore offers global quality competitiveness through quality-first policies that include innovative manufacturing, supporting its suppliers to be more competitive, quickly and fully resolving any quality issues from the customer perspective, creating an advanced quality management infrastructure, and pursuing quality innovation for all of its new products. In order to ensure product quality even as production volume increases, the company continues to improve fundamental quality and deepen analyses of quality issues. It also focuses on quality improvements in production lines, models, and parts where a thorough quality management is required. In addition, the company's standardized production system, called 'Doosan Production System (DPS)', ensures the best in preventive quality activities.

Doosan Infracore is aiming to improve its fundamental quality level by 20%. It is therefore constantly focused on quality, and on building a work environment that complies at all times with both basic fundamentals and the highest standards. Every year, in order to serve customers better by making rapid improvements in how it addresses quality issues, the company identifies priority tasks for improvement and undertakes whatever activities are necessary to complete those tasks. In 2017, 73 tasks were identified and 93% of the improvements were completed. As a result, the defect rate fell by 25% compared to the previous year.

In 2016, the company adopted DPS in the field – a standard developed for construction equipment production based on the Lean production method¹⁾. It ensures the consistent production of high-quality products across all plants around the world, and in the most efficient way. The DPS is unique to Doosan Infracore, and part of the company's efforts to synchronize production systems, standardize manufacturing processes, and innovate at its plants. The DPS is composed of six tasks – ensure quality, improve constantly, produce in a timely manner, stable operations, support management, and Team Doosan – in addition to 22 related modules. Each year, the company assesses the current conditions of plants according to each module, and then establishes goals and plans for improvement. In 2017, the company completed the DPS system, and launched its implementation in full. It is now fully standardized and established at plants in Korea, and has also been disseminated to the plants in China, where it is now operating in a stable manner. In 2018, the company will strengthen field communications, connect the DPS with company performance, offer training and PR activities, and disseminate the DPS across OEM plants worldwide, in order that the DPS can be fully established at production sites across the globe.

In 2018, Doosan Infracore will strengthen quality management for new products, while using DoosanCONNECT™ to improve customer services and quality management, as part of the company's continuing efforts to further build its fundamental competitiveness.

Verifying Equipment Durability

Doosan Infracore conducts various tests and strict reliability evaluations of all its products, including excavators and engines, in order to ensure that they perform according to their full specifications in any environment, and to maximize their life expectancies. As part of these efforts, the company established a Reliability Evaluation Center at its Incheon Plant as early as 1996, when the concept of reliability was yet to be introduced to the local industry. Equipped with cutting-edge test rooms and equipment, including an environmental tolerance laboratory, a large anechoic chamber, and a vibration test laboratory, the Reliability Evaluation Center tests and evaluates product durability, environmental tolerance, and structural safety across a wide range of work environments. Doosan Infracore conducts performance verification starting right from the product design phase at its Reliability Evaluation Center and at its R&D Centers overseas.



Construction equipment is mostly used in deserts, plateaus, wetlands, and other harsh environments. Doosan Infracore conducts product performance tests to verify that equipment performance matches customer specifications in actual work environments and circumstances. In January 2014, the company became the first in the Korean construction equipment industry to conduct a cold-weather test in actual work environments, to overcome the limitations of low-temperature testing conducted in the cold chamber of the Reliability Evaluation Center. These cold-weather tests examine equipment performance and the ability of equipment to start in real work environments. They are conducted twice a year, in Korea and China. In January 2018, the company tested two excavators and one wheel loader, products which were developed last year, at temperature as low as -25°C with blizzards, and was able to verify starting performance and maintenance in very low temperatures. Doosan Infracore will continue to make improvements regarding quality issues that are identified through tests on equipment performance and durability.

Extending the Warranties on Key Parts

Doosan Infracore has great confidence in the quality of its products, as well as a keen sense of responsibility for their performance. The company has therefore extended the warranty on its products as part of its efforts to increase customer value. Previously, parts warranty was 1 year or 2,500 hours, but the warranty on five key parts of the mid- to large-sized equipment over 15 tons produced in China after 2014 is now up to 3 years/6,000 hours. The warranty on key parts of equipment produced in Korea after 2016 has also been extended for domestic sales up to 3 years/6,000 hours. The warranty on key parts sold in emerging markets has now been extended to 2 years/4,000 hours.

¹⁾ Lean production method: Production system that maximizes production efficiency while keeping production capacity and resources, such as personnel and production facilities at the minimum required level

03

Strengthening Service Competitiveness

Expanding Customer Service Programs

Doosan Infracore offers DoosanCARE services to customers to build up relationships and thus grow together with them. Experts from the company visit customers, irrespective of whether they have any existing product or warranty issues, and offer services tailored specifically for individual customers, including equipment management consulting and training in maintenance. By listening to customer opinions about its products and services, the company is able to promptly identify any problems that customers may have experienced, and then make further improvements to equipment management efficiency. DoosanCARE goes beyond simply fixing product issues, instead reaching out to the customer to offer the best possible service. Ultimately, Doosan Infracore wants to use DoosanCARE to strengthen its fundamental competitiveness through a virtuous cycle of improving its products and services, and thus constantly achieving higher levels of customer satisfaction.

Starting in 2017, dealers in some countries, including Indonesia, no longer have to rely on headquarters to provide DoosanCARE services, and are able to directly offer it themselves. Doosan Infracore is therefore providing guidelines on DoosanCARE and relevant training to the dealers, enabling customers around the world to enjoy DoosanCARE services efficiently and promptly. As a result, 804 units – 33% higher than the previous figure – were examined in 37 countries reflecting the company’s ability to respond more actively to customer requests. In Korea, Doosan Infracore has developed a training program for customers and actual equipment users, which has helped prevent breakdowns, and thus led to further improvements in customer value.

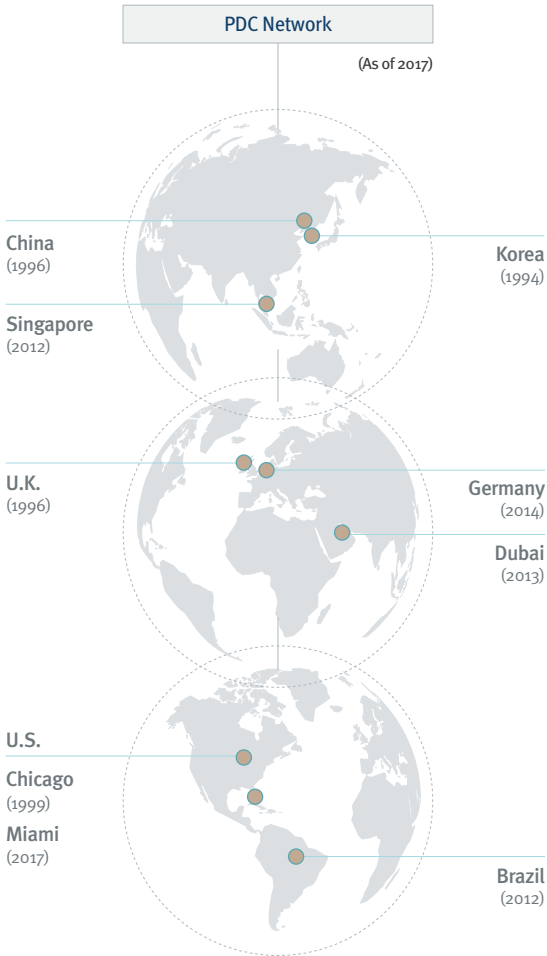
Improving Services by Strengthening Dealer Capabilities

In order to enhance customer satisfaction by improving the service capabilities of its dealers, Doosan Infracore offers a range of training activities, such as the Doosan Partners Academy (DPA), hands-on training, and Train the Trainer (T.T.T). The company also supports change management based on a detailed action plan developed for dealers. These efforts to improve service capabilities are providing greater value to customers.

The DPA is the company’s flagship online training program for dealers. It offers courses on how to maintain and repair Doosan Infracore products, as well as details on their major features, using Flash, videos, animations, and photos. The courses are available in English, Spanish, Portuguese, Russian, French, and Arabic. In addition, experts from headquarters provide hands-on training to dealer service personnel to strengthen their service capabilities. As part of this training, the experts use actual equipment in the field to demonstrate some of the most common causes of customer problems, and how to respond to them.

Doosan Infracore has been evaluating dealer service capabilities since 2016, and establishing annual action plans based on those evaluations in order to standardize its service quality. In 2017, the company undertook further discussions with dealers, and as a result, has set out a three-year action plan through 2020 to carry out systematic and effective service improvement activities. The company will continue to provide support for dealers’ service improvements and change management based on this action plan.

Doosan Infracore began its T.T.T program in 2018 to provide trainers for dealers with education on the company’s new services, DPA, and hands-on training. The first T.T.T was held in Latin America, followed by programs in the Middle East, Africa, and Southeast Asia. Doosan Infracore plans to improve the training of its dealers, led by experts who have completed the T.T.T program, which in turn will boost the dealers’ service capabilities and increase their understanding of Doosan Infracore products and services.



Doosan Partners Academy (DPA)

Optimizing the PDC Network

Resolving requests from customers for equipment repairs, with the right parts and in a timely manner, is crucial to enhancing customer satisfaction. In order to optimize the supply of parts, Doosan Infracore operates nine Parts Distribution Centers (PDCs), and supplies approximately 400,000 parts worldwide. This global PDC network has enabled the company to offer a 48-hour-maximum parts supply system, which increases both supply efficiency and customer convenience.

In particular, Doosan Infracore established the Miami PDC in 2017, which supplies around 12,000 parts to 21 countries in Latin America. The Miami PDC has reduced the time needed to supply parts to Latin American dealers, enabling them to curtail logistics costs and control their inventory levels, which in turn has strengthened their ability to serve customers’ requests for parts. This improved service is expected to boost Doosan Infracore’s position throughout Latin America. The company will continue to improve the operational efficiency of its PDCs, including the fill rate, so that it can provide customers with faster and more efficient service. This will increase customers’ equipment operation rates, thus enhancing customer satisfaction.



SUSTAINABLE GROWTH

01

Strengthening
Product Portfolio

02

Strengthening
Market Leadership

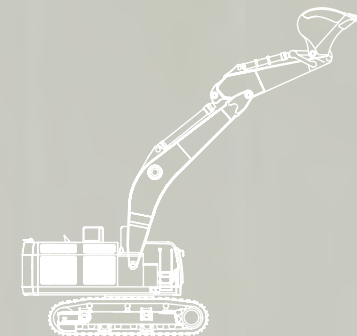
03

Diversifying the Structure of
Engine Business

04

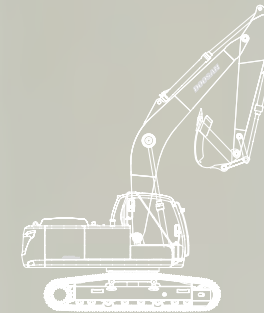
Enhancing Manufacturing
Competitiveness

Strengthening Product Line-up



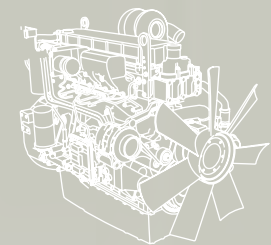
DX800LC

An 80-ton flagship model that features 15% higher fuel efficiency and 10% faster work speed compared with competitor products in the same class



DX220LCA-2

A 20-ton economy excavator that is anticipated to have a competitive advantage in price, fuel efficiency, and performance



DX12

In January 2018, Doosan Infracore held a ceremony to celebrate shipment of the first DX12 mechanical-type engine and a start-up ceremony for the first DX12 electronic engine

16%



Year-on-year sales growth rate of
parts business in 2017

Expanding Market Presence

Chinese Market

Achieved a market share of 8.3% in 2017 – a year-on-year increase of 0.9%p



Advanced Markets

Established 'Global One Heavy Governance' to strengthen market position in advanced markets by acquiring business rights to sell heavy equipment



Emerging Markets

Achieved No.1 in market share in Nepal's construction equipment market in 2017



Entered into the Madagascar market in July 2017

01

Strengthening Product Portfolio

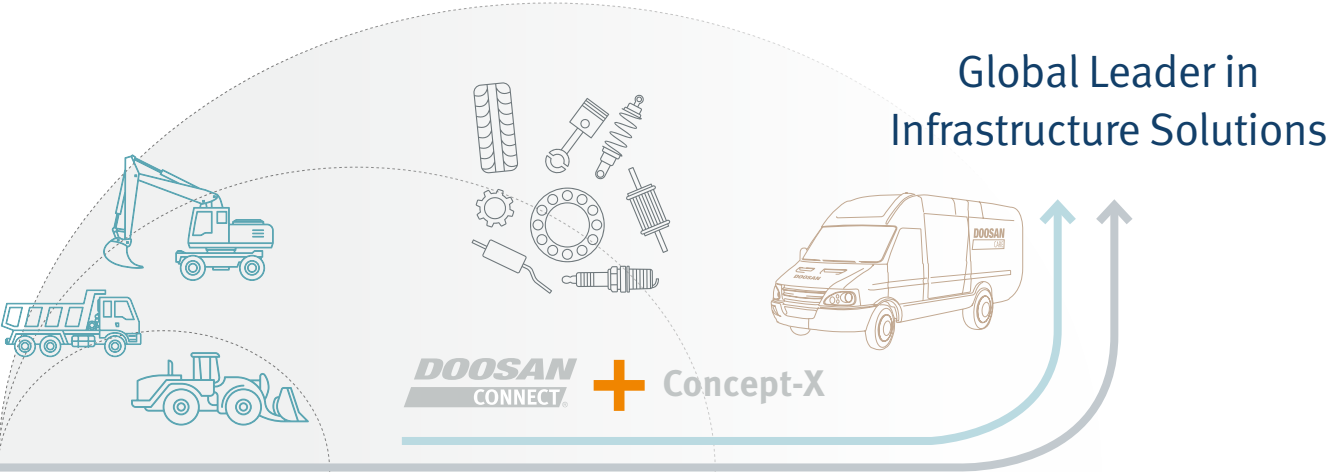
Building a Product Line-up that Reflects Market Demand

Doosan Infracore has been taking a step further to become a Global Leader in Infrastructure Solutions by developing a line-up of construction equipment that meets customer requirements. Products include a 20-ton economy and an 80-ton extra-large excavator, a machine guidance-installed excavator, and other special equipment. The company also sells parts that match each machine’s life-cycle, provides

pre-emptive customer services through DoosanCARE, and has expanded its value chain by implementing the DoosanCONNECT™ and pursuing new businesses, such as Concept-X. Doosan Infracore focuses on market requirements when developing its products, which both improves product competitiveness and enhances the company’s position as a total solution provider.

In 2017, Doosan Infracore began mass production of the DX800LC, its flagship 80-ton model embodying the latest technologies. It has already won positive market reviews, and the company has signed sales contracts for 44 units through March 2018. The DX800LC is an extra-large equipment, and features virtual bleed-off (VBO) technology, which electronically controls hydraulic pumps, and full electro hydraulic (FEH)

Strategy to achieve sustainable growth in construction equipment business – Expanding value chain



Finished Vehicles	Parts	Services
<p>Launch equipment that reflects customer needs by region</p> <p>China</p> <ul style="list-style-type: none"> Economy-type, performance-type, and fuel efficiency-type equipment <p>Emerging markets</p> <ul style="list-style-type: none"> 14/20-ton economy equipment 14-ton forestry equipment 80-ton equipment that offers a substantial upgrade in performance <p>Advanced markets</p> <ul style="list-style-type: none"> Equipment installed with machine guidance and fuel efficiency technology, such as virtual bleed off (VBO) <p>Release special application equipment that reflects customer needs</p> <p>8 types, including a material handler, car dismantler, amphibious machine, front shovel, and demolition</p>	<p>Build a portfolio consisting of diverse parts in line with the machine life-cycle, in addition to genuine parts</p> <p>Economy-type parts, such as a hydraulic pump, travel motor, etc.</p> <p>Remanufactured engine</p> <p>Overhaul kits (Engine, Hydraulic parts)</p>	<p>Operate the DoosanCARE program</p> <p>Experts from each division of headquarters (product development, parts, services, etc.) inspect customers’ equipment and provide consulting on how to use their equipment</p> <p>Listen to VOCs of major customers, and then provide feedback and identify improvement measures if needed</p>



technology, which efficiently adjusts equipment speed. The DX800LC is 15% more fuel efficient and 10% faster than competitor products in the same class. Sales are expected to be strong, with rising raw material prices driving increased mine development. Doosan Infracore also launched a 20-ton economy excavator which is about 20% cheaper than previous equipment, and is also expected to be very competitive in fuel efficiency and performance. This model will contribute to economic and infrastructure development in emerging countries, including Southeast Asia.

Expanding Sales in Parts Business

The parts business can be a stable business base and also can support a virtuous cycle of customer support and improving revenues, which is why it is important to Doosan Infracore. The company has therefore expanded its parts business by identifying new customers, developing new products, expanding its market position in attachments and other special applications which the company already has market competitiveness, improving service capabilities, upgrading customer communications, and optimizing the parts supply network. As a result, sales in 2017 grew by 16% year-on-year to reach KRW 248.5 billion.

In order to strengthen the parts business and provide more options to customers, Doosan Infracore offers economy-type parts, pursues remanufactured engine business, and develops parts kits, such as filter kit, engine overhaul kit, etc. The company is also expanding its line-up of attachments, including economical breakers and grapples for special equipment, and the line-up of special equipment, such as material handlers and amphibious equipment. The company fosters service and parts experts at its dealers, which is boosting parts sales in connection with servicing, and also holds technical seminars in different regions of the world. In 2017, the company expanded its social media-based digital marketing efforts through channels, such as KakaoTalk in Korea and WeChat in China, and hosted seminars to have more dialogue with customers.

Doosan Infracore will continue to provide genuine parts that customers can trust, and will also offer products with improved performance, thereby enabling customers to minimize the cost of operating their equipment, which in turn will boost the company’s parts business.

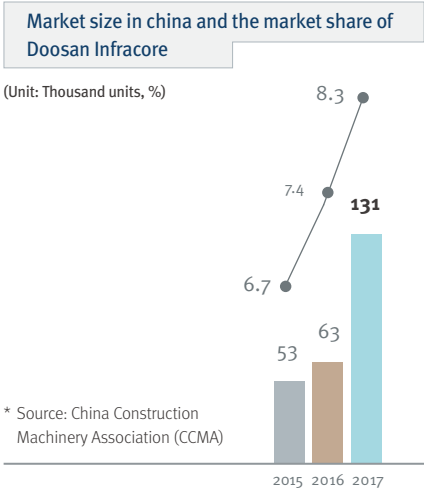
Strengthening Market Leadership

Chinese Market

After showing signs of recovery in the second half of 2016, the Chinese construction equipment market recorded explosive growth in 2017. This was the result of more development of mines, extra investment into national infrastructure projects, including the development of the ‘One belt, One road’ initiative and new agricultural villages, as well as the cycle for replacing equipment. In particular, the proportion of sales of mid- to large-sized equipment rose considerably thanks to demand generated by infrastructure projects and mine development.

Doosan Infracore focused both on increasing sales and improving profitability in the Chinese market. Accordingly, the company improved its risk management systems, built a sales network in regions where it previously did not have a presence, provided customized financial products, used WeChat to deliver online marketing, and launched products that reflected market requirements, including the gC model and the 80-ton extra-large excavator.

DX800LC-gC – an excavator launched in 2017 to meet market needs in China



In particular, Doosan Infracore has improved transparency and real-time management by making its work and decision-making processes more customer-focused in 2017. The company has established a customer-centered sales process for the direct, one-on-one management of customers, and implemented real-time ‘visible management’ throughout the entire sales process, ranging from evaluation to sales and receivables management. Doosan Infracore China Corporation (DICC) upgraded its sales funnel¹⁾ system using an integrated mobile platform to connect it to sales, and also developed a customer evaluation application which seamlessly connects the funnel to examination applications, integrating sales DCS, production MES, the receivables system, and telematics, which used to be operated separately. This integrated management

platform has connected information on potential sales opportunities in the field, which in turn has enabled rapid, regionally-targeted marketing, as well as better inventory management and supply, and real-time checks on the validity of customer receivables.

As a result of these efforts to seize growth opportunities and strengthen competitiveness, Doosan Infracore performed above-market in China in 2017, including retail sales of 10,851 units and a market share of 8.3%. The Chinese market is expected to continue to grow in 2018. Doosan Infracore therefore aims to further increase both market share and profitability by boosting the competitiveness of its products and sales channels, strengthening its dealers’ capabilities and ensuring the soundness of its receivables.

Advanced Markets

Sales and distribution of mid- to large-sized construction equipment in major economies, including North America and Europe, was handled until recently by Doosan Bobcat. However, following a reorganization to center the business on key products, Doosan Infracore has been running the business directly since January 1, 2018. Doosan Infracore is building market share and profitability in the mid- to large-sized construction equipment markets in these countries by developing outstanding dealers, making continuing improvements to channel coverage in order to strengthen the sales network, diversifying after market (AM) products through global sourcing, and using headquarters expertise to improve customer service. The company is focused on increasing efficiency and competitiveness across the entire value chain, including sales, product development, and production. It will also widen the use of DoosanCONNECT™ and other ICT-based cutting-edge technologies, develop products that are tailored specifically to target regions, and improve its services.

Emerging Markets

Emerging markets, including Asia, Africa, and Latin America, have continued to grow thanks to infrastructure investments and rising raw material prices. Doosan Infracore has been striving to increase coverage and boost its competitiveness in emerging markets. Thanks to these efforts, the company has been able to offer new mid- to large-sized products in the market, as well as products that have been specifically tailored to customer requirements. The company is also looking for more opportunities to create value, in order to contribute to growth and economic development in emerging nations. Rather than simply focusing on increasing the number of countries in which it has a presence and on sales and market share, Doosan Infracore is implementing strategies that center on profitability, in particular by concentrating on high-priced large equipment and major supply contracts. As a result, the company is anticipating rapid improvements in profitability. These value-selling strategies, which go beyond just selling products to instead identify customer needs and then suggest solutions, have enabled it to win a number of major, highly profitable deals in 2017 across emerging markets, including Nepal, Saudi Arabia, and Madagascar.

In the middle of the decade, the market for construction equipment in Nepal was just 100-150 units a year. However, after a change of government in 2015, substantial amounts of overseas capital flowed into the nation to support infrastructure investments. As a result, country-wide sales in 2016 stood at 700 units, and 1,400 units in 2017. Seeing the potential in Nepal, Doosan Infracore has provided a range of support to its dealers, including training, strategic planning of business operations, change management, and improved sales skills. As a result, the company won the contract to supply 39 mid- to large-sized excavators for the Likhu River hydro-electric power plant project, and achieved No. 1 in market share.

In Saudi Arabia, Doosan Infracore made the achievement of selling 60 wheel loaders to Saudi Aramco, the world’s largest oil company, and to Al Tamimi and Arabia Machinery, which are working together on the construction of Saudi Aramco’s new oilfield. This was the result of strategic planning, focusing on long-term customer service, including DoosanCARE, and was particularly important at a time when customers place considerable emphasis on after-sales service. Doosan Infracore has continued to build a business relationship with Saudi Aramco, which had only used equipment from one specific competitor for the last 40 years, and identified both specific customer requirements and the tailored services needed to meet those needs, and was thus able to win this major contract. Doosan Infracore will further build its presence in Saudi Arabia and other markets by expanding its offering of distinctive customer management programs.

Doosan Infracore has been pursuing market entry into Africa, where the company has been experiencing challenges caused by weak national finances, backed by the official development assistance (ODA) funds, including the Economic Development Cooperation Fund (EDCF)²⁾. In July 2017, Doosan Infracore won its first order in Madagascar, supplying 44 excavators and wheel loaders for disaster recovery and emergency aid, as part of Madagascar’s national disaster management center construction project. Located southeast of the African mainland, Madagascar is an island in the Indian Ocean, and regularly struck by natural disasters due to its unique geography, including cyclones and localized extremely heavy rains. This clearly presents a substantial risk of major personnel and economic losses. Therefore, in order to minimize personnel and property damage by managing the risks from natural disasters, the government of Madagascar is building a national disaster management center. This includes the purchasing of equipment that would be used in emergency aid, including excavators, through support from EDCF funding. Doosan Infracore will continue to contribute to social development worldwide by partnering with ODA finances to discover new business opportunities.

¹⁾ Sales funnel: A system for uncovering and evaluating sales opportunities and customers. The upgraded system connects sales with evaluations based on Doosan Infracore’s management systems.

²⁾ Economic Development Cooperation Fund (EDCF): This policy fund was established in 1987 to support industrialization, economic development, and welfare in developing nations, and to facilitate economic exchanges between these countries and Korea. It is one of the ODA funds that is provided by the Korean government.

Diversifying the Structure of Engine Business

Building a Line-up of Engines that Reflects Market Demand

Doosan Infracore previously focused on in-house engine sales for the company’s mid- to large-sized construction equipment, for its power generator engines, and to Doosan Bobcat. However, this limited the expansion of the company’s engine business, given the fluctuations in in-house demand caused by changes in the construction equipment market. The value of finished engines has also fallen as core engine components are being incorporated into the black box to protect their technologies, and post-processing technologies became ever more important. In response, Doosan Infracore is now moving beyond engine manufacturing and sales, and expanding its value chain to include material and parts sales, and service businesses. By creating a structure based on a virtuous cycle of profitability and customer service, the company will ensure its sustainable growth.

Developing the DX12 Engine

In January 2018, Doosan Infracore held a ceremony to celebrate the shipment of the first DX12 mechanical-type engine. This engine meets industrial Tier 2 and vehicle Euro 3 emissions regulations, and can be used in most products, including construction equipment, power generators, vehicles, and vessels. The DX-12 can also be developed into an electronic engine that will satisfy even Euro 6 regulations. Given this future development, Doosan Infracore used higher quality and more durable parts than in the DL11 engine, and was able to develop the DX12 using only its own in-house technologies.

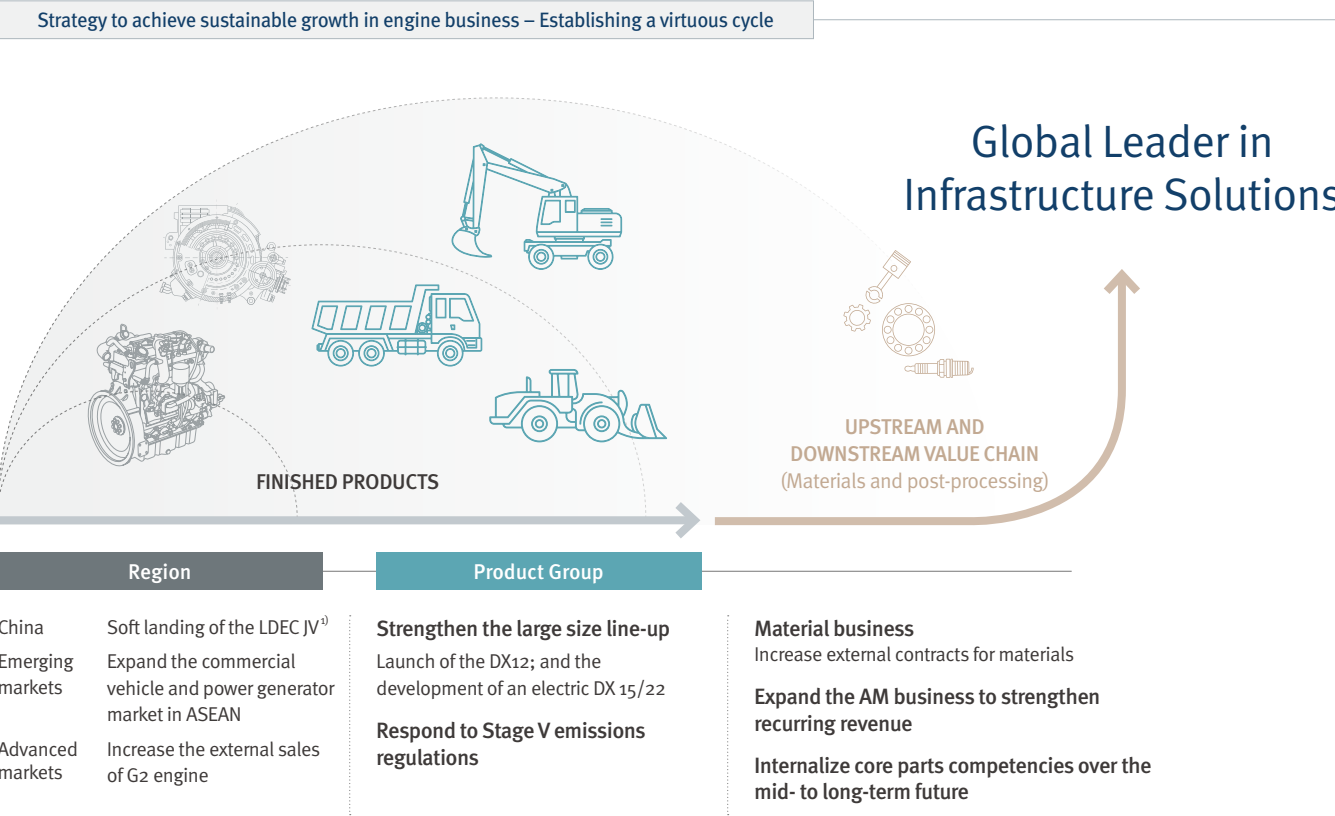
Doosan Infracore has now begun the development of the DX12 electronic engine, and held a start-up ceremony for the first DX12 electronic engine in January 2018. In March, the company participated in the 2018 Middle East Electricity Exhibition (MEE), and unveiled a pilot product of the cutting-edge electronic model of the DX12 power generator engine. The DX12 electronic engine is a high-performance, eco-friendly engine which uses a range of new technologies. These include the common rail system, an electronic system that supplies and sprays diesel fuel at high pressure, and the highly efficient selective catalytic reduction (SCR), which prevents the discharge of hazardous substances.

Doosan Infracore will develop consecutively the mechanical-type engine for vessels and vehicles, the electronic-type engine for vehicles, and the CNG stoichiometric engine, beginning with mass production of the DX12 mechanical-type engine. The company also plans to begin development of an electronic engine for vessels and power generators. This will expand Doosan Infracore’s line-up of highly profitable mid- to large-sized engines, and drive company growth.

Increasing External Sales

Doosan Infracore’s G2 compact engine was developed for various industrial machines, power generators, and agricultural machinery that require 1,800 to 3,400cc engines. It uses the company’s new combustion technology, ‘Ultra Low PM Combustion (ULPC)’, and ‘Non-DPF’, a new technical standard. The G2 compact engine is a highly efficient, eco-friendly engine that uses less fuel and engine oil but still generates high output, thus delivering best value in performance and durability. In addition, because it requires no costly DPFs, the G2 compact engine is very price competitive, and generates major savings in maintenance costs and time.

The G2 compact engine can be found in many machines in Korea and overseas. Customers include not only Doosan Bobcat but also other companies, including Daedong Industrial, Korea’s leading agricultural machinery company. Doosan Infracore has expanded its sales efforts for the G2 engine, including offering distinctive services and operating a dedicated customer response team to assist customers with the final transition to Stage V and Tier 4 Final emissions regulations. One important outcome of these efforts was the signing of a contract in June 2017 with Germany’s KION, a world-leading forklift company, to supply around 67,000 engines by 2028. This is expected to boost the profitability of the engine business, and the company continues to seek new customers, thus generating strong growth over the mid- to long term. In 2018, Doosan Infracore will focus on securing major new customers for the G2 engine in addition to Doosan Bobcat and KION, targeting small- to mid-sized customers in partnership with the company’s distributors in the U.S. and Europe, and improving its marketing.



¹⁾ LDEC: Lovol Doosan Engine Company – a joint venture between Doosan Infracore and Lovol

DX12 Series

Improved power Realize global-level specific power with a mechanical-type engine

Economic efficiency The lowest fuel consumption among engines in the same class and a 50% improvement in oil consumption compared to the company’s previous power engine in the same class

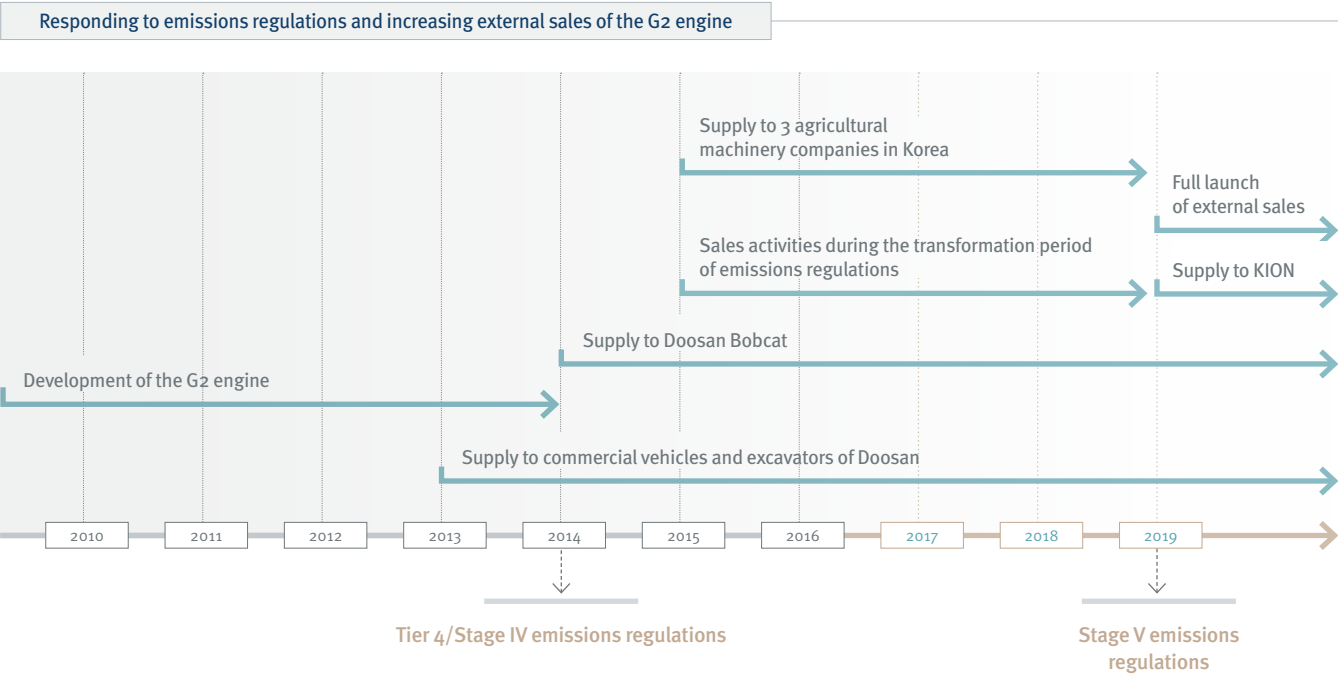
Easy maintenance Automatic tensioner inspections enable identification of the belt replacement time, and application of the micro V-belt improves belt functions and increases belt life

Strengthened durability Application of a 4-valve integrated-type cylinder head and substantially strengthened stiffness of major parts

Improved safety Installation of safety guards, including a belt cover and heat screen, to ensure safety

Integrated showroom of the Engine BG – opened in March 2018





Doosan Infracore develops vehicle engines which meet emissions regulations in countries around the world, and installs them in buses, trucks, and commercial vehicles. In March 2017, the company installed Euro 6 diesel engines, the development of which was completed in 2016, into the first customer vehicles, thereby further improving its market competitiveness. In addition, the company has been expanding its PR activities for the Euro 6 diesel engines, making continual quality improvements, adding more models in response to Euro 6, and entering the vehicle engine markets in other Asian countries. Doosan Infracore has entered Vietnam's commercial vehicle market in response to strong economic growth and the impact of new emissions regulations, and is now seeking both customers and business partners. In July 2017, the company signed a contract to supply around 500 bus engines and bare chassis¹⁾ to four commercial vehicle manufacturers in Vietnam. This contract also moved Doosan Infracore beyond just supplying engines, and opened a new market as a supplier of half-finished products as a base for completed vehicle production.

The power generator engine market is expected to recover as oil prices rise and infrastructure investment increases worldwide. In response, Doosan Infracore is focusing on strengthening its line-up of power generator engines, and expanding its sales networks, including in countries where it does not currently have a presence. At the MEE held in March 2018, the company displayed a line-up of six power generator engines, ranging from a pilot product of the DX12 power generator engine to the compact D24/D34 engines and the mid- to large-sized DX22/DLo8 engines.

Based on this full line-up of power generator engines, ranging from mechanical-type engines to the most technologically advanced electronic engines, Doosan Infracore is aiming to find new customers, including in the Middle East and in major economies in North America and Europe.

Establishing the Lovol Doosan Engine Company (LDEC) JV

In December 2017, Doosan Infracore signed an agreement to establish a 50-50 joint venture with Lovol, the largest agricultural machinery company in China, and launched the Lovol Doosan Engine Company (LDEC) JV in China in March 2018. The founding of the LDEC JV represents the first technology export in the 80 years of the company's history, and proves the widespread market recognition of Doosan Infracore's technological capabilities.

The establishment of the LDEC JV brings together Doosan Infracore's engine technologies, mass production know-how, and global presence, alongside Lovol's size, sales network in China, and production plants. It also brings together the premium engines for advanced markets that are produced in Korea with the economy-type engines for emerging markets that are produced in China. It is also expected to generate substantial synergy to strengthen the competitiveness of the engine business, including by sourcing in China using Lovol's network and by exporting JV engines through Doosan Infracore's global channels.

The LDEC JV will localize Doosan Infracore's eco-friendly, highly-efficient G2 compact engine to meet exhaust regulations in China. The engine will be used in agricultural machinery manufactured by Lovol, and then it will enter the power generator and construction machinery engine markets in China. It will also actively seek to make inroads into emerging markets with similar exhaust regulations to those in China. The LDEC JV is targeting the production of around 10,000 units in 2020, 50,000 units in 2023, and 100,000 units in 2026, which is equivalent to the production at Doosan Infracore's own G2 engine plant. Doosan Infracore and Lovol will continue to strengthen their partnership to ensure the success of the LDEC JV.



¹⁾ Bare chassis: A half-finished product with the engine and other major running gear attached to a chassis frame

04

Enhancing Manufacturing Competitiveness

Maximizing Production Efficiency

In 2016, Doosan Infracore created an advanced excavator plant by consolidating its two excavator production plants in Incheon. In doing so, the company built a system to ensure production quality, used modularized designs, increased the efficiency of its production lines, and applied other advanced operation systems. As a result, the company has cut the number of processes and work hours by over 20%, and also improved per-capita production by more than 20%. In addition, all production processes, including welding, assembly, painting, and shipment, are now handled at a single plant, leading to a major reduction of more than 80% in the travel logistics required during the manufacturing process. Doosan Infracore has been expanding the use of the Fool Proof¹⁾ system in its major processes to ensure quality and zero-defect production even in a flexible production system. It has also adopted the Andon system, a line stop system which stops the

entire production line as soon as a production issue, such as a defect on the production line, occurs in order to ensure the prompt resolution of any issues. In addition, the new plant uses a pull-based material supply system, which supplies just enough materials for production of one unit as required, thereby eliminating waste. Doosan Infracore optimizes its line of balance (LOB)²⁾ by continually analyzing it in relation to each plant, production process, and product, which ensures the right balance between work processes. In China, the company is building a flexible production system that integrates the operation of the excavator and wheel loader production plants, enables dual production on assembly lines of compact and mid-sized models, and trains production personnel to perform multiple functions. As a result, Doosan Infracore was able to increase production to 12,000 units without making major financial investments.



Doosan Infracore will continue to maximize production efficiency, including through process improvements and increased output, and will also further improve quality management in parallel with the changes in production processes.

Enhancing Cost Competitiveness through Optimized Design

Product diversification and increased operating costs have given rise to the need for new methods of planning, design, and production that can help improve cost competitiveness. Doosan Infracore therefore implements value analysis (VA) and value engineering (VE) to ensure efficient operations and the highest levels of quality, and to reduce costs. All departments at Doosan Infracore, including design, purchasing, production, and quality, collaborate together efficiently, enabling the company to establish the right solutions, and then internalize them throughout the company to ensure that these activities are fully reflected in the new product development processes.

Building a Smart Factory

New technology, driven by the Fourth Industrial Revolution, is bringing about major changes in company management, including at production sites. In response, Doosan Infracore is building a smart factory that optimizes production processes through convergence between manufacturing operation technology (OT) and information and communications technology (ICT). The factory will also be equipped with operations systems that ensure the timely production of zero-defect products at optimal cost.

In order to build a smart factory, Doosan Infracore is integrating the G2 engine production plant's systems and data, and in addition it is applying radio frequency identification (RFID)-based automation and intelligence, and virtual engineering. The company plans to complete construction of its first smart factory by 2019, and then apply this manufacturing technology to other plants in Korea. The smart factory will improve productivity by optimizing production, creating flexibility, ensuring the highest standards of quality, allowing the use of front loading³⁾ engineering, and maximizing production-logistics-finance transparency.

Doosan Infracore is moving beyond just using smart technology in the production phase, and is now digitizing its entire value chain, ranging from product development to production and customer service. The company has established its unique 'Digital Transformation' strategy, which aims to offer real customer value by connecting the customer to the company's strategic direction. Doosan Infracore will reflect this strategy in all its mid- to long-term business planning.



¹⁾ Fool Proof: A device designed to prevent human errors

²⁾ Line of balance (LOB): The efficiency of each unit process of production is analyzed so that improvements can be made to prevent bottlenecks

³⁾ Front loading: A method for identifying issues through computer simulations, before the physical development of parts

SMART SOLUTION

01

DoosanCONNECT™

02

Concept-X

03

New Businesses

DoosanCONNECT™ Process

Communication Method

Two methods are used for smooth transmission of information – communications satellites and mobile communication.



Device

Installed on equipment, the device collects equipment information useful to customers.



Dealers Customers

Doosan



DoosanCONNECT™ Website

Customers can connect to the DoosanCONNECT™ website anytime to check and use equipment information.

01

DoosanCONNECT™

Global Launch of DoosanCONNECT™ and Other Advances in Services

The world is in the midst of the Fourth Industrial Revolution, driving innovation and change in the global economy and wider society through the convergence of cutting-edge information and communications technologies, including mobile technology, the Internet of Things (IoT), big data, and artificial intelligence (AI). In the construction equipment market, competitiveness in information and communications technology (ICT) has become a critical factor with a demand increasing for newer, smarter equipment and solutions that use the latest technologies.

Telematics combines wireless communications and a global positioning system (GPS), and thus enables the collection and analysis of information, such as equipment location and operational status, which in turn enables users to monitor operations via PCs, tablets, and mobile devices. Through telematics, users can remotely identify where equipment is, how much work has been completed, and how it is operating. They can also ascertain the status of consumables, and see if they need replacement. Customers can thus remotely monitor and diagnose equipment without having to go to the worksite, which substantially increases efficiency. Dealers can determine if there are errors in equipment and what parts are needed, which improves service quality. Manufacturers can analyze the information collected through telematics to improve quality and develop new and better products. In addition, it is possible to perform big data analysis based on the accumulated information.

Doosan Infracore was one of the forerunners to recognize the importance and growth potential of telematics, and began offering telematics services as far back as 2005 in China. The experience and data accumulated over the last decade have enabled the company to offer distinctive customer services, and also to improve and modernize its operational processes, including product development, demand forecast, and inventory management. With the use of telematics services spreading across the industry, Doosan Infracore has continued to improve its telematics devices and the user interface (UI), so that it can offer more advanced customer services, providing smart solutions that go beyond just the production and sales of construction equipment.



Strengths of DoosanCONNECT™

Efficiency

- Increase worksite management efficiency
- Increase equipment management efficiency
- Increase work efficiency and curtail costs

Productivity

- Enhance work productivity
- Improve equipment management convenience
- Increase equipment life expectancy

Safety

- Prevent safety accidents
- Protect workers
- Prevent equipment defects

DoosanCONNECT™ is Doosan Infracore’s telematics service brand which has been upgraded by combining technologies developed in-house, and it is based on the company’s service capabilities and the data accumulated. DoosanCONNECT™ is applied to mid- to large-sized excavators, wheel loaders, and articulated dump trucks (ADT). Since its launch in 2015, DoosanCONNECT™ has substantially exceeded previous telematics services in user convenience and functionality. Doosan Infracore has completed the global launch of the service in major markets around the world, including Europe, the U.S., and emerging markets. The company has obtained business permission for location information from the Korea Communications Commission, that is required to operate in Korea. It operates around 100 pilot equipment with an aim to launch the service in Korea in the first half of 2018.

Features of DoosanCONNECT™

Worksite management
Location check; and daily, weekly, and monthly report

Increased work efficiency
Equipment operation analysis; and fuel efficiency management

Preventive inspection and management
Management of consumables, including filters and oil

Strengthened service
Detection of equipment abnormality signals and communication rupture

Scan this QR code with a smartphone to find out more about DoosanCONNECT™



DoosanCONNECT™ has integrated equipment location and information on operational status and major parts, including engines and hydraulic systems, into all equipment in which a telematics device has been installed, so that information can be monitored through the DoosanCONNECT™ website (www.doosanconnect.com) and/or through a mobile application. Doosan Infracore has also created an intuitive UI that was built using the input of customers, dealers, and personnel, which means that even first-time users can easily operate it, and set the screen up according to their personal preferences. This has enabled Doosan Infracore to react more quickly to various customer requirements when developing the DoosanCONNECT™ system. In addition, DoosanCONNECT™ complies fully with the AEMP¹⁾ protocol, and further advances are being made so that DoosanCONNECT™ meets the telematics-related ISO/TS 15143-3 standard, enabling telematics data from equipment made by other manufacturers to be registered and managed on DoosanCONNECT™.

Customers can remotely check equipment location, operational information, and updates on the timing of parts replacement through DoosanCONNECT™, and thus manage equipment more efficiently and economically. Furthermore, the data collected through DoosanCONNECT™ on the status of equipment and operations is used to improve quality and performance. DoosanCONNECT™ also links with DoosanCARE, another distinctive service from Doosan Infracore, to further increase customer convenience and minimize downtimes.

Doosan Infracore will continue to upgrade DoosanCONNECT™ with an aim to offer more advanced functions and information. Moreover, the company will strive to further enhance customer value by providing new service solutions based on the collected data and fully establishing its internal data analysis environment.

¹⁾ Association of Equipment Management Professionals (AEMP) Protocol: A protocol that defines information used universally by construction equipment managers, and standardizes it to enable mutual exchange

02

Concept-X

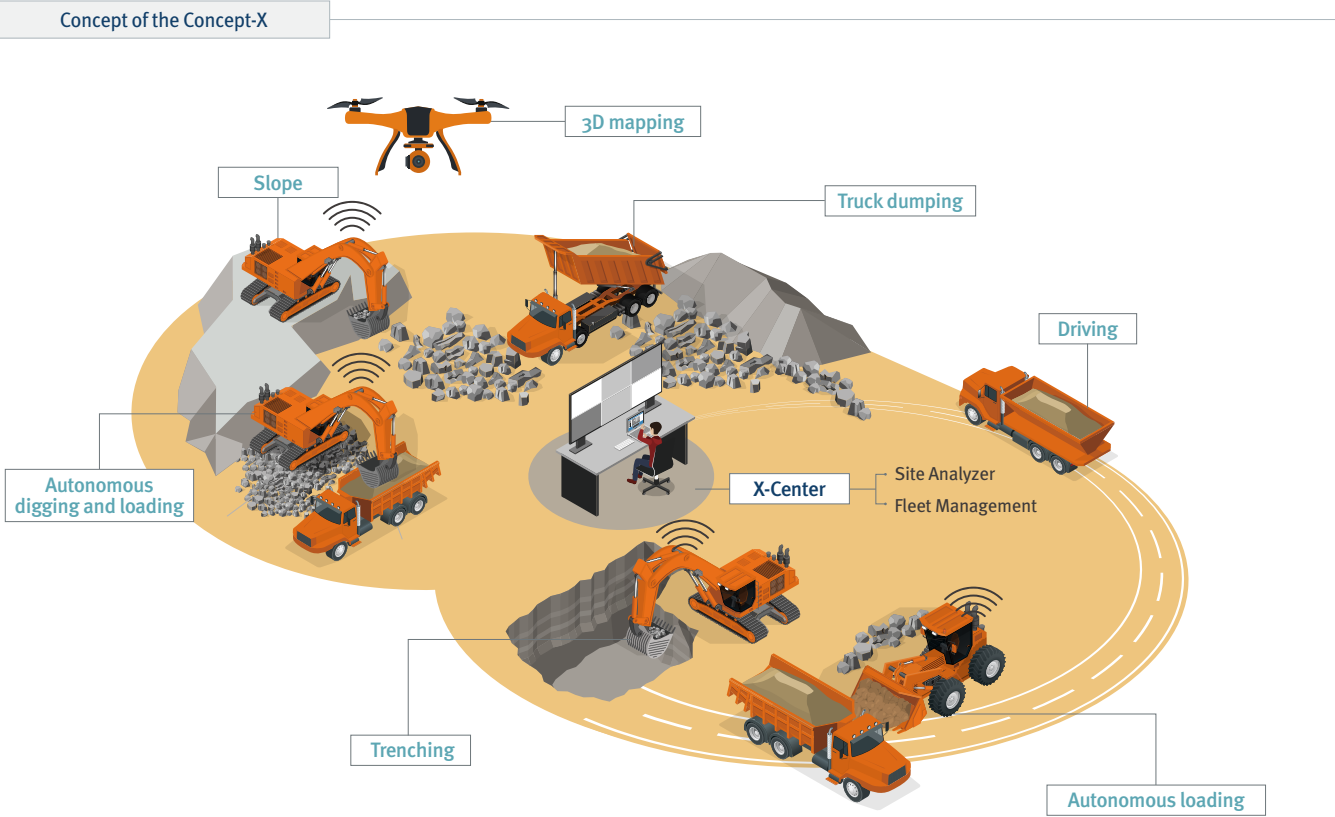
Concept-X – Shaping the Future of Construction Equipment

ICT and AI are vital parts of the current unprecedented revolution in technology. As new methods for problem-solving using AI and big data have been developed, the use of unmanned autonomous technologies – previously used in the automobile industry – rapidly spread in the construction equipment industry. In response, Doosan Infracore launched the Concept-X project in 2017 in order to create the construction equipment technologies of the future and verify their feasibility, so that the company can add value and meet customer requirements by applying the very latest in new technologies to construction equipment.

The Concept-X project uses drones to identify and measure the worksite environment through 3D scanning, and based on this topographical data, equipment can be operated unmanned. Control centers on sites where Concept-X is being used will monitor and manage the worksite, and the entire work process. The development of Concept-X reflects the worksites of the future, focusing on technologies that improve the

performance of individual equipment and enhancing the productivity of customer applications. Concept-X will play a pivotal role in the future of Doosan Infracore’s construction equipment and customer service solutions.

Doosan Infracore is making substantial R&D investments in order to develop and verify the technologies within the Concept-X project, particularly unmanned autonomous technologies for construction equipment, and other technologies related to the Fourth Industrial Revolution. The company is also very active in cooperating with companies, which have outstanding related technological prowess, and making direct and indirect investments into the development of new technologies. In April 2018, the company launched an excavator that has installed the machine guidance system, a 3D solution for construction, in partnership with Trimble Inc. of the U.S. In addition, Doosan Infracore has signed an investment agreement with PoteNit, a start-up company that owns the leading autonomous driving system development technology in Korea, and the two companies have been jointly developing an unmanned autonomous system technology since 2015. Doosan Infracore continues to seek further new business opportunities in relation to the Fourth Industrial Revolution.



03

New Businesses

Building Competitiveness through New Business

In the era of the Fourth Industrial Revolution, it is essential to turn the machinery manufacturing industry into value-added customer solutions, in order to create new business opportunities, by converging new and existing technologies. Leading companies in the construction equipment industry are therefore breaking away from the traditional framework of equipment manufacturing, and instead are seeking to offer customers products and solutions that reflect the latest technologies. These include hybrid excavators, products that feature unmanned autonomous technologies, and equipment management solutions using telematics. There has been a sharp increase in the automation and digitalization of worksites throughout various industries, ranging from mining and agriculture to manufacturing, logistics, and construction.

Doosan Infracore’s experts in technology, environment, and society are working in unison to analyze trends related to the Fourth Industrial Revolution that could have a direct or indirect impact on the company’s business, and to uncover the future drivers of new growth. While continuing with the stable growth of its existing businesses backed by its global competitiveness, Doosan Infracore will actively advance into new businesses based on new markets and cutting-edge technologies, and thus develop new growth drivers as well as additional sources of revenue.

Driven by its vision of becoming a ‘Global Leader in Infrastructure Solutions,’ Doosan Infracore will go beyond product sales to offer better value and enhanced convenience for customers as a total solution provider.



Contribution to SDGs

Link to UN SDGs

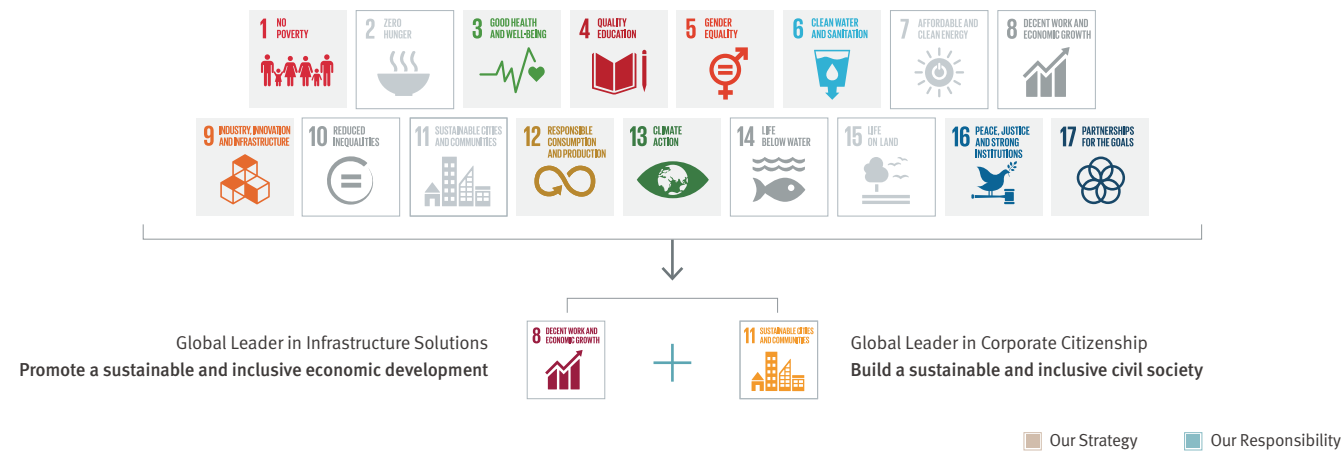
As a subsequent initiative of the Millennium Development Goals (MDGs), the UN Sustainable Development Goals (SDGs) are a collection of 17 goals which encourage the global community to work together for the sustainable development of humankind by 2030.


















Doosan Infracore seeks to strategically connect its key business with the SDGs guided by its direction to contribute to the development of society through cooperation between advanced and developing countries as well as development of new market and new businesses. (Global Leader in Infrastructure Solutions)

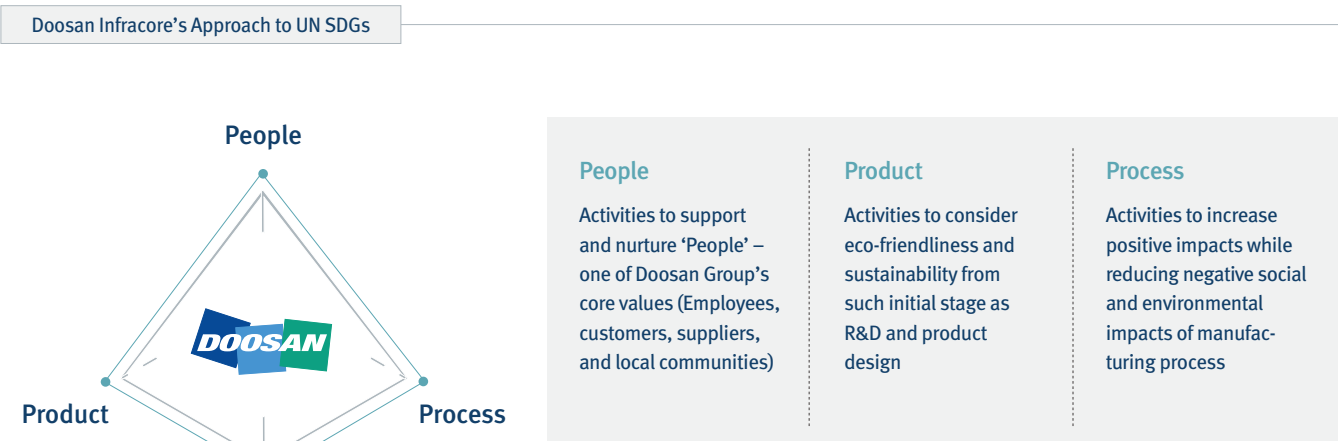
Doosan Infracore also does its utmost to go beyond CSR activities to create social values across the overall value chain with an aim to systematically implement the SDGs as a global corporate citizen. (Global Leader in Corporate Citizenship)




























This report provides information on the degree of links between the strategic performance of the company in 2017 and social responsibility activities from the perspective of 3P – People, Product, and Process – which is Doosan Infracore’s approach to SDGs.

Doosan Infracore will continue to strategically contribute to achieving SDGs, and thus generate synergy through communication and cooperation with stakeholders and also enhance its corporate competitiveness by seizing future business opportunities. At the same time, it will take step towards sustainable growth of the company and society.



		Activities by goal	Page		
People					
	Expand programs to promote employee health; and contribute to healthier lives	Maintain smoke-free workplaces; install more automated external defibrillators (AED); and launch new occupational disease prevention activities	p. 79		
		Continue to run work-related stress management programs	p. 79		
	Develop competitiveness of stakeholders in our value chain; and continue to support future generations	Continue to strengthen a Functional Competency (FC) system for employees at the company's worksites in Korea and overseas; and adopt a new human resources system	p. 86		
		Continue to operate the 'Leading Supplier' project to help raw material suppliers grow into small giants	p. 80		
		Operate the Dream School and the Junior Engineering Class; and build Hope Elementary Schools in China	p. 92		
	Expand the culture of gender equality; and maintain the upward trend of the female staff employment rate	Continued to operate the Gender Equality Center; and expand the Women's Council to be run at the company level	p. 85		
		The percentage of female employees from among newly-hired personnel is increasing; however, there is a need to further improve the percentage of female executives	p. 85		
	Enhance human rights at worksites; and strengthen compliance through the monitoring of transparency and anti-corruption	Distribute manuals to prevent human rights risks; and provide education to all employees	p. 85		
		Increase transparency and sustainability of the company's supply chain by managing conflict minerals – 3TG	p. 66		
		Maintain a transparent information disclosure system	p. 60		
	Develop social values into the company's embedded values; and maximize social impacts through multi-party partnerships	Strengthen ties between corporate values and social values; and adopt the SDGs-connected analysis in this report and plan to expand it	p. 48		
		Participated in the EDCF program and delivered 44 units of equipment for disaster recovery and emergency aid to the government of Madagascar; and help local communities improve quality of life and make positive impacts on society by using its global partnership	p. 35		



		Our Strategy	Our Responsibility		
		Activities by goal	Page		
Product					
	Adopt an evaluation system to measure impacts on sustainable development; and evaluate economic, social, and environmental impacts of the company's products	Maximize the social impacts and increased sustainability of the company's products; expand the application of the evaluation system to the overall product portfolio	p. 14		
		Set a definition and standards for eco-friendly products; measure the portion of eco-friendly products	p. 67		
	Develop products that embody innovative technologies of the Fourth Industrial Revolution; and promote innovative industrial development	Continue to expand investment in unmanned and autonomous technologies in order to gain a competitive advantage	p. 46		
		Complete the launch of innovative new product through the partnership with Trimble – a leading player – and plan to continue product development	p. 46		
	Develop LNG engines for small ships; and contribute to reducing pollutants through energy-saving products	In the process of reorganizing the company's product portfolio to include more highly efficient, environmentally friendly products by developing new products which can replace diesel engines	p. 25		
	Continue to develop engines that comply with emissions regulations; and build a portfolio that considers climate change	Plan to respond to the emissions regulation policy of different governments by improving the existing EURO 6 engines and launching new products	p. 24		
		In the process of developing a new EURO 7 engine	p. 25		
Process					
	Continue to spread a safety culture at worksites; and build a safe work environment	Build a safety facility at worksite; distribute safety manuals; and continue to provide relevant educations and trainings	p. 77		
		Help raw material supplies strengthen their safety management systems; and build a safe work environment throughout the entire value chain	p. 78		
	Continue to operate and expand the wastewater recycling system; and contribute to ensuring sustainable water	Expand the installation of water reclamation systems; and build rainwater-harvesting systems to result in reduced water consumption by production processes	p. 75		
	Promote innovative industrial development through production processes that embody innovative technologies of the Fourth Industrial Revolution	Fully establish a manufacturing process which uses ICT by operating DoosanCONNECT™ and creating a smart factory	p. 44		
	Maintain and continue to make improvements to the EHS management system; and improve energy efficiency of manufacturing process	Reduce electricity consumption for manufacturing process, while improving energy efficiency, by strengthening the worksite EHS management at home and abroad	p. 74		
		Manage smart data on environmental pollutants; and strengthen the environmental leakage accident prevention and response system	p. 76		
		Provide suppliers with support to help them strengthen EHS management	p. 81		
	Continue to implement climate change-related actions, such as disaster management and emissions trading scheme roadmap work	Maintain a systematic risk management system by operating a business continuity management (BCM) at the Group level	p. 64		
		In the process of establishing a mid- to long-term roadmap on responding to the emissions trading scheme; and in consideration of advancing into emissions trading business in the future	p. 75		
		In the process of building a greenhouse gas inventory for worksites in China to deal with the emissions trading scheme	p. 75		

Doosan Infracore strives to be an economically, socially, and environmentally responsible company. This commitment is driven by our belief that fulfilling our social and environmental responsibilities will not only benefit our society but also increase stakeholder value and improve our own business competitiveness.

Our Responsibility

CSR Structure 53

Transparent and Ethical Management 59

Customer Satisfaction and Product Stewardship 65

Integrated EHS System 71

Shared Growth with Our Suppliers 80

Employee Value Proposition 84

Supporting Development of Local Communities 91



In 2017, Doosan Infracore focused on enhancing stakeholder value through socially responsible management. We have demonstrated our efforts through strong performances across several sustainability indices and we were able to increase our corporate value.

CSR Management System

CSR Promotion System

The corporate social responsibilities (CSR) Part at the company's head office is the organization responsible for coordinating overall CSR execution, and is in charge of overall tasks related to CSR, such as establishing CSR strategies, identifying stakeholder issues and needs, diagnosing CSR levels at domestic and overseas sites, presenting CSR tasks and monitoring performance, disclosing information to outside parties (publishing integrated reports, etc.), and responding to evaluations. The CSR Committee makes decisions on major matters, such as setting up CSR strategic tasks and approving related operations and processes, after which the CSR Working Group, which is composed of working-level staff, draws up specific implementation plans. Doosan Infracore promotes CSR through cooperation among the relevant departments, as the CSR Part at its head office and persons in charge of its overseas business sites take a leading role.

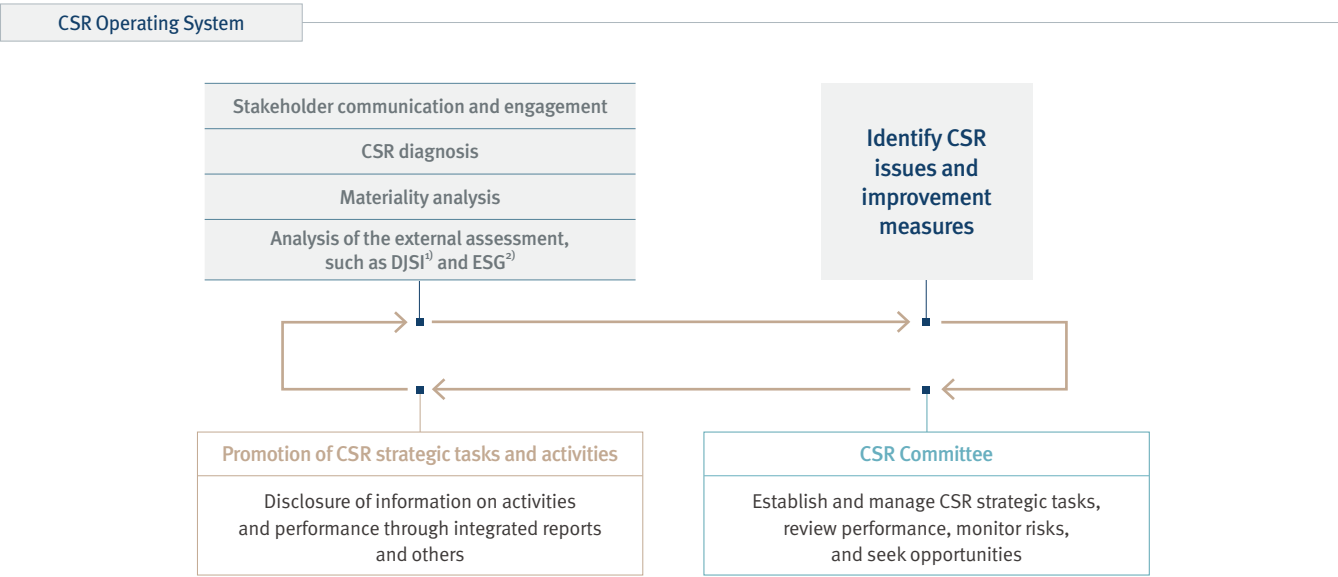
CSR Committee

Doosan Infracore's CSR Committee at its head office is the company's highest decision-making body regarding CSR. For the company's sustainable growth and strengthening of social responsibilities, the CSR Committee reviews risks and opportunities arising from changes in CSR issues, establishes CSR strategies and policies, draws up CSR strategic tasks, and examines outcomes. Supervised by the CEO and participated

by the heads of BGs and other key executives, the CSR Committee is composed of five subcommittees dedicated to human rights and labor, environment, fair operations, customer values, and local communities. The subcommittees form and operate the participating organization in a flexible manner depending on the nature of the CSR strategic task to increase the efficiency in decision-making and execution. A CSR Committee meeting has been held every quarter since 2015, and it will be held three times a year starting in 2018 for more efficient operations.

The CSR Committee at the company's business site in China has been holding meetings twice a year since 2017. Chaired by the Regional Head, the leaders of each business unit serve as members of five subcommittees – same as the head office. They are also in charge of reviewing and approving the operation and process of CSR tasks.

The CSR strategic tasks are reflected in the management by objectives (MBO) of executives in charge, while some tasks are linked to the annual business plans to make sure that they are being carried out. Doosan Infracore is looking into connecting CSR strategic tasks with mid- to long-term management strategies. The company will seek new CSR strategies and efficient implementation measures with an aim of enhancing its corporate and social values in the long term, and thus generate tangible results.



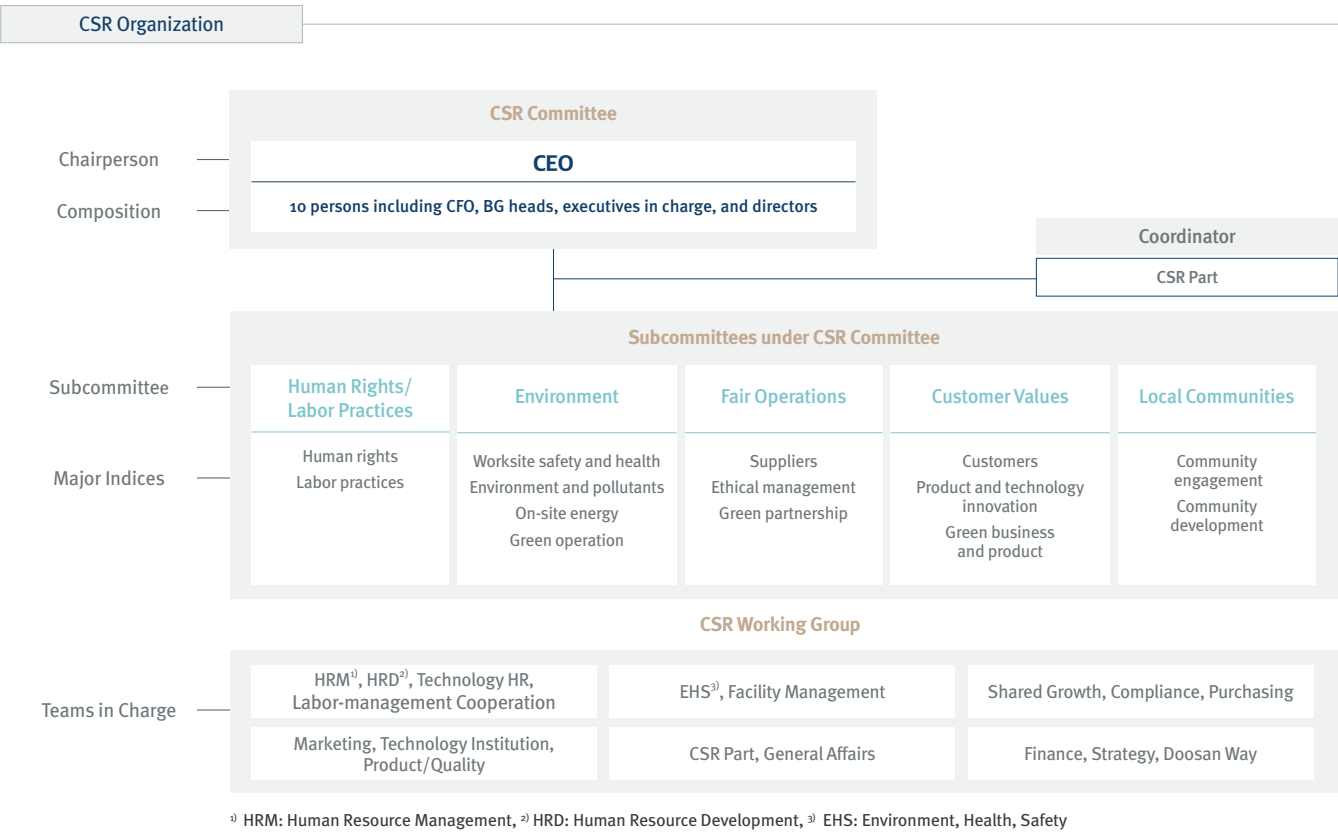
¹⁾ Dow Jones Sustainability Indices (DJSI): The DJSI is a sustainability benchmark codeveloped by Dow Jones of the U.S. and RobecoSAM of Switzerland. They evaluate the sustainability performance of major companies on the basis of an analysis of corporate economic, environmental, and social performance. Korean companies that have passed the institutes' industrial thresholds are included in the DJSI Korea, DJSI Asia Pacific, or DJSI World depending on their corporate size and the stock markets they are listed on.

²⁾ ESG Evaluation by the Corporate Governance Service, Korea: ESG stands for Environment, Social, and Governance. The Corporate Governance Service of Korea has developed its own ESG evaluation model and offered an evaluation service to boost listed local companies' CSR activities and investors' socially responsible investment. Each year, it discloses its evaluation results at seven levels rated from S to D. Companies with B+ (moderate) or above are limited to around 20% of the total assessments.

CSR Strategies

Doosan Infracore seeks to satisfy the demands of various stakeholders at home and abroad based on the strategy system of Doosan Group which aims to grow into one of the top 100 global CSR leading

companies by 2025. The company will also systematically implement CSR strategies and operation systems, thereby contributing to the achievement of the CSR goal of Doosan Group.



Stakeholder Engagement

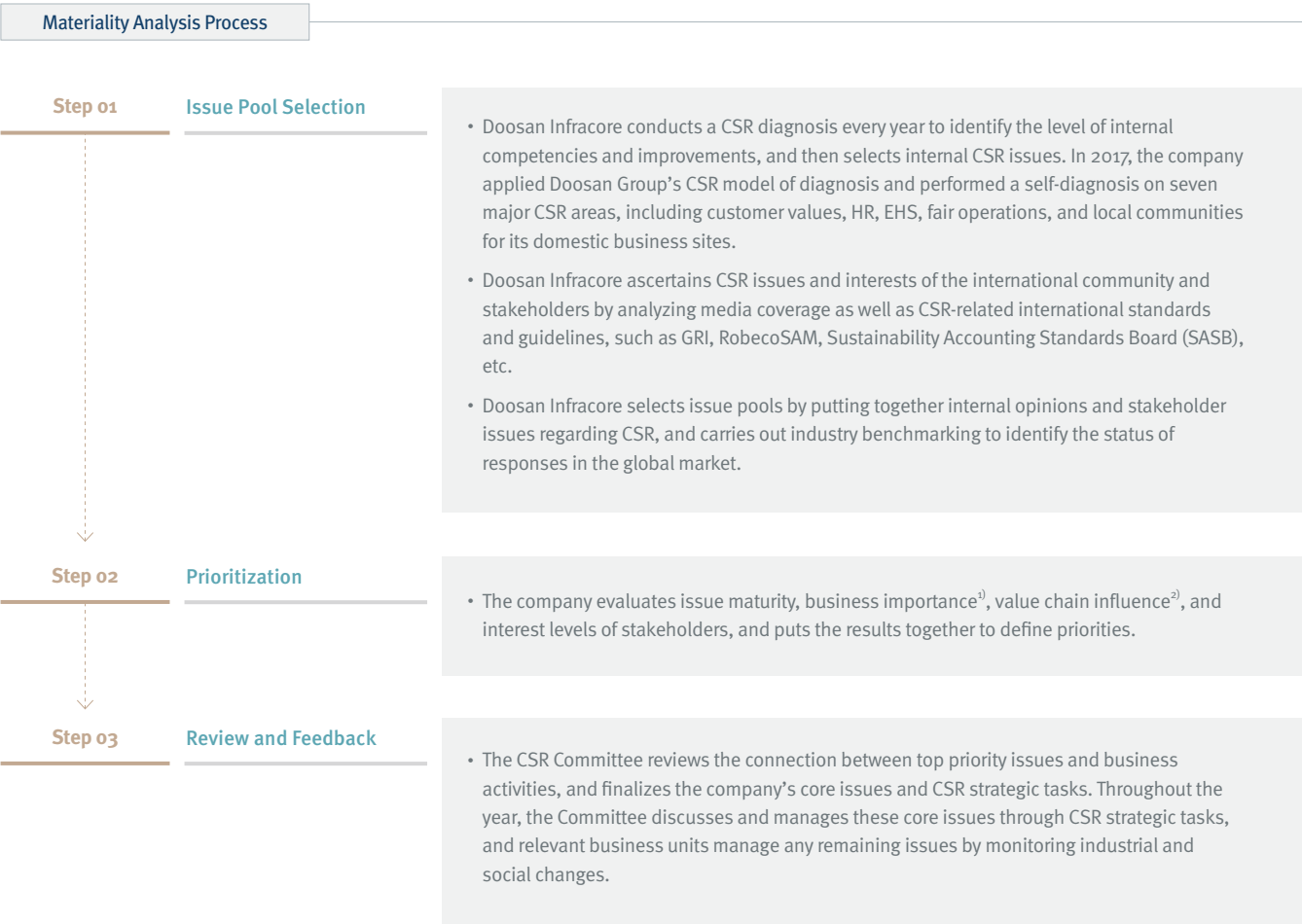
Definition of Stakeholders

Doosan Infracore puts communication, participation, and cooperation with internal and external stakeholders at the center of its approach to CSR. The company chooses major stakeholders, and then identifies and responds to subjects of interest (issues) for each stakeholder group. The outcomes of its activities are also disclosed through communication channels.

Communication Channels for Stakeholders			
	Communication Channels	Major Issues	Responses
Shareholders/ Investors	Annual general meeting (AGM), disclosure materials, investor relations (IR) information on the company website, conferences, IR meetings	Improve profitability and a high dividend policy; strengthen disclosures; sound corporate governance; and business opportunity and risk management	<ul style="list-style-type: none">• Share the company's mid- to long-term business directions• Make earnings announcements and provide IR data• Hold analyst meetings
Customers	Field surveys, voice of customers (VOCs), call centers, joint workshops, integrated customer management systems	Prompt customer complaint handling and feedback; make improvement to product quality, performance, safety, and convenience; thorough customer information protection; R&D investment and the strengthening of technological capabilities; differentiated customer service; and develop eco-friendly, high efficiency products	<ul style="list-style-type: none">• Product presentation through exhibitions and dealer meetings• Tasks aiming for eco-friendly products• Incorporate VOCs into products through the New Product Development (NPD) processes• Enhance customer accessibility by providing dealers with web-based information and strengthen dealer management• Boost customer responsiveness through the Happy Call and dealer service training
Employees	Labor-Management Council, grievance handling system, Intranet, Doosan Way surveys, dialogue with management	Fair evaluation and compensation; education and competence development; work-life balance; win-win labor-management relations; and active communication within the company	<ul style="list-style-type: none">• The Doosan Way• Human resources development based on the Functional Competency (FC) system• The Women's Council• Publish a human rights risk prevention manual and provide education on human rights
Suppliers	Supplier Council, supplier education, consulting, technical support for suppliers	Share more information with suppliers; expand support to boost suppliers' capabilities through financial, technology, education, environment, and ethical management support; and strengthen fair trade	<ul style="list-style-type: none">• Foster leading suppliers• Financial support for suppliers• The Supplier Hotline• Share CSR guidelines with suppliers
Local Communities (the environment, NGOs, etc.)	Meetings with residents, workshops for working-level staff in charge of CSR, sisterhood relationship	Eco-friendly products and production processes; improve workplaces and surrounding environment; prevent pollution; establish environmental management system; communicate with local communities; and help local communities' economic development	<ul style="list-style-type: none">• Operate the Dream School Plus• The Doosan Day of Community Service• Social contribution projects tailored to local business sites• Participate in a meeting with residents in the western part of Incheon city regarding air quality improvement
Central/ Local Governments	Participate in national projects, operation of joint programs	Compliance with laws and regulations; and public-private partnership	<ul style="list-style-type: none">• Regulatory monitoring and internal compliance• Suggest improvement measures through participation in related organizations' activities• Participate in the government's public policy projects
Media	Press releases, press conferences, regular meetings, business site visits (field trips)	Prompt and accurate information sharing	<ul style="list-style-type: none">• Issue press releases in a timely manner• Support press reporters' news coverage• Find feature items and provide them to the media

Materiality Analysis

Doosan Infracore conducts a materiality analysis every year to effectively identify changes in the business environment and various matters of interest and issues of stakeholders, and thus reflects them in business activities. The company's activities, achievements, and future plans for major issues that are derived from materiality analysis are disclosed to stakeholders through its integrated report.



¹⁾ Business importance: The company assesses the importance of each issue in terms of 'profit, cost, reputation, and compliance' in the course of business conduct by reviewing the related mid- to long-term strategies and business plans and major industry trends among other factors.

²⁾ Value chain influence: The company assesses the socio-economic/environmental impact and relative importance of each issue in the value chain.

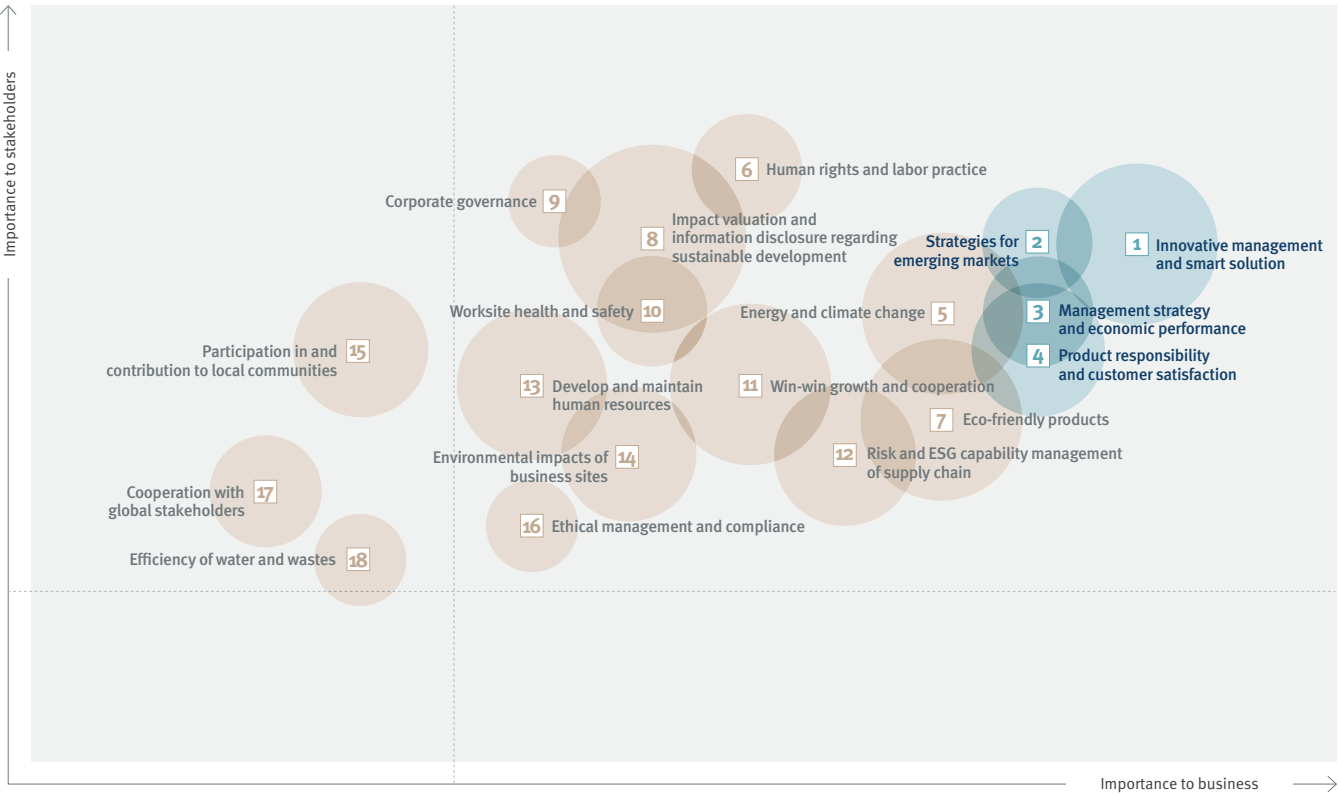
Results of Materiality Assessment

Out of 18 CSR issues, Doosan Infracore selected core issues which have high stakeholder interest and business impact – innovative management and smart solution, strategies for emerging markets, management strategy and economic performance, and product responsibility and customer satisfaction.

Through the 2017 Integrated Report, the company has disclosed its major activities, achievements, and plans concerning the four core issues and the other CSR issues. In Our Strategy section, the company presents key information on its business strategies and products. In Our Responsibility and CSR Facts & Figures section, the company provides information on different CSR areas, including activities and achievements related to its strategic tasks.

Materiality Matrix

Material Issue	Contents	Page
1 Innovative management and smart solution	Management Analysis	P. 2-15
2 Strategies for emerging markets	Our Strategy	P. 19-49
3 Management strategy and economic performance	Our Responsibility	
4 Product responsibility and customer satisfaction		
5 Energy and climate change	CSR Structure	P. 53-58
6 Human rights and labor practice	Transparent and Ethical Management	P. 59-64
7 Eco-friendly products	Customer Satisfaction and Product Stewardship	P. 65-70
8 Impact valuation and information disclosure regarding sustainable development	Integrated EHS System	P. 71-79
9 Corporate governance	Shared Growth with Our Suppliers	P. 80-83
10 Worksite health and safety	Employee Value Proposition	P. 84-90
11 Win-win growth and cooperation	Supporting Development of Local Communities	P. 91-93
12 Risk and ESG capability management of supply chain		
13 Develop and maintain human resources		
14 Environmental impacts of business sites		
15 Participation in and contribution to local communities		
16 Ethical management and compliance		
17 Cooperation with global stakeholders		
18 Efficiency of water and wastes		



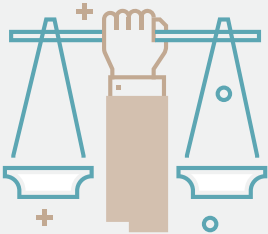
* Each circle represents an issue, and the size of each circle represents the issue's level of influence in value chain

Transparent and Ethical Management

OUR APPROACH

At the heart of Doosan Infracore's sustainability lies transparent and ethical management for its stakeholders.

Doosan Infracore implements transparent management through independent governance system and prompt information disclosures. Beyond compliance management, the company strives to ensure that ethical management serves as the foundation of all its decision-making. It secures the stability of its management environment by implementing transparent management and strengthening preemptive risk management through strict internal control system.

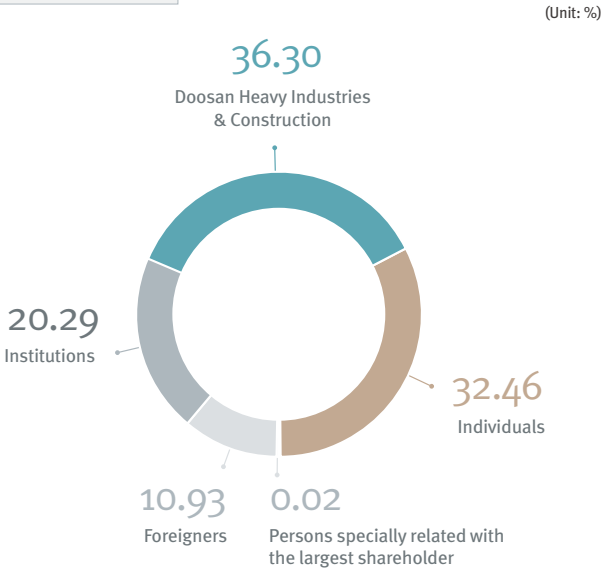


01 Corporate Governance

Composition of Shareholders and Equity

Doosan Infracore is a key subsidiary of Doosan Group and operates 38 financially consolidated or subsidiary companies (based on its annual reports) around the world. By the end of 2017, the number of its shares issued stood at 208,000,119, of which the largest shareholder, Doosan Heavy Industries & Construction, owned a 36.30% stake. Its equity capital stood at KRW 1,040 billion.

Ownership Structure



(As of December 31, 2017)

Shareholder and Investor Communication

Communication Channels Doosan Infracore actively seeks out the expectations and demands of its shareholders, investors, customers, and other stakeholders when making key decisions. The company strives to attract investments in the global market by earning recognition for its genuine values in terms of growth potential and technological prowess. It has therefore established an investor-friendly investor relations (IR) strategy and carries out shareholder-friendly communication. In addition, the company holds company briefings and securities investment conferences, and also invites institutional investors to its worksites to offer them diverse and reliable information.

Protection of Minority Shareholders Doosan Infracore has adopted and operates a paper ballot, an electronic voting system, and an electronic proxy solicitation system to protect the voting rights of its minority shareholders. When sending out notices of its annual general meeting (AGM), the company encloses paper ballots so that shareholders can exercise their voting rights if absent. Their votes are valid under the condition that they arrive at the company one day prior to the date of an AGM.

Disclosure of Corporate Information Doosan Infracore complies with all applicable legal disclosure requirements. It also strives to disclose information in a balanced manner, concerning its financial and non-financial activities, through the voluntary disclosure of the company’s compliance program (CP) status and CSR activities.

STATUS OF DISCLOSURE ACTIVITIES	
· Financial	Disclosure of provisional statistics on sales performance; Quarterly and biannual reports and statements of affairs; Disclosures relevant to AGM and special shareholders’ meetings; Disclosure of changes in the shareholding structure; and Disclosure on the Online Provision of Enterprises Information (OPNI) system operated by the Korea Fair Trade Commission, etc.
· Non-financial	Status of CP operations; Disclosure of CSR activities including integrated reports; and Disclosure of information through company presentations

Operation of an Independent BOD

The BOD and Its Decision-making Systems As the company’s highest decision-making body in relation to corporate management, the Board of Directors (BOD) oversees and approves decisions on massive investments or borrowings, the consolidation or division of business entities, and other major business issues, from the perspective of long-term growth.

Composition and Operations of the BOD The BOD of Doosan Infracore is composed of three internal and four outside directors who were transparently appointed through an AGM. The Outside Director Candidates Recommendation Committee recommends outside director candidates who are suitable for establishing a transparent governance structure and enhancing the BOD’s expertise. Outside directors are appointed in consideration of their ownership of the company’s shares, potential conflicts of interest, careers with the company’s competitors, diversity, and stakeholder representativeness.

The BOD deliberates and makes resolutions on matters specified under the relevant national laws and company bylaws, matters entrusted by the AGM, key management policies, and important matters concerning



* Jung Byung Moon was appointed as an outside director and a member of the Audit Committee on March 31, 2017
Internal directors (Sohn Dong-youn, Go Seokbum), and outside directors and Audit Committee members (Han Seung-soo, Yoon Jeung-hyun, Yoon Sung Soo) were appointed at the 18th AGM held on March 28, 2018
The BOD consists of 7 members (3 internal and 4 outside directors) as of March 28, 2018

business execution. It incorporates opinions and suggestions of shareholders, executives, and employees collected through AGMs and IR activities into its decision-making process. It maintains its independence from controlling shareholders and executives, and checks and balances corporate decisions to ensure the company’s transparent management.

There are three committees under the BOD which are entirely composed of outside directors – the Audit Committee, which is responsible for guaranteeing the transparency and independence of audit procedures; the Internal Transaction Committee, which is designed to boost the transparency of corporate management through the establishment of CP; and the Outside Director Candidates Recommendation Committee, which has the authority to recommend outside directors.

BOD Activities in 2017 All directors are allowed to participate in the BOD meetings via remote means, such as telecommunication devices capable of transmitting audio and video data, which is considered to be present at the actual meeting. Directors may not delegate their authority to a proxy. Directors with a vested interest in a particular agenda item are prohibited from voting on it so as to maintain transparency in the decision-making process. In 2017, the BOD held eight meetings during which deliberations and resolutions were made on 39 agenda items, including reports on management performance and the matter of approving investment for the establishment of LDEC JV – a joint venture between Lovol and Doosan Infracore – in China. The attendance rate of the outside directors in 2017 was 84.2%.

BOD Evaluation and Remuneration The remuneration of internal and outside directors is determined within the limits approved at the AGM. The company also implements a performance salary system that links executive compensation with business performance. Directors are therefore given a salary corresponding to their pay grade as well as a performance bonus based on the organization’s management results. To ensure their independence from the management and controlling shareholders, members of the Audit Committee receive remuneration only as directors and are prohibited from receiving any other types of compensation. The total amount of approved pay for directors and auditors in 2017 was KRW 15 billion, of which KRW 4,225 million was actually paid. The payment amount was calculated based on the pay for three registered directors excluding outside directors and members of the Audit Committee, one outside director excluding members of the Audit Committee, and four members of the Audit Committee who were paid from January to December 2017.

Completion rate of ethical management training (Korea)

98.7%

* 1.3% were not able to attend training due to such reasons as long-term overseas business trips, leave of absence due to illness, childbirth, restructuring, etc.

Ethical Management

Ethical Management Policies

Doosan Infracore applies the Code of Conduct of Doosan Group that was newly established in 2014 to all of its business sites across the globe. The company also connects its company-wide operation system with the ERP, e-procurement, internal control and evaluation, and fair trade compliance systems, and thus improves the transparency and efficiency of its business activities. The company formed the Audit Committee under the BOD to audit the legality of work execution by directors and executives. The Compliance Team is in charge of ethical management auditing activities as well as internal control design and operation evaluations.

Communicating and Promoting Ethical Management

Doosan Infracore discloses the Code of Conduct and irregularity reporting process on its website to ensure that both its internal and external stakeholders can access such information easily. Prior to all major Korean holidays, the CEO issues a letter requesting strict compliance with the Code of Conduct to all the company’s first-tier suppliers. To prevent recurrence of Code of Conduct violations, the company clearly identifies the process and cause of issues that arise during the work execution process, and creates and shares a white paper. In addition, to maintain a transparent ethical management system, Doosan Infracore urges newly hired employees to sign a written oath pledging their compliance with the Code of Conduct. It also requires new suppliers to submit a written oath pledging not to engage in unethical business practices. The company requires each of its team leaders, part leaders, and higher level managers, as well as its executives to write and submit a statement of interests form on an annual basis, with an aim to remind them of the strict compliance standards. In 2017, all those required to submit the statement complied with the obligation.

Education on the Code of Conduct Training on the Code of Conduct is designed to raise employees’ awareness of ethical business practices and control the ethical risks involved in their business transactions in advance. Doosan Infracore provides the training to all its employees, and notifies them of major ethical management issues by posting the details on the bulletin board of each business site. In 2017, the company expanded the scope of its online training to include managers of its Chinese subsidiary in addition to managers at its domestic business sites.

Completion rate of ethical management training (China)

94.6%

* 5.4% were not able to attend training due to such reasons as long-term overseas business trips, leave of absence due to illness, childbirth, restructuring, etc.

03

Internal Controls

Strengthened Fair Trade Voluntary Compliance Program The fair trade voluntary compliance program (CP) is a compliance system which enables a company to voluntarily observe fair trade-related laws. It is related to a company’s internal compliance control activities designed to prevent violations against the law. It presents its employees with clear standards regarding conduct for compliance with competition laws, and detects any violations at an early stage and establish measures. Doosan Infracore has continued to strengthen its fair trade voluntary CP by expanding preventive and follow-up monitoring activities, updating a CP handbook regularly, and cultivating CP experts in each business group. It also encourages its suppliers to introduce and implement the CP in order to take the lead in establishing fair trade practices throughout the machinery industry. To help suppliers with their CP implementation, the company provides them with education on fair trade and export/import regulations as well as CP monitoring services. The company has reported the progress of its fair trade voluntary CP to the BOD biannually since 2012, including education on fair trade and the results of monitoring for violations of rules and regulations, and it also discloses the results to the public.

Compliance with the Anti-graft Law In Korea, the ‘Improper Solicitation and Graft Act,’ also known as the anti-graft law, went into effect on September 28, 2016. Intended to prevent public officials’ corruption, the Act applies to employees and their spouses of all public institutions, including constitutional agencies, central administrative agencies, and local governments, schools, and media outlets. The Act forbids improper solicitations to public officials and other relevant persons, and prohibits them from accepting financial or other advantages. In 2016, Doosan Infracore carried out various activities to raise awareness among employees, such as providing education on the prohibition of solicitation to all its employees in Korea and expatriates in China, sending out CEO messages, and collecting voluntary compliance pledges signed by the employees. It is carrying out continuous monitoring through a dedicated task team. The company also added content for compliance with the anti-graft law in the Code of Conduct training it provides every year to ensure continued training on the law.

Audit and Monitoring

In line with the increased scope of the company’s management and responsibility with the expansion of its overseas business and the adaptation of the International Financial Reporting Standards (IFRS), Doosan Infracore has maintained an independent audit team in China for audit and monitoring since 2012. The Compliance Team at its headquarters in Korea is striving to increase overseas subsidiaries’ accounting and management transparency based on respect for subsidiaries’ responsible business management.

Internal Controls Evaluation System

Doosan Infracore established the Doosan Internal Control Assessment System (DICAS), an internal controls evaluation system, in 2006 and since then it has been carrying out regular evaluations for its entire business areas, ranging from finance to sales, purchasing, and production. The results of the evaluations are reported to the Audit Committee and board meetings following the reports to CFO and CEO in accordance with the ‘Act on the External Auditing of Corporations.’ In 2014, the company began applying the same internal controls evaluation system to its subsidiaries in China.

Internal and External Reporting Systems

Doosan Infracore operates various internal and external reporting systems to facilitate immediate reporting of any unethical acts such as bribery, unfair business transactions, corruption, as well as violations of the Doosan Way, its Code of Conduct, regulations, and relevant laws. The reporting channels include website, Cyber Reporting Center, mail, telephone calls, fax messages, and personal visits. The Cyber Reporting Center operates in three languages of Korean, English, and Chinese, and is open to anyone including employees and external stakeholders. Reports are acted on promptly according to the applicable procedures. The reporter’s identity remains confidential. Any irregularities are strictly sanctioned. The company’s actions, including correctives, are notified to the reporter and disclosed company-wide, thereby further raising ethical awareness among staff.

04

Risk Management

Doosan Infracore has established risk management processes which are designed to enable its executives and working-level employees to recognize various strategic, operational, financial and non-financial risks that could reduce its corporate value and incur economic losses, detect any problematic symptoms early on, and take prompt remedial actions. The risk management processes ensure effective risk controls through various elements, such as identification of risk factors, evaluation of the potential impacts of risks on the company, establishment of counter-measures, monitoring of changes in risk levels, and constant reporting based on a coherent reporting system.

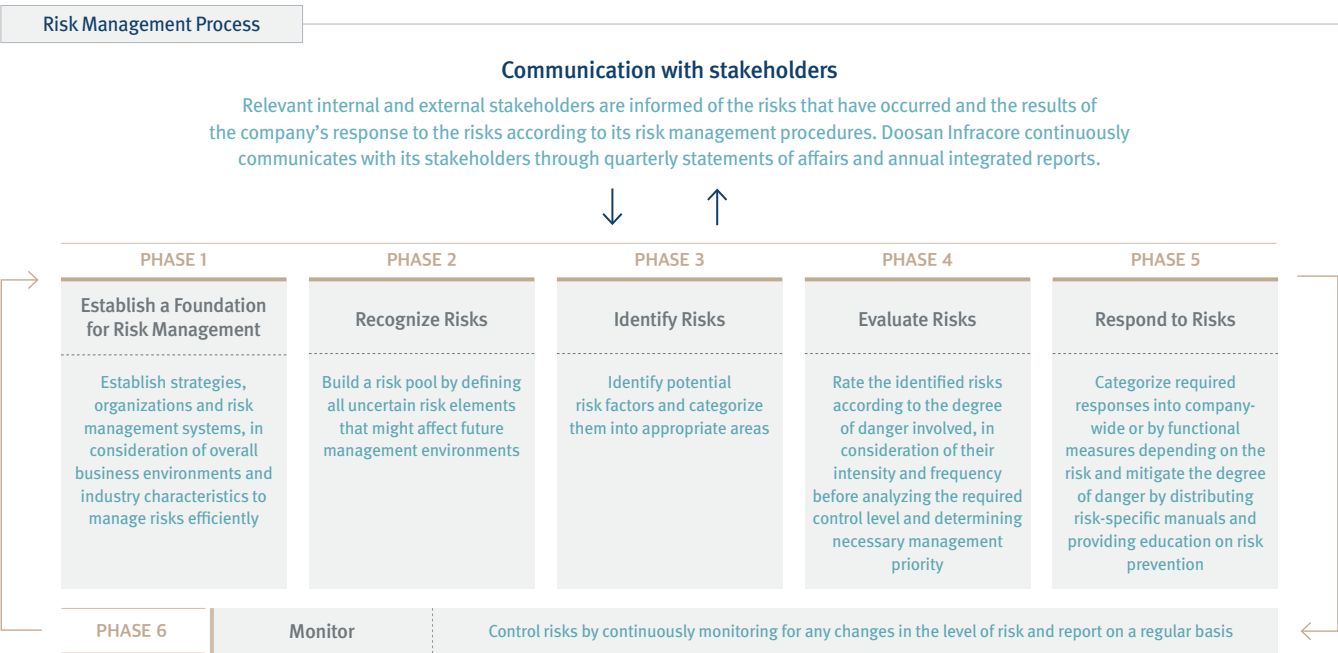
Financial Risk Management

Market Risk Foreign exchange risk occurs as a result of changes in currency exchange rates, which may affect the forecasting of future deals, perceived assets and liabilities, and net investment in overseas operations. Doosan Infracore has set basic strategies with an aim to reduce fluctuations in profits and losses due to changes in foreign exchange rates, and carries out hedge trading through exports and imports. Interest rate risks are related largely to adjustable rate deposits and loans. To preemptively deal with such risks, the company minimizes external loans through its reserve funds, reduces high interest rate loans, improves the borrowing structure, monitors changes in interest rates, and establishes countermeasures. Since its financial instruments are exposed to the risk of changes in market prices that may negatively affect the fair value of the financial instruments and the company’s cash flow, the management of the company measures risks arising from changes in prices regularly and manages key investment assets separately.

Credit Risk Credit risk arises from ordinary transactions or investment activities when customers or business partners do not follow the conditions of the relevant business agreements. It may also arise from cash, cashable assets, derivatives, and deposits in banks and other financial institutions. Doosan Infracore manages its credit risks with the purpose of minimizing losses under its credit policies. For credits in which default is anticipated at the end of the fiscal year, the company properly assesses the risks involved and addresses the results in its consolidated financial sheets.

Liquidity Risk Liquidity risk mainly arises from a shortage of liquidity. It materializes when a corporation fails to fulfill its obligations to pay off financial debts or to finance its normal operations. To prevent such situations, Doosan Infracore establishes quarterly and annual financial balance plans which allow the company to minimize the influence of business, investments, and financial activities on the monetary balance. The forecasts help the company secure and maintain sufficient liquidity in preparation for possible liquidity risks in the future.

Capital Risk Capital risk management involves the maintenance of an optimum capital structure to protect the company’s capabilities, thereby enabling it to provide its shareholders and other stakeholders with corporate profits while reducing capital expenditure. Doosan Infracore maintains its capital in alignment with its debt ratio. Specifically, it adjusts its dividend payouts to shareholders and repays capital reserves to maintain or modify the capital structure, while issuing new shares and selling assets to reduce debts.



Non-financial Risk Management

The company has categorized its non-financial risks into three – environmental, safety, and disaster risks – and built a preemptive risk response system. For full details of the company’s responses to its environmental and safety risks, please refer to the ‘Integrated EHS System’ section on page 71.

Environmental Risk In order to minimize possible risks from environmental pollution, Doosan Infracore promotes diverse environmental management activities, including efficiency improvement of its resource use, reduction of pollutants through facilities to reduce environmental impacts, and the enhancement of environmental accident prevention and response systems, based on its EHS management system. To minimize climate change risks, the company carries out greenhouse gas emissions reduction activities by making investments for energy efficiency and conducting energy reduction activities. It considers future scenario analysis to examine the impact which climate change has on business, and vice versa. The outcomes of such activities are disclosed to outside stakeholders, such as local residents.

Safety Risk Doosan Infracore takes diverse preventive measures to minimize potential risks, and strives to raise health and safety awareness. The company has expanded the scope of its health and safety management to include outsourced projects and external suppliers, while enhancing monitoring aimed at preventing occupational accidents. It also requires worksite visitors to watch a safety video before entry. Furthermore, the company engages in comprehensive public-private joint disaster response drills, establishes countermeasures for emergency crisis situations, and encourages its staff to be fully aware of them.

Disaster Risk Doosan Group has established its own Business Continuity Management (BCM), a risk management framework, at the group level. It has published a BCM manual that is categorized into 20 mandatory infrastructure items. It has developed an emergency notification system that can reach all its employees rapidly in the event of a crisis, so that leaders of business units can check on the safety of their members quickly, and the members can respond systematically according to the company’s emergency response procedures. In 2012, it contracted with International SOS, a medical and travel security services company, and has since provided comprehensive overseas safety management services to its employees based or traveling overseas. All Doosan people across the world have access to emergency medical relief from war, natural disaster, or accident, and information on travel security overseas.

Key Risks and Relevant Responses		
	Key Risks	Responsive Measures
Strategic risks	Global economic slowdown	Maximize profitability and strengthen core competitiveness
	Stricter environmental regulations on products	Develop and apply eco-friendly technologies
Financial risks	Market risks	Manage exchange rate fluctuations, interest rates, and price risks
	Credit risks	Manage credit risks and minimize losses through safeguard measures in bonds
	Liquidity risks	Establish quarterly and annual financial balance plans
	Capital risks	Reduce capital costs and manage liabilities
Operational risks	Quality risks	Establish a quality management system
	Ethical management and compliance risks	Audit unethical irregularities, provide employees with ethical training
	Risks related to personal information protection and data security	Establish personal information protection guidelines, build an information management system, and provide employees with information security training
Non-financial risks	Environment: Climate change risks, environmental pollution, and grievance risks	Build a climate change response system, manage environmental pollution materials, and disclose information
	Safety: Worksite fire and occupational accidents	Engage in risk factor management activities, enhance fire safety management (operation of the Disaster Prevention Center), and boost safety management for outsourced work
	Disaster: Natural disasters, man-made hazards	Build the BCM and practice its applications

* Responses to strategic risks are reflected in all of the company’s business processes and thus they are not mentioned separately

Customer Satisfaction and Product Stewardship

OUR APPROACH

Doosan Infracore provides world-class products, parts and services, with an aim to maximize customer value.

Backed by its outstanding technological prowess and experiences, Doosan Infracore strives to create better customer value through products that take into account not just performance but also customer safety and environmental impacts. In addition, the company focuses on improving product quality with a commitment to producing products of perfect quality and promotes responsible customer services and active communication with customers, in order to become a company trusted by customers.



CSR STRATEGIC TASK FOR 2017

Develop the REACH/RoHS 2 IT system

Chemicals regulations have been becoming stricter in Korea and abroad, and compliance risks are also rising, such as prohibition of sales and penalties in the event of relevant issues, which have in turn triggered the need to improve the chemicals management system. Doosan Infracore does not use much of hazardous chemicals in its production processes, given the nature of the industry in which it is engaged. Nevertheless, to minimize negative impacts on stakeholders, Doosan Infracore has set the development of REACH/RoHS 2¹⁾ IT system as its 2017 CSR strategic task by bringing together corporate-wide capabilities, with central roles performed by top management and executives in each area.

Activities and Achievements	Established a process and IT system to respond to REACH/RoHS 2; built a supplier management process and trained relevant personnel; stabilized the Doosan Infracore Chemical Management System (DICM); and developed an IT system for the Doosan Infracore China Corporation
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CSR STRATEGIC TASK FOR 2018

Establish the REACH/RoHS 2 management system

In 2018, Doosan Infracore will enhance its implementation capabilities by establishing a management system based on the REACH/RoHS 2 IT system that was built in 2017. Using the process and IT system that respond to REACH/RoHS 2, the company will strengthen monitoring and management of hazardous chemicals use and commence the development of alternative substances as part of continued efforts to minimize risks related to hazardous chemicals.

Plans	Form a corporate-wide hazardous substance management organization; establish restricted substance management policies; establish a supplier management process; train a key-man at suppliers; and commence the development of alternative substances to respond to RoHS 2 ²⁾
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¹⁾ Registration, Evaluation, Authorization and Restriction of Chemicals (REACH): Chemical substance management system of the E.U. that governs the registration, evaluation, approval and restriction of chemical substances according to their quantity and harmful effects

Restriction of Hazardous Substances in EEE (RoHS): The EU directive that restricts the use of hazardous substances, including lead, cadmium, mercury, chromium, and flame retardants such as PBBs and PBDEs, in the production of electrical and electronic products

²⁾ RoHS 2: A stricter regulation compared with RoHS, including an increase in the scope of restricted substances, which has been applied in a phased manner since January 2013. It restricts the use of ten substances – four phthalate-related substances were added to the previous six substances, such as lead, mercury, cadmium, hexavalent chromium, and two bromine-based flame retardants

01

Customer-centered Product Development

Strengthening Product Responsibility

Doosan Infracore concentrates its efforts on securing customer safety and minimizing environmental impact throughout its entire process ranging from product development to production and sales. From the product planning and development stage, the company strives to ensure that customers use Doosan Infracore products more safely and conveniently while also delivering high performance. In order to minimize the environmental impact of product manufacturing and use, it focuses on expanding the development of eco-friendly products. It also intends to contribute to the improvement of human rights and the environment in areas that produce conflict minerals by continuously monitoring the use of conflict minerals in its products.

Compliance with International Safety Standards At the planning stage, the company sets up new product development and verification plans by reviewing various countries' technical regulations and international standards on safety and environment, including fire, explosion, noise, rollover, electromagnetic compatibility, and toxic chemicals. It also reflects the guidelines set forth in the world's major technical regulations when setting up its product development objectives, such as the 'Rules on Construction Machinery Safety Standards' of Korea, the 'Machinery Directive' of Europe, the 'Occupational Safety and Health Administration (OSHA)' and the 'Mine Safety and Health Administration (MSHA)' of the U.S., and the 'Guobiao (GB) Standard' of China. The company also ensures that its products are manufactured to meet the regulations of the markets to which they will be exported. Doosan Infracore runs the Global Product Compliance Council (GPCC), through which it shares information on the latest trends in global safety regulations and standards and discusses preemptive responses to any changes.

Management of Hazardous Chemicals To respond to various hazardous chemicals regulations of different countries, including the EU REACH/RoHS, the 'Act on the Registration and Evaluation etc. of Chemical Substances' and the 'Chemicals Control Act' in Korea, Doosan Infracore conducted a survey of hazardous chemicals that are used throughout work processes in 2015. In 2016, it conducted a study on the possibility of replacing its hazardous chemicals, and replaced and removed 11 types of chemicals subject to management under the Chemicals Control Act. In 2017, with an aim to systematically respond to stricter regulations, Doosan Infracore developed a world-leading process and IT system that respond to REACH/RoHS, and completed roll-out at the Doosan Infracore China Corporation. The scope of application of relevant regulations is expanding from finished products to include parts as well. In response, the company continues to provide its suppliers with intensive training, counseling, and guidance services, so that they can recognize the importance of hazardous chemicals management and improve their relevant capabilities. In 2017, Doosan Infracore offered 23 training sessions to 497 employees at its suppliers.

The company's plans for 2018 include building an operation system, such as a corporate-wide hazardous substance management organization and restricted substance management policies, establishing a management process and training key-man for suppliers, and developing alternative substances to respond to RoHS 2. Furthermore, it will continually monitor hazardous chemicals in raw materials and parts, analyze their replaceability, and thus minimize the use of hazardous chemicals in its production processes and products. It aims to achieve zero penalties by preventing violations against domestic and international regulations as well as zero use of substances of very high concern (SVHC).

Conflict Mineral Management The international community has designated four minerals – tin, tantalum, tungsten, and gold – that are mined in 10 war-torn countries in Africa, including the Democratic Republic of the Congo, Sudan, and Central Africa, as conflict minerals. These countries are believed to still be caught up in conflict as rebels are raising funds by monopolizing mining and distribution of the minerals. In addition to the loss of lives caused by long-standing disputes, the mining also causes serious social problems, such as forced labor for local residents, human rights problems related to child labor, and pollution caused by over-mining. Use of conflict minerals has become an issue, and as a result, the international community, including the U.S., the EU, and OECD, has established regulations and guidelines to eradicate use of conflict minerals. At Doosan Infracore, relevant teams collaborate to respond to the conflict minerals issue based on the guidelines presented by the 'Conflict Minerals Regulatory Response Center' of the Korea International Trade Association. It will establish standards and procedures designed to identify the use of conflict minerals and their origin with the purpose of preventing the use of conflict minerals in the first place.

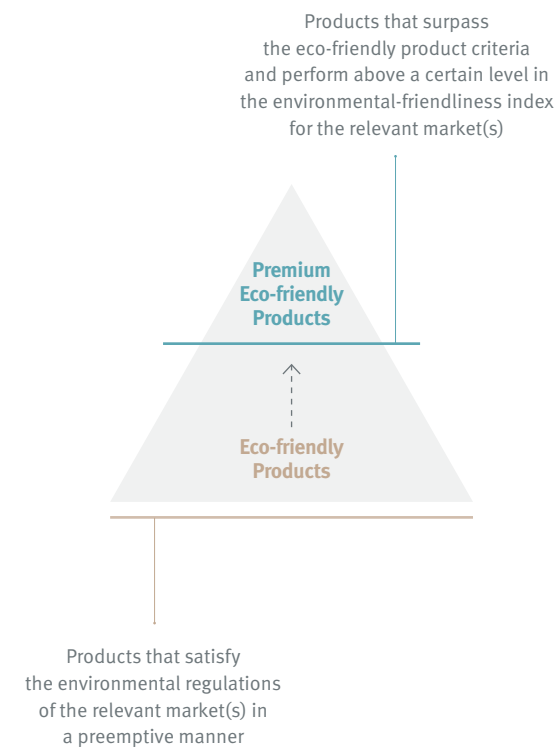
Trainings regarding hazardous chemicals in 2017

23 sessions for
497 employees from suppliers



Increasing Eco-friendly Products Doosan Infracore is conducting its business based on its corporate philosophy which defines minimizing its environmental footprint as a corporate responsibility through which the company can create values. In accordance with this corporate philosophy, the company established definition and management standards for eco-friendly products in 2015, and reflected the eco-friendly product management process in the new product development process and completed an upgrade of its environmental friendliness index in 2016. Products that preemptively meet mandatory environmental regulations of each market in five areas – fuel efficiency, durability, noise control, safety, and emissions control – are defined as eco-friendly products. Those that surpass the mandatory level are premium eco-friendly products. In 2017, Doosan Infracore's eco-friendly and premium eco-friendly products accounted for 84.6% of its total products, indicating a year-on-year rise of 10.7%p.

Classification of Eco-Friendly Products



02

Responsible Customer Service

Preemptive Response for Customers

Doosan Infracore has been solidifying its relationship with customers based on trust by acting ahead of customers' requests. The company provides information on products for customer safety and increased convenience, and carries out voluntary preemptive correction measures.

Provide Information for Customer Safety Doosan Infracore complies with regulations of each country related to increased customer safety, including Safety Standards and the Product Liability Act, and takes all the necessary actions to prevent occupational accidents. To ensure the safe operation and maintenance of its products, the company provides customers with safety labels of three levels – danger, warning, and caution – according to the severity of the safety risks involved. It also mentions and emphasizes matters that are critical to customer safety in a product manual. Doosan Infracore complies with ISO 9244¹⁾ with respect to the safety labels attached to its construction equipment and publishes operator manuals for its machinery in accordance with ISO 6750²⁾.

Preemptive Correction Measures Preemptive correction measures are improvement measures carried out by manufacturers after making notices to customers without any outside pressure. For more active preemptive correction measures, the company not only utilizes local staff but also dispatches its experts from the head office to any location in the world. Construction equipment must be able to withstand rough work environments. The company therefore repeatedly checks the whole range of equipment features, from performance of the specialty parts to simple malfunction, when performing preemptive correction measures, and makes corrections so that the product can be delivered to customers in the best possible state. In addition, the company frequently manages the major correction measure status using a system for quicker preemptive correction measures.

In March 2013, construction equipment and excavators were designated by law as a subject to a recall in Korea. Voluntary recall involves the company making a direct report if it discovers an issue and officially implements a preemptive correction measures. In December 2017, Doosan Infracore voluntarily chose one of its products as a subject of recall for it found possible defects in the lower heater of the fuel filter which may cause an inflow of moisture into an inner pin, damage it, overheat the fuel filter and thus make the filter stop functioning. The company sent out a recall notice to customers and offered free repairs at designated maintenance centers or locations preferred by consumers.

¹⁾ ISO 9244: International standard specifications on general rules regarding construction equipment safety labels

²⁾ ISO 6750: International standard specifications on the format of construction equipment manuals (guidance and content)

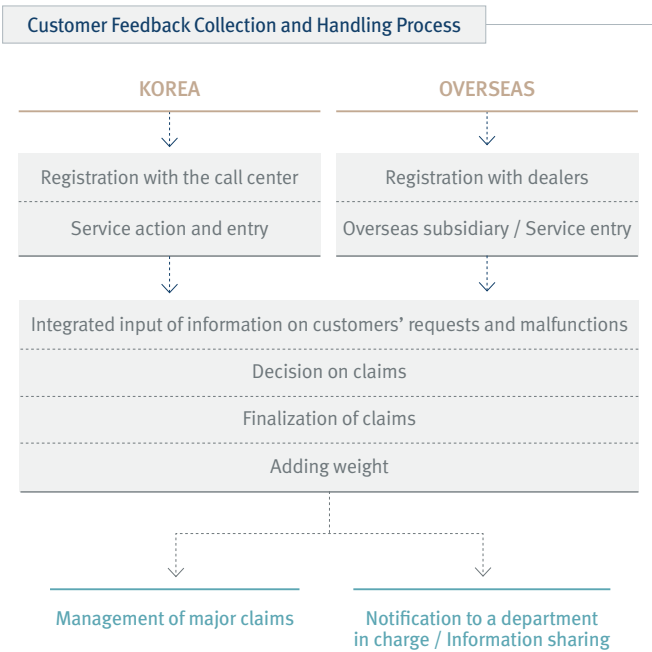
Process to Reflect Customer Feedback

Collecting and Responding to Customer Feedback Doosan Infracore collects and promptly handles customer feedback and requests through its dealers and direct visits to major customers. It also regularly holds meetings to share voice of customers (VOC) in which major suppliers participate, and thus uses them as opportunities to analyze and apply market trends.

In Korea, the Customer Support Center receives customer requests, and assigns personnel who are in a position to quickly visit customers through the Global Positioning System (GPS). This is followed by the ‘Happy Call’ with customers three days after in order to check final progress. To smoothly provide services to customers, the company has built a one-stop AM service system from sales to final disposal, and continues to enhance its dealer service training. It also carries out trainings for office and field staff of the Customer Support Center on a quarterly basis in line with the release of new products. As an outcome of such efforts, the company has achieved 97.7% of claim settlement ratio within the timeline set by customers. In 2017, the company developed and provided training programs and major characteristics and checking points of machines to prevent machinery malfunctions and increase customer value.

In China, dealers receive customer feedback and requests through the Service Call Center and aim to handle them within 24 hours, completing their services within seven days. VOCs are reflected in product design and quality improvement. Doosan Infracore provides various online and offline training courses to enhance the technical capabilities of its dealers’ service personnel. Approximately 20 emergency service engineers make three month training visits to more than 30 dealers throughout China to provide training on mechanical repairs and maintenance while also helping to solve technical issues of the company’s C (Chinese) models. As a result of these efforts, in 2016, the company achieved 78.7% and 80.7% in claims processing rates for all its models and C models, respectively. It also achieved 90% in making design improvements by successfully working on 36 cases out of 40 design-related VOCs.

Standardizing Product Post-sale Management Services Doosan Infracore offers its customers the 4-One Service – One Hour Contact, One Day Repair, One Touch Repair, One Plus Service – to deal with product malfunctions and provide technical assistance. The company strives to provide One Touch Repair on the day that service requests are made. It therefore continues to make improvements in its technical capabilities and service procedures while building a comprehensive customer support system that leaves no blind spot unaddressed and supplies parts in a timely manner.



Customer Satisfaction Management In Korea and China, Doosan Infracore conducts customer satisfaction surveys on provided services through Happy Calls and strives to keep the satisfaction level above 4.5 points on a scale of 1-5 points. In 2017, the level of satisfaction in Korea stood at 4.73 points. The company has been standardizing its customer services and providing specialized technical training and customer service education to all service personnel with an aim to improve customer service quality.

NPD Process Doosan Infracore operates the New Product Development (NPD) process with the participation of such departments as R&D, Advance Quality, Sales Strategy, and Marketing, to reflect VOCs into the new product development. The company’s business sites in Korea, China, and Europe operate customer feedback collection channels from diverse perspectives. They have also built the NPD 4.0 in 2013, with improved perspectives in terms of laws, safety, and quality. They are currently operating the NPD 4.3 to ensure quality innovation throughout all steps of product development.

Building Customer Trust in Marketing and Sales Stages

Responsible Marketing Policies Doosan Infracore sets and complies with proactive and responsible customer service policies with an aim of building customer trust and enhancing its product values. For responsible marketing, it provides the latest product information via its website and social media, along with unique brand guidelines to serve as the yardstick for marketing and communication activities, including advertising and sales promotions. The company complies with legislation related to sales, marketing, and information security, and was not subject to any sanctions for falsehood including exaggerated advertising practices in 2017.

03

Quality Stabilization and Standardization

The Foundation of Quality Management

Protection of Consumer Information Doosan Infracore has established and implemented its own customer information protection system. It encrypts its personal information database for information security and conducts integrated monitoring of access to its information system including any activities suspected of abuse or leakage. The company has prepared guidelines on the management of information security and carries out education on information security for all its employees every year. Doosan Infracore has not been subject to any sanctions for leakages of its customers’ personal information or violations of relevant laws in the past three years.

Promotion of Digital Marketing In order to promote direct communication with customers, Doosan Infracore operates digital marketing channels. In China, the company has been using WeChat, the largest messenger service in the market since 2016, to provide product news, information regarding used products and parts, and functions to help customers manage their equipment in a customer-tailored way, and to identify customers’ demands for products. As of April 2018, the company’s WeChat followers totaled 67 thousand which is more than three-fold increase in the last two years. The company is recording an increase in product sales that make use of digital marketing. Doosan Infracore is also making efforts for expanded application of digital marketing-based information and sales activities in emerging markets.

Quality Management Strategy To achieve its vision of developing into a ‘Global Leader in Infrastructure Solutions,’ Doosan Infracore has established and been operating a customer-oriented quality management system. In 2018, the company will establish its mid- to long-term quality management direction, which is to focus on strengthening proactive quality management, global quality management system, improving mass production quality, and increasing quality capabilities. The company also plans to improve its quality to a level of global leading companies through continued efforts in quality. Doosan Infracore is carrying out diverse quality management activities across the entire value chain to develop world-leading products and service quality competitiveness. The company is implementing quality-first policies based on strong leadership, such as quality innovation of new products through front loading, innovation of manufacturing sites, where quality is made, strengthening of supplier competitiveness, quick and fundamental problem-solving from the customer perspective, advanced and scientific quality management, and establishment of infrastructure.



Company-wide Integrated Quality Conference Doosan Infracore has been holding the ‘Company-wide Integrated Quality Conference,’ participated by the CEO, every month since 2010 with the purpose of attaining the highest quality from the customers’ perspective. The conference agenda reflects results of the VOC analysis and shares improvement points and responses.

Quality Improvement Index Management Doosan Infracore places top priority on making innovations in parts quality and improving product perfection with a goal of manufacturing products that meet customer needs. The company has selected initial quality and warranty quality as indices for customer recognition, and set an ambitious goal to increase customer satisfaction through quality management.

Operation of the PTS The Project Tracking System (PTS) is Doosan Infracore’s system for managing quality projects. Using PTS, the company checks the progress status of the projects related to market quality, process quality, and advance quality, responses to VOCs, and improvement effects to help the company make improvements to quality and accelerate the pace of improvement.

Considerable Improvement of Fundamental Quality
Doosan Infracore focuses on quick, considerable improvements to fundamental quality to secure core competitiveness and increase customer value. Aiming to improve the fundamental quality level by more than 20% compared to the current level, the company operates key tasks every year, strengthening compliance with basic quality rules with focus on plants and suppliers. The company will strive to minimize problems that customers may encounter while using their equipment by improving its quality through various preventive quality management endeavors. These activities include managing the company’s and suppliers’ quality fluctuation factors, strengthening the pre-shipment inspection process through the re-examination of pre-shipment inspection times and items, and forming a precautionary quality team to strengthen proactive quality management for new products. The company will continue to enhance its prevention capabilities in order to improve the quality of parts, production, and final inspection to prevent possible quality problems before equipment is delivered to customers.

Strengthening Quality at the Parts Production Stage
In order to minimize the number of defects at the production stage, the company has continued to improve parts quality through partnership with its suppliers. As a result of continuous efforts, the company has achieved more than 40% improvement in both initial quality and warranty quality, which are used as indices of the parts quality for construction equipment, in both Korea and China over the past three years. In order to prevent fluctuations in quality, suppliers are required to report any significant change that could affect their product quality, such as personnel changes, reductions in purchasing prices, and process improvements. It also enhances its proactive quality management endeavors through pre-inspection. In order to enhance the quality consciousness of its suppliers, the company holds biweekly meetings with suppliers which have quality issues to urge them to implement quality-first management policies. In 2017, the company conducted quality inspection audits customized to suppliers’ quality levels and types of quality issues for supplier quality improvements. It checked suppliers’ quality systems, processes, and products on a regular basis, and urged them to place priority on preventing quality problems, while ensuring consistent quality management. In the event of changes in the suppliers’ contractual status, design modifications, or process changes, the company will continue to make sure that no quality issues arise through the diagnosis and inspection of quality risks beforehand.

With the Supplier Support Team performing central roles, Doosan Infracore is operating various support measures and carrying out focused improvement activities to strengthen suppliers’ quality. These include 3 P’s (Proper Items, Proper Quantity, Proper Place), 6 S’s (Safety, Sort, Straighten, Shine, Standardize, Sustain), the Management Doctor system, and the Benefit Sharing system. (For further details, please refer to pages 80-84.)



Integrated EHS System

OUR APPROACH

At Doosan Infracore, environmental values and safety culture are non-negotiable principles to achieve sustainable growth.

Environmental protection and safety are essential prerequisites for a sustainable future. Stakeholders therefore are raising their voices to call on businesses to behave more responsibly in terms of the environment, health, and safety. Based on its company-wide integrated Environment, Health, and Safety (EHS) management system, Doosan Infracore is striving to use resources more efficiently and to minimize its environmental footprints by reducing pollutant discharge, while participating in response to climate change by making continuous improvements to energy efficiency and managing greenhouse gas (GHG) emissions. The company also has been establishing a safer work environment by raising the safety awareness of all its employees and rigorously managing risk factors at all worksites. By implementing EHS management, Doosan Infracore is striving to minimize environment/safety risks that may arise in the business process and to create positive influence.

CSR STRATEGIC TASK FOR 2017

Reduce worksite energy use and increase energy efficiency	
Social concerns over energy consumption and GHG emissions and impacts on business have been increasing. Worksite energy efficiency management requires businesses to make continuous investments in facility upgrades and energy conversion. Doosan Infracore therefore implements its CSR strategic task of reducing worksite energy use and increasing energy efficiency, and focuses on improving energy efficiency at its worksites and coping with rapidly changing energy markets in a stable manner.	
Activities and Achievements	Upgraded the Energy Management System (EMS); built an energy measurement equipment monitoring system; reduced energy losses during non-operating hours; made investments into energy reduction projects; and identified items regarding energy reduction
Plans	Improve the management level regarding energy consumption and intensity management; reduce energy losses during non-operating hour; make investments into energy reduction projects; establish a plan to build an EMS for DICC and manage energy intensity

Establish a mid- to long-term roadmap on carbon trading	
Doosan Infracore has set a GHG reduction target by analyzing the GHG emissions status and sources of emissions in order to effectively respond to the second phase of emissions trading scheme slated to take effect from 2018 through 2020. Accordingly, the company identified reduction measures and anticipated effects. Going forward, Doosan Infracore will build a sustainable foundation for operating emissions rights by conducting corporate-wide GHG reduction campaigns and making investments into energy reduction projects.	
Activities and Achievements	Identified the potential GHG reduction amount; established a reduction roadmap; and established a decision-making process for emissions trading

CSR STRATEGIC TASK FOR 2018

Establish an emissions reduction goal and an action plan	
Doosan Infracore aims to effectively respond to the second phase of emissions trading scheme slated to take effect from 2018 through 2020 by establishing a goal to reduce emissions and an action plan to achieve the goal, and thus secure a stable, sustainable foundation for responding to the emissions trading scheme.	
Plans	Establish an emissions reduction target for the second phase and assign a target for each business group; operate a GHG reduction council at the Incheon Plant; identify items to make investments regarding GHG reduction and carry out other reduction activities; foster GHG/energy experts; and conduct GHG/energy reduction campaigns

01

Integrated EHS Management

EHS Management Strategy

EHS Implementation Strategy To realize its vision of becoming a ‘Global Leading Green Company,’ Doosan Infracore has established five major EHS management implementation strategies and strives to achieve sustainable growth.

EHS Policy Having established its EHS Management Policy in 1995, Doosan Infracore implements integrated EHS management in its efforts to respect the dignity of all human beings, practice environmental conservation throughout all business activities, and help create prosperous lives for humankind and enhance the future value of the planet. The company’s EHS Management Policy was established to share key elements of its environmental management strategies both internally and externally. Since its enactment in 2015, it has been amended on nine occasions. The policy consists of five specific principles, including operation of the environment and safety management system, through which it is promoting corporate-wide participation in environment and safety management.



• **Operation of the EHS System** We establish, operate and continue to develop a system designed to improve EHS impacts of our products, activities, and services.



• **Compliance with EHS Regulations** We adhere to national and international EHS regulations and agreements, establish strict internal management standards, and faithfully implement them.



• **Development of Eco-friendly Technology to Boost Customer Safety** We develop eco-friendly technologies that place top priority on our customers’ health and safety, and then preserve resources and energy to actively contribute to sustainable environmental conservation and fight against global warming.

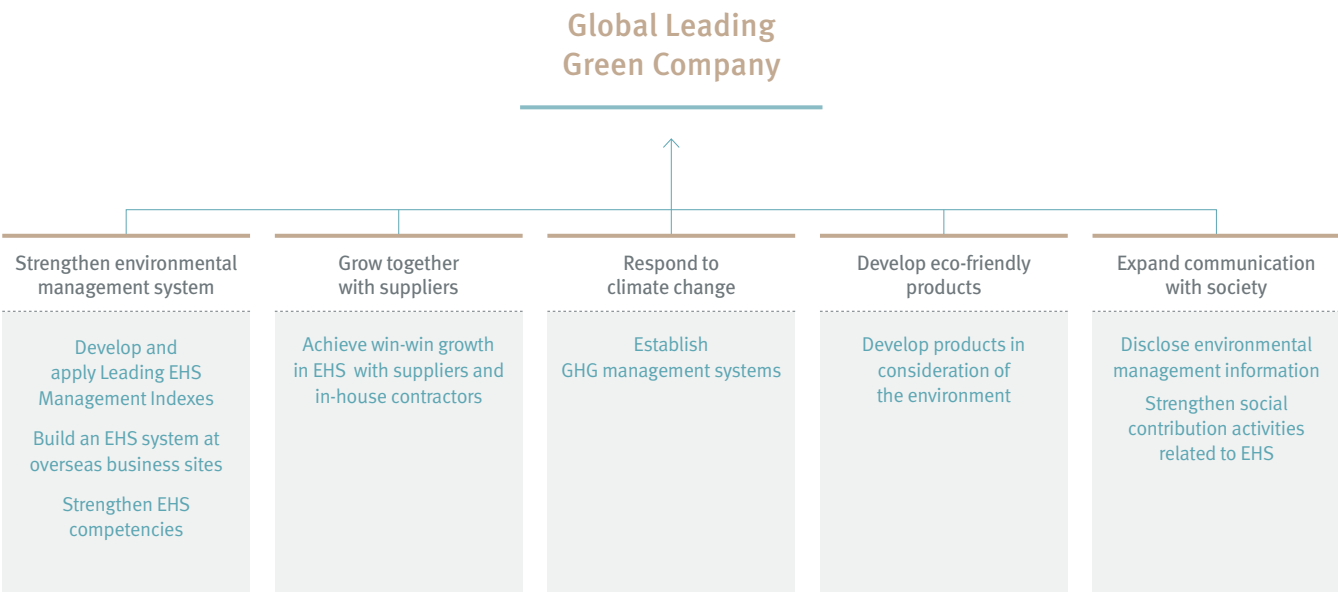


• **Realization of Zero Occupational Accident** We create a pleasant and safe people-centered work environment, improve the health and quality of the lives of all our employees and suppliers, and aim for zero accident at work.



• **Communication with Stakeholders** We increase communication with our stakeholders and disclose EHS performance transparently in order to continue to grow as a trusted and respected company that fulfills its social responsibilities.

5 Strategic Tasks for EHS Management



EHS Management System

Doosan Infracore has been enhancing the level of its EHS management by systematizing relevant organizations under the EHS Policy and strategies, operating an EHS management system at global business sites, obtaining international certifications, and reviewing the status of implementation. In order to promote more systematic EHS management, the company established an EHS IT system, through which it managed EHS-related information in real time and carried out comprehensive analysis of various information, followed by reinforcement or improvement if needed. The company also has developed corporate-wide EHS management evaluation indexes and applies them to its business sites in Korea and China. For continued improvement and development of activity performance, Doosan Infracore manages evaluation indexes through a performance analysis every year. By reflecting the EHS management evaluation status in the performance indexes of top management and executives of relevant departments, Doosan Infracore is improving the implementation capabilities of the EHS management system and enhancing management standards. Based on clear EHS standards and the systems linked to its value chain, such as purchasing and production, the company seeks to enhance its required capabilities and increases its implementation capacity by connecting EHS management to the entire range of its business operations.

EHS Organization With central roles performed by the EHS Team at the Incheon Plant, which is the company’s head office, the EHS units at overseas business sites work in unison for systematic and effective EHS management in response to the expansion of overseas worksites and a rise in global environmental issues. In 2017, the company extended communications among staff regarding its EHS philosophy and standards and also strengthened EHS support and management for its overseas business sites. In order to ensure all of its business sites adhere to the same level of high EHS standards, regardless of the country or region, the company established Global EHS Governance. The company’s plan for 2018 is to provide support to enhance EHS levels at overseas business sites based on Global EHS Governance, such as sharing EHS execution tasks and issues, holding EHS workshops, and visiting worksites.

Managing the EHS Management System Doosan Infracore has an EHS management system in place based on international standards, and examines the operation of the EHS management system and level of compliance with relevant laws and regulations by conducting internal and external inspections every year. The global business sites of Doosan Infracore continue to put efforts in minimizing environmental pollution and damage that can arise from corporate activities by earning such international standards as ISO 14001 Environmental Management Certification and the Occupational Health and Safety Management System (OHSAS 18001/KOSHA 18001) Certification. They also focus on safety inspections on hazardous machines and equipment as well as the process safety management (PSM). In addition, they strive to remove industrial accident risk factors. In October 2017, Doosan Infracore took measures for a change in ISO 14001 certification specifications, and thus renewed to the ISO 14001:2015. It also carried out inspections for the OHSAS 18001/KOSHA 18001 certification in Korea, and then made improvements.

Self-evaluation of Global EHS To further advance EHS management and strengthen EHS fundamentals, Doosan Infracore conducts Doosan EHS Rating System (DSRS)¹⁾ evaluations as well as evaluations on compliance with EHS laws and regulations. Developed on the basis of global standards and in consideration of business characteristics, the DSRS is the basis to build an advanced EHS system and create an EHS culture shared by staff. Doosan Infracore performed a DSRS evaluation on the Gunsan Plant in June 2017 and carried out improvement activities, and plans a DSRS evaluation on the Incheon Plant in 2018.

In the second half of 2017, the company evaluated its level of compliance with EHS laws and regulations at its business sites in Korea and China in order to prepare for external assessments and inspections and enhance field implementation capabilities. The evaluation was carried out through field guidance to review proper use and management of dangerous machines, equipment, and chemicals, as well as the status of safety training progress. Evaluation results are linked to the management by objectives (MBOs) of relevant executives and the integrated reward system by duty type, which in turn has increased employee awareness and thus leads to actual improvements. Doosan Infracore plans to conduct evaluations on compliance with EHS laws and regulations at its business sites in Korea and China as well as in-house suppliers on two occasions in 2018.

ISO 14001 Certified Worksites

ISO 14001

Korea
(Incheon, Gunsan, Ansan)
China
(Yantai)

Safety and Health Management System Certified Worksites

OHSAS 18001

KOSHA 18001

Korea
(Incheon, Gunsan, Ansan)
China
(Yantai)

Korea
(Incheon, Gunsan)

¹⁾ Doosan EHS Rating System (DSRS): The EHS evaluation system developed by Doosan Group to evaluate the EHS level of its worksites quantitatively and to encourage them to make improvements; Doosan Group has made adjustments to the ISRS applied by global leading companies to suit its own circumstances

02

Energy Management and Responses to Climate Change

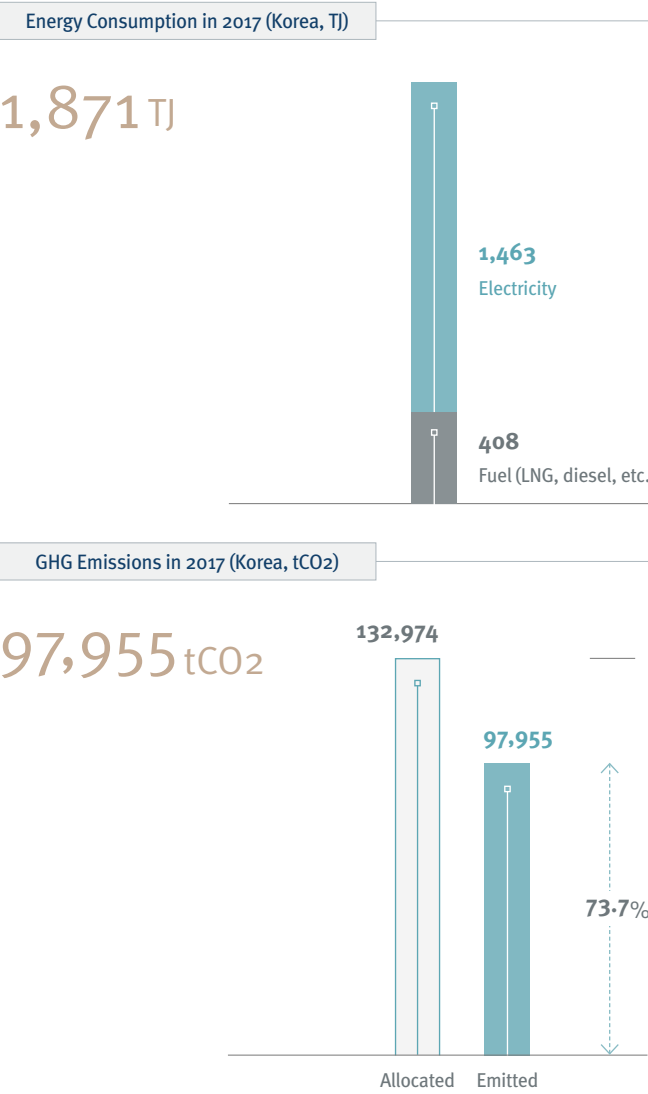
Due to global warming that is caused by an increase in GHG emissions, abnormal temperatures, frequent drought, typhoons, and floods, and other forms of climate change are influencing the ecosystem as well as all areas related to humankind, including industrial activities. To preemptively respond to climate change risks and opportunities, Doosan Infracore forecasts GHG emissions based on its annual production plan and carries out diverse energy efficiency-increasing investments and activities to achieve its emissions target. The company is also expanding the development and sales of highly energy-efficient, low-carbon products, including electric excavators.

Improving Energy Efficiency

Reducing Worksite Energy Use and Increasing Energy Efficiency From 2015 through 2017, Doosan Infracore has been implementing its CSR strategic tasks of reducing worksite energy use and increasing energy efficiency in Korea with the CSR Committee managing the status of execution. The strategic tasks include identifying and implementing energy consumption reduction tasks, building an energy intensity management system, and upgrading the energy monitoring system. In 2017, Doosan Infracore reduced KRW 1.28 billion in energy expenses by implementing energy consumption reduction measures, such as reducing energy losses during non-operating hours since 2016, making investments into energy consumption reduction projects, such as separating compressed air pipes at the casting factory, and sharing information on the possible amount of reduction with relevant departments through base load analysis. By upgrading the Energy Management System (EMS), Doosan Infracore established an energy reporting foundation that enables monitoring of energy usage amount and costs, monthly energy usage trends by energy source, and energy intensity performance in connection to production. The company also built an energy measurement equipment monitoring system, and thus strengthened EMS data credibility. As a result of its efforts to reduce plant energy use and optimize efficiency, Doosan Infracore received confirmation from the Korea Energy Agency, in December 2017, on the installation of a ‘Factory Energy Management System (FEMS)’ on reducing plant energy use and optimizing performance. In 2018, Doosan Infracore will continue with activities that reduce energy losses during non-operating hours as well as energy consumption reduction investments in Korea, and further advance energy usage status and intensity management to increase energy efficiency at worksites.

Responsible Responses to Climate Change

GHG Emissions Management Doosan Infracore’s Incheon Plant became a subject to the Korean government’s GHG & Energy Target Management System in 2010, after which all business sites of the company had fulfilled their legal obligations in relation to the Target Management System from 2011 through 2014. Since being subject to the emissions trading scheme in 2015, the company has been managing GHG emissions at around 68% of the quota allocated by the government. For GHG emissions management in Korea, energy consumption (use of electricity, LNG, etc.) is measured by gauges at each plant and production line, and the results are converted and analyzed automatically in the GHG monitoring system of the company’s integrated EHS IT system. Owing to the characteristics of its assembly processes, indirect emissions from purchased electricity account for about 72.6% of total GHG emissions of the company, while process emissions as well as stationary combustion and mobile combustion emissions account for the rest. In 2017, Doosan Infracore emitted approximately 73.7% (97,955 tCO₂) of the quota allocated (132,974 tCO₂) to the company by the government as a result of continued efforts to manage energy usage efficiency at worksites, although its production has increased.



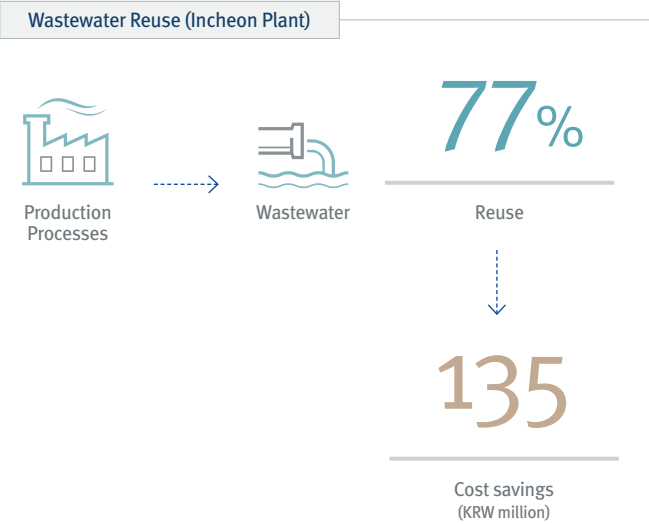
03

Improving Resource Efficiency and Reducing Environmental Impact

Doosan Infracore explores better ways of using limited resources more efficiently while striving to minimize the impact of its business activities on the environment and local communities in particular. To that end, the company has adopted various ways of promoting the eco-friendly use of resources and conducts various activities that reduce the discharge of pollutants. Doosan Infracore controls its emissions of pollutants more strictly than required by laws in all relevant areas. The company’s performance in using resources and managing emissions over the past three years is found in the ‘CSR Facts & Figures’ section (pages 101-102) of this report.

Improving Efficiency in the Use of Resources

Water Reuse As extreme weather, such as drought and heavy rainfall, becomes more frequent, the importance of managing water resources has been increasing. For management of water pollutants, Doosan Infracore’s Incheon Plant has been operating a wastewater recycling system since 2014, designed to recycle the effluent discharged from its wastewater treatment facility and reuse it in production processes. In 2017, the company identified additional places to use recycled effluent, including the casting plant’s sand treatment tower, and reused 77% of its wastewater in production processes, a year-on-year rise of 5%, thereby reducing water consumption and saving costs by KRW 135 million. By supplying recycled water to the casting plant’s sand treatment tower, the company expects to reduce annual water consumption by 7,200 tons and save costs by KRW 12 million a year. It also established a wastewater reclamation and reuse system that enabled it to reuse 5,220 tons of water in 2017. In addition, the company built a rainwater-harvesting system and reused 1,140 tons of rainwater for landscaping purposes and coolants.



Responses to Climate Change at Global Business Sites Business sites in China are monitoring energy use, including fossil fuels and steam, and plan to build an energy and GHG inventory in response to the Chinese government’s GHG emissions reduction plan.

Response to Emissions Trading

With the legal enforcement of the emissions trading scheme in 2015, all business sites of Doosan Infracore in Korea were designated as being subject to the scheme. The company was assigned a total of 486,095 tCO₂ (after the cancellation of quota, additional quota, and free quota allocation per implementation year)¹⁾ as its emissions quota for the first phase – three years from 2015 to 2017. The company emitted GHGs within the allocated quantities by continually managing GHGs, such as making diverse energy use-reducing investments and carrying out energy use reduction activities. The Incheon Plant was designated for the second phase (2018-2020). To establish a foundation for operating the emissions trading scheme through preemptive emissions trading and to set a mid- to long-term direction on dealing with the emissions trading scheme, Doosan Infracore has set ‘establishing a mid- to long-term roadmap on carbon trading’ as one of its 2017 CSR strategic tasks, and identified the potential GHG emissions reduction amount and established the roadmap for reduction as well as the decision-making process for trading.

Doosan Infracore defined one of its CSR strategic tasks for 2018 as ‘establishing a goal to reduce emissions and an action plan to achieve the goal’ to reduce GHG emissions and to build a more stable and sustainable foundation to deal with the emissions trading scheme. The company plans to establish an emissions reduction target for the second phase and assign a target for each business group; operate a GHG reduction council at the Incheon Plant; identity items to make investments regarding GHG reduction and carry out other reduction activities; foster GHG/energy experts; and conduct GHG/energy reduction campaigns. Moreover, the company will set up measures to respond over the mid- to long-term by establishing a corporate-wide emissions reduction target that reflects the nation’s GHG reduction roadmap, and by providing support for GHG reduction activities to suppliers and developing countries with insufficient capabilities to respond to climate change in order to get GHG emissions rights outside the company.

¹⁾ The allocated emissions for the first phase was changed from the figure disclosed in the 2015 Integrated Report owing to the exclusion of the Changwon Plant and Suji Technical Institute since the sell-off of the Machine Tools BG, as well as the addition of the company’s early reduction performance and the adjustment made by the government

Reuse and Recycling of Waste To ensure the efficient use of limited resources, Doosan Infracore pursues design optimization, thoroughly checks its plant facilities, and maintains them in the optimal operational state, thereby conserving resources in its daily operations. In Korea, the company has been implementing its resource recycling policy, enabling the company to reuse 93% of its waste in 2017. Doosan Infracore plans to further increase its recycling rate by sorting waste by type and diversifying its recycling methods, as well as by identifying additional recycling methods and making improvements to its existing waste disposal methods.

Management of Environmental Pollutants

Water Quality Management All wastewater generated from production processes go through a physical, chemical, and biological treatment process at the wastewater treatment facility and is purified before final discharge. By automating the entire wastewater treatment process, Doosan Infracore manages pollutants at levels below 40% of the legal requirement. The company operates nonpoint pollution source reduction facilities to remove the environmental risk of polluting nearby ocean waters with rainwater that may have deposited at plant sites and carry pollutants. The facilities ensure that clean rain water is discharged after going through a vortex device and a fiber-type filter. Also, additional water gates were set up on general drains, thereby building a system that blocks the spread of pollution at its source even in the event of an unexpected dangerous substance leakage accident. More than 70% of the wastewater generated at the Incheon Plant goes through in-house treatment and is reused in the processes, resulting in minimized outside discharge of pollutants. Wastewater of the Gunsan Plant is purified at a legitimate wastewater treatment facility which then flows into each respective local government’s sewage treatment plant for retreatment. Doosan Infracore also set an internal standard on discharging water pollutants at around 40% of the legal requirement, as part of strenuous efforts to comply with environmental laws and regulations.

Management of Air Pollutants and Odors Air pollutants, such as NOx, SOx, dust, and volatile organic compounds (VOCs), are generated from the company’s production processes, from electric furnaces and the painting process. To minimize damage to local communities and reduce environmental hazards, Doosan Infracore sets up various dust collectors, new painting facilities and concentration catalytic oxidation facilities, etc. at each worksite unit, leading to reduced discharge of air pollutants. Doosan Infracore conducts strict measurements, more than the self pollutant measurement cycle that is legally required, and monitors pollutants. The company set a standard so that pollutants are emitted at less than 40% of the legal requirement.

The Incheon Plant conducted an external diagnosis on its processes that generate odors to preemptively respond to the metropolitan air quality improvement policy and odor-related complaints that may arise due to development of nearby housing areas and a sharp rise in the residential population. Based on the outcome, it established an improvement plan together with the respective local government, and continues to increase facility investments to improve processes that generate odors and to apply eco-friendly processes. In 2017, the Incheon Plant carried out monitoring along the worksite border and nearby areas for more systematic odor management.

Management of Soil Contamination In 2010, Doosan Infracore conducted a voluntary soil contamination survey of the areas where facilities that cause soil contamination were operating in the Incheon Plant, and completed soil remediation in those areas over the following three years. In 2013, it carried out soil contamination surveys of the areas surrounding all its worksites. The company has undertaken additional voluntary soil remediation work since 2014, which will be completed by August 2018.

Strengthening Environmental Disaster Response System

Doosan Infracore has established an emergency response system for environmental spills, including a pollutant leakage block system at the Incheon Plant and spill monitoring system, in order to minimize the possibility and impact of environmental accidents. In 2017, it increased the number of floodgates from four to six to minimize pollutant leakage through rainwater, established a sensor to detect pollutants and an automatic water gate shutdown system, and replaced old wastewater piping, thus building a spill accident response infrastructure. As a result, there were no major environmental accidents in 2017. The company’s plan for 2018 is to focus on preventing accidents by building a preventive environmental facility maintenance process, including establishment of a preventive environmental facility maintenance cycle and implementation of relevant management, in addition to upgrades to environmental utility sign management. Doosan Infracore will also strengthen environmental accident monitoring, create environmental accident identification and response scenarios by process, and provide training on emergency incident response scenarios to further increase its ability to respond to emergency situations related to environmental accidents.

Reducing Environmental Impact on Local Communities

Doosan Infracore has intensified its efforts to minimize environmental impacts of its worksite operations on local communities, and thus making continued improvements to create a clean living environment. In 2015, the company set up a digital signboard to display information on air pollutants in the Incheon area in cooperation with three other companies based in the area. The company fulfills its obligations as a corporate citizen by engaging in precautionary management of factors that may cause resident complaints, such as foul odors, as well as making continuous investments in local communities, including the Hwasu wharf improvement project near the Incheon Plant.

04 Enhancing Worksite Safety Risk Management

Worksite Safety Management with a Focus on Prevention

Worksite Hazard Management Doosan Infracore identified a total 3,486 risk factors in 2017 by continually implementing a discussion-based risk factor identification process involving the participation of employees, and is making improvements. In 2018, the company will check unsafe conducts and status improvement results, while carrying out field-centered self-management activities for risk factors.

Acquisition of Safety Zone Certification The certification of all the company’s domestic worksites was completed with the Incheon and Gunsan Plants’ acquisition of the Safety Zone Certification in December 2014 and November 2015, respectively. Awarded by Safety Zone-CERT® and supervised by the National Fire Agency, the Safety Zone Certification is the country’s only voluntary corporate safety evaluation system and entails a comprehensive evaluation of building design, construction, and maintenance. In 2017, Doosan Infracore received a detailed evaluation on six safety areas, including the safety management system, firefighting, building/fire proof, dangerous goods, machine/electricity/gas, and evacuation/natural disaster, from experts in the field of disaster and safety. The company actively made improvements for matters that were pointed out, and obtained the Safety Zone Certification for the second consecutive time in December 2017 following 2014. Doosan Infracore believes that investments in safety and firefighting are not expenses but are a must to protect staff members. Based on the Safety Zone Certification, it will further spread recognition of the importance of fire and disaster prevention, and systematically and efficiently manage safety facilities.



Major evaluation categories



Respond to Process Safety Report Evaluation The Process Safety Management System (PMS) has been in operation which requires worksites that have large harmful, dangerous facilities that may cause a major industrial accident to create a report on comprehensive, scientific prevention activities, such as process risk evaluations and establishment of a safe operation and emergency measure plan. This report is submitted to the government, after which the government examines and reviews the report and has the respective worksite implement preventive activities to result in the prevention of major industrial accidents. Aiming to earn a better grade in the regular inspection on the process safety report, Doosan Infracore revised the process safety report of its Incheon and Gunsan plants and carried out an internal audit on the Incheon Plant’s PSM in 2017. Based on the results of the internal audit, the company identified improvement measures, such as increasing supplier safety training, expanding the scope of Job Safety Analysis (JSA), and revising safe work permissions, and continues to inspect the implementation status.

Expansion of Safety Management Culture

Building a Culture of Safety The company continues to promote compliance with the EHS 3-3-3 Basic Rules and engage in safety culture activities, including improvements in the field of safety, to achieve zero accident. Each month, the heads of business groups provide safety reports to their employees. The company has designated April as Health and Safety Month during which it strives to improve safety and raise safety awareness through education sessions, promotional campaigns, and inspections. Visitors to its worksites are required to watch a video on safety precautions first to raise their safety awareness.

Support for Suppliers’ Safety Management Capabilities Doosan Infracore has been implementing ‘Symbiotic Cooperation Programs’ since 2012 to help its suppliers boost their safety management capabilities, in accordance with one of its EHS principles – ‘We aim to create a pleasant and safe people-oriented working environment, improve the health and quality of life of all employees, including those of our suppliers, prevent losses, and thus ultimately realize a zero-accident workplace.’ Launched by the Ministry of Employment and Labor in 2011, the Symbiotic Cooperation Program is designed to urge conglomerates to improve their suppliers’ health and safety capabilities and to prevent industrial accidents through continuous cooperation. In March 2017, Doosan Infracore held a ceremony to launch a team for the ‘2017 Safety and Health Symbiotic Cooperation Program’ participated by 22 suppliers. This was followed by diverse support activities, including safety and health training, risk assessments, and field safety skills. Thanks to these efforts, Doosan Infracore received ‘Grade A,’ which is the highest grade that is given to the nation’s top 10%, in the ‘2017 Safety and Health Symbiotic Cooperation Program’ evaluation in January 2018 for the fifth time since the company first earned the Grade A in 2012.

Safety Management for Outsourced Projects In recent years, conglomerates have suffered from an increasing number of accidents caused by their suppliers at their worksites, and social demands for an expanded scope of safety management responsibilities of conglomerates have increased along with stricter sanctions on their failures. Doosan Infracore is further strengthening safety management to prevent supplier safety accidents during outsourced projects at its worksites. The company enhanced on-site patrol operations to check onsite safety status once a day and have the results reported to management. It also implemented the Safety Walk every month, in which executives, production managers, and EHS officers carry out a safety patrol, identify potential safety risks, and come up with improvements. In 2018, Doosan Infracore plans to further enhance autonomous safety management capabilities by improving risk assessment skills and adopting a pre-approval system for tools with an aim to achieve zero major accidents involving outsourced construction companies.

Social Contribution Activities for Safety Culture In 2016, Doosan Infracore signed a memorandum of understanding on ‘Social Contribution Activities for Safety Culture’ with the Korean Ministry of Public Safety and Security and promoted safety culture in local communities, including its suppliers, by leveraging its expertise. The Social Contribution Activities for Safety Culture constitute a new CSR activity model under which the Korean government and the public and private sectors join forces to utilize corporate expertise in their efforts to establish a strong safety culture in local communities. In 2017, the company focused its efforts on conducting health and safety activities for its adjacent areas, preventing children’s safety and health accidents, providing technical EHS support for suppliers that have joined the Symbiotic Cooperation Program, and offering education on safety activities for external suppliers. Doosan Infracore actively engaged in safety culture activities by leveraging its specialized, internal EHS capabilities, leading to the company’s receipt of a plaque of appreciation at the ‘Performance Report on Social Contribution Activities for Safety Culture’ in December.

Accident Rate Management

The method used to calculate the accident rate for industrial accidents does not reflect the minor accident occurrence status. To address this shortcoming, Doosan Infracore plans to begin managing LTIR¹⁾, TRIR²⁾, and LWSR³⁾ indexes in 2018. These allow the company to identify minor accidents that resulted in lost time as well as those who received treatment among staff members and in-house suppliers. By doing so, the company aims to prevent minor accidents from repeating and becoming a major accident, and to further strengthen supplier safety management. Accident rate indexes are managed as a major key performance indicator (KPI) of respective executives, based on which Doosan Infracore plans to further promote a safety management culture.



¹⁾ Lost Time Incidents Rate (LTIR) = (Total LTI*/Total work hours) X 200,000 (*LTI: No. of deaths and no. of incidents that cause a close down for a day or more)
²⁾ Total Recordable Incidents Rate (TRIR): No. of cases of treatment per 100 workers, No. of those treated/Total work hours*20,000
³⁾ Lost Workday Severity Rate (LWSR): No. of lost days per 100 workers, Total lost days/Total work hours*20,000

04 Enhancing Employee Health Management

Improving Employee Health Management

Occupational Disease Prevention Doosan Infracore holds a monthly meeting of the Musculoskeletal Disorder Improvement Working Council, which is composed of labor union officials, worksite managers, and employees in charge of EHS and production, to discuss physical load risks and identify ways of making improvements. The company also arranges for medical professionals to visit its worksites regularly as part of its efforts to improve employees’ health and boost their morale. To respond to an increase in the number of employees subject to hearing management, including noise-induced deafness, Doosan Infracore plans to establish and implement measures that prevent and manage noise induced deafness in 2018, including training on how to wear protective gear and activities to improve manufacturing processes with high noise levels.

Health Management Programs To help its employees manage their health, Doosan Infracore designated its Korean worksites as smoke-free zones in January 2015. It also runs various health promotion programs, including the installation of automated external defibrillators (AED) and the preparation of a low sodium diet in its canteens. Whenever a healthcare issue such as the spread of an infectious disease arises, the company operates the Emergency Situation Room and promptly offers the relevant information on preventive measures to its employees. The company pays for mandatory vaccinations for six diseases – yellow fever, cholera, malaria, typhoid, hepatitis A, and tetanus – designated internally for employees who go on business trips to countries with limited healthcare.

Developing an IT System for Health Checkup History Management

Doosan Infracore began to develop an IT system to manage health checkup history in February 2018. The company seeks to enable corporate-wide health checkup and training schedule management so as to ensure all staff members receive checkups and trainings, reduce productivity losses that are caused by a delay in placement of production technical staff, prevent legal risks from missing special checkup data, and manage the history of the health checkup results of each individual employee to ensure voluntary health promotion.

Programs to Manage Job Stress Doosan Infracore conducts surveys on job stress and implements specialized occupational stress management programs for the benefit of employees’ mental health, particularly for high-risk groups of employees. In Korea, the company has been operating ‘DooHug,’ an in-house psychological counseling center, since 2014 as part of a job stress prevention management program. In China, the company operates the Employees Assistance Program (EAP), which includes sand treatment and psychological counseling. Doosan Infracore plans to further expand its job stress prevention programs in Korea in 2018 by conducting a corporate-wide staff survey, operating a healing program and psychological examination center, and providing field manager training on preventing stress disorders after an external injury.

Certified as Excellent Worksite in Employee Health Promotion

The Incheon Plant was re-certified by the Korean Ministry of Employment and Labor and the Korea Occupational Safety and Health Agency in September 2016 for its excellence in promoting employees’ health, following its initial certification in August 2013. The Gunsan Plant was certified in November 2015, thus all of the company’s domestic business sites have obtained certification in that area. Designated worksites are awarded the benefit of being exempted from supervision by the Ministry of Employment and Labor for the next three years. The company will continue employee health promotions as part of its efforts to create a better workplace.

Shared Growth with Our Suppliers

OUR APPROACH

We seek ways to grow together with our suppliers to realize the value of win-win management.

Doosan Infracore considers win-win growth with suppliers a primary source of its competitiveness. The company shares its technology, quality, and management systems with its suppliers to strengthen each supplier's competency and build a virtuous circle of partnerships. In order to contribute to expanding corporate social responsibilities, Doosan Infracore runs various evaluation and support programs to help its suppliers improve their CSR capabilities.

CSR STRATEGIC TASK FOR 2018

Identify suppliers' CSR risks and monitor the implementation of improvement measures

The occurrence of CSR issues, such as human rights, the environment, and safety of suppliers, has been on the rise. The supply chain CSR management has also been gaining importance around the world. Doosan Infracore has therefore set 'strengthening CSR management system of supply chain' as one of its strategic CSR tasks in 2016. In 2018, the company will place priority on 'identifying suppliers' CSR risks and monitoring of the implementation of improvement measures,' define suppliers with high CSR risks, and establish necessary management processes.

Plans Define suppliers with high CSR risks and set standards; and establish relevant processes to manage suppliers with high CSR risks



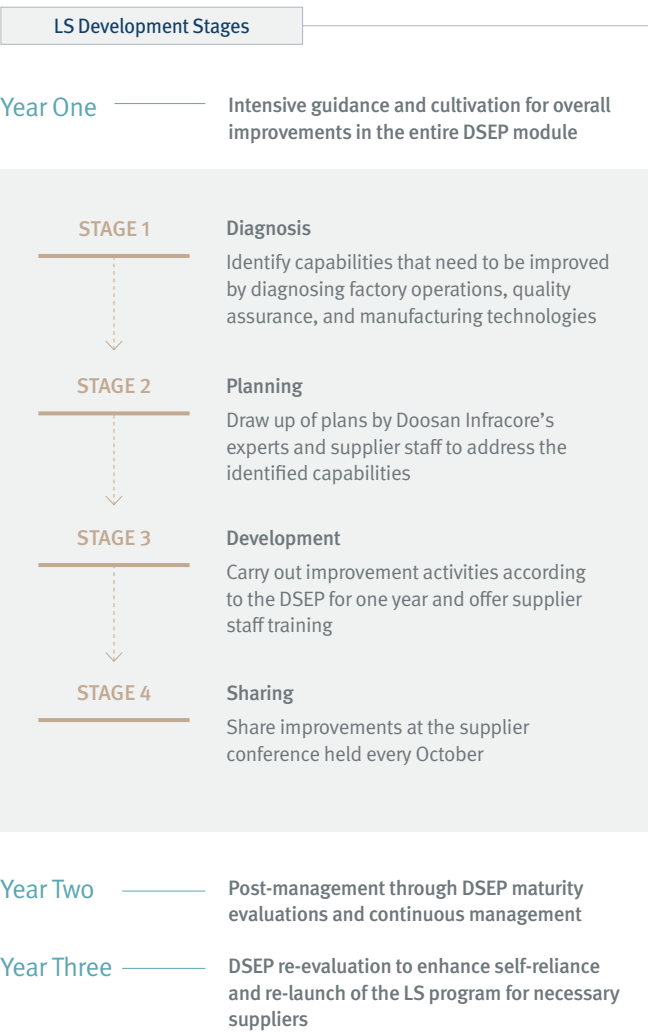
01 Strengthening Suppliers' Competitiveness

Doosan Infracore focuses on raising its overall competitiveness in the areas of purchase and production by helping its suppliers boost their competitiveness. To that end, the company runs a variety of support programs, including technological development, product improvements, and financial assistance. In addition, based on the Doosan Supplier Excellence Program (DSEP), a system to foster suppliers, it carries out the 'Leading Supplier' project in order to help its major suppliers. In addition, Doosan Infracore has actively promoted the multi-party benefit sharing system, which is designed to expand its supplier development programs to second-tier suppliers, achieve common goals that include cost reductions through mutual cooperation, and share the outcomes.

Fostering Leading Suppliers

Doosan Infracore defines its major suppliers as those that have more than a 30% dependence on the company in terms of sales or achieve annual sales of more than a certain amount. It makes continuous efforts to help such suppliers grow into 'Leading Suppliers' that are equipped with capabilities to supply quality products at competitive prices on time by making innovative improvements in the areas of factory operations, quality assurance and manufacturing technologies, and competencies worth being benchmarked by other suppliers. In other words, the company helps suppliers not only solve their problems but also make innovations to build capabilities and secure fundamental competitiveness through one- to three-year support programs. In particular, the company carries out evaluations and takes additional supportive measures every year, thereby preventing the designated Leading Suppliers from suffering deterioration in quality and delivery capabilities due to a shortage in post-management efforts from the company. At the same time, Doosan Infracore also encourages them to internationalize their fundamental competitiveness.

With the goal of fostering 50 Leading Suppliers by 2022, Doosan Infracore selected and supported a total of 22 suppliers between 2014 and 2017. As a result of these efforts, it has made improvements to quality and delivery with some suppliers achieving tangible results, such as increased sales through the development of new products and opportunities to export overseas. In 2018, the company will select five suppliers and help them grow into Leading Suppliers.



Promoting Participation in the Benefit Sharing System

The benefit sharing system is an agreement made between conglomerates and small- and medium-sized enterprises (SMEs) to improve suppliers' capabilities to deliver high quality goods on time and share the benefits with one another. It is an iconic model for the creation of a healthy corporate ecology. The multi-party benefit sharing system has advanced one step beyond the ordinary benefit sharing system to include second-tier suppliers. Doosan Infracore collects first- and second-tier suppliers' suggestions regarding quality improvements or design changes through its benefit sharing system. The company reflects suggestions into its products, and it shares the benefits evenly with suppliers, thus creating win-win partnerships with its suppliers. Doosan Infracore now plans to improve its suppliers' fundamental competitiveness through an expanded benefit-sharing system to include not only primary suppliers but also their second-tier suppliers in order to stabilize fair trade in subcontracting transactions within the industry.

Strengthening the CSR Competencies of Suppliers

Doosan Infracore helps its suppliers to implement key CSR elements, including ethical management, fair trade, human rights, and environmental protection. The company will continue to share its core values with them so that they will carry out their own CSR activities.

Strengthening CSR Management System of the Supply Chain In 2015, Doosan Infracore published CSR guidelines for its suppliers and distributed them in the form of a newsletter and a booklet. The guidelines contain key rules with which all of its suppliers must comply, including 27 rules organized under 10 categories, such as labor, human rights, health and safety, the environment, ethics, and fair trade. The contents of the CSR guidelines are reflected in the company's purchasing policy to ensure that it applies a consistent philosophy to diagnose, evaluate, and purchase while inducing its suppliers to engage in practical CSR efforts.

Reflecting CSR Elements into Supplier Evaluation Doosan Infracore reflects CSR elements, such as employee training, labor-management relations, environmental management, and regulatory compliance into its evaluation of candidate suppliers at all of the company's business sites in Korea and China. In the area of EHS in particular, the company evaluates potential suppliers' performance in both their systematic preparations for and actual implementation of EHS in a variety of areas, such as leadership, compliance with the laws, establishment of the relevant systems, and improvements to risk management. The company also has conducted on-site EHS inspections of new suppliers prior to their registration since 2015. In China, it established the 'Supplier EHS Evaluation Criteria' in 2016, and it has since distributed them to its local suppliers and helped them conduct rigorous self-analysis ever since. In 2017, it visited the suppliers and provided them with on-site EHS guidance and support.

Supporting Suppliers' Response to Climate Change Doosan Infracore established carbon partnership with 21 suppliers that were relatively weak in responding to climate change from 2015 to 2016. Together with them, the company formed the 'Project for the Creation of a Foundation for Energy Resource Circulation,' a national task by the Korean Ministry of Trade, Industry and Energy. The company helped them build a carbon management system by conducting energy diagnosis, providing improvement measures, establishing a workplace GHG management system, developing GHG emission reduction technologies, and evaluating potential reduction quantities. The project, which lays the foundations for carbon reduction as a response to climate change, is designed to boost suppliers' carbon management competencies and help them improve their fundamental competitiveness through energy savings. In 2017, as follow-up education pertaining to the supplier carbon partnership project that ended in 2016, the company carried out education on climate change for 27 suppliers' officers in charge. Doosan Infracore will strive to build a collaborative carbon management system with all of its suppliers through continuous education on climate change and the sharing of outstanding cases on energy savings.

02

Diverse Supplier Support Programs

Competitiveness Enhancement Programs

Supporting the Enhancement of Suppliers' Competitiveness An exclusive team composed of more than 50 in-house experts and technical engineers of Doosan Infracore visits suppliers and helps them innovate. In 2017, 260 experts helped suppliers with their innovation efforts for more than five consecutive days¹⁾, providing key technical support for welding, materials manufacturing and non-destructive inspection. They also provided support for innovation in the fields of 3 P's 6 S's²⁾, Lean³⁾, DTC⁴⁾, Single PPM⁵⁾, quality guidance and problem solving, localization and product development.

Management Doctor System Doosan Infracore is an active participant in the Management Doctor System, which is currently being promoted by the SME Support Center of the Federation of Korean Industries (FKI). Suppliers recommended by businesses are selected through a review process, whereupon experts from three parties – large corporations, suppliers, and the FKI's own management consulting team – help them improve management environments and solve problems.

Competency Building Training for Suppliers' Staff Doosan Infracore conducts annual surveys to determine what kinds of trainings are required by its suppliers, and thus provides customized 'Supplier Academy' trainings to help them secure greater competitiveness. In 2017, 120 employees from 37 suppliers benefited from the Supplier Academy in seven areas, including quality control and advanced tools, methods of reducing manufacturing costs, and productivity improvement techniques. In 2018, the company plans to provide the Supplier Academy to 35 suppliers that need to enhance their competitiveness. In 2017, it also carried out 11 different educational programs, including Supplier Academy, participated by 124 employees from suppliers. Doosan Infracore will establish curriculum tailored to the level of trainees and gradually increase the number of trainees as part of its efforts to help its suppliers enhance their fundamental competitiveness.

Seminars for Suppliers Starting in 2017, Doosan Infracore has been holding the 'Seminar for People in Charge' for its suppliers twice a year to introduce its win-win growth programs, motivate suppliers to actively participate in and take advantage of the programs and help them build competency.

Financial Support

In Korea, Doosan Infracore helps its suppliers enhance their financial soundness by providing them with four types of financial support – direct support, indirect support, mixed support, and special support.

Financial Support for Suppliers in 2017 (Korea)			
Programs			Support Amount
Direct Support	Facility Investment Fund	Provided suppliers with interest-free facility investment funds	KRW 2.28 billion
	Financial Support for Shaping Fixtures	Provided financial support for shaping fixtures to enhance product competitiveness	KRW 12.8 billion
Indirect Support	Family Corporate Loans	Recommended loans for suppliers via arrangements with financial institutions	KRW 30 billion (promised)
Mixed Support	Shared Growth Special Fund	Helped suppliers receive loans to fund operations with low interest rate based on deposits	KRW 103 billion (raised) KRW 45.26 billion (loaned)
Special Support	Industrial Innovation Campaign 4.0, Special Contribution (the Win-Win Foundation)	Made contributions to shared growth programs for second- and third-tier suppliers	KRW 450 million
	Contribution to Win-Win Supporters		KRW 100 million

Support for the Creation of Sound Corporate Ecosystem

Beginning in 2017, Doosan Infracore has been running a supplier support program that helps reduce the wage gap and increase welfare benefits for the employees of its second- and third-tier suppliers⁶⁾, in-house subcontractors⁷⁾ and service providers. For the employees of those companies, its provides them with KRW 1.2 million per year (KRW 100,000 a month) to reduce their wage gap in the form of Win-Win Encouragement Funds while offering high school tuition fees to their children and allowing them to use the company's daycare center free of charge in an effort to enhance their welfare benefits.

¹⁾ Criteria of the Korea Fair Trade Commission: 5 days = 1 person (1 day = 8 hours, based on the time and attendance criteria)

²⁾ 3 P's 6 S's: 3 P's (Proper Items, Proper Quantity, Proper Place), 6 S's (Safety, Sort, Straighten, Shine, Standardize, Sustain)

³⁾ Lean: Activities designed to minimize inventories and innovate work processes, thus reducing costs and enhancing productivity

⁴⁾ DTC: Design to Cost Innovation

⁵⁾ Single PPM (Parts Per Million): A quality innovation campaign designed to achieve the quality management goal of reducing the ratio of faulty products to under 10:1,000,000 products

⁶⁾ Second- and third-tier suppliers: Suppliers that depend more than 35% in terms of sales on Doosan Infracore's primary suppliers that count on the company by more than 35% in terms of sales

⁷⁾ In-house subcontractors: Employees of in-house subcontractors (except for big businesses or foreign enterprises)

03

Establishing a Culture of Shared Growth

Building Win-Win Partnerships

Doosan Infracore strives to build a virtuous cycle of partnerships for shared growth with its suppliers. Such efforts are led by the Supplier Development Team and the Shared Growth Team, which focus on improving suppliers' jobs and technical competencies while enhancing their financial soundness and actively communicating with them through the Integrated Cooperation Council.



Establishment of Fair Trade Practices Doosan Infracore adopted the Compliance Program (CP) in 2002 to carry out its business activities in a transparent manner and foster fair competition. The company acts according to the code of conduct that meets global standards. To build a culture of fair trade and horizontal transactions, it discloses such materials on its website as the CEO's declaration of self-compliance, the four major goals (responsible contracts for win-win cooperation between a conglomerate and SMEs, fair selection and management of suppliers, establishment and operation of the Internal Review Council, and desirable paperwork and its retention in subcontracting transactions), and the declaration of fair transactions.

Doosan Infracore uses the standard subcontract for the machinery industry published by the Korea Fair Trade Commission, and all matters related to the selection of suppliers and contract execution are managed through the ERP system. The company holds Internal Review Council meetings more than three times each month to review contract execution with suppliers and the pricing decision processes. It also connects the CP operating system to the Internal Review Council to block unfair subcontract transactions. The Council re-evaluates the justification for executed subcontracts on a quarterly basis. In order to promote a culture of fair trade, the company grants incentives not only to primary suppliers

that have adopted CP but also to primary and second-tier suppliers that have signed a CP agreement. In 2017, the company did not violate any law related to fair trade or subcontract transactions. In 2018, Doosan Infracore will publish CP guidelines and action manuals, carry out education on subcontracting and unfair trade practices, promote efforts to voluntarily reduce the risks of violating the Subcontracting Act through improvements in the fair trade monitoring system, and thus further internalize CP in its corporate culture.

Motivating Shared Growth Doosan Infracore reflects the shared growth performance of the relevant executives in the evaluation of their management by objectives (MBO). In 2017, the company reflected the findings of the benefit-sharing system in the MBO of executives in charge of purchasing in order to promote the benefit-sharing system. Furthermore, to encourage suppliers to participate in shared growth activities, it reflects their involvement in shared growth and relevant performance in the comprehensive supplier evaluation.

Strengthening Communication with Suppliers

To enhance communication with its suppliers, Doosan Infracore is running a 'Supplier Hotline' and holding pledge ceremonies, meetings, and more. The CEO visits the company's second- and lower-tier suppliers twice a year to listen to their concerns and find solutions to their problems. In China, senior executives hold meetings with suppliers twice a year, communicate the purposes of shared growth, and encourage their commitment to realizing shared growth.

Launch of the Integrated Cooperation Council For active and effective communication with suppliers, Doosan Infracore launched the Integrated Cooperation Council in 2015. The Council meets twice a year to share the company's business plans, quality policies, and the latest global trends, including environmental restrictions, and to align the strategies of the company with its suppliers and boost mutual exchanges.

On-site Supplier Survey Doosan Infracore launched the 'On-Site Supplier Survey' in 2016 with a goal of identifying suppliers' needs through feedback and promoting two-way communication. In 2017, the company visited 26 suppliers, listened to their opinions on their overall management and product delivery status, and developed solutions to their key pending issues. In 2018, it will share the solutions with its suppliers and continue with on-site supplier surveys.

Grievance Handling Channel for Suppliers In order to strengthen communication with suppliers, Doosan Infracore has established a 'Supplier Hotline' on its company website in the Shared Growth section, through which people may express their overall opinions or grievances about the company's trade practices and shared growth activities or request shared growth programs. Apart from the hotline, it also offers telephone, fax, or mail services for these purposes, and its supplies are duly notified. All communication made through the Supplier Hotline is kept strictly confidential. For those wishing to preserve their anonymity, the hotline can be used anonymously. Doosan Infracore makes sure that no one faces retaliation for submitting information to the hotline, and critical information is reported to the CEO and relevant executives.

Employee Value Proposition

OUR APPROACH

We nurture leaders with expertise and pioneering spirits to drive growth into a global leading company.

Based on a corporate culture where employees are considerate of others and diversity is respected, Doosan Infracore helps its employees achieve personal growth at their own pace according to the Functional Competency (FC) system while applying reasonable standards and principles and providing fair opportunities. Through this, the company has been building a mutually beneficial cycle in which people grow, and the growth of people in turn leads to the growth of business. Based on the Doosan Core Values, the company has been enhancing its organizational culture and win-win labor-management relations with the aim of standing proud.



CSR STRATEGIC TASK FOR 2017

Strengthen monitoring of human rights violation

Human rights have become increasingly important both inside and outside workplaces across the globe. In 2015, Doosan Infracore enhanced the post-management aspect through the publication of a manual on the management of human rights risks and the improvement of its reporting channels on human rights violations. Since 2016, the company has shifted its focus to the prevention of human right violations through human rights education for all of its employees. The company will continue to properly manage human rights risks in advance, foster a core culture of respect and civility, and create a sound corporate culture.

Activities and Achievements	Conducted human rights education for all employees; implemented FGI to monitor improvements in human rights awareness; and operated the Women's Council
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CSR STRATEGIC TASK FOR 2018

Build a management system and strengthen monitoring to enhance the human rights mindset

In 2018, the company will ‘build a management system and strengthen monitoring to enhance the human rights mindset’ in an effort to build a human rights management system focused on the prevention aspect. It will take a step forward from the existing post-management enhancement efforts combined with education on human rights and diagnoses the organization’s human rights awareness level, develop its own due diligence tool to prevent human rights violations from occurring, and take necessary preventive activities in advance.

Plans	Continue to conduct human rights education for all employees; develop the company's own tool to diagnose our human rights awareness level and control potential risks; conduct self-diagnosis for leaders; distribute human rights prevention manual to all employees; conduct human rights education for employees; and operate the Women's Council
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Human Rights and Diversity

Respect for Human Rights

As a participant in the UN Global Compact, Doosan Infracore supports the ‘UN Global Compact’s Ten Principles about Human Rights, Labor and the Environment’ and complies with the International Bill of Human Rights and the ILO Declaration on Fundamental Principles and Rights at Work. Moreover, the company respects the human rights of its comprehensive stakeholders, including its own employees and suppliers. It does not tolerate any type of verbal abuse, violence, sexual harassment, or other improper acts that violate the spirit of ‘Inhwa,’ meaning harmony between people, in interactions within the company and with suppliers. Doosan Infracore runs reporting channels, such as the Human Rights Protection Center (Help Line) and the Internal Reporting Center. In the event of a violation, the Personnel Committee will take immediate action according to the relevant regulations while ensuring that the same violation is never repeated through education.

Enhancing the Management of Human Rights Risks As a global enterprise, Doosan Infracore has run a human rights management system since 2015 to fulfill its obligations regarding human rights and to create a sound corporate culture. The company has gathered information on human rights status through reporting channels and focus group interviews (FGIs), established response processes against human rights violations, and published and distributed a human rights prevention manual. Moreover, to further raise its employees’ awareness of the importance of human rights, the company has continued to conduct human rights education while launching relevant campaigns. In 2017, it developed human rights education content that reflected characteristics and on-site cases of technical positions. It also provided offline education for field leaders, promoted technical staff and regular employees, and offered online education for office workers. In 2018, it will take a step further from the existing focus on post-management and enhance its preventive measures through fact-finding surveys on human rights awareness, preemptive actions on organizations with higher risks of human rights violations, and continuous education on human rights for all employees.

Types and Details of Human Rights Violations	
Type	Details
Discrimination	Gender; Age, position, employment type; Country of origin, race; Marriage, childbearing
Verbal and physical abuse	Verbal abuse, violence; Sexual harassment; Alienation, bullying; Invasion of privacy
* The above types of human rights violations are based on our company's code of conduct and guidelines on the creation of a sound organizational culture.	

Grievance Channels and Handling Processes Since 2011, Doosan Infracore has operated the Help Line at the Human Rights Protection Center (previously called the Gender Equality Center). It provided

education to all employees on gender equality (including prevention of sexual harassment), prepare for and respond promptly to cases of sexual harassment and verbal or physical violence at work. The company identifies employees’ grievances through diverse channels, such as the Human Rights Protection Center, the Internal Reporting Center, and the Cyber Reporting Center on the company website, which protect the interests of reporters and victims of human rights violations. It takes immediate actions on grievances according to its established procedures. For the overseas business sites, Doosan Infracore operates NAVEX, a special hotline dedicated to dealing with various grievances that include human rights issues. Training is conducted to boost the anonymity of whistleblowers and the independence of the hotline. The company guarantees protection of the identities of reporters who file grievances. It also protects the confidentiality of the content of their reports, which are handled in accordance with the relevant company regulations and procedures. As a result, Doosan Infracore has handled all major grievance reports filed in Korea in 2017.

Respect for Diversity

Protection of Employee Diversity As of December 31, 2017, there were 4,027 employees across the world at Doosan Infracore, including 2,602 in Korea (excluding those working for Doosan Bobcat after its public listing). Given the characteristics of the machine manufacturing industry, it is not easy to recruit female employees. The company however strives to eliminate bias by having its female engineers take part in the interviews of female applicants. To foster the personal growth of female staff, the company does not discriminate against its female staff in their job assignments, nor does it place any restrictions on their assignments. The number of female employees is on the rise, and it is expected that the percentage of female managers will also steadily increase.

Providing Fair Opportunities As specified in Doosan Core Values and the company’s Code of Conduct, people at Doosan are respected for their individual characteristics. Their employment, evaluation and compensation are not discriminated against the grounds of gender, religion, disability, age, social status, country of origin, nationality, ethnic backgrounds, race, skin color, physical conditions, marital status, pregnancy, childbearing, family type or status, ideology, political opinions, sexual orientation, educational backgrounds, or military service. Doosan people are also not treated unfairly depending on their personal relationships with the company’s officials based on their academic or geographical backgrounds.

Women’s Council In 2017, Doosan Infracore expanded the Women’s Council, previously operated by the Division of Technology, to company level to listen to the voices of employees (VOEs) and share gender equality issues from its female employees’ perspectives. The company will continue to improve the operations of the Women’s Council and develop it into an organization devoted to gender equality in organizational culture and identification of human rights risk in advance. Doosan Infracore will pay keen attention to the feedback of its minority employees such as female employees, on their personal growth opportunities and overall corporate systems to achieve gender equality and respect for human rights across the organization.

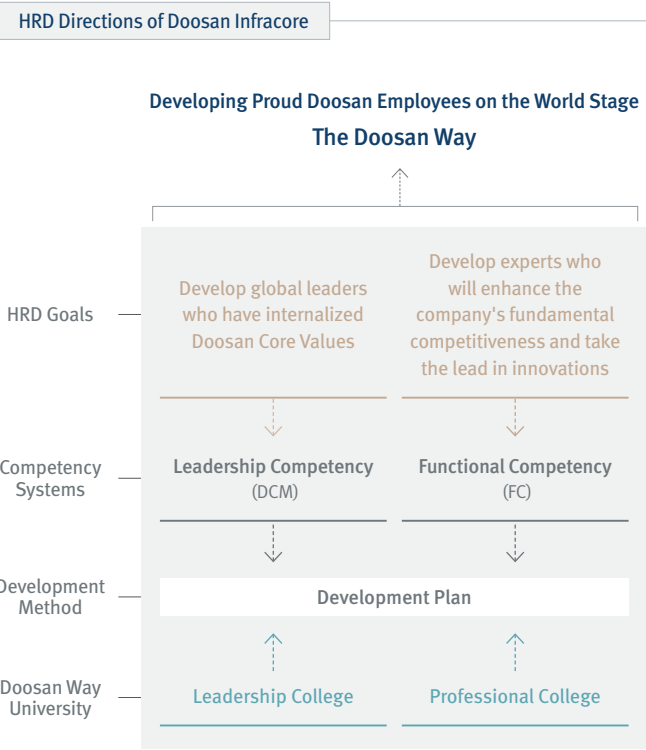
02

Human Resources Development

Doosan Infracore runs diverse management systems and educational programs designed to share the values and culture required of people at Doosan in order to develop ‘global leaders who can lead the way in organizational changes and innovation.’ The company also develops those individuals into global experts in their respective fields with leadership.

Building the Global HR Information System

In March 2017, Doosan Infracore launched a new HR system called ‘MY HR’ to standardize and simplify various HR systems, processes, standards, and data from the viewpoint of the Doosan Core Values and to integrate more than 50 HR systems that were previously used by different subsidiaries in various countries around the world. MY HR is a globally integrated one-stop HR system designed to handle various HR tasks, such as Doosan Competency Model (DCM), management by objectives (MBO), and development plan (DP), as well as training applications. It is available to all our worksites in Korea, China, the U.S. and Europe. All employees have the right to create or view personal information regarding themselves and their team members (if they are managers) through MY HR. They are thus required to sign the Pledge of Personnel Information Protection to promise to handle and process the personnel information of themselves and their team members according to certain principles.



Enhancing Functional Competency

Doosan Infracore has built a sophisticated Functional Competency (FC) development system, with the head office taking a central role, in consideration of individual employees’ unique skill sets and capabilities. The company also encourages its employees to devise their own education plans according to the result of their FC assessment.

Building the FC Development System FC enables employees to define competencies they need to carry out their duties successfully and set their own roadmap for personal growth based on their identified strengths and weaknesses. Doosan Infracore operates an FC-based HR education and development system to help its employees grow into experts in their respective fields. In 2015, it published the FC Development Directory which shows the list of courses customized for different competency levels, along with information on various curricula designed to boost competency in the areas of R&D, manufacturing and sales, and marketing. In 2016, the company completed the FC development system for R&D, production and market-driven areas, such as sales, and restructured various courses at the Job Academy, including 33 R&D courses, 11 innovation courses and three sales and marketing courses. In 2017, the company has completed the establishment of its FC system for all office staff. In particular, the company developed a three-year cultivation plan for team members at the manager-level or above in the R&D sector according to their respective FC diagnosis results, to upgrade their FC levels.

In order to grow into a global machinery company, the company must nurture technical staff equipped with professional competencies and a high degree of competitiveness. Doosan Infracore has therefore established an FC system devoted to technical staff, identified their needs for job competence improvements as well as their strengths and weaknesses, and help them set up their own specific visions for personal growth. Following the preparation of a draft proposal for the FC system for technical staff in 2014, it carried out FC diagnosis for all 11 technical job categories in 2017 after the company completed the establishment of a FC system for technical staff. In 2018, Doosan Infracore will launch FC-linked job training programs including sessions in which participants share our FC diagnosis results and discuss further HRD plans.

Competency Development Trainings Doosan Infracore has set up a self-directed learning system so that employees may study voluntarily under their own volition. Employees can search, apply for, or access various courses offered by the company’s self-directed learning system on their computers or mobile devices anytime, anywhere through ‘MY HR.’ In December 2017, the company launched CELL (Community of Employee-Led Learning), a new learning organization support system whereby the company promotes and assists employees’ small group leaning activities with an ultimate goal of further enhancing their self-directed study. As of April 2018, 40 CELLS are in operation. A CELL is composed of three to ten people engaged in voluntary yet systematic study for five months. Through the operation of CELLS, the company provides comprehensive support for diverse studies related to the participants’ job duties, expecting to offer practical assistance for

improvements in the professional competency of both individuals and the organization.

To improve the technical expertise of its technical staff and support their efforts to grow into technical experts, the company conducts job training based on its FC system and support the operation of various study circles and their efforts to acquire technical certifications. Doosan Infracore has restructured the training system in line with its directions for the development of employees’ job competencies based on VOCs and the feedback of production executives. The company has prioritized a total of 271 training courses., and completed the development of 16 courses out of them and ran the courses in 2017. A total of 29 study circles with 212 participants were opened in 2017 with the purposes of technology transfer and certificate acquisition. As a result of full support for technical staff, Doosan Infracore nurtured 122 master technicians (10.8% of total regular technical staff), three master craftsmen (one master craftsman of Korea¹⁾ and two Incheon Metropolitan City Michuhall master craftsmen²⁾) – a remarkable achievement.

Outcomes of Development of Technical Staff

122 Master Technicians and
3 Master Craftsmen



(As of December 2017; Accumulated figure)

¹⁾ Master Craftsmen of Korea: This is a craftsman who has the highest level of skilled crafts in 96 trades in 22 industrial fields and who is designated by the President as such under ‘the Act on Encouragement of Skilled Crafts’ among those who have greatly contributed to the development of skilled crafts and the improvement of status of skilled craftsmen by engaging themselves in industrial fields for a long period of time.

²⁾ Incheon Metropolitan City Michuhall Master Craftsmen: This refers to those who are designated by Articles 3 and 4 of the ‘Ordinance on the Selection and Support of Incheon Metropolitan City Michuhall Master Craftsmen’ among those who are equipped with an outstanding spirit of master craftsmen and the highest level of skilled crafts by having worked in the same fields and trades for at least 15 years and having greatly contributed to the development of skilled crafts.

³⁾ Young Boy (YB): Technical staff hired in 2004 or after

Developing Global Talent

Leadership Enhancement Under the judgment that the future of an organization depends on the commitment of its leaders, Doosan Infracore runs leadership training programs at every level in the organizational hierarchy, including the leader coaching program and the team leader workshop designed to equip the participants with necessary understanding and skills of leadership. The company conducted the leader coaching program for seven months from July 2017 to January 2018 for team and part leaders so that they can improve their leadership competencies and exercise their leadership in the most effective ways through learning and putting into practice diverse coaching skills. In order to educate its employees on the common way of performing at work as Doosan people, the company runs Strategic Thinking Enhancement through Problem Solving (STEPS) courses separately for its managers (STEPS) and assistant managers (STEPS-Junior). In 2017, the company ran the two courses twice, respectively.

In 2017, based on the Doosan Core Values and technical expertise, the company held workshops five times that were participated by major representatives. It reorganized its technical leadership development system in order to nurture field leaders who are ready and able to lead sustained growth of the company. The company also introduced a group coaching program for the technical field leaders of Gunsan Plant to help them practice solving the issues they face at sites and bring practical changes in their daily operations with the assistance of professional coaches.

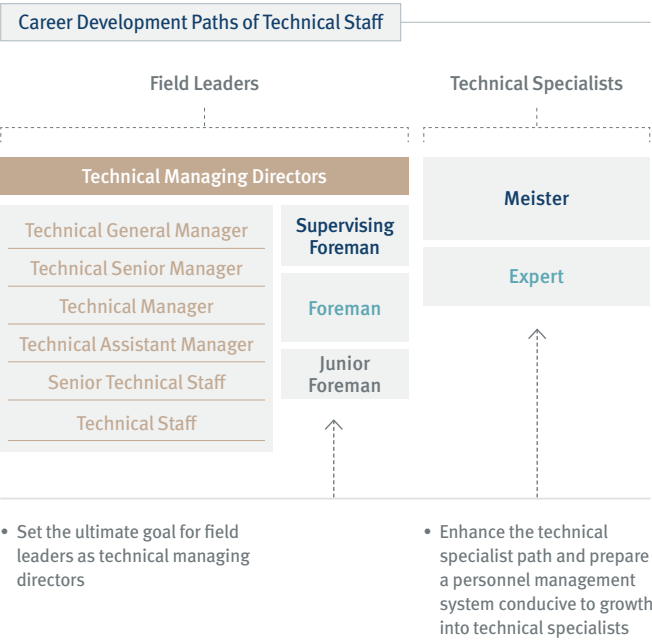
In 2018, based on the role model for technical field leaders established in 2017, the company plans to make improvements in the technical leadership education system and develop and operate a leadership course while expanding the technical field leader coaching program to Incheon Plant. Furthermore, to nurture YB³⁾ in the technical field, it prepared an education plan to boost organizational vitality and launched ‘Vision Camp,’ an intensive leadership course in 2016, in which a total of 283 employees took part in 2017.

Education on the Global Work Environment To help its employees function efficiently in a global business environment without any communication difficulties, the company runs ‘Let’s Do Biz English,’ an 80-hour practical English course, in addition to Chinese and Japanese education courses. In 2015, Doosan Infracore launched a collaboration website called Global Mobility Support (GMS) to provide employees assigned to overseas posts with information on various regulations, welfare benefits, and tips intended to help them enjoy a pleasant life overseas. The company also runs online/offline programs including language courses tailored for its employees and their family members.

Reorganizing Personnel Management System for Technical Staff

Doosan Infracore has been creating a talent development system in line with the Doosan Core Values, which includes rules on job assignment and promotion, competency evaluation, technical expert training courses, and FC promotion, in order to motivate its technical staff to pursue self-development and present them with a vision. The company introduced the position and promotion system in 2012, presented its technical staff with a vision for personal growth, and nurtured technical personnel’s pride in their individual ability and status. With the introduction of the competency recognition system, the company has enabled leaders to nurture their members’ competencies while helping the members to recognize the strengths they require for personal growth and the need to work harder to develop them. It has also opened technical specialist courses designed to help its technical staff acquire national qualifications for technicians, industrial engineers, and craftsmen.

In 2016, the company upgraded its FC-based HR development system along with field leaders and changed the titles of our technical staff, which has had some positive effects on raising the status of technical staff in the organization. In January 2017, it introduced two new growth pathways for its technical staff – the launch of the technical managing director system and the enhancement of the meister development system – so that they can work toward becoming either field leaders or technical experts. It also appointed a technical managing director for the first time in its 80-year corporate history, presenting technical staff with a vision to grow into technical experts. Technical managing directors are those who are equipped with leadership and practical skills to play the role of production team leaders in the company’s production units, presenting a vision for growth to technicians. Meisters serve as the company’s field leaders, equipped with the professional skills and high competitiveness required to take the lead in corporate growth.



03

Invigorating Organizational Culture

Implementation of the Doosan Core Values

Nurturing the people of Doosan becomes possible when the company creates outcomes through securing fundamental competitiveness and the achievement of development and scientification. It is the ultimate goal of the internalization of the Doosan Core Values to create a virtuous cycle in which the people at Doosan that have been nurtured in the situations above in turn create positive outcomes themselves. Under the initiatives of CAs (CORE Agents), employees of Doosan Infracore fully understand the Doosan Core Values, which are Doosan Group’s unique philosophy and decision-making basis, implement them in daily operations, and strive to internalize them.

Every year, Doosan Infracore finds cases of improving its fundamental competitiveness, creating job performance improvement effects, and embodying the Doosan Core Values. The company recognizes these and uses them as sustainable ways of spreading and sharing the Doosan Core Values throughout the company. In 2017, it conducted a survey among its employees to figure out their internalization levels of the Doosan Core Values followed by a CA workshop, a company-wide team leader workshop, and a company-wide executive leadership session in which major issues identified in the survey were discussed and their solutions were found from the field staff’s perspective.

Nurturing Leaders Initiating Changes and Innovations

Leaders’ Initiatives in Workplaces Doosan Infracore emphasizes the need for its leaders to initiate changes and set a strong example for others to follow. For continuous changes in the way the company operates, executives in Korea have prepared the LAP (Leader’s Action Plan), which promises changes to employees on the part of their leaders under the theme of ‘changes in the way we work, starting with our leaders.’ The leaders practice LAP in their daily operations, thus eliminating inefficiencies, and leading changes in the way of working through open communication and on-site management. The company also conducted a survey regarding how its employees felt about improvements brought about by the LAP system in 2017, as it did in 2016. The results indicated that employees were positive about the leaders’ LAP implementation efforts and results thereof.

Operating the Leadership Session Doosan Infracore holds leadership sessions annually so that the CEO and senior executives can get together to share the latest changes in business management circumstances, figure out the implications of the changes, discuss the directions that the company’s organizational culture must pursue, and find ways to make improvements together.

Communication and Consideration

Doosan Infracore runs diverse communication channels, including online/offline grievance mechanisms, the Human Rights Protection Center, the company website, and the in-house portal with the purposes of boosting employees' satisfaction at work through genuine communication between the company and employees. Since 2016, the company has shared with all employees media coverage about the company as well as public notices that it has made externally through ‘D-Briefing.’ In 2017, the company further enhanced communication on new business and new growth engines, shared with its stakeholders the company’s vision through CEO Talks, and improved transparency in the communication of corporate activities.

Work-Life Balance

Doosan Infracore complies with the labor regulations of the countries in which it operates. To further improve its employees’ quality of life, the company offers a wide range of welfare benefits that match each country’s unique situation. Of particular note, it proactively supports the

pursuit of a sound work-life balance through family-friendly management practices, including the operation of childcare centers and the granting of parental leave, reduced working hours, and family care leave. In 2017, the company promoted childcare leave and flextime and supported customized organizational cultural activities in an effort to create a happier workplace.

Operation of Flextime In Korea, Doosan Infracore runs a flextime system to support its employees’ work-life balance. Through pre-consultation with their leaders, staff can choose different daily work schedules (07:00-16:00, 08:00-17:00, or 10:00-19:00) for a month to a year for a variety of reasons, such as childbearing, childcare, family care, personal health management, or overseas work. In addition, the company has implemented a work schedule adjustment system (a part-time work system) to allow those employees who cannot work on a typical work schedule to continue working for the company in Korea while maintaining their work-life balance.

Support Systems for Family-Friendly Business Management (Korea)			
	System	Details	Eligibility and Period
Pregnancy	Pregnant employee caring program	Parking tickets for pregnant employees	Pregnant female employees
		Guidebook on pregnancy, childbearing, and childcare	
		Pregnant employee badges, stickers, and parking tickets	
		Use of affiliated hospitals, in-house lounges, internal, and external psychological counseling centers, if needed	
Pregnancy	Basic support during pregnancy	Compliance with 8-hour workday and prohibition of holiday work	Pregnant female employees (the entire pregnancy period)
		Support for medical bills during pregnancy and childbearing	Pregnant female employees (from pregnancy to childbearing)
	Shortened working hours during pregnancy	Shortened working hours for the health of pregnant employees and their babies	Pregnant female employees (reduction of up to 2 hours per day until the 12th week and after the 26th week of pregnancy)
	Leave for prenatal checkup	Parental checkup leaves	Pregnant female employees (once every two months until the 7th month of pregnancy: once per month from the 8th to the 9th month; and once every two weeks during the 10th month of pregnancy)
Childbearing	Leave before or after childbearing	Childbearing leave	Female employees who give birth to a child (90 days / 120 days for twins)
		Miscarriage/abortion leave	Male employees whose wives give birth (5 days)
	Childbirth cash gift	Cash gift in celebration of childbirth	Female employees who have a miscarriage or abortion (Leave duration varies depending on pregnancy period, with a ceiling of 90 days for pregnancy of more than 28 weeks)
Childcare	Leave for childcare	Childcare leave	Employees who have childbirth
	Reduced working hours for childcare	Reduction of working hours for child care (15-30 hours per week)	Employees with children aged less than 8 years or second graders in elementary school (once per child for mother and father, respectively, and reduced working hours for childcare for a total of one year for parents)
	In-house daycare center	Daycare centers in Incheon, Gunsan, and Seoul	Employees with children aged 3-5 years (selected through transparent procedures at a fixed time)
Family	Special leave of absence	Leave of absence to take care of family members suffering from illness or recovering from accidents	Employees (90 days per year)
		Leave of absence intended for family members in need of special care, personal development, and treatment of infertility	Employees (6 months + additional 6 months)

Support for Building a Stable Life In Korea, the company offers industrial accident insurance, supports medical costs, and carries out regular medical checkups to protect its employees in the events of health emergencies or accidents. It also helps its employees financially through loans for their children’s tuition fees and housing support measures.

EAP Operations Doosan Infracore provides its employees with the Employee Assistance Program (EAP), which offers counseling and education on health, laws, and finance among other areas of interest. In Korea, the company has been operating DooHug, an in-house psychological counseling center since 2014. Starting in 2018, the company will further expand the operations of its employee workplace stress prevention programs, such as the operation of a healing program, a psychological testing center, and education on the prevention of PTSD for field managers. In China, the company offers sand-therapy as a special program for the staff and their family members. In Korea, the company provides psychological counseling to the employees and their family members.

Recharging Opportunities In Korea, Doosan Infracore encourages its employees to take a two-week vacation (a one-week vacation plus an additional one-week vacation) before or after the first week of August when domestic plants halt their operations. The company has also implemented the Overseas Advanced Culture Exploration Support System for itsgular staff – office or technical staff who joined the company before January 1st of the previous year – to help them experience foreign culture on the occasion of their annual vacation periods. The company offers them round-trip air tickets and Eurail passes so that they can take the opportunity to recharge themselves, experience different perspectives, and boost their pride in the company by offering them a differentiated benefit program.

Family-friendly Management Doosan Infracore allows its employees to choose childcare leave and family care leave or reduced working hours depending on their situations. The company also runs flextime and leave of absence systems according to the circumstances of the relevant countries. In Korea, it has implemented the ‘Mom’s Caring Program’ at the company level and distributed the ‘Guide on Pregnancy, Childbearing, and Childcare,’ which contains information on various support measures available inside and outside the company concerning pregnancy, childbearing, and childcare. For pregnant employees, the company grants reduced working hours and prenatal checkup leave, and offers leave to both parents upon childbirth. The company also provides those who have had an abortion or suffered a miscarriage with a recovery period equivalent to that required for childbearing. During childrearing, the company ensures that both parents are eligible for childcare leave or reduced working hours, and it also runs its own daycare centers at three locations –Incheon, Gunsan, and Seoul. Furthermore, Doosan Infracore also allows its employees to use their leave to take care of family members in need, promote personal development, or focus on infertility treatment. In China, the company offers a leave of absence or a shorter workday to female employees who have just given birth to a child.

04

Win-Win Labor-Management Relations

Compliance with Labor Policies

Doosan Infracore complies with the labor standards of the International Labour Organization (ILO)¹⁾. Each year, the company conducts investigations to detect any child labor or forced labor practices within the company through the annual CSR assessment of all domestic and major overseas business sites. According to the results of a 2017 self-examination, none of the company’s business sites worldwide have resorted to child labor or forced labor of any kind. It has also signed the Guidelines on the Protection of the Working Conditions of In-house Subcontractors’ Workers with the Korean Ministry of Employment and Labor. The company ensures compliance with all relevant regulations through monitoring in-house subcontracting activities whether they comply with the government’s guidelines on fair transactions.

Labor-Management Relations

Since the launch of the Win-Win Labor Union in 2011, Doosan Infracore has maintained and developed labor-management relations based on mutual trust and respect, including the strike-free conclusion of collective bargaining agreement for seven consecutive years. Labor and management continue to communicate through diverse channels, including the Labor-Management Council and the Welfare Subcommittee, and share major issues through the quarterly Business Information Session.

In 2017, the company carried out diverse labor-management joint events, such as ‘Vitamin Day’ and ‘Healing Day’ for field technical staff, labor-management joint community involvement including ‘Support Activities for Migrant Females’ by the field manager association, the ‘80th Anniversary Marathon Race, Concert and Photo Exhibit.’ In China, the company runs a special council which is an organization that represents the company’s employees, according to the Council Law, which is equivalent to the Labor Law in Korea. The four representatives of the council are elected every four years. The council and management hold a council meeting on a monthly basis to discuss major developments and share opinions on various worksite issues; wage discussions are conducted annually.

Joint Customer Support of Labor-Management

In order to overcome the market downturn in 2016, the labor union and management visited the company’s customers across the country and collected their opinions while engaging in various customer service activities provided jointly by labor and management. In 2017, Doosan Infracore conducted joint customer support of labor-management six times, with the labor union figuring out customer requirements and relaying the VOCs directly to the company’s production sites for further improvements in quality.

¹⁾ Compliance with the ILO labor standards: Doosan Infracore ensures that the labor standards of the ILO are complied with at all its global business sites. The company prohibits all forms of discrimination, child labor, and forced labor while promoting freedom of association.

Supporting Development of Local Communities

OUR APPROACH

We are leveraging our capabilities to create a better society through investing in our communities.

Based on its pursuit of sincere corporate community involvement (CCI), Doosan Infracore has established a global CCI system and guidelines that reflect its corporate capabilities and social demands while carrying out CCI activities worldwide on the basis of shared values. The CCI Committee ensures that donations are spent in a transparent way. Together with its employees around the globe, Doosan Infracore is striving to implement CCI programs that are instrumental to the development of local communities.



01

CCI Strategies and Directions

CCI System

CCI Strategies Based on continuous communication with local communities and its own Corporate Community Involvement (CCI) guidelines, Doosan Infracore fulfills its corporate social responsibility (CSR), one of the Doosan Core Values, by participating in diverse CCI programs. Doosan Infracore’s CCI refers to every kind of activity that it undertakes by exploiting its major competencies in finance, products, human resources, and technologies for the purpose of promoting the wellbeing of future generations and improving the competencies of the communities to which the company and its employees belong. The company’s CCI activities are led by the CSR Part at the head office, which works together with the staff in charge at the company’s overseas worksites to plan and execute CCI activities that are unique to their own communities.



¹⁾ Based on the announcement of the World Economic Forum (Davos Forum)

Operation of the CCI Committee and the CCI Council Doosan Infracore spends donations after carrying out a comprehensive review of the public's interests, the appropriateness of relevant programs and institutions, and the relevance of the programs to the company's CCI directions. For more transparent and proper collection of donations and execution thereof, the company has launched a 'CCI Committee,' an organization that deliberates on and determines all matters related to donation, in 2017 according to relevant regulations. Led by the CEO, who also serves as the chairman of the CSR Committee, the CCI Committee is staffed by the CFO, the Legal Team executive and the CSR executive. The committee deliberates where to spend donations followed by reviews of how much to spend on each proposed program considering each program's relevance to the company business and its public nature together with the company's financial situation. Doosan Group's CCI Committee, which is composed of executives from eight subsidiaries of the Group including Doosan Infracore, makes decisions on Doosan Group's overall policies on donations along with the donation beneficiaries and amounts for each Doosan subsidiary. In addition, donations worth KRW 500 million or those deemed necessary to be reviewed by the BOD are deliberated and approved by the BOD.

Support for the Next Generation

Operation of Dream School Doosan Infracore has been running 'Dream School' since 2012 together with World Vision, an international NGO devoted to humanitarian aid across the world. Dream School is a mentoring-based youth dream search program, which offers youth diverse experiences required for self-exploration and career searching for up to five years. Middle school mentees take part in mentoring services provided by the company's employees for two years. The services include education on self-exploration, specialist mentoring sessions, and career experiences. High school mentees engage in self-directed activities, including meeting those working in the areas they are thinking of pursuing through Dream Club activities, in an effort to find their career paths. The results of an in-depth survey on the outcomes of Dream School conducted in 2014 indicate that both mentees and mentors made positive personal growth.

Dream School selected mentors and mentees for Dream School 4 in 2017 and for Dream School 5 in 2018. As of February 2018, approximately 700 employees and youths have joined the Dream School activities, with 38 students having graduated from Dream School.

Doosan Infracore will continue to support Dream School students so that they can receive training from professional coaches, take part in diverse community activities, boost self-reliance, and grow into healthy members of society where they will make their dreams come true.

Construction Support for Hope Elementary Schools in China Under the slogan of 'We will build a beautiful China together,' Doosan Infracore China Corporation (DICC) has been participating in 'Project Hope,' a public service project that involves the provision of educational support for Chinese youth and improvement of the educational environment in underprivileged regions of China. DICC has built numerous Hope Elementary Schools, provided local youths opportunities for education and contributed to the development of local education and sustainable development for the country. Since 2001, out of a total of 37 planned Hope Elementary schools, DICC has so far completed building 34 Hope Elementary Schools in impoverished areas of the country. DICC has also run the 'Doosan Hope Travel Summer Camp' every summer while implementing an 'honorary school principal system' since 2007. Teachers and students of Doosan Hope Elementary Schools from all around the country join the summer camp, which enables students to enjoy cultural experiences while having fun. Under the honorary principal system, the CEOs of Doosan Infracore dealerships are appointed as principals with the aim of encouraging participation of dealers and ensuring continued support for the schools.

Support for Local Communities

Doosan Infracore carries out a diverse set of CCI activities in consideration of the characteristics and needs of local communities with an aim to grow together with them. The company holds two workshops each year with CCI experts at our worksites, and also partners with reputable non-profit organizations in local communities to promote various CCI activities that address the needs of the communities.

Local Hope CCI Activities Doosan Infracore carries out a variety of CCI activities with the participation of not only its employees but also their family members in a way that the activities can bring practical assistance to local communities. In Seoul and Incheon, the company strives to improve the housing environment and boost residents' welfare in Dongdaemun and the Hwasu fishing village by replacing their ordinary wallpaper with insulated wallpaper, carrying out customized home improvement, and beautifying village walls with paintings. In Gunsan, the company is engaged in home improvement for local communities in Naun-dong and its surrounding areas by focusing on upgrading the residents' home furnishings. The company also continues to supply kimchi (salted and fermented vegetables) and briquettes to the needy in local communities. It undertakes its Local Hope CCI activities with funds raised through voluntary financial contributions from the employees as well as the company's matching funds.

Support Based on the Company's Core Competencies

Doosan Infracore utilizes its business resources to promote its CCI activities, including expertise in construction mechanical engineering and product development.

Support for Natural Disaster Relief In the event of a massive disaster such as an earthquake or a typhoon, Doosan Infracore promptly provides construction equipment, such as excavators, wheel loaders and compact construction machinery, and funds for relief efforts, thus providing support based on its core competencies – one of the company's core CCI strategies. It has provided construction equipment and donations for rapid relief and recovery from devastating natural disasters around the world over the years, such as Hurricane Katrina in the U.S. in 2005, the Sichuan earthquake in China in 2008, the earthquake in Haiti in 2010, the Tohoku earthquake in Japan in 2011, Typhoon Haiyan in the Philippines in 2013, and the devastating earthquake in Nepal in 2015.

Donation of Equipment and Model Doosan Infracore donates excavators, parts and engines produced in the course of product development stage for tests to the relevant departments of universities and vocational high schools to be used as educational materials.

Furthermore, to help soldiers stationed along the country's snow-heavy northern border, the company has donated compact track loaders and attachments to military units in the Gangwondo province in February 2018 to facilitate the soldiers' errands of weeding and clearing snow in hazardous areas.

The Junior Engineering Class Launched in 2008, the Junior Engineering Class is a talent donation circle consisting of Doosan Infracore researchers with science and engineering backgrounds. The volunteers teach children about key scientific principles in fun and easy ways through the assembly of science kits.

02

Employee Engagement

In addition to various CCI programs ran by the company, employees of Doosan Infracore run support voluntary service clubs. The company has also set various CCI support programs in place, including the CSR Awards, which are designed to encourage its employees to participate in various CCI activities.

Employee Donation

Approximately 75% of the Doosan Infracore employees in Korea (excluding those dispatched overseas) participate in 'Collection of Small Change' from 'Employees Salaries and Opening Donation Account' in order to raise CCI funds and donate to the Community Chest. The details of fund execution are disclosed transparently through the company's CCI Information System and in-house portal news service.

Building Infrastructure for Employee Engagement

The company has established a CCI Information System on our company Intranet to increase employees' awareness of the company's voluntary services while keeping track of their participation.

Doosan Day of Community Service

Doosan Day of Community Service refers to CCI activities participated by employees from all locations where Doosan Group carries out business around the world in the areas where each community needs assistance. Doosan Infracore takes part in the Doosan Day of Community Service every year and makes small but meaningful changes. The company also holds a photo/video contest to share heartwarming moments of our event with all the participants. In 2017, a total of 511 Doosan Infracore employees participated in the Doosan Day of Community Service around the world.

Participants in Doosan Day of Community Service

13,395 people



* The accumulated number of participants from 2014 to 2018, excluding Doosan Bobcat employees since 2017

Appendix

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Performance Summary

<div><div>KRW 6,567.9 billion</div><div>Sales</div></div>	<div><div>KRW 660.8 billion</div><div>Operating Income</div></div>	<div><div>KRW 296.6 billion</div><div>Net Income</div></div>
<div><div>8 consecutive years</div><div>Listed in DJSI Korea the machine and electric equipment categories</div><div><div>MEMBER OF</div><div>Dow Jones Sustainability Indices</div><div>In Collaboration with RobecoSAM</div></div><div>8</div></div>	<div><div>7 consecutive years</div><div>Rated Class A in the ESG Evaluation by the Corporate Governance Service, Korea</div><div><div>CGS</div><div>Corporate Governance Service</div></div><div>A</div></div>	<div><div>International ARC Awards</div><div>Received Gold Awards for the 2016 Integrated Report</div><div><div>ARC AWARDS</div><div>INTERNATIONAL</div></div></div>
<div><div>84.6%</div><div>Percentage of premium eco-friendly or eco-friendly products</div><div></div></div>	<div><div>97,955 tonCO₂eq</div><div>Greenhouse gas emissions</div><div></div></div>	<div><div>Benefit sharing system</div><div>Expanded to include second-tier suppliers</div><div></div></div>
<div><div>Programs to support suppliers</div><div>Helped reduce the wage gap and increase welfare benefits for the employees of second- and third-tier suppliers and in-house subcontractors</div><div></div></div>	<div><div>Provided education on human rights to all employees and operated the Women's Council</div><div></div></div>	<div><div>7 consecutive years</div><div>Agreed on collective bargaining agreements without dispute</div><div></div></div>

Consolidated Statements of Financial Position

DOOSAN INFRACORE CO., LTD. AND SUBSIDIARIES

	(In Korean won)	
December 31, 2017 and 2016	December 31, 2017	December 31, 2016
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	₩ 943,481,141,254	₩ 538,577,771,079
Short-term financial instruments	160,166,932,394	148,025,668,394
Short-term investment securities	34,182,400,175	3,030,992,836
Trade and other receivables	1,197,046,622,163	1,030,593,672,444
Derivative assets	1,868,202,287	6,219,743,447
Inventories	1,254,963,515,735	1,177,009,110,959
Other current assets	175,725,123,533	146,113,591,597
	3,767,433,937,541	3,049,570,550,756
NON-CURRENT ASSETS		
Long-term financial instruments	10,500,000	2,011,500,000
Long-term investment securities	93,687,457,663	148,120,965,082
Long-term trade and other receivables	16,150,386,229	7,015,864,222
Non-current derivative assets	4,387,862,259	-
Investments in subsidiaries and associates	91,838,684,125	29,030,018,221
Property, plant and equipment	1,786,904,298,672	1,823,100,285,900
Intangible assets	4,169,281,753,860	4,440,698,436,635
Investment properties	20,609,998,094	51,375,818,001
Deferred tax assets	251,122,643,405	365,928,831,884
Other non-current assets	74,662,610,602	109,956,369,825
	6,508,656,194,909	6,977,238,089,770
Total Assets	₩ 10,276,090,132,450	₩ 10,026,808,640,526
LIABILITIES		
CURRENT LIABILITIES		
Trade and other payables	₩ 1,281,736,493,268	₩ 1,041,875,892,086
Short-term borrowings	1,409,287,187,360	952,163,757,440
Current portion of bonds	474,641,545,632	764,734,004,459
Current portion of long-term borrowings	96,310,179,828	540,098,382,122
Current tax liabilities	32,398,041,440	13,098,873,730
Derivative liabilities	4,026,802,750	1,542,154,578
Provisions	167,059,619,793	147,784,958,483
Other current liabilities	230,185,572,715	191,895,701,579
	3,695,645,442,786	3,653,193,724,477
NON-CURRENT LIABILITIES		
Non-current other payables	1,218,603,784	1,253,774,857
Bonds	1,154,956,082,362	714,649,461,884
Long-term borrowings	1,513,805,807,222	1,451,538,091,287
Net defined benefit liabilities	451,858,134,854	510,101,486,646
Non-current derivative liabilities	41,708,762,306	-
Deferred tax liabilities	93,587,876,395	78,243,717,573
Non-current provisions	9,584,045,726	25,167,184,042
Other non-current liabilities	140,563,747,861	144,284,457,632
	3,407,283,060,510	2,925,238,173,921
Total Liabilities	7,102,928,503,296	6,578,431,898,398
EQUITY		
Share capital	1,040,000,595,000	1,037,276,570,000
Capital surplus	211,545,565,029	249,488,144,851
Hybrid capital instruments	-	508,259,603,649
Other components of equity	(108,457,073,777)	(42,440,546,020)
Accumulated other comprehensive income	(334,050,917,882)	(270,371,100,895)
Retained earnings	784,702,285,730	578,245,971,895
Equity attributable to owners of the Parent Company	1,593,740,454,100	2,060,458,643,480
Non-controlling interest	1,579,421,175,054	1,387,918,098,648
Total Equity	3,173,161,629,154	3,448,376,742,128
Total liabilities and equity	₩ 10,276,090,132,450	₩ 10,026,808,640,526

Consolidated Statements of Profit or Loss

DOOSAN INFRACORE CO., LTD. AND SUBSIDIARIES

	(In Korean won)	
Years Ended December 31, 2017 and 2016	2017	2016
Sales	₩ 6,567,897,225,498	₩ 5,729,550,204,080
Cost of sales	(5,024,999,368,311)	(4,404,458,833,345)
Gross profit	1,542,897,857,187	1,325,091,370,735
Selling and administrative expenses	(882,128,558,541)	(834,273,183,329)
Operating profit	660,769,298,646	490,818,187,406
Finance income	296,665,608,495	176,163,146,947
Finance costs	(455,734,726,941)	(427,649,808,272)
Other non-operating income	64,152,908,525	56,182,312,441
Other non-operating expenses	(72,931,806,741)	(213,312,054,726)
Loss on disposal of investment in subsidiaries and associates	(3,294,696,326)	(151,702,916)
Profit (loss) before income tax	489,626,585,658	82,050,080,880
Income tax expense	(192,983,826,788)	(162,639,901,346)
Profit (loss) from continuing operations	296,642,758,870	(80,589,820,466)
Profit from discontinued operations	-	196,574,676,248
Profit (loss) for the year	₩ 296,642,758,870	₩ 115,984,855,782
Owners of the Parent Company	148,594,494,986	63,180,866,208
Non-controlling interests	148,048,263,884	52,803,989,574
Earnings (loss) per share		
From continuing and discontinued operations		
Basic earnings per share	₩ 627	₩ 214
Diluted earnings per share	620	214
From continuing operations		
Basic earnings (loss) per share	₩ 627	₩ (734)
Diluted earnings (loss) per share	620	(734)

Consolidated Statements of Comprehensive Income

DOOSAN INFRACORE CO., LTD. AND SUBSIDIARIES

	(In Korean won)	
Years Ended December 31, 2017 and 2016	2017	2016
Profit (loss) for the year	₩ 296,642,758,870	₩ 115,984,855,782
Other comprehensive income		
Items that will not be reclassified to profit or loss		
Remeasurements of net defined benefit liabilities	(6,717,591,709)	1,076,069,895
Revaluation reserves of property, plant and equipment	34,547,697,525	(29,875,400,000)
Share of other comprehensive income of associates	397,099,884	-
Share of retained earnings of associates	(71,846,321)	-
Items that may be subsequently reclassified to profit or loss		
Changes in the fair value of available-for-sale financial assets	(4,403,370,796)	7,509,623,052
Share of retained earnings of associates	-	(54,238,168)
Exchange differences	₩ (157,850,633,039)	₩ 28,106,613,754
Gain (loss) on valuation of derivatives	(5,400,168,266)	18,149,753,211
Total comprehensive income for the year	157,143,946,148	140,897,277,526
Total comprehensive income for the year is attributable to:		
Owners of the Parent Company	70,873,060,791	46,187,327,828
Non-controlling interest	86,270,885,357	94,709,949,698

Consolidated Statements of Changes in Equity

DOOSAN INFRACORE CO., LTD. AND SUBSIDIARIES

Years Ended December 31, 2017 and 2016										(In Korean won)
	Attributable to Owners of the Parent Company							Non-controlling interests	Total	
	Share capital	Capital surplus	Hybrid capital instruments	Other components of equity	Accumulated other comprehensive income	Retained Earnings	Subtotal			
Balance at January 1, 2016	₩ 1,037,276,570,000	₩ 245,301,050,451	₩ 508,259,603,649	₩ (37,401,620,359)	₩ (207,670,131,707)	₩ 475,597,665,117	₩ 2,021,363,137,151	₩ 1,081,593,171,229	₩ 3,102,956,308,380	
Total comprehensive income (loss):							-		-	
Profit for the year	-	-	-	-	-	63,180,866,208	63,180,866,208	52,803,989,574	115,984,855,782	
Remeasurement of net defined benefit liabilities	-	-	-	-	-	(344,604,900)	(344,604,900)	1,420,674,795	1,076,069,895	
Revaluation reserves of property, plant and equipment	-	-	-	-	(88,030,246,138)	58,154,846,138	(29,875,400,000)	-	(29,875,400,000)	
Changes in the fair value of available-for-sale financial assets	-	-	-	-	7,509,623,052	-	7,509,623,052	-	7,509,623,052	
Share of retained earnings of associates	-	-	-	-	-	(54,238,168)	(54,238,168)	-	(54,238,168)	
Exchange differences	-	-	-	-	(11,646,759,548)	-	(11,646,759,548)	39,753,373,302	28,106,613,754	
Gain(loss) on valuation of derivatives	-	-	-	-	17,417,841,184	-	17,417,841,184	731,912,027	18,149,753,211	
	-	-	-	-	(74,749,541,450)	120,936,869,278	46,187,327,828	94,709,949,698	140,897,277,526	
Transactions with owners							-		-	
Acquisition of treasury shares	-	-	-	(2,030,605)	-	-	(2,030,605)	-	(2,030,605)	
Cancellation of share options	-	4,187,094,400	-	(4,187,094,400)	-	-	-	-	-	
Share-based payment	-	-	-	134,592,399	-	-	134,592,399	-	134,592,399	
Dividends paid for hybrid capital securities	-	-	-	-	-	(18,288,562,500)	(18,288,562,500)	-	(18,288,562,500)	
Capital increase of subsidiaries	-	-	-	22,118,381,131	-	-	22,118,381,131	(23,277,026,187)	(1,158,645,056)	
Purchase of subsidiary equity	-	-	-	(4,521,363,632)	-	-	(4,521,363,632)	(120,501,975,875)	(125,023,339,507)	
Disposal of subsidiary shares	-	-	-	(18,581,410,554)	12,048,572,262	-	(6,532,838,292)	355,393,979,783	348,861,141,491	
	-	4,187,094,400	-	(5,038,925,661)	12,048,572,262	(18,288,562,500)	(7,091,821,499)	211,614,977,721	204,523,156,222	
Balance at December 31, 2016	₩ 1,037,276,570,000	₩ 249,488,144,851	₩ 508,259,603,649	₩ (42,440,546,020)	₩ (270,371,100,895)	₩ 578,245,971,895	₩ 2,060,458,643,480	₩ 1,387,918,098,648	₩ 3,448,376,742,128	
Balance at January 1, 2017	₩ 1,037,276,570,000	₩ 249,488,144,851	₩ 508,259,603,649	₩ (42,440,546,020)	₩ (270,371,100,895)	₩ 578,245,971,895	₩ 2,060,458,643,480	₩ 1,387,918,098,648	₩ 3,448,376,742,128	
Total comprehensive income (loss):							-		-	
Profit for the year	-	-	-	-	-	148,594,494,986	148,594,494,986	148,048,263,884	296,642,758,870	
Remeasurement of net defined benefit liabilities	-	-	-	-	-	(5,908,110,490)	(5,908,110,490)	(809,481,219)	(6,717,591,709)	
Revaluation reserves of property, plant and equipment	-	-	-	-	33,549,343,476	34,930	33,549,378,406	998,319,119	34,547,697,525	
Changes in the fair value of available-for-sale financial assets	-	-	-	-	(4,403,370,796)	-	(4,403,370,796)	-	(4,403,370,796)	
Share of other comprehensive income of associates	-	-	-	-	368,821,194	-	368,821,194	28,278,690	397,099,884	
Share of retained earnings of associates	-	-	-	-	-	(64,025,578)	(64,025,578)	(7,820,743)	(71,846,321)	
Exchange differences	-	-	-	-	(96,515,360,869)	-	(96,515,360,869)	(61,335,272,170)	(157,850,633,039)	
Gain on valuation of derivatives	-	-	-	-	(4,748,766,062)	-	(4,748,766,062)	(651,402,204)	(5,400,168,266)	
	-	-	-	-	(71,749,333,057)	142,622,393,848	70,873,060,791	86,270,885,357	157,143,946,148	
Transactions with owners							-		-	
Cancellation of share options	-	1,053,454,693	-	(1,053,454,693)	-	-	-	-	-	
Transfer of capital surplus	-	(82,200,482,487)	-	-	-	82,200,482,487	-	-	-	
Issuance of bonds with warrants	-	41,976,882,023	-	-	-	-	41,976,882,023	-	41,976,882,023	
Exercise of stock warrants	2,724,025,000	1,227,565,949	-	-	-	-	3,951,590,949	-	3,951,590,949	
Dividends paid for hybrid capital securities	-	-	-	-	-	(18,366,562,500)	(18,366,562,500)	-	(18,366,562,500)	
Dividend of subsidiary	-	-	-	-	-	-	-	(28,541,041,200)	(28,541,041,200)	
Repayment of hybrid capital securities	-	-	(508,259,603,649)	(58,904,993,351)	-	-	(567,164,597,000)	-	(567,164,597,000)	
Disposal of subsidiary shares	-	-	-	(6,058,079,713)	8,069,516,070	-	2,011,436,357	133,773,232,249	135,784,668,606	
	2,724,025,000	(37,942,579,822)	(508,259,603,649)	(66,016,527,757)	8,069,516,070	63,833,919,987	(537,591,250,171)	105,232,191,049	(432,359,059,122)	
Balance at December 31, 2017	₩ 1,040,000,595,000	₩ 211,545,565,029	₩ -	₩ (108,457,073,777)	₩ (334,050,917,882)	₩ 784,702,285,730	₩ 1,593,740,454,100	₩ 1,579,421,175,054	₩ 3,173,161,629,154	

Consolidated Statements of Cash Flows

DOOSAN INFRACORE CO., LTD. AND SUBSIDIARIES

Years Ended December 31, 2017 and 2016(In Korean won)			
	2017	2016	
Cash flows from operating activities			
Cash generated from operations:			
Profit for the year	₩ 296,642,758,870	₩ 115,984,855,782	
Adjustments	683,827,770,950	653,349,944,296	
Changes in operating assets and liabilities	(83,731,338,160)	20,023,264,004	
Interest received	11,127,322,178	13,406,879,435	
Interest paid	(185,853,970,400)	(227,942,883,719)	
Dividends received	2,108,514,977	5,400,000	
Income tax paid	(58,429,689,782)	(61,834,959,484)	
Net cash inflow from operating activities	665,691,368,633	512,992,500,314	
Cash flows from investing activities			
Decrease in short-term financial instruments	25,050,508,204	179,351,302,468	
Disposal of long-term investment securities	3,388,601,075	55,340,845,687	
Disposal of property, plant and equipment and investment properties	41,292,473,602	50,396,713,962	
Disposal of intangible assets	1,226,414,034	1,305,963,518	
Business transfer	-	929,419,723,186	
Increase in short-term financial instruments	(12,141,264,000)	-	
Increase in loans	(168,851,490)	-	
Acquisition of long-term investment securities	(3,510,363,900)	(40,066,219,698)	
Acquisition of investment in associates and joint ventures	(65,864,874,081)	(27,936,825,000)	
Acquisition of property, plant and equipment	(134,197,987,710)	(173,943,691,398)	
Acquisition of intangible assets	(77,460,993,080)	(64,233,909,078)	
Others	(33,902,408,352)	-	
Net cash inflow (outflow) from investing activities	(256,288,745,698)	909,633,903,647	
Cash flows from financing activities			
Proceeds from borrowings	1,380,727,776,826	-	
Proceeds from issuance of bonds	1,015,382,768,080	467,186,644,080	
Change in subsidiary equity	133,721,600,000	242,528,119,780	
Repayment of borrowings	(1,115,135,547,875)	(1,096,762,547,569)	
Repayment of bonds	(765,000,000,000)	(922,859,192,122)	
Dividends paid	(46,907,603,700)	(18,288,562,500)	
Capital increase of subsidiaries	-	(1,158,645,055)	
Purchase of subsidiary equity	-	(125,023,339,507)	
Acquisition of treasury shares	-	(2,030,605)	
Exercise of call options on hybrid capital securities	(570,521,500,000)	-	
Net cash inflow (outflow) from financing activities	32,267,493,331	(1,454,379,553,498)	
Effects of exchange rate changes on cash and cash equivalents	(36,766,746,091)	10,328,398,232	
Net increase (decrease) in cash and cash equivalents	404,903,370,175	(21,424,751,305)	
Cash and cash equivalents at the beginning of the year	538,577,771,079	560,002,522,384	
Cash and cash equivalents at the end of the year	₩ 943,481,141,254	₩ 538,577,771,079	

CSR Facts & Figures

DISCLAIMER

- ¹⁾ Data on the worksites in China began being included in 2016, when the CSR rollout to overseas worksites was conducted
- ²⁾ As the business transfer of Machine Tools Business Group (BG) was completed in 2016, relevant data is excluded from some figures
- ³⁾ As Doosan Bobcat completed its IPO on the KOSPI on November 18, 2016, its data is excluded

Economic

Economic Growth: Sales Records					
Classification		Unit	2015	2016	2017
Consolidated	Sales	KRW million	5,964,894	5,729,550	6,567,897
	Operating income	KRW million	(95,087)	490,818	660,769
	Net income (loss)	KRW million	(859,505)	115,985	296,643
Separate	Sales	KRW million	2,387,024	2,204,890	2,651,329
	Operating income	KRW million	(263,677)	45,924	137,632
	Net income (loss)	KRW million	(719,193)	(56,312)	60,472

Financial Soundness: Financial Status					
Classification		Unit	2015	2016	2017
Consolidated	Total assets	KRW million	11,383,173	10,026,809	10,276,090
	Total liabilities	KRW million	8,280,217	6,578,432	7,102,929
	Total equity	KRW million	3,102,956	3,448,377	3,173,161
Separate	Total assets	KRW million	5,979,890	4,846,201	5,053,901
	Total liabilities	KRW million	4,092,486	3,042,101	3,707,435
	Total equity	KRW million	1,887,404	1,804,100	1,346,466

Research & Development					
Classification		Unit	2015	2016	2017
R&D investment	Korea	KRW million	151,017	97,552	111,802
R&D investment per sales		%	4.3	4.4	4.2

* Based on separate financial statements

Intellectual properties	Application	Global	No. of cases	2015	2016	2017
	Registration		No. of cases	1,430	1,936	2,184

* Number of intellectual property rights applications and registration made at home and abroad

Transparent Management

Corporate Governance					
Classification		Unit	2015	2016	2017
Participation rate of outside directors in BOD meetings	Korea	%	86.8	82.5	84.2
Ethical Management					
Classification		Unit	2015	2016	2017
Ethical management trainings	Korea	%	98.9	95.3	98.7
	China	%	-	100	94.6

* Once a year per person

Collection rate of statement of interests form	%	-	100	100
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* Not conducted in 2015

** No. of employees who submitted a signed copy of statement of interests form / No. of office worker who has a job title of part leader or higher from among employees in Korea and resident employees in China

Compliance					
Classification		Unit	2015	2016	2017
Legal measures on unfair trade conduct	Korea	No. of cases	0	0	0
Fine levied due to a violation of laws or regulations		No. of cases	0	0	0

Customers

Protection of Personal Information					
Classification		Unit	2015	2016	2017
Violations of protection of customer's personal information	Korea	No. of cases	0	0	0
	China	No. of cases	-	0	0

Environment

Environmental Expenses					
Classification		Unit	2015	2016	2017
Environmental investments and operating costs	Korea	KRW billion	27.5	8.6	16.7

Environmental Management System					
Classification		Unit	2015	2016	2017
Worksites with ISO 14001 (EMS) certification	Korea	No. of sites	3	3	3
	China	No. of sites	-	1	1

* There is a difference from the disclosed data in the 2015 Integrated Report because data of the Changwon Plant is not included

Energy Usage						
Classification		Unit	2015	2016	2017	
Energy usage volume (Including direct and indirect usage)	Korea	Total	TJ	1,007	812	1,871
		LNG	TJ	242	200	216
		Electricity	TJ	610	490	1,463
		Diesel	TJ	145	114	124
		Others (LPG, kerosene, etc.)	TJ	10	8	68
	China	LNG	m³	-	855,611	1,305,168
		Electricity	kWh	-	9,992,440	14,931,783
		Steam	ton	8,731	5,038	5,998
		Diesel	ton	-	683	1,174

Resources Usage						
Classification		Unit	2015	2016	2017	
Fuel usage	Incheon	Steel plate ¹⁾	ton	9,280	8,001	-
		Steel plate intensity	ton/ KRW million	0.004	0.004	-
		Scrap metal	ton	29,053	17,438	25,170
		Scrap metal intensity	ton/ KRW million	0.012	0.008	0.009
		Sand (molding sand) ²⁾	ton	15,329	22,586	14,484
		Sand intensity	ton/ KRW million	0.006	0.010	0.0055

* Intensity is calculated based on sales of separate financial statements of each year

¹⁾ No usage of steel plate at the Incheon Plant since the excavator plant advancement

²⁾ Molding sands are 100% recycled

Water usage	Korea	Water usage volume	ton	662,755	631,849	554,044
		Water usage intensity ¹⁾	ton/KRW million	0.278	0.287	0.209
	China	Recycled or reused water ²⁾	ton	70,284	83,365	85,450
		Water usage volume	ton	-	64,735	64,152

¹⁾ Intensity is calculated based on sales of separate financial statements of each year

²⁾ Total volume of reused water, including reused waste water, reclaimed water, and recycled rainwater

Air Emissions						
Classification		Unit	2015	2016	2017	
Emissions of greenhouse gas (Including direct and indirect emissions)	Korea	Total ¹⁾	tonCO ₂ eq	110,190	87,413	97,955
		Scope 1	tonCO ₂ eq	30,954	23,707	26,890
		Scope 2	tonCO ₂ eq	79,237	63,708	71,067
		Intensity	tonCO ₂ eq/KRW million	0.0476	0.040	0.037
	Incheon	Total	tonCO ₂ eq	91,074	71,082	79,625
		Scope 1	tonCO ₂ eq	20,456	15,085	16,924
		Scope 2	tonCO ₂ eq	70,618	55,997	62,701
	Gunsan	Total	tonCO ₂ eq	15,710	13,668	15,518
		Scope 1	tonCO ₂ eq	8,998	7,533	8,706
		Scope 2	tonCO ₂ eq	6,712	6,135	6,812
	Others	Total	tonCO ₂ eq	3,406	2,666	2,812
		Scope 1	tonCO ₂ eq	1,500	1,089	1,259
Scope 2		tonCO ₂ eq	1,907	1,577	1,554	
Emissions of air pollutants ¹⁰⁾	Incheon	NOx ²⁾	ppm	0.4	0.80	12.9
		SOx ³⁾	ppm	0.0	0.00	0.4
		VOCs (Continuous type/Non-continuous type) ⁴⁾	ppm	18.8/12.0	15.0/5.7	9.8/25.2
		Dust (Electric arc furnace/others) ⁵⁾	mg/m ³	3.2/3.5	3.2/3.3	4.6/6.0
	Gunsan	NOx ⁶⁾	ppm	0.11	0.10	0.37
		SOx ⁷⁾	ppm	0.15	0.20	0.1
		VOCs ⁸⁾	ppm	4.83	4.80	6.39
		Dust ⁹⁾	mg/m ³	1.80	2.40	3.56
	China	VOCs	mg/m ³	-	12.43	10.15
		Dust	mg/m ³	-	14.22	11.12

¹⁾ There is a difference between the total emissions volume by GHG type and the total of worksites which sums up rounding off numbers of each worksite's emissions

²⁾ Legal limit: 200ppm, company's internal limit: 80ppm

³⁾ Legal limit: 400ppm, company's internal limit: 160ppm

⁴⁾ Continuous type: Legal limit: 40ppm, company's internal limit: 32ppm / Non-continuous type: Legal limit: 200ppm, company's internal limit: 160ppm

⁵⁾ Electric arc furnace: Legal limit: 20mg/m³, company's internal limit: 8mg/m³ / Others: Legal limit: 50mg/m³, company's internal limit: 20mg/m³

⁶⁾ Legal limit: 200ppm, company's internal limit: 80ppm

⁷⁾ Legal limit: 400ppm, company's internal limit: 160ppm

⁸⁾ Legal limit: 40ppm, company's internal limit: 32ppm

⁹⁾ Legal limit: 50mg/m³, company's internal limit: 20mg/m³

¹⁰⁾ Due to the amendment to Enforcement Decree of the Clean Air Conservation Act (Act No. 492 of the Ministry of Environment), a boiler was classified as an air pollutants emission facility in 2016, and relevant data has been calculated and managed ever since

Classification		Unit	2015	2016	2017
Emissions of ozone- depleting substances	Incheon	CFC, HCFC, CH ₃ Br, R-22	ppm	0	0
	Gunsan	CFC, HCFC, CH ₃ Br, R-22	ppm	0	0
	Changwon	CFC, HCFC, CH ₃ Br, R-22	ppm	0	-

* Zero emissions of ozone-depleting substances

Effluents and Waste					
Classification		Unit	2015	2016	2017
Emissions of effluents	Korea	ton	63,140	67,544	58,953
	Incheon	ton	56,180	60,139	51,288
	Gunsan	ton	6,960	7,405	7,665
Emissions of water pollutants	China	ton	-	61,498	57,737
	Incheon	BOD ¹⁾	mg/L	4.0	6.2
		COD ²⁾	mg/L	20.8	14.8
		Suspended solids ³⁾	mg/L	2.4	3.8
	Gunsan	BOD ⁴⁾	mg/L	99	89.5
		COD ⁵⁾	mg/L	102	104.6
		Suspended solids ⁶⁾	mg/L	4	13.2
	China	COD	mg/L	-	33
					23

¹⁾ Legal standard 120mg/L, company's internal standard 48mg/L
²⁾ Legal standard 130mg/L, company's internal standard 52mg/L
³⁾ Legal standard 120mg/L, company's internal standard 48mg/L
⁴⁾ Legal standard 400mg/L, company's internal standard 160mg/L
⁵⁾ Legal standard 400mg/L, company's internal standard 160mg/L
⁶⁾ Legal standard 200mg/L, company's internal standard 80mg/L

Waste discharge and recycle	Korea	Total weight of waste	ton	31,068	21,179	27,179
		Recycled volume	ton	29,479	19,571	25,334
		Recycling rate	%	95	92	93
	Incheon	General waste	ton	27,975	18,453	23,932
		Specified waste	ton	2,130	1,861	2,321
		Recycling rate	%	96	94	94
	Gunsan	General waste	ton	739	647	743
		Specified waste	ton	224	218	183
		Recycling rate	%	60	55	71
	China	Total weight of waste ¹⁾	ton	-	2,161.8	3,469.5
		Recycled volume ²⁾	ton	-	1,291.3	1,814.5
		Recycling rate	%	-	60	52

¹⁾ Hazardous and general waste
²⁾ Waste steel, waste wood

Safety

Occupational Safety and Health					
Classification		Unit	2015	2016	2017
Occupational accident rate	Korea	%	0.22	0.37	0.52
	China	%	-	0.22	0.10
* Based on accidents requiring medical care covered by Industrial Accident Insurance					

Win-win Growth

Support for Suppliers						
Classification		Unit	2015	2016	2017	
Financial support	Korea	Number of suppliers received financial support	No. of companies	171	45	42
		Amount of financial support ¹⁾	KRW billion	50.25	43.00	43.50
		Ratio of cash settlement cases	%	46.6	17.5	0.1
		Number of payments	Times	3 per month	1 per month	1 per month

¹⁾ Excluding indirect support

Technical development support	Korea	Support for developing technology	No. of cases	66	59
		Support for protecting technology	No. of cases	20	8
		Training courses	No. of Course	49	17
Education support	Korea	Staff at suppliers completed trainings	No. of persons	1,380	204
		Training hours	No. of hours	-	18
	China				28
Competitiveness enhancement support	Korea	Number of operation days	man-day	148 persons	179 persons
	China	Number of supports	man-day	-	156

* Fair Trade Commission standard: 5 days=1 person (1 day=8 hours, Based on the application period of punctuality)

Part development capacity enhancement support	Korea	Provision of casting molds to strengthen suppliers' capacity of developing parts	No. of companies	122	104
			KRW billion	40.8	14.5
	China		No. of companies	-	-
					77

* Figures include multiple provision of casting molds to suppliers

EHS support	Korea	No. of companies	57	40
	China	No. of companies	-	-

Employees

Employment						
Classification		Unit	2015	2016	2017	
Number of employees	Korea	No. of persons	4,191	2,550	2,602	
	China	No. of persons	-	1,113	1,266	
	Global	No. of persons	11,086	3,919	4,027	
By job	Office	No. of persons	2,312	1,388	1,426	
	Technical	No. of persons	1,879	1,162	1,176	
By employment type	Non-regular ³⁾	No. of persons	409	151	87	
	Ratio of non-regular ²⁾	%	9.8	5.9	3.3	
Diversity	Korea	Disabled ³⁾	No. of persons	89	35	28
		National merit recipient ⁴⁾	No. of persons	123	75	82
		Elderly ⁵⁾	No. of persons	627	174	219
		Male	No. of persons	3,963	2,394	2,408
		Female	No. of persons	228	156	194
By job	Office	No. of persons	-	570	550	
	Technical	No. of persons	-	573	716	
By employment type	Non-regular	No. of persons	-	17	62	
	Ratio of non-regular	%	-	1.53	4.7	
Diversity	China	Disabled	No. of persons	-	0	0
		Elderly	No. of persons	-	4	7
		Male	No. of persons	-	926	1,087
		Female	No. of persons	-	170	179

¹⁾ Contract workers (entrustment, technology entrustment, outside directors, advisory, outside appointment)
²⁾ Non-regular/Total staff*100
³⁾ Based on MY HR; national disabled classification (levels 1-6)
⁴⁾ Based on MY HR; national merit recipients (person with a merit number or someone approved)
⁵⁾ Above the age of 55 (Based on total staff in Korea)

Classification		Unit	2015	2016	2017
Annual employee turnover rate ¹⁾	Korea	%	32.4	2.9	1.92
	20s	%	21.0	1.7	3.65
Turnover rate by age ²⁾	30s	%	25.0	5.0	2.33
	40s	%	27.6	1.9	1.72
	50 and above	%	57.0	0.0	0.18

¹⁾ Based on regular workers. Total number of turnovers in 2017 / Annual average number in Korea in 2017
²⁾ Based on regular workers. Total number of turnovers in 2017 by age / Annual average number in Korea in 2017 by age

Classification		Unit	2015	2016	2017
Number of employees on parental leave	Male ¹⁾	No. of persons	225	94	116
	Female ²⁾	No. of persons	18	10	14
Number of employees eligible for childcare leave ³⁾	Male	No. of persons	1,643	1,206	875
	Female	No. of persons	63	43	47
Number of employees on childcare leave ⁴⁾	Male	No. of persons	4	4	14
	Female	No. of persons	23	12	11
Number of employees returning to work after childcare leave ⁵⁾	Male	No. of persons	6	3	7
	Female	No. of persons	33	14	9
Continue to work rate for 12 months after childcare leave ⁶⁾	Male	%	100	33	83
	Female	%	63	21	100
Number of employees on parental leave	Male	No. of persons	-	95	67
	Female	No. of persons	-	20	26
Return to work rate after parental leave		%	-	100	100

¹⁾ Employees who began their paternity leave in 2017
²⁾ Employees who began their maternity leave in 2017
³⁾ Staff in Korea with children aged eight or under, or second graders in elementary school or below
⁴⁾ Number of employees who began childcare leave in the base year
⁵⁾ Number of employees who returned from childcare leave in the base year
⁶⁾ (12 months after the return to work) Number of current employees in 2017 from among employees who returned in 2016 / Employees who returned in 2016*100. Calculation for 2017 is based on figures as of April 2018

Labor Union					
Classification		Unit	2015	2016	2017
Union membership rate	Korea	%	80.2	71.2	78.5

* Technical staff (884 with membership out of 1,126 in total as of 2017)

Education				
Classification	Unit	2015	2016 ¹⁾	2017
Average annual training hours per person	Korea	No. of hours	99.5	57.5
Average training expenses per person		KRW 1,000	1,210	679
Average annual training hours per person	China	No. of hours	-	14
Average training expenses per person ²⁾		KRW 1,000	-	221

¹⁾ There was a change in the per-capita annual average training time and training expense management standards starting in 2016
Per-capita annual average training time=(Total training time for office and technical personnel)/ Total number of employees. Per-capita average training expenses=(Total training expenses for office and technical personnel)/Total number of employees
²⁾ Korean won calculations are based on the average exchange rate of the year

Education to prevent sexual harassment	Korea	No. of persons	5,000	2,264	2,515
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Social Contributions

Social Contribution Activities				
Classification	Unit	2015	2016	2017
Number of employees who participated in CSR activities	Korea	person Including overlap	2,943	587
		person Excluding overlap	1,141	332
	China	No. of persons	-	242
Total hours of CSR activities	No. of hours	9,752	2,527	5,247

Classification	Unit	2015	2016	2017
CSR investment	Korea	CSR investment ¹⁾ KRW billion	12.5	2.6
		CSR Investment per sales ²⁾ %	0.52	0.12
	China	Investment in social contributions ³⁾ KRW 1,000	-	13,563

¹⁾ Used amount of donation
²⁾ CSR investment/Sales of each year based on separate financial statements
³⁾ Korean won calculations are based on the average exchange rate of the year

Classification	Unit	2015	2016	2017
Employee participation rate in the salary fraction donation campaign ¹⁾	%	91	80	75
Annual fund raised by the salary fraction donation campaign ²⁾	KRW 1,000	169,468	78,321	60,514

¹⁾ Excluding staff sent to overseas worksites
²⁾ Excluding the matching grant made by the company

Independent Auditors’ Report

English Translation of a Report Originally Issued in Korean

To the Shareholders and Board of Directors of Doosan Infracore Co., Ltd.

We have audited the accompanying consolidated financial statements of Doosan Infracore Co., Ltd. and its subsidiaries (collectively referred to as the “Group”) which comprise the consolidated statement of financial position as at December 31, 2017, and the consolidated statement of profit or loss, consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies and other explanatory information.

Management’s Responsibilities for the Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS), and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor’s Responsibilities

Our responsibility is to express an opinion on the consolidated financial statements based on our audit. We conducted our audit in accordance with Korean Standards on Auditing. Those standards require that we comply with ethical requirements, and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor’s judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity’s preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity’s internal control.

An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of Doosan Infracore Co., Ltd. and its subsidiaries as at December 31, 2017, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with Korean IFRS.

Other Matters

The consolidated financial statements of Doosan Infracore Co., Ltd. and its subsidiaries as at and for the year ended December 31, 2016, were audited by another auditor who expressed an unqualified opinion on those statements on March 23, 2017.

Auditing standards and their application in practice vary among countries. The procedures and practices used in the Republic of Korea to audit such financial statements may differ from those generally accepted and applied in other countries.

Samuel PricewaterhouseCoopers

March 19, 2018
Seoul, Korea

This report is effective as at March 19, 2018, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

Independent Assurance Report

We were engaged by Doosan Infracore to provide limited assurance on the ‘2017 Doosan Infracore Integrated Report’ for the year ended December 31, 2017 (further ‘the Report’).

Context and Scope

Our engagement was designed to provide limited assurance on whether the Report is presented fairly, in all material respects, in accordance with the Sustainability Reporting Standards of the Global Reporting Initiative (GRI). We do not provide any assurance on the achievability of the objectives, targets and expectations of Doosan Infracore.

The scope of our engagement conforms to the KPMG Sustainability Assurance Manual™ (KSAM™), including the aspect of “materiality”. With regards to financial data, our procedures were limited to verifying that they were correctly derived from audited financial statements. To obtain a thorough understanding of Doosan Infracore’s financial results and position, the audited financial statements produced on 29 March 2018 should be referred to.

Responsibilities

As stated in the ‘Reporting Principles and Standard,’ Doosan Infracore is responsible for all content within the Report in respect of the GRI Sustainability Reporting Standards. It is the responsibility of Doosan Infracore’s management to establish and maintain appropriate performance management and internal control systems from which the reported sustainability information is derived.

Our responsibility is to perform a limited assurance engagement and to express a conclusion based on the work performed.

Independence

In conducting our engagement, we have complied with the requirements of the International Federation of Accountants (IFAC) *Code of Ethics for Professional Accountants*, issued by the International Ethics Standards Board for Accountants. We do not engage in any and all activities that may influence our independence from Doosan Infracore. KPMG has systems and processes in place to monitor compliance with the Code, and to prevent conflicts regarding independence.

Assurance Standards

We conducted our engagement based on the International Standard on Assurance Engagements (ISAE) 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information*, issued by the International Auditing and Assurance Standards Board, and also AA1000AS. The standards require that we comply with applicable ethical requirements, including independence requirements, and that we plan and perform the engagement to obtain limited assurance about whether the Report is free from material misstatement.

Limitations

A limited assurance engagement is substantially less in scope than a reasonable assurance engagement, and consequently does not enable us to obtain assurance on all significant matters that we may become aware of in a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance conclusion.

This report has been prepared solely for Doosan Infracore in accordance with the terms of our engagement. We do not accept or assume responsibility to anyone other than Doosan Infracore for our work, or for the conclusions we have reached in the assurance report.

Main Assurance Procedures

Our engagement was designed to provide limited assurance on whether the Report is presented fairly, in all material respects, in accordance with the reporting criteria. Procedures performed to obtain a limited level of assurance on a sustainability report consists of making inquiries, primarily of persons responsible for the preparation of information presented in the integrated report, and applying analytical and other evidence gathering procedures, as appropriate. These procedures included the following:

- Confirmation on whether the financial information presented in the Report was correctly derived from Doosan Infracore’s audited financial statements
- Inquiries to gain an understanding of Doosan Infracore’s processes for determining the material issues for key stakeholder groups
- Interviews with relevant staff at corporate and business unit levels responsible for providing the information in the Report
- Visit to Doosan Infracore’s offices in Doosan Tower
- Comparing the information presented in the Report to determine whether it is in line with our overall knowledge of, and experience with, Doosan Infracore’s performance on corporate social responsibility

Opinion

• Stakeholder Inclusiveness

- Doosan Infracore operates communication channels with key stakeholders such as shareholders/investors, customers/dealers, employees, suppliers, local communities (environment/NGOs), local/central government and media.
- We are not aware of any key stakeholder group that has been excluded from dialogue in the Report.

• Sustainability Context

- Doosan Infracore has established a process to incorporate CSR in management’s decision-making and the business management plans of relevant teams, thereby securing continuity.
- We confirmed that Doosan Infracore recognizes general business management and social responsibility management comprehensively and applies such understanding within the Report.

• Materiality

- Doosan Infracore conducts a materiality test in determining material issues.
- We are not aware of any material aspects concerning its sustainability performance which have been excluded from the Report.

• Completeness

- Doosan Infracore applies reporting scope, boundary and temporal criteria.
- In terms of criteria mentioned above, we confirm that the Report is suitable for stakeholders to assess social responsibility performance.

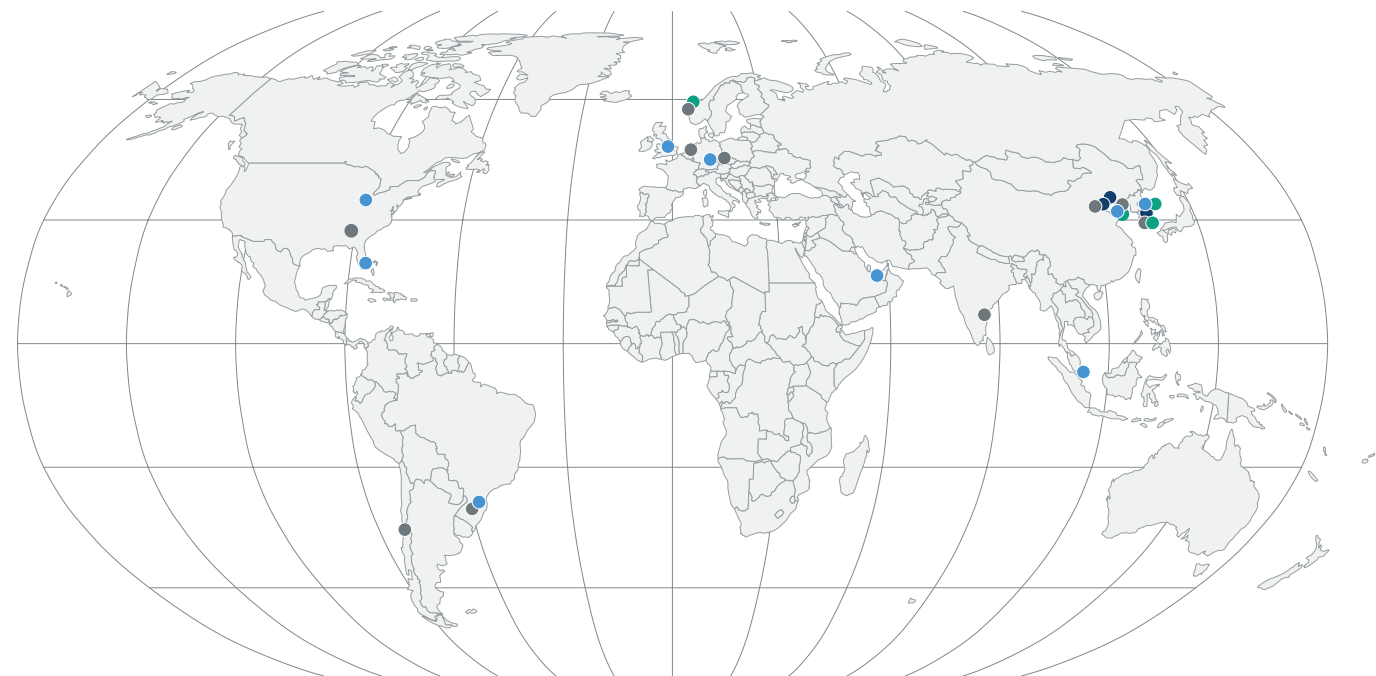
Based on the procedures performed, as described above, nothing has come to our attention to indicate that the Report is not presented fairly, in all material respects, in accordance with the reporting criteria.

May 2018
KPMG Samjong Accounting Corp.
CEO Kim, Kyo Tai



Global Network

● Headquarters ● Production Subsidiaries ● Sales Subsidiaries ● Parts Distribution Center



Headquarters

Doosan Infracore Co., Ltd.
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Doosan Infracore (China)
Investment Co., Ltd.
19th Fl., Tower B., Gateway, No. 18,
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Chaoyang District, Beijing 100027, China

Doosan (China) Financial Leasing
Corp.
20th Fl., Tower B., Gateway, No. 18,
Xiaguangli, North Road, East Third Ring,
Chaoyang District, Beijing 100027, China

Production Subsidiaries

Doosan Infracore Co., Ltd.
489, Injung-ro, Dong-gu, Incheon, Korea

Doosan Infracore Co., Ltd.
185, Dongjangan-ro, Gunsan-si,
Jeollabuk-do, Korea

Doosan Infracore China Co., Ltd.
No. 28, Wuzhishan road, ECO & Tech.
Development Zone Yantai, Shandong,
China

Doosan Infracore Norway AS.
Varholvegen 149 N-6440 Elnesvågen,
Norway

Sales Subsidiaries

Seoul, Korea | Yantai, China |
Beijing, China | Chennai, India |
Americana, Brazil | Santiago, Chile |
Elnesvågen, Norway |
Groot-Ammers, Netherlands |
Suwanee, U.S. | Prague, Czech Republic

Parts Distribution Center (PDC)

Ansan, Korea | Yantai, China |
Leipzig, Germany | Dubai | Singapore |
Americana, Brazil | Miami, U.S. |
Chicago, U.S. | Cardiff, U.K.

UN Global Compact – 10 Principles

Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
Principle 2: make sure that they are not complicit in human rights abuses.

Labor Standards

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
Principle 4: the elimination of all forms of forced and compulsory labour;
Principle 5: the effective abolition of child labour; and
Principle 6: the elimination of discrimination in respect of employment and occupation.

Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges;
Principle 8: undertake initiatives to promote greater environmental responsibility; and
Principle 9: encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

Doosan Infracore supports UNGC – Ten Principles.



The paper used in printing the 2017 Doosan Infracore Integrated Report is certified as an environmental-friendly product by the Forest Stewardship Council®. In addition, the report was printed at a FSC-certified print shop using soy oil ink which drastically reduces the emissions of air pollutants.

Business Locations in Korea

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