

***DOOSAN***

ENVIRONMENTAL

GOVERNANCE

SOCIAL



# BUILDING YOUR TOMORROW TODAY

2021 Doosan Corporation ESG Report



# BUILDING YOUR TOMORROW TODAY

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### ABOUT THIS REPORT

#### OVERVIEW

Since 2013, Doosan Corporation has published its annual CSR report to share its sustainability management activities and performance. This report is our ninth report. We have been compiling the report focusing on ESG issues since 2020 to reflect the needs of our stakeholders and changed the title to ESG Report. Through the report, we intend to transparently disclose the major activities and achievements of our sustainability management in 2021 to our stakeholders.

#### REPORTING STRUCTURE

This report consists of Introduction chapter, which introduces our management strategy and major businesses, and ESG Core Values chapter, which includes the background to the introduction of the 3P (People, Planet, Partners) and the social value created by Doosan Cooperation. The company's major policies, management methods, activities, and data related to sustainability management can be found in the ESG Policy & Performance and the Appendix chapters.

#### REPORTING PERIOD AND SCOPE

This report covers our sustainability management activities and achievements from January 1 through December 31, 2021, and reporting period is extended to the first half of 2022 for matters that many have a significant impact on decision-making. Reporting scope covers all of Doosan Corporation's domestic and overseas business sites, and if necessary, we marked the domestic and overseas business sites separately. We introduced the business status of the companies we invested in but did not include their quantitative data. Quantitative data for the last four years are provided to help time-series analysis. Furthermore, the report discloses the company's plans for 2022, along with mid- and long-term perspectives and future predictions.

#### REPORTING PRINCIPLE

This report has been prepared in conformity with the "Core Option" of the GRI(Global Reportign Initiative) Standards. The reporting standards of the Sustainability Accounting Standards Board(SASB) have also been partially applied. The guidelines for reporting can be found on page 85-89 of the report.

#### ASSURANCE

Shinhan Accounting Corporation has verified the contents and publication process of this report. The assurance statement can be found on page 91.



For more information, please visit our website  
[www.doosan.com](http://www.doosan.com).

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## Sustainability Yearbook Member 2022

### S&P Global

This report was published as an interactive PDF format that includes functions such as navigating to relevant pages in the report and shortcuts to related websites.





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CEO Message



Dear stakeholders,

Substantial technological advances in the era of the 4th industrial revolution have strongly driven the growth of the global economy. Behind the progress, however, lie economic and social drawbacks including the wealth gap, digital divide, discrimination, and conflict. Climate change and environmental degradation are other critical issues we should address. There is little choice but to seriously contemplate on what roles and responsibilities Doosan Corporation can take on, to ensure a sustainable society while keeping our business growth steady.

Doosan Corporation has continuously pursued new opportunities and sharpened its competitive edge even in the face of business uncertainty. We are expanding our business portfolio into high value-added businesses such as smartphone, semiconductor, telecommunications network, and automotive electronics based on electro-materials technologies including copper clad laminate (CCL) and antenna module. Finding yet another growth engine, Doosan Corporation ventured into the advanced packaging business for biological pharmaceuticals and vaccines last year. In hydrogen business, we are accelerating the development of new system of solid oxide fuel cell (SOFC), while maintaining the competitive advantages of existing products.

Doosan Corporation has already demonstrated the world’s best product technologies in businesses of collaborative robot, hydrogen drone, and logistics automation, where we have recently witnessed highly meaningful growth. We are proactively exploring and seizing domestic and global market opportunities based on these capabilities.

In addition to its efforts to ensure sustainable business growth, Doosan Corporation carries out a wide variety of ESG activities to contribute to building a sustainable society. Doosan Corporation, as a global corporate citizen, is increasing investment in hydrogen energy R&D and expanding the scale of its operation, in a bid to meet the global climate target of carbon neutrality. We are also strengthening our distinctive business competitiveness and meeting our environmental responsibilities by reducing greenhouse gas emissions, further advancing the resource circulation system, and developing green products.

Improving organizational culture, nurturing talent, and promoting EHS and ethical management are on Doosan Corporation’s focus agenda. Doosan Corporation upholds its company motto: “Growth of People, Growth of Business”. To this end, we are proactive in improving work environment, running diverse employee training programs, strengthening ethical business



Doosan Corporation will achieve greater goals based on our business philosophy and belief that have guided us throughout our 126 years of history. We are diversifying our business portfolio into new areas and making progress toward a better and sustainable future. Doosan Corporation promises to continue with innovation efforts instead of simply pursuing profits, thus growing into a leader in ESG-based business management.

This is the vision Doosan Corporation holds, as a company that shapes the future.




management, and practicing health and safety management activities to cope with new health issues such as the COVID-19 pandemic.

Corporate social responsibility is the core value of Doosan Corporation. We operate a shared-growth system that can effectively manage the sustainability of our supply chain to promote reciprocal growth with our suppliers. Employees of Doosan Corporation are actively engaging in a variety of social contribution activities such as carbon reduction and remote volunteering work befitting the pandemic times, to name a few.

Doosan Corporation pledges to live up to the trust that our stakeholders put in us, through stronger sustainable business growth and corporate social responsibility.

I ask for your unwavering support and encouragement.

Thank you.

CEO of Doosan Corporation **Moon, Hongsung** 



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# Doosan Group



## The Company with the Longest History in Korea

Doosan is the oldest company in Korea, with a history of 126 years. It was founded in 1896 as the "Park Seung Jik Shop," the first modern shop in Korea, and has continuously embraced change and achieved continuous growth for over a century.



## An Innovative Global Business

Doosan pursues continuous innovation and change, adding value to humanity through building and operating social infrastructure.



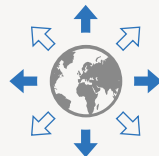
## A People-Centered Business

We aim to maximize the value of our customers, shareholders and investors based on our own people-centered values and to improve customer satisfaction.

## Proud Global Doosan



People-centered management that views talented people as a source of global competitiveness



Operating a process that meets global standards

## Doosan's Affiliates

Doosan Corporation	Doosan Corporation Electro-Materials	Doosan Corporation Fuel Cell Power	Doosan Corporation Digital Innovation	Doosan Corporation Retail			
Affiliated companies or subsidiaries	Doosan Enerbility	Doosan Bobcat	Doosan Industrial Vehicle	Doosan Fuel Cell	Doosan Mecatec	Doosan Tesna	Doosan Robotics
	Doosan Mobility Innovation	Doosan Logistics Solution	Oricom	Hancom	Doosan Magazine	Doosan Bears	Doosan Cuvex
Auxiliary organizations	Doosan Yonkang Foundation	Doosan Art Center	Doosan Business Research Institute				

\* These affiliated companies or subsidiaries may be partially different from those in the business report.



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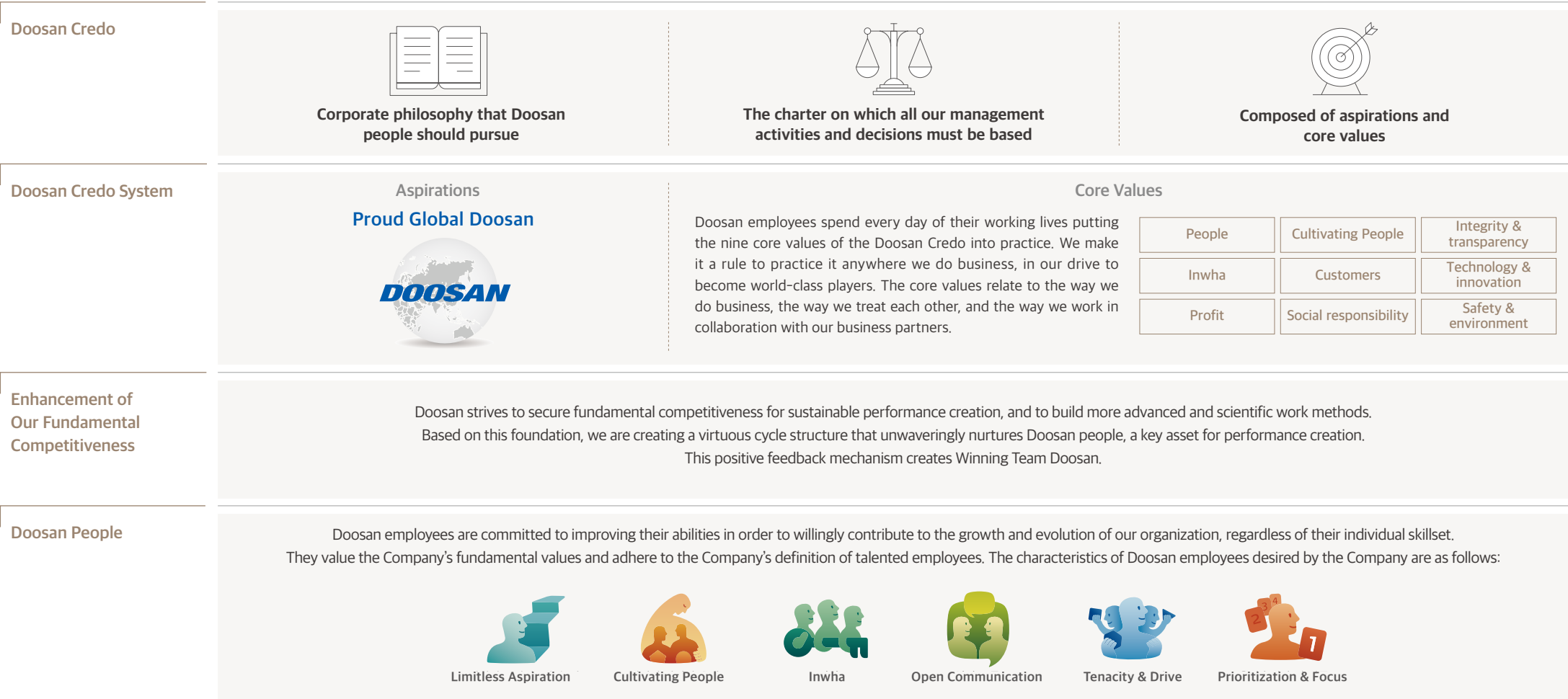
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A Winning Team that Follows the Doosan Credo

Winning Team Doosan

Doosan's unique way of doing business represents our corporate philosophy, culture, and set of management principles aimed at growing Doosan into a "Proud Global Company." It consists of three elements: the Doosan Credo, the People of Doosan (Six Traits of Doosan People), and the Doosan Credo Change Model (core competitiveness, and advancement and scientification of work methods), which serves as the foundation through which the People of Doosan realize the Doosan Credo.





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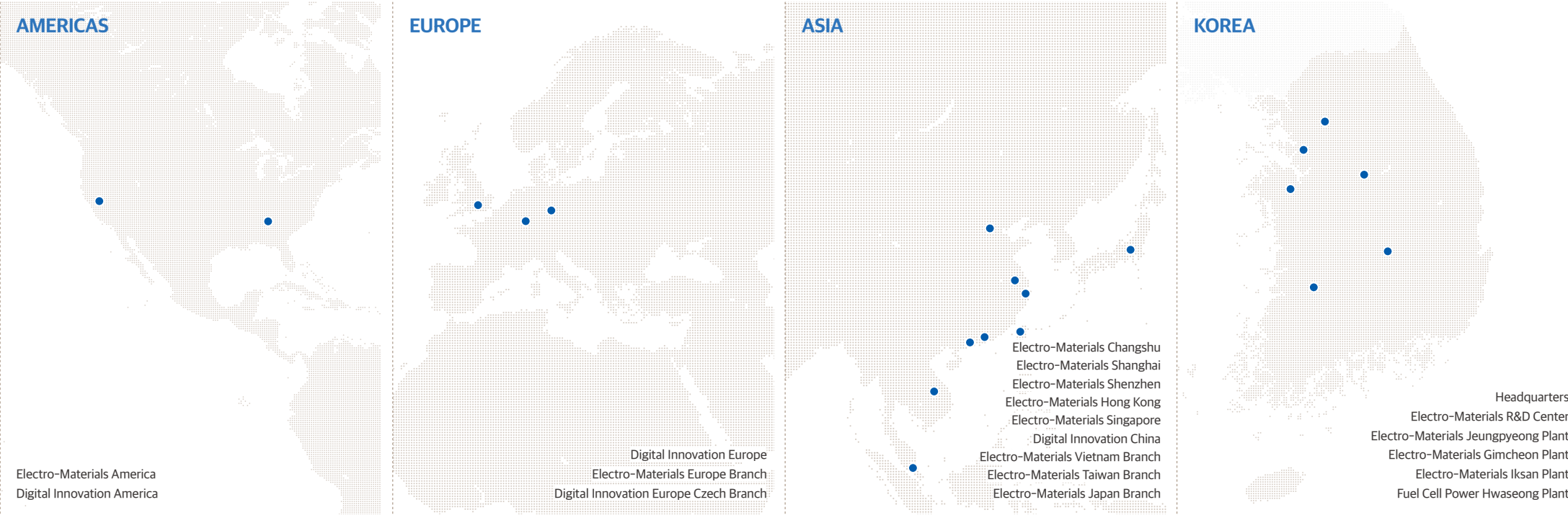
Independent Assurance Statement

Greenhouse Gas Assurance Statement

# Doosan Corporation

## Global Network

Doosan Corporation is the parent company of Doosan Group. The company manages the global network of Doosan Group, which is formed throughout Europe, Asia, and the Americas, while also running its own businesses comprised of Electro-Materials BG, Fuel Cell Power BU, and others.



Establishment	December 18, 1933
CEO	Jeong-won Park, Min-chul Kim, Hong-sung Moon
Business domain	Electronic parts/materials, retail, fuel cell, IT solution
Business regions	9 countries including Korea, China, U.S. and U.K.
Headquarters	275 Jangchungdan-ro, Jung-gu, Seoul, Republic of Korea

Local corporation	9
Branch office	5
R&D center	1
Production facility	4

### Financial Summary Consolidating foreign subsidiaries as of the end of 2021

Total assets	KRW 5,308.3 billion	Sales	KRW 8,258.8 billion
Operating profit	KRW 97.5 billion	Number of employees	2,798 persons



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Business Strategy

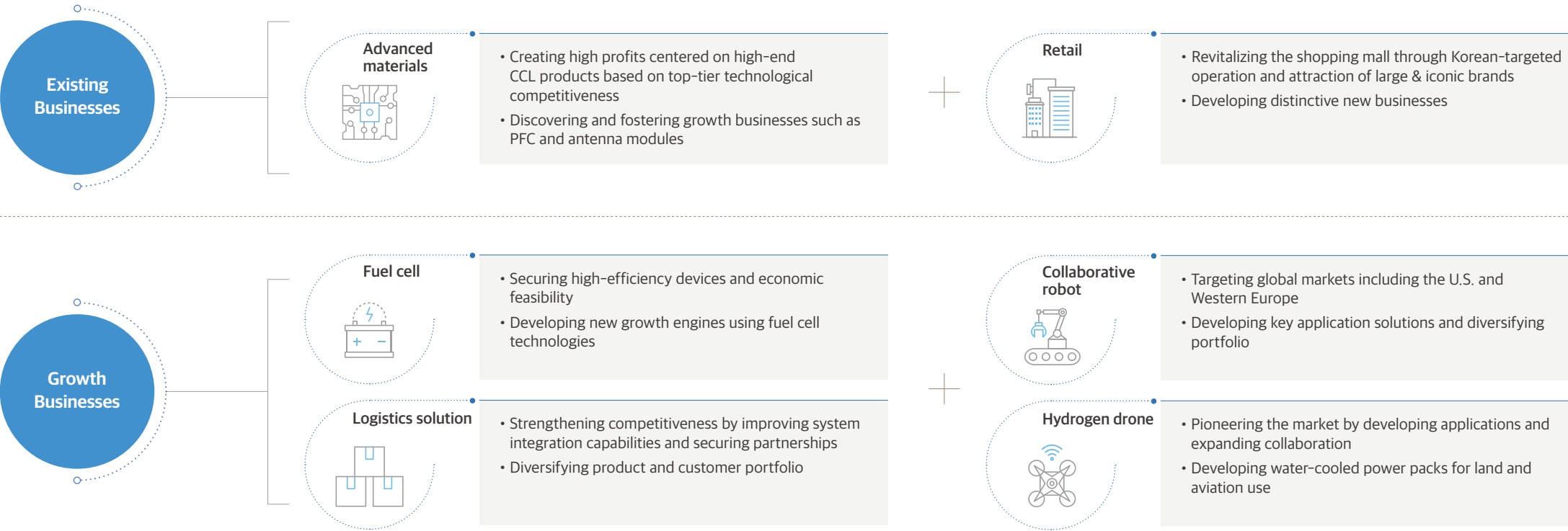
Enhance Business Competitiveness

The year 2022 will likely see the global management environment struggle with uncertainties due to COVID-19 and fiscal tightening. It is necessary to enhance the competitiveness of new business to prepare for the post-COVID era.

The electronic industry continues to cope with the shortage in semiconductors. However, the trend may reverse as global semiconductor players decide to make a considerable investment. The delayed investment in 5G is expected to resume, helping boost the antenna module market. The fuel cell industry is on a constant growth trajectory with the expansion of renewable energy. The retail industry is seeing an online market increase as virtual lifestyles begin to spread.

In a bid to swiftly respond to the fast-changing business environment, Doosan Corporation has created a mid- to long-term business strategy aimed at maximizing the synergy between the existing and the growing business areas. Under the strategy, we will provide the resources for growing business areas through our existing advanced materials and distribution areas, while nurturing growing businesses such as fuel cell and cobot into future cash cow.

Mid- and Long-term Strategic Direction





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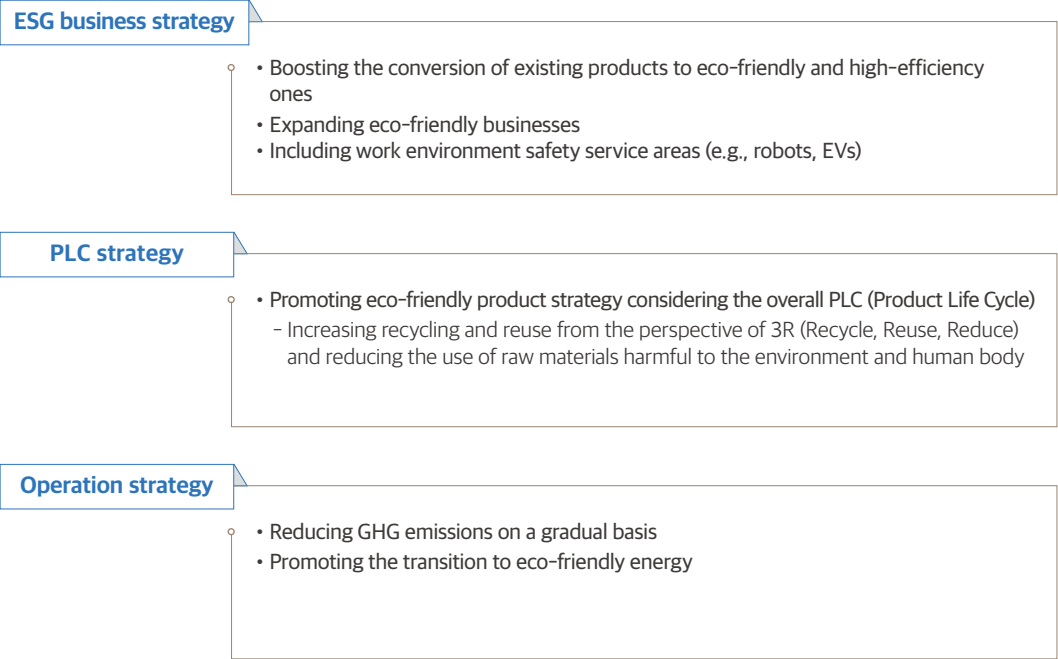
Sustainable Growth

Doosan Corporation has established the three ESG pillars for sustainable growth across business area, product, and operation: ① ESG business strategy; ② PLC strategy; ③ Operation strategy. We will reinforce sustainable competitiveness and raise corporate value based on these three key pillars.

Doosan Corporation is reshaping the existing portfolio to eco-friendly and high-efficiency products to meet the surging demand for green products. Furthermore, we are expanding the share of EVs and hydrogen business areas, as well as a services sector to build a safe working environment, thus ensuring sustainability in our business portfolio.

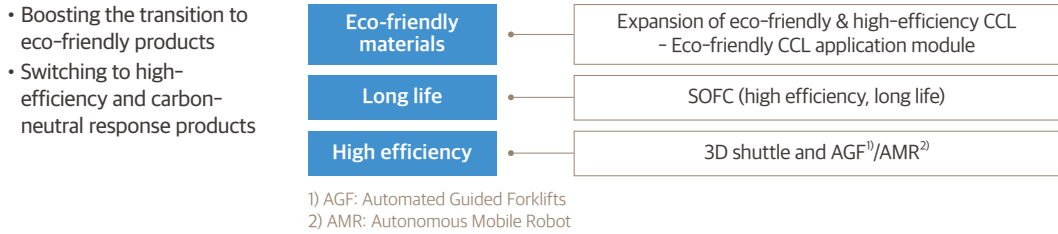
We are also implementing the 3R (Recycle, Reuse, Reduce)-based Product Life Cycle (PLC) in order to minimize the environmental impact across the product life cycle. To that end, we identify the applicable areas for 3R improvement while designing and producing new products in consideration of 3R. In operation, we set the phased GHG reduction strategy to achieve the mid-term reduction target. Under the 2030 goal of cutting GHG emissions by 20% compared to 2018 levels, we are implementing a wide variety of reduction measures including energy management system establishment, facility efficiency improvement, and consumption of eco-friendly energy.

ESG Strategic Direction

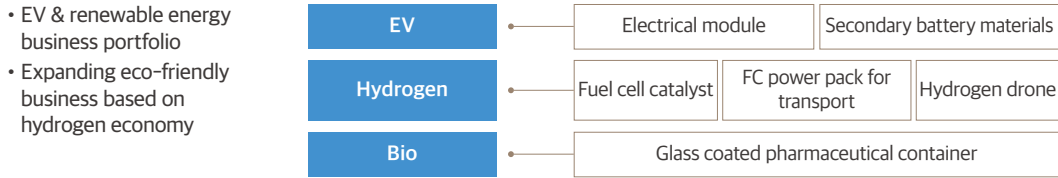


ESG Business Strategy

Launch of eco-friendly products



Expansion of eco-friendly businesses



Working environment safety





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Introduction of Businesses

ELECTRO-MATERIALS BG



Electro-Materials BG produces and supplies CCL (Copper Clad Laminate), which is a core material for printed circuit boards, an essential part of electronic products. Doosan's CCL has been playing a pivotal role for technological advances in high-tech electronic devices, such as smartphone, semiconductor, and telecommunication equipment. In particular, as the world's only supplier with a full line-up of high-end CCL, including PKG CCL for semiconductors, NWB CCL for telecommunication equipment, FCCL for smartphones, and CCL for electrical devices, Electro-Material BG is focusing on enhancing its competitive edge. In addition, in order to secure competitiveness in the renewable energy business, we have established a mass production system for electrodes, a core material for fuel cells. We are expanding the approval of global automobile manufacturers by developing key components of batteries for future electric cars. Like this, Electro-Materials BG is improving its sustainability by building future-oriented portfolios for 5G, eco-friendly cars, and energy.

Main Products and Services

IC Package Substrate CCL

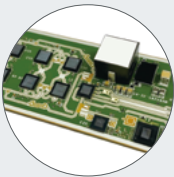
The IC package substrate CCL market is divided into CCL for memory semiconductors, such as DRAM and NAND, and for non-memory semiconductors, such as CPU, GPU, and AP. It is high-end CCL that can be used in microcircuits for high-temperature semiconductor processes and high-integration circuit design.

Flexible CCL

Flexible CCL is used in smart devices and wearable products, such as smartphones, smartwatches, and wireless earphones. It is ideal for optimal circuit design for small devices due to its flexible characteristics, and its application has expanded to various new technologies, such as foldable phones and electric vehicles.

5G Antenna Module

As an integrated solution module equipped with signal transmission/reception and frequency conversion functions, this product is a core component of 5G wireless repeaters. It can be used to tune into the domestic frequency of 28GHz, as well as be used in foreign telecommunications markets.



Network Substrate CCL

Network Substrate CCL is high-function CCL used in wired and wireless communication equipment such as servers and base stations. There is increased demand for low-loss product technology to minimize electrical signal loss for high-capacity and high-speed communication. Our low-loss technology is registered World Class Product of Korea.

Patterned Flat Cable (PFC)

As a cell-connecting material for EV batteries, PFC contributes to securing the stability and weight reduction of EVs. In addition, long-length flat cables are being used more often to respond to the needs for increased number of cells suited to long-distance driving. In response, Electro-Materials BG is pioneering new markets by developing long, highly functional flat cables.



Fuel Cell Electrode

Electrodes, a key component of fuel cell, are supplied to Doosan Fuel Cell. We are strengthening our business competitiveness by internalizing the processing of raw materials in the fuel cell business.

Major Performances in 2021 & Future Plans

Market changes

- In the mobile market, demand is expected to increase as consumer sentiment and smartphone market recover after the COVID-19 pandemic.
- The market size of high value-added products is expanding due to the continued shortage of semiconductors.
- Demand for high-speed/ low-loss material for next-generation data centers is on a rise due to growing data traffic driven by increasing telecommuting and video lectures.

- The renewable energy market is expected to continue to grow in accordance with regulations such as carbon credits.
- The materials sector is also expected to grow with the expansion of the eco-friendly fuel cell market.
- As demand for electric vehicles increases, the battery industry is also expected to grow.

Performances in 2021

- NWB (Network Board) sales increased 45% YoY due to growing CCL market for telecommunication equipment and increasing market share of high-end products.
- Overseas sales accounted for 44%, up 3%p YoY.
- Sales in Greater China increased approximately KRW 76 billion YoY on the strength of active market expansion.

[New Business]

- Entered the Antenna Module business, a key component of 5G communication equipment
- Established the system and equipments for the production of battery parts for EVs.
- Created synergy with Doosan Fuel Cell by stabilizing the fuel cell electrode mass production system

Plans for 2022

- Developing products to meet the demand for high-performance materials such as ultra-high frequency, low loss, and high heat dissipation
- Continuously increasing sales by securing business competitiveness through preemptive responses to rapidly changing markets
- Securing sales strategy focused on high-performance materials in line with the growing demand for semiconductors and communication equipment

[New Business]

- Securing sales through the first mass production of battery parts for EVs
- Reinforcing production capacity through diversification of raw materials for fuel cell electrodes
- Developing and cultivating new items in promising business categories



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FUEL CELL POWER BU



Fuel Cell Power BU, founded in 2003, is the first Korean company to lead the fuel cell business for houses and buildings. It demonstrates technological competitiveness spanning from the design and manufacturing of the stack and reformer to system integration and in-house manufacturing, which are the core technologies of this business. In response to the rapid shift to hydrogen energy in fuel cell for houses, buildings and mobility due to the government-led 2050 Net-Zero Scheme, Fuel Cell Power BU is leading the development and dissemination of high-efficiency and eco-friendly hydrogen fuel cells and is sharpening capabilities as a total solution provider in fuel cell business.

Main Products and Services

PEMFC (1/5/10kW) (Polymer Electrolyte Membrane Fuel Cell)

PEMFC is a type of fuel cell that uses polymer membrane as the electrolyte. It has the advantages of on/off operations and power generation adjustment according to power demand. It can also be installed indoors, and it takes up less installation area and time compared to those of other energy sources.



SOFC (10kW) (Solid Oxide Fuel Cell)

SOFC is a type of fuel cell that runs at a high temperature (600°C or higher) using ceramic electrolytes to conduct negative oxygen ions. It has the advantages of delivering high economic feasibility, high efficiency, and competitiveness of installation area compared to existing fuel cell, thanks to its compact design.



Major Performances in 2021 & Future Plans

Market changes	Performances in 2021	Plans for 2022
<ul style="list-style-type: none"><li>As global interest in carbon neutrality increases and hydrogen energy production accelerates, a sharp increase in needs for hydrogen utilization is expected.</li><li>In Korea, fuel cell market is predicted to expand in earnest as amendment to the Hydrogen Economy Act, which is currently being legislated, will include the mandatory supply of clean hydrogen-based fuel cells.</li><li>In Japan, residential fuel cell market volume reaches around 50 thousand units a year and building fuel cell market is also expected to grow due to the government's subsidy</li><li>In Europe, based on the PACE Program, a pilot project for fuel cell, Germany and France are focusing on investing in fuel cell and hydrogen-related technologies, realizing an annual growth of 15%.</li></ul>	<ul style="list-style-type: none"><li>Completed the development of SOFC for buildings with the highest electric efficiency in Korea and the development of new PEMFC for compact-sized houses in order to respond to various uses of hydrogen energy</li><li>Started the development of mobility fuel cells as well as stationary fuel cells currently in production to expand the hydrogen business platform</li></ul>	<ul style="list-style-type: none"><li>Responding to changes in the electric power sales market for buildings by establishing a full-scale mass production system of high-efficiency SOFC for building</li><li>Promoting full-scale development of the powerpack for mobility</li><li>Responding to the hydrogen market by participating in national projects for a large-capacity hydrogen system development</li><li>Promoting overseas market expansion projects</li><li>Promoting the development of 1kW and 10kW class PEMFC for pure hydrogen</li></ul>



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RETAIL BU

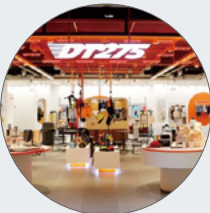


Doota Mall, an experience and shopping spot that will captivate the hearts of Millennials and Gen Z, new central axis of consumption, consists of 7 floors. It is Korea's representative fashion shopping mall where any can enjoy everything from shopping to food and drink in one space. Retail BU offers the best customer satisfaction with its distinctive services at Doota Mall.

Main Products and Services

Doota Mall provides a pleasant and unique shopping environment to customers in Dongdaemun, the mecca of fast fashion, through continuous renovations. This mall offers products from traditionally popular domestic and foreign sports and street/casual brands along with products made by new designers, instilled with the distinctive spirit of Dongdaemun that can be found only in Doota, thereby delivering the highest customer satisfaction.

Moreover, Doota Mall is striving to provide products considering environmental and social impact and to coexist with local communities and small business owners. In addition to the pleasure of shopping, customers can also experience the joy of eating through famous F&B brands located on each floor and Food Atelier, a high quality food court. Doota Mall has opened an online store and a directly managed store, DT275 to provide customers with designer products and experimental merchandise.



DT275

Major Performances in 2021 & Future Plans

Market changes	Performances in 2021	Plans for 2022
<ul style="list-style-type: none"><li>The rapid growth of the online market is expected due to the spread of non-face-to-face consumption culture and the development of Internet/mobile technology. However, as consumer sentiment recovers with the easing of COVID-19, the importance of offline stores is also increasing.</li></ul>	<ul style="list-style-type: none"><li>Opened a Smart Store in Naver to expand our business area</li><li>Operated an interactive space with experimental merchandisers through DT275, a directly managed store.</li></ul>	<ul style="list-style-type: none"><li>Strengthening Dongdaemun identity by attracting Dongdaemun-based designer brands and expanding excellent wholesale brands</li><li>Securing the diversity of Doota Mall by quickly applying new trends such as F&amp;B brands and lifestyle stores</li><li>Developing new domestic and foreign brands and reinforcing online business to expand the scope of Retail BU</li></ul>



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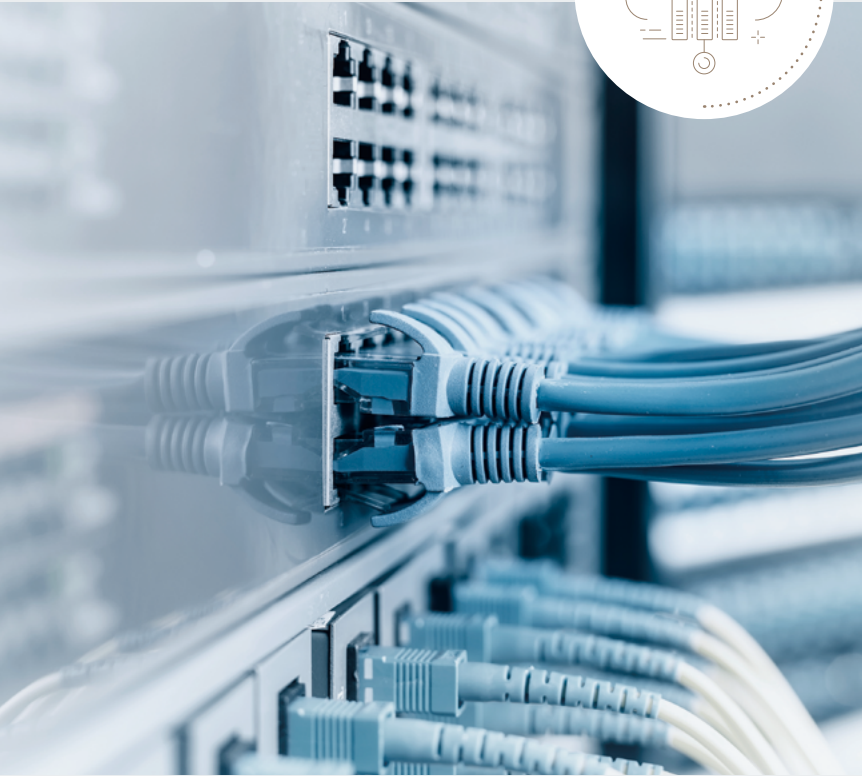
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DIGITAL INNOVATION BU



Digital Innovation BU provides IT services for various industries from eco-friendly energy to entertainment businesses. It boasts a wide range of technologies to meet the diverse needs of customers, as well as areas essential to business operations such as HR, finance, and security.

Main Products and Services

Doosan's Digital Innovation (DDI) BU provides total IT services, including IT consulting and system integration, application systems, and IT infrastructure services, for Doosan affiliates and general customers around the world.

Digital Service Business

DDI BU provides services for the entire lifecycle, from consulting to construction and operation in the SaaS(Software as a Service)-based application field and supports the establishment of new growth engines within the group such as Doosan Enerbility, Doosan Mobility Innovation, and Doosan Robotics, as well as the establishment of the group's integrated Biz Platform.

Platform Service Business

It provides a wide range of services from consulting to construction, operation and maintenance of IT infrastructure, group website, group portal, and digital workplace, and supports DT<sup>1)</sup> acceleration at the group level by strengthening security and cloud services.

Enterprise IT Service Business

DDI BU offers application operation, improvement, and development services to internal and external clients. It also engages in discovering, suggesting, and building DT and OE<sup>2)</sup> tasks. Other activities include independent IT supports according to the business structure reorganization at the group level, winning orders for ITO<sup>3)</sup> projects from sold subsidiaries, discovering DT & OE tasks for subsidiaries, and reestablishing an IT operation model to boost efficiency.

1) DT: Digital Transformation  
2) OE: Operational Excellence  
3) ITO: IT Outsourcing

Major Performances in 2021 & Future Plans

Market changes	Performances in 2021	Plans for 2022
<ul style="list-style-type: none"><li>• Most IT systems are changing to a cloud-based service, and investment in IT security as well as OT<sup>1)</sup> security is increasing.</li><li>• IT-related expenses are increasing due to the growing demand in non-contact services and working from home.</li><li>• After COVID-19 pandemic, it is difficult to secure high-quality IT manpower, and accordingly, the wage increase rate in the IT field is rapidly increasing.</li><li>• AI, metaverse, quantum computing, and autonomic business technologies, which are new promising fields, are attracting attention.</li></ul>	<ul style="list-style-type: none"><li>• Established the Global Security Foundation and promoted the AI POC<sup>2)</sup> project to support the digital transformation of Doosan Group affiliates</li><li>• Secured the profitability of existing businesses by expanding the scope of SLA system, disseminating technology platform to overseas affiliates, conducting spin-off projects, and winning ITO projects</li><li>• Secured new revenue sources by securing external key account customers and forming an organization dedicated to external projects</li><li>• Expanded business scope through open co-innovation</li></ul>	<ul style="list-style-type: none"><li>• Building a new growth engine collaboration model to accelerate digital transformation of Doosan Group affiliates, supporting Biz Platform, strengthening backbone, and enhancing security services within the group</li><li>• Expanding external business area and establishing related systems</li><li>• IT support and ITO orders following business restructuring</li><li>• Reinforcing global operation efficiency and cost competitiveness to strengthen operating models and capabilities</li></ul>

1) OT: Operational Technology  
2) PoC: Proof of Concept



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DOOSAN ROBOTICS



Doosan Robotics is a specialized robot solution provider that leads the global Cobot (Collaborative Robot) market. Launched in 2015 as one of Doosan Group's new growth engines and core businesses, Doosan Robotics developed cobots with in-house technology and completed building mass-production facilities with an annual capacity of 10,000 units at the end of 2017. The company is accelerating business expansion into the global market on the strength of high recognition for technological prowess in Europe, U.S., and China.

Main Products and Services

Doosan Robotics has a line-up of collaborative robots for a variety of processes with maximum work envelopes ranging from 900mm to 1,700mm and with payloads ranging from 5kg to 25kg. Cobots are equipped with high-performance "torque sensors" that detects forces in each of six joints.

Cobots are used extensively in manufacturing, production, and logistics processes such as assembly (screw fastening, gear assembly), pick & place, polishing and deburring, milling machine assistance, inspection, gluing/bonding, plastic injection assistance, packaging and palletizing, and press forming, among others. They are also being introduced to various areas including services like restaurant business, healthcare, disease response, and more.



Robot "NINA," the CES Innovation Award winner

Major Performances in 2021 & Future Plans

Market changes	Performances in 2021	Plans for 2022
<ul style="list-style-type: none"><li>Interest in collaborative robots has been steadily increasing due to difficulties in securing manufacturing manpower, improvement of production efficiency through the distribution of labor between workers and robots, avoidance of harmful musculoskeletal work due to aging, increased needs for automation from the field, and increased interest in safety and environment.</li><li>Due to COVID-19 pandemic, the need for reshoring and non-face-to-face services in developed countries has increased significantly.</li><li>According to the 2021 BCG Report, the collaborative robot market is expected to expand to USD 7.5 billion by 2030 (market size of USD 1.0 billion in 2021, CAGR of 27%)</li></ul>	<ul style="list-style-type: none"><li>Increased 80% in unit sales and 83% in sales revenue from the previous year</li><li>Became the first Korean company to exceed 1,000 unit sales for cobot by selling 1,185 units</li><li>Diversified business scope into service applications such as logistics, coffee, chicken, etc. including palletizing</li><li>Entered the food tech market by launching a coffee service robot Dr. Presso</li><li>Won the 2022 CES Innovation Award (camera robot "NINA")</li><li>Attracted KRW 40 billion in investment and recognized for KRW 440 billion in corporate value</li></ul>	<ul style="list-style-type: none"><li>Planning to sell around 2,000 units</li><li>Establishing local subsidiaries in the U.S. and Europe to expand overseas market share in key regions</li><li>Providing solutions that quickly and accurately meet customer needs through the establishment of a collaborative robot platform capable of open innovation</li></ul>



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DOOSAN LOGISTICS SOLUTIONS



Doosan Logistics Solutions has been steadily growing in the logistics SI (System Integration) industry since its launch in 2019. The company provides advanced turnkey services for the entire process, from logistics strategy consulting to integration of logistics-related IT technology and automation systems.

Main Products and Services

Doosan Logistics Solutions supplies all products and services necessary for the automation transformation of logistics centers. In the automation review stage, we provide an accurate diagnosis of the logistics center operation status and investment efficiency analysis considering the direction of automation application and ROI (Return on Investment). In the automation construction stage, the company provides software for integrated management of logistics center processes, space engineering, sourcing and installation of automation equipment, and automation equipment themselves.



Major Performances in 2021 & Future Plans

Market changes

- Changes in consumption trends due to COVID-19 are leading to explosive growth of e-commerce and package delivery markets. Due to an aging population, increased labor costs, and improved logistics technology, the demand in the logistics automation market is expected to grow at a stable annual rate of more than 10% in the mid- to long-term.
- In the past, "automated warehouse" was a typical logistics automation facility, but recently, with the advancement of autonomous driving and robot technology, expectations toward the commercialization of "unmanned" solutions are rising, focusing on inventory transfer, picking, and palletizing tasks.

Performances in 2021

- Increased market share by winning large-scale projects from global sportswear companies, domestic leading logistics rental operators, leading domestic retailers, and e-commerce businesses
- Diversified the automation portfolio through partnerships with Knapp, the No. 1 global shuttle system company, as well as autonomous mobile robot (AMR) partnerships

Plans for 2022

- Developing and applying unmanned solutions through R&D in logistics IT, the strength of Doosan Logistics Solutions
- Responding to customer needs in the growing distribution and e-commerce industries and expanding customers into fashion and various retail fields



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# DOOSAN MOBILITY INNOVATION



Doosan Mobility Innovation (DMI) plans to apply mobile fuel cell to firefighting robots, range extenders, and forklifts in the future based on our experience in commercializing small and light weight mobile fuel cell pack for the first time in the world. Furthermore, we are aiming to enter the large cargo drone and UAM (Urban Air Mobility) market.

## Main Products and Services

### Hydrogen Fuel Cell Pack (DP30)

As the world's first commercialized Long Endurance power pack that enables flight for more than 2 hours, DP30 can be applied to various drone airframes that require long distance flight. In particular, it is also excellent in terms of eco-friendliness, using hydrogen as an energy source. DP30 received the Innovation Award in the Sustainability, Eco-design & Smart Energy categories at the last CES 2020 event.

### Hydrogen Fuel Cell Drone

**DS30W** | As the wind-resistant version of DS30, this drone can fly for up to 2 hours with a maximum payload of 5 kg. It won the Innovation Award at the CES 2022. DS30W provides a solution that inspects a 12MW solar farm in one flight, transmits thermal image data to an LTE cloud server, after which AI analyzes the data.

**DT30N** | A drone jointly developed by DMI and a Chinese company specializing in industrial drones, DT30N will primarily be used in harsh industrial environments such as military, firefighting, and mine development sites.

**DJ25** | This is a VTOL (Vertical Take Off and Landing) model jointly developed by DMI and a Chinese company specializing in industrial fixed-wing drones. It can fly for up to 250 minutes. This will be used for national border surveillance, large-area mapping, etc. It won the Innovation Award at the CES 2022.

**DZ15** | This is a helicopter-type drone jointly developed by DMI and a high tech unmanned electric helicopter company in China. It is optimized for long flights. It can fly for up to 330 minutes and is expected to be actively used for offshore flights.



DT30N

## Major Performances in 2021 & Future Plans

### Market changes

- Under the leadership of the government, the public and military drone market is growing to about twice the size of the private industrial drone market.
- Currently, the main applications are focused on filming and video control, but industry trends and investment in the drone field is expanding to diagnostic analysis and logistics fields that require software and solution advancement.
- The AAM (Advanced Air Mobility) industry beyond UAM is growing rapidly, and the drone ecosystem is swiftly evolving, with technical roadmaps and regulations being announced worldwide.

### Performances in 2021

- Entered the military drone market by being selected as an operator for the Defense Acquisition Program Administration's pilot project and the Ministry of National Defense's excellent commercialization project
- Succeeded in supplying drones to public institutions and private gas companies through the gas piping solution pilot project and extended services to mountainous areas and maritime safety monitoring
- Launched a hydrogen drone with higher wind-resistant and durability and developing robots and drones equipped with DMI power module.

### Plans for 2022

- Developing application solutions required for domestic military and public sectors and securing opportunities for full scale-up
- Securing large accounts and mega dealers for exponential growth in the U.S. and China as COVID-19 is expected to stabilize
- Expanding business areas beyond industrial drones to robots, cargo drones, and UAMs through the development of large-scale water-cooled fuel cell products



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# ESG CORE VALUES



## PART. 02

Doosan Corporation is seeking new growth opportunities and reinforcing business competitiveness by agilely responding to rapidly changing market environment and paradigm shift. We are reorganizing our business portfolio centered on businesses with high growth potential and focus on investments and corporate capabilities in eco-friendly and growth engine businesses, thereby increasing our corporate value.

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# ESG Management of Doosan Corporation

ESG management aims to expand performance creation in the capital market along with risk management. Doosan Corporation actively responds to external stakeholders' demand in environmental, social, and governance aspects and carries out customized ESG management activities based on our own 3P (People, Planet, Partners) framework.

## ESG Management Based on the 3P (People, Planet, Partners) Framework

Successful business activities start with efficient allocation of resources. To ensure more effective ESG management system, Doosan Corporation has further subdivided the areas of contribution to stakeholders in consideration of the characteristics of its business based on the ESG management framework as discussed by scholars and specialists in the business sector.

In 2021, we clearly presented which areas of our business operation we needed to concentrate on by highlighting the 3P framework in our ESG report. We disclosed ESG information based on the 3P framework while striving to improve and refine our ESG activities in each area.

To internalize ESG management, we are concentrating our capabilities, reorganizing our systems, and consistently managing performance. In particular, we plan to measure the social value of ESG management performance company-wide and continuously improve the measurement of social value in terms of products and services.

We will conduct 3P-based ESG management to promote not only economic value creation activities, but also co-prosperity with stakeholders including employees, customers, partners, local communities, and environment who have a close relationship with our business.

### Contribution Value of 3P (People, Planet, Partners)



## External ESG Evaluation and Awards

### External evaluation

Included in DJSI Asia Pacific/Korea for  
8 consecutive years

Listed in Sustainability Yearbook for  
3 consecutive years



Obtained grade A and higher for  
12 consecutive years in KCGS' ESG evaluation



### Awards

Citation from the Children's Rights Agency  
Contribution to support the economic independence of underprivileged children



Minister Award of Gender Equality and Family  
Contribution to gender equality by supporting the economic independence of single mothers



Minister Award of Health and Welfare  
Contribution in supporting the economic independence of underprivileged children<sup>1)</sup>



### Certifications

"Excellent" grade in shared growth index for 2 consecutive years



Certified as an excellent institution for culture and arts sponsorship hosted by the Ministry of Culture, Sports and Tourism



<sup>1)</sup> It is the same as the contents of the Children's Rights Insurance Agency.



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Environmental Management

Eco-friendly R&D

SOCIAL

Customer Satisfaction

Health and Safety Management

Quality Management

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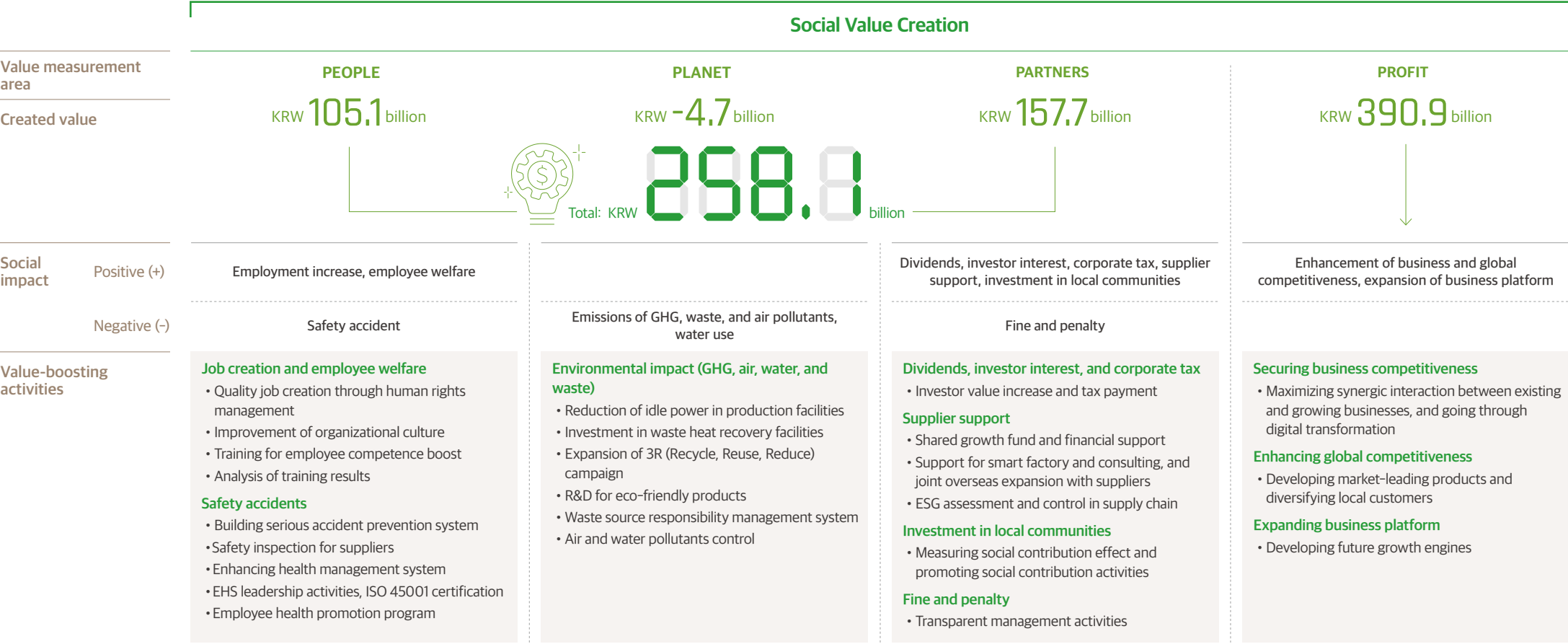
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# Social Value

## Measurement of Corporate Social Value

Doosan Corporation discloses its business innovation performance and growth process to its stakeholders in a transparent manner. We measure changes in the value of the social and environmental impact on various stakeholders and use the results as a performance indicator of our business activities to enhance the value of Doosan Corporation. We will continue to carry out business management activities aimed at enhancing our social value and communicating with stakeholders.

In 2021, Doosan Corporation's social value was measured in three areas (People, Planet, and Partners), and the total amount was approximately KRW 258.1 billion. We are committed to increasing our social value based on the impact on stakeholders.





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Measurement of Social Value of Collaborative Robot (Cobot)

Doosan Corporation not only measures the company-wide social value to evaluate corporate management performance but also improves the social values of our products and services, thus raising our competitive edge. Cobot is the robot that meets the criteria of collaborative operation which is the safety standard for people and robots to work in one space. Cobot is different from conventional industrial counterparts which ban people from accessing the workspace. They do not replace people but

collaborate with them, thus raising hopes that they will contribute to making the working environment better as technology advances. The cobots developed by Doosan Robotics have enjoyed the top market share in the domestic Cobot market since its rollout in 2018. Doosan Robotics is expanding the cobot lineup from not only industrial models but also to service models such as camera robot (New Inspiration New Angle, NINA), modular robot cafe, ice cream robots and medical assistant robots.

The social values generated and delivered to key stakeholders by Doosan Robotics cobots have been measured by EY Long-term Value Framework on four areas: customer value, people value, societal value, and financial value. The measurement found that the social values generated were around KRW 28.4 billion. Doosan Corporation and Doosan Robotics pledge to develop robots that help people and society and continue to generate social values through technological innovation.



\* The measurement was conducted based on the cobots sold in 2021 and those currently in operation as of 2021. The values are based on either the general market price or similar market price generated by the subjects measured. The currency value used for measurement may change and thus shall not be deemed as part of financial disclosure as the integrity of the measurement result cannot be verified.





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# OUR PEOPLE



Link to SDGs

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

8 DECENT WORK AND ECONOMIC GROWTH

10 REDUCED INEQUALITIES

Link to Materiality

1 Safety and health management in workplaces

2 Recruiting core talent and enhancing employee competence

Why it is important

As the importance of ESG rises, human rights policies and ethical management standards are being strengthened, and the scope of responsibility related to safety and health is also expanding. In addition, it is becoming more important to develop the capabilities of employees and improve the organizational culture in response to the rapidly changing business environment. Doosan Corporation is committed to creating an environment where all employees are respected, fulfill their potential, and work safely and ethically.

How we respond

Doosan Corporation is pursuing long-term growth based on its 2G strategy (Growth of People, Growth of Business) of helping develop talented people and is committed to realizing a virtuous circle in which corporate growth provides opportunities for individuals to grow. In addition, we support our employees to work in an optimal environment by realizing an organizational culture based on their needs, innovating working methods, developing employee competence, and creating a safe working environment.

Ratio of completion of employee human rights impact assessment (2019-2021) (Unit : %)	Serious accidents (including suppliers) (Unit: case)	Ratio of occupational accidents (domestic) (Unit: %)
800	80	0.89





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Enhancement of Employee Value

Strengthening Human Rights Management

Internalization of Human Rights Management

Doosan Corporation is carrying out various activities aimed at internalizing human rights management to create a culture where employees can respect each other. In 2021, to prevent possible human rights violations within the organization, we published a white paper containing violation cases for leaders and managers. In 2022, we plan to conduct a workshop to improve the competence of managers responsible for human rights compliance, thereby proactively responding to human rights issues.

Human Rights Impact Assessment

The company identifies and resolves potential human rights violations in advance through human rights impact assessment. For the past three years, all business sites have undergone human rights impact assessments. In 2021, we strengthened human rights management by adding an item for environmental rights guarantee to the existing 10 evaluation items such as human rights management, forced labor, and privacy protection.

Human Rights Impact Assessment Items in 2021



Human Rights Due Diligence

Our human rights due diligence program consists of discovering potential human rights risks, which are internalized in major items such as the grievance process, fair treatment, respect and communication, prohibition of forced labor, and the organizational culture, and in evaluating, improving, and communicating the identified risks. In 2021, due diligence was conducted for 66 employees from two affiliates (Pure Cell Power BU and Retail BU) through interview.

Prevention and Mitigation Measures

As a result of the due diligence conducted in 2021, it was found that there were no critical issues in the overall aspect of human rights, but it was confirmed that the in-house grievance handling system and employee awareness were not often used. Accordingly, we prepared trainings and workshops to promote the grievance handling channel and to strengthen and foster the expertise of Grievance Handling Committee members.

Human Rights Monitoring Process

- 1. Commitment of Human Rights Policy**
- 2. Risk & Impact Assessment**  
Preparation of company-wide human rights assessment system
  - 1) Establish assessment areas
  - 2) Set assessment scope
  - 3) Set assessment period & plan
  - 4) Summarize assessment result
- 3. Human Rights Due Diligence**
  - 1) Major due diligence items
  - 2) Criteria for selecting due diligence targets
  - 3) Due diligence cycle and plan
  - 4) Summary of due diligence results
- 4. Preventive & Mitigating Actions**  
Plans for risk prevention and measures based on assessment results
  - 1) Institutional solutions for vulnerable areas
  - 2) Education and communication
- 5. Performance Assessment & Disclosure**
  - 1) Review and reporting of human rights management assessment
  - 2) Disclosure on human rights management results

Improvement of Organization Culture

‘Annyeong Project’

Doosan Corporation carries out activities to improve organizational culture to ensure the soundness of mental health for our employees. In 2021, for example, we implemented the ‘Annyeong Project’, aimed at boosting the sense of welfare for employees struggling with the COVID-19 at the Retail BU. As part of the campaign, we conducted an online assessment of organizational health and employee interviews, thus identifying organizational issues for improvement. In 2022, we will hold a workshop for all employees at the Retail BU to have a chance to discuss what individual employees can do to improve organizational culture.

‘Hi-Five Project’

The Fuel Cell Power BU carried out ‘Hi-Five Project’ to achieve the common goal of making a change in organizational culture. We listened to employees’ complaints and thoughts on five topics (vision and organizational direction, communication for work, incentive and sense of pride, business management, and leadership) by having the interview titled ‘What are the five things you want to hi-five with your colleagues at the end of the year?’ The Fuel Cell Power BU established the management measures of change in three aspects of ‘Vision Establishment,’ ‘Communication Activities’ and ‘One Identity’ for the purpose of improving communication-centered organizational culture.



“Hi-Five” project





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Innovation in the Way of Working

Improving the Way of Working through Analysis of Member Strengths and Attitude

For a true change to happen in an organization's culture, determinations and efforts at a personal level are as important as the improvement at the organizational level. Doosan Corporation implements a variety of activities aimed at encouraging all employees to voluntarily change how they work. We conducted the strength & attitude analysis on leaders and CA (Change Agent) to identify members' strengths and attitudes to be applied to the way they work.

Doosan Corporation overhauled the Leader's Action Plan (LAP) diagnostic tools, introduced in 2014, based on the results of the strength & attitude analysis. Leaders were able to find out what strengths and attitudes they have through the improved LAP diagnosis and worked out plans for attitude change so that their strengths can contribute to improving work performance. Other members of the team chipped in with their opinions on LAP to make sure that the changes leaders make have positive impacts throughout the organization.



CA strengths/attitude evaluation

Realizing Digital Workplace in the New Normal Era

Digital Tool Application Activities for Leaders

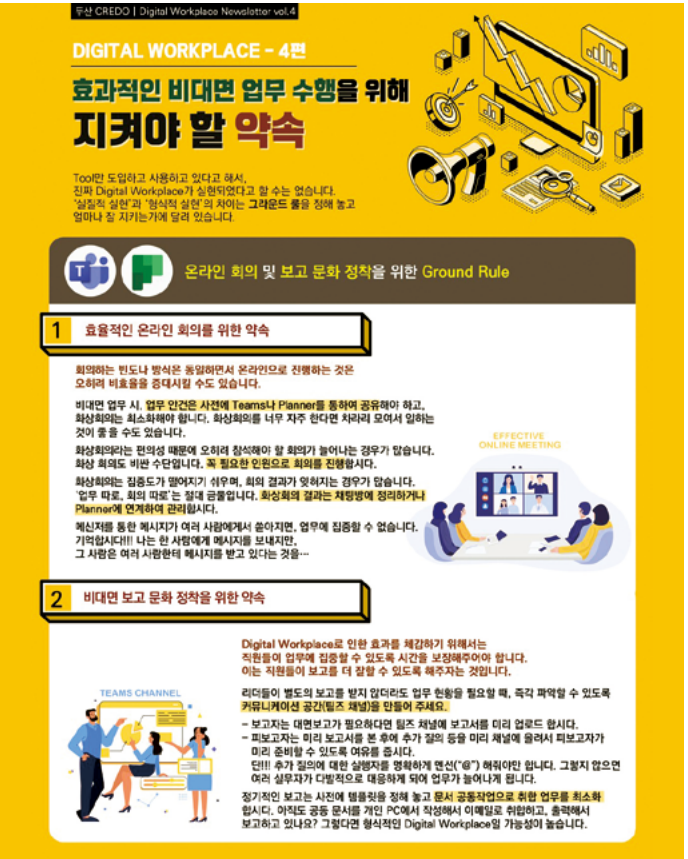
In the fast-changing business environment, swift and flexible work processes and collaboration are essential to lead the market. Doosan Corporation introduced the 'Digital Workplace', the online work platform accessible anytime anywhere. Digital Tool is required to access the Digital Workplace, and Doosan Corporation carries out different digital tool application activities to help employees develop the competency in using digital tools. In 2021, in particular, we held metaverse meetings for leaders to help prepare for the "with-COVID" era. Leaders had a chance to experience the changes in work and made themselves familiar with how to use the metaverse platform by having the Credo activity sharing session on metaverse. Leaders also discussed what to do about the changing meeting practice and how to lead team members. Doosan Corporation will continue with the efforts to diversify how employees perform tasks.



Education on metaverse

Publication of Digital Workplace Newsletter

Doosan Corporation strives to raise employee awareness to make sure that Digital Workplace actually translates into changes in how we work instead of ending up simply introducing a digital tool. Doosan Corporation publishes a quarterly newsletter about the latest trends of Digital Workplace, Ground Rule about Digital Tool use, and success cases to encourage the adoption of Digital Workplace.



Newsletter on digital workplace



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Talent Nurturing

DT Capacity Building

Doosan Corporation is operating the Data Insight leadership workshop and the Data Scientist training program to strengthen its digital transformation capabilities. They are the course where employees can apply AI and Data Science techniques to analyze business challenges.



Through the Data Insight leadership workshop, leaders are able to increase their understanding of business transformation driven by AI and data technologies and select tasks to be analyzed first. The staff in charge of the selected task learns AI and data analysis tools and methods through the Citizen Data Scientist training and establishes a plan to carry out the task. And then, the staff performs the task through the Semi Data Scientist training to drive data models and analysis results for each task.

In 2021, a total of 78 leaders and 27 working-level staff participated in the Data Insight leadership workshop and the Citizen Data Scientist training. Doosan Corporation will continue to nurture data scientists to further reinforce digital transformation capabilities of employees and create tangible results in connection with our businesses.

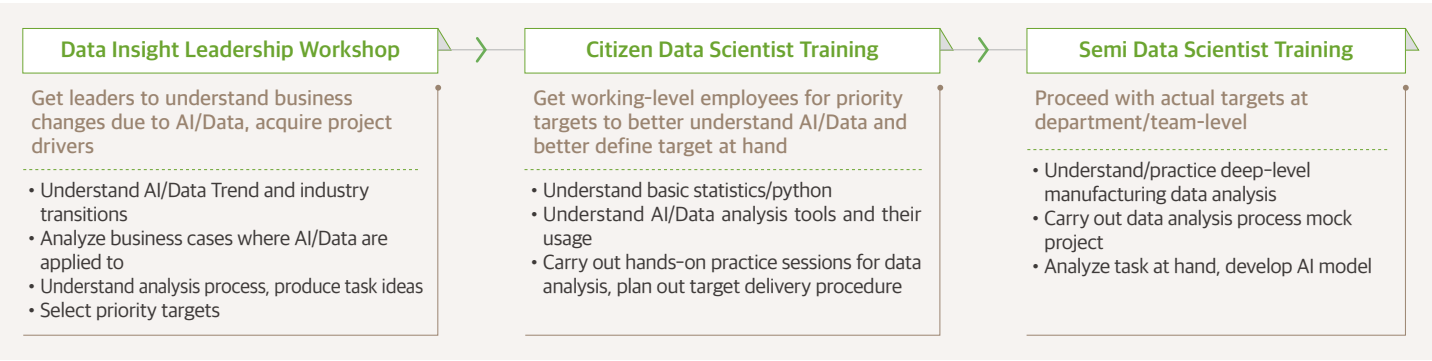
R&D Academy

Doosan Corporation reinforces R&D capacity training programs to secure technological competitiveness. In 2021, we ran the ‘R&D Academy’ to strengthen the R&D capacity for the Fuel Cell Power BU. Five in-house lecturers were produced, who trained employees at R&D departments. Six courses were open either as an offline or online live courses, graduating a total of 84 employees. The graduated employees gave the course a high satisfaction average score of 4.6 points in the course evaluation. The satisfaction score rose from the 2020 rate of 4.1 points after two rounds of in-house trainer workshops that improved the quality of training courses.

Fuel Cell Power R&D Academy Course Evaluation Result

Course evaluation	Score
	
Satisfaction on course	4.5 points
Recommendation of course	4.6 points
Field application	4.6 points
Difficulty of the course	4.4 points
Instructor assessment	4.7 points

Data Insight Leadership Workshop and Data Scientist Cultivation Program



Sojourning Employees Program

Doosan Corporation has designed and developed a capacity building programs to help sojourning employees successfully perform their work and cope with COVID-related difficulties contacting offices in Korea. The program comes with three modules depending on the status of the sojourning employee: ‘pre-sojourning program’, ‘sojourning program’ and ‘post-return program’. In 2021, two sessions of the pre-program and one session of the sojourn program were run.

The pre-sojourning program is designed to help employees’ fast transition, consisting of topics on ① understanding sojourning employee roles, ② understanding sojourning country and culture, ③ compliance, and ④ intensive language training. In 2021, three sojourning candidates and 15 overseas sales managers took the courses ① and ②.

The sojourning program aims to help employees understand the organizational strategy and relate to the importance of sojourning roles. The topics are ① business strategy and outcome, ② compliance, ③ human rights management, and ④ conversation with BG directors. 25 sojourning employees at the Electro-Materials BG have attended three courses so far. Feedbacks were: “it was a chance to relate with employees at other local corporations and have an honest talk about difficulties,” and “satisfactory to be receiving the care from the company”.

Era of New Normal: Reinforcing ‘Untact’ Training Programs

Doosan Corporation has aggressively introduced the ‘untact (remote)’ training programs to cope with the restrictions of in-person training due to COVID-19. Training departments and in-house instructors are making the best use of teaching methods and systems to ensure the quality of ‘untact’ training.

Once in-person training resumes, Doosan Corporation will draw upon the know-how it obtained from running the ‘untact’ programs to raise the effectiveness and efficiency of training. For training employees who are working overseas or otherwise face spatial restrictions, we will increase access to education through on-line programs. For PC-based programs like OA skills, we will introduce untact training tools to raise educational effectiveness and operational efficiency.



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Workplace Safety Management

Serious Accident Response System


The 「Serious Accident Punishment Act」 went into force in January 2022 for the purpose of preventing serious accidents at worksites through enhanced health and safety measures and management systems. Prior to the enforcement of the Act, Doosan Corporation introduced the checklist of safety work procedures for six highly dangerous work (impaction while working by a rotating body, suffocation while working in a closed space, electric shock, forklift accident while loading and unloading cargo, fall from high-altitude workspace, or fire while handling flammable materials), and conducted workers' education and implementation status investigation. Doosan Corporation appointed the Chief Safety & Health Officer (CSHO) with the comprehensive authority over budget, organization, workforce, and health and safety system and organized a safety-specialized team in order to strengthen safety management.

In 2022, we will continue with efforts to prevent serious accidents by taking the measures according to the safety and health management system, management measures under the safety and health-related laws, and six major dangerous work implementation monitoring.

Report of Safety and Health Plan to the BOD and approval

Doosan Corporation's BOD reviews and approves safety and health plan since 2021 to secure the momentum for the implementation of health and safety strategy. The major plans approved in 2021 include management policies on safety and health, organization and roles of safety and health management teams, budget and facilities for safety and health, safety and health performance results of 2021, and activity plans for 2022. Doosan Corporation will continue with safety and health prevention activities according to the activity plans approved by the BOD.

Approved safety and health related content

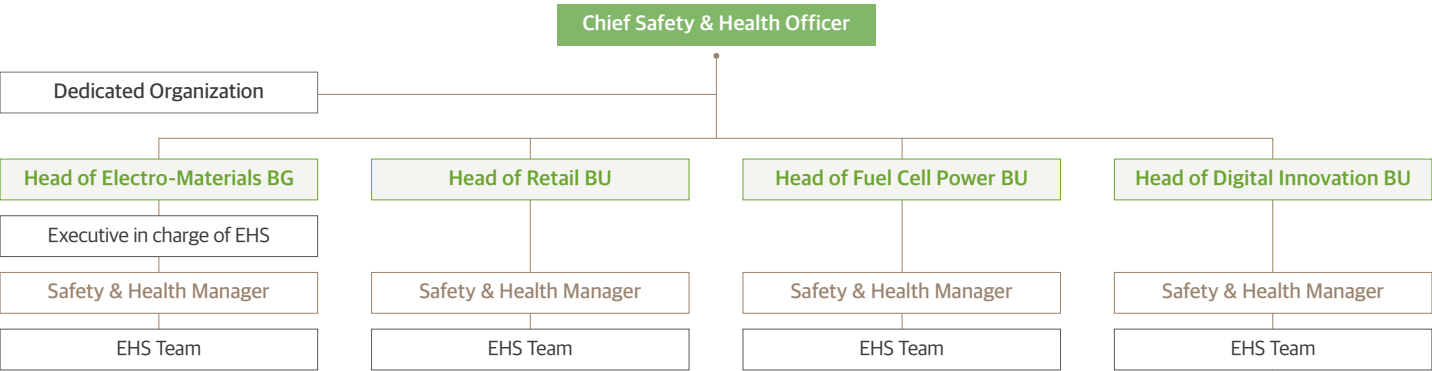


- Management policy on safety and health
- Personnel and role of safety and health management organization
- Budget and facility status related to safety and health
- Performances in 2021 and plans in 2022 on safety and health activities

EHS Leadership Activities

Doosan Corporation reinforces EHS practice thanks to the interest and support from the management on EHS. All leaders carry out a variety of EHS leadership activities such as field EHS inspection, safety conversations, and EHS meetings, helping raise employees' awareness of EHS and contributing to the prevention of safety accidents at worksites. Also, by holding the EHS Session on a yearly basis, we listen to voices on safety and health from workers and share performances and plans to raise the actual implementation rate of EHS measures.

CSHO Organization







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# OUR PLANET

Why it is important

With active industrial activities and economic growth, environmental pollution issues are on the rise. In particular, climate change is emerging as the most urgent environmental problem, and responding to climate change has become a necessity, not an option. Globally, GHG regulations and information disclosure mandates are tightening, and the demand for low-carbon energy sources is accelerating. Accordingly, Doosan Corporation seeks to minimize the impact of corporate activities on the global environment through active environmental management.

How we respond

Doosan Corporation is carrying out various activities to reduce environmental impact, such as GHG emission control, energy saving, and expansion of resource circulation. In addition, to lead a new paradigm in the era of low-carbon economy, we are expanding eco-friendly business and strengthening the hydrogen economy value chain.

Sales proportion of eco-friendly products  
(Unit : %)



89.9

Recycling rate  
(Unit : %)



88.4

Energy intensity  
(Domestic and overseas)  
(Unit : TJ/KRW in billions)



8.20

Link to SDGs



Link to Materiality

- 1 Reducing GHG emissions and energy use
- 2 Developing eco-friendly products and services
- 3 Expanding the use of renewable energy
- 4 Building climate change response governance and risk management system



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TCFD

TCFD (Task Force on Climate-related Financial Disclosures) is an organization established by the International Financial Stability Board (FSB) and presents TCFD recommendations, a standard for disclosing governance, strategy, risk management, indicators, and goals for responding to climate change. Doosan Corporation intends to disclose climate change-related information from 2021 in accordance with the TCFD recommendations in order to aid the decision-making process of stakeholders, including investors, and to advance the climate change response system.

Governance

Doosan Corporation evaluates and manages climate change-related risks and opportunities by building a climate change response system between the management and working groups led by the ESG Committee. A climate change working group was formed under the ESG Committee, chaired by the CEO, to analyze climate change-related issues, evaluate impacts, and develop improvement tasks. The committee is held twice a year to make decisions on issues reported by the working group and check results and plans of improvement tasks. We will further advance our climate change response system covering the management and expand the governance to the Board of Directors.

Strategy

The company identifies risks and opportunities arising from climate change and prepares countermeasures by comprehensively analyzing its impact on business strategies and financial plans. In particular, the revitalization and expansion of renewable energy industry ecosystem driven by the acceleration of energy transition will become an important opportunity for Doosan Corporation's hydrogen economy business.

Climate Change-Related Risks and Opportunities

Classification		Risk & opportunity	Potential financial impact
Transition risks	Policy & regulation	Reinforcement of obligation to disclose climate change and environment-related information	• Increase in information disclosure costs
		Introduction of carbon tax and strengthening of regulations on high-carbon emitting industries	• Increase in export cost to countries where carbon tax and high-carbon emission regulations have been introduced
		Increased demand for renewable energy due to implementation of carbon neutral policy in Korea	• Increase in procurement costs due to rising renewable energy prices
		Tightened environmental laws	• Increase in fines and fines for violating environmental laws
	Technology	Intensifying competition for low-carbon technology development	• R&D cost increase for new and alternative technologies • Loss of investment and decrease in sales in the case of losing in the competition for low-carbon technology development
		Expansion of energy efficiency improvement and emission reduction facilities at worksites	• Increase in high-efficiency facility investment cost
	Market	Rise in raw materials prices including copper foil due to a surge in demand for renewable energy facilities	• Increase in raw materials purchasing cost
		Growing customer preference for green businesses and products	• Decrease in sales when customer value proposition fails
Physical risks	Reputation	Growing demand from investors and stakeholders to respond to climate change	• Weak stock price, withdrawal of investment, and customer churn in the event of a lack of will and effort to respond to climate change
		Abnormal weather events (typhoon, heavy rain, heavy snow, etc.)	• Occurrence of facility and equipment damage repair costs • Decrease in collateral value of owned real estate • Production disruption due to plant shutdown and raw material supply disruption
		Rise in average temperature	• Increase in data center operation costs • Production disruption due to water shortage
Opportunities	Resource efficiency	Increase of energy efficiency by expanding high-efficiency facilities and eco-friendly construction	• Reduction of operating costs through energy saving
		Increased recycling and reuse of raw materials	• Reduction of raw materials purchasing costs
	Energy source	Revitalization of renewable energy business ecosystem and market expansion	• Increase in fuel cell sales
	Product / service / market	Expansion of high-efficiency and eco-friendly product market	• Increase in profit from high-efficiency and eco-friendly products
		Increasing market demand for IT-based services such as energy-saving solutions	• Increase in IT solution service sales
		Growing customer preference for green businesses and products	• Increase in brand value when securing reputation on eco-friendly business



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Activities to Reduce Transition Risks

Amid the tightening global policies and regulations and increasingly stringent demand for climate change response and disclosure from investors, customers, and stakeholders, financial risks are rising as can be seen from falling share prices and investment withdrawal. In a bid to reduce the risks involving climate change response and disclosure, Doosan Corporation has been expanding the scope of GHG disclosure by adding Scope 3 emissions since 2021. We also sophisticated the climate change-related disclosure system in accordance with the TCFD recommendations, thus establishing the management system.

Doosan Corporation also strives to reduce risks from the rising prices of raw materials due to climate change. As the demand for the facilities for renewable energy increases because of environmental policies, the prices of aluminum, lithium, and copper are fast rising. The rising price of copper, in particular, which is the main material for copper foil of the Electro-Materials BG, may lead to a hike in procurement costs and production disruption. The Electro-Materials BG constantly monitors prices of raw materials and seeks to diversify supply chain to reduce those risks.

Doosan Corporation also constantly monitors regulations and trends, through which we get a sense of environmental impact on local communities to minimize litigation-related risks.

Activities to Reduce Physical Risks

Climate change is causing abnormal weather events such as typhoons, torrential rain, or heavy snowfall to occur more frequently. Abnormal weather events can cause damage to facility or equipment, depreciation of property values as well as operation shutdown, raw materials supply disruption, or compromised productivity, thus leading to severe financial danger. Doosan Corporation subscribed to disaster insurance in order to reduce financial risks involving its real property. The company also runs a system to track products, raw materials, and semi-finished materials in real-time, responding to production disruption due to abnormal weather events. Our crisis response system (BCM) enhances employees' crisis response capability and secures business continuity.

Opportunity-taking Activities

The eco-system of renewable energy industry is growing thanks to the Government's 2050 carbon neutrality target and the expanding investment into renewable energy by institutions. Identifying this market as an important business opportunity, Doosan Corporation is concentrating on building capacity in the hydrogen economy. In 2021, the company established Doosan H2 Innovation as an R&D company to concentrate its hydrogen R&D capacity. We then signed the MOU on joint hydrogen technology development with Inha University's KIURI Research Team for talent nurturing and future hydrogen technology development.

As climate change accelerates, the importance of resource efficiency will grow even greater and demand for eco-friendly products will gradually increase. Doosan Corporation saves procurement costs by recycling or reusing materials and pursuing the 3R (Recycle, Reuse, Reduce)-based product strategy to secure competitiveness in environmental products.

GHG Reduction Activities

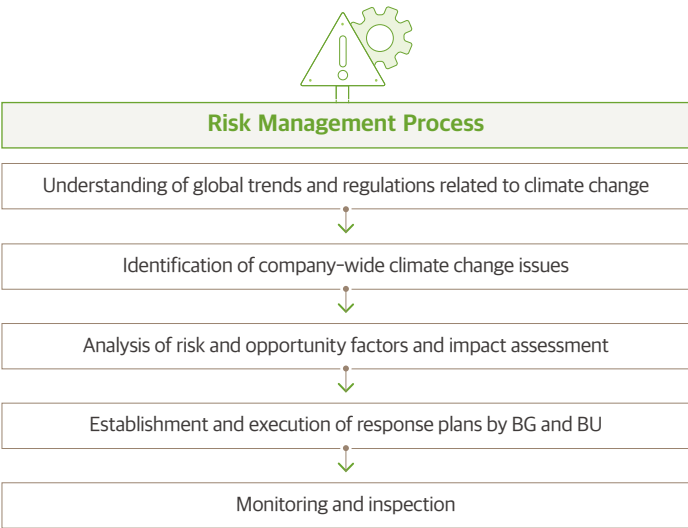
Doosan Corporation carries out GHG reduction activities to respond to climate change risks. We invest in facilities to decrease the energy consumption of our operations by installing high-efficiency equipment, improving systems, and replacing aging facilities. In 2021, we reduced a total of 434 tCO<sub>2</sub>eq by installing inverters and LED lighting system. As a company subject to GHG & energy target management, Doosan Corporation implements the verification of GHG statement to observe the cap on GHG emissions and energy consumption and manages expected emissions for the following year.

Doosan Corporation established a long-term plan to reduce energy for a more systematic GHG reduction. We plan to obtain ISO 50001 certificate before 2024 for more efficient energy management while implementing facility efficiency improvement measures such as integrated heating and cooling management system and transition to Regenerative Thermal Oxidizer (RTO).

Risk Management

Doosan Corporation identifies and evaluates climate change risks and opportunities for an early response to climate issues. Doosan Corporation stays abreast of the global trends and regulations regarding climate change and inspects GHG emissions at our operations on a monthly basis, thus identifying climate change issues. We first identify risks and opportunities depending on each issue, and evaluate strategic and financial impact by taking into account the chances of materialization of individual factors, business impact, financial impact, and stakeholder interest. Relevant departments at BG/BU establish and implement response measures for risks and opportunities. Then the ESG Committee monitors and inspects the implementation status on a continued basis.

Doosan Corporation also identifies and manages risks involving climate change of our partners on a regular basis to manage the eco-friendly supply chain. We evaluate their climate change risks such as energy consumption, GHG emissions, and resources reuse to assess the supply chain sustainability on a yearly basis. We provide partners evaluated as the 'high-risk partner' with improvement support for climate change risks.





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Matrix and Targets

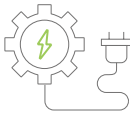
Doosan Corporation manages indicators on GHG and energy in order to assess risks and opportunities related to climate change. In 2021, in particular, we began measuring Scope 3 emissions to manage GHG across our value chain. Doosan Corporation aims to cut GHG emissions by 20% compared to 2018 level by 2030 in line with the government’s implementation goals for carbon neutrality and the enhanced Nationally Determined Contribution (NDC)<sup>1)</sup>.

1) The industrial sector reduction rate of the NDC (National Determined Contribution) is 14.5%.

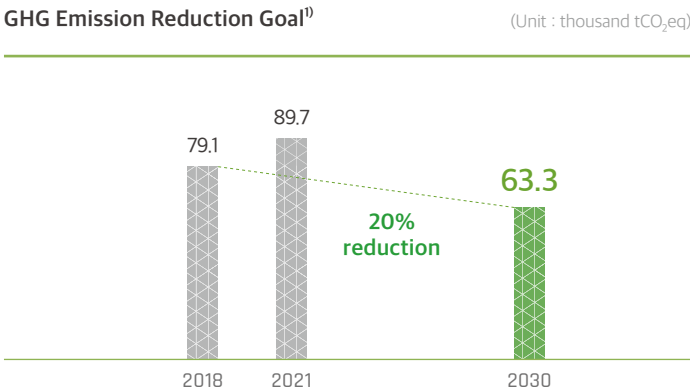
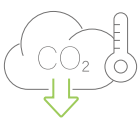


GHG Emission <sup>1)</sup> (Unit : tCO <sub>2</sub> eq)				
Classification	2018	2019	2020	2021
Scope 1	22,862	24,316	29,174	29,807
Scope 2	56,237	60,678	58,796	59,868
Scope 1 + 2	79,099	84,994	87,969	89,675
Scope 3 <sup>2)</sup>	-	-	-	4,926

1) Excluding GHG emissions from the Corporate Center and Holding Company  
2) Doosan Corporation manages purchased capital goods, waste generated in operation, employee commuting, and leased assets.



Energy Consumption <sup>1)</sup> (Unit : TJ)				
Classification	2018	2019	2020	2021
Total	1,310	1,414	1,342	1,391
Electricity	889	970	887	903
Fuels	368	396	418	447
Others	53	48	48	41







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Expand Eco-friendly Business

Reinforce 3R to improve Product Life Cycle

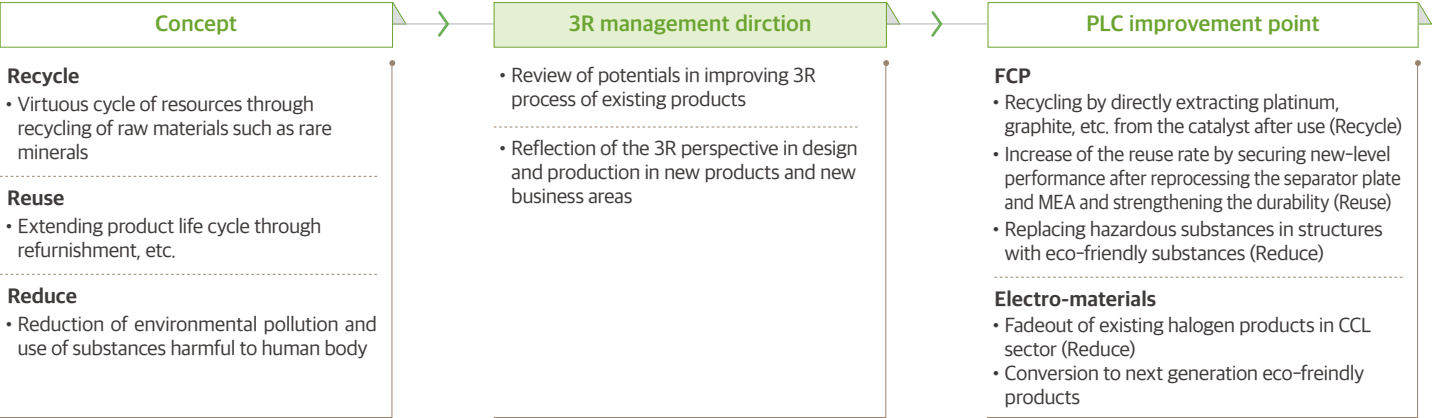
Doosan Corporation implements an eco-friendly product strategy based on 3R (Recycle, Reuse, Reduce) in order to minimize environmental impact throughout the Product Life Cycle (PLC). The Fuel Cell Power BU(FCP) reuses platinum, graphite, and nonferrous metal extracted from fuel cells and expands the list of recycled products to reduce waste and incineration. We also replaced two materials that are classified as harmful substances with eco-friendly ones among the 30 compositions of 10kW PEMFC. We plan to increase the reuse rate of catalysts from the current 50% to 100%. The Electro-Materials BG has established a plan to replace harmful substances like halogen with eco-friendly materials and is increasing the reuse rate of copper and platinum of low quality or with defects. Doosan Corporation will continue with the potential 3R improvement and reflect 3R in designing and producing new products.

SOFC for Residences and Buildings

Policies such as zero-energy building certificates, mandatory use of renewable energy consumption for official buildings, and mandatory introduction of civilian buildings by local governments will likely contribute to expanding the fuel cell market for residences and buildings. Solid Oxide Fuel Cell (SOFC) is characterized by high efficiency due to their high energy conversion efficiency, and their CO<sub>2</sub> emission is one-third of that of coal-fired power generation, emitting only a small amount of NOx and SOx.

As a response, Doosan Corporation concluded strategic partnerships with competitive cell/stack companies with SOFC technology and nurtures major domestic suppliers, concentrating the company-wide resources on the SOFC system development. We embarked on the system development for an early advance into the domestic market in May 2020 with the aim of launching products in 2024.

PLC Strategic Direction



The Fuel Cell Power BU developed the 10kW SOFC of the world’s highest power generation efficiency for residences and buildings in 2021 through the company-wide capacity building. The product is 40% more efficient than PEMFC with the application of Steel Cell, an advanced technology in electrical efficiency, but comes in about the same size as traditional SOFC products of 5kW or lower, thus saving around 50% of installation space but with the same power generation efficiency. Furthermore, the product is meaningful in that we secured the supply chain from the stage of development, laying the foundation for collaboration with domestic component manufacturers. Doosan Corporation will fulfill its social responsibility by nurturing the domestic fuel cell industry through continuous R&D investment, thus establishing the national hydrogen fuel cell roadmap and delivering the green energy environment.



SOFC 10kW



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Enhance Hydrogen Economy Capability

Leap Forward to Become the Leader of Energy Transition

Businesses around the world are moving fast to reinforce competitiveness for the future energy industry in line with the global post-carbon trends. Doosan Corporation is committed to reinforcing fuel cell technology based on hydrogen, and the next-generation energy source, for the purpose of spearheading the paradigm of great energy transition and securing the status of a leading company in the future market.

Establishment of R&D Corporation to Enhance Eco-Friendly Future Technology Capability

The fuel cell industry is anticipated to grow exponentially: SOFC market for vessels at around KRW 13 trillion per year by 2040; water electrolysis in North America at KRW 3 trillion per year; SOFC for power generation at KRW 2.8 trillion per year (local and North American market).

Doosan Corporation incorporated Doosan H2 Innovation, the R&D-specialized corporation that integrates research capability distributed across Doosan affiliates for the purpose of responding to the maturing fuel cell industry and accelerating leading technology development and thus securing the future market. The newly incorporated Doosan H2 Innovation will mainly perform R&D of fuel cells and hydrogen energy and research commissions. Doosan Corporation will secure technology leadership in hydrogen economy through the establishment of Doosan H2 Innovation and expand business model for market dominance with different applied technologies.

SOFC-based Core Technology Development Roadmap

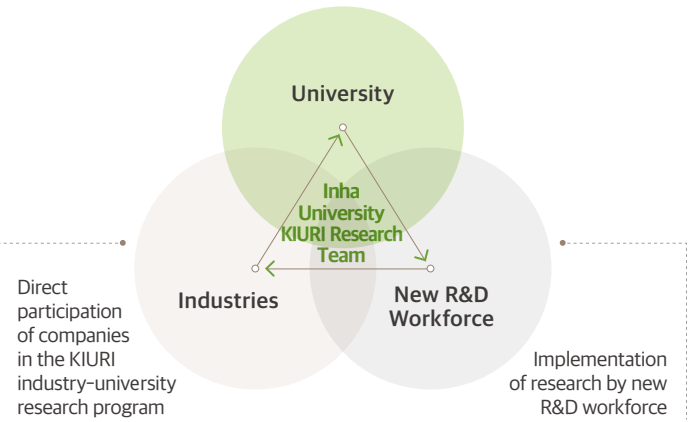
Technology development tasks	Completion
• SOFC system for power generation	
Development of medium and low temperature SOFC power generation system	2024
Developed ammonia SOFC system	2027
• One-site PEMEC system	
Securing stack and developing systems (performing national project)	2023
Internalization of MW-class stack technology	2027
• Development of SOEC system	2028
• SOFC for vessels	
Development of SOFC system and PMS for vessels based on the basic design of SOFC for power generation	2025
Development of ammonia SOFC system for vessels	2030
• Development of proactive technology (expansion of application)	

MOU with Inha University KIURI on Joint Development of Next Generation Hydrogen Technology

Doosan Corporation signed the MOU on 'Joint Development of Next Generation Hydrogen Technology' with Inha University KIURI research team for the development of the hydrogen economy for Korea. Under this MOU, Doosan Corporation will support the formation of research team consisting of postdoctoral researchers and offer chances for joint research with Doosan Corporation and job opportunities.

Industry-University Cooperation Program

Support for Research-Business Modeling (linked with employment and startup)



Doosan Corporation and KIURI will strive to nurture competent talents by conducting research projects in catalyst development for PEM and reformer thermal analysis in accordance with the goal of securing the future technology of the hydrogen economy.



Signed an MOU for joint participation in the development of next-generation hydrogen technology with Inha University



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# OUR PARTNERS

Why it is important

To ensure sustainability management, cooperation and co-prosperity with stakeholders such as suppliers and local communities are becoming more important. Doosan Corporation aims to create a future where all business partners can grow sustainably by reconciling their interest and pursuing cooperation with them.

How we respond

To establish a virtuous cycle of partnership with our suppliers, we are carrying out various activities, such as promoting joint overseas expansion and operating a win-win growth academy. We are also proactive in risk management in the supply chain to reinforce the sustainability of supply chain. Moreover, the company has advanced social contribution by expanding remote social contribution activities in the face of COVID-19 pandemic and operated employee-participating carbon reduction programs.

Link to SDGs



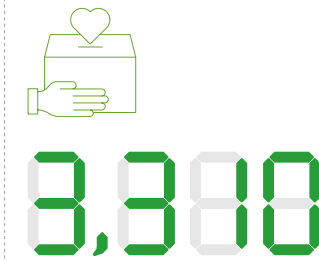
Link to Materiality

- 1 Suppliers' ESG management

Total purchases in supply chain  
(Unit : KRW 100 million)



Investment in social contribution  
(Unit : KRW in millions)



Time spent on social contribution  
(Unit : hours)





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Establishing a Culture of Shared Growth

Enhancing Suppliers' Competitiveness

Training Plant Improvement Expert and Directing in Field

Shared growth with our partners is an important management task for Doosan Corporation. Doosan Corporation conducts a variety of activities to build a virtuous circle of partnership to enhance its global competitiveness. In 2021, we conducted the expert education for plant improvement and field direction for the purpose of enhancing the manufacturing capabilities of the Electro-Materials BG and the Fuel Cell Power BU. A total of nine sessions were held on topics such as change and innovation, production module, and quality module, graduating three in-house experts. The in-house experts who completed the training will be dispatched to supplier companies alongside outside consultants to perform field improvement activities. In 2021, one group performed the field improvement direction, confirming the effectiveness of the project.

Training contents for fostering factory improvement experts

Session	Training item	Details
1 <sup>st</sup> ~ 2 <sup>nd</sup>	Change and innovation	• Kick-off meeting, change and innovation, 3R & 5S <sup>1)</sup>
3 <sup>rd</sup> ~ 5 <sup>th</sup>	Production module	• Improvement and practices of 3R & 5S, discussion on improvement in Electro & FCP sectors • FCP issue structuring and improvement direction, construction and execution plan of work and inspection standards
6 <sup>th</sup> ~ 8 <sup>th</sup>	Quality module	• Changes in quality perception and importance, measures to secure on-site quality • Toyota Quality Management Principles, BIQ (Built-in Quality), Supplier Quality Assurance System, etc. • Nonconformity control, rapid quality response system, SPC(Statistical Process Control), management, standard audit method
9 <sup>th</sup>	Others	• VSM (Values Stream Mapping), in lean system, stream production, leveling, pull, BIQ (Built in Quality) overview, etc.

1) Observing the 3R (Right Container, Right Quantity, and Right Location) and practicing the 5S (Sort, Set in order, Shine, Standardize, Sustain) to improve the work environment)

Shared Growth Project with Suppliers

Doosan Corporation has been providing suppliers with professional consulting services for customized improvement activities since 2019. In 2021, the scope of solutions was expanded by adding programs like HR management system, designing capability, and accounting management solutions to the existing manufacturing capacity improvement solution. The ranks of attending employees were also expanded from working-level employees to include CEOs and executives, who took new courses on innovation training on different topics including the ESG trends. Having identified improvement activities for suppliers, Doosan Corporation will carry out monitoring of the activity outcome and the innovation phases.

Major Improvement Activities and Results of the Shared Growth Project in 2021

Major improvement activities	Results and potential
• Reestablishment of quality management system • Reestablishment of HR and labor system • Reestablishment of production cost system • MCV (Motion Control Valve) cost reduction innovation activity (once) • Company-wide innovation mind-up training (three times) • Change & innovation mind-up training (once) • Management competence enhancement training (six times)	• Establishment of a system for collecting quality data and trend analysis • Setup of standard work criteria by product • Analysis and revision of current HR & labor-related enforcement regulations • Reestablishment of wage rate logic by cost factor • Setup of cost evaluation operation system by product • Selection of cost reduction target products and ideation • Introduction of monitoring tool to execute improvement ideas

Innovation Direction for Shared Growth by Partner Company

Partner	1 <sup>st</sup> stage	2 <sup>nd</sup> stage	3 <sup>rd</sup> stage
Company A	• Reestablishment of quality management system	• Productivity increase through quality stability	• Establishment of cost system • Establishment of HR & labor system
Company B	• Reestablishment of HR and labor system	• Establishment of cost control system	• Securing cost competitiveness and building strategy by product
Company C	• Reestablishment of cost system • Setup of cost evaluation operation system by product and continuous operation	• Improvement of delivery time through efficient production system	• Enhancement of procurement competitiveness
Company D	• Reestablishment of production cost system • Cost evaluation system by product and its continuous operation	• Productivity increase by improving production efficiency	• Expansion of business potential • Commercialization of self-developed MES solution
Company E	• DTC (Design to Cost) innovation activities	• Monitoring of DTC execution and extended application • Reestablishment of supply chain through improvement of purchasing process	• Creation of profitability-based product portfolio • Establishment of a culture for change, innovation, and strong organization



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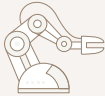
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Support for Smart Factory Construction Project

Doosan Corporation supports its suppliers in the construction of smart factories as part of the Government’s shared smart factory construction projects for the purpose of enhancing their competitiveness and manufacturing innovation. Implemented every year since 2019, the supported programs include a production process automation system for suppliers, production status monitoring and data compilation, and sophistication of cost calculations. In 2021, a total of six suppliers received support for MES<sup>1)</sup> and WMS<sup>2)</sup> establishment, reducing the defect rate by up to 30% and production cost by up to 10%. One supplier that is receiving support for Cobot expects to improve productivity through process automation and prevent workers’ musculoskeletal disorders.

Support for Building Smart Factory for Each Supplier in 2021



- Establishment of standardization system to strengthen manufacturing competitiveness
- Establishment of efficient WMS
- Securing price competitiveness by introducing a pre-cost system
- Support for facility construction cost to suppliers who want to realize automation of production process
- Increased work efficiency through manufacturing innovation and MES establishment
  - Input of production site measurements and conversion of process inspection results into database
  - Input of accurate data and management

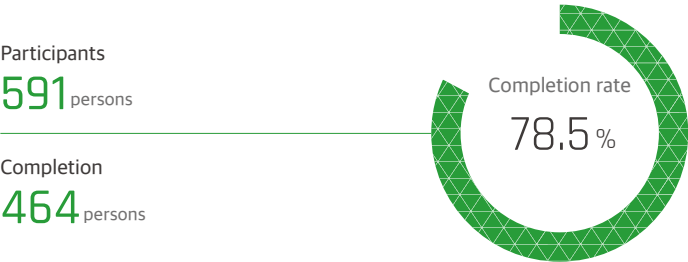
1) MES: Manufacturing Execution System  
2) WMS: Warehouse Management System

Support for COVID-19 Response

Online Shared Growth Academy

Doosan Corporation conducted different ‘untact (non-contact)’ activities to support its suppliers struggling with the COVID-19. To help with employee training for suppliers experiencing reduced training opportunities, we developed the online shared growth academy in cooperation with external education firms. The training provided employees at 150 partners with capacity building and ESG courses. 464 employees out of 591 at our partners completed the course, recording an attendance rate of 78.5%.

Online Shared Growth Academy Operation



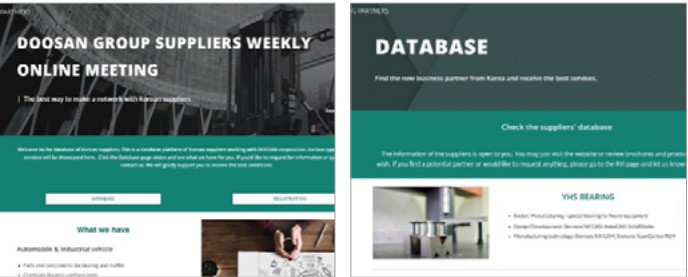
Emergency COVID-19 Relief Fund

Doosan Corporation provided its partners with the emergency COVID-19 relief fund. We raised the shared growth fund worth KRW 300 million for the second-tier partners in need of financial support. We donated mounting-type thermometers, quick antigen diagnosis kits, and other quarantine supplies through the investment funds of the Korea Foundation for Cooperation of Large & Small Business.

Global Expansion with Suppliers

Doosan Corporation carried out the global expansion programs to help its partners advance into the overseas market as they face difficulties in contacting foreign buyers due to COVID-19. We supported buyer matching efforts such as business analysis, target buyer screening, online introduction page production, newsletter, buyer profile creation, and video consultation. The six-month-long supporting programs saw 29 meetings arranged and four Requests For Quotation (RFQ) submitted.

The global expansion programs are meaningful in that we confirmed the chances of the program’s success when it comes to overseas buyer-matching of suppliers in different industries, achievement of major outcomes in promising industries such as ESS (Energy Storage System) and chemical materials, and online supporting programs. Doosan Corporation will grow this program into a regular and annual project to better support partners’ overseas expansion.



Online supplier introduction page



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Reinforce Sustainability of Supply Chain

Supply Chain Sustainability Risk Management

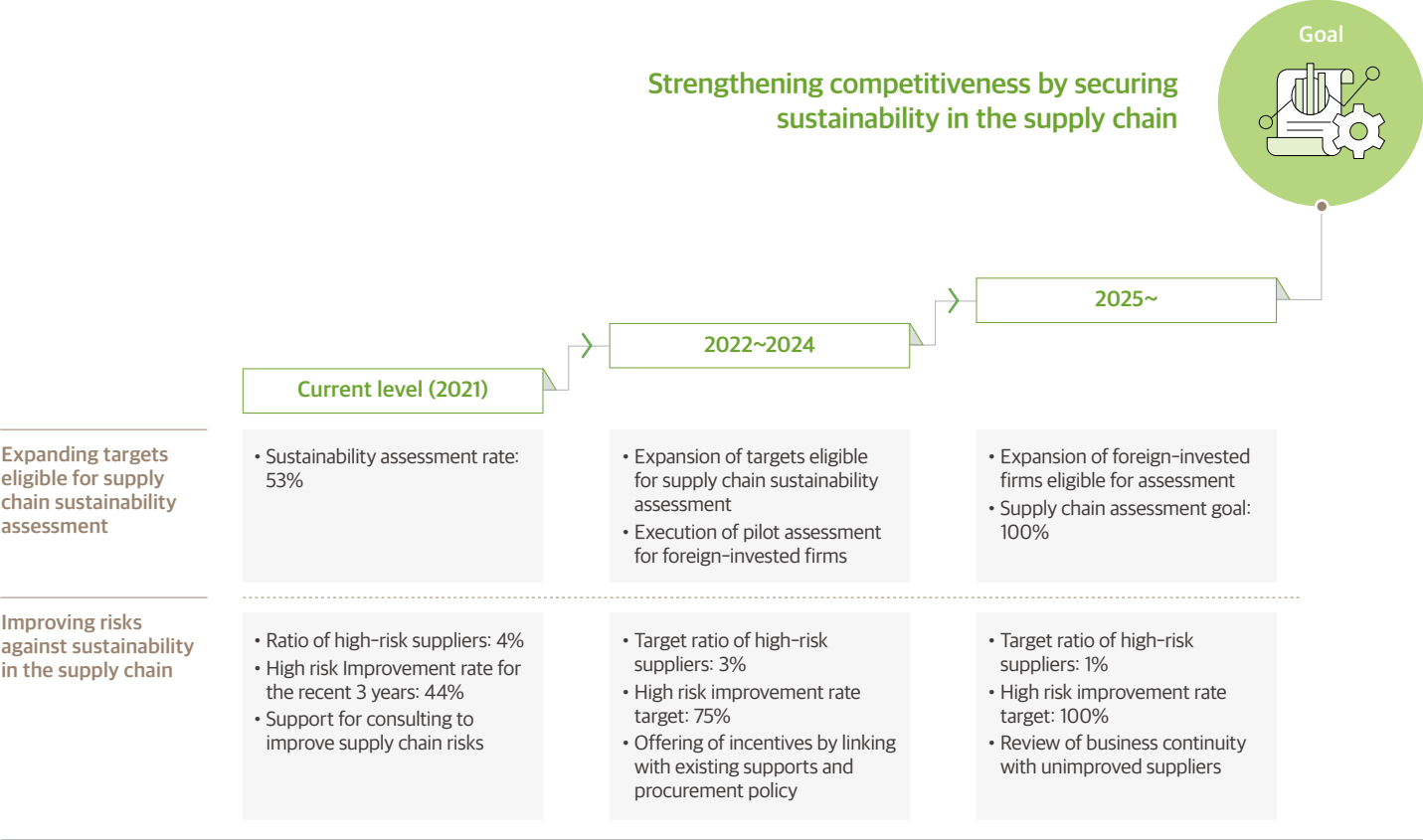
Doosan Corporation conducts the sustainability assessment on critical suppliers to ensure a sustainable supply chain. We assessed 13 categories of ethics management, fair transaction, human rights, and climate change. A total of 102 suppliers participated in the assessment. The field assessment identified improvement tasks four suppliers and then professional consulting services were provided for effective improvement. In 2022, we will conduct the ESG consulting on all critical suppliers to help them reinforce supply chain sustainability.

Best Practice



As a partner of Doosan Corporation's Fuel Cell Power BU, DAALL Precision hires migrant workers and uses chemical substances. Thus, we are required to take the field inspection for labor and safety and health risks. The field inspection found that we hire six Vietnamese workers, but safety signs and documents are all in Korean. We also learned that the field management system of safety gears and chemical substances needed improving. After the assessment, Doosan Corporation's Fuel Cell Power BU produced safety materials in the foreign language and supported consulting services on chemical substance control for two weeks.

Sustainability Risk Management Plan





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Advancement of Social Contribution Projects

‘Untact’ Social Contribution Projects of COVID-19

“Woori Doori” Sports Program for Disabled Youth

“Woori Doori” is a casual sports program designed to help youth with developmental disorders for their health and emotional stability, which is one of the main social contribution projects that Doosan has supported since 2016. In 2021, we expanded the online version of the program to improve access to the program due to COVID-19.



Woori Doori Online Sports Day

Online Premier of <Way to School> and Hand-writing Campaign

We held the online premiere screening of the movie <Way to School> to raise awareness about special-education schools and classes. The film tells the founding story of Seoul Seojin School which participated in the Woori Doori program. Employees who attended the premier posted hand-written messages which read ‘We root for the Way to School for all students with disability’ on social media after watching the movie. We had a chance to spread the culture of empathy with the socially vulnerable class and share ideas on how to create an inclusive society.

Support for Untact Life Sports Education

Doosan Corporation supports life sports education for the purpose of managing the basic physical strength of students with developmental disorder and boosting their physical activities. We redesigned the curriculum in 2020 in order to provide untact life sports education to special-education schools and classes.

Woori Doori Online Sports Day

Doosan Corporation organized the Woori Doori Online Sports Day for students of special-education schools to make friends among themselves and make good memories. The online live sports event held on a video conference platform saw 75 people from eight schools and seven partner organizations participate. Students won prizes such as new sports goods, personal anti-virus supplies, cheering kits with message cards, and gifts that employee volunteers made themselves. Professional instructors and volunteers from Doosan Corporation communicated in real-time, contributing to helping students with developmental disorder obtain social skills and raising volunteers’ awareness of disability.

‘Time Travelers’, Self-Expression Ability Boosting Program

‘Time Travelers’ is one of Doosan’s social contribution programs since 2021 for youth to build character by educating them on media, humanities, and personality. Doosan has been providing this program as part of its corporate social responsibility of nurturing next-generation talents. We ran untact education program for 150 middle school students and youths in Seoul in 2021. Programs offered were discussion and participation programs like the free semester system, field photo shooting, talent donation for voluntary service, and art exhibition (photos and essays). The program received a high satisfaction rate of an average of 83.5%.



Time Traveler Exhibition



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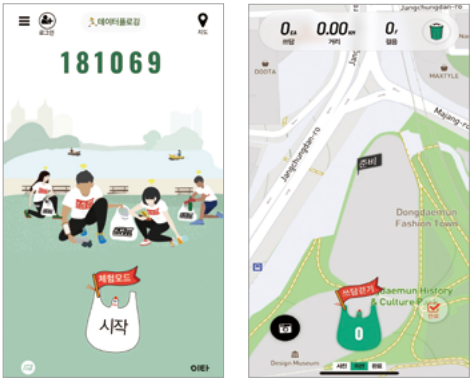
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Social Contribution Project for Carbon Reduction

‘Ssudam Walking’, the plogging campaign for employees and family

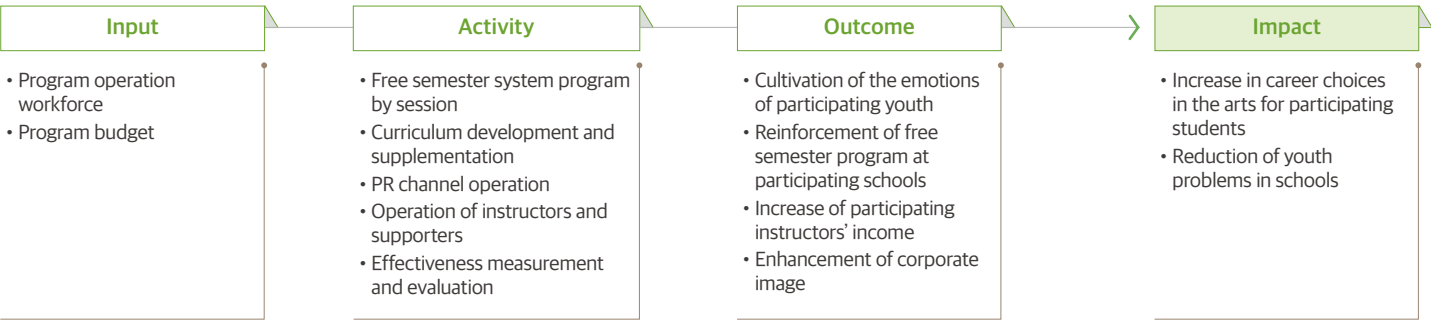
Doosan Corporation held the ‘Ssudam Walking’ campaign for employees and their families in 2021 to promote their health and encourage participation in carbon reduction efforts. The ‘Ssudam Walking’ campaign is an environmental initiative where participants pick up trash while walking on the streets and record their participating hours, distance walked, and the amount of waste picked up on the mobile app during the campaigning period. The data recorded on the mobile app was shared with local governments in developing environmental policies in the area. The ‘Ssudam Walking’ campaign has reduced a total of 354.74kg of CO<sub>2</sub>, equivalent to the amount absorbed by 52.7 fine trees of 30 years old a year. The proceeds of KRW 20 million were donated to the organizations and groups in the communities our BG and BU serve.



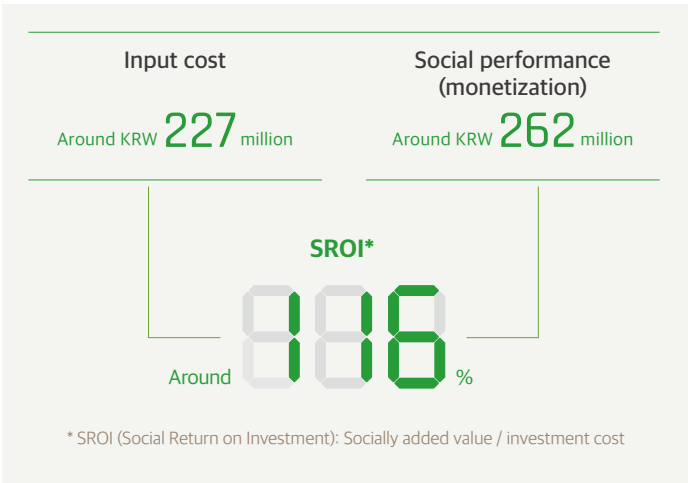
Ssudam Walking application

Results of social value measurement of social contribution projects

Time Traveler Program Operation Results



Evaluation Results of Time Traveler Program’s Social Value





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# ESG Performances and Plans

Category	Activities in 2021	Plans in 2022	Mid- to long-term plans	KPIs in 2021
<b>Response to climate change</b> 	<ul style="list-style-type: none"><li>Advanced disclosure on climate change: Partial measurement of Scope 3 emissions as information disclosure in accordance with TCFD recommendations</li><li>Reduced 3.2% of domestic GHG emissions year-on-year through continuous energy saving activities</li></ul>	<ul style="list-style-type: none"><li>Continuous implementation of the GHG and Energy Target Management Scheme</li><li>Continuous energy saving activities</li></ul>	<ul style="list-style-type: none"><li>Establishing a long-term plan for climate change</li><li>Building a GHG inventory at overseas worksites</li><li>Securing the ISO 50001 certification</li></ul>	<ul style="list-style-type: none"><li>GHG intensity <b>7.8</b> tCO<sub>2</sub>eq/KRW 100 million</li><li>Energy intensity <b>1.20</b> TJ/KRW in billions</li></ul>
<b>Eco-friendly R&amp;D</b> 	<ul style="list-style-type: none"><li>Conducted 41 eco-friendly product development tasks (completed 14 and 27 in progress)</li><li>Established “Doosan H2 Innovation,” a corporation specializing in hydrogen technology R&amp;D</li></ul>	<ul style="list-style-type: none"><li>Additional identification of eco-friendly product development tasks</li><li>Analysis of the status of eco-friendly certification and the possibility of expanding certification</li></ul>	<ul style="list-style-type: none"><li>Declaration and promotion of eco-friendly products</li></ul>	<ul style="list-style-type: none"><li>Sales proportion of eco-friendly products <b>79.9</b> %</li><li>R&amp;D investment to sales ratio <b>4.1</b> %</li></ul>
<b>Increase of employee value</b> 	<ul style="list-style-type: none"><li>Expanded the scope of human rights impact assessment</li><li>Internalized human rights management: Published Human Rights Management White Paper</li><li>Improved organizational culture: “Hello Project” and “Hi-Five Project”</li><li>Improved the LAP (Leader’s Action Plan): Diagnosis on strength and attitude of employees</li></ul>	<ul style="list-style-type: none"><li>Establishment of human rights management system - declaration of human rights management and expansion of its scope (including supply chain and business partners)</li><li>Supplementation of human rights impact assessment and due diligence action plans and sophistication of grievance handling system</li><li>Diagnosis planning and implementation for employee engagement management</li><li>Workshop for grievance handling officers (reinforcement of relief measures)</li></ul>	<ul style="list-style-type: none"><li>Monitoring potential human rights risks at all worksites</li><li>Maintaining 100% of measures to improve potential human rights risks</li><li>Improving systems and culture for work-life balance</li><li>Achieving 80% positive response rate to employee engagement</li></ul>	<ul style="list-style-type: none"><li>Execution of human rights impact assessment <b>100</b> %</li><li>Measures to improve potential human rights risks <b>100</b> %</li></ul>
<b>Talent cultivation and respect for diversity</b> 	<ul style="list-style-type: none"><li>Expanded trainings to enhance DT competence</li><li>Developed training programs for expatriates abroad</li><li>Strengthened remote education programs</li><li>Developed jobs for the disabled and improved the hiring process</li></ul>	<ul style="list-style-type: none"><li>Establishment of measures to secure employee gender diversity: Setup of short- to long-term targets</li><li>Direct hiring of the disabled and review of available jobs for the disabled</li><li>Review of ways to secure job diversity for female employees</li><li>Trainings for further vitalizing organization</li><li>Establishment of an onboarding process for new hires</li></ul>	<ul style="list-style-type: none"><li>Reinforcing leadership training by position</li><li>Building a self-directed and self-fulfilling learning culture</li><li>Managing training indicators</li><li>Strengthening diversity and establishing an organizational culture for gender equality</li></ul>	<ul style="list-style-type: none"><li>Average training hours per employee <b>27.6</b> hours</li></ul>
<b>Healthy and safe workplace</b> 	<ul style="list-style-type: none"><li>Enhanced response to the Serious Accident Punishment Act: Appointment of the CSHO, launch of a dedicated organization, inspection on the practice of 6 major risky works, creation of a checklist for administrative actions.</li><li>Reported safety and health plans to the BOD and get approved</li><li>Conducted field management by the EHS Leader</li></ul>	<ul style="list-style-type: none"><li>Enhancement of serious accident prevention activities: Field audit by the CSHO, setup and operation of safety &amp; health management manual and guides, administrative actions.</li><li>Expansion of the MOC (Management of Change) process</li><li>Operation of EHS Council: Establishment of EHS management system, advancement of manuals and processes, benchmarking of best practices</li></ul>	<ul style="list-style-type: none"><li>Expanding the EHS culture across overseas worksites</li><li>Introducing unsafe behavior observation programs</li></ul>	<ul style="list-style-type: none"><li>Number of serious accidents occurred <b>0</b> case</li><li>Occupational accident rate <b>0.19</b> %</li></ul>



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Category	Activities in 2021	Plans in 2022	Mid- to long-term plans	KPIs in 2021
<b>Shared growth and fair trade</b> 	<ul style="list-style-type: none"><li>Assessed and improved the sustainability of suppliers</li><li>Upgraded shared growth programs: Training and field instruction by factor improvement experts (DSEP)</li><li>Expanded supports for COVID-19 response: Opening of the online Shared Growth Academy and supports for suppliers' overseas expansion</li><li>Operated the fair trade compliance program</li></ul>	<ul style="list-style-type: none"><li>Expansion of the scope of suppliers eligible for sustainability assessment and decrease of high risk factors</li><li>Horizontal delivery of internal capabilities to suppliers: Dissemination of DSEP</li><li>Operation of shared growth programs: Financial supports, support for building smart-factory, Shared Growth Academy, etc.</li></ul>	<ul style="list-style-type: none"><li>Establishing a culture of fair trade and shared growth</li><li>Building a sustainable supply chain</li><li>Advancing ESG level of supply chain</li></ul>	<ul style="list-style-type: none"><li>Comprehensive evaluation on shared growth index</li></ul> <b>Excellent rating</b> <ul style="list-style-type: none"><li>Investment in shared growth fund KRW <b>1.4</b> billion</li><li>Support through the shared growth fund KRW <b>16.0</b> billion</li></ul>
<b>Ethical management</b> 	<ul style="list-style-type: none"><li>Conducted employee ethics training at home and abroad</li><li>Sent ethical management newsletter every quarter</li><li>Established corruption risk control system and diagnosed and improved risks</li><li>Conducted self-diagnosis of ethical level based on FKI indicators</li><li>Reorganized ethical management system and reinforced communication with external stakeholders</li></ul>	<ul style="list-style-type: none"><li>Reinforcement of the company-wide ethics education system</li><li>Definition of significant risks affecting business and establishment of management system by each subsidiary</li><li>Creation of a foundation for anti-corruption management</li><li>Sharing and dissemination of global ethical management issues</li><li>Reinforcement of third-party evaluation and level diagnosis of ethical management</li></ul>	<ul style="list-style-type: none"><li>Conducting a third-party assurance of the compliance system</li><li>Implementing a campaign for higher ethical awareness on a regular basis</li><li>Measuring ethical management practices and results and operating a feedback system</li><li>Expanding the scope of ethical management issues</li></ul>	<ul style="list-style-type: none"><li>Number of participants in ethical management training(Including foreign subsidiaries)</li></ul> <b>2,653</b> persons(95%)
<b>Social contribution</b> 	<ul style="list-style-type: none"><li>Advanced remote social contribution projects: 'Wooridori' and 'Time Traveler' – Change of training curriculum and activities to remote basis</li><li>Expanded social contribution areas: Carbon reduction campaign "Trash Pick-up with Jogging"</li><li>Measured social value of major programs: "Time Traveler"</li><li>Enhanced external communication: Winning 5 awards</li></ul>	<ul style="list-style-type: none"><li>Advancement of social contribution – Analysis of operation status and effectiveness by project and setup of directions</li><li>Development of projects linked with our businesses</li><li>Enhancement of internal and external communication</li></ul>	<ul style="list-style-type: none"><li>Advancing social contribution</li><li>Planning sustainable social contribution campaigns</li><li>Developing UN SDGs linked programs</li></ul>	<ul style="list-style-type: none"><li>Employees' participation on social contribution</li></ul> <b>1,126</b> hours
<b>Privacy protection</b> 	<ul style="list-style-type: none"><li>Revamped domestic management system base and applied it to overseas worksites: Rule revision, update of treatment policy, insurance renewal, and application to worksites in China</li><li>Reinforced information leakage prevention and inspected legal compliance</li><li>Established technical safety measures for vulnerable areas</li><li>Internalized leakage prevention and response competence</li><li>Conducted tailored trainings and disseminated leakage risks</li></ul>	<ul style="list-style-type: none"><li>Advancement of management system</li><li>Inspection on the prevention of legal violation risks</li><li>Reinforcement of company-wide accident prevention and response capabilities</li></ul>	<ul style="list-style-type: none"><li>Expanding management system to overseas worksites</li><li>Enhancing collaboration with suppliers to protect personal information</li><li>Expanding practice culture and diagnose the level</li><li>Disclosure of customer information protection activities</li><li>Application of new technology personal information protection measures</li></ul>	<ul style="list-style-type: none"><li>Number of violations of laws and administrative sanctions due to personal information leakage</li></ul> <b>0</b> case <ul style="list-style-type: none"><li>Number of participants in personal information protection training (office employees in Korea)</li></ul> <b>1,257</b> persons <ul style="list-style-type: none"><li>Number of participants in specialized training for personal information protection (Personal Information Handler)</li></ul> <b>193</b> persons(100%)



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# ESG POLICY & PERFORMANCE



PART. 03

Doosan Corporation is striving for transparent corporate information disclosure with a focus on ESG. We also enter new growing markets and businesses and strengthening our capabilities to ensure healthy growth. We will continue to enhance our corporate value in the areas of environment, society, and governance as well as economic performance.



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# ENVIRONMENTAL

## Environmental Management

### EHS (Environment, Health, & Safety) Management

Doosan Corporation operates the EHS policy to provide a safe and clean environment to all stakeholders including employees, suppliers, and business partners.

In addition to complying with environmental, safety, and health-related laws and regulations, we are proactive in managing and improving key environmental, safety, and health performance indicators and quantitative goals throughout the value chain, including production operations and business facilities, products and services development, distribution and logistics, based on the ISO 14001/45001 operating system.

Key environmental indicators include water resources, air pollution, and waste management in order to promote the reduction of greenhouse gases and a virtuous cycle of resources. We intend to expand the scope of activities to secure biodiversity and prevent deforestation in the future.

In the case of mergers and acquisitions for business expansion, due diligence is conducted to identify the environmental risks of the acquired company in advance, and the evaluation results are managed as a crucial factor.

In terms of safety and health, in order to establish a culture in which all employees participate in accident prevention, quantitative goals such as leadership activities, risk discovery, and health care support are set and periodic inspections are carried out, and shortcomings are continuously improved. In addition, we regularly operate the Occupational Safety and Health Committee with the participation of workers' representatives to listen to and get feedback from employees.

Furthermore, Doosan Corporation appoints the CSHO (Chief Safety & Health Officer) who is in charge of safety and health management to make final decisions on the establishment and implementation of safety and health policies.

### Response to and Monitoring of New Environmental Regulations

We operate environmental management system to minimize environmental impact. In addition, we monitor environmental laws, regulations, and trends to identify possible impacts on business activities and local communities and take proactive measures. In particular, as Electro-Materials BG's Jeungpyeong and Gimcheon sites are included in the category of businesses subject to the Act on the Integrated Management of Environmental Pollution Facilities, we plan to complete the integrated environmental permit by 2024 by reviewing the emission impact analysis and permitted emission standards. Through these efforts to respond to environmental regulations, at Doosan Corporation, there was no serious violation of environmental laws and regulations in 2021.

### EHS Policy of Doosan Corporation



Doosan Corporation establishes and complies with the following EHS policies to fulfill our responsibilities to all of us, our families and society by building a safe and clean environment in accordance with the Group Credo and EHS guidelines.

- 1. Operation of EHS Management System**  
Establish and effectively implement the EHS management system to minimize the impact of EHS on all activities, products, and services in the workplace.
- 2. Continuous Improvement of EHS**  
Continuously promote EHS improvement to prevent environmental pollution and reduce risks through identification of environmental aspects, risk assessment, and EHS technology development
- 3. Minimize Pollutants Emission and Promote Accident Prevention Activities**  
Minimize the use of energy and resources, reduce the emission of pollutants through process improvement, and conduct activities to prevent accidents
- 4. Compliance with Laws and Regulations**  
Faithfully comply with domestic and overseas EHS-related laws and the Group's EHS guidelines
- 5. Open EHS Management**  
Regularly provide trainings to employees and suppliers for the compliance with EHS management and transparently disclose EHS performances to stakeholders to fulfill corporate social responsibility

Chief Safety and Health Management Officer of Doosan Corporation

### Waste Management

Doosan Corporation classifies wastes by nature and condition and treats them through the "Allbaro System1)" to monitor the entire process from generation to final disposal. In addition, we regularly train and evaluate waste disposal companies to verify whether waste is treated legally. Through continuous efforts to reduce waste, the amount of waste generated (designated and general) at domestic business sites in 2021 fell by 3% compared to the previous year.

1) Allbaro System: As the IT-based waste management system of the Korean government, it controls the entire set of processes for waste management, right from discharge to transportation, to the final treatment.



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Hazardous Chemicals Management

Doosan Corporation is strict about the management of hazardous chemical substances. Electro-Materials BG's Gimcheon, Iksan, and Jeungpyeong sites have obtained the business license for hazardous chemicals and are complying with legal requirements by regularly conducting statistical and emission surveys. In addition, regular training for the safe handling of chemical substances is provided to all employees at all business sites and personal protective equipment is provided. In 2021, we installed chemical leak detectors and emergency cleaning facilities, and improved facilities such as local exhaust and piping.

Advancement of CMS (Chemical Management System)

Electro-Materials BG established CMS (Chemical Management System) in 2019 to thoroughly manage legal risks in all stages from purchase to use of chemical substances. Through the CMS, we not only built a chemical substance inventory but also conduct diverse activities such as chemical substance evaluation and check of compliance with requirement when purchasing, process blocks in case of non-compliance, update, inquiry, and creation of MSDS (Material Safety Data Sheets), and monitoring of regulatory compliance.

In 2021, the CMS was further advanced through the improvement of chemicals pre-evaluation process, scope expansion of regulation response control, and increase of convenience.

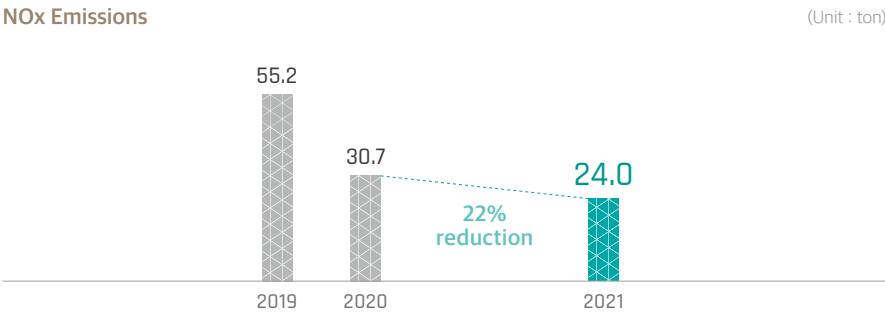
CMS Improvement Activities



- 1. Improvement of chemical substance pre-evaluation**
  - Blocking purchase when pre-evaluation is not completed by linking the control between MRO (Maintenance, Repair and Operation) materials and SAP system
- 2. Enhancement of the scope of regulatory response management**
  - Separating the pre-regulatory review of importers and users and allowing import and use only after final approval
  - Adding regulatory review function for substances such as air, water quality, and hazardous substances
- 3. Improvement of convenience**
  - Upgrading dashboard screen and changing payment platform by reflecting user needs

Air and Water Pollutant Management

Doosan Corporation manages air and water pollutants generated at its worksites to less than 50% of the legal emission limit. In particular, Electro-Materials BG's Gimcheon, Iksan, and Jeungpyeong sites conduct self-measurement of major pollutants twice a month and additionally check pollutant emission concentrations in accordance with the tightened air pollutant emission standards. These efforts helped all domestic sites of Electro-Materials BG reduce NOx emissions by around 22% from the previous year in 2021.



\* Based on all domestic worksites  
\*\* The scope of worksites eligible for evaluation was changed in 2021 due to business spin-off, etc.

Environmental Investment Management

Doosan Corporation has continued environmental investment to internalize environmental management. In 2021, Gimcheon, Iksan and Jeungpyeong sites of Electro-Materials BG invested around KRW 1.8 billion for installing and improving pollution prevention facilities and building wastewater facilities and around KRW 700 million for upgrading chemicals handling facilities such as detectors, emergency washing facilities, local exhaust, and pipes.

In addition, we evaluated the potential risks of a total of 246 facilities for storing and stockpiling oil and chemical substances and environmental accident prevention facilities, and established monitoring methods and evaluation cycles according to the level of risk. The monitoring method was improved to be implemented through visual inspection and sensor sensing, water level change measurement, and flow rate confirmation. Underground facilities have been improved to prevent environmental accidents by cleaning, coating, or double structuring.



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Eco-friendly R&D

Initiatives for the Development of Eco-Friendly Products

Having added the environment-friendly product portfolio to the R&D road map for the development of eco-friendly materials for electronics, the Electro-Materials BG is developing battery materials for EVs which are lead-free, halogen-free, dust-free. We reduced the materials extracted from harmful substances from the stage of development and refrained from using toxic catalysts. The environmental factors required for the final product are managed through the EHG impact review (harmful substances of raw materials and raw material MSDS management).

As a case of successful environment-friendly material, we have rolled out the halogen-free materials that can be used for high-volume, high-speed, and high-performing network equipment in the 5G era, and the bisphenol A-free product used for fingerprint identification modules of electronic devices. We are expanding the product's application to communication and electronic device-oriented modules linked with CCL business.

In 2021, we expect to commercialize a material developed by the technology we secured for EV batteries. We are also expanding the product material development area in the renewable energy industry. Doosan Corporation will expand and accelerate its environment-friendly product lineup through continued development and outcome.

Response to Energy Transition

The Fuel Cell Power BU developed the 1~10kW class LNG reformer PEMFC and 100kW class hydrogen system, leading the commercialization of fuel cell for residence and buildings. It also developed the 10kW SOFC of the world's highest power generation efficiency. The product is 40% more efficient in power generation than the existing PEMFC but takes up at least 50% less installation room compared to the 5kW SOFC.

Enhancement of Technological Competitiveness

Development of innovative products and technologies

Doosan Corporation promotes technology-driven management to drive innovation in technologies, products, and solutions meeting customer needs based on analysis of market and technology trends. We are proactive in preemptively securing innovative technologies to develop market-leading products in a timely manner in line with our mid- to long-term business strategy. In addition, all of Doosan Corporation's BGs and BUs regularly analyze changes in the market and technological environment, thereby redefining mid- to long-term growth goals for business portfolio with high growth potential and setting PRM<sup>1)</sup> and TRM<sup>2)</sup> with specific implementation plans.

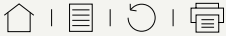
1) PRM: Product Roadmap  
2) TRM: Technology Roadmap)

Company-wide Integrated IP<sup>1)</sup> Strategy Management System

The company has established an enterprise-wide IP strategy in connection with its mid- and long-term R&D road map (PRM/TRM), and secured an IP-based system to enhance R&D. It releases new market-leading products by first analyzing the patents of competitors and clients during the R&D planning stage and then pioneering differentiated technologies and strategic IP.

1) Intellectual Property





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Customer Satisfaction

Expansion of Customer Communication Channels

Doosan Corporation is proactive in listening to customer voices through diverse channels to enhance customer satisfaction.

Electro-Materials BG proactively handles quality issues to ensure customer satisfaction. Whenever a quality issue arises, the contents are identified and registered in the “Voice of Customer (VOC)” system and shared across the company. As a result, in 2021, more than 95% of VOC responses were completed. Our Production Center holds the “Q-Day,” a quality council that checks quality problems from causes to improvement measures, on a regular basis to identify and correct the causes of issues so as to improve product quality.

Fuel Cell Power BU has established a pre- and post-service management system with the aim of achieving the best possible service delivery by expanding customer communication. The pre-service minimizes customer inconvenience by proactively and preemptively responding to product abnormalities based on the remote monitoring system (RMS), while the post-service provides a 24-hour call center and immediate response system for major component failures. The BU also conducts the “Happy Call Satisfaction Survey” to improve customer satisfaction and continues enhancing quality of service by improving the service guidelines based on the A/S results.

Reflection of Customer Opinions in the Product Development Process

We are enhancing customer satisfaction and product value by developing products that reflect customer opinions.

Fuel Cell Power BU strives to satisfy the needs of various customers required in the market in response to the government’s policy for vitalizing the hydrogen economy and the 2050 Net-Zero goals. The roadmap for the vitalization of the hydrogen economy announced by the government in 2019 and the enactment of the Hydrogen Law in 2020 will become a driving force for the BU’s long-term growth. In response, the BU has secured an extensive production line in response to the government’s mid-to-long-term spreading and expanding policy through not only currently mass-produced PEMFC but also highly efficient SOFC product development. The BU is also promoting the development of H2 fuel cell at various capacities to cope with the full-fledge use of hydrogen energy in the net-zero era. In addition, the Fuel Cell Power BU is developing customized products for each country through the search for the opportunity of global markets. Accordingly, the BU is trying to enter major developed nations, which have a high need for eco-friendly distributed power generation, beyond Korea. To this end, the BU is developing locally tailored products and business models based on thorough market analysis.

Digital Innovation BU conducts an annual survey on IT operation service satisfaction around the world in order to provide customer-oriented services. Through this, the BU increased customer satisfaction by clarifying areas for improvement and identifying and executing service improvement tasks. In addition, as the proportion of IT business increases year by year, the BU is focusing on expanding the external customer base and improving satisfaction on consulting services, as well as actively reflecting VOCs. These efforts have allowed the Digital Innovation BU to achieve excellent performances in the aspects of both quality and business operation.



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Health and Safety Management

Safety Management System & Activities

MOC (Management of Change) Process

Doosan Corporation carries out many activities in order to deliver a safe working environment. In 2021, the Electro-Materials BG extended the MOC (Management of Change) process to all manufacturing processes to identify potential risks and prevent accidents. Under the MOC process, the responsible committee is formed according to the phase to identify and remove potential risk factors. Doosan Corporation will continue with the improvement of the MOC process and expand the applied articles to reinforce the safety management system.

MOC Process

Classification	Before order (Gate 1)	Before construction (Gate 2)	Before operation	Before inspection (Gate 3)
Check method	Change Management Committee	Safety Planning Approval Committee	On-site inspection	Change Final Approval Committee
Major activities	<ul style="list-style-type: none"><li>Decision (Classifying into grades 1 to 3 according to risk level)</li><li>Risk evaluation</li><li>Verification of installation criteria and legal compliance</li></ul>	<ul style="list-style-type: none"><li>Construction safety work plan and work safety analysis</li><li>Provision of environment and safety information</li><li>Issuance of daily safe work permit</li></ul>	<ul style="list-style-type: none"><li>Pre-operation inspection and improvement</li><li>Check of risk assessment results</li><li>Securing safe driving procedures</li></ul>	<ul style="list-style-type: none"><li>Final approval for operation</li><li>Check of the improvement results before operation</li><li>Employee training on changes</li><li>Check of the license completion</li></ul>

IoT-based Safety Management Activities

Doosan Corporation introduced safety management activities grafted with IoT technology to the electro-materials BG to establish a safe work environment. Mobile inspection is an inspection on facilities and workers with location-based technology through tablet devices and beacons<sup>1)</sup>. We are inspecting prevention facilities and hazardous machinery, among other things. Furthermore, we ensure that accidents are prevented beforehand with the activation of an alarm and a warning light by installing a body detection sensor and a forklift approach warning device on forklifts. These safety management activities will be gradually expanded to all worksites. Doosan Corporation will upgrade the EHS inspection system.

1) Beacon: a smartphone short-distance communication tech that searches close-range facilities from the user based on GPS data, and transfers data to smartphone programs

Response to ISO 45001 Certification

Doosan Corporation is conducting systematic safety and health management activities based on the ISO 45001 certification. Electro-Materials BG's Jeungpyeong, Gimcheon, and Iksan sites have obtained the safety and health management system (ISO 45001:2018) certification and comply with the system requirements. Particularly, the sites are focusing on managing quantitative goals by prioritizing items such as accident rate, occupational disease, and near-miss accidents. The system is improved through internal audits by the expert group composed of safety and health managers and follow-up audits by professional outside institutions.

Response to COVID-19 Pandemic

To protect the health of employees and their families from COVID-19, Doosan Corporation has been operating quarantine standards by each situation (contact with a confirmed case, contact with a tester, developing suspicious symptoms, etc.) that are stricter than the government guidelines. In addition, a system is in operation that enables rapid response in case of a situation through daily monitoring and reporting of inspectors, quarantined persons, and confirmed cases. We will continue thorough anti-virus measures until COVID-19 is over.

Safe Workplace All Employees Create Together

Doosan Corporation has been building a mutual safety and health cooperation system with business partners to create a healthy and safe workplace. In 2021, Electro-Materials BG's Jeungpyeong, Gimcheon, and Iksan sites participated in a safety and health symbiotic cooperation program consisting of risk assessment, training on safety and health, and technological supports for 7 partners. Through the program, we are required to manage the safety and health of our suppliers at the same level as ours. In addition, major legal changes are shared with them through the regular EHS consultative body and joint inspections are conducted to discover and improve on-site risk factors. When selecting partners, we also evaluate their safety and health management capabilities in advance and introduce procedures that reflect appropriate health and safety costs to prevent accidents. As a result of these efforts, there was no serious occupational accident from suppliers in 2021.



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Expansion of Prevention Program for Musculoskeletal Disorders

Doosan Corporation operates musculoskeletal disease prevention program for health of its employees at workplaces and investigates the potential hazards of musculoskeletal systems. Electro-Materials BG conducted measurement and consultation on potential musculoskeletal hazards for 830 persons, including employees of its suppliers, and provided a pain management program that prescribed individual exercise methods.

Emergency Response Drill

The company conducts emergency response drills to minimize damage and improve response capabilities in case of emergency through rapid initial response. Emergency response drills are held on a regular basis every year in accordance with scenarios such as fires, chemical leaks, and emergency rescue in confined spaces. Training results are used to supplement scenarios and improve deficiencies through feedback.



Emergency response drill

Safety and Health Training

In addition to legal safety and health training, we are operating the EHS Academy, an in-house training program for enhancing employees' environment, health, and safety competence. In 2021, it included EHS leader, risk management, accident investigation expert courses. Trainees learn the latest trends and theoretical knowledge related to EHS and are able to further strengthen their EHS competence by applying the educational contents to practice.

Accident Management Process

Doosan Corporation operates an accident management process that prevents the spread of damage and minimizes losses through prompt action, reporting, and establishment of preventive measures in the event of an accident. In addition, the Accident Investigation Committee is held to thoroughly investigate the root cause of the accident and establish measures to prevent recurrence, and the results are shared throughout the company.





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Quality Management

Enhancement of Quality Management System

Doosan Corporation has been strengthening its quality management system by acquiring quality-related certifications.

Electro-Materials BG implements thorough quality control from the design stage based on IATF-16949<sup>1)</sup> certification-driven quality management system. The BU has expanded the application of IATF-16949 certification to worksites and in 2022, its Vietnam worksite obtained the certification. In addition, in order to improve the quality of raw materials supplied from suppliers, we conduct technical meetings with them during the sample evaluation process or visit them to provide guidance on quality control. Electro-Materials BG established a quality management system in the field of 5G antenna to strengthen quality management in new business. The BU also carried out activities such as yield management, setup of customer evaluation standards, and establishment of an outsourced quality management system.

Fuel Cell Power BU has obtained and maintained domestic and international quality management system certifications such as ISO 9001 and KS. The scope of quality control items has been extended to competence-building activities of suppliers, advanced quality control, and calculation of quality cost. In addition, the BU is conducting quality management improvement activities such as technology review and on-site management to respond to the introduction of domestic hydrogen-related laws.

Digital Innovation BU is operating a quality management system based on ISO 9001 and ISO 20000 (International Standard for IT Service Management). The BU operates the DevOps<sup>2)</sup> platform, which is an advanced method of software development and operation, in line with business conditions and changes in IT technology and is applying it to building new IT systems for customers. The BU has prepared the DevSecOps<sup>3)</sup> environment that proactively removes security risks in preparation for IT security, which has been particularly emphasized recently, and is ready to be applied to internal and external customers. The BU is focusing on strengthening its competitiveness so that more agile IT services can be provided to customers in a timely manner, thereby leading quality management at the Group level.

- 1) IATF-16949: The latest version of TS 16949, a quality management system that adds special requirements for the automotive sector based on ISO 9001
- 2) DevOps: A new software development methodology that combines development and operation, emphasizing communication/collaboration/integration/automation between development experts and operation experts. As a methodology optimized for agile software development, it is rapidly being applied to major IT companies thanks to the development of related technologies.
- 3) DevSecOps: A software development methodology that combines development, security, and operation.

Strict Quality Management

Electro-Materials BG has been conducting various activities to advance the company-wide quality management. In 2021, FMEA (Failure Mode and Effect Analysis), which analyzes failures of all elements affecting the system by type, was introduced to analyze the causes of VOCs and defective items, and customer reliability was improved by reflecting the evaluation conditions of finished product manufacturers. In addition, the BG established the Manufacturing Reliability Center to regularly conduct reliability evaluations of mass-produced products.

Fuel Cell Power BU has secured the ability to solve problems that occur during the development of new products and chronic quality problems of fuel cells through the SENX<sup>4)</sup> activity. In addition, the BU operates a variety of quality management systems ranging from the PPAP (Production Parts Approval Process) to product monitoring and is doing its best to satisfy customers by frequently operating a response TFT focusing on actual problem solving.

Digital Innovation BU is applying a system to improve the quality from the product perspective, including performance testing and verification, operation control, and open source software verification for the IT system under development. To keep pace with the expansion of external business, the BU is building a system that can improve the quality of systems and products as well as IT services. As a result of strict quality control, the BU won the grand prize in building & construction sector of “2021 A.N.D. Award,” manufacturing sector of “2021 CIO Award of the Year,” and digital service sector of “2021 Security Awards Korea.”

4) SENX (Speed ENgineering-X): 3rd generation problem solving technique of existing DFSS (Design for Six Sigma), as a systematic methodology that enables the development of high-quality systems that meet customer expectations by enhancing system development capabilities and securing high-quality problem-solving capabilities



SENX launch ceremony of Fuel Cell Power BU



Grand prize in building & construction sector of “2021 A.N.D. Award”



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Talent Management

Human Rights Management






Doosan Corporation respects the human rights of not only its employees but of all stakeholders engaged with its management activities, and advises third parties, including suppliers and business partners, to practice human rights management at the same level. The human rights policy of Doosan stipulates basic human rights to be guaranteed, regardless of a person's origin, gender, ethnicity, or other conditions.

As a member of the UN Global Compact, we abide by the 10 principles of Global Compact in the areas of human rights, labor, the environment and anti-corruption, establish and practice human rights management and due diligence based on internationally-recognized principles of human rights that, such as the Universal Declaration of Human Rights and the UN Guiding Principles on Business and Human Rights: Ruggie Framework. Doosan Corporation applies the following principles equally to the employees of suppliers and business partners such as dispatching, subcontracting, and trading parties. We have established a human rights management system and take remedial steps in the event of human rights violations. We aim to become a business that grows together with its local communities by pursuing activities aimed at improving human rights.

Doosan Corporation operates an online whistle-blowing center on our website to prevent possible human rights violations occurring in business processes. We protect whistle blowers through confidentiality principles and handle all issues quickly and fairly. Doosan Corporation will take the lead in supporting and respecting human rights principles as a Proud Global Doosan.



Human Rights Management Policy

<b>Ensuring non-discrimination in employment and freedom of association and collective bargaining</b> 	We do not discriminate in employment such as position or salary based on gender, religion, disability, age, social status, or region of origin. In addition, we recognize the freedom of association and collective bargaining of workers and do not impose any disadvantages on the grounds of union activities.
<b>Prohibition of forced labor and child labor</b> 	We do not accept any form of forced labor that may occur in business activities and abide by the minimum age for employment set by the country of business. We follow the minimum employment age prescribed by laws of the country of business and, in the case that we find we have hired a minor, we take immediate remedial measures to prevent all wrongful labor practices that damage human dignity.
<b>Ensuring occupational safety and responsible supply chain management</b> 	We strive to maintain a safe working environment and follow environmental, health and safety laws and standards that apply to our workplaces. In addition, we adopt separate safety and health measures for pregnant women, the disabled and other vulnerable workers. We establish and continuously check policies and guidelines related to the ESG risks of our supply network. We also monitor all suppliers and business partners. We will stop engaging in transactions with supply networks that fail to take corrective steps against human rights infringements.
<b>Protection of human rights and environmental rights of local people</b> 	We respect local residents' rights to life and freedom of relocation, as well as their individual rights related to safety and property ownership. In addition, we adhere to a principle of preventive approach to environmental issues and systematically implement plans to prevent, mitigate, and control serious environmental damage and environmental disasters.
<b>Protection of customer human rights</b> 	We pay careful attention to marking design and manufacturing conditions and other indications on products in accordance with legal standards in order to prevent product defects from causing damage to the life, health, or safety of customers. In the case that damage is detected after a product is launched in the market, we notify customers of the risk and recall the product immediately. Moreover, we take necessary measures to protect all personal information collected by our company based on our policy of respecting the privacy of customers and employees.



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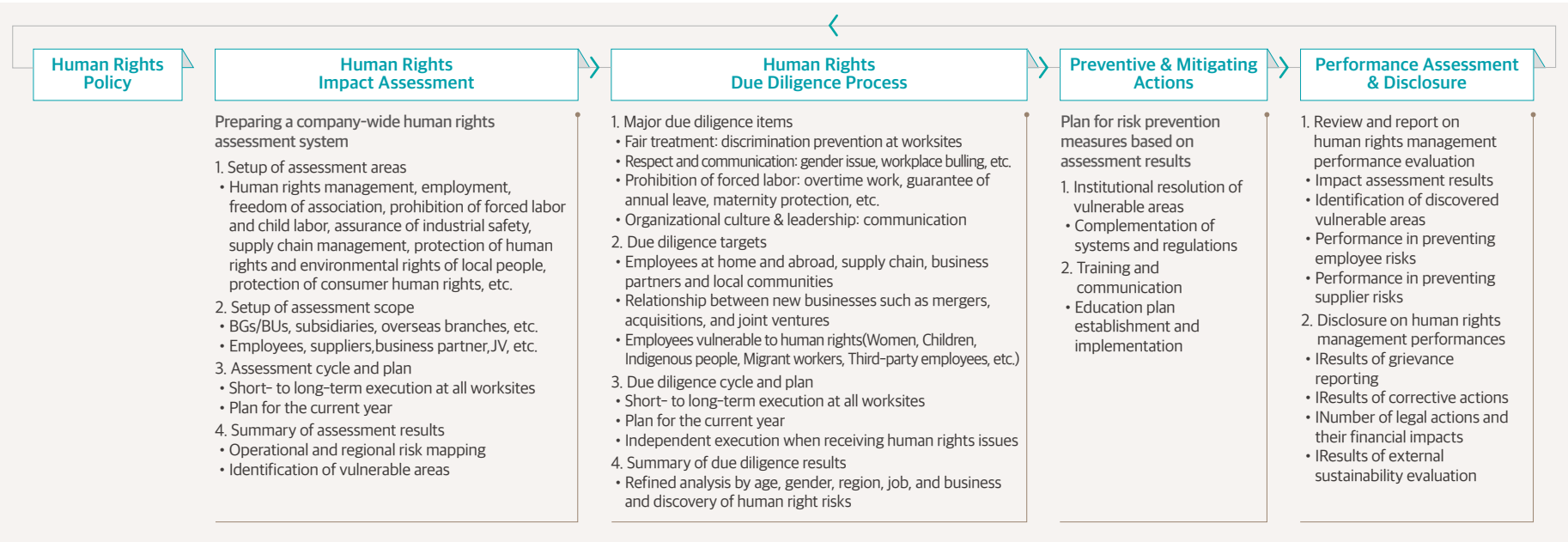
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System for Implementation and Review of Human Rights Management

Doosan Corporation operates a human rights management system to prevent human rights violations that may occur in business processes, including the supply chain, as follows. Through human rights impact assessments, we actively identify potential human rights violation issues in the areas of grievance mechanisms, discrimination, forced labor, wages, working hours, child labor, freedom of association, consumer human rights, information security, and privacy, and strive for continuous improvement. In 2021, we sent out the CEO Letter with the contents of the declaration of human rights management and operated a working group in charge of human rights within the ESG Committee.

Human Rights Management Practice and Inspection System



Human Rights Impact Assessment (HRIA)

Doosan Corporation has conducted “human rights impact assessment” and “human rights due diligence” at all business sites to identify the negative impacts and major areas of weakness due to human rights issues. In particular, human rights impact assessment aims to analyze human rights risks and their materiality in the countries and business areas in which we operate. It has been carried out for all workplaces in the recent 3 years.

HRIA Results (2019 - 2021)





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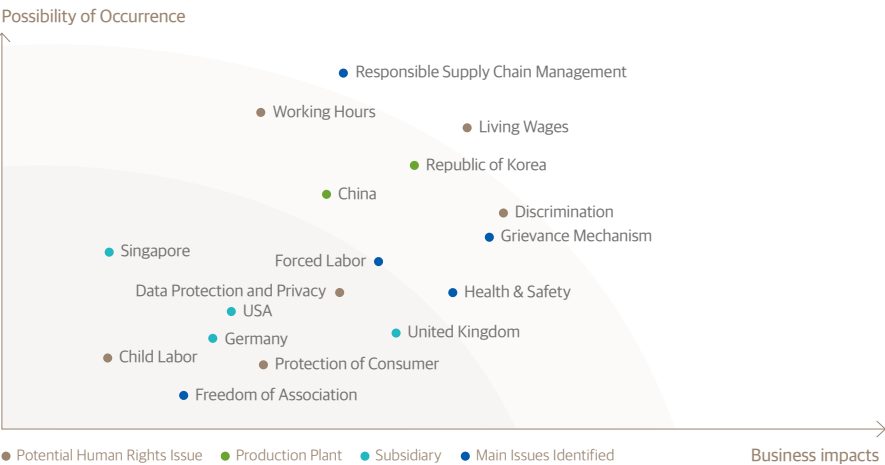
Preventive & Mitigating Actions

Measures for preventing major potential risks identified through human rights impact assessment are taken based on the risk matrix. In addition, various preventive and mitigating actions are conducted through different programs, including institutional solutions for vulnerable areas, education, and campaigns.

In terms of in-house bullying prevention measures, Doosan Corporation has been encouraging the culture of mutual respect between employees by conducting learning programs for all employees and sending CEO messages since 2019. The human rights due diligence that used to be applied to office workers in Korean and Chinese branches expanded to include all technical workers in 2020. We also published the White Paper on Human Rights Management for leadership positions in 2021 to eradicate human rights issues. Doosan Corporation is identifying potential human rights risks through the human rights evaluation process, promoting supply chain ESG activities to manage supply chains responsibly and eradicate forced labor, operate grievance resolution processes and channels to encourage a culture of respect and communication in workplaces, among other enhancement activities.

The leaders of each BG/BU create and implement the LAP (Leader's Action Plan) each year in order to lead changes in our ways of working. In 2021, to minimize potential risk to staff members' human rights caused by their leaders, they have established the LAP by strengthening the "attitude" perspective in an effort to improve leaders' relationships with staff members.

Analysis Map of Emerging Human Rights Risks



Grievance Handling Process

Doosan Corporation collects information on human rights issues through an early-alert grievance handling system.

We operate the Ombudsperson program and various grievance channels to provide necessary assistance through counseling on complaints raised by employees. Each program provides an opportunity for members to make appeals based on our three principles of grievance settlement: protection of anonymity, prevention of disadvantage, and feedback. We have expanded the organization dedicated to grievance handling. Our China subsidiary has also improved grievance handling system for local employees. In 2022, we plan to unify the grievance handling process operated by each business site and hold a workshop to foster grievance counselors.

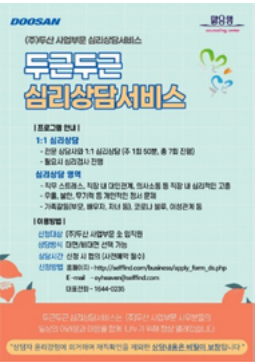
Employee Communication

Review on the Employees' Psychological Stability

Doosan Corporation is carrying out various activities to improve the psychological stability and work immersion of our employees. In 2021, we sent out a newsletter containing the definition of psychological stability and how to improve it, and conducted activities to remind members of psychological stability through the "Create Value Time" campaign. In addition, psychological counseling services4) were provided to help employees overcome the COVID Blues phenomenon and return to their daily lives.

While the work immersion diagnosis and improvement project was supported only for organizations where it was urgently necessary in 2021, it will be expanded to all organizations in 2022.

1) Psychological Counseling Service: A system where employees can get help through one-on-one psychological counseling with a professional counselor to resolve psychological grievances at work, personal emotional problems, and family conflicts



Psychological Counseling Service Program Guide



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Awards for Performance Recognition and Sharing of Best Practices

Doosan Corporation operates the Awards to recognize achievements and share best practices and lessons learned during the year. The Awards, launched in 2016 and grown into an annual event today, is presented in the categories of fundamental competitiveness (R&D, business growth), advancement and science (office job, technical job, and social responsibility management), and Doosan talent cultivation (executive, team leader, team member, CA (Change Agent)). This event motivates employees and provides opportunities for organizations to better their performance.

Education for Overseas Subsidiaries Based on Business Philosophy

The company conducts education for overseas subsidiaries in order to establish ways of working based on our management philosophy. This education strengthens our employees' sense of belonging by linking the strengths of individuals to the organization and ensuring the involvement of participants in discussions on the future image of the organization. Doosan Corporation will continue its efforts to build its future through cooperation with members by overcoming regional boundaries.

Labor-Management Culture Based on Mutual Trust

In addition to building a cooperative relationship with the labor union, we strive to build a labor-management culture that values co-prosperity and harmony based on our management philosophy. We listen to the voices of employees through the Create Value Time, labor-management council, and surveys to reflect them in management activities. Preemptive prevention of potential human rights issues is being strengthened through human rights due diligence, the ombudsperson system, and the grievance committee.

Work-Life Balance

Doosan Corporation is implementing a variety of employee support programs for work-life balance. Those include Working-from-home smart work centers, flexible working hours, and compensation leave systems. In addition, to support pregnancy, childbirth, and child rearing, we are operating nursing rooms and an on-site childcare facility (Future Tree Daycare Center) in the company.

Leadership Training

Junior MBA Course

The company has been operating its Junior MBA program since 2013 to foster outstanding managers who will lead our future businesses. In 2021, the 8th session was conducted for 6 months for employees, assistant managers, and managers, and 18 persons from 5 companies participated in 6 subjects including strategic management, accounting and finance, HR organization, and digital transformation. In particular, in this session, the DT Mindset Workshop was first held in order to help them understand the technology and its necessity to connect DT to our businesses. In addition, the participants discussed leadership values embracing generations and leadership elements needed when considering the demographic phenomenon of Korean society in the next 10 years. In 2022, we plan to prepare measures to improve the quality of content and expand opportunities for communication among trainees.

Courses for Promoted Personnel at China Subsidiaries

In 2021, a course for promoted personnel was offered to employees working at China subsidiaries of Electro-Materials BG in Changshu, Shanghai and Shenzhen, and Shenzhen subsidiary of Doosan Mobility Innovation. Nine (9) new managers and sixteen (16) new assistant managers completed the course that educates the basic competencies and work skills that new promotions must have. It was conducted through a real-time remote education platform tool in consideration of the COVID-19 situation. Doosan Corporation have also provided courses for promoted personnel in local subsidiaries in China every year since 2018.

On-boarding Program for Newly Appointed Leaders

Digital Innovation (DDI) BU implemented the on-boarding program for 8 new team leaders and 13 new part leaders to help them succeed and grow in their roles. This program was held under the themes of "I decided to become a leader," "Congratulations and encouragements," "Improve Dynamics with members." For 6 weeks, a new DDI leader course to learn the role of a leader was held, and for 4 weeks, a small group seminar called "Leader's Book Study" was held in which they read leadership-related books and experienced peer coaching. The last program was the FGI (Focus Group Interview) aimed at listening to the difficulties of subordinates and developing the ability to activate communication within the team.



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Entry-level Training Course

Doosan Corporation provides new recruits in the first and second half of the year with entry-level training course to introduce the company's major regulations and systems and develop basic knowledge necessary for work. This training course was offered to 27 internship-based recruits during the first half of 2021, and to 21 open recruits during the second half. It is updated regularly according to business trends and the needs of business fields. In 2021, trainings centered on learners, thinking, and interactive activities were applied in consideration of generational characteristics of new employees. Moreover, diverse remote training tools using metaverse and cloud were applied due to COVID-19 situation.



Metaverse platform screen for remote training



Remote training for new comers

Job Trainings

Manufacturing Jobs Academy to Enhance Manufacturing Competitiveness

Electro-Materials BG has been operating the Manufacturing Job Academy every year since 2013 to strengthen manufacturing competitiveness. In 2021, 9 courses were opened, covering the understanding of raw materials and product characteristics and manufacturing technology, in which a total of 168 employees participated. All courses are taught by in-house instructors who are experts in their respective fields, and curriculum is updated every year according to the needs of the BG. In 2022, we plan to expand the scope of trainees and sessions with the review of new courses meeting industry trends.

Job Reorganization and Capability Assessment to Strengthen Digital Competence

Digital Innovation BU carried out job reorganization to strengthen the competency required as a Digital CoE (Center of Excellence). The BU identified the roles and competencies necessary for new digital businesses and assigned new jobs to 382 employees in the PI&IT division. And then, a competency diagnosis was conducted for the new job to confirm the competencies possessed by each employee and the competencies to be developed. Based on the results, the BU operated the digital CoE course including a digital/IT learning platform to help them voluntarily enhance the competencies to be developed from a short-term perspective and compiled a job description to support their career development in the long-term.

Quality Academy Advanced

Doosan Corporation has been conducting the Quality Academy Advanced course since 2018 with the goal of improving the job competency of middle managers in quality control. The course included P-FMEA (Process Failure Mode Effects Analysis) needed to address quality issue, in which 15 managers participated in 2021. Moreover, participants derived the process that needs improvement by BG and BU as a task and then learned the theory and carried out actual improvement works, thereby obtaining a practical education reinforcement effect. In particular, this course, in which not only quality managers but also production technology and R&D personnel participate, provides an opportunity to share various opinions on overall process improvement from the perspective of each function.



Quality Academy

Other Trainings

In-house Language Course

Doosan Corporation operate in-house language courses to improve global business performance. The courses are held twice a week on a remote basis during the first half (March to June) and the second half (September to December). In 2021, a total of 97 employees completed the courses. Applicants can select detailed study topics (business conversation, discussion, business meeting, business writing, negotiation, etc.), and the learning effectiveness is identified through testing. In particular, we provided a special lecture on English Biz Writing including experts' guidance to help trainees write e-mail suitable for each situation in English.

Office 365 Training

Doosan Corporation opened a basic training course for the Microsoft Office 365 program and three advanced training courses (Power BI, Power Apps, and Power Automate) with the aim of reinforcing digital work competencies and procuring a digital working environment. In order to transfer know-how that can be used in practice, external and in-house instructors provide training, and a help desk is operated on the intranet to ensure the continuity of training. In 2021, a total of 257 executives and employees participated in the training, and their satisfaction with the training averaged 4.3 out of 5.



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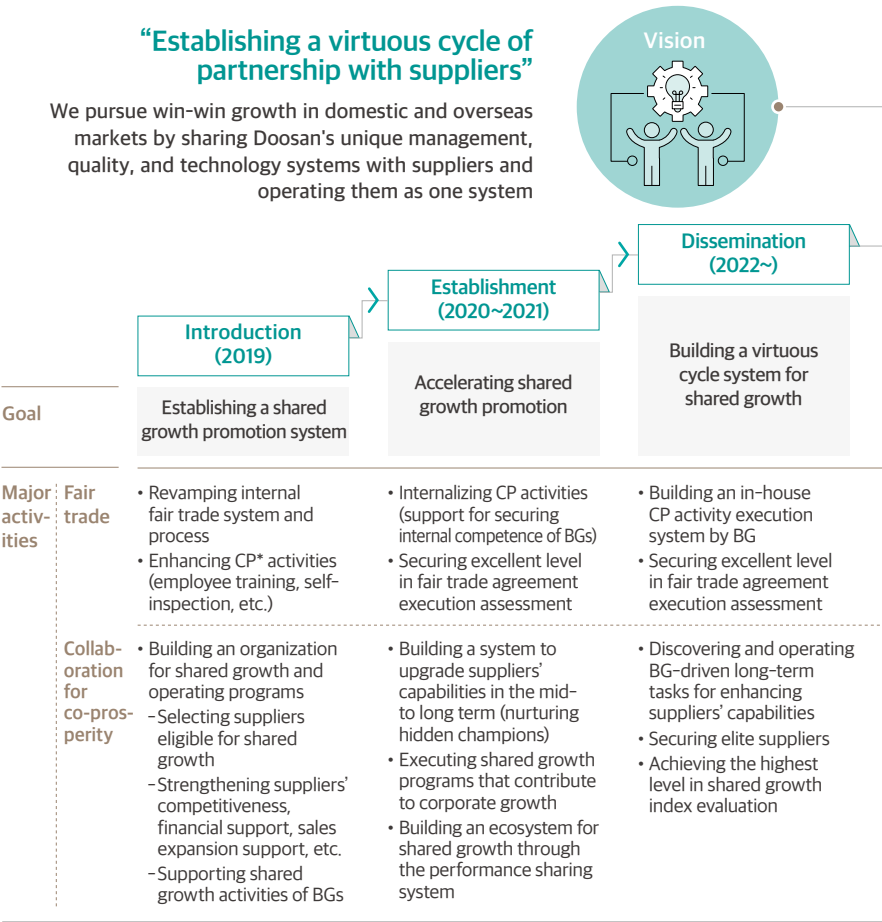
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Supply Chain Management

Doosan Corporation is strengthening the sustainability of its supply chain through two strategies: increasing the competitiveness of the entire supply chain through shared growth with suppliers, and identifying and improving sustainability risks in the supply chain in advance.

Roadmap for Shared Growth



\* CP: Compliance Program, an autonomous self-check for fair trade compliance

Establishment of a Shared Growth System

Doosan Corporation's vision for shared growth is to establish a virtuous cycle of partnership with business partners. It pursues win-win growth by sharing our unique management, quality, and technical systems, including technological competence and business system, with suppliers and operating them as one system. To achieve the goal, Doosan Corporation has further systemized shared growth activities by allowing the ESG Team to conduct the activities which had been promoted by each business unit in an integrated manner.

Dissemination of Shared Growth Culture

The company is working to promote the spread of shared growth culture by preventing fair trade-related risks in advance through CP activities. In addition, we are proactive in supporting the enhancement of suppliers' competitiveness, including regular discussion meeting with them and visit of our CEO and executives to listen to their grievances and proposals. We also promote shared growth with Tier 2 suppliers as well as Tier 1 suppliers.

Shared Growth Index Evaluation

As a result of implementing diverse shared growth programs such as suppliers' competitiveness enhancement, financial support, competence training, and communication, Doosan Corporation has included in the shared growth index evaluation targets since 2019 and gained “excellent” grade for two consecutive years. We will continue to expand shared growth activities to help suppliers reinforce ESG management capabilities.



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Support for Enhancing Suppliers' Competitiveness

We provide suppliers with diverse support measures to help them enhance competitiveness and corporate culture. Those include professional management consulting free-of-charge, establishment of quality and cost control system, and improvement of HR, labor, and wage systems. We also support the construction of smart factories in alliance with the government. For suppliers who want overseas sales expansion, opportunities for participation in online overseas exhibition and online meetings with foreign buyers are presented.

Other activities included the operation of an online shared growth academy aimed at strengthening their employees' capabilities and supporting field training expenses through industry-university cooperation program. In 2021, 34 suppliers hired 28 new employees through the Doosan Partner Recruitment Corner on the online job search site.

Operation of the Gap-bridging Program

Since 2017, Doosan Corporation has carried out a program designed to bridge the gap between large businesses and SMEs. As part of this program, we pay KRW 100,000 per month to the employees of tier 2 suppliers, internal subcontractors, and suppliers in charge of environmental cleaning and security. To the employees of tier 1 suppliers, we provide benefits such as gift certificates on special holidays, a health checkup service, and a mutual-aid service. Supports through the gap-bridging program in 2021 are as follows: KRW 490 million to 3,993 persons (cumulative), KRW 250 million worth of holiday gift certificates to 2,541 persons, KRW 100 million for health checkup of 398 persons, and KRW 75 million worth of funeral assistance to 27 persons.

Fair and Transparent Selection of Suppliers

Doosan Corporation considers not only price, quality, and financial conditions, but also sustainability when choosing suppliers. Sustainability assessment is carried out transparently in accordance with the registration procedures on the Doosan website. It also complies with internal regulations that reflect the terms of guidelines announced by the Fair Trade Commission. We strive to ensure that these regulations are applied fairly to all companies that wish to do business with Doosan.

We conduct a regular evaluation of quality, delivery date, price, and other sustainability factors for registered regular-transaction suppliers with a transaction volume above a certain amount.

Critical suppliers are selected based on their strategic importance and transaction size. Field diagnosis and improvement plans are carried out on critical suppliers. Doosan Corporation supports shared growth activities for the capacity-building of suppliers.

Supply Chain Assessment

Supplier Registration Evaluation

- Financial information + item inspection (quality test, etc.) + capacity evaluation (due diligence, etc.) + sustainability assessment for labor/human rights, health/safety, environment, etc.

Regular Evaluation

- Price, delivery date, quality performance evaluation (determination of unqualified suppliers) + sustainability assessment for labor/human rights, health/safety, environment, etc.

Critical Suppliers

- Selection of critical suppliers based on purchasing strategy
- Improvement of in-depth diagnosis of sustainability risks
- Operation of support programs to improve competitiveness and sustainability

Sustainable Supply Chain Management

To enhance the sustainability of the supply chain, since 2015, we have been providing suppliers with content to be observed in areas such as labor and human rights, safety and health, environment, ethics and fair trade, and general management, while asking for their agreement to the terms and their proper application. The full text of the guidelines can be found on the Doosan e-procurement website.

Doosan Corporation has devised and implemented conflict mineral management policies in order to participate in the international community's efforts concerning conflict minerals. Based on our conflict mineral management policies, we identify products that may include 3TG (tantalum, tungsten, tin, and gold). We request our suppliers to verify places of origin based on BOMs (Bill of Materials), and we were able to confirm that no conflict minerals have been used in our verified product group (application components of industrial vehicles, casting materials, etc.). Doosan will continue to carry out monitoring for the possible presence of 3TG through BOMs from the R&D stage and reinforce the process of verifying the place of origin.



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Definition of High-risk Worksites



Worksites with a high possibility of causing environmental accidents and pollutions or violating environmental regulations

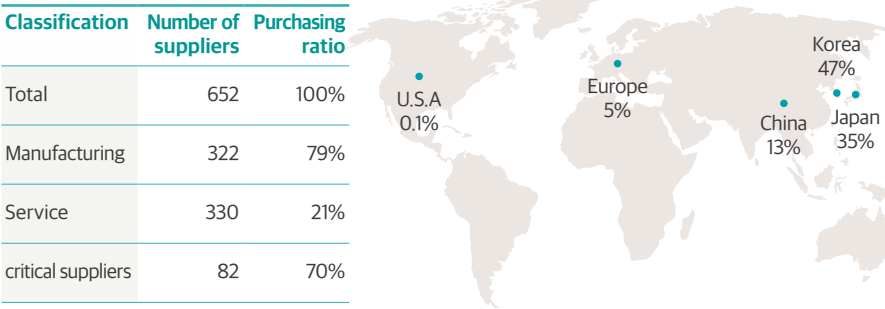


Worksites with a high probability of causing legal and physical damages to stakeholders including employees due to human rights, safety, and ethics-related issues or accidents



Worksites that cannot carry out normal operations due to sanctions or punishments

Procurement Status



Sustainable Procurement Strategy

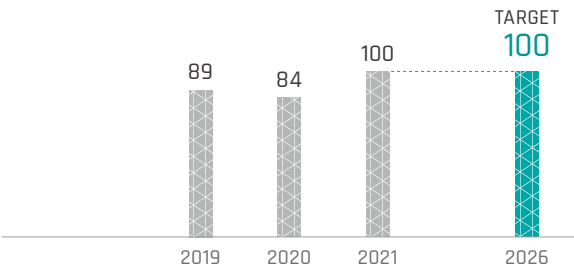
Doosan Corporation improves sustainability by cutting down on its number of high-risk facilities. Our purchasing strategy reflects ESG-related content in addition to traditional factors such as price, quality, and delivery time, thereby reinforcing the soundness and sustainability of the supply chain. To this end, we conduct various activities as follows: survey on compliance with the code of conduct to improve ethics level across supply chain, collecting complaints in transactions semi-annually and reflecting the results in procurement strategy, operating a Help Desk (doosaneg@doosan.com) to ensure open communication with suppliers, and visiting suppliers to address their grievances.

In addition, Doosan Corporation makes the creation of a safe working environment as another important strategic goal. By doing so, we are improving the safety of the entire supply chain by eliminating the possibility of quality and service disruptions due to accidents. We support improvement activities through direct visits to suppliers whose vulnerabilities are discovered through sustainability evaluation. We also contribute to improving the working environment of suppliers by providing them with training courses on labor, EHS, etc.

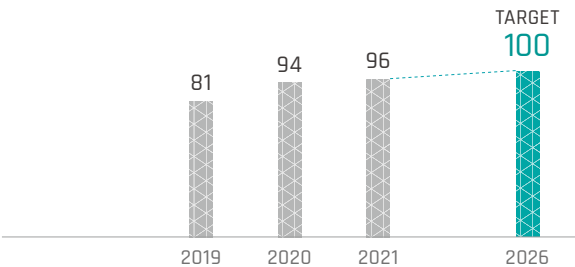
In order to ensure sustainable supply chain, the company has reinforced sustainability assessment on suppliers. In particular, we conduct sustainability assessment centered on critical suppliers and promote the enhancement of their sustainability competitiveness based on the results. In 2021, we provided on-site inspection and consulting support to four suppliers whose sustainability risks were identified, resulting in 100% mitigation of risks.

KPIs for Suppliers (Unit : %)

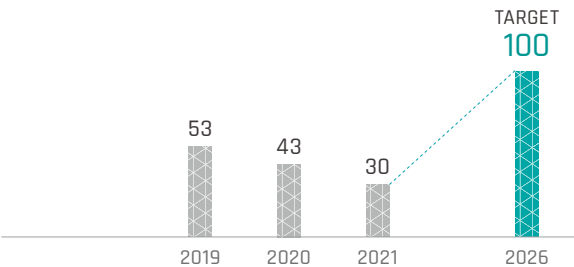
Risk mitigation rate of critical suppliers



ESG training completion rate of procurement staff



ESG-reflected procurement





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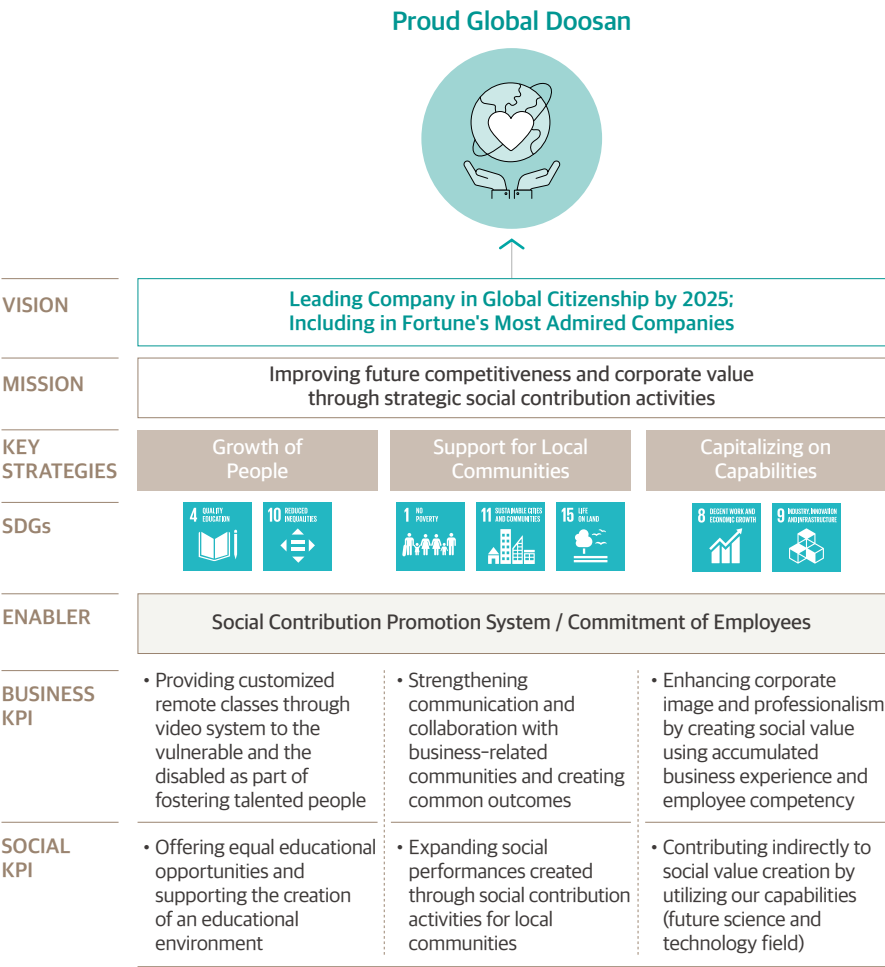
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Social Contribution

Doosan Corporation is conducting systematic social contribution activities to achieve its vision of becoming a “leading company in global citizenship by 2025.” In addition, we are promoting the advancement of social contribution activities to enhance corporate value and future competitiveness.

Social Contribution Strategy



Growth of People

Based on the belief of “commitment to people,” Doosan Corporation is contributing to nurturing talented people for the future society by supporting vulnerable groups (single mothers, people with disabilities, youth, etc.).

Mother's Future

Since 2013, we have covered the costs of vocational training designed to support single mothers' economic self-reliance. So far, a combined total of KRW 900 million has been paid to about 520 unmarried mothers willing to stand on their own, and we plan to continue providing diverse types of support.

Mental Healthcare for Families of Firefighters

The program, which has been in place for the past six years, aims to provide up to KRW 4 million a year for families of firefighters who have been killed or injured in the line of duty, or have taken their own lives to help them take care of their children until their preschool children graduate from elementary school. In addition, psychological tests and counseling programs are also available to those children and their primary care providers as necessary, and psychotherapy is also provided if long-term care is necessary.

Youth Start

Doosan Corporation provides aid to new students from less-privileged households who are entering college, which includes a scholarship fund and employee mentoring activities. Each year, we pay KRW 5 million each in scholarship funds to 20 students. In addition, regular scholarship student meetings are held to share information about school life, and various activities such as regular seminars and volunteering are provided.

Didim Seed

To support the financial and emotional self-reliance of children and adolescents leaving childcare facilities, we sponsor the Didim Seed Account and provide them with mentoring services by our employees. Since 2018, the company has been providing monthly support to about 300 children living in 12 child-rearing facilities located near our business sites. In recognition of these contributions, in 2021, we received a plaque of commendation from the Agency for the Rights of the Child and the Minister of Health and Welfare Award.



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Support for Local Communities

Doosan Corporation is committed to strengthening communication and cooperation with local communities through its business activities and promoting their future growth through its social contribution programs so that corporations and local communities can grow together.

Sharing the Tea of Love

Since 1991, we have been sending teas to military officers and soldiers to boost their moral and express appreciation for serving for the country. Specifically, we are sending coffee and monetary compensation to military men serving at the army bases with which we have set up a sister relationship.

Mugunghwa Planting Project

This project was first launched in 2016, starting with Nam Gung-uk Memorial in Hongcheon to let more people know about the beauty of our national flower. It has been extended to Mugunghwa Park in Gungjeong-dong, Seoul Botanical Garden, Jangseong Park in Jeonnam, and Seoul Olympic Park. This project provides an opportunity to remind citizens of the importance of the national flower, Mugunghwa. In addition, we are conducting activities to improve and preserve the varieties of Mugunghwa. In 2021, the Mugunghwa Garden of the Seoul Botanical Garden was awarded the Grand Prize in national flower-viewing spot.

Employee Engagement

Doosan Corporation spreads awareness about the value of social contribution internally, while also encouraging its employees to actively participate in social value creation as members of society.

Good Day to Donate Campaign

This campaign was prepared to encourage employees' voluntary donations to support disadvantaged college students and single mothers. Employees can feel the reward of sharing personal joy with the community by donating expenses they had originally planned to spend on treating their colleagues in celebration of family anniversaries, such as admissions, graduations, birthdays, and promotions.

Employee Donations

Our employees voluntarily participate in monthly donations, and the company raises a social contribution fund through the matching grant system. Since 2013, a fund of approximately KRW 200 million had been raised and used to support the vulnerable and local communities, and a new fund has been added from 2018. The accumulated amount raised by 2021 reached KRW 2.5 billion, and the use of this fund is transparently managed through the fund committee made up of employees.

Donation and Sponsorship Policy

Definition of Donation

- The company defines "donation" as an amount that it provides, without quid pro quo, to an individual, group or institution, regardless of whether it is called support payment or sponsorship"

Social Contribution Committee

- The company operates the Social Contribution Committee as a body to deliberate and decide on all matters related to donations. The Social Contribution Committee shall consist of Chairman of ESG Committee, Chief Financial Officer and Chief Legal Officer of the company, and it deliberates and decides on the purpose of use, donation destination, and amount for donations of more than KRW 10 million in a comprehensive manner.

Execution of Donations

- Donations shall be executed only under the following circumstances
  - 1) The associated laws and regulations must be observed
  - 2) Donations must be executed for those need support under the social common notion, or who engage in business for the purpose of promoting public interest such as shared growth in communities or addressing of social issues.
  - 3) Donations must be executed through an organization that is legitimately established.

Execution Duties

- 1) Execution of donations must comply with the Code of Conduct.
  - 2) All donations and sponsorship must be reported and approved according to the Business Approval Regulations before execution.
  - 3) Receipt of donations must be received from the donee and kept for a set period.

Disclosure

- Donations executed are disclosed to the public through the company's business report and ESG report.

Prevention of Risks

- The company prevents the following risks that may arise through the Social Contribution Committee.
  - 1) Ensure that corporate donations are not used as bribes.
  - 2) Check the legitimacy of new donation destination and evaluate their adequacy.
  - 3) Avoid donations and sponsorship risks that could be perceived as political donations.

2021 Social KPI of Social Contribution Activities by Doosan Corporation



- Providing a scholarship of KRW 5 million to 20 college entrants from underprivileged backgrounds annually for 2 years with mentoring services by employees, offering a range of social experience
- Supporting around KRW 3 million per person to around 30 single mothers every year for their economic independence
- Donating about KRW 250 million every year to support casual sports activities of annually selected classrooms and schools with developmental disabilities, for physical development and character-building (about 100 people)



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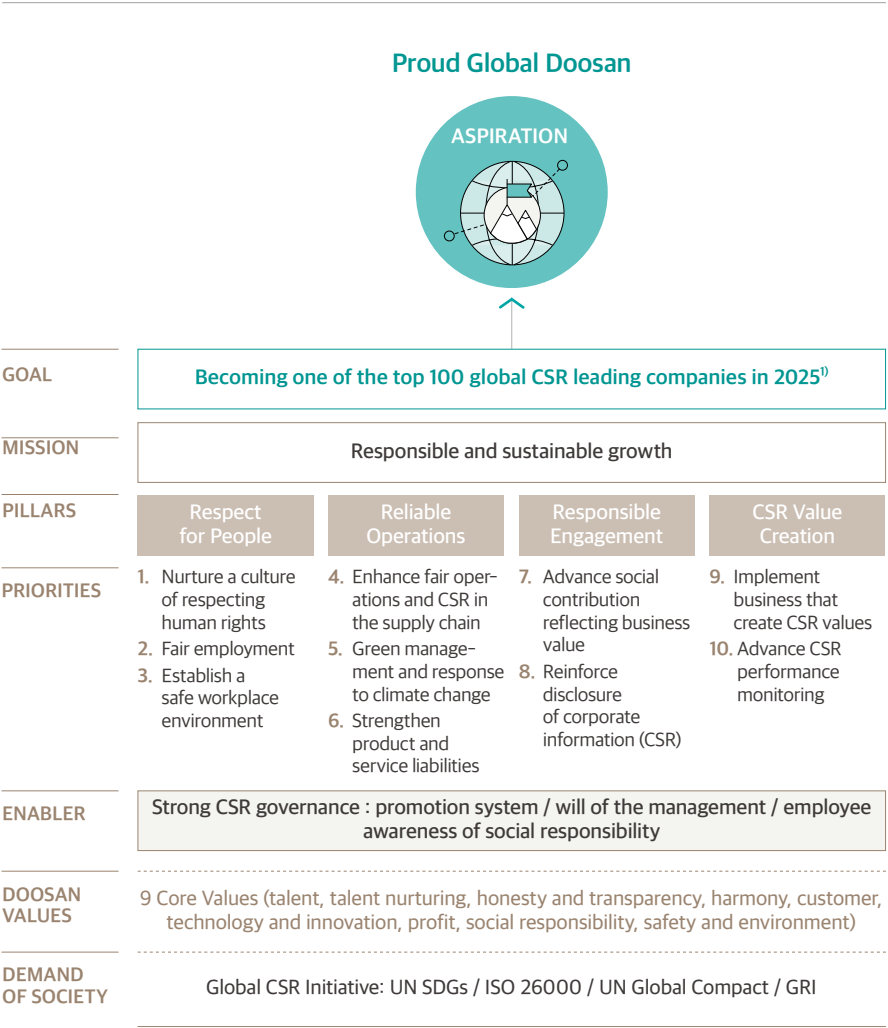
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ESG Governance



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

ESG Governance

Declaration of ESG Management

Doosan Corporation held the “ESG Management Promotion Kick-off Meeting” in 2021 and declared the first year of ESG management. The company will prepare a mid- to long-term roadmap for ESG management and promote ESG management strategies centered on core tasks, thereby internalizing the ability to realize social values.

Establishment of ESG Governance and Strategy

We reorganized the CSR Committee into the ESG Committee and established ESG governance structure to develop strategies for sustainable growth. The ESG Committee has three subcommittees for environment, society, and governance, respectively, and is responsible for discussing various ESG indices and issues and deciding on response strategies.

ESG Committee

The ESG Committee, the supreme decision-making body on ESG management, is held at least twice a year. The committee is chaired by the CEO and made up of the heads of BG/BUs and key directors in charge of different business domains. Main responsibilities include setting the direction of sustainability management, reviewing ESG management activities, and assessing outcomes of improvement tasks and future plans.

Subcommittees and Working Groups

As company performance for various ESG indicators requires attention, the need to adjust the existing subdivision and departmental roles has been raised in order to respond appropriately. Accordingly, Doosan Corporation formed 11 working groups under each ESG division, including green business, environmental efficiency, climate change, labor indicators, safety and health, supply chain ESG, social contribution, governance, ESG management, ethical management, and information security. We plan to establish mid- to long-term goals and KPIs for the company and manage key indicators from a long-term perspective.



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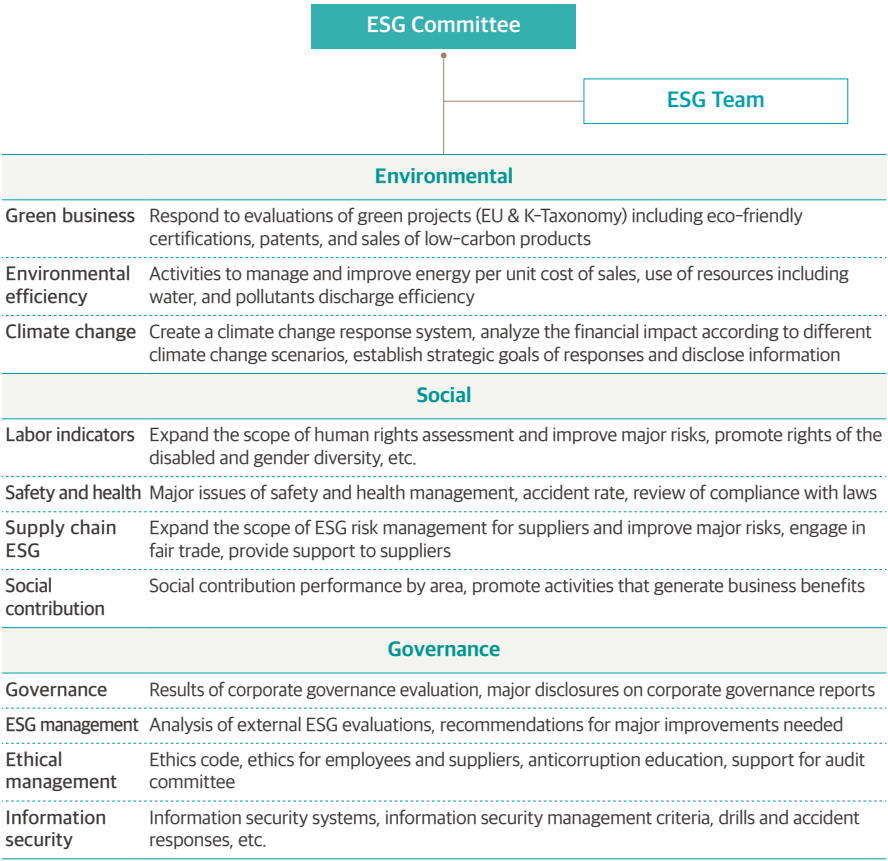
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ESG Committee Organization



ESG Steering Session by BG/BU

Steering sessions are held separately from other meetings to review and discuss, on a regular basis, ESG materiality indices for industries where individual BG/BUs operate, and key ESG issues that need to be examined closely, for decision-making. The sessions are chaired by the heads of BG/BUs, and officers and heads of related teams meet to discuss issues on a quarterly basis. BG/BU ESG Committees will meet to discuss their roadmap and ESG vision. The outcomes will be reported to the ESG Committee.

Major ESG Activities

ESG-dedicated Organization

We operate a dedicated organization to perform ESG management more effectively. The organization conducts Doosan's own sustainability assessment to identify economic, environmental, and social risks and opportunities, and based on the results, derives and manages improvement tasks for each division and BG/BU. In addition, the organization establishes the company-wide ESG operation direction, identifies ESG trends, and spreads them to the management and departments.

Communication on ESG Performances

In order to transparently disclose and communicate ESG management performance and plans to stakeholders, Doosan Corporation has published the ESG Report every year and posted it on corporate website. The company has been responding to the DJSI assessment, which comprehensively evaluates financial, social and environmental performance. We have been included in the CJSI Asia Pacific category, where only the top 20% of Asian companies are selected, for 8 years in a row, and in the Sustainability Yearbook, where S&P Global, the organizer, selects excellent companies by industry for 3 consecutive years.

In addition, we have acquired Grade A or higher in the ESG evaluation hosted by KCGS since 2011, and obtained Grade AA, which is given only to the top 11% in the ESG evaluation of Sustainvest, used for ESG investment decisions by pension funds and other key domestic funds. Since 2019, the performance of social value measurement at the company and product level has been disclosed through the report every year.

Thanks to these efforts, our ESG report was awarded in the Innovation in Reporting category of the CRRA (Corporate Register Reporting Awards) in 2021. It also won the Platinum Prize and Best Narrative Prize at the Spotlight Awards hosted by the League of American Communications Professionals (LACP).

ESG Performances

Classification	2019	2020	2021
DJSI	Included in DJSI Asia Pacific / Korea for 8 consecutive years		
	Listed in Sustainability Yearbook for 3 consecutive years		
KCGS	A	A+	A



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Collection of Stakeholders' Opinions

Category for Stakeholders

Doosan Corporation classifies stakeholder groups who directly and indirectly influence the company's business activities into shareholders and investors, customers, employees, business partners, local communities, and the government. We are proactive in listening to their voices through diverse channels and reflecting them in management activities.

Stakeholder Communication Channels

Stakeholder	Local communities	Government	Suppliers	Customers	Shareholders & investors	Employees
Major issues	<ul style="list-style-type: none"><li>Regular listening to community opinions</li><li>Supporting the growth of local communities around business sites</li></ul>	<ul style="list-style-type: none"><li>Compliance with laws and regulations</li><li>Public-private partnership</li></ul>	<ul style="list-style-type: none"><li>Supporting suppliers' competitiveness enhancement</li><li>Expanding information sharing</li></ul>	<ul style="list-style-type: none"><li>Customer complaints handling and customer satisfaction enhancement</li><li>Product quality improvement and higher responsibility</li></ul>	<ul style="list-style-type: none"><li>Participating in decision making at shareholders' meeting</li><li>Healthy corporate governance</li></ul>	<ul style="list-style-type: none"><li>Improvement of job satisfaction and welfare</li><li>Promoting inter-organization communication</li><li>Building win-win labor-management relations</li></ul>
Communication channels	<ul style="list-style-type: none"><li>Social contribution activities</li><li>Meeting with local communities</li><li>Sisterhood and partnership</li></ul>	<ul style="list-style-type: none"><li>Participation in national projects</li><li>Partnerships with the government and public institutions</li></ul>	<ul style="list-style-type: none"><li>Association meeting</li><li>Help Desk</li><li>Technology exchange</li></ul>	<ul style="list-style-type: none"><li>VOC</li><li>Customer satisfaction survey</li></ul>	<ul style="list-style-type: none"><li>Shareholders' meeting</li><li>Investor relations</li><li>Disclosure</li><li>Website</li></ul>	<ul style="list-style-type: none"><li>Employee survey</li><li>Intranet</li><li>Corporate magazine</li><li>Labor-management council</li></ul>

Materiality Assessment

Doosan Corporation conducts a materiality assessment every year to identify sustainability management issues that stakeholders consider important in terms of economy, environment, and society.

Double Materiality Assessment

The global ESG initiatives including the CSRD<sup>1)</sup> of EU and GRI, have introduced the concept of double materiality in order to upgrade the sustainability reporting standards. We conducted a double materiality assessment to preemptively respond to this trend and to derive more reliable core issues.

1) CSRD(Corporate Sustainability Reporting Directive): EU sustainability reporting standards

Activation of Stakeholder Communication

The company is diversifying communication channels to effectively reflect the needs of stakeholders in its business activities. The results are published annually through the ESG report. In addition, we conduct an annual materiality assessment to identify sustainability issues that are deemed critical to stakeholders.

The Concept of Double Materiality

It refers to a materiality assessment that considers both the internal and external perspectives, that is, the external impact of business activities, along with external sustainability-related environmental and social factors that affect the financial performance of a company.

Social & environmental significance

The degree of positive and negative impacts that a company's business activities can have on society and the environment from an external point of view

Key stakeholders: Customers, local communities, employees, and investors



Business impact on stakeholders

External impact on the company

Financial significance

The degree of positive and negative impact that external sustainability-related factors can have on a company's financial position from an internal point of view

Key stakeholders: Investors



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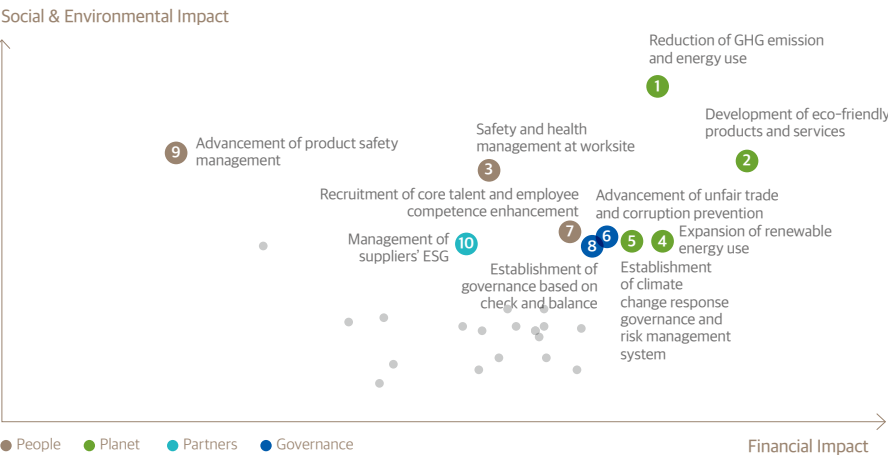
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Double Materiality Assessment Process

The double materiality assessment was conducted in a five-step process: ① organizing a pool consisting of ESG issues, ② social and environmental impact analysis, ③ financial impact analysis, ④ core issues identification, and ⑤ issue reporting. A pool of 32 issues was formed through analysis of previous year's issues, review of ESG-related global reporting initiatives (GRI Standards, SASB, DJSI, MSCI, SDGs, TCFD, and CDP), media research, and benchmarking of global peer groups. Analysis of social and environmental impacts was centered on the results of stakeholder survey, global initiative review, media research, and benchmarking, while financial impact analysis was conducted by analyzing global evaluation agencies' indices, surveying employees, and reviewing investor inquiry. And then, we identified core issues centered on 3P (People, Planet, Partners) concept, i.e., an ESG disclosure guideline of Doosan Corporation, after comprehensively considering social, environmental, and financial impacts and prioritizing them.

Key ESG Issue Matrix



Key ESG Issues in 2021

People	Safety and health management at worksite	Recruitment of core talent and employee competence enhancement	Advancement of product safety management	
Planet	Reduction of GHG emission and energy use	Development of eco-friendly products and services	Expansion of renewable energy use	Establishment of climate change response governance and risk management system
Partners	Management of suppliers' ESG			
Governance	Advancement of unfair trade and corruption prevention		Establishment of governance based on check and balance	



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Report on Core Issues

Core issues selected through the double materiality assessment are disclosed in detail through the ESG report. The contents are systematically described in three categories, People, Planet, and Partners, which are Doosan Corporation's disclosure guidelines.

Category	Issue	Business relevance	Stakeholder	Page
People	Safety and health management at worksite	In a rapidly changing market environment and intensifying competition, a company's competitiveness starts with its employees with expertise. Nurturing key talent and realizing a safe work environment is a major challenge for corporate sustainability. In addition, product safety management is directly related to customer trust and can have a critical financial impact. Therefore, it is necessary to promote active product safety management with our own standards that are stricter than the level required by customers.	Employees, customers	24, 44-45
	Recruitment of core talent and employee competence enhancement			21-23, 47-51
	Advancement of product safety management			46
Planet	Reduction of GHG emission and energy use	As climate change issues have recently emerged, various stakeholders such as the government, investors, and customers are demanding that companies actively respond to climate change. Therefore, it is becoming an important driving force for companies to minimize not only energy use but also environmental impacts from all business activities including products and services and to establish an effective climate change response system.	Government, shareholders & investors, suppliers, local communities	26-28
	Development of eco-friendly products and services			29-30, 42
	Expansion of renewable energy use			26-28, 30
	Establishment of climate change response governance and risk management system			26-28
Partners	Management of supply chain ESG	As ESG management is becoming more important, as leading global companies are expanding the scope of ESG management throughout the value chain. It is also necessary for Doosan Corporation to raise the sustainability level in the supply chain to the level of the company.	Suppliers	32-34, 52-54
Governance	Advancement of unfair trade and corruption prevention	Ethical management and balanced governance are basic elements that enable corporate sustainability management and social responsibility. In order to maintain trust from the market and business partners, it is essential to upgrade the system for preventing unethical behavior and establish ethical management as an organizational culture. In addition, to ensure the check function and balanced decision-making of the BOD, efforts to strengthen the independence of the BOD should be continued.	Shareholders & investors, employees, suppliers	70-73
	Establishment of governance based on check and balance			62-64



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Governance

Transparency in Governance

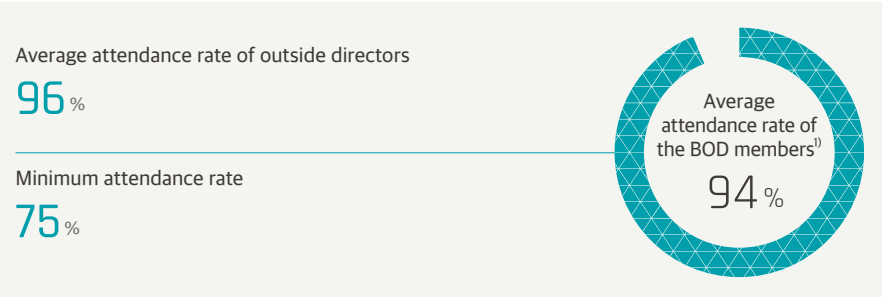
The Board of Directors (BOD) deliberates and make decisions not only on major business agendas of the company, but also matters stipulated by laws or the articles of incorporation, matters delegated by the general shareholders' meeting, and important agendas related to the company's basic management policies and business execution. Doosan Corporation selects professionals who can objectively supervise corporate management from an external perspective as Outside Directors. As of the end of 2021, the BOD consists of 3 inside directors and 4 outside directors and operates the Audit Committee, Internal Transaction Committee, and Outside Director Candidate Recommendation Committee, which consist only of outside directors. The average tenure of directors is 5.8 years.

BOD Operation

Doosan Corporation faithfully conducts our deliberation process through the BOD, to reach an agreement on key agenda and reflecting shareholder opinions in the decision-making process. In accordance with laws and regulations, all directors are allowed to participate in resolutions through communication means that transmit and receive voice at the same time, and in this case, they are recognized as having attended the board of directors meeting. The BOD can convoke preliminary meetings when necessary and delegate some of the authority to subcommittees to make quick and efficient decisions. The subcommittees carefully review and handle delegated agendas, and the contents and results are reported to the BOD.

Convocation and resolution of the BOD are usually made with the attendance of a majority of all directors and the approval of a majority of the directors present. Directors cannot vote by proxy, and any director with personal interest in certain agenda items cannot vote when that agenda is raised for voting. In 2021, the BOD meeting was held 14 times and the average attendance rate of directors reached 94%, while that of outside directors was 96%.

Attendance Rate



1) Excluding directors whose term in office has expired as of the end of December 2021

Independence of the BOD

We secure the independence of the BOD by keeping the ratio of outside directors over 50%, which enables the BOD to make a balanced and objective decision while activating the check function. In addition, the voting rights of directors who have an interest in a specific issue are restricted. The BOD operates three subcommittees, including the Audit Committee, and each committee is made up of outside directors to ensure independence and transparency in decision-making. In particular, the Audit Committee has the right to request reports on business status or to investigate corporate financial conditions for smooth auditing. In addition, the committee may request that executives and external auditors attend the meeting if necessary and receive advice from external experts at the company's expense.

Director Appointment Procedure and Criteria

Directors are appointed and re-elected at the general shareholders' meeting on an annual basis, and agendas for the appointment of directors are decided separately. Appointment is made with the consent of a majority of the voting rights of the shareholders present in a situation in which at least a quarter of the total number of issued stocks has participated.

As for inside directors, the Internal Succession Committee recommends suitable candidates to the BOD, and the BOD comprehensively reviews their qualification and submits the final candidates to the general shareholders' meeting.

The appointment of outside directors is conducted in accordance with the strict requirements of laws and internal regulations so that the BOD can faithfully perform the role of checks and balances. First, the Outside Director Candidate Recommendation Advisory Group, composed of three independent external experts, recommends twice as many candidates to the Outside Director Candidate Recommendation Committee. The Outside Director Candidate Recommendation Committee, which consists of three outside directors, selects candidates suitable for establishing transparent corporate governance and enhancing the professionalism of the BOD among them and requests approval from the general shareholders' meeting.



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Major Resolutions

The BOD approves key management issues, including the disposal or transfer of important assets and large-scale borrowings in accordance with laws and internal regulations. In 2021, the BOD deliberated and resolved 45 agendas including the 84th financial statements and business report. Details are transparently disclosed through the business report.

Diversity of Outside Directors

Doosan Corporation does not discriminate based on gender, race, national origin, etc. when appointing outside directors. Jeffrey D. Jones and James B. Bemowski had served as outside directors from 2004 to 2010 and as the CEO from 2007 to 2010, respectively. Myeong-ja Kim had also served as a female outside director from 2009 to 2012. Currently, there are no foreign or female directors in the BOD, but the company is continuing its efforts to enhance professionalism and diversity. The incumbent outside directors have expertise in the following fields: Hyoung-joo Kim in IT, Doo-hee Lee in business administration and marketing, Kyung-wook Huh in finance, and Woong-geol Yoon in laws.

Hyung-Joo Kim has served as the dean of the Department of Computer Science and Engineering at Seoul National University, the representative of the Korea Education Network (KREN) operation headquarters, the head of the information technology division at Seoul National University (CIO), and the president of the Central Computerization Center of Seoul National University. Currently, he is a professor in Computer Science and Engineering of Seoul National University.

Doo-hee Lee has various experiences and knowledge by working as a professor of business administration at Korea University, head of the Planning Division of the National Brand Committee, an advisory member of the Fair Trade Commission, the Ministry of Construction and Transportation and the Ministry of Commerce, Industry and Energy, and an outside director of domestic leading companies. Kyung-wook Huh has a wealth of experience and related knowledge in the international economy, Korean economy, and international finance by serving as an advisory member of AMRO (Asian Macroeconomic Research Institute) in Singapore, advisory chair of the Korea CFA Association, and president of Brettonwoods club in Korea. Currently, he is working as an advisor at the BAE, KIM & LEE LLC. Woong-geol Yoon served as the head of the Planning and Coordination Office of the Supreme Prosecutors' Office and the chief prosecutor of the District Prosecutor's Office, and currently is working as a representative attorney at Pyeongsan Law Firm. He demonstrates rich experience and knowledge in legal affairs planning, institutional improvement, and administrative management of prosecutors.

Features of the BOD

Transparency

- All directors are appointed by the resolution at the general shareholders' meeting.
- Inside director candidates are recommended by the BOD. Outside director candidates are recommended by the Outside Director Candidate Recommendation Committee consisting of three outside directors after the screening by the Outside Director Candidate Recommendation Advisory Group consisting of three outside experts.
- The Audit Committee, Internal Transaction Committee, and Outside Director Candidate Recommendation Committee are operated under the BOD and each committee is composed of only outside directors.

Independence

- Outside directors make up a majority of the BOD.
- The same type of business as the company cannot be conducted without the approval of the board of directors.
- In accordance with the articles of incorporation and the BOD rule, the BOD Chairman is appointed among directors by the resolution of the BOD.
- When voting on an agenda, the exercise of voting rights of directors with special interests is restricted.
- The following persons may not be appointed as outside directors:
  - A person engaged in the business of a company
  - A person who is the largest shareholder of the company or a person with an important interest
  - A person who has served in a company, parent company or subsidiary within the last two years
  - A person whose spouse or direct descendant has served as an executive of a company
  - A person who has served in the company's major clients and partners within the last two years

Professionalism and diversity

- Those with extensive expertise or experience in each field are recommended as candidates for outside directors. Currently, outside directors are experts in IT, management, finance, international finance, and law.
- We provide outside directors with trainings.
- We do not discriminate against gender, race, age, religion, region of origin or nationality in the process of recommending candidates, and we recommend and appoint them in consideration of diversity.



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Evaluation and Compensation

Directors' compensation is determined within the director compensation limit approved by the general shareholders' meeting. Only basic fixed wages are paid to outside directors, but compensation consisting of salaries, performance-based bonuses, and severance pay is paid fairly and transparently to inside directors and disclosed in accordance with relevant laws.

Stakeholder Communication

The BOD is proactive in communicating with stakeholders through diverse channels, including disclosure and IR activities. In addition, decisions made at a general shareholders' meeting and important business decisions are promptly disclosed in an effort to provide shareholders and stakeholders with business information in a timely manner.

BOD Members (as of May 31, 2022)

Classifi- cation	Name	Major career	Duties	Appoint- ment date <sup>1)</sup>	Term of service	Gender
Inside Director	Jeong- won Park	• (Current) Chairman of Doosan Corporation	CEO, BOD Chairman	2000	22 years	Male
	Min-chul Kim	• (Current) President of Doosan Corporation	CEO	2018	4 years	Male
	Hong- sung Moon	• (Current) President of Doosan Corporation	CEO	2022	-	Male
Outside Director	Hyoung- joo Kim	• (Current) Professor in Business Administration, Korea University	Audit Committee Internal Transaction Committee	2017	5 years	Male
	Doo-hee Lee	• (Current) Professor in Business Administration, Korea University	Audit Committee Internal Transaction Committee Chairperson of the Outside Director Candidate Recommendation Committee	2018	4 years	Male
	Kyung- wook Huh	• (Current) Advisor, Pacific Law Firm	Chairman of the Audit Committee Outside Director Candidate Recommendation Committee	2022	-	Male
	Woong- geol Yoon	• (Current) Attorney at Pyeongsan Law Firm	Audit Committee Chairperson of the Internal Transaction Committee Outside Director Candidate Recommendation Committee	2022	-	Male

1) In case of re-appointment, the initial appoint date was inscribed

Subcommittees

Subcommittee	Members	Roles	Activities
Audit Committee	Kyung-wook Huh (Chairman), Doo-hee Lee, Hyoung-joo Kim, Woong-geol Yoon	Audit on the company's accounting and business	Review of financial statements, audit on internal accounting management system, etc.
Internal Transaction Committee	Woong-geol Yoon (Chairman), Doo-hee Lee, Hyoung-joo Kim	Internal transaction review and approval under the Fair Trade Act	Approval of transactions with affiliates, etc.
Outside Director Candidate Recommendation Committee	Doo-hee Lee (Chairman), Kyung-wook Huh, Woong-geol Yoon	Recommendation of outside directors	Recommendation of outside directors, etc.

Appointment and Change of Directors (From Jan. 1, 2020 to May 31, 2022)

Classifi- cation	Name	Date of ap- pointment	Date of expiration (E)	Date of change	Reason	Tenure
Inside Director	Jeong-won Park	Mar. 24, 2000	At the end of general shareholders' meeting in 2024	Mar. 30, 2021	Reappoint- ment	In office
	Min-chul Kim	Mar. 30, 2018	At the end of general shareholders' meeting in 2024	Mar. 30, 2021	Reappoint- ment	In office
	Hong-sung Moon	Mar. 29, 2022	At the end of general shareholders' meeting in 2025	Mar. 29, 2022	New ap- pointment	In office
	Hyun-soo Dong	Mar. 30, 2018	Mar. 30, 2021	Mar. 30, 2021	Expiration	Retire- ment
	Sang-chul Gwak	Mar. 30, 2021	At the end of general shareholders' meeting in 2024	Mar. 29, 2022	Resignation	Retire- ment
	Hyoung- joo Kim	Mar. 31, 2017	At the end of general shareholders' meeting in 2023	Mar. 30, 2020	Reappoint- ment	In office
Outside Director	Doo-hee Lee	Mar. 30, 2018	At the end of general shareholders' meeting in 2024	Mar. 30, 2021	Reappoint- ment	In office
	Kyung- wook Huh	Mar. 29, 2022	At the end of general shareholders' meeting in 2025	Mar. 29, 2022	New ap- pointment	In office
	Woong- geol Yoon	Mar. 29, 2022	At the end of general shareholders' meeting in 2025	Mar. 29, 2022	New ap- pointment	In office
	Sung-gwan Chun	Mar. 29, 2019	Mar. 29, 2019	Mar. 29, 2022	Expiration	Retire- ment
	Bok-hyeon Baik	Mar. 29, 2019	Mar. 29, 2019	Mar. 22, 2022	Resignation	Retire- ment



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Risk Management

Doosan Corporation carries out risk management for all business activities at all its worksites across the globe. Risks are classified into financial and non-financial categories for more systematic enterprise-wide risk management.

Risk Management System

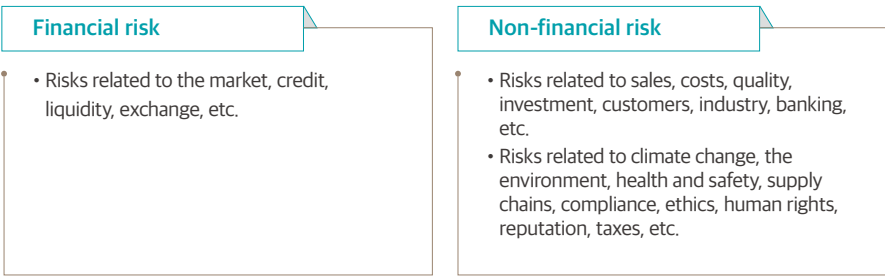
Financial Risk Management

We manage financial risks in advance, such as market, credit, liquidity, and foreign exchange risks, in order to create stable and sustainable business performance. In particular, the company focuses on improving financial structure and capital operation by establishing financial risk management policy in collaboration with related departments and then identifying, evaluating, and hedging financial risks. Regular monitoring is also conducted to minimize potential financial risks.

Non-financial Risk Management

Non-financial risks are managed in the aspects of business and sustainability. Business risks are managed by the Strategy Team of each BG/BU, while sustainability risks are controlled by the ESG Team of Corporate Center which oversees all BGs/BUs in collaboration with relevant departments. The ESG Committee is convened twice a year, in which the CEO, heads of BGs/BUs, and department executives participate. The committee reviews ESG risks, related activities and performances, thereby identifying and managing improvement factors.

Risk Management System



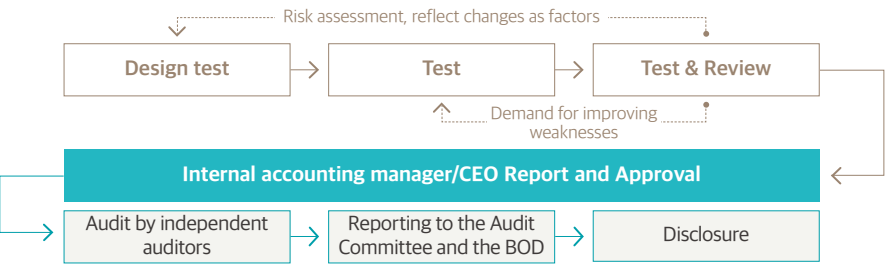
Internal Control System

Doosan Corporation operates an internal control system to secure the transparency and reliability of financial information. In 2018, in response to the tightened "Act on External Audit of Corporations," we conducted a complete redesign of the independent auditor selection and internal accounting management systems, thereby further strengthened accounting transparency and risk control capabilities.

Doosan Internal Control Assessment System (DICAS) includes not only accounting-related risks, but also risks such as non-compliance with business processes and information errors and distortions in management items and is used for evaluation of all business areas such as finance, sales, purchasing, and inventory. All of Doosan's BGs/BUs conduct assessment twice a year and subsequently have the assessment results certified by outside auditors for assurance. The results are reported first to the CEO and then the Audit Committee and the Board and finally to the general shareholders' meeting according to the Internal Accounting Management System and Act on External Audit of Stock Companies.

In 2021, Doosan Corporation composed a management system to diagnose/evaluate corruption risk level by BG and to identify the initial signs of risks before they occur by defining core risks that affect the overall company. Doosan Corporation completed an upgrade of its internal accounting management system by reflecting internal and external changes in the DICAS. Doosan Corporation is strengthening its internal control assessment systems not only in Korea but also at overseas businesses. In 2022, Doosan plans to create an internal accounting management system based on the consolidated financial statements and redesign the accounting systems for overseas subsidiaries in order to keep them abreast of the domestic systems. This way, local risks can be proactively identified and dealt with and further enhance the transparency and reliability of financial information.

Internal Control Assessment Procedure and Authorization Structure





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Emerging Risk

Emerging risks entail risks with high uncertainty that can occur over the long term. These emerging risks must be identified and managed pre-emptively, as they can have a significant impact on business. We have put in place an emerging risks management system to increase our long-term business stability. For this, we have analyzed the political, economic, social, technological, legal, regulatory, and environmental factors of the macro environment that affects our businesses in order to identify emerging risks facing us. In addition, we analyzed when emerging risks can possibly arise and how they may affect our businesses. Based on the analysis, those risks have been prioritized and a risk mitigation plan is being implemented while the risks are constantly monitored.

Emerging Risk Impacts and Mitigation Activities

Category	Changes in technology	Market fluctuations	Procurement of raw materials	Climate change, environment, and laws
Major emerging risks	<div></div> <ul style="list-style-type: none"><li>Market changes due to new technology trends</li></ul>	<ul style="list-style-type: none"><li>Sluggish global economy and slowing growth in existing flagship markets</li><li>Intensifying price competition due to oversupply and emergence of new competitive factors</li></ul>	<ul style="list-style-type: none"><li>Imbalance in the supply and demand of imported raw materials due to export restrictions from protectionist industry policies</li><li>Increase in raw materials prices due to unstable supply</li></ul>	<ul style="list-style-type: none"><li>Tightening environmental regulations</li><li>Depletion of fossil fuels and unstable supply</li><li>Changes in laws related to business, product, and technology</li></ul>
Potential impacts on business	<div></div> <ul style="list-style-type: none"><li>Weakening market competitiveness due to failure in seizing new growth opportunities in a timely manner</li></ul>	<ul style="list-style-type: none"><li>Decrease in sales of existing flagship products</li><li>Decrease in profitability due to intensifying price and purchasing competition</li><li>Decrease in market share</li></ul>	<ul style="list-style-type: none"><li>Production disruption due to shortage of raw materials</li><li>Customer dissatisfaction and corporate image damage due to supply delay</li><li>Cost increase and yield decrease due to rising raw material prices</li></ul>	<ul style="list-style-type: none"><li>Loss of market opportunity due to failure to respond to environmental regulations</li><li>Loss of product utility value due to depletion of fossil fuels and unstable supply</li><li>Impossible to develop products and technologies or continue business due to changes in laws</li></ul>
Risk mitigation activities	<div></div> <ul style="list-style-type: none"><li>Analysis of market opportunities in response to technological changes</li><li>Establishment of new product and new technology development roadmap reflecting the latest trends</li></ul>	<ul style="list-style-type: none"><li>Reorganization of portfolio centered on high-performance and high value-added products</li><li>Business expansion outside of existing business scope to provide a total solution</li><li>Sales expansion to overseas and emerging markets</li></ul>	<ul style="list-style-type: none"><li>Diversification of raw materials purchasing channels</li><li>Strategic inventory of essential raw materials and adjustment of product prices</li></ul>	<ul style="list-style-type: none"><li>Upgrade of new product and new technology development roadmap considering environment</li><li>Promotion of product innovation using alternative energies</li><li>Continuous monitoring of laws related to business, products, and technologies</li></ul>



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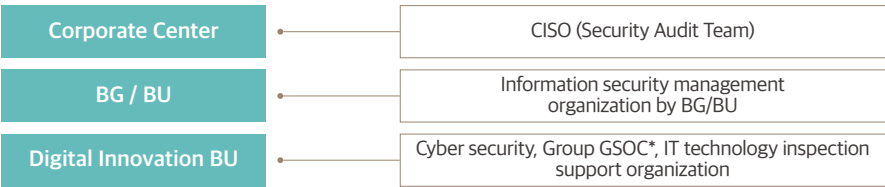
Information Security

Establishment of an Information Security System

Information Security Management System

To systematically manage information security, Doosan Corporation appointed the Chief Information Security Officer (CISO) with executive-level work authority and responsibilities through the approval of the board of directors in 2019. The CISO cooperates with the information security organization of each BG/BU to carry out activities such as information security policy, risk prevention, and compliance response, and report the results to the management.

Information Security Organization



\* GSOC (Global Security Operations Center): Real-time control and response to security threats from all affiliates at home and abroad

Enhancement of Information Security Operation System

Doosan Corporation acquired the nationally recognized Information Security Management System (ISMS) certification in 2013 to protect major information assets and information and communication networks and has maintained the certification through annual audits. In addition, we have held the "Security Diagnosis Day" event to make information protection a daily life and prevent security accidents. We also disseminate security regulations, accident prevention system, and major cases across the company through e-learning, newsletter, awareness activities about information security, and mock trainings every year.

Security Diagnosis Day Checklist

Security Diagnosis Day		
Security diagnosis and measures	PC/VDI/Daily security	Personal
	Information system	Department
	Trade secrets/documents	
	Facilities/regions/entry	Security officer
	Intensive security management	
Enhancement of awareness	Security newsletter	



PC screen saver that informs information security

Recently, cyber threats are increasing across countries, economies, and businesses, and the scope of damage is expanding. Accordingly, Doosan Corporation added a next-generation IT security defense system to the existing cyber security system. In addition, we have built a Global SOC (Security Operations Center) service that can detect, analyze, and respond to cyber intrusion attempts together with a global security company, thereby establishing an advanced cyber security management system that enables 24-hour real-time monitoring, big data/AI analysis, and response through automation platform.

Next-generation IT Security Defense System

EDR (Endpoint Detection and Response)	Threat detection and response solutions for server systems, PCs, etc.
MDR (Managed Detection and Response)	EDR threat management and response service
NDR (Network Detection and Response)	Network threat detection and response solutions
SOAR (Security Orchestration, Automation and Response)	Security process automation response solution
Others	PAM <sup>1)</sup> , MFA <sup>2)</sup> , e-mail phishing attack response, etc.

1) PAM: Privileged Access Management  
2) MFA: Multi-factor Authentication



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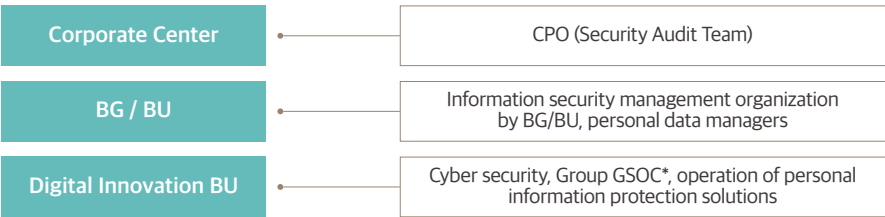
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Establishment of Personal Information Protection System

Personal Information Protection Management System

Doosan Corporation has appointed the Chief Privacy Officer (CPO) to systematically manage customers' personal information and to comply with domestic and international personal information protection laws. The CPO continuously monitors the privacy policy, enactment of laws, and changes in collaboration with the organization in charge of personal information protection of each BG/BU. The monitoring results are reflected in the internal management plan and personal information protection regulations and are delivered to the organization in charge and employees who handle personal information.

Personal Information Protection Organization



\* GSOC (Global Security Operations Center): Real-time control and response to security threats from all affiliates at home and abroad

Enhancement of the Personal Information Protection System

We apply a strong personal information protection policy by each stage of the life cycle, and we block the risk of personal information leakage in advance through professional training and campaigns. In addition, we analyze, check, and audit the operation results of personal information handlers and personal information processing systems every year and actively improve vulnerabilities.

Personal Information Protection Management Process





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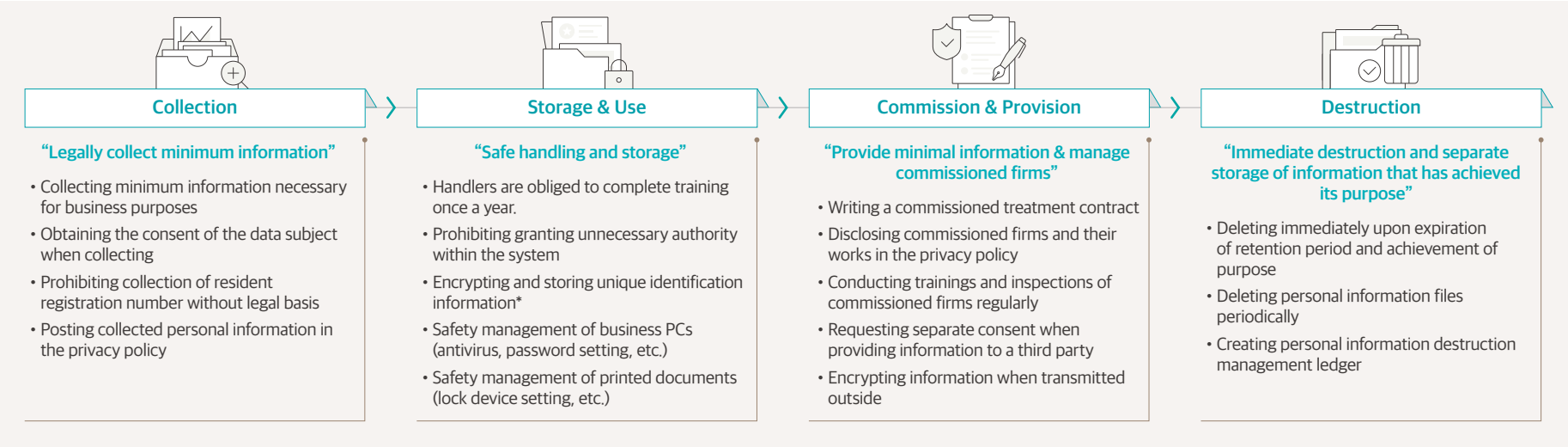
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To raise the awareness of customer information protection, all employees receive e-learning trainings, and personal information managers, handlers, and commissioned firms receive additional specialized trainings. The organization in charge of personal information conducts mock training in preparation for the occurrence of personal information leakage accidents.

In addition, Doosan Corporation provides information protection-related newsletters, key guidelines, and trainings to consignees who handle personal information so that the level of personal information protection can be continuously improved. As a result of these efforts, the company has not received administrative sanctions for violating laws from government agencies due to loss of customer data and leakage of personal information for the past 8 years. Meanwhile, as required by the Personal Information Protection Act, we are insured for damages so that appropriate relief can be provided in the event of a personal information leakage accident.

Information Protection Checklist



\* Unique identification information: resident registration number, passport number, driver's license number, foreigner registration number



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## Anti-corruption, Ethical Management, and Fair Trade

### Anti-Corruption and Ethical Management

#### Doosan's Code of Conduct

Doosan Corporation established the code of conduct for all employees to follow to ensure transparency in its business activities and fulfill its social responsibility. It contains our core values of harmony, customer-centered business, innovation, fair competition, and social contribution. We encourage suppliers as well as all employees to comply with the code of conduct. In addition, we have prepared detailed regulations to ensure that employees understand and comply with the code of ethics in daily lives. When employees find a behavior that violates or is likely to violate the code of ethics, they can report it according to the procedures and regulations of each company.



#### Anti-corruption Ethics Education

We conduct ethics training every year to strengthen the ethical awareness of our employees and receive a pledge to comply with the code of conduct. In 2021, collective and online educations were offered to newly hired employees and expatriates. For overseas subsidiaries, training programs in the local language were provided.

In addition, we regularly provide training on ethics and competency enhancement for each business function (purchase, inventory, etc.) to employees of new business divisions. Education on the code of conduct is provided throughout the year to external stakeholders by utilizing diverse channels including the general meeting of suppliers and discussion meetings. Doosan Corporation will continue to share its commitment to ethics management with as many stakeholders as possible.

#### Corruption Risk Management System

Doosan introduced a corruption risk management program in 2019 and has assessed the corruption risk of each BG/BU every year. The level of compliance management has been strengthened through comprehensive consideration of the possibility of occurrence and business impact of corruption items and the preparation of improvement plans for vulnerable areas. In 2021, we established a system that can catch signs of risks before they occur by defining major risks that affect the company and providing elements to be managed by position, such as team members, team leaders, and executives. In 2022, we plan to prepare objective evaluation standards for each major corruption risk item and provide them to business units with insufficient risk management capabilities to enable self-management and advance awareness of risk occurrence.

#### Anti-Corruption Survey of Suppliers and Employees

Each year, Doosan Corporation conducts a survey on its employees and suppliers to review ethics management status. In 2021, 780 employees and 140 suppliers responded to the survey. The survey findings were used to assess the status of ethics management, come up with anti-corruption measures, and find ways to cope with weaknesses. Furthermore, we carried out activities for improving leader awareness (spreading cases of social issues, etc.), delivering ethics letters (special days, such as traditional holidays), and opening a supplier communication channel (hotline), to ensure that our ethical business policies are reflected throughout the value chain.

#### Whistleblowing System

Doosan Corporation operates the whistleblowing system to establish a transparent and fair ethical management system. Whistleblowing system is open to all employees and stakeholders, and the subjects are violations of laws, Doosan Credo, code of conduct, internal regulations, and other unfair acts. The identity of whistleblowers and the details of the report are kept strictly confidential, and a whistleblower in good faith shall not be subjected to any disadvantages. In addition, we operate a cyber report center on the company website to receive reports in real names or anonymously.



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Violations of Ethics Management and Follow-up Actions

In 2021, 7 reports were received – four quality and communication cases, two code of conduct violation cases, and another case. In case of violation of the code of conduct, precautions and warnings were taken. In accordance with the "Personal Information Protection Guide" of the Ministry of Employment and Labor, Doosan Corporation transparently discloses cases of unethical behavior of its members, excluding personal information, through publication of white papers, dissemination of ethics education cases, and sending of ethical management letters to prevent recurrence of similar cases.

Self-diagnosis of Ethical Level Based on FKI Business Ethics Index

Doosan Corporation has been conducting ethical management diagnosis using the ‘FKI business Ethics Index’ since 2020 in order to understand the level of ethical management practice and to make up for deficiencies. It consists of 65 indicators that evaluate ethical management promotion strategies, ethical standards and guidelines, promotion organizations and systems, and ethical education and communication. As a result of the self-diagnosis in 2020, we obtained “Good” grade and prioritized improvement plans for the four indicators evaluated as weak. In the self-diagnosis in 2021, the score for all four indicators improved, resulting in obtaining “Excellent” grade. In 2022, we plan to conduct a third-party evaluation to measure improvement effects more objectively.

Improvement of Evaluation Indicators in 2021 Compared to 2020

Large category	Middle category	Evaluation indicator	2020 <sup>1)</sup>	2021 <sup>1)</sup>	Improvement
1. Willi to practice the code of conduct and strategy	Ethical management as a corporate philosophy	1-6. Our company recognizes ethical management as a major management strategy to strengthen the company's continuous growth and competitiveness.	3	4	Every year, the “survey on ethical management level” is conducted for all employees of our BGs/BUs. Among the questionnaire items, the score of “The company recognizes ethical management as a major management strategy to strengthen the company's continuous growth and competitiveness.” item reached 80.8 points.
		2-6. Our company develops and provides a diagnostic tool for ethical practice self-examination that employees can use as a standard of conduct through systematic business analysis.	2	5	In 2021, we established our unique “ethical practice self-inspection tool” through a benchmarking of leading domestic companies. It was introduced in the quarterly newsletter and used as a judgment criterion when performing work.
2. Code of conduct and guidelines	Self-inspection of employees	2-8. The self-inspection indicators for our company's ethical management practice help employees establish the guideline of works.	2	4	Our employees check their ethical level through “self-inspection indicators” when performing work. If the judgment is unclear, inquire about whether it is ethically appropriate to the in-house specialized department and the Compliance Team.
		4-7. Our company periodically publishes and distributes guidebooks and related booklets to raise employees' awareness of the ethical management policy.	2	4	As a channel to strengthen internal communication, we periodically issue an “ethical management newsletter” and send out CEO messages about ethical behavior before national holidays to reinforce the mindset of employees to comply with the code of conduct.

1) The evaluation scores for 2020 and 2021 are on a 5-point scale.

Violations of Discipline in 2022

Major indicator	Results
Total number of worksites / Corruption risk assessment ratio	12 worksites / 100%
Number of violations of discipline	7 cases

Violation	Number of cases	Treatment	Number of cases
Malpractice / embezzlement	-	Dismissal	-
Bribery	-		
Discrimination / workplace bullying	-	Wage cut	-
Negligence	-		
Violation of process	2		
Simple complaint	5	Warning	2



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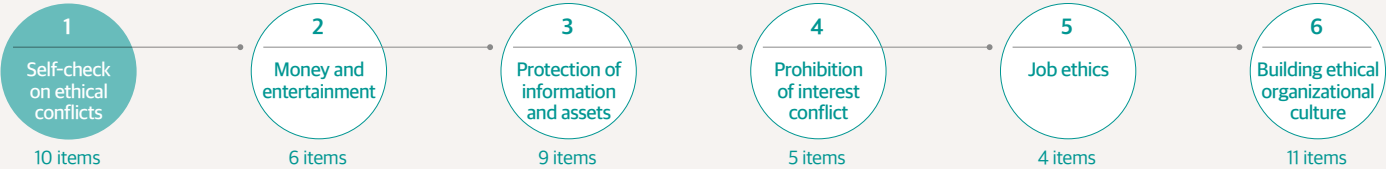
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Ethical Management Newsletter

Doosan Corporation has been sending out ethical management newsletters consisting of four categories (issue, trend, check-code of conduct and inquiry channel) every quarter since 2021 to raise employees' awareness of ethical management. Issue category contains social issues such as the enforcement of the Anti-Graft Act and the current status of our ethical management, while trend category delivers anti-corruption and ethical trends. In the Check category, distribution of self-inspection checklists for employees to raise employees' ethical awareness, holiday gift standards, and business partners-related matters are provided. In addition, the newsletter contains information on ethical management-related inquiry channels and the code of conduct and guidelines.

Self-check on Ethical Level

The company conducted the "Ethical level self-inspection" introduced in the ethical management newsletter for 91 employees of BGs/BUs. Among the 45 items, the participants answered that the ethical level was "positive" on an average of 44.7, achieving an ethical level of 99.3 (very safe).



※ Interpretation of self-diagnosis scores (45 items)

Score	Interpretation by “positive” response
Under 30	14 or less: “Very dangerous”. (You should make immediate changes in your lifestyle and work style and attitude.)
31~70	15-32: “Mostly dangerous”. (Go back to the beginning of your work, reflect on the value and meaning of your life, and take precautions in everything you do to protect yourself from corruption.)
71~80	33-37: “Mostly safe”. (You should pay more attention to the items you answered “No”.)
81~100	38-45: “Very safe”. (But don’t be conceited. The temptations of corruption can blind you at any time.)

※ Case of “Negative” response as a result of self-diagnosis

The items below are the responses that at least one person experienced or did not practice.

- Item 5: No one takes unfair advantage or loss as a result of my actions.
- Item 8: I am using my authority appropriately and in an appropriate place.
- Item 12: I do not engage in unethical and illegal acts that may undermine fair duties, such as unfair instructions, mediation, solicitation, and granting preferential treatment.
- Item 14: If you receive a gift that is difficult to refuse, report it to the Internal Reporting Center immediately.
- Item 20: I do not take out various items and devices owned by the company.
- Item 28: I do not lend money or goods or real estate free of charge from job-related persons
- Item 34: I refrain from personal meetings with the executives and employees of competitors, as well as any contact by phone, e-mail, correspondence, etc.



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Fair Trade

Operation of the Compliance Program

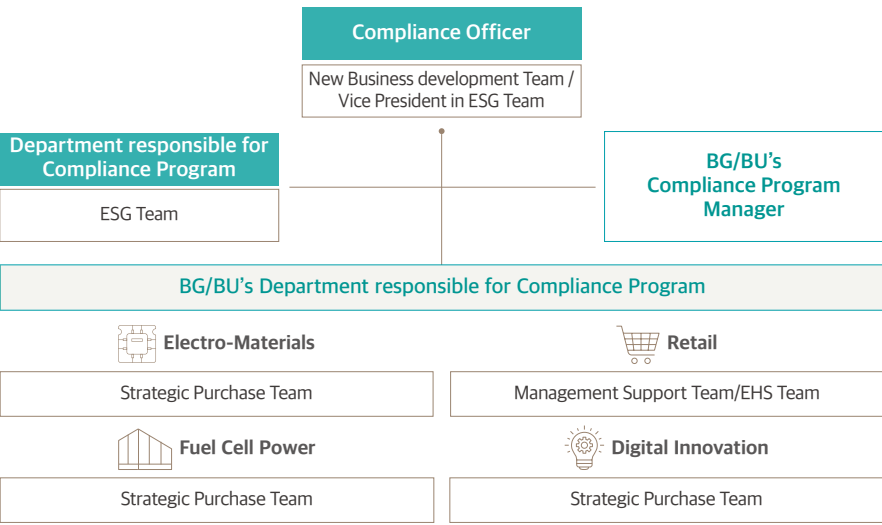
Since 2004, Doosan Corporation has operated the Compliance Program in order to promote transparent and legitimate business activities. In 2021, we were proactive in promoting the Compliance Program to fulfill our responsibility for stakeholders including suppliers. The number of employees who completed the fair trade education declined from the previous year due to decrease of the number of trainees resulted from spin-offs and sales of certain businesses. However, despite the COVID-19 situation, non-face-to-face training was strengthened to provide continuous education<sup>1)</sup> for key personnel. The company introduced the “4 Implementation Tasks for Fair Trading” as recommended by the Fair Trade Commission in 2019 and tried to implement fair trade through fair trade agreements with major suppliers. For main subcontract trades, the Subcontract Deliberation Committee was established and self-inspection on subcontract trades has been autonomously conducted by the committee. Fair trade announcements are sent out via email to employees to keep them informed of new laws, revisions to existing laws, and other relevant issues. Doosan Corporation will continue its efforts to remain fair and seek mutual growth in its dealing with suppliers by engaging in self-compliance activities on an ongoing basis.

1) Target laws included in learning: Fair Transactions in Subcontracting Act, Fair Agency Transactions Act, Act on Fair Transactions in Large Retail Business etc.

Revision of the Compliance Program Handbook

Since its publication in 2004, the Compliance Program Handbook has been continuously revised to ensue effective operation of the Compliance Program and provide employees with guidelines for fair trade-related behaviors and practices. The handbook can be easily accessed by all stakeholders as well as employees on the corporate website.

Organization for Compliance Program



Fair Trade Activities for Suppliers

In order to fundamentally solve one of the sensitive social problems, the misuse of SMEs' technical data by large companies, Doosan Corporation is operating the “supplier data request system.” Through this system, the entire process of requesting, receiving, using, and disposing of suppliers' data is transparently disclosed to them, and the status of our employees' use of their technical data is continuously monitored. In addition, we actively recommend the “escrow system”<sup>1)</sup> to protect suppliers' technological data and support escrow fee when they request.

The company has also steadily shortened the payment period to promote the rights and interests of suppliers and support their financial stability. The average payment period was shortened from 14 days in 2019 to 9 days in 2020 and 8.3 days in 2021

1) Legal arrangement in which SMEs can hold technical and business data in a secure account as set forth by law to protect their rights.



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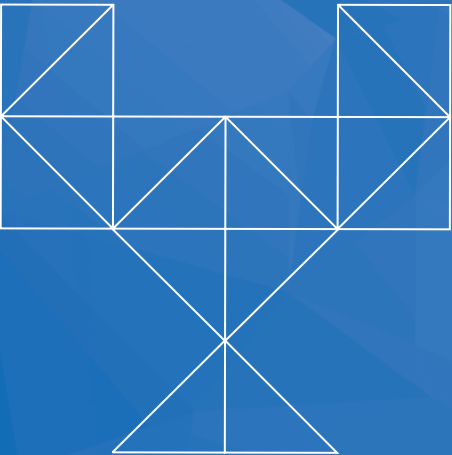
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# Economic Performances

## Financial Performance

Classification		Unit	2018	2019	2020	2021
Financial Position	Total assets	KRW in million	4,734,223	4,752,376	5,413,829	5,308,286
	Current assets		1,176,134	921,195	1,259,205	1,067,961
	Non-current assets		3,558,089	3,831,181	4,154,624	4,240,325
	Total liabilities		2,428,716	2,607,724	2,760,522	2,261,876
	Current liabilities		1,404,103	1,705,581	1,648,874	1,584,689
	Non-current liabilities		1,024,613	902,143	1,111,648	677,187
	Total equity		2,305,508	2,144,652	2,653,307	3,046,410
	Capital stock		134,846	123,738	123,738	123,738
	Capital surplus		734,169	797,120	792,396	793,456
	Other capital items		(343,557)	(1,146,809)	(1,147,970)	(1,149,030)
Income Statement	Accumulated other comprehensive income	KRW in million	137,013	201,356	37,298	33,322
	Retained earnings		1,643,037	2,169,247	2,847,845	3,244,924
	Total liabilities and equity		4,734,224	4,752,376	5,413,829	5,308,286
	Operating revenue		2,919,401	2,060,705	1,549,336	967,464
	Sales		2,822,149	2,038,497	1,540,403	956,575
	Dividend revenue		97,252	22,208	8,933	10,889
	Operating expense		2,666,038	1,898,782	1,440,470	900,847
	Cost of sales		2,163,103	1,633,647	1,210,487	701,555
	Sales and administrative expense		502,935	265,135	229,983	199,292
	Operating profit		253,363	161,921	108,866	66,616
	Non-operating income		45,221	51,806	182,975	208,995
	Non-operating expense		115,898	117,642	48,921	161,348
	Net profit before tax		182,686	96,086	115,205	114,263
	Corporate tax		24,073	17,190	88,221	25,251
	Profit from continuing operations		158,613	78,896	26,984	89,011
	Profit from discontinued operations		-	554,907	153,236	321,810
	Net profit		158,613	633,803	180,220	410,821

## Credit Ratings

Classification		Unit	2018	2019	2020	2021
Credit ratings	Korea Investors Service	Ratings	A-	BBB+	BBB	BBB
	Korea Ratings		A-	BBB+	BBB	BBB
	NICE Investors Service		A-	BBB+	BBB	BBB

## Distribution of Economic Value

(As of December 31 of each year)

Classification		Unit	2018	2019	2020	2021
Total		KRW 100 million	48,652	40,716	28,506	17,452
Investors	Interest costs		566	737	793	740
Shareholders	Dividends		1,771	1,024	233	199
Customers	Sales (excl. dividends)		28,221	20,385	15,404	9,566
Suppliers	Purchasing cost		14,623	15,527	8,906	4,813
Employees	Salary, retirement benefits, welfare benefits, etc.		3,079	2,735	2,195	1,811
Government	Tax and due, corporate tax		335	233	916	290
Local communities	Donation, social contribution expense		57	75	59	33



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Shares

Classification		Unit	2018	2019	2020	2021
Number of shares issued		Shares	400,000,000	400,000,000	400,000,000	400,000,000
Number of floating shares			19,655,638	17,800,365	17,800,365	17,800,365
Number of government-owned shares	National Pension Service		1,408,527	1,083,297	1,314,465	1,811,627
Government's ownership	National Pension Service	%	7.72	6.56	7.95	10.96

Research & Development

Classification		Unit	2018	2019	2020	2021
R&D	R&D investment	KRW 100 million	875	865	645	385
	R&D investment/sales	%	3.3	3.4	3.4	4.1

Customer Satisfaction

Classification		Unit	2018	2019	2020	2021
Total		Points	3.9	3.6	4.0	4.2
Electro-Materials BG			3.9	3.6	3.6	3.9
Fuel Cell Power BU			N/A	N/A	4.4	4.6

Sustainable Supply Chain

Classification		Unit	2018	2019	2020	2021
Sustainability in the supply chain	Number of suppliers	Firms	180	247	121	82
	Suppliers who received sustainability assessment		127	178	254	102
	Total purchasing from suppliers	KRW 100 million	14,623	15,527	8,906	4,813
	Purchasing from major suppliers		6,942	9,651	6,527	3,365
	Purchasing from SMEs		7,093	7,648	3,699	1,673



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## Environmental Performances

### Environmental Investment (Domestic/Overseas<sup>1)</sup>)

Classification		Unit	2018	2019	2020	2021
Environmental investment and costs	Total	KRW 100 million	110.7	120.8	93.2	41.0
	Domestic		70.4	105.2	92.6	41.0
	Overseas		40.3	15.6	0.6	0.01

1) The scope of overseas data collection in 2021: Changshu

### Air Pollutants (Domestic/Overseas<sup>1)</sup>)

Classification		Unit	2018	2019	2020	2021
NOx emission		Tons	140.1	142.3	37.9	29.0
SOx emission			2.0	1.5	3.2	2.8
THC generation		Average ppm	60.9	65.1	34.3	21.7

1) The scope of overseas data collection in 2021: Changshu

\* Data may be different from the previous year due to changes in coverage such as business spin-off. VOC is not subject to measurement control

### Water Use (Domestic/Overseas<sup>1)</sup>)

Classification		Unit	2018	2019	2020	2021
Water intake		Thousand tons	1,064	1,091	526	492
Domestic	Total		525	540	430	412
	Waterworks <sup>2)</sup>		442	451	367	351
	Underground water		83	89	63	61
	Others		0	0	0	0
Overseas	Total		539	551	96	80
	Waterworks		443	469	96	80
	Underground water		0	0	0	0
	Others		96	82	0	0
Water use			886	921	462	432

1) The scope of overseas data collection in 2021: Changshu

2) Domestic waterworks include industrial water

### Wastewater Discharge (Domestic/Overseas)

Classification		Unit	2018	2019	2020	2021
Wastewater generation	Total	Thousand tons	432	513	219	209
	Domestic		183	208	193	197
	Overseas		249	305	26	12
Chemical oxygen demand (COD <sup>1)</sup> )		ppm	31	23	14	13
Biological oxygen demand (BOD <sup>1)</sup> )			17	8	10	9

1) Based on domestic business sites

\* Data may be different from the previous year due to changes in coverage such as business spin-off

### Materials Use<sup>1)</sup>

Classification		Unit	2018	2019	2020	2021
Major materials use <sup>2)</sup>	Total	Tons	33,513	25,119	24,829	26,422
	Copper foil		5,062	4,195	4,316	4,907
	Glass fabric		16,920	14,711	16,955	17,578
	Epoxy resin		11,441	6,047	3,370	3,785
	SUS plate		41	77	87	71
	SUS tube		11	20	23	18
	Steel plate		38	69	78	63
Recycled materials use			104	318	0	0

1) Based on domestic business sites

2) Data may be different from the previous year due to changes in coverage such as business spin-off



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Waste Generation (Domestic/Overseas<sup>1)</sup>)

Classification		Unit	2018	2019	2020	2021
Waste generation		Thousand tons	17.3	17.1	13.2	11.6
General waste	Total		8.8	8.2	6.1	4.8
	Recycling		6.4	5.6	3.9	2.8
	Landfill		0.5	0.6	0.1	0.1
	Incineration		1.9	2.1	2.1	1.9
Designated waste (harmful waste)	Total		8.5	8.9	7.1	6.8
	Recycling		7.2	7.6	6.4	6.3
	Landfill		0	0	0	0
	Incineration		1.3	1.3	0.7	0.5
Recycling rate	Total	%	78.6	77.2	78.0	78.4
	Domestic		78.3	75.5	75.1	74.0
	Overseas		80	82.3	91.8	96.1

1) The scope of overseas data collection in 2021: Changshu

GHG Emissions (Domestic/Overseas<sup>1)</sup>)

Classification		Unit	2018	2019	2020	2021
GHG emissions (Scope 1 & 2)		Thousand tCO <sub>2</sub> eq	178.7	183.6	93.6	90.6
Direct GHG emissions (Scope 1)	Total		31.6	32.5	31.3	30.3
	Domestic		23.3	25.0	21.0	21.4
	Overseas		8.3	7.5	10.3	8.9
Indirect GHG emissions (Scope 2)	Location-based		147.1	151.1	62.3	60.3
	Domestic		60.1	59.3	41.8	39.4
	Overseas		87.0	91.8	20.5	20.9
Other indirect GHG emissions (Scope 3) <sup>2)</sup>	Total		N/A	N/A	N/A	4.9
	Capital goods		N/A	N/A	N/A	0.03
	Waste from worksites		N/A	N/A	N/A	3.1
	Employee commuting		N/A	N/A	N/A	1.6
	Rental properties		N/A	N/A	N/A	0.2
GHG intensity <sup>3)</sup>	Total	tCO <sub>2</sub> eq/100 million	5.6	7.8	5.2	7.8
	Domestic		3.0	4.1	4.1	6.4
	Overseas		24.8	30.2	12.3	14.0
GHG emissions by BG/BU	Electro-Materials	Thousand tCO <sub>2</sub> eq	147.4	147.1	78.7	80.8
	Digital Innovation		3.9	3.8	3.5	3.7
	Retail		3.5	10.7	5.2	4.5
	Fuel Cell Power		0.1	0.1	0.4	0.6
	Others <sup>4)</sup>		1.4	1.2	1.0	1.0

1) The scope of overseas data collection in 2021: Changshu  
2) Disclosure since 2021  
3) Intensity for Scope 1&2 emissions relative to revenue  
4) Corporate Center, Holding Company  
\* Calculated according to the guidelines of the Ministry of Environment



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Harmful Substances Leakage

Classification	Unit	2018	2019	2020	2021
Number of leakages	Cases	N/A	N/A	N/A	0
Leakage volume	Tons	N/A	N/A	N/A	0
Recovered volume		N/A	N/A	N/A	0

\* Leakage of harmful substances has been disclosed since 2021

Environmental Laws Violation<sup>1)</sup>

Classification	Unit	2018	2019	2020	2021
Environmental Laws Violation Cases	Cases	0	0	0	0
Fine	KRW in millions	0	0	0	0

1) Only violations of environmental laws equivalent to a fine of 10 million KRW or more

Energy Use (Domestic/Overseas)

Classification		Unit	2018	2019	2020	2021
Energy use		TJ	2,459	2,493	1,467	1,408
Energy use by region	Domestic total		1,643	1,695	1,269	1,216
	Domestic electricity use		1,185	1,212	859	810
	Domestic fuel use		400	432	373	366
	Domestic other use		58	51	37	40
	Overseas total		816	798	198	192
	Overseas electricity use		563	597	105	102
	Overseas fuel use		253	201	82	90
	Grid electricity use <sup>1)</sup>		N/A	N/A	10	0
Energy intensity	Total	TJ/KRW in billions	0.77	1.05	0.82	1.20
	Domestic		0.58	0.83	0.82	1.27
	Overseas		2.13	2.43	0.79	0.90

1) Disclosure since 2020

Product Lifecycle Management

Classification	Unit	2018	2019	2020	2021
Percentage of sales of products containing substances in terms of IEC 62474	%	N/A	N/A	43	56

\* The scope of overseas data collection in 2021: Changshu / Disclosure of product lifecycle management data since 2020



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## Social Performances

### Human Resources

Classification		Unit	2018	2019	2020	2021
Number of employees	Total	Persons	5,639	4,984	3,980	2,798
	Domestic		3,893	3,385	2,666	2,078
	Overseas		1,746	1,599	1,314	720
By BG/BU (domestic)	Electro-Materials		1,315	1,210	1,207	1,210
	Digital Innovation		453	479	467	450
	Retail		287	224	59	55
	Fuel Cell Power		83	100	106	113
	CC, administration center, holding company		280	291	286	250
Employment type	Total		3,893	3,385	2,666	2,078
	Full-time		3,779	3,306	2,604	2,007
	Contract		114	79	62	71
Gender	Total		3,893	3,385	2,666	2,078
	Male		3,242	2,809	2,242	1,719
	Female		651	576	424	359
Age <sup>1)</sup>	Total		N/A	N/A	2,666	2,078
	Under 30		N/A	N/A	268	186
	30~49		N/A	N/A	1,966	1,550
	50 or older		N/A	N/A	432	342
Nationality <sup>2)</sup>	Total	%	N/A	N/A	N/A	100
	Korea		N/A	N/A	N/A	75.6
	China		N/A	N/A	N/A	16.4
	U.S.		N/A	N/A	N/A	4.5
	Other countries		N/A	N/A	N/A	3.4
Nationality of office workers <sup>2)</sup>	Total		N/A	N/A	N/A	100
	Korea		N/A	N/A	N/A	80.4
	China		N/A	N/A	N/A	10.1
	U.S.		N/A	N/A	N/A	3.0
	Other countries		N/A	N/A	N/A	3.0

1) Disclosure since 2020  
2) Disclosure since 2021 (data by continent in 2020)  
\* Human resources data in 2020 were calculated based on those subjects to tax payment as of the end of the year and thus may differ from the figures given in the business report. There is a difference in the value from that of last year due to split-off, etc.  
\*\* Data by employment type, gender, and age are based on domestic employees

### Employee Diversity

Classification		Unit	2018	2019	2020	2021
Ratio of female employees		%	16.32	17.02	15.87	17.28
Ratio of female managers	Total		17.41	18.07	18.85	21.19
	Senior manager		0	1.27	1.56	1.72
	Middle manager		11.36	12.77	15.42	18.17
	Junior manager		36.9	40.45	43.88	45.22
	Manager of a sales generating department <sup>1)</sup>		N/A	N/A	20.68	17.07
	Manager of the STEM department <sup>1)</sup>		N/A	N/A	17.8	21.56

Doosan Corporation has set a goal of expanding the ratio of female employees to 25.7% by 2030 to enhance employee diversity.

1) Disclosure on data related to managers of sales-generating departments and STEM departments since 2020  
\* Senior manager: Executive officers or higher levels. Middle manager: Managers to department heads. Junior manager: Assistant manager  
\*\* Employee diversity data is based on domestic employees.

### New Recruits<sup>1)</sup>

Classification		Unit	2018	2019	2020	2021
Employment type	Ful-time	Persons	286	296	86	156
	Contract		118	84	31	50
Gender <sup>2)</sup>	Male		N/A	N/A	88	142
	Female		N/A	N/A	29	64
Age <sup>2)</sup>	Under 30		N/A	N/A	43	89
	30~49		N/A	N/A	65	92
	50 or older		N/A	N/A	9	25
Nationality <sup>2)</sup>	Asia		N/A	N/A	114	206
	Europe		N/A	N/A	0	0
	Americas		N/A	N/A	3	0
	Other countries		N/A	N/A	0	0
Employment diversity	Disabled		47	48	34	34
	National veterans		38	37	31	16
Ratio of Internal recruits <sup>3)</sup>			N/A	83.0	88.3	64.6

1) Based on domestic employee  
2) Disclosure on gender, position, and nationality data since 2020  
3) Disclosure on ratio of internal recruits since 2019



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Employee Turnover<sup>1)</sup>

Classification		Unit	2018	2019	2020	2021
Employment type	Full-time	Persons	231	204	345	194
	Contract		150	21	26	39
Gender <sup>2)</sup>	Male		N/A	N/A	216	180
	Female		N/A	N/A	155	53
Age <sup>2)</sup>	Under 30		N/A	N/A	70	39
	30~49		N/A	N/A	218	129
	50 or older		N/A	N/A	83	65
Position <sup>2)</sup>	Senior manager		N/A	N/A	16	23
	Middle manager		N/A	N/A	120	125
	Junior manager		N/A	N/A	55	12
	Others		N/A	N/A	180	73
Nationality <sup>2)</sup>	Asia		N/A	N/A	368	232
	Europe		N/A	N/A	3	0
	Americas		N/A	N/A	0	1
	Other countries		N/A	N/A	0	0
Turnover Rate (Full-time)		%	6.1	5.3	7.3	9.7
Voluntary Turnover Rate (Full-time)			5.0	5.0	4.7	7.9

1) Based on domestic employees  
2) Disclosure on gender, position, and nationality data since 2020

Labor Practices

Classification	Unit	2018	2019	2020	2021
Union membership rate	%	78.8	78.6	92.5	92.8

\* Basis of calculation: Percentage of employees who have joined the Labor Union = No. of employees who have joined the Labor Union/No. of employees eligible to join

Performance Evaluation

Classification	Unit	2018	2019	2020	2021
Percentage of employees eligible for formal performance evaluation	%	100.0	99.7	100.0	100.0

Safety and Health<sup>1)</sup>

Classification		Unit	2018	2019	2020	2021
Occupational accident rate	Employees	%	0.26	0.06	0.27	0.19
	Suppliers					
LTIFR <sup>2)</sup>	Employees	Occupational accident rate per million hours	1.29	0.28	1.30	0.91
	Suppliers		0.67	0	0.88	0
OIFR <sup>3)</sup>	Employees	Disease occurrence rate per million hours	0.13	0.14	0	0
	Suppliers		0	0	0	0
Fatalities	Employees	Persons	0	0	0	0
	Suppliers		0	0	0	0

1) Based on domestic employee  
2) LTIFR (Lost Time Incidents Frequency Rate): Total no. of lost time incidents / Total work hours \* 1,000,000  
3) OIFR (Occupational Illness Frequency Rate): Total number of work-related illness cases / Total work hours \* 1,000,000  
\* The above data has been verified by a third party.



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## Development of Employee Capabilities

Classification		Unit	2018	2019	2020	2021
Total number of trainees		Persons	3,779	3,385	2,666	2,078
Total training expenses <sup>1)</sup>		KRW in millions	4,802	5,838	3,351	3,113
Total training hours		Hours	118,301	108,086	56,126	57,295
Training expenses per capita		KRW 1,000/ person	1,271	1,725	1,257	1,498
Training hours per capita		Hours/ person	49.2	44.4	31.4	27.6
Gender <sup>2)</sup>	Male	Hours	N/A	N/A	40,449	17,034
	Female		N/A	N/A	15,677	5,434
Age <sup>2)</sup>	Under 30		N/A	N/A	16,530	1,785
	30~49		N/A	N/A	34,090	15,917
	50 or older		N/A	N/A	5,506	2,047
Position <sup>2)</sup>	Senior manager		N/A	N/A	4,493	16,300
	Middle manager		N/A	N/A	26,024	4,122
	Junior manager		N/A	N/A	25,609	1,255
Training status <sup>3)</sup>	General education	Hours/ persons	32.3	40.5	17.9	35.6
	Compliance program training		0.3	0.6	0.3	0.6
	Information security training		8.8	0.7	0.4	0.9

1) Including training expenses for technical workers since 2021  
2) Disclosure on gender, position, and nationality data since 2020  
3) The total amount of training hours per person in training Status is the value including duplicate participation hours  
\* Based on domestic employee

## Equal Compensation<sup>1)</sup>

Classification		Unit	2018	2019	2020	2021
Average gender wage gap		%	N/A	N/A	7.9	21.7
Median value gap in wage by gender			N/A	N/A	0.4	11.2
Average bonus gap			N/A	N/A	24.9	45.1
Median value gap in bonus by gender			N/A	N/A	1.4	24.5
Average employee compensation (basic salary + cash bonus) <sup>2)</sup>		KRW	N/A	N/A	N/A	80,169,470
Median of employee compensation (basic salary + cash bonus) <sup>2)</sup>			N/A	N/A	N/A	71,454,299

1) Disclosure on equal compensation data since 2020  
2) Excluding CEO compensation. Disclosure since 2021

## Childcare Leave and Pension Support

Classification		Unit	2018	2019	2020	2021
Childcare leave	Childcare leave users	Persons	56	51	55	21
	Employees who returned to work after childcare leave		35	36	20	23
	At least 12-month work after returning to work		21	27	13	17
Retirement pension <sup>1)</sup>	Fund under management	KRW in millions	150,250	171,265	152,077	137,262
	Defined benefits (DB)	Persons	3,346	3,052	2,410	1,772
	Defined contributions (DC)		36	121	141	165

1) Calculate the amount of pension operations in accordance with IFRSs, the Ministry of Employment and Labor, and bylaws

## Human Rights

Classification		Unit	2018	2019	2020	2021
Time spent on human rights training <sup>1)</sup>		Hours	6,180	4,407	4,757	3,443
Ratio of employees who participated in training		%	100	100	100	100

1) Based on domestic office workers  
\* Added trainings on improving employees' perceptions of the disabled and eliminating workplace bullying to existing sexual harassment prevention training

## Conflict Minerals

Classification		Unit	2018	2019	2020	2021
Conflict minerals handling smelter		Places	0	0	0	0



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Anti-Corruption/Ethical Management<sup>1)</sup>

Classification		Unit	2018	2019	2020	2021
Training on ethical management	Training hours per capita	Hours/person	0.92	0.94	0.67	0.70
	Employees who participated in training	Persons	3,660	3,119	2,299	1,974

1) Based on domestic office and technical workers

Anti-corruption Violation

Classification		Unit	2018	2019	2020	2021
Anti-corruption violation cases		Cases	0	0	0	0

Political Expenditure

Classification		Unit	2018	2019	2020	2021
Total		KRW in millions	0	0	0	0
Political expenditure in 2022	Political donation		0	0	0	0
	Lobbying		0	0	0	0

\* Doosan makes it a rule not to provide political funds, election funds, or funds for political organizations' lobbying under the country's Political Funds Act, Article 31.

Social Contribution Activities

Classification		Unit	2018	2019	2020	2021
Contribution to local communities	Total	KRW in millions, (%)	5,747(100)	7,512(100)	5,937(100)	3,310(100)
	Charity donation		660(11)	573(8)	552(9)	437(13)
	Investment in local communities		4,505(78)	6,443(86)	4,620(78)	2,629(79)
	Commercial initiatives (public good marketing, etc.)		384(7)	283(4)	680(11)	212(6)
	Employees' social contribution converted into cost		198(3)	213(3)	85(1)	32(1)
Time spent on employees' social contribution		Hours	7,255	7,929	3,125	1,126

Social Contribution Investment Methods

Classification		Unit	2018	2019	2020	2021
Total		KRW in millions, (%)	5,747(100)	7,512(100)	5,937(100)	3,310(100)
Cash donation			4,462(78)	6,168(82)	3,528(60)	2,590(78)
Donations in cash			87(2)	11(0.1)	40(0.6)	44(1)
Donations in kind			198(3)	213(3)	85(0.14)	32(1)
Employees' social contribution converted into cost			1,000(17)	1,121(15)	2,284(39)	644(19)

Business Association Expenditure

Classification		Unit	2018	2019	2020	2021
Total expenses		KRW in millions	828.7	608.9	885.8	379.8
Major expenses in 2021 <sup>1)</sup>		Korea Enterprises Federation				70.9
		Gimcheon Chamber of Commerce & Industry				56.1
		Seoul Chamber of Commerce & Industry				44.5
		Cheongju Chamber of Commerce & Industry				41.6
		Iksan Chamber of Commerce & Industry				41.2

1) Top 5 associations



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# Social Value Measurement

## Social Value Measurement Method

Based on input and output data according to business activities and Korean and overseas statistics and research materials to convert the input and output data into currency value, the social and environmental impacts of this year were measured.

Input/Output according to business activities

Recruited persons in 2021

GHG emissions in 2021

×

Social cost per unit (currency)

Social cost generated per unemployed person

Social cost generated per one ton of GHG emission

=

Social and environmental impact of the year

Employment increase effect thanks to recruitment by Doosan (+)

Environmental pollution impacts from Doosan's GHG emissions (-)

## Breakdown of Social Value

Classification		Indicator	Impact	Result (KRW 100M)	Details
People	Employee welfare and employment	Employee wage and welfare benefits	+	975	Effect of increasing personal income through employee salaries and welfare benefits (based on disclosed business report)
		Employment increase	+	78	Contribution to the reduction of unemployment
	Impacts from occupational accident	Fatalities	-	2	Social costs due to industrial accidents
		Occupational accidents	-		
Subtotal				1,051	
Planet	GHG impact	Total emissions	-	16	Social costs due to GHG emissions
	Water impact	Water use	-	9	Social costs due to water user and wastewater discharge
		Wastewater discharge	-		
	Waste impact	Incineration	-	3	Social costs due to the disposal method of waste generated from business activities
		Landfill	-		
	Air environment impact	SOx emission	-	20	Social costs due to the emission of air pollutants by type from business activities
		NOx emission	-		
		Fine dust emission	-		
Subtotal				- 47	

Classification		Indicator	Impact	Result (KRW 100M)	Details
Partners	Contribution to suppliers	Purchasing from suppliers	+	353	Contribution to creating shared growth ecosystem
		Support for shared growth	+		Shared growth fund and direct support
		Weakening of the shared growth ecosystem due to unfair practices	-	0	Threat to shared growth ecosystem due to the violation of the Fare Trade Act (fine)
	Investment in local communities	Charity donation	+	33	Social value contributed to trainings in local communities, infrastructure, and environment through social contribution activities and donations
		Investment in local communities	+		
		Commercial initiatives	+		
	Shareholders	Dividend	+	199	Shareholder value increase through dividend payment (based on disclosed business report)
	Investors	Interest expense	+	740	Shareholder value increase through interest payment (based on disclosed business report)
	Government	Corporate tax	+	253	Contribution to securing government finance through fair tax payment (based on disclosed business report)
Subtotal				1,577	
Social Value				2,581	



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# GRI Standards Index

Topic	GRI Standards		Page	Remark
GRI 102: General Disclosures				
Organizational Profile	102-1	Name of the organization	4	
	102-2	Activities, brands, products, and services	7-15	
	102-3	Location of headquarters	6	
	102-4	Location of operations	6	
	102-5	Ownership and legal form	6	
	102-6	Markets served	6	
	102-7	Scale of the organization	6	
	102-8	Information on employees and other workers	6	
	102-9	Supply chain	52-54	
	102-11	Precautionary Principle or approach	65-66	
	102-12	External initiatives	90	
	102-13	Membership of associations	83	
	Strategy	102-14	Statement from senior decision-maker	3
102-15		Key impacts, risks, and opportunities	3	
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	70	
	102-17	Mechanisms for advice and concerns about ethics	70-73	
Governance	102-18	Governance structure	62-64	
	102-19	Delegating authority	62-64	
	102-20	Executive-level responsibility for economic, environmental, and social topics	57-58	
	102-21	Consulting stakeholders on economic, environmental, and social topics	59	
	102-22	Composition of the highest governance body and its committees	64	
	102-23	Chair of the highest governance body	64	
	102-24	Nominating and selecting the highest governance body	62-64	
	102-26	Role of highest governance body in setting purpose, values, and strategy	62-64	
	102-27	Collective knowledge of the highest governance body	62-64	

Topic	GRI Standards		Page	Remark
Governance	102-28	Evaluating the highest governance body's performance	62-64	
	102-29	Identifying and managing economic, environmental, and social impacts	57-58	
	102-30	Effectiveness of risk management processes	57-58	
	102-31	Review of economic, environmental, and social topics	57-58	
	102-33	Communicating critical concerns	62-64	
	102-34	Nature and total number of critical concerns	62-64	
	102-35	Remuneration policies	64	
	102-36	Process for determining remuneration	62-64	
Stakeholder Engagement	102-40	List of stakeholder groups	59	
	102-41	Collective bargaining agreements	81	
	102-42	Identifying and selecting stakeholders	59	
	102-43	Approach to stakeholder engagement	59	
	102-44	Key topics and concerns raised	59-61	
Reporting Practice	102-45	Entites included in the consolidated financial statements	6, Business Report	
	102-46	Defining report content and topic Boundaries	59-61	
	102-47	List of material topics	61	
	102-48	Restatements of information	About this Report	
	102-49	Changes in reporting	About this Report	
	102-50	Reporting period	About this Report	
	102-51	Date of most recent report	About this Report	
	102-52	Reporting cycle	About this Report	
	102-53	Contact point for questions regarding the report	About this Report	
	102-54	Claims of reporting in accordance with the GRI Standards	About this Report	
	102-55	GRI content index	85-87	
	102-56	External assurance	91	



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Topic	GRI Standards		Page	Remark
GRI 103: Management Approach				
Management Approach	103-1	Explanation of the material topic and its Boundary	61	
GRI 200 Economic				
Economic Performance	201-1	Direct economic value generated and distributed	75-76	
	201-2	Financial implications and other risks and opportunities due to climate change	26	
	201-3	Defined benefit plan obligations and other retirement plans	82	
Market Presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	82	
	202-2	Proportion of senior management hired from the local community	80	
Indirect Economic Impacts	203-1	Infrastructure investments and services supported	55-56, 83	
	203-2	Significant indirect economic impacts	18-19, 84	
Procurement Practices	204-1	Proportion of spending on local suppliers	54	
Anti-corruption	205-1	Operations assessed for risks related to corruption	71	
	205-2	Communication and training about anti-corruption policies and procedures	70-72	
	205-3	Confirmed incidents of corruption and actions taken	83	
Anti-competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	83	
GRI 300 Environmental				
Materials	301-1	Materials used by weight or volume	77	
	301-2	Recycled input materials used	77	
Energy	302-1	Energy consumption within the organization	79	
	302-2	Energy consumption outside of the organization	79	
	302-3	Energy intensity	79	
	302-4	Reduction of energy consumption	79	
Water	303-1	Interactions with water as a shared resource	77	
	303-2	Management of water discharge-related impacts	41	
	303-3	Water withdrawal	77	
	303-5	Water consumption	77	

Topic	GRI Standards		Page	Remark
Emissions	305-1	Direct (Scope 1) GHG emissions	78	
	305-2	Energy indirect (Scope 2) GHG emissions	78	
	305-3	Other indirect (Scope 3) GHG emissions	78	
	305-4	GHG emissions intensity	78	
	305-5	Reduction of GHG emissions	78	
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	77	
Effluents and Waste	306-1	Water discharge by quality and destination	40, 78	
	306-2	Waste by type and disposal method	40	
	306-3	Significant spills	78	
	306-4	Transport of hazardous waste	78	
	306-5	Water bodies affected by water discharges and/or runoff	78	
Environmental Compliance	307-1	Non-compliance with environmental laws and regulations	40	
GRI 400 Social				
Employment	401-1	New employee hires and employee turnover	80	
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	21-23, 47-51	
	401-3	Parental leave	82	
Occupational Health and Safety	403-1	Occupational health and safety management system	44	
	403-2	Hazard identification, risk assessment, and incident investigation	44-45	
	403-3	Occupational health services	45	
	403-4	Worker participation, consultation, and communication on occupational health and safety	40, 45	
	403-5	Worker training on occupational health and safety	45	
	403-6	Promotion of worker health	45	
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	44-45	
	403-8	Workers covered by an occupational health and safety management system	-	All employees
	403-9	Work-related injuries	81	
	403-10	Work-related ill health	81	



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Topic	GRI Standards		Page	Remark
Training and Education	404-1	Average hours of training per year per employee	82	
	404-3	Percentage of employees receiving regular performance and career development reviews	81	
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	80	
	405-2	Ratio of basic salary and remuneration of women to men	82	
Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	71	
Freedom of Association and Collective Bargaining	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	48	
Child Labor	408-1	Operations and suppliers at significant risk for incidents of child labor	48	
Forced or Compulsory Labor	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	48	
Rights of Indigenous Peoples	411-1	Incidents of violations involving rights of indigenous peoples	-	No violations
Human Rights Assessment	412-1	Operations that have been subject to human rights reviews or impact assessments	48	
	412-2	Employee training on human rights policies or procedures	49, 82	
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	48	

Topic	GRI Standards		Page	Remark
Local Communities	413-1	Operations with local community engagement, impact assessments, and development programs	35-36, 55-56	
	413-2	Operations with significant actual and potential negative impacts on local communities	-	N/A
Supplier Social Assessment	414-2	Negative social impacts in the supply chain and actions taken	52-54, 82	
Public Policy	415-1	Political contributions	83	
Customer Health and Safety	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	-	No violations
Marketing and Labeling	417-2	Incidents of non-compliance concerning product and service information and labeling	-	No violations
	417-3	Incidents of non-compliance concerning marketing communications	-	No violations
Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	-	No complaints
Socioeconomic Compliance	419-1	Non-compliance with laws and regulations in the social and economic area	-	No violations



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# TCFD Index

Doosan Corporation intends to disclose climate change-related information from 2021 in accordance with the TCFD recommendations to support internal and external stakeholders' decision-making and to advance the climate change response system. Doosan Corporation plans to expand the scope of disclosure by analyzing and preemptively reflecting the additional requirements of TCFD every year.

Recommended disclosures		Page
Governance	a. Describe the board's oversight of climate-related risks and opportunities.	26
	b. Describe management's role in assessing and managing climate-related risks and opportunities.	26
Strategy	a. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	26-27
	b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	26-27
	c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	26-27
Risk Management	a. Describe the organization's processes for identifying and assessing climate-related risks.	27
	b. Describe the organization's processes for managing climate-related risks.	27
	c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	27
Metrics and Targets	a. Describe the organization's processes for identifying and assessing climate-related risks.	28
	b. Describe the organization's processes for managing climate-related risks.	28
	c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	28



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# SASB Index

Doosan Corporation responds to the “SASB” standard to manage corporate governance, environmental and social impacts throughout the entire business process and to pursue sustainable growth. According to SASB standards for each major industry, Doosan Corporation is in the electrical and electronic equipment sector.

## Sustainability Disclosure Topics & Accounting Metrics

Topic	Code	Accounting Metric	Page
Energy Management	RT-EE-130a.1	(1) Total energy consumed	79
	RT-EE-130a.1	(2) Percentage grid electricity	79
	RT-EE-130a.1	(3) Percentage renewable	79
Hazardous Waste Management	RT-EE-150a.1	(1) Amount of hazardous waste generated	78
	RT-EE-150a.1	(2) Percentage recycled	78
	RT-EE-150a.2	(1) Number and aggregate quantity of reportable spills	79
	RT-EE-150a.2	(2) Quantity recovered	79
Product Safety	RT-EE-250a.1	(1) Number of recalls issued	Doosan Co., Ltd. operates material-oriented businesses, but we do not apply to the recall because it is a matter of complete equipment.
	RT-EE-250a.1	(2) Total units recalled	
	RT-EE-250a.2	Total amount of monetary losses as a result of legal proceedings associated with product safety	N/A
Product Lifecycle Management	RT-EE-410a.1	Percentage of products by revenue that contain IEC 62474 declarable substances	79
	RT-EE-410a.2	Percentage of eligible products, by revenue, that meet ENERGY STAR® criteria	N/A
	RT-EE-410a.3	Revenue from renewable energy-related and energy efficiency-related products	N/A
Materials Sourcing	RT-EE-440a.1	Description of the management of risks associated with the use of critical materials	77
Business Ethics	RT-EE-510a.1	(1) Corruption and bribery	83
	RT-EE-510a.1	(2) Anti-competitive behavior	83
	RT-EE-510a.2	Total amount of monetary losses as a result of legal proceedings associated with bribery or corruption	83
	RT-EE-510a.3	Total amount of monetary losses as a result of legal proceedings associated with anti-competitive behavior regulations	83



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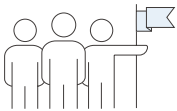
# UN Global Compact



Doosan Corporation joined the UN Global Compact in 2014 and have been abiding by its 10 principles in the four areas of human rights, labor, the environment, and anti-corruption. We are committed to realizing corporate social values and continuing to grow sustainably by constantly challenging ourselves to create future value through innovation and by making sincere efforts as a global corporate citizen.

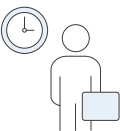
## 10 Principles

### Human Rights



- Principle 01. Businesses should support and respect the protection of internationally proclaimed human rights; and
- Principle 02. make sure that they are not complicit in human right abuses

### Labour



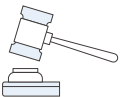
- Principle 03. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 04. the elimination of all forms of forced and compulsory labour;
- Principle 05. the effective abolition of child labour; and
- Principle 06. the elimination of discrimination in respect of employment and occupation.

### Environment



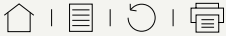
- Principle 07. Businesses should support a precautionary approach to environmental challenges;
- Principle 08. undertake initiatives to promote greater environmental responsibility; and
- Principle 09. encourage the development and diffusion of environmentally friendly technologies

### Anti-corruption



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





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# Independent Assurance Statement

We have undertaken a limited assurance engagement on the following sustainability information of ESG Report of Doosan Corporation (the “Company”) for the year ended December 31, 2021 (the “Report”).

### Scope and subject matter

For the year ended December 31, 2021, we provide a limited assurance on the following:

- The ESG information (the “Sustainability Information”), stated on “Economic Performance,” “Environmental Performance,” “Social Performance” and “Social Value Measurement” of the Report APPENDIX, is prepared in accordance with the Company’s “REPORTING PRINCIPLE” described on the “ABOUT THIS REPORT”.

We read the other information included in the Report and considered whether it is consistent with the Sustainability Information. We considered the implications for our report in the case that we became aware of any apparent misstatements or material inconsistencies with the Sustainability Information. Our responsibilities do not extend to any other information.

### Criteria

The Company prepared the Sustainability Information in accordance with Global Reporting Initiative Standards with Core Option and the reporting standards of Sustainability Accounting Standards Boards (partially applied).

### Assurance work performed

- We performed our engagement in accordance with ISAE 3000<sup>1)</sup>. Our work includes the following activities:
1. Interviews with the Company’s personnel responsible for internal reporting and data collection
  2. Review on the samples of the Company’s internal documents related to output from the risk assessment process, sustainability-related policies and standards, the sustainability materiality assessment matrix, and other documents from stakeholder-engaged activities
  3. Understanding the Company’s design and implementation of key processes and controls for managing and reporting the Sustainability Information
  4. Limited testing, through inquiry and analytical review procedures, of the preparation and collation of the Company’s Sustainability Information

### Responsibility of the management of the Company

The management of the Company is responsible for selecting and establishing suitable criteria for preparing the Sustainability Information and the preparation of the Sustainability Information in accordance with the Criteria.

### Our responsibility

Our responsibility is to provide a conclusion based on our limited assurance procedures in accordance with ISAE 3000.

1) International Standard on Assurance Engagements 3000 (Revised) - ‘Assurance Engagements other than Audits or Reviews of Historical Financial Information’ issued by International Auditing and Assurance Standards Board

### To the management of Doosan Corporation

We have complied with the independence and other ethical requirements of the code of ethics issued by the Ethics Standards Board of the Korean Institute of Certified Public Accountant. We apply International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

This report, including the conclusion, has been prepared for the Company’s management as a body, to assist the management in reporting on the Company’s sustainability performance and activities. We do not accept or assume responsibility to anyone other than the Company’s management as a body and the Company for our work or this report save where terms are expressly agreed and with our prior consent in writing.

### Inherent limitations

Non-financial information is subject to more inherent limitations than financial information, given the characteristics of the subject matter and the methods used for determining such information. Qualitative interpretations of relevance, materiality and the accuracy of data are subject to individual assumptions and judgments.

A limited assurance engagement is less in scope than a reasonable assurance engagement under ISAE 3000. Consequently, the nature, timing, and extent of procedures for gathering sufficient, appropriate evidence are deliberately limited relative to a reasonable assurance engagement. In particular:

- We did not attend any stakeholder engagement activities. Therefore, our conclusions are based on our discussions with management and staff of the Company and our review of selected documents provided to us by the Company.
- The scope of our work was restricted to performance for the year ended December 31, 2021 only, as set out in the scope and subject matter section above. Information for the year ended December 31, 2020, and earlier periods have not been subject to assurance by us.

### Conclusion

Based on the procedures we have performed as described under the “Assurance work performed” and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Company’s Sustainability Information in the Report for the year ended December 31, 2021, is not prepared, in all material respects, in accordance with the Criteria.



June 28, 2022  
Shinhan Accounting Corporation Seoul, Korea  
Chairman, Board of directors **Jong-Man Choi**



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# Greenhouse Gas Assurance Statement

## Introduction

Korean Foundation for Quality (hereinafter ‘KFQ’) has been engaged by 『Doosan Co., Ltd.』 to independently verify its 2021 Greenhouse Gas Emissions and Energy consumption Report (hereinafter ‘GHG Inventory’).

## Verification Scope & Standard

KFQ’s verification was conducted domestic business sites under operational control of 『Doosan Co., Ltd.』. ‘Guidelines on the Reporting and Certification of Emissions of Greenhouse Gas Emission Trading Systems (Notification No. 2021-278 of Ministry of Environment & IPCC Guidelines 2006)’ were mainly applied in verification process but also the Company Guidelines for GHG Inventory was considered.

## Verification Procedure

The verification was planned and carried out in accordance with the procedures stipulated in the verification guidelines for the operation of the greenhouse gas emission trading system (Notification No. 2021-112), and the verification guarantee level was carried out to meet the reasonable guarantee level.

## Limitations of verification

Accuracy and completeness of emission data reported in the ‘GHG Inventory’ are subject to inherent limitations due to their nature and the methodology used in determining, calculating and estimating such data.

## Conclusion/Opinion

Through verification procedures such as ISO 14064-1, ISO 14064-3, the following conclusions are presented on greenhouse gas emissions data.

- 1) The Inventory Report has been stated in accordance with ‘Rule for emission reporting and certification of greenhouse gas emission trading Scheme’
- 2) The result of Material discrepancy satisfied the criteria for an organization that emits more than 500,000 tCO<sub>2</sub>-eq shall not exceed 5% from total emissions as per “Greenhouse Gas and Energy Target Management Scheme”
- 3) Thus, KFQ conclude that the Greenhouse Gas Emissions of the Company in 2021 is correctly calculated and stated in accordance with ‘Rules for verification of operating the greenhouse gas emission trading scheme’.

### 2021 Greenhouse Gas emissions and Energy consumption of 『Doosan Co., Ltd.』

Year	Verification scope	GHG Emissions (tCO <sub>2</sub> -eq)		
		Scope 1	Scope 2	Total
2021	All domestic business sites	22,468	40,946	63,414



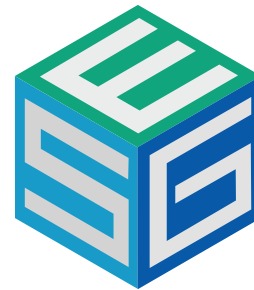
June 8<sup>th</sup>, 2022  
Korean Foundation for Quality (KFQ), CEO Ji-Young Song

Ji Young Song



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2021 Doosan Corporation ESG Report



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