

2018

Mando Sustainability Report

OUR VISION IS YOUR FREEDOM

In our creation, your tomorrow
will be safer, greener and easier.



ABOUT THIS REPORT

As the expansion of businesses continues to have economic, social and environmental impact, Mando strives to seek more responsible management of business activities. In order to share our efforts with various stakeholders including clients, partners, employees and local communities, we have published the first sustainability report in 2019. This report contains face-to-face interviews conducted with 7 stakeholders from which we inspected sustainability issues to be managed in the future. Moreover, we have chosen 13 sustainability topics that our stakeholders deem as important and continuously influence our business, and transparently reported our activities upon these topics in this report.

Reporting criteria

This report is reported in accordance with core options of GRI Standards, which is a global reporting guideline; and, it contains contents from ISO 26000 and UN SDGs.

Reporting boundaries

Pangyo headquarters, operations in Wonju, Pyeongtaek and Iksan (some activities of overseas operations included)

Reporting period

January 1 to December 31, 2018
(some activities in the first half of 2019 included)

Reporting cycle

Annual or biannual (First-ever publication in 2019)

Report verification

The reporting contents are verified by Lloyd's Register Quality Assurance Limited (LRQA), the third-party independent verification agency.

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▲ Read about our interviews
on 25-31p in this report.



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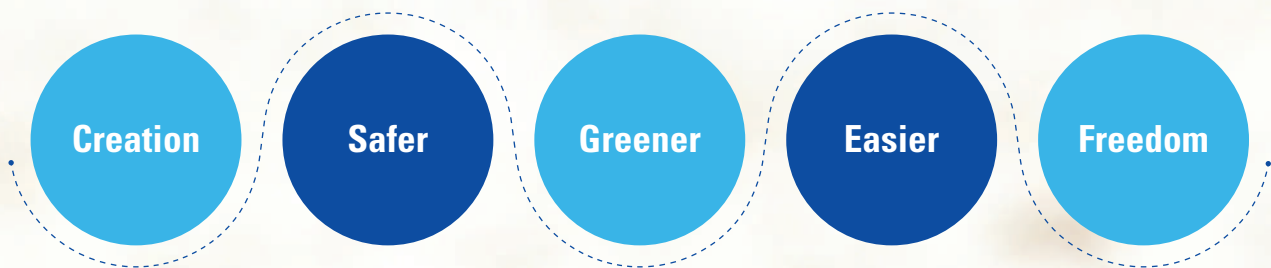
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New Vision

Mando strives to raise the value of life for our stakeholders such as clients, partners, shareholders and employees through continuous development of automotive parts technology. Founded upon a new vision declared at the start of 2019, the year of the golden pig, we are committed to creating a safer, greener and easier tomorrow for all stakeholders.

“ **Our vision is your freedom.**

In our creation,
your tomorrow will be safer, greener and easier. ”



• Creation	Innovation and Disruption as Usual	• Safer	Identity of Global Mando, Nature of Our Business
• Greener	Eco-friendly	• Easier	Comfortable & Convenient
• Freedom	Our Ultimate Goal: Sum of Safer, Greener and Easier		





CEO Message

Mando pursues values of stakeholders in all business activities to create a safe and joyful future for everyone.

Dear distinguished stakeholders,

In 2018, Mando worked more diligently than ever to develop autonomous driving technology, increase R&D investments, partner with startups and diversify client portfolio, aiming to become the true No. 1, "Global Mando," in the global automotive market. Externally, changes in industrial paradigms have accelerated and competition has become fiercer. 2018 was also an important year during which, under difficult economic circumstances, we had to find and prepare for the impetus that will continue to drive us forward.

I would like to take this time to thank every one of our shareholders, investors, clients, employees, partners and social contributors who have shown us great energy, effort and undivided support even in such a tough environment. Through this sustainability report, the first of its kind ever published by Mando, we pledge to reflect again on our foundation for sustainable growth and to make a new leap forward as a global corporation.

Investment in the core technology of future mobility to lead the global automotive market

A rapidly changing market is both a risk and an opportunity. Though the strengths we have built in existing businesses will serve as important assets, finding a golden goose for the future may require, depending on the circumstances, the courage to overturn the values of the old for creative innovation. We must become a company that ceaselessly breaks out of the box and transforms, not one that gets stuck inside a net of existing businesses and stranded in an age of changes. Thus, we have utilized Mando Innovations Silicon Valley (MISV) to reinforce technical exchanges with promising startups. In 2018, we became the first company of the Korean automotive industry to acquire autonomous driving permit in California, the United States; and, in Korea, we have participated in successful launch of "Zero Shuttle," the first-ever unmanned driving of a self-driving bus currently in operation, equipped with Mando's radars. We plan to discover new businesses and products that can provide safety and freedom for drivers, and also actively pursue partnerships and M&As with global enterprises. By 2025, we will increase the percentage of R&D investment to 8% in order to improve our competitiveness in the core parts of future vehicles.

People First, Strategy Second

The most important thing is a culture that enables each and every member who will promote and execute strategies to exhibit his/her competency to its fullest so, with a strong will, we strive to create an agile organization and foster talents. To strengthen responsible management, we have also launched a "Global Product-based Organization" and declared a new vision, thus solidifying our preparations for continuous growth. Starting this year, we aim to practice from the basics "properly." For communication and unity of efforts, we have held company-wide open communication. 165 globally selected employees and leaders had face-to-face discussions and made sure that the ideas for improvement collected from these are applied in everyday work. Moreover, we have run various programs including "Work Smart" curriculum and Halla Business School to not only nurture core talents who will lead future growth but also set up an environment for our employees to develop. For establishment of a working environment that will maximize competency, we specified our goal in "Zero hazard, Zero fire, Zero accident" at worksites and was able to lower the Factor of Safety Index (FSI) by 32% from 2017. We will continue to guarantee safety at workplaces by introducing the ISO 45001 international standard in the near future. There is nothing more important than our employees for leading future growth.

Maximizing value for stakeholders in alignment with our future competitiveness

To survive in a fiercely competitive global market, core technologies are a must and, without our partners, raising our technical competitiveness will soon face its limits. Thus, starting in 2013, our Partnership Team has been systematically running programs for our partners including the "Hidden Champion Development Program" and "Friendly Activities"; and, in 2018, we actively promoted safety management activities of our partners through support for the establishment of autonomous safety control and risk assessments. Its efforts were acknowledged in the same year when it obtained the "Excellent" grade in the 2018 Win-win Index, two steps higher than the previous year. Furthermore, we consistently carry out community services to fulfill our social responsibilities. We have donated 323 wheelchairs since 2012 through "Roly-poly Love Wheelchairs" and also assisted "Seed School" and "Halla Biscuit Camp" to support the future visions and dreams of our youth. In addition, we systematically pursue environmental management activities at each worksite as a way to take an active part in solving various environmental issues in energy, waste, etc. Lastly, we seek maximization of value for our stakeholders and, thus, plan to constantly improve ourselves by comparing ourselves with yesterday's Mando as well as other leading companies.

We wanted to use this report to share with you in-depth details about our activities and achievements in regard to our material topics on sustainability management. We kindly ask for your attention and encouragement to help Mando continue to grow as responsible corporation that always communicates transparently with every stakeholder.

Thank you.



April 2019
CEO & Chairman | **Chung Mon-Won**

Company Overview

About Mando

As a global corporation specializing in automotive parts, Mando currently supplies its parts to about 60 domestic and foreign automobile manufacturers. At the Global R&D Center and headquarters along with business facilities in 50 locations worldwide from Asia and North America to South America and Europe, we carry out four primary tasks including R&D, product manufacturing, sales and logistics, and vehicle tests. We hold the nation's highest level of independent technology based on know-how accumulated for nearly half a century in brake, steering and suspension systems of cars, and strive to develop future automobile technology including Advanced Driver Assistance System (ADAS).



General status

(as of December 2018)

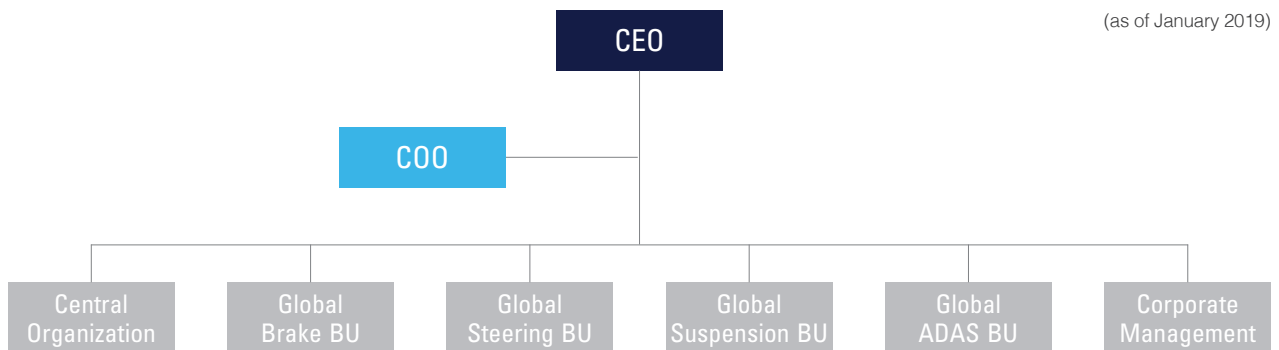
Company name ¹⁾	Mando Corporation
Date of establishment	October 1, 1962
Representative directors	Chung Mong-won, Song Bum-suk
Headquarters	32, Hamanho-gil, Poseung-eup, Pyeongtaek-si, Gyeonggi-do
Business activities	Manufacturing and sales of automotive parts
Number of business sites	20 manufacturing centers, 18 R&D centers, 8 sales/logistics centers, 7 vehicle test sites
Liability	KRW 2,956 billion
Capital	KRW 1,482 billion
Sales	KRW 5,665 billion
Credit rating ²⁾	AA-
Number of employees	12,253 (including employees in overseas operations)

1) Mando was founded on September 2, 2014, after the automotive parts manufacturing and sales divisions spun off from Halla Holdings Corp. and Mando listed its stocks in the securities market of the Korea Exchange on October 6, 2014

2) Source: Korea Investors Service (KIS)

Global Product-based Organization

To quickly respond to the paradigm shifts in the automotive market, we have restructured the organization, centered on the business unit in 2019, thus empowering every single member of the organization to solve the current issues in global operations in a more efficient and agile manner and to prepare for future growth. Through this, we aim to make a leap forward as a global corporation that secures competitiveness in the global market with continual growth.



History of Mando

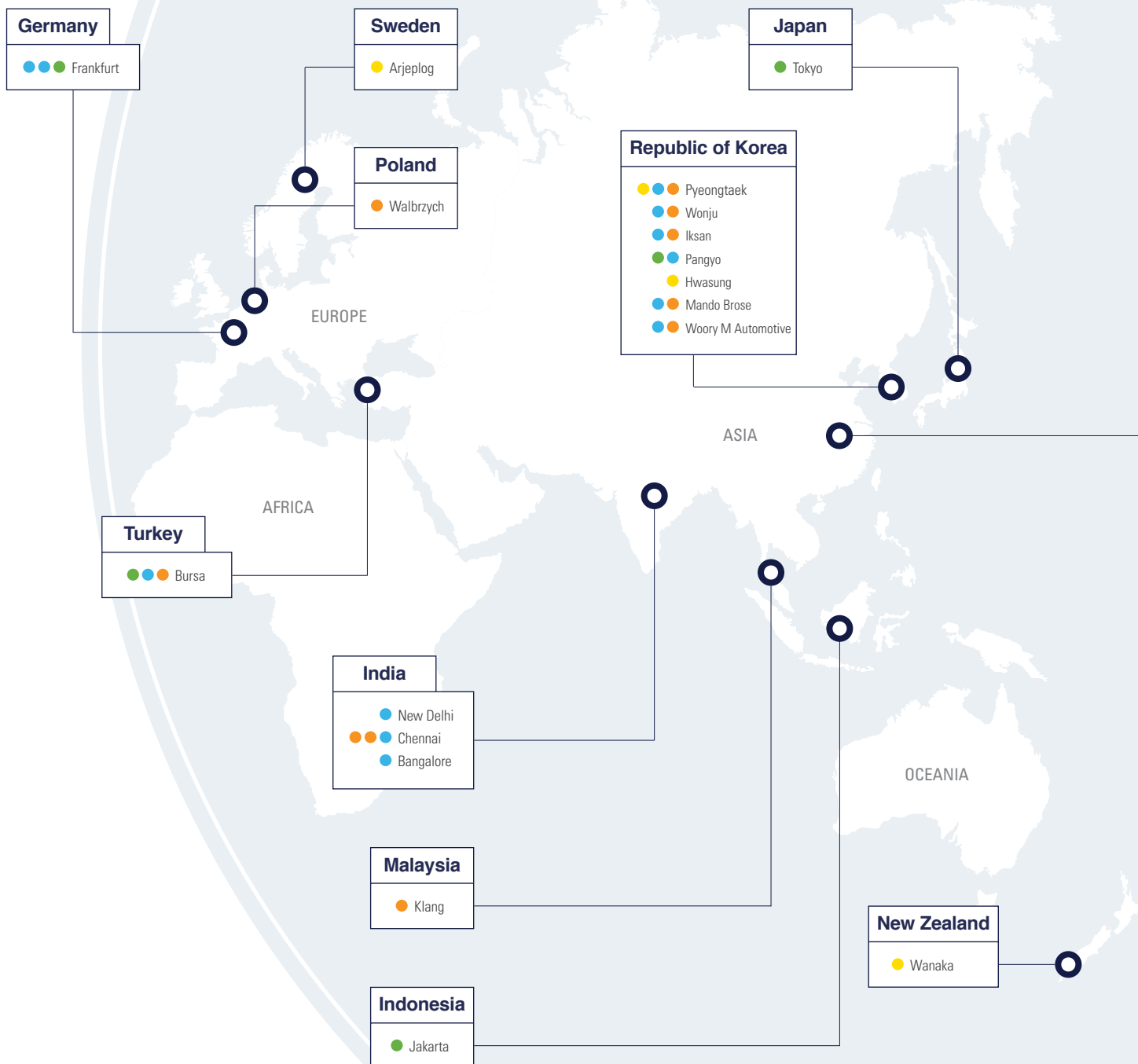
Ever since it was founded in 1962, Mando has been actively pioneering overseas markets in the U.S., China, India, etc. to solidify itself as a global specialist in automotive parts. In 2017, we opened Mando Innovations Silicon Valley (MISV) as a part of our consistent efforts to grow as a global enterprise that even encompasses advanced future automotive parts.

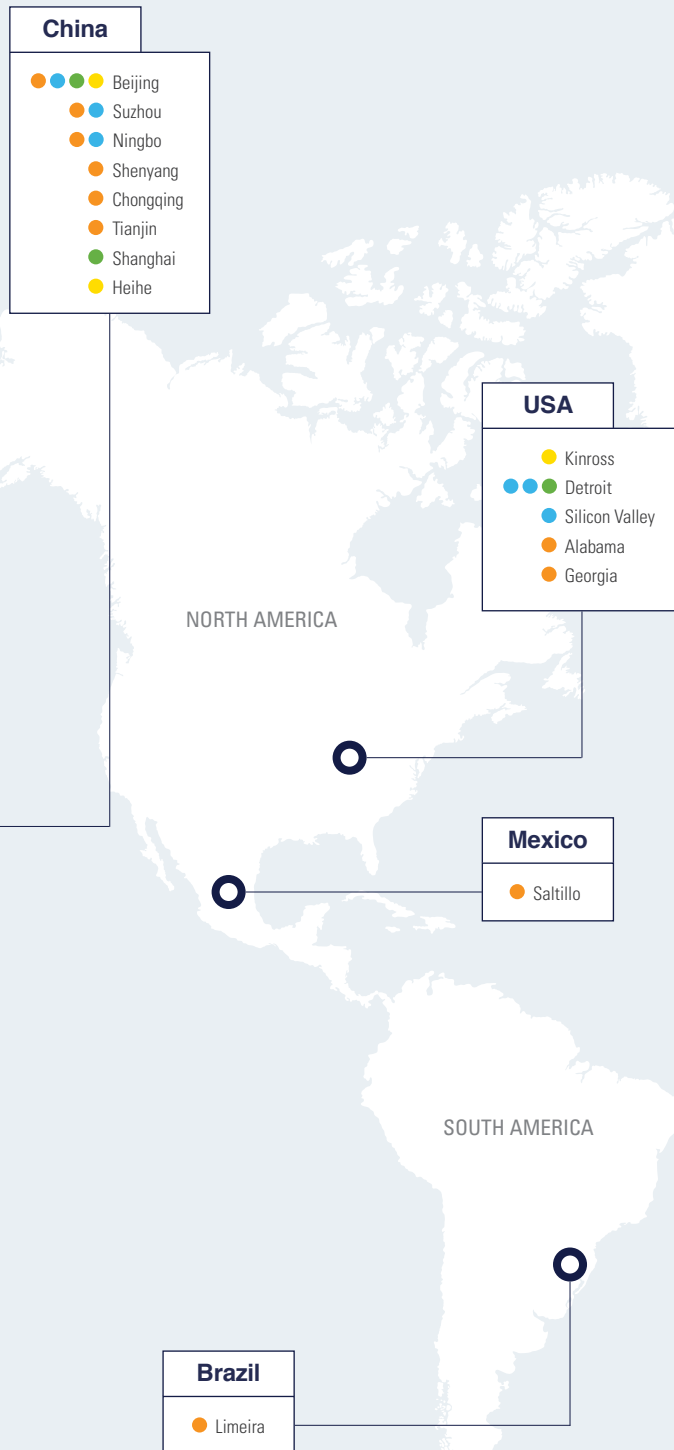
(as of 2018 end)

		1960			
		1970		1962	• Established Hyundai International Inc.
		1980		1964	• Completed construction of the Anyang Plant
		1990			
1979	• Expanded the production capacity to 150,000 automotive parts per year			1984	• Expanded the production capacity to 300,000 automotive parts per year upon completion of factory expansion • Established the Technical Research Center and Central R&D Center
1991	• Established Meister Inc.			1988	• Completed construction of the Steering Plant in Munmak (Wonju) • Completed construction of the Brake Plant in Pyeongtaek
1993	• Established the Central R&D Center in Deokso			1989	• Established the Winter Test Center in Sweden
1995	• Completed construction of the Suspension Plant in Iksan • Founded Autoventure Mando				
1996	• Established Mando America Corporation			2002	• Opened the Central R&D Center in Giheung • Established Mando (Harbin) and Mando Suzhou China
1997	• Established Mando India Ltd. and Maysan Mando Turkey			2003	• Established Mando Beijing China and Mando R&D Center China
1999	• Established as a new company, Mando Corporation			2004	• Established Mando Tianjin China • Completed construction of the Mando America Corporation-Alabama Plant
2010	• Newly listed Mando Corp. on securities exchange • Opened Mando Tokyo Branch	2000		2005	• Established Mando Softtech India
2011	• Established Mando America Corporation-Georgia Plant • Acquired E-Polymer Co., Ltd. • Established Kayaba Mando do Brazil • Established Mando Brose Corporation, a joint automotive with Germany's Brose	2010		2007	• Established Mando (Shanghai) Trading Co., Ltd. and Mando (Beijing) Trading Co., Ltd.
2012	• Completed the construction of the Global R&D Center in Pangyo • Opened the Mando Jakarta Office • Completed the construction of the Mando India Ltd. Steering Plant			2008	• Established Mando-Hella Electronics, a joint venture with Germany's Hella
2013	• Acquired DSP-Weuffen • Merged with MIS and MIL to launch an integrated corporation, Mando Automotive India Ltd.				
2014	• Completed the construction of Mando ShenYang China • Completed the construction of the Mando R&D Center China • Completed the construction of the Mando Corporation Poland Plant				
2015	• Established Mando Chongqing China and Mando Corporation Mexico				
2016	• Completed the construction of the Test Building at the Reliability & Validation Test Center				
2017	• Expanded caliper line of Mando Ningbo China • Expanded Winter Test Center in Sweden • Established Mando Innovations Silicon Valley (MISV) Office				

Global Business Sites

As of end of 2018, Mando runs about 50 business facilities in 13 countries including China, the U.S., Germany and India, securing global bases in Asia, North and South America and Europe. By region, the U.S. currently oversees steering, Europe braking, India software and Korea ADAS. Moreover, we plan to actively pursuit orders from premium American and European OEMs as well as Chinese automobile manufacturers to continuously expand our portfolio of new clients.



**Global network**

(as of December 2018)

Manufacturing
bases

20

R&D
bases

18

Sales and
trade bases

8

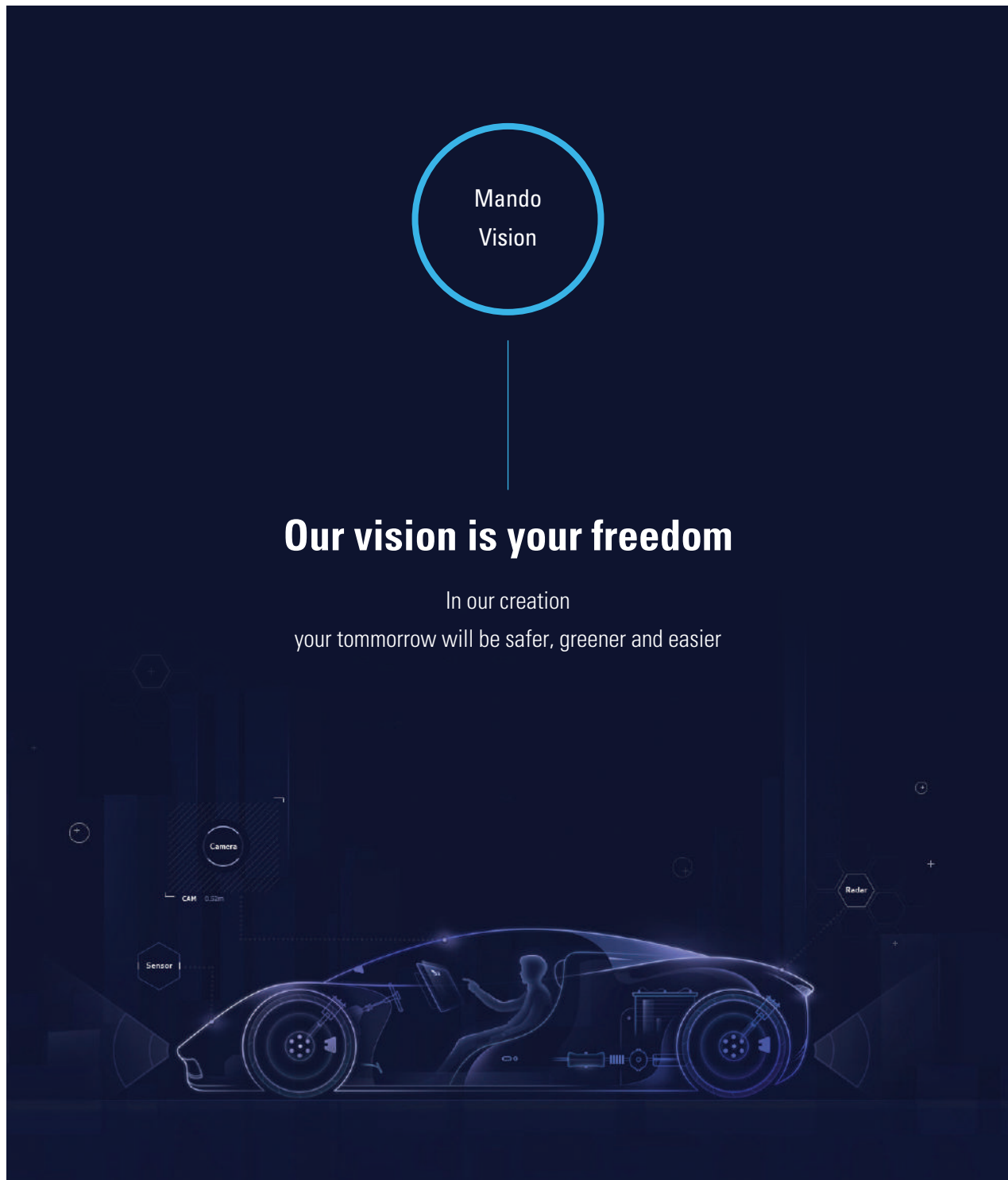
Vehicle
test sites

7

Vision and Philosophy

New Vision

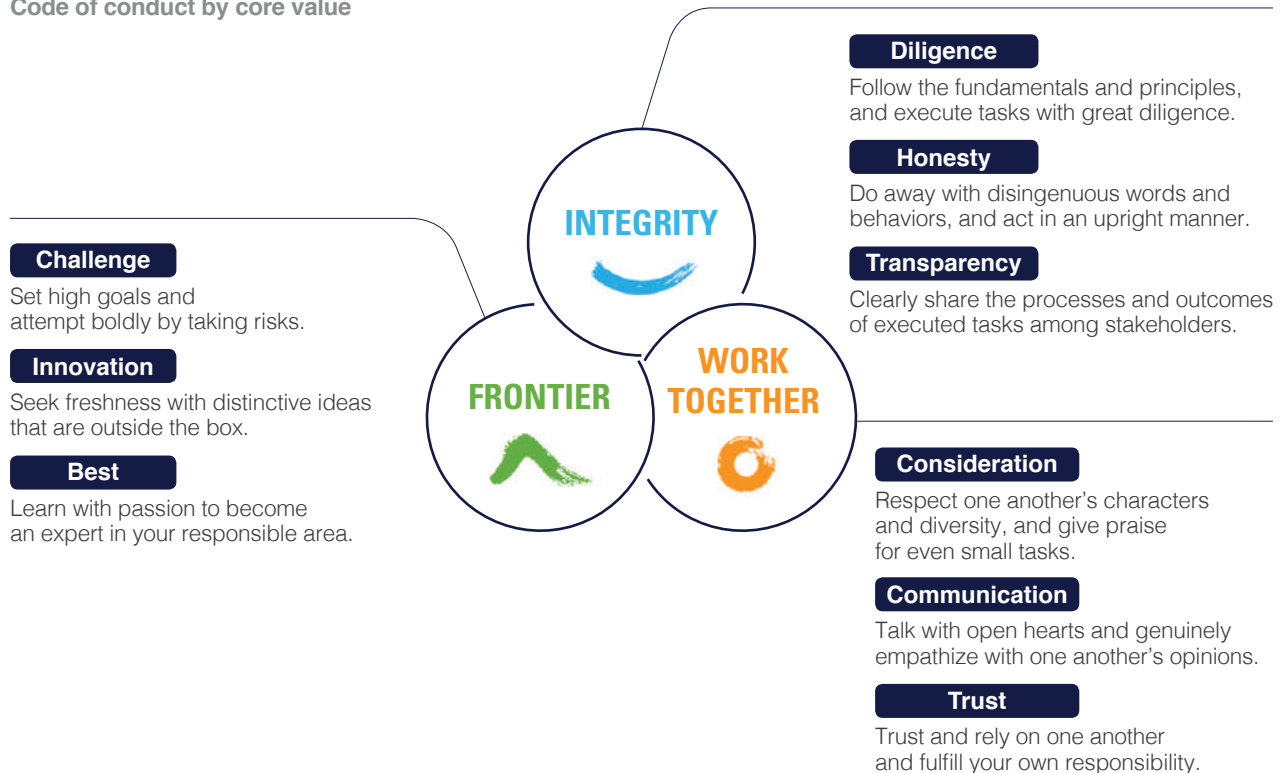
Mando established a new vision in 2018, declaring its ambition to contribute to a safer, greener and easier tomorrow for the stakeholders. We especially emphasize “freedom” for people to liberate themselves from inconveniences in safety, the environment and their daily lives.



Core Values

We seek "Integrity, Frontier and Cooperation" as the core values for realization of our vision and the principles and standards that employees must follow as they perform tasks. By sharing the company's vision and values, all of the employees are doing their best to achieve continuous growth.

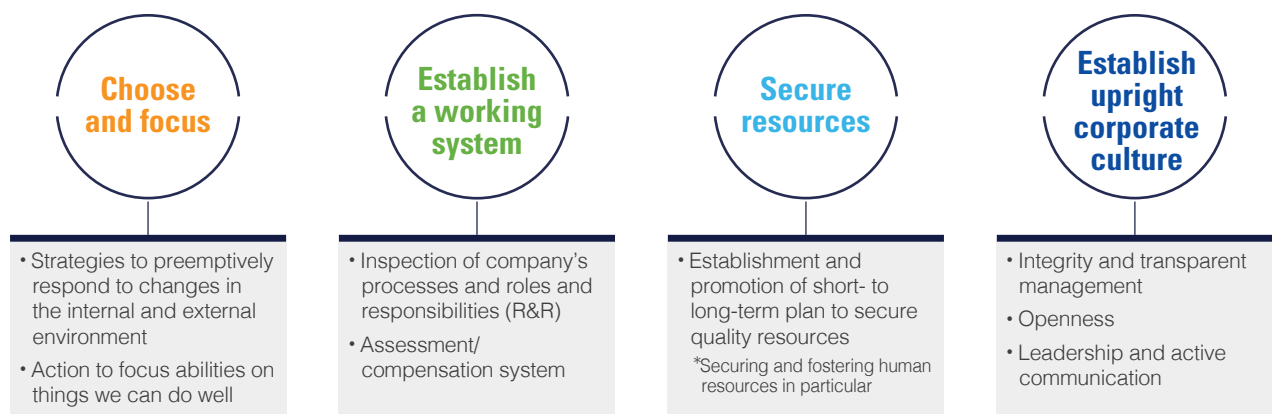
Code of conduct by core value

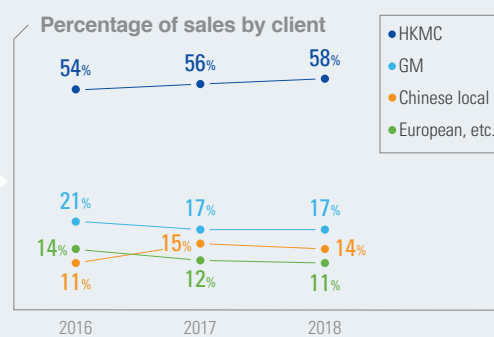
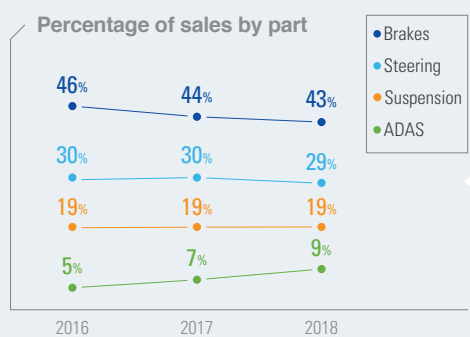
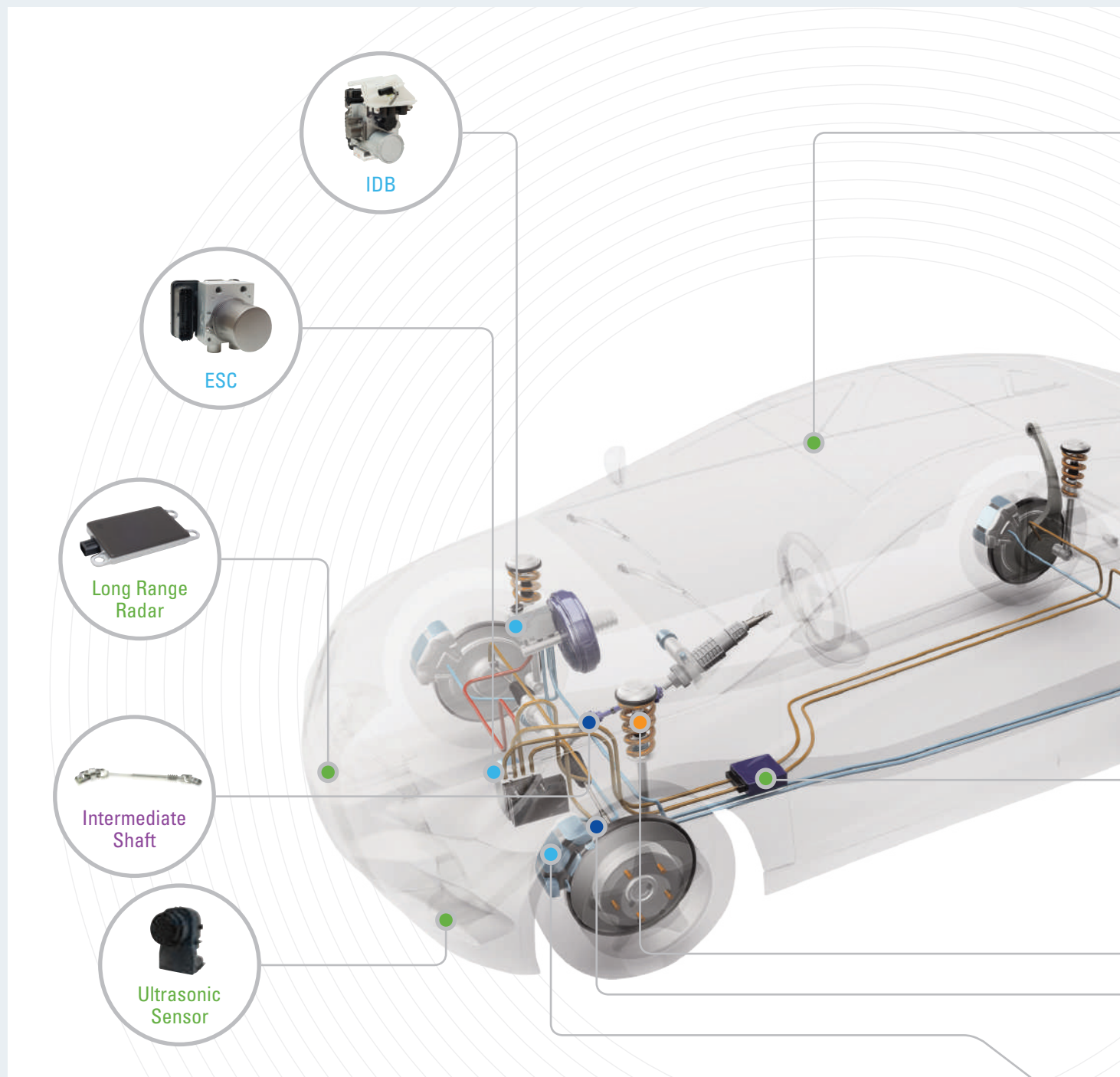


Management Philosophy

To be a sustainable company under any circumstances, Mando has defined "Halla way" as its management philosophy. Halla way is both the path on which all members must walk together for realization of the company's vision and a necessary policy to be practiced for management activities.

4 assignments to practice for Halla way







Mando Products

As an automotive parts manufacturer specializing in chassis components and producing brakes, steering and suspension systems as well as ADAS, Mando provides an integrated solution of sensors, integrated control processors and driving control devices, thus leading the field of future self-driving. Mando currently supplies its parts to most of the top 10 automobile manufacturers in the world and strives for the diversification of customers based on superior technology, quality and cost competitiveness.

Brake System •

Brake system recognized for its world-class quality

Mando's brake product portfolio includes mechanical/electronic brake products and brake control systems, and Mando is responsible for not only internal combustion engine, electric and self-driving vehicles but also the safety of drivers and pedestrians amidst the driving environment.

Steering System •

Mando's steering system in world-renowned cars

In a steering system that controls the direction of the vehicle, Mando has independently developed the columns, electric power steering (EPS) and the entire control logic coupled with an innovative breakdown assistive device (Redundancy) to provide both steering stability and convenience for common cars and self-driving vehicles alike.

Suspension System •

Mando's leading suspension system through independent development of advanced parts

Mando supplies about 30 million each of struts and shock absorbers overseas. In terms of market share, it ranks No. 1 in China and No. 3 worldwide and, through development of ultra-advanced products to be applied in future intelligent vehicles, we strive to maintain our reputation as a global automotive parts maker.

ADAS(Advanced Driver Assistance System) •

ADAS technology making a dream car come true

Mando's ADAS technology detects suitable parking spaces and assists with steering parking to increase the level of convenience for drivers when parking. It also offers more enhanced convenience and safety through accident prevention technology that prevents lane departures and collisions and other means of reducing the burden of the drivers. Mando's technology continues to progress in order to materialize self-driving and zero-accident smart vehicles.

Megatrends in the Automotive Industry

The global automobile industry today picks "C.A.S.E. (Connectivity, Autonomous, Shared and Electric)" as the four main megatrends. Among these, Mando currently focuses its technical development competency in autonomous driving and electric vehicles.

Connectivity

Expand convergence
of AI-based vehicle
and mobile

Autonomous Driving

Commercialize self-driving
and expand
the application
of AI

Autonomous Driving

Industry Status & Outlook



Embedding of **Level 3 conditional** self-driving technology



Level 4 self-driving to be realized for 4-5% of all cars by 2025 (28% level 2, 12% level 3)



Automobile OEM companies to **increase investments in startups** for electric and self-driving vehicles

Mando's Response

Mando is the first domestic company to acquire autonomous driving license in Korea with self-driving vehicle manufactured with its own independent technology, and Mando has also acquired the license in California, U.S. Mando's self-driving car is equipped with front, front corner and rear corner radars, a front camera, front and rear image recording devices, a driver interface, and driving records and other recording devices, all of which are source technologies developed by Mando. In addition, we have applied various driver assistance systems such as Smart Cruise Control (SCC), Autonomous Emergency Braking (AEB), Lane Keeping Assist System (LKAS), Blind Spot Detection (BSD) and Traffic Jam Assist (TJA) as well as braking and steering technology including R-EPS, the latest steering device for handling with freedom, and Electronic Stability Control (ESC). Through unmanned driving of "Zero Shuttle" in 2018, we successfully performed a test drive of Level 4¹⁾ self-driving, thus taking a step further into the completion of Mando's own self-driving technology.

1) Stages of self-driving development

- Stage 1: Single driving assistance / Stage 2: Convergence assistance for multiple driving features / Stage 3: Limited self-driving / Stage 4: Safe self-driving

(Source: U.S.A. National Highway Traffic Safety Administration)



Shared Service

Expand car sharing
and calling
services

Electric Vehicle

Expand economy/
functions Launch
electric vehicles

Industry Status & Outlook



Ban on sale of internal combustion engines
Deadlines set by countries
2030 for China, Germany
2040 for United Kingdom



Lowest battery price ever for electric vehicles
Lithium-ion battery price
dropped 25%²⁾ in 2017
compared to previous year



Number of electric vehicles sold in 2017 surpassed 1 million³⁾

Mando's Response

Mando successfully obtained a parts supply order from "Byton," an up-and-coming Chinese electric vehicle maker, in 2018 and came to supply Rack-typed Electric Power Steering (R-EPS), steering wheel columns, electronic brake systems and suspension systems. R-EPS, which electronically delivers desired control signals to the wheels, is an absolutely necessary component in a self-driving vehicle, and Mando succeeded in its mass production for the first time in Korea. Moreover, we have manufactured an OBC (On-board Charger) for electric cars and even smaller and lighter high-voltage battery chargers in 2017. Currently, we are conducting advanced development of BSG(Belt-driven Starter Generator) parts, which assist fuel efficiency improvement of electric cars, and E-drive, an integrated electric powertrain system.

Electric Vehicle

2) Global Automotive Industry Outlook, 2018, Frost & Sullivan

3) International Energy Agency





Leading a new paradigm of automotive market

**Mando designs freedom on driving.
Technology that is safer, more eco-friendly
and more convenient is our vision and future.**



Managing Sustainable Business

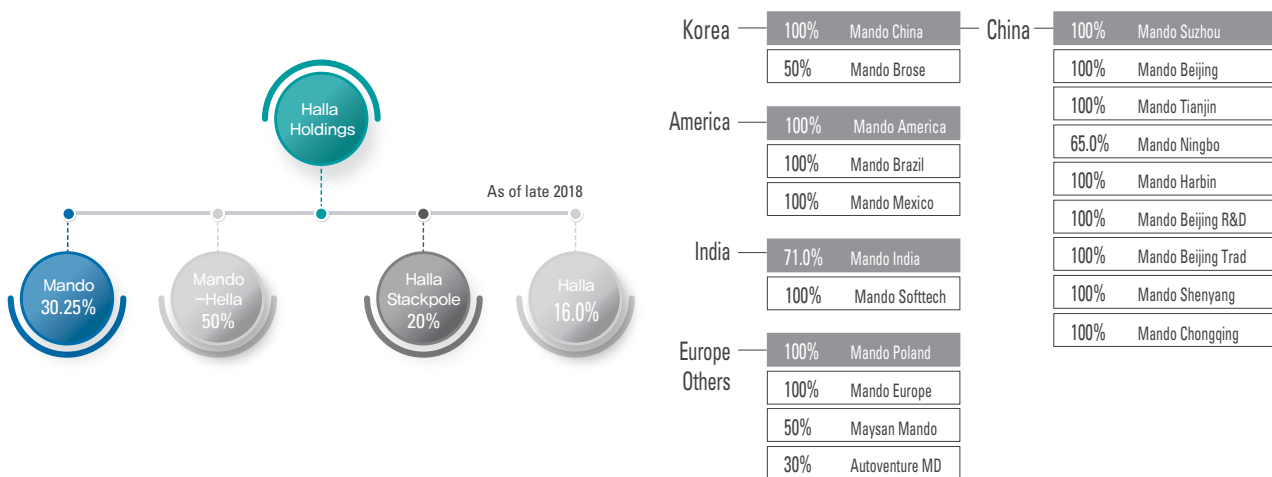
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Management System

Governance

Governance is a system that arbitrates various interests of major stakeholders, which include clients, shareholders and employees, and carries out decision-making. Its operation is centered on the Board of Directors, the highest-level decision-making group, and serves an essential role in implementing sustainability management in an effective manner. Mando regularly holds meetings of the Board of Directors to discuss not only financial elements but also non-financial activities that create social value.

Governance Structure

With the base division date of September 1, 2014, Mando was founded on the following day, September 2, 2014, after the automotive parts manufacturing and sales divisions spun off from Halla Holdings. Mando listed its stocks on the securities market of the Korea Exchange on October 6, 2014, and the major shareholder that owns 30.25% of the company's total shares is Halla Holdings.



Composition of Board of Directors

The Board of Directors is the highest-level decision-making group that possesses voting rights in the overall corporate management and business operations. It is constituted of a total of 10 directors, 4 inside directors and 6 outside directors whose terms are limited to 3 years. According to the Board of Directors regulations, the CEO is also the chairperson of the board and the number of outside directors is maintained to be more than half of the total number of directors. For the positions of inside directors, the company's CEO, COO and other executives in major divisions are appointed to strengthen responsible management and, for the positions of outside directors, lawyers, university professors, bankers and other legal and financial experts are appointed to improve the diversity and expertise of the board.

History of board meetings held

No. of meetings		No. of voted decisions		Attendance rate of outside directors	
5	2016	31	2016	87	2016
5	2017	31	2017	87	2017
6	2018	21	2018	92	2018

*The voted decisions include approval on internal transaction among affiliates, annual investment limits on startup, etc. (More details can be found in 2018 Business Report.)

Status of Board of Directors

(as of March 2019)

Category	Name	Current position	Term
Representative Director	Chung Mong-won	CEO, Mando Corp.	2018.03 - 2021.03
<p>Representative Director Chung Mong-won served as CEO and Chairman of Mando Corporation from 2008 to 2012 and returned to its position in 2017, currently serving as Chairman of Halla Group and CEO of Mando. He earned a Bachelor of Business Administration (BBA) from Korea University and a Master of Business Administration (MBA) from the University of Southern California. Ever since taking over this company through Halla Group in 2008, he has solidified a partnership with Hyundai Motor Group, one of its major clients, and expanded its trading partners to many world-renowned automobile manufacturers, making significant contributions to the company's growth. He also proposes the long-term vision and strategic direction of the company to prepare a foundation for sustainability management.</p>			
Representative Director	Song Bum-suk	COO, Mando Corp. & Head of Mando Korea	2017.03 - 2020.03
<p>Representative Director Song Bum-suk graduated from the Department of Mechanical Engineering at Korea University and, after entering Mando Machinery, a former entity of this company in 1982, worked in the Production Department of the Suspension Business Division before serving as the division's director at Mando from 2010 to 2017. For over 30 years of experience as an engineer in the field, he has greatly contributed to improving the technology and production capacity of Mando's suspension devices. He currently serves as the COO (Chief Operating Officer) and Head of Mando Korea, striving to maintain favorable relations with labor unions and stabilize the domestic businesses.</p>			
Inside Director	Tak Il-hwan	Head of Global Brake BU, Mando Corp.	2018.03 - 2021.03
<p>Director Tak Il-hwan oversees the company's Global Brake Business Unit. After graduating from the Department of Mechanical Engineering at Hanyang University, he entered Mando Machinery in 1985. While working as the head of the New Car Development Support Office and the Steering Research Institute, he made many contributions to the R&D of the company's brake and steering devices and, as Global CTO (Chief Technology Officer) until 2018, has been a key player in securing technology that the company needs to stand shoulder to shoulder with the world's leading automotive parts corporations.</p>			
Inside Director	Chung Jae-young	Head of Corporate Management, Mando Corp.	2019.03 - 2022.03
<p>Director Chung Jae-young was responsible for Halla Group's investor relations and global strategies in the past and now serves as the Head of Corporate Management who oversees planning, finances and human resources. He earned a Bachelor's degree in Economics at Hankuk University of Foreign Studies and an MBA from the University of Southern California. Prior to joining Mando, he was a Strategy Analyst and Market Director for British Petroleum as well as an executive in corporate strategy at Hanon Systems. With diverse external experiences and an outstanding global mindset, he breathes new energy into the company.</p>			
Outside Director	Kim Young-soo	Chief Director, Research Center for Korean Youth Culture	2017.03 - 2020.03
<p>Director Kim Young-soo passed the judicial examination in 1965 and served as a prosecutor at the Seoul District Prosecutors' Office in 1971 and as the First Vice Director at the Agency for National Security Planning from 1990 to 1992. In 1992, he became a member of the 14th National Assembly and served as the 33rd Minister of Culture and Sports from 1995 to 1997 as well as the chairman of the 2014 Incheon Asian Games Organizing Committee. Currently, he is the Chief Director of the Research Center for Korean Youth Culture, and has earned a Bachelor's degree in Law from Seoul National University. Based on many years of a public career as a prosecutor and minister coupled with diverse experiences in the fields of culture and sports, particularly as the chairman of the Incheon Asian Games Organizing Committee, he proposes fundamental opinions from various angles during the process of making decisions on the company's major agendas.</p>			

Category	Name	Current position	Term
Outside Director	Lee Chong-hwi	Former President of Woori Bank	2017.03 - 2020.03

Director Lee Chong-hwi entered Hanil Bank in 1970 and served as Vice President of Hanvit Bank in 2002 and President of Woori Bank from 2008 to 2011. Then, from 2011 to 2014, he served as Chairman of the Credit Counseling & Recovery Service and, from 2014 to 2016, as Chairman of Smile Microcredit Foundation. He also earned a Bachelor's degree in Business Administration from Seoul National University. Based on many years of experiences and knowledge gained while working at one of the nation's largest banks, Woori Bank, he proposes new financial techniques and products and actively offers many other relevant advice with a great focus on advancement of the financial structure.

Outside Director	Kim Dae-sik	Professor, Dept. of Business Administration, Hanyang Univ.	2017.03 - 2020.03
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Director Kim Dae-sik worked in the International Finance Department at the Bank of Korea from 1978 to 1979, and has been teaching business administration at Hanyang University since 1991. While serving as a professor at the university, he was also appointed as an outside director of SK Telecom (1998-2004) and Shinhan Bank (2004-2007), and is currently Chairman of the Korea Investment Corporation Operating Committee. He earned a BBA from Seoul National University as well as an MBA and a doctorate in Business Administration (DBA) at Wharton School. He was appointed by recommendations of external shareholders such as the National Pension Service and, based on the knowledge he had gained from studies and experiences as an outside director at other companies, he demonstrates his competency to its fullest here at Mando. He especially puts the protection of shareholders' rights and interests as the No. 1 priority and pays close attention to, for example, the enhancement of corporate governance and legality of internal transactions among affiliates, proposing relevant items for improvement at the Board of Directors and Internal Transaction Committee.

Outside Director	Kim Han-chul	Adviser, Lee & Ko Law Firm	2017.03 - 2020.03
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Director Kim Han-chul began his career at Korea Development Bank in 1978. Since then, he served as Chief Vice President of KDB from 2012 to 2014 and as the 11th Chairman of Korea Technology Finance Corporation from 2014 to 2017. He earned a Bachelor's degree in Public Administration and a Master's in Business Administration at Korea University. Based on many years of working experience at the nation's largest government-run bank, he offers a lot of advice on financing and improvement of the company's financial structure and, as a member of the Audit Committee, also performs surveillance of the company's financial and sales activities.

Outside Director	Kim Hyun-soo	Professor, Dept. of Mechanical Eng., Sungkyunkwan Univ.	2017.06 - 2020.06
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Director Kim Hyun-soo worked in the Machinery Department of Hyundai Engineering from 1979 to 1982 and taught students at the School of Mechanical Engineering at Sungkyunkwan University until 2018. He has been serving as a member of the Hybrid Vehicle Project Planning Committee under the Ministry of Knowledge Economy and Chairman of the Hybrid and Fuel Cell Committee of The Korean Society of Automotive Engineers, making him one of the top authorities in the automotive industry. He earned a Bachelor's degree in Mechanical Engineering from Seoul National University before acquiring his Master's and doctorate degrees in Mechanical Engineering from Korea Advanced Institute of Science and Technology (KAIST) and the University of Texas at Austin, respectively. As previously mentioned, he is one of the top scholars in the domestic automotive industry including machinery and mechatronics, and actively advises on the company's technical development and direction of business based on comprehensive knowledge and various research experiences.

Outside Director	Kim Kyung-soo	Lawyer, Yulchon LLC	2017.06 - 2020.06
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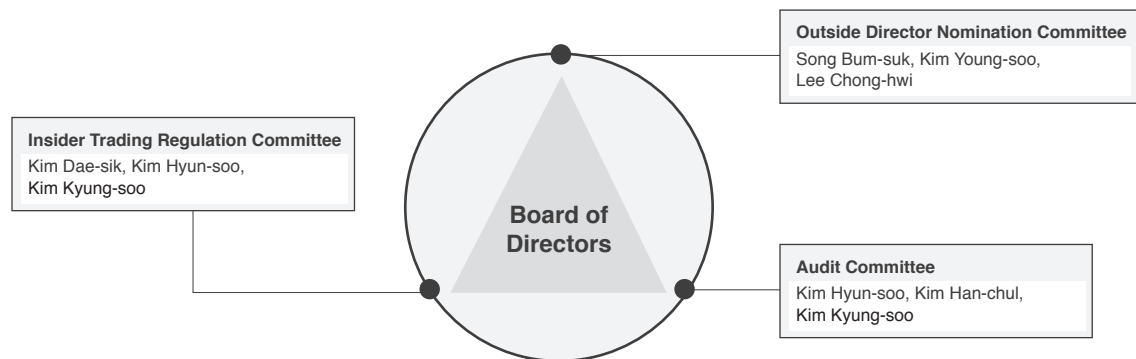
Director Kim Kyung-soo passed the judicial examination in 1985 and started his career as a prosecutor at the Chuncheon District Prosecutors' Office in 1988. Then, he went on to serve in many key posts in the prosecution, including Head of the Central Investigation Division of the Supreme Prosecutors' Office in 2012, Chief of the Daejeon High Prosecutor's Office and Busan High Prosecutor's Office in 2013 as well as Chief of the Daegu High Prosecutor's Office in 2015. Currently, he is a lawyer at Yulchon LLC. He earned a bachelor's degree in Law from Yonsei University. Based on broad knowledge and understanding from many years of service as a prosecutor, he offers not only legal advice but also counseling in social responsibility and ethical management. As a member of the Audit Committee, he also monitors whether or not the company is operated in accordance with laws and regulations.

Operation of Subcommittees

According to its articles of association, Mando operates three subcommittees—the Outside Director Nomination Committee, Audit Committee and Insider Trading Regulation Committee—within the Board of Directors to strengthen expertise and efficiency in decision-making. In an attempt to reinforce transparency and impartiality throughout management, Mando appoints external auditors equipped with expertise and independence through a process of approval by the Audit Committee. In 2018, the external auditor attended Mando's Audit Committee meetings to report on yearly audit plans, audit results, recent audit trends, etc.

Composition of subcommittees

Sub-committee	Roles	Composition	Activity outcomes
Outside Director Nomination Committee	Reinforce independence and professionalism	1 representative director, 2 outside directors	Recommend candidates for outside directors
Audit Committee	Appointed at the general meeting of shareholders according to the regulations of the Commercial Act	3 outside directors	Accounting and operations audits
Insider Trading Regulation Committee	Improve transparency in transactions of affiliates	3 outside directors	Review and vote on inside trading with affiliates



Wages and Compensation for Directors

In accordance with the executives' wage regulations, Mando annually fixes wages for executives through individual negotiations, and the wages of registered directors are set within the wage limit approved at the general meeting of shareholders. At the regular general meeting of shareholders held in March 2018, a wage limit of KRW 10 billion was approved.

Status of wages for directors

(as of end of 2018, unit: KRW 1 million)

Category	No. of people	Total wages	Average wages per person
Registered director ¹⁾	5	4,207	841
Outside Director ²⁾	3	224	75
Audit Committee members	3	212	71

1) Except outsider directors and Audit Committee members

2) Except Audit Committee members

Value Creation Business Model

We have analyzed and reported on the economic, environmental and social activities of our company and the impact generated by the six processes ranging from R&D to sales, in addition to reporting on their influence on the stakeholders. We strive to utilize the profits created through our business activities to improve not only our business processes, but also the value created for major stakeholders, including employees, local communities, government, academia, etc.



R&D

Shareholders and investors /
Clients / Employees



Development of high-added value, high-efficiency chassis products

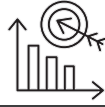
- Developing brake, steering and suspension parts
- Developing ADAS parts

Development of eco-friendly products

- Securing Regenerative Braking System (RBS) technology for electric cars
- Mass-producing high-efficiency electric car battery chargers

Development of products for autonomous driving

- Securing Autonomous Emergency Braking (AEB) and Lane Keeping Assist System (LKAS) technology
- Mass-producing lidars, radars, cameras and ultrasonic sensors



Sales and marketing

Shareholders and investors /
Clients / Employees



Diversification of customers and stabilization of business

- Diversifying foreign customers in North America, Europe, China and India
- Strengthening the acquisition of orders in markets in different countries
- Participating in the International Motor Show (IAA) in Frankfurt, Germany and tech shows in Korea

Activities for acquisition of orders based on integrity management

- Conducting fair competition in clean, transparent ways
- Strictly prohibiting illegal activities such as solicitation of bribes



Purchasing

Affiliates / Employees



Raw material quality and delivery management

- Trading with 740 partners in 7 countries, including the U.S., India and China
- 374 employees at our partners participated in quality certification system training
- Quality competency reinforcement education for partners
- 1,026 employees from 475 companies participated

Supply chain CSR and communication

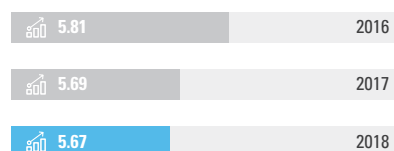
- 68 attendees at Mando Coop. Association seminar
- 19 cases received from partners to resolve their grievances, 18 of them resolved
- Conducting joint education for integrity management
- Supporting the autonomous safety management establishment program for partners



Responsibility towards stakeholders



Value created (sales, unit: KRW 1 trillion)



Employees

- Total salary of employees: KRW 111,587 million
- Number of hours of education per employee: 52 hours
- Education and training expenses for employees: KRW 2,872 million
- Welfare expenses: KRW 25,721 million
- Number of employees on flexible working hour system: 2,336
- Activities to improve corporate culture (Appreciation Day, Mantong, etc.)

● Economic impact ● Environmental impact ● Social impact



Production

Employees / Clients /
Local communities



Reinforced manufacturing competitiveness

- Efficiently managing materials, personnel, facilities, etc.

Strengthened safety at production plants and sites

- Performing monthly joint safety inspections by labor and management
- Operating the on-site Safety Patrol system

Minimization of impact on environment from greenhouse gas, wastes, wastewater, etc.

- Reduced 53% of power used at worksites compared to the previous year
- Reduced 110,193 tCO₂-eq of total greenhouse gas emission compared to the previous year
- 95% recycling rate of wastes (Wonju Plant)



Sales

Clients / Employees



Thoroughness for on-time delivery

- Supplying products for different models to 60 domestic and foreign automobile makers

Strengthened cost competitiveness

Customer issue management



Quality management

Clients / Employees



Final product quality and safety control

- Establishing G-QMS (Global Quality Management System)
- 210 professional researchers and operating expenses of KRW 5.6 billion in winter testing
- Quality management activities in each process

Reinforced quality competency of employees

- Assisting 96 partners with quality certifications



Local communities



- Donations to local communities by Halla Group: KRW 207,050,000
- "Roly-poly Love Wheelchairs": 355 beneficiaries and 323 wheelchairs donated over 3 years
- Education and training expenses for employees: KRW 2,872 million
- Accumulated sponsorships for Child Fund Korea by employees: KRW 142 million



Government



- Number of jobs created: 204 (newly employed personnel in 2018)
- Amount of taxes and utility bills paid: KRW 4,734 million



Academia



- Industry-university exchange activities and scholarships in 2014-2018: 40 selected, 22 hired and 10 scheduled to be hired

Dialogue with Stakeholders

Mando defines clients, employees, shareholders and investors, partners, the government and associations, media and academia as our major stakeholders. In 2018, we actively collected their opinions through surveys, face-to-face interviews, etc. Based on their comments and ideas, we plan to continuously enhance sustainability management.



● Economy & Management ● Environment ● Society

01. Clients, shareholders and investors

- Need to maximize economic impact as an outstanding domestic parts manufacturer and conform to obligations
- Reduce the level of reliance of sales on specific companies (diversify customers)
- Recruit external experts in various areas
- Smartly respond to the establishment of eco-friendly production lines
- Establish an advanced labor-management culture early and set up a stable production management system
- Strengthen productivity of existing production hubs to contribute to the creation of stable jobs

02. Partners

- Discover the golden goose for the future and reinforce market-leading competency
- Selectively encourage overseas investments depending on the size of partners
- Consider environmental improvement, unit cost, etc. of partners
- Expand investment into development of energy and environmental technology
- Need to improve labor-management relations and emphasize continuous communication
- Process tasks in a fair, rational manner
- Strive to work with front/rear partners and consumers
- Establish an environment in which partners can participate in social responsibility activities

03. Government and associations

- Need to especially focus on product safety and quality control
- Perform external monitoring on management activities through internal discussions
- Raise employees' awareness in the company's vision and goals
- Strengthen tasks in external cooperation and media PR
- Reinforce cooperation and transparency in management
- Establish yearly plans for the vision based on corporate policies and external communication
- Conform to international environmental standards and prevent environmental risks in advance
- Seek ways to increase recruitment of young job-seekers
- Conduct regular exchanges with local residents living near Mando's business facilities
- Educate employees on human rights system and criteria including prevention of discrimination
- Establish labor-management relations by public's expectations

04. Employees

- Prevent loss of manpower
- Develop employees' competencies
- Need two-way communication
- Improve the gender ratio imbalance
- Set up a structure in which promotions are given based on skills
- Need to provide educational programs and documents in English
- Strive to conform to 52-hour workweek system
- Break glass ceilings for female employees
- Solve the issue of aging on-site laborers
- Request replies to questions posted on Mantong (internal communication channel)

05. Local communities and NGOs

- Analyze, judge, decide and execute local investments
- Strengthen executives' awareness of legal and institutional restrictions regarding the company's social responsibility
- Prevent risk of violating environmental regulations in advance
- Sensitively react to global issues such as climate change, make relevant information public in a transparent manner
- Form a consensus among employees that a company's CSR activities are a part of its management activities, not charity
- Develop an environment and capabilities with which employees may fully demonstrate their abilities
- Constantly receive legal counseling and support related to labor relations and human resources
- Place the most outstanding talents throughout the organization

06. Media and academia

- Demand quick and accurate feedback on corporate management and economic issues
- Discover win-win models with partners that will aid the automotive industry
- Strengthen role model activities as a leading enterprise in automotive parts
- Reinforce external communication for Mando's activities
- Eradicate any discrimination against minorities within the organization

1) Identifies stakeholders and decides on participation based on the criteria as follows - whether or not legal, financial and operational responsibilities are shouldered, execution of strategies and achievement of goals are influenced, and significant impact is applied by activities, products or services

Interview with 7 People

Stakeholder Interview #1.

Clients, shareholders and investors

As an industrial analyst, I analyze the automotive and steel industries to advise investors on stock information and direction of investments and also provide investor information to companies as well. I communicate with the investor relations representative at Mando on a regular basis to share the direction and items of improvement based on the current status and forecast of the automotive market as well as client information.

What are issues and activities that Mando must manage?

Because Mando is a parts manufacturer that belongs to the automotive industry, I believe it is most important to make moves according to the changes in the current status of the industry. First of all, the growth of the Chinese market, which has been atop the global automobile market, started to regress last year and, thus, demand has decreased, which leads to a greater amount of burden on both automobile makers and parts suppliers who have been mass-supplying to China. Therefore, it is critical to reduce the level of reliance on the Chinese market and achieve diversification of markets. From the perspective of clients, commercialization of electric

and self-driving cars is an important issue. This has, in turn, led to the active progress of electric car development and gradual disappearance of internal combustion engines and related parts and, subsequently, weakens the permanence of many automobile companies. Therefore, it would be an essential assignment for an automotive parts manufacturer to develop products with high added values that can be continuously supplied regardless of external changes.

What are the expectations for Mando?

For an automotive parts manufacturer to survive in the global market, it must possess the following three elements: permanence of products, high added value, and diversification of customers. I think Mando meets all of these criteria well. The fact that Mando has recently secured new clients in the U.S. and Europe and continues to reinforce its portfolio is also evaluated to be a positive. Despite some issues raised regarding the Chinese auto market, ADAS electrical products began to be supplied recently and as new vehicle models to which they are applied are launched globally I expect the value of Mando products will rise.


Major
communication
channels

Biennial
participation at tech
and motor shows

Business reports
General assembly
of shareholders

Notification of
corporate and
management
information

Kwon Soon-woo, Analyst
in Automotive and Steel Category
Active Strategy Team, Research Center, SK Securities



*It is an essential assignment
for an automotive parts
manufacturer to develop products
with high added values that
can be continuously supplied
regardless of external changes.*



Mando's mutual growth programs motivate us to strive to secure a competitive edge in the global market.

Kim Shin-wan, CEO
KB Autosys Co., Ltd.

Stakeholder Interview #2.

Partners

KB Autosys was founded in 1985 for the localization of brake pads, a car component that had largely relied on imports, to secure competitiveness of the domestic automotive industry. We supply brake pads for cars not only nationwide but also to world-renowned foreign automobile manufacturers, for the first time by a Korean supplier. We have been carrying out business transactions with Mando since the early days; and, through ceaseless R&D, we continue to grow in the global market as one-body with Mando.

Partners
Day held
once a year

Mando Coop.
Association,
regional meetings

Satisfaction
survey

Major
communication
channels

What are the major interests of automotive parts manufacturers?

In order to be in line with the sustainability management that Mando and other global corporations pursue, "market expansion, labor-management cooperation, realization of social responsibilities, and win-win cooperation" are regarded as essential assignments. To enhance value for clients based on eco-friendly technology, we are preparing for the electric vehicle market that global automotive companies are focusing their investments in. Moreover, we put our priority on promoting cooperation among employees and creating a safe working environment, while concentrating on regular donations to the marginalized in our communities, social contribution activities and mutual growth with the partners

What are the mutual growth programs conducted with Mando?

We participate in Mando's mutual growth programs from "A to Z" of the entire management process and foster risk management capability needed in the global market. Among them, at "Partners Day" and the "Next-Generation Leader Fostering Program" held in the first and second halves of every year, CEO Chung Mong-won attends himself to share the latest trends in the global automotive market and Mando's business strategies in response as a way to express the company's strong will in mutual growth with the partners. The management principles of Mando shared at such events are not only utilized as necessary materials for a next-generation manager like myself to conduct our own business for the mid- to long-term but also a huge motivation to strive to secure a competitive edge in the global market.

What are your expectations for Mando and your own future plans?

Thanks to a full range of support given by Mando, our company was able to enter global markets such as China and India and achieved 40% of its 2018 sales through exports. We hope that the virtuous cycle in which Mando's competitiveness is the partners' competitiveness and vice versa continues to expand. Therefore, we plan to reinforce the mutual growth programs to lead the competitiveness of the secondary suppliers. In areas from the strategic selection of partners in the global market to financial assistance, we kindly ask for Mando's win-win cooperation to continue in the future so that its business accomplishments can be expanded even to domestic partners.

Stakeholder Interview #3.

Government and associations

Established in 1962, the Korea Auto Industries Cooperative Association is an organization that represents all automotive parts manufacturing companies and currently has about 250 automobile and parts manufacturers as its members. It focuses on the implementation of various projects that support the growth of the automotive parts industry, from labor-management cooperation settlement and export promotion to the acceleration of technical development and PR of Seoul Motor Show, etc. It continues to maintain a lasting relationship with Mando since the 1970s when Hyundai International Corp., the former entity of Mando, joined the organization.

What are the major issues in the automotive parts industry?

Considering the nature of automotive parts, the fact that quality and safety are paramount issues does not change. The fundamental value that has been recently demanded of automotive parts makers is to provide differentiated value useful to clients, not to occupy a technical superiority over competitors in the industry. Among the different values, the development of new technology for future vehicles is emphasized a lot in recent years. Moreover, as the development and distribution of eco-friendly vehicles spread quickly, the convergence of the traditional automotive technology and IT has

become a critical value. Also, it is another important assignment for companies to replace confrontational labor-management relations, which has been the biggest factor that weakens the competitiveness of the automobile industry, with cooperative ones. I believe that a company's

What are the activities that Mando must focus on and the expectations?

Mando needs to conduct product development that maintains the automotive parts' traditional values of quality and safety and, at the same time, propose new values to customers so it should focus on innovative R&D activities in collaboration with the fields of electrical, electronic and information technology. Also, we hope Mando will take a leading role in spreading and expanding mutual growth programs with primary and secondary suppliers, resolving any imminent threats that automotive parts manufacturers are facing such as intensified competition, decreased profitability and low growth, and restoring the integrity of the automotive parts ecosystem. The direction that Mando, a global top 100 automotive parts manufacturer, heads to will act as a compass for all domestic parts suppliers and, thus, we ask Mando to become a role model in all areas of R&D, labor-management practices and win-win cooperation.

Major
communication
channels

Korea Auto Industries
Cooperative Association
- Regular general assembly(once/year)
- Breakfast seminar, etc.

Regular assembly
with Korea
International Trade
Association

Non-regular
meetings of the
Ministry of Trade,
Industry and Energy

Korea Automobile
Manufacturers Association
- KAMA journal
- 2 issues/year, etc.

Ko Moon-soo, Executive Director,
Korea Auto Industries
Cooperative Association

Willingness and determination to understand various interests of the members in its pursuit of growth is the essence for the settlement of a new labor-management culture.





I would like local social contribution activities to continue at the overseas offices.

Nishant Kumar, Chief Researcher,
R&D Center R&V Test 3,
Global Steering BU

Stakeholder Interview #4. Employees

It has been 7 years since I first started working at Mando. I was dispatched to Korea while I was at Mando's India Office, and this is my third year of work at the Global R&D Center in Pangyo. I primarily work on R&V tests that verify the performance of steering devices and evaluate their durability. Comprised of team members from various countries like India and China, our team strives to lead the innovation and creativity of the R&D Center.

What are the major interest of Mando employees?

After being dispatched to Korea, work-life balance became an important concern for me. The Korean way of work was very different from that of India and, as my wife who was also working at Mando was dispatched with me, we faced some difficulties in many different aspects of life including the new tasks and culture. Fortunately, these concerns were resolved by the flexible working hour system that Mando has introduced. My wife goes to work earlier than I do and we can get off work depending on our needs so we have been able to find the right balance between work and life. Moreover, adjustment to Korean life was accelerated for us thanks to in-company language and culture classes for employees who have been dispatched from overseas.

What is the background for your overseas dispatch, and memorable experience in Korea?

Employees dispatched from overseas like myself work in Korea for 5 years. The system helps you acquire core skills at the Global R&D Center, the Mando headquarters, that will be spread and localized in overseas offices later on because, for global offices to manufacture products of the best quality for each vehicle model, necessary technologies must be localized and professional talents need to be nurtured. The most memorable experience in my third year of the dispatch service was the Family Day event to which families of every employee were invited. I remember the CEO of our company and other executives asking the foreign employees about their lives in Korea and encouraging us.

What are your expectations for Mando?

I hope that Mando will continue to be a company that fosters professional talents equipped with skills and techniques both in Korea and at all of the global offices to have a positive impact on the local communities. Above all, I wish for our company to hire local talents in overseas regions, like the India Office where I first started my Mando career, to continue to make contributions to regional development. Not only that, I would like local social contribution activities to continue at the overseas offices.

Stakeholder Interview #5. Employees

Mantong,
bidirectional
communication
channelValue board
meetingsOpen
CommunicationTown hall
meetingsMajor
communication
channels

The Material Development Team at Central R&D Center that I am a part of is a team that selects materials suitable for products developed and manufactured by Mando and develops new materials and techniques. There are a countless number of parts installed in an automobile so what we do is inspecting down to the smallest units of these parts and painting the basic background of all Mando products.

What are the major interests of Mando employees?

As time goes by, the view that employees have of their companies is changing. In the past, many showed the utmost loyalty and devotion to their company under the belief that "my company is myself" but, these days, a great percentage of employees value their own and their families' life more in pursuit of a work-life balance. In response, Mando aims to ensure and respect its employees' work-life balance by implementing and operating different systems in the past few years including a 1- to 2-week Creative Refresh vacation system in 2013, the flexible time system in 2014, Smart Day in 2016 designated on every Wednesday for employees to get off work at the regular time, the Smart working hours system in 2017, and the flexible working hours system in 2018. Thanks to these efforts, Mando was able to adopt the 52-hour workweek system recently introduced by the government without much trouble.

What are elements that help you grow as a female leader, and the needs you might have in the future?

When I started my career here a decade ago, most of the members at Mando were men and my female colleagues who entered the company at the same time as I did experienced difficulties amidst the male-dominant culture. But, over the next ten years, the female manpower has increased significantly. There were only 15 female employees before me but, during the decade I was here, more than 150 women have entered Mando, a whopping tenfold increase. As more and more female employees started to work every year, the perspectives of the male employees have changed and the likelihood of development of female leaders continues to rise. It is true that Mando has achieved good changes in the past decade in diversifying the pool of employees but there are still items to be improved. For myself and many of my colleagues who are about to take parental leaves, a year of absence certainly looms as a huge burden and concern. In the future, I wish for the establishment of an environment in which employees can use parental leave more freely through systems like substitute employment during leaves of absence and increased usage of paternity leave amongst male employees.



Mando aims to ensure and respect its employees' work-life balance by implementing and operating different systems in the past few years.

NamKoong Ji-hyun, Chief Researcher,
Material Development Team,
Engineering Excellence

Stakeholder Interview #9.

Local communities and NGOsMeetings with
Seongnam
City Hall
representativesEmployees'
volunteer
activitiesMajor
communication
channels

*We hope that
"Ottugi that falls
down only to rise again"
becomes a symbol delivering
comfort and energy
to the households being aided.*

Jeong Seok-hoon, General Manager,
Traffic Welfare Office,
Korea Transportation Safety Authority

The Traffic Welfare Office of the Korea Transportation Safety Authority supports beneficiaries of basic livelihood and the second poorest class who have suffered from Level 1 to 4 severe disabilities or, even, death following car accidents. In addition, we offer financial assistance such as scholarships for children, subsidies for dependent parents, no-interest loans for living expenses and rehabilitation subsidies as well as emotional assistance through psychotherapy, healing camps and mentoring with university students. Moreover, we recruit Hope Volunteers nationwide to carry out "visiting services" through which we visit the victims' homes to help clean their house, cook food and accompany them to the hospital.

Could you introduce "Roly-poly Love Wheelchair"?

"Roly-poly Love Wheelchair," which first began in 2012, has become one of the more representative social contribution activities of Mando in commemoration of the company spirit of "Ottugi," meaning roly-poly, that symbolizes the late Chung In-yung, the Honorary Chairman of Halla Group, who had endured and risen back up from numerous hardships. Through this activity, we provide emotional consolation as well as wheelchairs to the victims of car accidents. Due to a limited number of wheelchairs, Mando initially fields and reviews the victims' stories and we at the Korea Transportation Safety Authority visit their homes to conduct secondary screening to check for the legitimacy of the beneficiaries. Those who are finally selected are provided with wheelchairs, electric wheelchairs and wheelchair batteries worth up to KRW 100 million every year.

What are your expectations for Mando?

"Roly-poly Love Wheelchair" is run by a combination of the Authority's expertise in welfare and Mando's financial sponsorship, and is one of the most ideal public-private partnership activities. We hope that "Ottugi that falls down only to rise again" becomes a symbol delivering comfort and energy to the households being aided. Moreover, we would like to think and plan together an accident prevention project by not only supporting follow-up care of car accident victims but also providing advanced assistive devices and education for children and the elderly who are vulnerable to accidents.

Stakeholder Interview #7. Media and academia

Technical
seminar
once a
quarter

Industry-
university
exchange
activities

Major
communication
channels

The Department of Automotive Engineering at Hanyang University is a young department that has been recruiting new students since 2011. Based on the firm belief that an automobile is not a machine but a product developed and converged with electrical and electronic elements, it branched off from the Department of Mechanical Engineering. Now, it has perfectly converged automotive machines with electrical and electronic aspects, and its faculty is comprised of an identical number of professors in the two domains.

Could you introduce the main research areas of your department?

Our department focuses on smart cars and green cars and conducts research in optimum designs of cars equipped with quality, performance, as well as a competitive edge in cost. Through simulation tests in which we take a developed product and test it in a virtual environment, we aim to minimize uncertainties in product design and increase the level of reliability of the product.

What are the major issues in the automobile market that Mando must control?

If Mando has concentrated on the convergence of automotive machines and electrical and electronic elements for the past 7 to 8 years, then the urgent task now is to embed software into the automobile technology in a more refined and delicate manner than ever. This is

also a means to significantly increase the added value of a product. However, the domestic automobile industry still has a greater emphasis on hardware than software so society-wide efforts are needed to recognize and respect the remarkable value that software possesses. The software in cars is quickly evolving into self-driving technology that can accurately understand the vehicle to calculate and control its most detailed areas. In order to make the leap as a centennial enterprise, Mando's moves must be centered on technology and people. I hope for continuity of the greatest support so that core future talents can be equipped with competency and useful skills.

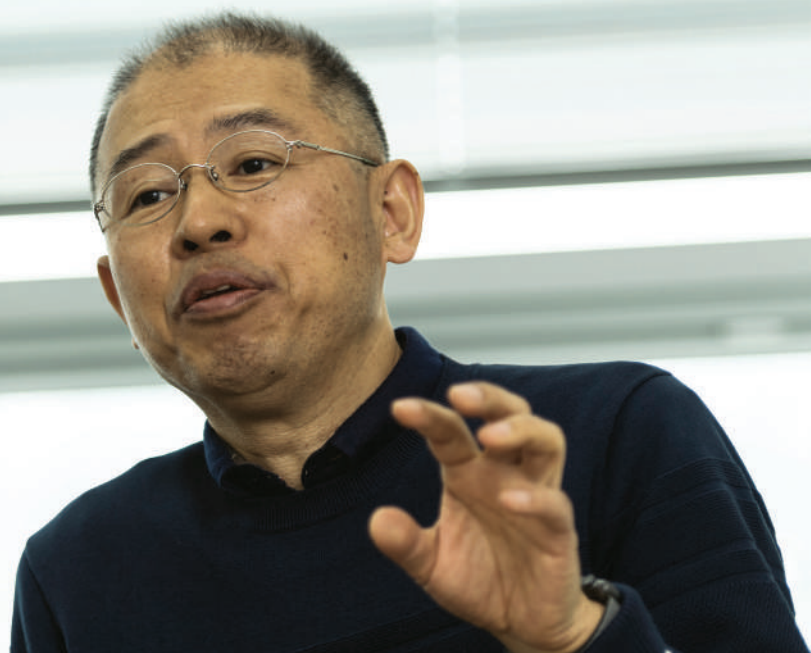
What is your expectation for Mando's industry-university activities?

Our department currently pursues industry-university cooperation activities in which companies aid the students' education and, upon graduation, they are helped to enter the companies as outstanding, competent talents; and, the company that has shown the most active response is Mando. Mando selects our college juniors and provides scholarships until they graduate, even up to their master's programs if needed. Such efforts for the development of excellent talents really ring true about Mando's goal of investing in people. In the future, I wish that this will be closely managed along with education and career mentoring for sponsored students.

Lee Tae-hee, Professor

Dept. of Automotive Engineering, Hanyang University

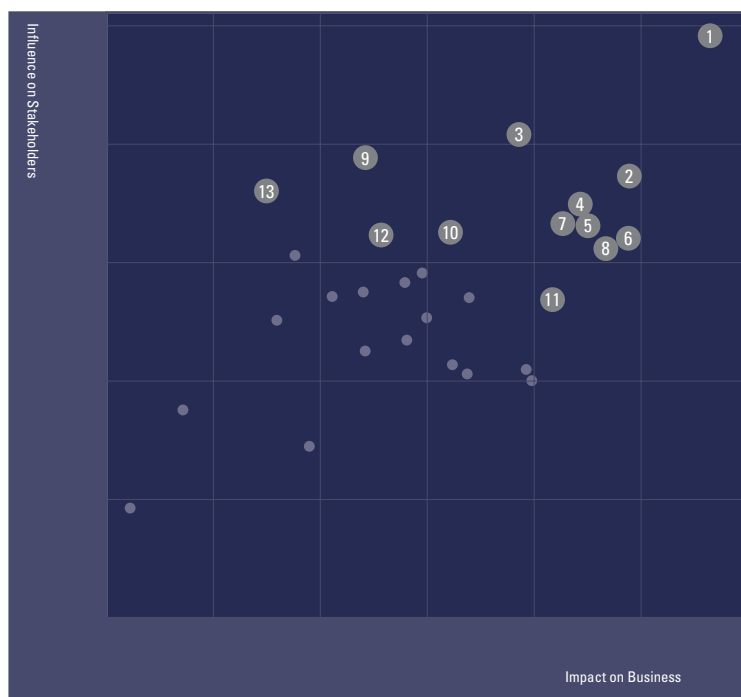
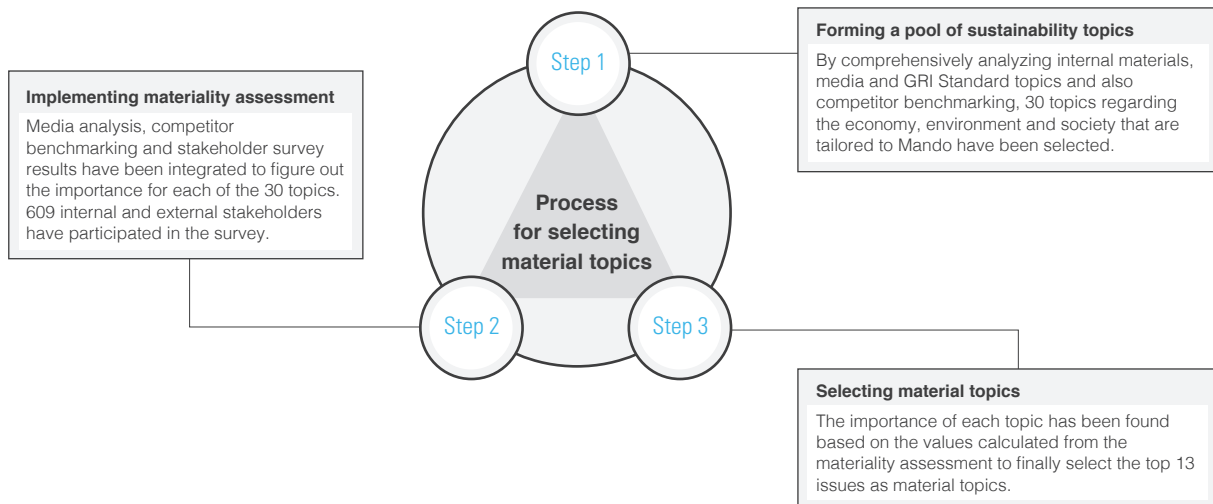
Such efforts for the development of excellent talents really ring true about Mando's goal of investing in people.



Material Topics and Sustainability Management System

Materiality Assessment

Mando aims to understand the priority of issues that influence its stakeholders the most from the aspect of sustainability, and transparently present the status of management including importance by issue, response measures and performances. Thus, we have performed an internal and external environment analysis to constitute a pool of sustainability topics tailored to Mando. We selected 13 of them as material topics with a great level of interest from internal and external stakeholders, and plan to utilize and manage them as the basis for sustainability strategies.



Results of materiality assessment

Leading Future Market Technology

- ① Invest to secure business competitiveness and reinforce technical development
- ⑦ Pioneer new businesses and markets

Leading Quality Management

- ⑤ Evaluate safety and quality of products for the safety of drivers

Managing Business Ethics

- ③ Reinforce compliance with socioeconomic laws
- ⑥ Eliminate any corruptive action including bribery, solicitation for job positions, etc.

Committing to Employee Welfare

- ② Establish a safe working environment for employees
- ④ Actively communicate between labor and management
- ⑧ Develop vocational competency and careers for employees


Responding to the Local Community

- ⑫ Win-win cooperation with partners
- ⑬ Execute continuous and systematic social contribution activities

Preserving Clean Environment

- ⑨ Reduce energy and greenhouse gases to respond to climate change
- ⑩ Process and control waste and wastewater in a clean, safe manner
- ⑪ Reinforce compliance with environmental laws

In 2018, Mando promoted the sustainable management system based on the 13 material topics and specified UN Sustainable Development Goals (SDGs) to which we can subsequently contribute. We have also set key performance indicators for each sustainability pillar in order to systematically manage the sustainability management activities.


Sustainability Pillars	Key Performance Indicator (KPI)		Unit	2016	2017	2018
Leading Future Market Technology 	R&D investment expenditures (percentage of sales)		KRW 1 billion	283(4.8%)	302(5.3%)	315(5.6%)
	R&D manpower		No. of persons	1,934	2,040	2,115
	Number of intellectual property rights registered		No. of cases	397	435	326
Leading Quality Management 	CS 1 million index ¹⁾		No. of cases	1,388	1,307	837
	RS 1 million index ²⁾		No. of cases	2,698	2,320	2,005
Managing Business Ethics 	Number of participants in ethics training ³⁾		No. of persons	1998	259	300
	Number of corruption violations		No. of cases	0	0	0
Committing to Employee Welfare 	Factor of Safety Index		FSI	0.36	0.44	0.30
	Education hours completed per employee		Hours	47	49	52
	Total education expenses for employees		KRW 1,000	3,075,343	3,685,757	2,871,815
	Number of female managers ⁴⁾ (percentage)		No. of persons (%)	28(2%)	34(3%)	45(3%)
	Number of newly employed		No. of persons	120	235	204
	Number of persons using flexible working system		No. of persons	2,138	2,285	2,336
	Number of persons using flexible working system	Male	No. of persons	2	3	9
		Female	No. of persons	15	14	12
Responding to the Local Community 	Win-win Growth Index		Level	Good	Most outstanding	To be announced in June 2019
	Performance in resolving grievances of partners (percentage compared to number of cases received)		No. of cases	28(93%)	38(97%)	18(95%)
	Hours of volunteer activity by employees		Hours	9,781	12,340	13,724
	Roly-poly Love Wheelchair Program	Applicants	No. of persons	39	39	72
		Funds	KRW 10,000	5,000	3,780	9,800
Preserving Clean Environment 	Energy consumption at worksites		TJ	2,411	2,294	2,256
	Greenhouse gas emissions	Direct release	tCO ₂ -eq	7,790	8,608	9,007
		Indirect release	tCO ₂ -eq	109,931	103,696	101,188
	Amount of waste generated		kg	22,785,135	18,048,055	17,575,810
	Amount of wastewater generated		m ³	278,747	273,504	272,198

1) Initial Quality Study (IQS): The claim index for every 1,000,000 vehicles generated during the first 3 months after mass production

2) Vehicle Dependability Study: The claim index for every 1,000,000 vehicles generated from the 10th to 12th month after mass production

3) Ethics training conducted company-wide in 2016, and conducted only for rookies and the newly employed in 2017 and 2018

4) Manager-level or above




Responding with agility in cycle of the market shift

**Mando will move in a newer,
more different and faster way.**

We will move ahead “in right way! to the future!”





Responding to Material Topics

- 36 Leading Future Market Technology
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- 52 Managing Business Ethics
- 56 Committing to Employee Welfare
- 64 Responding to the Local Community
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01

Responding to Material Topics

Leading Future Market Technology

**We will lead
the future
automotive market
with 50 years of
our experience**

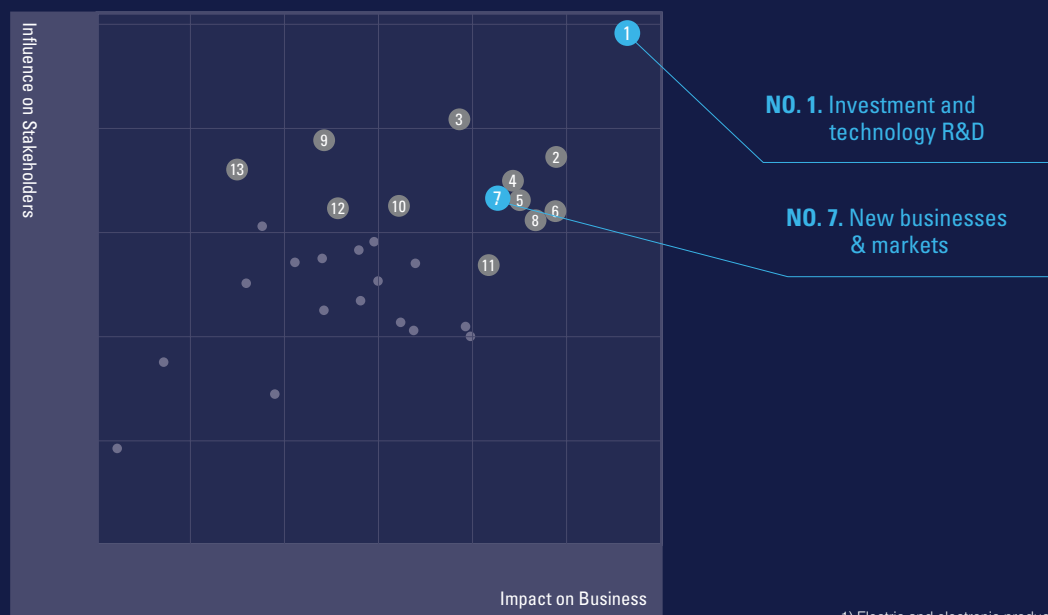
Why is leading future market technology important?

Self-driving technology will not only bring innovative changes to our lives in which we can utilize traveling time for work and leisure activities, but also significantly reduce accidents caused by driver error. Currently, with the era of self-driving cars just ahead, the global automotive and IT industries are focusing on securing related technology and electric components¹. As emphasis on the environment continues to increase, R&D and investment activities in eco-friendly and electric vehicles are also being actively performed.

How is Mando responding?

With 50 years of R&D experience accumulated through the production of brake, steering and suspension systems, Mando is being recognized for its technical competency and development know-how in ADAS, a necessary element for autonomous driving. Mando concentrates on building future vehicle technology and thus invests more than 5% of its total sales into R&D, putting in efforts to lead the self-driving and electric vehicle parts industries.

Relevant material topics



¹) Electric and electronic products



Highlights for Material Topics

TOPIC. 1 Investment and technology R&D



5%

of all sales in R&D investments
(highest level in the same field in Korea)



2,115

R&D manpower



800

researchers' ideas applied
as intellectual property rights

TOPIC. 2 New businesses & markets



MISV

Mando Innovations
Silicon Valley (MISV) opened



KRW 7.5 billion

2018 investments in startups



1,000 people

from client companies attended
HKMC Tech Show
[for Hyundai Kia Motor Company]

Strengthening Future Technology

Mando R&D

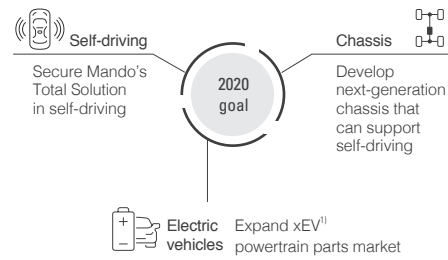
With a goal of becoming one of the "Global Top 30" automotive parts companies, Mando is securing core technologies in futuristic automobiles and strengthening competitiveness in next-generation chassis modules, which form the basis of a vehicle, as its main product of focus. As of 2018, 2,115 researchers in five countries including Korea execute advance development, design, testing evaluations and research planning on manufactured products.

The advance development part, in charge of next-generation products, develops intelligent and eco-friendly parts installed in future automobiles, and the design part focuses on the research of brake, steering, suspension and ADAS systems as well as the development of comprehensive chassis products. The testing and evaluation part tests Mando products and new technologies in diverse environments of vehicle test sites globally, including Korea, Europe, the U.S. and China, while the research planning part establishes technical development strategies and registers and manages patent rights. In order to develop high value-added products in which the latest technologies are applied and to preoccupy the future vehicle market, Mando will increase its investments up to 8% of total sales by 2025.

5%
of all sales in R&D
investments
(Target: 8%)

2,115
No. of R&D
personnel in 2018

R&D mid-term goals



R&D manpower

(Unit: No. of persons)



*Including domestic and overseas business sites

R&D expenditures(percentage of all sales) (Unit: KRW 1 billion)



▼ R&D Center



1) Hybrid and Electric Vehicles

R&D for safety, convenience of drivers

For the comfortable and safe driving of all drivers, the automotive industry strives for research and development of driver-assisting technology. Mando's ADAS product makes parking convenient and reduces the risk of accidents with its lane departure and collision prevention feature, all of which are acknowledged to be outstanding technology.

Parking assistance system (SPAS, RSPAS)

Mando's parking assistance system scans obstacles surrounding a car and assists the driver in finding the optimal parking conditions. Smart Parking Assist System (SPAS) technology recognizes an available parking space using ultrasonic sensors; and, based on the "Parallel Parking" and "Perpendicular Parking" options the driver selects on the screen, it automatically turns the steering wheel to park the vehicle. In addition, Mando has also developed a Remote Smart Parking Assist System (RSPAS), which enables electronic control of the transmission and brakes by using a smart device. With this technology, the risk of collision that may occur during parking is remarkably reduced, and drivers can park in and drive out of narrow spaces where getting in and out of a car is difficult.

Autonomous Emergency Braking (AEB) system

As braking is a technology directly related to the driver's safety, we put a greater emphasis on achieving safe braking than fast speed. AEB technology is a proactive safety device that prevents accidents in advance and enables the vehicle to recognize a situation and control itself on its own. Developed by converging the functions of radar and camera sensors located on the front of a car, this technology shoots laser beams forward to calculate the distance to the car in front and, once it detects a risk of collision with an obstacle, activates emergency braking. The system is capable of preventing multiple-

vehicle collisions on freeways or accidents involving children who suddenly run into the road from an alley. Installation of such safety technology, which includes AEB and Lane Departure Warning (LDW) systems, has become mandatory by the Korean government for all large-sized buses being sold beginning in January 2018.

Lane change assistance system (BSD, LKAS)

Mando has been striving to develop lane change assistance systems such as a Blind Spot Detection (BSD) system, which detects vehicles in blind spots when making a lane change, and a Lane Keeping Assist System (LKAS), which proactively supports the driver to stay within a lane.

Smart Cruise Control (SCC)

Mando provides SCC technology that detects the vehicle ahead and applies acceleration or deceleration automatically. It adjusts the vehicle speed to maintain a proper distance from the car ahead according to the road conditions without any need for driver intervention.

Furthermore, after six years of research and development, Mando has produced "forward-sensing long-range radar sensors," which previously had been supplied by a foreign company. This is the result of securing the hardware of vehicle collision prevention radars as well as the source technology in object detection signal processing. Hyundai Genesis "EQ900" model, embedded with Mando's advanced technology and parts, recorded perfect scores in all categories of a front crash test conducted by the Insurance Institute for Highway Safety (IIHS) of the U.S., the first car in the world to achieve such a feat. Based on our history of producing the first-ever domestic radar in 2014 and second-generation radar in 2017, we are planning to develop third-generation by 2020.



◀ Braking (AEB) System

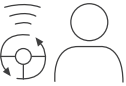
Steps of autonomous driving development



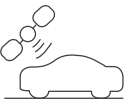
Step 1
Driving assistance concept



Step 2 Hands-off step



Step 3 Eyes-off step



Step 4 Taking your body
out of the driver's seat

R&D to realize self-driving

Mando's ADAS, which safeguards passengers and improves the level of convenience, continues to evolve in order to realize autonomous driving and zero-accident smart vehicles, the essence of the fourth industrial revolution.

Mando strives to develop advanced sensors to be installed in self-driving cars. Lidar, a core component required for autonomous driving, uses laser beams to measure the distance to objects, and a camera recognizes obstacles surrounding the vehicle while radar uses electromagnetic waves to detect the distance to, direction and speed of nearby objects.

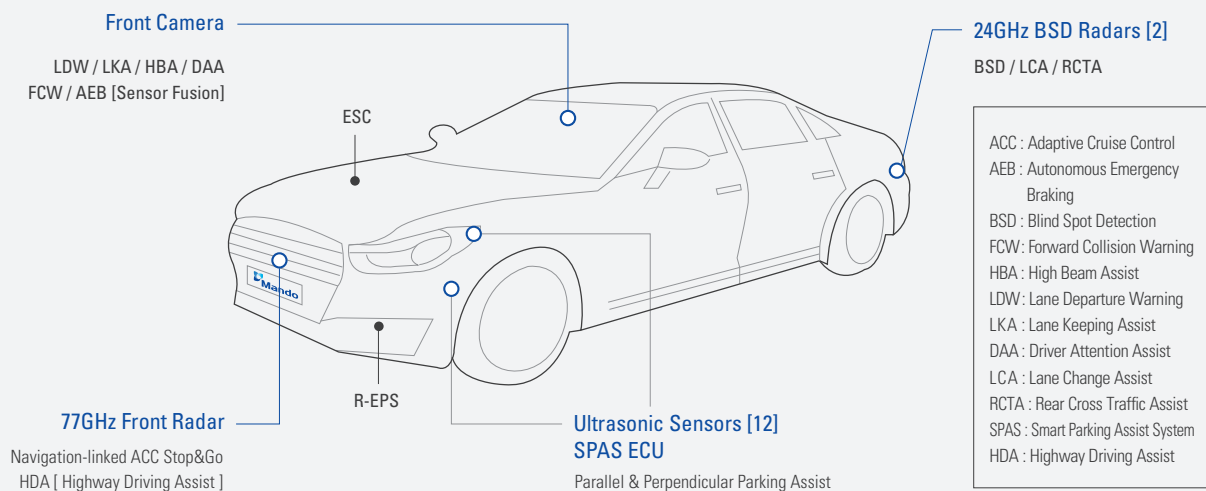
Mando already possesses AEB and LKAS technology that form the basis of driverless, self-driving cars in addition to radar, camera and ultrasonic sensor technology. In 2017,

Mando's radar and camera components, in particular, successfully obtained an order for Hyundai-KIA's N3/M3 AEB System, the nation's largest bidding for ADAS products, and achieved KRW 1.2 trillion in orders received, the highest in company history.

Combining LKAS with SCC, we are developing a system, which allows a car to maintain a safe distance from the car ahead by high- and low-speed. This is a system that makes automated driving possible in traffic jams in order to improve the driver's level of convenience and prevent potential accidents. In the future, we plan to consistently execute active R&D and investments to equip ourselves with dominating technology in the self-driving automobile market.

▼ System composition diagram of self-driving cars

System Integration of 13 Features by Sensor, Software & Actuator



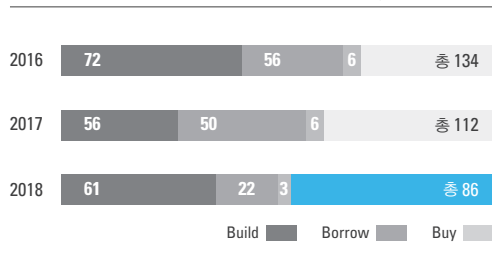
R&D in eco-friendly automobile technology

Prior to making a full-scale entry into the global electric vehicle market, Mando is focusing its competency on the development of high-efficiency electric car battery chargers. Based on its experience in mass-producing OBC (On-Board Chargers) for electric cars in 2011, as the first company to do so in Korea, Mando currently manufactures high-voltage battery chargers that are even smaller and lighter. Also, the technology has met SAE J1772, a standard for electrical connectors for electric vehicles, and acquired European and Chinese specification certifications to secure public confidence and the stability of the product. Moreover, we are carrying out advance development of parts for BSG (Belt-driven Starter Generators), which assist to improve fuel efficiency of electric vehicles, and E-Drive, an integrated drive system. Mando also possesses Regenerative Braking System (RBS) technology, which utilizes batteries charged when the driver steps on the brake.

Securing next-generation necessary technology

Under the mission of being an "Active Safety Total Solution Leader," Mando plans to secure technology needed in the age of future automobiles. Based on the "3B strategy," we create a list of necessary technology each year and systematically inspect and manage whether we will internally build the technology, or borrow or buy it from the outside through technical partnerships and licenses.

3B strategy and achievements (Unit: No. of cases)






Strengthening R&D motivation activities

In order to increase the level of future technology and competitiveness in international markets, an environment in which researchers work efficiently to produce meaningful outcomes needs to be established. Unlike a typical organization in which an employee assumes a managerial position as he/she rises in ranking, Mando runs the

"Fellow" and "Pro-Engineer" systems as a means to continuously foster R&D research personnel into core talents in technical development. Researchers grow into "R&D Specialists" based on technical competency and research experience they have built over the years, thus leading the cutting-edge technology and quality competitiveness of Mando. Furthermore, the company ensures ethical product development activities through the "R&D Code of Conduct."

R&D Motivation strengthening system

Area of management	Details
 Manpower	Separate management of core talents and outstanding research manpower
	Mandatory technical training system for each rank
 System	Fellow system
	Pro-Engineer system
 Culture	Sharing of R&D Code of Conduct
	Establishment of Work Smart (work-life balance culture)

Mando R&D Code of Conduct

Mando researchers' pledge

I, as a researcher of Mando R&D, am to have a sense of duty in developing better technology and taking on the greatest challenges.

For this, I will accurately understand the R&D Code of Conduct and passionately fulfill my responsibilities as

- One, a researcher who performs reliable design and development,
- One, a researcher who seeks systematic thinking and actions,
- One, a researcher who achieves quality that customers can trust, and
- One, a researcher who considers others and leads a positive culture.

- Code 1.** Provide equal opportunities and establish trust through mutual respect
- Code 2.** Foster a positive corporate culture through Work Smart
- Code 3.** Protect intellectual property rights and confidential information
- Code 4.** Develop products that customers love

Nation's first-ever

Developing electric car
battery charger

5

technical consulting
seminars held in 2018

2,100

beneficiaries of prize
money for patents applied
(accumulated total since 2016)

Fostering professional R&D manpower Operating a system to encourage invention

Mando is shaping a culture in which all employees including R&D personnel practice creativity with fervor in technical development. The intellectual property education, which began in 1999, is hosted every year for more than 300 researchers both in Korea and from overseas. The innovative ideas developed here are managed as Mando's intellectual property through speedy patent application. Up to KRW 1 million is provided for every patent applied or registered and, if a patent is eventually applied to a product, an implementation compensation of up to KRW 20 million is paid.

Since 2014, a top inventor and outstanding inventor team are chosen annually, and rewards are offered as a means to provide complete support for researchers' invention activities. In 2018, an award plaque and certificate were presented along with KRW 4.2 million in prize money. Inventions are also widely recognized outside the company as well, proven by external awards such as the Gold Tower Order of Industrial Service Merit.

Mando's external invention awards

Year	Award history	Item
2016	Gold Tower Order of Industrial Service Merit	All items*
	Minister of Science, ICT and Future Planning Award	ADAS-Camera
	Patent Management Awards	All items
	Patent Engineer	All items
2017	Presidential citation	EBS-MGH

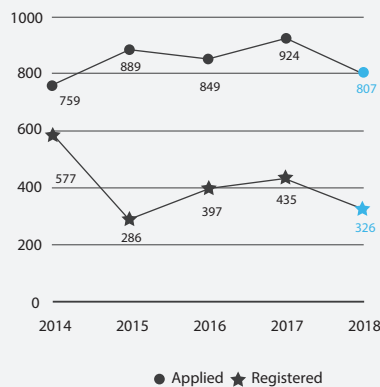
"Open Innovation" cooperation activities

In the process of securing new technology and implementing reliability tests, Mando carries out "Open Innovation" cooperation activities with external organizations. Through technical meetings, a representative type of cooperation activity, we host technical advisory panel seminars with external consulting groups to overcome the limitations of our own technology and strive to create synergetic effects among various departments. We also select joint assignments with universities and professional agencies in an attempt to resolve technological dilemmas.

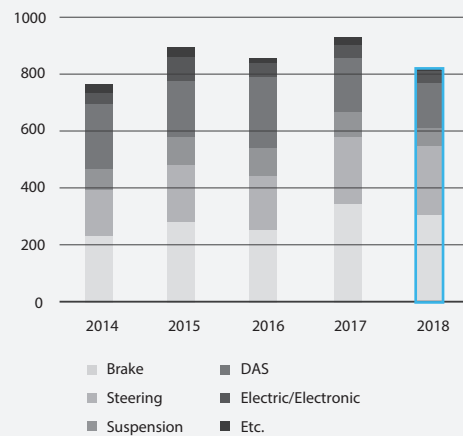
Research topics for each technical consulting seminar in 2018

Category	Research topic
1 st	Mando's future form and direction of R&D
2 nd	Current state and forecast of hydroelectric cars
3 rd	Development trends of 5G communications
4 th	AI-based autonomous driving
5 th	Autonomous driving service through Zero Shuttle

▼ Status of intellectual property rights



▼ Status of applied patents by technology



*Assessment of commercialization results and R&D activities on all items

Korea's first-ever unmanned driving, "Zero Shuttle"



▲ "Zero Shuttle," Gyeonggi-do's autonomous driving bus in which Mando's radar is installed

"Collaboration of 34 private, governmental and academic professional organizations"

- Zero Shuttle is an autonomous driving vehicle developed through 3 years of research at the Advanced Institute of Convergence Technology based on a request by Gyeonggi-do as well as collaboration between 34 professional agencies in the private sector, government and academic circles. In September 2018, this unmanned, 11-passenger mini bus successfully drove a 5.5 km-long route in Pangyo 2 Techno Valley.

- In Zero Shuttle, no control devices for the driver, including a steering wheel, acceleration or brake pedals, are installed. **Zero Shuttle is the first Level 4¹⁾ autonomous driving car capable of driving on its own without any intervention by the driver to run on a public road in Korea.** Mando supplied radar installed on Zero Shuttle. Radar is a device that uses radio waves to detect vehicle speed and the distance to nearby objects, serving as the "eyes" of a self-driving car. Mando will continuously strive for the commercialization of self-driving technology by utilizing Pangyo's infrastructure.

"The first-ever operation in Korea by a Level 4 autonomous driving vehicle"

"Mando radar, the nation's sole sensor technology embedded in Zero Shuttle"

- Sensors, a core of self-driving cars, include cameras, radar, Lidar, etc. As it is the country's first-ever self-driving bus, its safety had to be verified sufficiently, so the parts for Zero Shuttle had to rely mostly on technology owned by foreign companies. Amidst such circumstances, Mando's radar sensors achieved the feat of being installed in Zero Shuttle and, thus, recognized of its world-class technology. Mando will continue to put great efforts into R&D in order to solidify its status as a leading company in autonomous driving.

1) Level at which a car may drive safely and autonomously without a human driver

MISV

Mando Innovations
Silicon Valley (MISV)
opened 2017

Hockey,

Mando's self-driving car,
acquired license to
operate in California

Discovering New Technology and Markets

Mando Innovations Silicon Valley

Having opened MISV in Silicon Valley, U.S., the octagon for advanced automotive technology in 2017, Mando has been strengthening technical exchanges with global enterprises and promising startups. With a focus on securing self-driving technology, we seek opportunities for cooperation and investment based on "Tech Sensing" and "Tech Scouting" strategies.

Tech Sensing

"Tech Sensing" is a strategy through which technical trends in the fields of self-driving and eco-friendly vehicles, which are automotive industries of the future, are grasped. MISV attends various technical events to learn technically innovative trends and review potential for growth while reinforcing a network with startups in Silicon Valley. In 2018, we concentrated on collecting and analyzing advance technology related to HD Maps for realization of AI & Deep Learning, technology that Mando did not possess at the time, and autonomous driving. In order to quickly respond to changes in the market environment and secure new technologies in the future, we plan to conduct analysis on OEM clients and parts-supplying competitors.

Tech Scouting

Tech Scouting is a strategy through which new business items are discovered and investments are made into promising startups for the development of particular items. MISV aims to expand its scope of partnerships with relevant startups to become an "Eco-system player" of Silicon Valley. In 2018, we

obtained a license to operate "Hockey," our self-driving car, in the state of California to significantly increase the likelihood of R&D collaboration with key companies specializing future automobiles. Through the network with promising startups, Mando will continue to lead the future automobile market.

Mando Mobility Tech UP+

Mando Mobility Tech UP+ is a 6-month course for future automobile startups, sponsored by Mando and nurtured by FuturePlay. Mando selects preliminary or initial startup teams that can bring innovation into the major technologies of self-driving and future vehicles to provide comprehensive support, from seeding funding, startup spaces and employee mentoring to follow-up investment and registration of patents and trademarks. For the development of future vehicle technology, Mando plans to actively utilize external resources by implementing a startup incubation program.

Mando's investments in startups

Company name	Details of investment
Leap High (Chromic glass)	<ul style="list-style-type: none"> - KRW 12.5 billion (1 billion from Mando) in investments received in 2018 - Supported relocation of the plant to Asan 2 Techno Valley - Room mirrors, sunroof, sunglasses, Flex chromic films, etc.
SOS Lab (LiDAR)	<ul style="list-style-type: none"> - Investments received in 2018 (KRW 2 billion from Mando) - Mechanical Type: Prototype to be completed in the 2nd quarter of 2019 - Solid State Type: Prototype to be completed in 2020
Sparta Evolution (High-performance calipers)	<ul style="list-style-type: none"> - KRW 4.5 billion in investments received in 2018 - Progress of design improvement: Sales to be generated starting in the 3rd quarter of 2019



Hockey, Mando's
self-driving vehicle ►

Activities to strengthen customer relations

Mando attends domestic and overseas tech shows related to automotive parts to promote new products and technology and expand business network. While solidifying its domestic status as a major supplier in the automobile industry, it aims to diversify international clients to reinforce its impact in North America, Europe, China, and even India.

Domestic tech shows

To lead the latest trends in the automotive parts industry and reinforce existing partnerships, Mando biennially hosts the Hyundai Kia Motor Company (HKMC) Tech Show. In September 2018, we held the HKMC Tech Show under the slogan of “Mando Moving the World with HKMC” at Hyundai Kia’s Namyang R&D Center for over 1,000 of their employees. About 40 of our new, ultra-lightweight products were on display, and experience zones were also set up for the expansion of potential orders. At the 2018 event, the self-driving test vehicle, “Hockey,” and eco-friendly chassis products garnered much attention. In addition to tech shows conducted as a part of marketing, we hosted a technical exchange meeting with HKMC in November 2018 to discuss means of improvement in R&D and share the major research activities of Mando.

International tech shows

Mando attends International Motor Show Germany (IAA), held biennially in Frankfurt, to promote our brand and new technologies to European automobile manufacturers such as Volkswagen and Mercedes-Benz. At the most recent 2017 Motor Show, we exhibited advanced chassis products, radars and cameras and other self-driving-related products and eco-friendly parts under the concept of “Mando Provides the Best Products and Suggests Future Standard.” At the upcoming show in 2019, we plan to introduce solutions for future core technologies and thus solidify our image as a “technology-oriented leading supplier.” In addition, we will host a tech show with Maruti Suzuki, boasting the No. 1 share in the Indian automotive market, in May 2019 to continue to increase our sales share in India and orders for eco-friendly products.

Mando's sales by region

(Unit: KRW 1 billion)

	2016	2017	2018
Korea	3,188	3,095	3,108
China	1,772	1,643	1,496
U.S	1,130	847	769
Others	616	762	910



▲ 2018 HKMC Tech-Show

02 Responding to Material Topics

Leading Quality Management

Improving quality is Mando's vision and the value

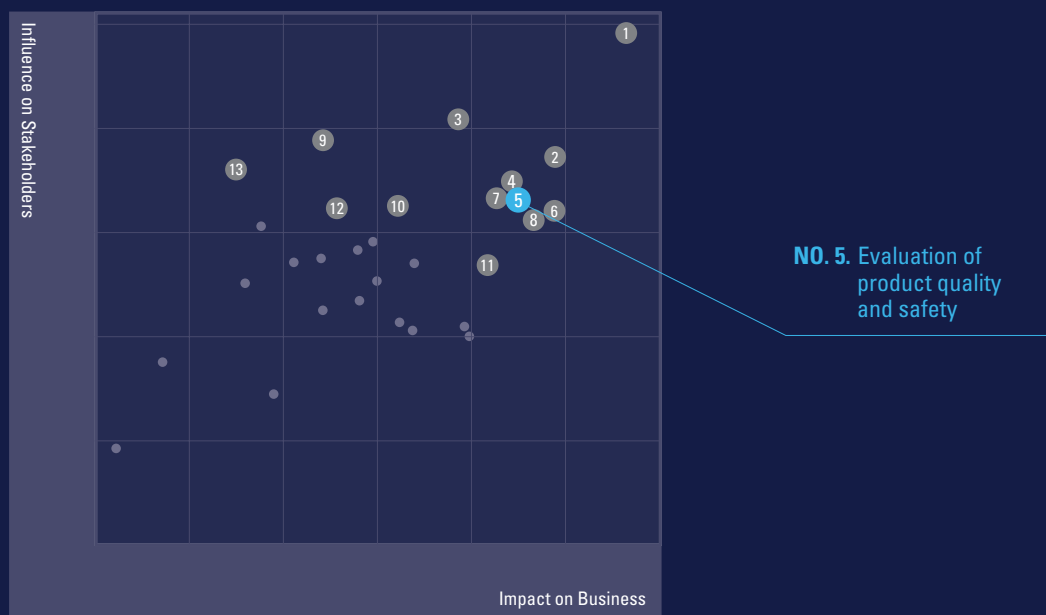
Why is quality management important?

The criteria that a driver, or the final consumer of a car, views as the most important are the quality and safety of the product. Achieving the best quality and making safe products are goals of automobile OEM companies who are Mando's clients, as a defect in a product may potentially put not only drivers but also families in jeopardy. Because it is directly related to the lives of many, quality management is a core issue that must be strictly managed.

How is Mando responding?

As a manufacturer of automotive parts, Mando has set "Quality Improvement" as its vision and is continuously striving to secure quality competitiveness. We want to become a reliable company with the best technology and quality based on the quality philosophy of "Quality, the Best Value" and the four quality principles. For the speedy resolution of issues and, even better, prevention of them in advance, we operate a systematic quality management system and promote quality education and quality innovation activities among others. The R&D Center, Purchasing Team, Production Team, our partners, etc. carry out various inspections and improvement measures for quality control from the product design stage to mass production.

Relevant material topics





Highlights for Material Topics

TOPIC. 1 Evaluation of product quality and safety



7 sites

vehicle test
operated worldwide



96 partners

completed quality
certifications



G-QMS

Global quality management
system established



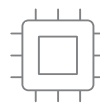
4 years

4 consecutive years
GM Quality Excellence Award
(Korea & China)



**Flawless mass
production**

of new products for Ford C519



EBS

Flawless mass production of
MGH-100, a new Electronic
Braking System (EBS) product

Shift in Quality Paradigm

In order to predict and prevent quality-related accidents in advance as well as to control quality systematically, Mando has introduced a new “Quality Paradigm.” Based on the management philosophy of Halla, which aims to execute all tasks in the “right way,” we select and manage core assignments of each type from development and manufacturing to mass production and warranties.

Quality Paradigm



Increasing investment into quality management infrastructure

Establishing Global Quality Management System (G-QMS)

Mando successfully established G-QMS in 2018 to equip with a computerized program with which quality data and indices can be shared worldwide. By utilizing the system to inspect the quality status company-wide in real time and perform integrated management of all quality data, we strive to prevent quality-related accidents in advance. The Central Quality Center, which oversees control of G-QMS, has computerized the system to

enable users to utilize it easily through user training sessions sequentially held for each domestic and overseas office from May to November 2018.

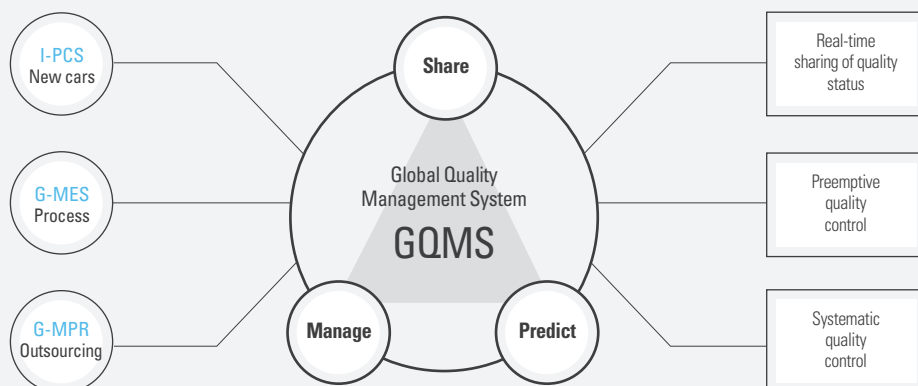
Operating 7 Mando vehicle test sites worldwide

Mando performs quality tests on all products we develop. At vehicle test sites located in Korea, China, New Zealand, the U.S. and Sweden, we execute performance verification, durability evaluation, noise tests and vehicle handling tests of all parts coupled with related research tasks as a part of ceaseless verification of products, so that they meet customers' demands and test requirements.

Research tasks at vehicle test sites

Type	Description
Environment test	Inspects performance of each part under extreme conditions including super high or low temperature, corrosion, etc.
Vibration test	Applies an impact with a frequency on a product to inspect its durability with respect to vibration
Noise test	Measures and analyzes noise in an anechoic chamber with almost zero reflection of sounds
Radar test	Controls radio wave transmission time of radar to inspect its performance by distance
ABS / ESC test	A test track with a ceramic road surface that has realized a similar degree of slip as an icy road
FCA test	Front crash prevention test that enables automatic braking by deciphering an object ahead
LKAS test	Test of a Lane Keeping Assist System, which supports steering on straight-lined and curved sections
HDA test	Test of Highway Driving Assist system through test drive on real roads

▼ Infrastructure for quality management



Systematic Product Quality Control

Design fortification in development stage

Prior to distribution of prototype specifications, Mando hosts “Design Review Day” as a means to prevent any quality issues in advance. Thus, a Multi-Disciplinary Team (MDT) made up of representatives of each process, from design and manufacturing to quality, reviews past vehicle quality issues and manufacturability-reflected design with partners. The “Design Review Day” held in 2018 reviewed 23 vehicle models and 37 products and deduced 1,158 items for improvement for which related tasks are being carried out even today. In the future, quality- and manufacturability-applied design will be proposed and quality control activities, including an increased participation of experts on “Design Review Day,” will continue to be strengthened.

Securing manufacturing stability early

By implementing pilot work on all new vehicle models including new products, new specs, new techniques and new lines in 2018, Mando put great effort into securing manufacturing stability early. For verification work, we varied the 3M process conditions—Machine, Material and Method—to specify and secure process capability in optimal conditions for new vehicle models. In 2019, we plan to set optimum conditions for each process, from processing and assembly to inspection and establish subsequent testing plans, continuing efforts in securing and maintaining process capacity.

Securing consistency in mass production quality

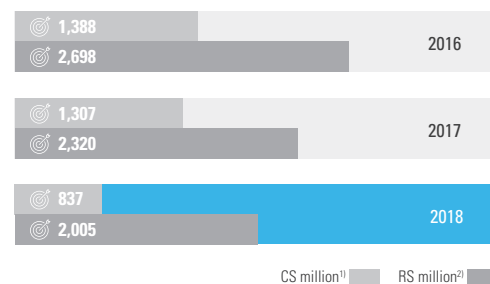
Mando continuously executes condition control in each process in order to prevent large-scale issues in advance. Thus, we have set core activities for quality control for each business division, and plan to carry out monthly company-wide theme inspections such as condition control and equipment job set-ups.

Core activities by business division

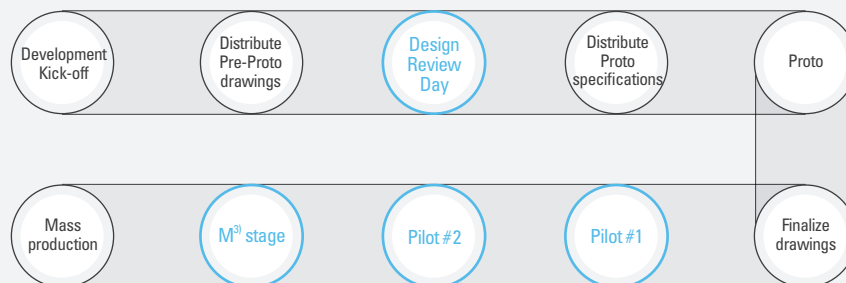
Business division	Core activities
Brake	<ul style="list-style-type: none"> Verifying standardization and unification of major items
Steering	<ul style="list-style-type: none"> Implementing 3-step Quality School course at partner companies Operating One-Body TFT with partners
Suspension	<ul style="list-style-type: none"> Inspecting quality of CKD (Complete Knock Down) parts and items for which direct transactions are done overseas
ADAS	<ul style="list-style-type: none"> Inspecting semiconductor process to which new products are applied Reinforce verification of variation points for mass-produced semiconductors
Common	<ul style="list-style-type: none"> Continuously performing monthly theme inspections

Quality management performance

(Unit: No. of cases)



▼ Quality management process



1) Initial Quality Study (IQS): The claim index for every 1,000,000 vehicles generated during the first 3 months after mass production

2) Vehicle Dependability Study: The claim index for every 1,000,000 vehicles generated from the 10th to 12th month after mass production

3) "M," as an abbreviation for "Mass Production," refers to the initial mass production stage

96 partners'

quality certifications

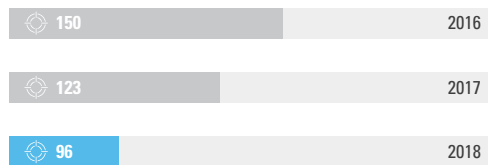
in 2018

**4 consecutive
years**GM Quality Excellence
Awards (Korea, China)**Product quality management of partners****Certification of Quality Management System (MQ) for secondary, tertiary partners**

To eliminate blind spots in quality control at partner companies, Mando has introduced and operated certification of Quality Management System (MQ) for secondary and tertiary partners, which are processing, press, spring, general assembly and pad spring coating companies that receive the certification by plant. Mando restructured the certification grade system in 2017 and processed partners with a score lower than 84 as non-certified companies. Meanwhile, We conduct strict follow-up management of MQ assessments including a pointed item enhancement control system for partners to soft-land up to the automobile quality certification system. In 2018, MQ certification of 96 partners was conducted based on evaluation of mass production capacity from warehousing to shipment and special process capability.

Quality certification for partner

(Unit: No. of companies)

**Quality assessment and certification****Quality Excellence Award as a GM supplier**

GM, one of Mando's major clients, hosts the annual "GM Supplier Quality Excellence Awards" to award outstanding partners having achieved the level of "zero" quality defects based on 13 items¹⁾. As a result of

solving quality issues under the principle of "Quality, the Greatest Value," we won Quality Excellence Awards for four consecutive years in Korea and China until 2018 and twice and once, respectively, in India and Brazil.

GM Supplier Quality Excellence Awards

Region	2014	2015	2016	2017	2018
Korea	●	●	●	●	●
China	-	●	●	●	●
India	-	-	-	●	●
Brazil	-	●	-	-	-

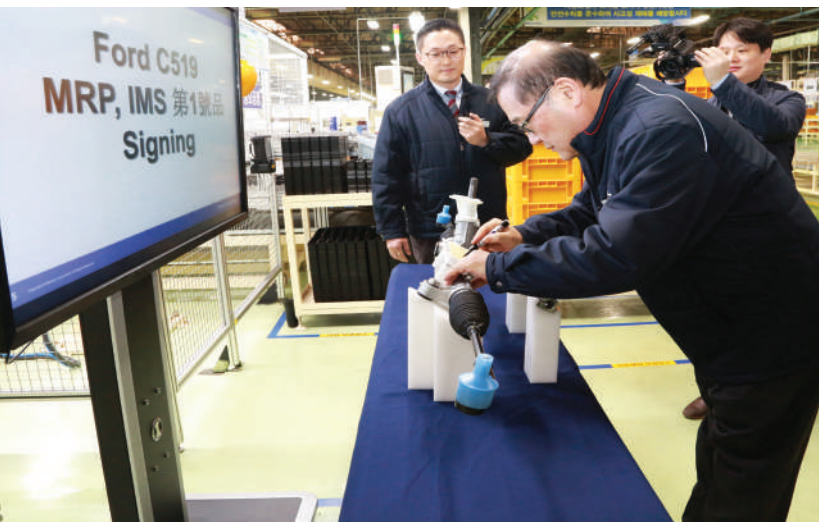
Flawless mass production of a new product, MGH-100

Mando successfully performed flawless mass production of Electronic Brake System (EBS) and Mugunghwa-100 (MGH-100) in 2018. Also known as "Flawless Launching," it aimed for "zero" OEM and field quality issues for the 100 days after the start of mass production. Mando supplied more than 20,000 MGH-100 at the time and, for flawless development and mass production, operated an exclusive team of sales, manufacturing, purchasing and quality teams as well as partners, thus focusing on the four areas: securing profitability, fortifying specifications, stabilizing production, and quality system stability. Mando plans to internalize the experience of flawless mass production and propagate it to overseas sites in order to apply it to our new future products.

Flawless mass production of a new product for Ford C519

After the experience with MGH-100, an electric parking brake, Mando held a ceremony in January 2019 to celebrate flawless mass production for "Ford C519." The steering gear and intermediate shafts supplied for the vehicle are steering devices that turn the direction of the wheels when a driver controls the steering wheel, and thus essential parts related to a vehicle's safety. The products began mass production at the Wonju and Poland plants in May 2018 and at the China plant in September of the same year; and, as of January 2019, more than 250 days of flawless mass production continues. To thoroughly abide by quality principles on site, we will continue to discover and fix even the pettiest defects of our products.

Commemoration
ceremony for flawless
mass production of Ford
▼



¹⁾ Excellence in supply expression, various system certifications, excellence in quality expression, etc.

The longest history of winter tests among domestic automotive parts manufacturers



▲ Winter test sites

"Evaluating if automotive parts fulfill their roles under severe environmental conditions"

- We conduct winter tests not only to evaluate if automotive parts fulfill their roles under severe environmental conditions such as snowy and icy roads in extremely cold regions but also to receive performance approvals from our clients. We operate winter testing sites in the U.S, China and New Zealand in striving to develop automotive parts of the greatest performance. Among the test tracks, the one located in Arjeplog in northern Sweden is in an intense cold region with a lowest temperature of -40°C which is an optimum location to test whether or not cars operate in a stable manner.

- In celebration of our 30th anniversary of winter tests in Sweden, we held a commemoration ceremony in Arjeplog with over 80 representatives including CEO Chung Mong-won. Started with only 4 cars and 10 employees three decades ago in 1989, our winter tests are currently run with more than 100 vehicles and 210 researchers. The test site focuses on evaluation of performance and safety of cutting-edge electric components¹⁾ including Integrated Dynamic Brake (IDB), Electric Stability Control (ESC) and Advanced Driver Assistance System (ADAS) in addition to brake and suspension systems, all of which are core parts in cars.

1) Electrical and electronic products

"Growing to a scale of 100 vehicles and 210 researchers in participation"

"Enhancing verification of core research and technical development for new technology"

- Researchers of winter testing make optimal parts that help enable stable braking and driving by conducting numerous corrections and revisions until the performance in each situation is satisfied. In commemoration of the 30th anniversary of winter testing, we aim to further reinforce core research on new technologies and work on technical development, thus advancing the process for verification of developed technology.

Total 7
winter test sites
Sweden, U.S., China,
New Zealand, etc.

Number of professional
researchers
in winter testing
210

Operating expenses
for winter tests
in 2018
KRW 5.6 billion

03

Responding to Material Topics

Managing Business Ethics

Integrity management is a foundation to grow as a lasting company

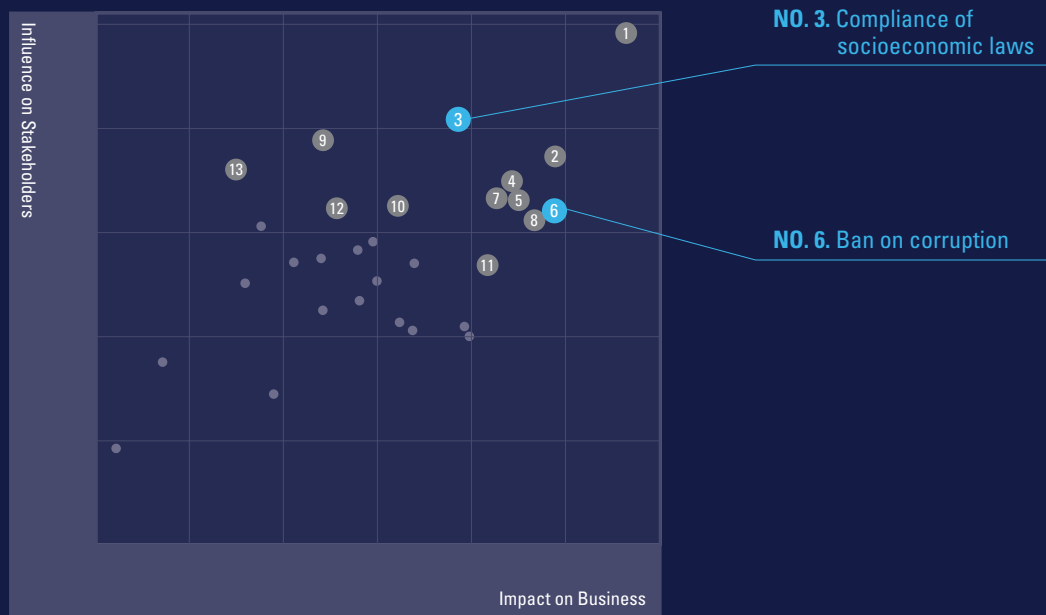
Why is managing business ethics important?

As large-scale corruption cases continue to mar Korean society, voices that demand companies' probity and management transparency are louder than ever. As the government's anti-corruption stance strengthens, various efforts are being carried out to not only conform to laws and institutions but also systematically control anti-corruption risks. Integrity management has settled as a fundamental value of companies but also firm ground for their future growth.

How is Mando responding?

Integrity management is Mando's founding philosophy and a core value. We strive to compete in a fair, clean, and transparent fashion and grow as a company with a strong competitive edge based on reliability. Towards these goals, we systematically operate a reporting system such as a cyber reporting center run by an exclusive team for integrity management. Moreover, to increase employees' awareness in integrity management and spread an anti-corruption culture, we share newsletters and posters via email and on the website, and also produce integrity management visual training materials in multiple languages, thus enhancing the educational impact.

Relevant material topics





Highlights for Material Topics

TOPIC. 1 Compliance of socioeconomic laws



0

Violations of socioeconomic laws

TOPIC. 2 Ban on corruption



Distributing call-for-action message on integrity management



Reinforcing internal accounting management system



Producing videos in multiple languages for ethics education

Internal accounting management system reinforced

Mando's Integrity Management

Integrity management system

Integrity management refers to a management system that seeks fair competition and fulfills social responsibilities and duties based on transparent and upright decision-making faithful to a company's fundamentals and principles. To systematically control integrity management and internalize it into our organizational culture, we set 4 principles of integrity management centered on its vision.

4 principles of integrity management



Operating an exclusive team for integrity management

Integrity management is operated by the Office of Integrity Management of Halla Group, our holding company. The Office serves to control and mediate in a neutral position for Mando and individual employees to implement tasks in the right way. Its primary activities include an early prevention system, basics- and principle-oriented audits, high-risk area analyses, improvement of old practices, and PR and training of integrity management.

Operating integrity management system Strengthening internal audit activities

Audit activities constantly conducted by the Office of Integrity Management include regular audits, special audits and theme audits. It focuses on review of the management as a whole, from corruptive and illegal actions to the status of execution of management principles and instructions, distressed debt and risk management conditions.

Moreover, due to the revision of the External Audit Act¹⁾ in 2018, the company's internal accounting management system is now subject to an audit, which has led a reinforcement of the particular system. We perform strict internal evaluations centered on control documents,

and construct a constant monitoring system by designating control representatives, applying executives' core management indices and employees' Management by Objective (MBO) system, etc.

Operating report system

The Office of Integrity Management operates a "cyber report center" on the integrity management website²⁾ to allow anyone to report unfair processing of tasks or violations of ethical standards and code of conduct by Mando employees or external stakeholders.

We strictly prohibit any activities to reveal or track down the identity of the informant so that he/she is not subject to any disadvantages. Moreover, we operate a "gift receipt report center" for employees to voluntarily return or donate to society gifts received from stakeholders.

Report processing procedure



1. Report received

- Directly report to the Office of Integrity Management
- Report to the "Cyber Report Center" on the Integrity Management website
- Email, phone, mail sending, etc. exclusive for reports



2. Details confirmed

- Details of a report require preliminary procedures such as verification by relevant department under the principle of identity protection
- Determine whether or not an audit is to be performed



3. Investigation started

- Carry out an audit according to the internal audit procedures
- Finalize investigation plan including investigation personnel, period, etc.



4. Investigation completed

- Verify the truth of the report by securing objective evidence and investigating



5. Completion

- Complete the investigation and process according to internal regulations



6. Processed results confirmed

- Notify the informant of the processed results on the website

1) Act on External Audit of Stock Companies, etc.

2) Halla Group Integrity Management website: www.ethics.halla.com

Improving employees' awareness on ethics

Enacting ethical regulations

Ethical regulations have been enacted as the standard of upright actions and valuation that must be followed by all stakeholders. The ethical regulations state responsibilities and duties of the nation, shareholders, clients, partners and employees, all of which are Mando's stakeholders. Also, ethical codes of conduct are specified for employees to practice ethical standards in workplaces and propose a detailed guideline for their actions.

Ethical standards for stakeholders³⁾

Stakeholders	Details of ethical standards
Nation	<ul style="list-style-type: none"> · Seek solid and sound growth · Contribute to national/social development
Shareholders	<ul style="list-style-type: none"> · Protect rights and interests · Make information public
Clients	<ul style="list-style-type: none"> · Provide value · Establish trust with clients
Partners	<ul style="list-style-type: none"> · Compete in a fair manner · Execute rational procedures · Offer equal opportunities
Employees	<ul style="list-style-type: none"> · Offer equal opportunities · Maintain reputation and dignity · Fulfill responsibilities and duties

Operating a window for communication

To apply employees' opinions on tasks and comments on items for improvement as well as to create an integrity management culture, we operate various communication channels. First, we distribute messages on practicing integrity management to all employees twice a year at Lunar New Year's and Chuseok. Since the implementation of the Anti-Graft Law, it has been an important assignment to continuously inform the employees on the definite criteria of holiday gifts. Major details related to the law are shared via email and on the website. We have also produced and distributed Integrity Management newsletters and posters with messages to practice it.

Executing ethics education

Mando conducts online and offline ethics education for domestic and overseas employees. In 2018, content of online training was produced as videos and translated into English and Chinese for all employees to easily understand it. Offline training is conducted for rookies, newly employed experienced employees, and managers. In 2016, the year in which the Anti-Graft Law began to be implemented, ethics education was carried out for all employees and, in 2017 and 2018, for 300 newly employed personnel. Our partners have improved awareness in integrity management through surveys conducted as a part of "Friendly Activities,"⁴⁾ and, in 2019, we plan to hold education for partners and executives.

2018 ethics education

(Unit: No. of persons)

Rookies	150
Newly employed	81

Total 231(No. of persons)

Integrity management

call-for-action message
distributed

Multiple language videos

produced for online
ethics education

Only those who are honorable to themselves can proudly smile towards the world.
These smiles can brighten up the world in a beautiful way.
Halla Group's competitiveness and self-respect stem from the honorable and proud integrity management.
Practicing of integrity management that competes the right way and fulfills social responsibilities and duties is the bright smile that Halla delivers to the world.

Office of Integrity Management is open 24 hours/day
http://ethics.halla.com
It may easily be used via mobile as well.

Halla

3) Check details of the ethical standards on www.ethics.halla.com

4) Refer to p.67 for details on Friendly Activities

04

Responding to Material Topics

Committing to Employee Welfare

People are the heart of Mando

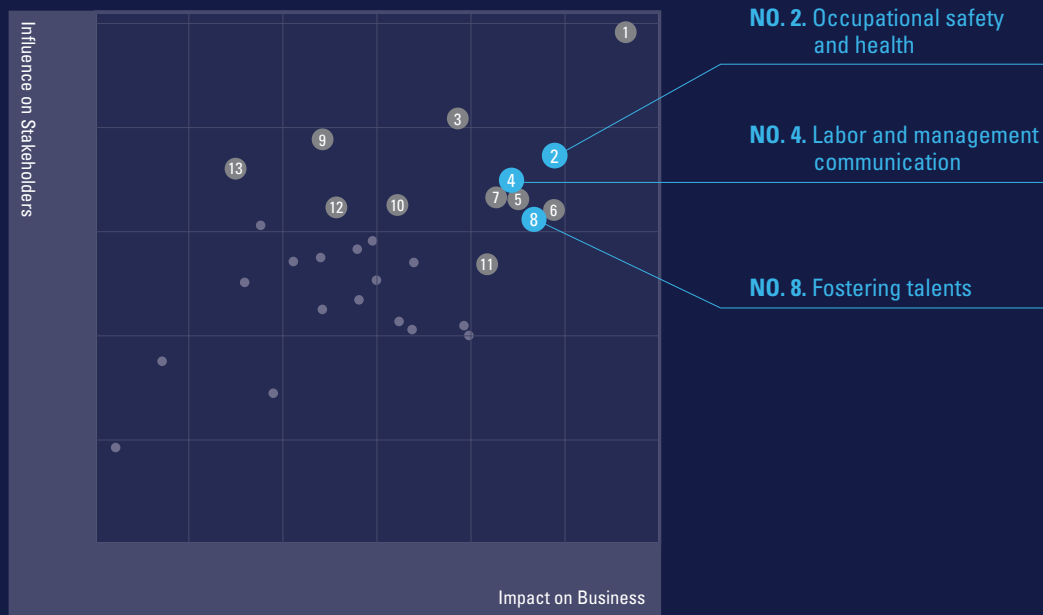
Why is committing to employee welfare important?

Establishment of a new corporate culture due to an increase in the minimum wage and introduction of the 52-hour work-week system has become an important assignment for many companies. In the midst of a rising number of management crises, efforts to convert issues into opportunities are also being emphasized. Moreover, competency development and nurturing of employees, the core players in future growth, is regarded as a mandatory assignment for lasting companies.

How is Mando responding?

Mando recognizes safety and health as basic elements in respect for mankind and sustainable management and, thus, removes risk factors at the sites while aiming to operate zero-disaster workplaces. Going beyond hierarchical orders and outcome-oriented organizational culture that can typically define the traditional manufacturing industry, we pursue innovative activities for diversity and communication culture to be installed, and also strive for smart work education to enable efficient processing of tasks based on a horizontal organizational culture.

Relevant material topics





Highlights for Material Topics

TOPIC. 1 Occupational safety and health



32%

reduction on Factor of Safety Index
[compared to 2017]



95%

reduction on usage of hazardous chemicals
[compared to 2017]



40%

reduction on risk level of partners
[3.3 → 2.0 points]

TOPIC. 2 Labor and management communication



18.2

number of monthly average suggestions on Mantong



165

Open Committee members



2,336

employees using flexible working hour system

TOPIC. 3 Fostering talents



52 hours

training hours completed per Mando employee



51 employees

completed Halla Business School Program

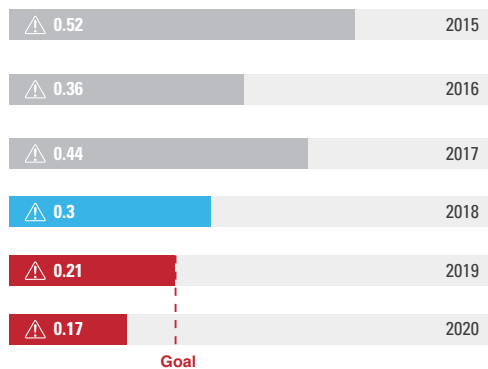
[accumulated: 239]

Occupational Safety & Health

Safety and health management system

Based on the safety and health policies of the CEO who places “respect for mankind” as our foremost priority, Mando systematically manages industrial accidents of employees. We obtained an international certification for safety and health management systems, known as OHSAS 18001, in 2001 and a Korean certification for safety and health management systems, known as KOSHA 18001 in 2011, thus systematically proceeding safety and health policies according to the principles. In order to halve the number of accidents occurring throughout the company by 2020, we choose the Factor of Safety Index (FSI) as a key performance indicator (KPI) to manage the frequency and magnitude of accidents taking place at each worksite. With our goal set on “Zero Disasters, Zero Fires and Zero Accidents,” we plan to advance the safety and health management system in accordance with the recently introduced ISO 45001¹⁾.

Factor of Safety Index for employees (Unit: FSI)



▲ Factory of Safety Index formula: $\sqrt{(\text{Frequency} \times \text{Severity ratio}^{**})}$

* Frequency: (Number of disasters / yearly number of working hours***) x 1,000,000

** Severity ratio: (Number of days of labor loss / yearly number of working hours) x 1,000

***Yearly number of working hours: Number of people x 8 hours/day x 300 days/year

Safety management at worksites

Labor-management joint safety and health proclamation

Mando holds labor-management joint resolution meetings to agree on the joint proclamation on safety and health and establish a culture of safety. The proclamation declares that safety and health are basic elements of management and respect for mankind, and contains the will to promote safety education programs and disaster prevention activities. We will continue to host “Safety and Health Day” and strengthen rewards and penalties for a safe environment, thus striving for settlement of a safety culture at workplaces.

Joint labor-management safety inspections

In an attempt to establish a culture of safety, Mando performs joint safety inspections by labor and management every month to prevent industrial accidents in advance. After checking safety devices with aging or malfunctioning parts or conditions, we take necessary measures to fix discovered issues quickly. In 2018, we conducted a joint labor-management safety inspection with a goal of “zero industrial accidents” and, for the issues found at the Iksan Plant, an additional safety campaign was carried out to improve the field employees’ safety awareness.

On-site safety patrol system

In order to constantly inspect risks at the sites and prevent accidents caused by human factors, Mando operates the on-site Safety Patrol system. Voluntarily constituted patrol groups survey the site at vulnerable hours, which are between 7 and 9 a.m. and 4 and 6 p.m. every day, to eliminate any potential risks in a timely manner. In 2018, the Pyeongtaek Plant operated the system to reinforce internal safety management capabilities and the Wonju Plant conducted a campaign, coupled with the patrol system, to prohibit cellular phone usage while walking on site.

►
2018 joint labor-management resolution meeting



1) International Health & Safety Management System enacted by the International Organization for Standardization (ISO)




Emergency response training

We set up manuals by scenario and implement response training sessions in order to prepare for unexpected disasters and emergency situations. In 2018, we cooperated with the 119 Fire Fighting Corps to conduct training on the use of air respirators and CPR at each of the production sites and, at the Pangyo R&D Center, more than three activities of the Civil Defense Corps were run to be trained in preparation for fire, earthquakes, missile attacks, etc. As a result of actively implementing such practical training, we received commendations from the Governor of Gyeonggi-do in 2017 and the Minister of the Interior and Safety in 2018.

Management of chemical risks

Mando regularly evaluates the risks of chemicals used at work to replace products hazardous to the human body or support the wearing of protective equipment, thus securing the safety of on-site employees. In 2018, we performed a harmfulness evaluation in accordance with the management standards of Material Safety Data Sheets (MSDS). Based on the results of the evaluation, we have established a drug usage and management process to be able to reduce the usage of hazardous chemicals by 95% compared to the previous year.

Hazardous chemical²⁾ used (Unit: Kg)

 234,055	2016
 134,900	2017
 13,370	2018



2) Wastewater processing chemicals (sodium hydroxide), experimental reagent (sulfuric acid, hydrochloric acid, nitric acid, picric acid, soda lime), casting mold hardener (benzoyl peroxide, dibutyl phthalate)

Safety management of partners

Mando supports partners' voluntary safety management programs in order to establish a symbiotic cooperation system. By providing education on various topics, including emergency response, disaster prevention, and health promotion for employees, for safety representatives from the partners, we strive to strengthen their competency in safety management and supervision. Moreover, we conducted risk assessments and technical guidance at partners' workplaces in 2018, which led to a reduction of on-site risk level from the previous 3.3 to 2.0 points. The results of a satisfaction survey on safety management activities at partners showed high levels of satisfaction from 73% of employees and 93% of CEOs.

Risk assessment results for partners (Unit: points)

2016	2017	2018
3.31	3.3	2.0

Promoting employees' health

Musculoskeletal disease prevention and treatment program (KEMA)

Use of excessive force or repetitive motions puts a burden on specific body parts and weakens muscular strength, thus leading to musculoskeletal diseases. Mando has introduced the KEMA program in an attempt to discover on a regular basis the processes that are a burden on the human body and employees who are suspected of having such an illness. Based on the survey results, we support the correction of postures and customized exercise programs and, if needed, rearrange tasks. Proceeding with this program has resulted in a reduced number of occurrences of musculoskeletal diseases from 34 in 2011 to only 3. In 2019, we plan to conduct a survey on factors hazardous to the musculoskeletal system.

Close management of employees suspected of having diseases

Mando implements close health management for employees suspected of having diseases as a result of health exams. Doctors conduct visiting consultations for patients with adult diseases such as hypertension and diabetes or serious illnesses including those of the brain cardiovascular system and cancers. In addition, we support dietary improvement and anti-smoking clinics for all employees and operate a health incentive system for employees' health management.

Commendation

from Minister of the
Interior and Safety
in 2018

40% ↓

reduction on risk level
of our partners

MSDS

evaluation conducted
in 2018

92% ↓

reduction on occurrence
of musculoskeletal
diseases

Labor and Management Communication

Operating a communication channel, "Mantong"

Mando operates "Mantong" 24 hours a day to encourage open communication between the executives and employees. Through "Mantong," an intranet community, employees can inquire about the company's systems and policies and also post about suggestions and difficulties anonymously. We have added a mobile feature in 2018 in order to collect voices from the field in real time, and the issues discovered in this manner are systematically managed by related departments. With a monthly average of 18.2 posts uploaded in 2018, a variety of issues, from working hours and weekend labor during overseas business trips to subsidies for employees' families, were proposed, which were replied to and processed by related departments.

Monthly average posts on Mantong			(Unit: No. of cases)
2016	2017	2018	
15.2	13.6	18.2	

Activities for thanksgiving and praising culture

Mando strives to respect each member of the company as a valuable human being and establish a harmonious organizational culture. Every month, "Thanksgiving Day" is held on which employees deliver one another their hearts of praise and gratitude via handwritten cards. These thanksgiving activities were conducted at both Korean and overseas business facilities in 2018. The actual cases of "Thanksgiving Day" and a guide for its operation will be distributed to overseas offices so that a culture of trust and empathy becomes deep-rooted in all of Mando's workplaces. The posts of compliments and encouragements may also be posted on Mantong, the communication channel.

Open Communication

Mando carries out company-wide open communication (OC) to transform the hierarchical, outcome-oriented culture of

the past into the culture of innovation and cooperation. In this activity, the "Open Committee" members chosen from each division have a face-to-face discussion with the heads of the divisions to set up ways to improve the corporate culture and also perform monitoring so that the discussed matters can be implemented throughout the company. In 2018, 165 members of the "4th Open Committee" carried out OC activities on 7 Work Smart assignments. Among the 118 improvement ideas collected, "time management" was the most popular with 32, followed by "smart reporting" and "smart meetings" with 22 and 17, respectively. In response to such ideas, we carried out activities including efforts to abide by 45-hour workweek system, trial of "purpose-of-absence cards" and prohibited usage of PowerPoint for internal reporting purposes. We plan to produce and distribute books on "case studies for change management" to allow the OC activities to be upgraded in the future.

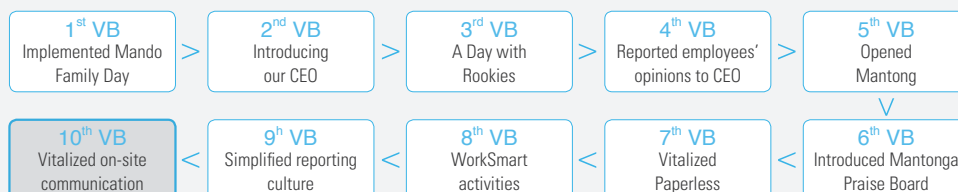
Process for open communication

STEP 1	STEP 2	STEP 3
OC workshop	Town hall meeting	Improvement activities
Group discussions to determine improvements	Improvement measures finalized with the division heads	Monitoring of detailed improvement items and progresses for each division

Operating Value Board

Mando operates a young directors' meeting body called Value Board (VB) to deliver creative ideas of young, competent talents to the executive level and apply them to operation of the company. VB is constituted of employees with the position of assistant manager or manager who demonstrate model behaviors. They serve the intermediate role by delivering the opinions collected at the ground level to the executives and also propagate the management's corporate strategies throughout the workplaces. In 2018, 13 members of the 10th VB completed 5 total reports to the executives on topics including Mando's change management and vitalization of on-site communication.

Major activities by each Value Board



Realizing a workplace that protects work and home



*"Work-life balance,
a prerequisite
for the lives
of employees"*

- In an attempt to create an environment in which the employees can work without any concerns, Mando runs in-company day care centers and implement Smart Day and flexible work system. Recently, we have opened additional day care centers and extended implementation of the flexible work system, thus carrying out strengthened welfare policies to become a workplace that protects both work and home of the employees.

- Mando owns in-company day care centers at not only its Pangyo R&D Center but also Pyeongtaek and Wonju Plants. The most recently opened day care center in Wonju features 5 nursing rooms, a playroom, kitchen and other facilities. Children are assigned in different classes and participate in diverse activities with many different creative props. We use our in-company day care centers as the foundation for win-win coexistence of work and life and strive to create a joyful and stable workplace for our employees.

*"Operating
in-company day
care centers
at domestic
workplaces"*

In-company day care centers in operation

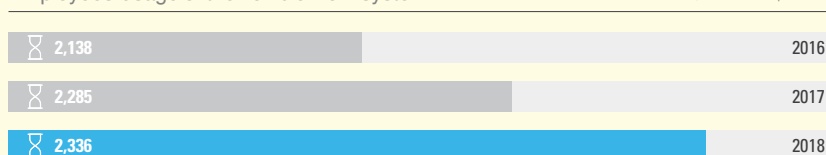
Category	Pangyo	Pyeongtaek	Wonju
Opened on	2012.10	2016.09	2017.03
Capacity	80 children	16 children	20 children
No. of children	80	3	14
No. of teachers	20	4	6

*"Smart Day
and flexible
work system"*

- Every Wednesday at Mando is "Smart Day" that encourages employees to get off work on time. Through "Smart Day" and effective and realistic measures including lights off after the office hours, refrain from team dinners and group activities and adjustment of Pangyo shuttle schedule, we aim to increase the level of satisfaction for our employees. Moreover, we have extended application of the flexible work system, which was first introduced in 2014, to increase the number of working hour options for all employees from 3 to 5. The options added are Early Bird, which requires an employee to work from 6AM to 4PM, and Happy Owl from 11AM to 9PM.

Employees' usage of the flexible work system

(Unit: No. of persons)



52 hours

of education per
employee in 2018

Fostering Talents of Halla People

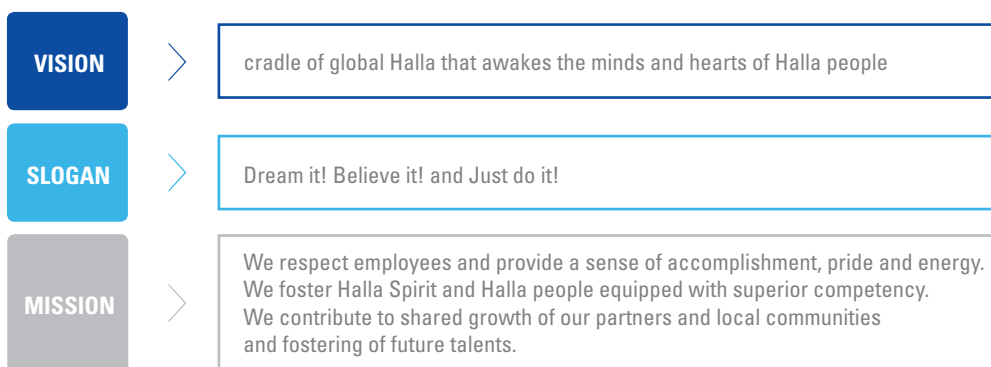
Education operating system

Mando strives for talent development of employees under the vision of the “cradle of global Halla that awakes the minds and hearts of Halla people”. At Halla Human Resources Development Center, we offer a variety of curricula, from capacity-building programs to Halla Business School to enable the employees to instill the core values in themselves and grow as global leaders.



▲ Global Leadership Course (GLC)

Human resource development Vision system



Capacity-building programs for employees

With the belief that a company's utmost priority lies in its talents, we support growth of individual employees. For development of competency and improvement in work execution abilities, every employee has to complete more than 20 hours of education every year. The outcome of education completed is reflected in the personnel assessment to increase effectiveness of the education programs, which are divided into Value education, Global education, Future education and Job Competency education to offer training tailored to the ones in need.

Completion status of Mando education

Educational category	Details	Number of employees		
		2016	2017	2018
Value	<ul style="list-style-type: none"> Management philosophy, core values and basic competency Work Smart skills to improve execution of tasks 	6,348	3,198	3,334
Global	<ul style="list-style-type: none"> Intensive language course Training for dispatched employees 	81	54	63
Future	<ul style="list-style-type: none"> HBS (Halla Business School) Fostering local manager-level employees 	837	1,136	1,262
Job Competency	<ul style="list-style-type: none"> Professional capacity-building programs Domestic and overseas scholarly training 	11,038	10,187	10,374
Total		18,304	14,575	15,033

Work Smart program

Mando aims to minimize inefficiency at work and create an autonomous working atmosphere by making it mandatory for all employees to complete more than one course of the Work Smart program each year. Halla Human Resources Development Center offers 16 Work Smart programs, and 100 of its courses were being implemented company-wide in 2018. At Mando, 1,786 employees of Mando completed the Work Smart education program in 2018.

Halla Business School program

Mando runs Halla Business School (HBS) in order to strategically and systematically nurture future managers who will lead our sustainable growth. The program is for senior managers or higher positions and features an 8-month MBA course. The HBS curriculum encompasses a wide spectrum of topics of business administration, from fundamentals of organizational management to contents for real-world management, including strategy, HR, marketing, finance and accounting, production management, technical management, and negotiations. In 2018, 51 employees, a 50% increase compared to the number of students in the previous year, completed the HBS curriculum.

1,786 people

completed the Work Smart
program

51 people

completed the HBS program
(accumulated: 239)

Work Smart education curriculum

Creativity enhancement education

- Presentation skills
- Negotiation skills
- Design thinking
- Thought organization skills
- Facilitation: The technique of asking questions
- Goal management through focusing on tasks



Cooperation reinforcement education

- Meetings for discussions
- Cooperation skills
- Document writing skills
- Communication skills
- Efficient time management



Principle conformance education

- Excel skills (fundamentals)
- Excel skills (intensive)
- Investigation and analysis



HBS(Halla Business School curriculum)

HBS I

- Leader fostering stage
- For part leaders, junior managers, senior managers and department heads
- Establishment of the mindset of a next-generation leader and acquisition of basic knowledge in management



HBS II

- Manager fostering stage
- For team managers, senior managers and department heads
- Cultivation of the comprehensive perspective of a future manager who aims for sustainability management



HBS III

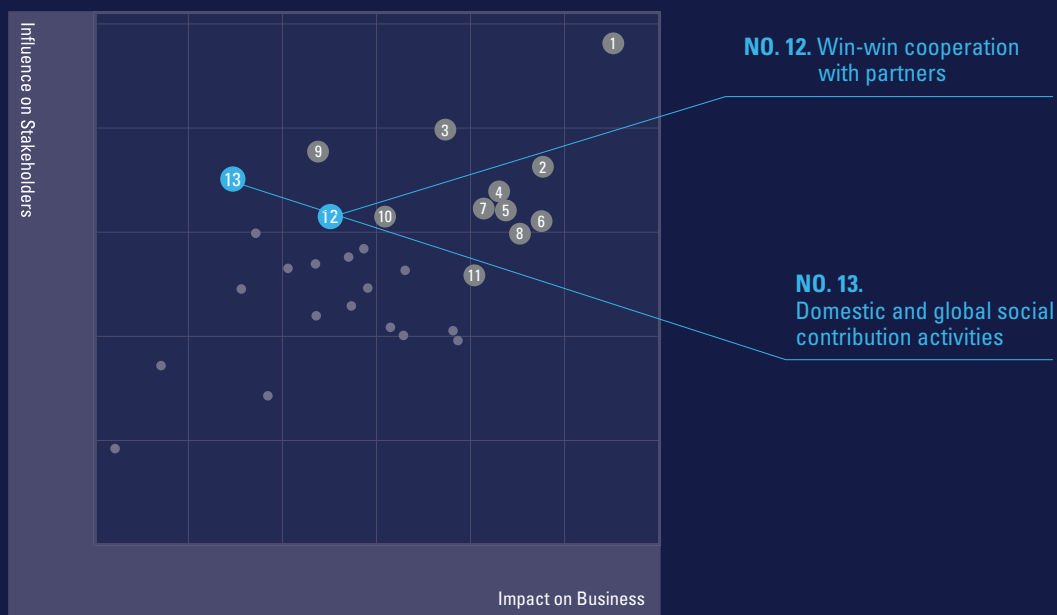
- CEO fostering stage
- For directors and vice presidents
- Cultivation of business insight and the strategic execution abilities needed to lead a business or organization in a responsible manner



Why is responding to the local community important?

How is Mando responding?

Relevant material topics





Highlights for Material Topics

TOPIC. 1 Win-win cooperation with partners



1,026

employees of partners completed competency training
[63%▲ compared to 2017]



95%

grievance resolution rate through fixing issues raised by partners in 2018



Qualified as "Excellent"

in the Korea Win-Win Growth Index 2018

TOPIC. 2 Domestic and overseas social contribution activities



141

beneficiaries of Share Culture, Share Love



72

beneficiaries from "Roly-poly Love Wheelchairs"



"Star of Philanthropy"

title acquired at Mando Beijing Office

Win-win cooperation with partners

Strengthening global competitiveness

Nurturing Mando-style hidden champions

Mando operates a Hidden Champion Development Program for our partners to own solid technology and grow as competitive “hidden champions” in the global market. For the final partners selected through internal screening, a TFT of each area, from R&D and parts development to production technology and quality, is formed to provide the technology necessary to enhance quality and productivity of the partners’ “killer items”. Since 2014, 6 companies have participated thus far and, in particular, Sungjin Forging & Machining, a company that represents the Hidden Champion Development Program, developed uni-body Yoke parts in collaboration with Mando in 2018 to achieve a 20% greater sales figure than the previous year and successfully obtained new orders from a renowned foreign automotive manufacturer.

Mando's Hidden Champion Development Program roadmap



Joint patents with partners

Mando applies for patents together with its partners to protect intellectual property rights of the technologies that are newly developed through the Hidden Champion Development Program, and provides financial assistance not only for the manufacturing of samples and molds in the new technology

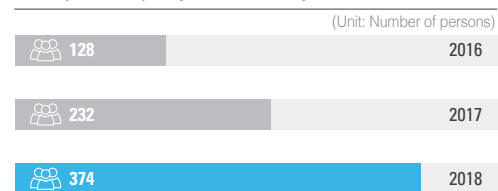
development phase, but also for the attorney reviews conducted during the patent application process and actual application and maintenance of patents. As a result of continuously patenting the ideas arising from joint developments with partners since 2014, we have completed 17 cases of patent application with 6 partners in 2018.

Spreading the quality mindset

Supporting quality certifications

Mando operates a quality certification assistance program to help the partners obtain the quality certifications needed in the automotive industry. The program assists the partners in ensuring that their products conform to the quality certification systems and standards required by different automotive OEMs, and offers preliminary response training for general systems, such as facility and plant operations and detailed preparation items including the certifications and evaluation criteria. Mando attends the visits of OEMs to our partners plants conducted during a certification process to be of support in the acquisition of certifications for the partners. We constantly manage the entire quality certification process even after the acquisition is completed for promotion of ratings. In 2018, we supported the acquisition of new certifications for 20 partners and the certification rating promotion for 25 partners.

Participants in quality certification system education



Quality certification assistance programs for partners

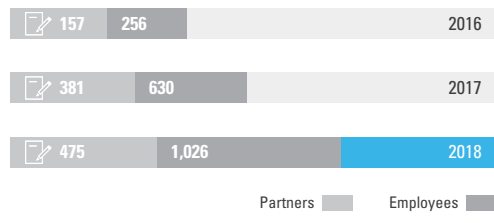
Quality certification system	Outcome of assistance in 2018
Assisting partners with quality certifications	<ul style="list-style-type: none"> 374 people completed the education KRW 26,790,000 spent
Assisting secondary and tertiary partners with quality certifications	<ul style="list-style-type: none"> 5 out of 92 companies acquired new certifications, 11 companies raised their grades
Assisting with Hyundai and Kia quality certifications	<ul style="list-style-type: none"> 15 out of 166 companies acquired new certifications, 14 companies raised their grades
Assisting with GM quality certifications	<ul style="list-style-type: none"> 81 companies
Assisting with Renault Samsung quality certifications	<ul style="list-style-type: none"> 12 companies

Education for partners' employees

Mando implements work competency reinforcement training for employees of its partners in order to raise their level of competency in technology and quality. In particular, the Quality Innovation School for personnel specializing in quality offers curricula tailored to quality, including quality techniques, waste elimination at manufacturing sites, and securing of quality mindset. Moreover, we constantly provide a next-generation managers' course, an APQP (Advanced Product Quality Planning) course, and an FTA (Free Trade Agreement) course as a means to help strengthen the work skills and competency of the employees at partners. In 2018, 1,026 employees at our partners, 63% more than the previous year, completed the work competency reinforcement training.

Education of partners' employees

(Unit: No. of companies and persons)



Establishing trust relationships

Strengthening open communication with partners

Mando operates various communication channels to strengthen our trust relations with partners and resolve any grievances and hardships they may face. Since 2016, we have visited individual partners to perform "Friendly Activities," through which we listen to the difficulties they have. The opinions collected from the field are reflected in the improvement activities that aim to resolve the difficulties experienced by the partners, and it

is worth mentioning that we have maintained a successful resolution rate higher than 90% since 2016. Furthermore, we also host the annual Partners' Day, which is attended by Mando's CEO in an attempt to actively communicate with the partners. During the event, employees who take a leading role in resolving difficulties and partners with outstanding performances through the win-win cooperation program are awarded. In 2018, each of the 15 partners was awarded with a prize of KRW 3,000,000.

33rd Mando Cooperative Association seminar

In 1987, Mando founded the "Mando Cooperative Association", which refers to a meeting between Mando and our partners, to maintain sound business relations with the partners and promote mutual profits through win-win cooperation. In January 2018, 68 people attended the Mando Cooperative Association's CEO seminar with the theme of "Let's go together. Let's create value". Mando's CEO also attended and shared a variety of information, including the automotive industry trends analysis and humanities course that partners need in pursuing their businesses.

"Excellent" grade in Win-Win Growth Index

In 2018, Mando continued responsible win-win cooperation activities, such as the Hidden Champion Development Program and in the areas of quality, education, financial assistance and reinforced communication. As an external recognition of such efforts, Mando was qualified as "Excellent" at 2018 Win-Win Index hosted by the Korea Commission for Corporate Partnership, two grades higher than that received in the previous year. Mando will consistently strive to maintain this level by strengthening open communication with its partners and implementing various measures to support them.

**19 cases received
18 of them resolved**

partners' grievances

68 attendees

at Mando Coop.

Association seminar



◀ 2018 Korea Win-win Growth Index Awards ceremony

78 participants in Seed School

(47%↑ compared to 2017)

Domestic and overseas social contribution activities

Social contribution operation system for Global Mando

Social contribution strategies

Mando implements social contribution activities both in Korea and overseas with an open mindset, remembering that we exist as a community, while sharing heartwarming love with the society and our neighbors. Social contributions tailored to each country and region are carried out through company-wide common activities led by the headquarters as well as localized internal activities led by domestic and overseas offices in Korea, U.S., Europe, China, etc. As a way to systematically execute the social contribution activities, both yearly plans and detailed monthly plans are established and managed by different divisions.

Social contribution strategies

VISION

Fulfilling the social responsibilities of a company to cultivate competitiveness as a long-lasting company (sustainability management)

MISSION

Making unique and effective social contributions

Activities	
Global common activities	Local internal activities
<ul style="list-style-type: none"> Led by Global HQ Promotion of notable social contribution activities 	<ul style="list-style-type: none"> Led by regional divisions and offices Activities in each domestic and overseas division in connection with local communities
Beneficiaries	
<ul style="list-style-type: none"> Victims of car accidents, children 	<ul style="list-style-type: none"> Neighbors in local communities, welfare agencies

Mando community service group

The Mando community service group is a volunteer service group of Mando employees and their families, first launched in 2005 in an attempt to carry out community service activities, which had largely been performed individually, in a more systematic and effective manner. Initially started with about 500 members, the Mando community service group has since expanded into community service groups at overseas offices and divisions, volunteer groups by division and S-V association, and, as of 2018, 1,495 Mando people are participating in the program. Through the community service groups, a variety of activities are performed including

local briquette delivery, kimchi delivery and home repairs for low-income households.

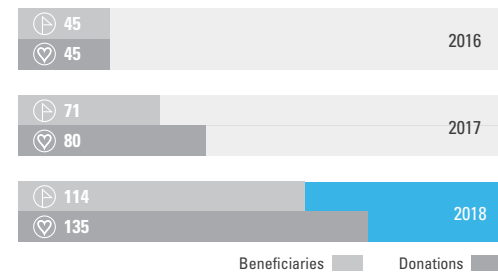
Social contribution activities with NGOs

Seed School, designing future vision of youth

Mando participates in “Seed School”, a career education program for teenagers, run by the Korea Education Corps. to empower teenagers placed in blind spots of social welfare to fulfill their dreams and continue their hopes; it offers various internally developed curricula, including self- and career exploration and talent development. It also utilizes a 1:1 mentoring system with university students to increase the effect of career counseling. In 2018, we sponsored the establishment of Seed Schools at two middle schools, one each in Seongnam and Wonju, to help support the students’ dreams. Furthermore, we have hosted “Halla Biscuit Camp”, a camp-style Seed School for students in farms, fisheries, mountainous regions, and islands, where it is relatively difficult to run after-school programs, to provide career exploration and training. At the Halla Biscuit Camp held in Pyeongtaek and Iksan in 2018, 78 teenagers participated.

Operation of Seed School and Halla Biscuit Camp

(Unit: persons, KRW 1 mil.)



Contributing to the growth of the marginalized

Share Culture, Share Love

Since 2010, Mando has implemented the “Share Culture, Share Love” program that offers opportunities to children of the marginalized class to participate in various cultural experiences. In 2018, Pangyo headquarters visited the Agricultural Theme Park with Seongnam’s Jungtap Regional Park Children’s Center to be part of different experience activities, including steamed bread and rice mist making and rice polishing. In addition, Iksan, Pyeongtaek and Wonju Plant performed experience activities such as history exploration and visits to Guryongsa Temple in Chiaksan Mountain, to instill dreams and hope in 141 children.



Employees-led donation

Mando carries out various donation activities through app utilization and through the establishment of funds in order to support the health and lives of children from low-income households in local communities. In particular, the “Walk Together” project aids in the rehabilitation of severely handicapped children, building a fund by adding the number of steps that employees take and count via an app. In 2018, a total of 80,000km in walking distance was achieved, which is close to two full laps around the globe. Moreover, we return the favor to the local communities by utilizing multiple donation channels such as Mando’s community service group, one-on-one child support, and “Usuri”, a small monthly stipend.

‘Blood Donation of Love’ campaign for young leukemia patients

Since 2013, Mando has been carrying out the Blood Donation of Love campaign, through which blood donation cards are given to Mando families and young leukemia patients in local communities. At the 9th campaign held at Pangyo Global R&D Center in 2018, Mando employees, and even those from partners, actively participated, ultimately donating 237 blood donation cards thanks to the participation of 233 donors, a 50% increase from the number of participants in the previous year. Furthermore, we have accredited 4 hours of community service to those who donated blood, to promote active participation from the employees.

Scholarship fund for local teenagers in the regions surrounding our business divisions

As a part of the labor-management joint social contribution activities in the local communities, we have been giving scholarships since 2014 to teenagers in Pyeongtaek, Wonju and Iksan, where domestic business divisions are located. In 2018, 40 teenagers of each area

were chosen to receive scholarships worth KRW 120 million in total and, in July, 160 benefiting students were invited to the Global R&D Center for diverse activities such as a lecture by CEO Chung, a facility tour, and external special lectures that motivated the teenagers to achieve their dreams and visions.

Sponsoring non-popular sports

Ever since the founding of “Mando Winia”, the former name of the current Anyang Halla Ice Hockey Team, in 1994, we have continued to actively sponsor Korean ice hockey. CEO Chung Mong-won, who became the head of the Korea Ice Hockey Association in 2013, had not only provided financial sponsorship to the team, but also spent time with the athletes to help the Korean national team advance to the Pyeongchang Winter Olympic Games. As a result, the national ice hockey team competed in 2018 Olympics held in Pyeongchang, Korea, representing the host nation and garnered much attention worldwide.

Moreover, we also operate the “Goal of Love Fund” through which we make donations based on the number of goals scored by the Anyang Halla Ice Hockey Team and their performance in the league, thus assisting to the self-reliance of children from low-income households in the city of Anyang.

80,000 km

walked by employees
through “Walk Together”

237 blood donation cards

donated through Blood
Donation of Love campaign

Results of the 2016-18 social contribution activities

Category	Unit	2016	2017	2018
Beneficiaries of Seed School	Persons	18	18	36
Beneficiaries of Halla Biscuit Camp	Persons	27	53	78
Beneficiaries of Share Culture, Share Love	Persons	145	132	141
Walk Together sponsorship ¹⁾	KRW 10,000	3,710	3,817	4,593
Sponsorship for Child Fund Korea	KRW 1 mil.	148	146	142
Blood Donation of Love campaign (blood donation card)	Cards	152	158	237
Goal of Love Fund	KRW 1 mil.	35.6	36	26

1) Total donations from employees and company

Global social contribution activities

Mando's China Office, "Star of Philanthropy" in Miyun District

Mando's Beijing Office performs community service in the local community centered on the "social contribution club". One of our most notable activities is the provision of scholarships and supplies for residents of the marginalized class in the Miyun District. To nurture outstanding talents in the region, every year since 2011 we have selected 60 students who show excellent performance in college entrance exams to offer them scholarships worth up to KRW 150 million in the past three years. We also hosted plant visit programs to provide opportunities to experience real-world tasks at the plant, including the automation systems and the plant's operation and management. In 2018, we sponsored all of the students at a special school with sports clothes, scholarships and, even, living expenses, and such efforts of contribution were recognized and led to the acquisition of the "Star of Philanthropy" in October 2018.

Korean cultural exchange activities in the U.S.

Mando's U.S. Office assists in various cultural exchange activities for members of the region to help them understand the Korean culture. We provide support for overseas training in Korea to the teachers' association in Auburn, U.S. once a year and, by sponsoring cultural festivals held at local schools, we promote

the Korean culture in an effort to improve the mutual understanding of cultures. In addition, we hosted an appreciation event for Korean War veterans, serving meals and facilitating cultural exchanges.

Supporting victims of accidents in Poland

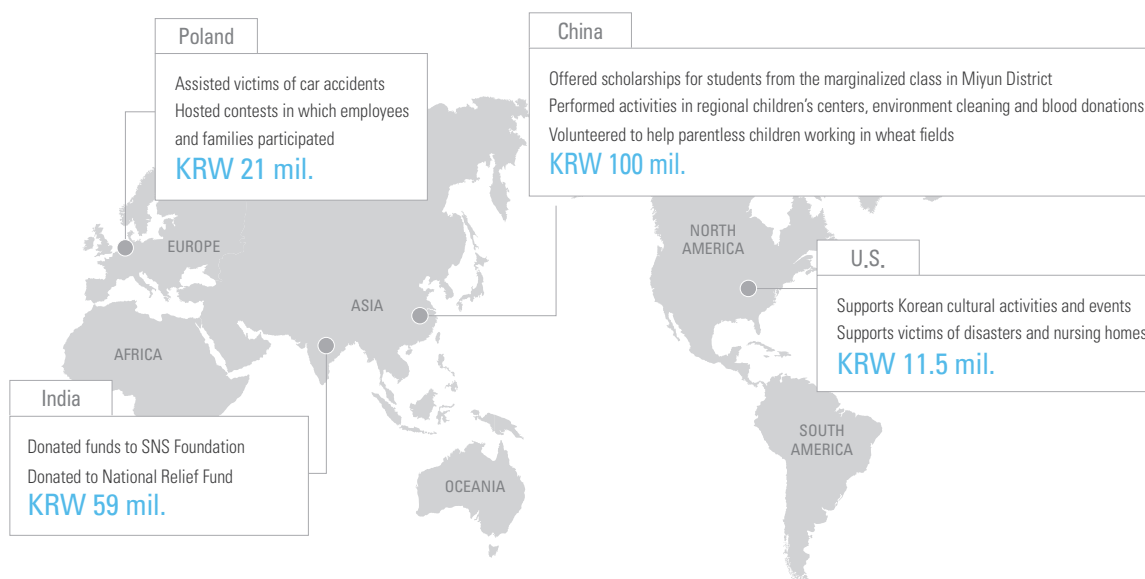
Mando Corporation Poland (MCP) annually sponsors social contribution projects taking place in the local community and promotes community service activities in which employees participate alongside NGOs. In particular, we offer assistance in rehab and drug treatment to help victims of car accidents to restore their health. In 2018, we supported four victims with about KRW 17 million; and in 2019, we plan to aid six additional victims of car accidents. Moreover, we carry out various other charitable activities in the local community, including the government's scout student camp and recovery support for the families of fire victims.

Annual blood donation camp in India

Mando's India Office hosts annual blood donation camps with the Voluntary Health Services Blood Bank. At the 2018 camp, 143 pints¹⁾ (about 67,664 mL) of blood was donated to aid 429 people. Moreover, we tried to contribute to the growth of local community by cooperating with SNS foundation in the support of education facility, life skills training and scholarships.

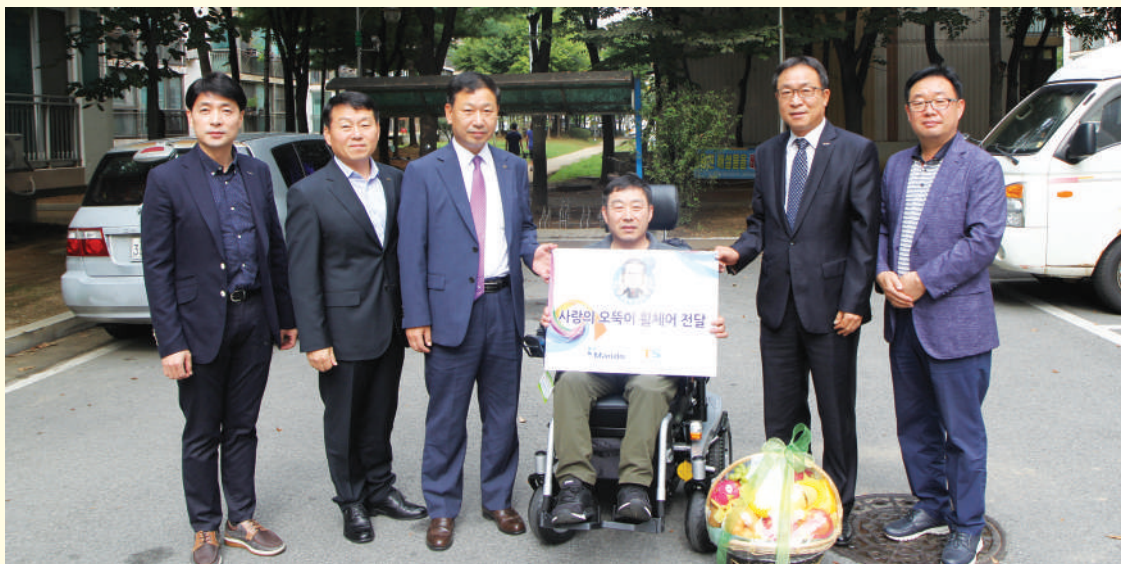
Major social contribution activities in different countries

• Total budget in 2018



1) About 473mL/1 pint

Roly-poly Love Wheelchair delivering hope to our neighbors



▲ Roly-poly Love Wheelchair delivery ceremony

*“Corporate spirit
to stand up like
a roly-poly in the midst
of endless ordeals”*

- Chung In-yung, Honorary Chairman of Halla Group, possessed such remarkable mental strength that empowered him to go on business trips even while in a wheelchair after suffering from a stroke at the age of 69. In celebration of Mr. Chung who continued to stand up like a roly-poly even in the midst of endless ordeals and to support rehabilitation of victims of car accidents as an advanced automotive parts manufacturer, Mando has been conducting “Roly-poly Love Wheelchairs” every year since 2012.

- Mando collects stories sent by families and relatives of severely handicapped people who have difficulties in movement due to car accidents in the past, and donates common wheelchairs, electric wheelchairs or electric wheelchair batteries. In addition, we deliver upbeat messages so that those suffering from disabilities can feel optimistic about their lives and donate funds accumulated to the Wheelchairs of Love event as a means to cheer on more and more severely handicapped people and their families.

*“Hope of life
delivered to
those suffering
from disabilities”*

57

electric wheelchair
batteries donated
(accumulated)

323

wheelchairs donated
(accumulated)

355

beneficiaries of wheelchairs
(accumulated)

06

Responding to Material Topics

Preserving Clean Environment

Mando takes the lead in preserving clean environment

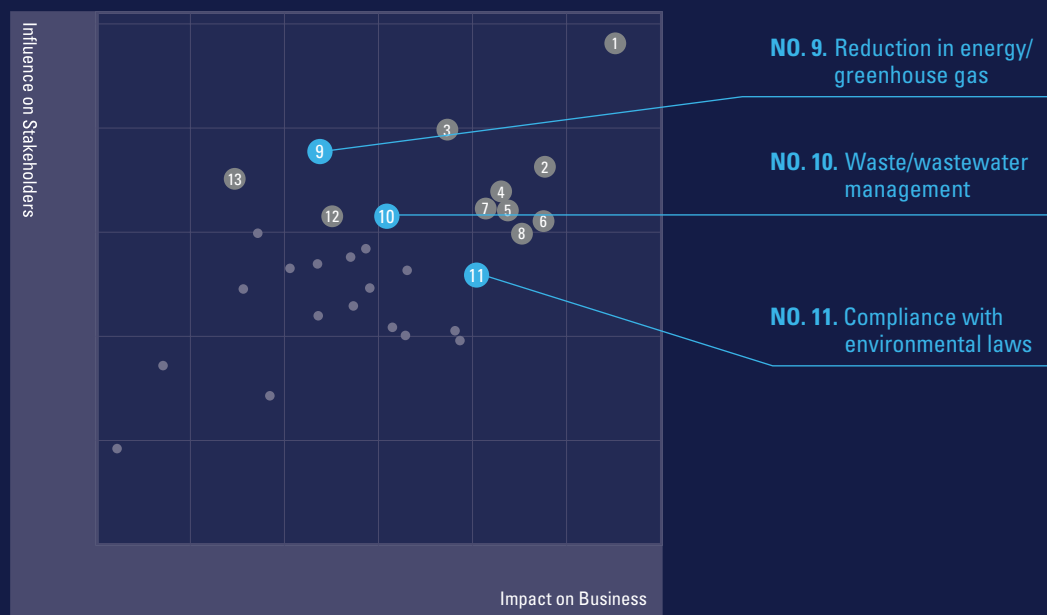
Why is preserving clean environment important?

Climate change not only causes a rise in sea water levels and scorching heat but also impacts the ecosystem in a negative way. As the world has set a common goal to maintain the rise of global average temperature under 1.5°C through the Paris Agreement, activities for prevention of environmental pollution have continued worldwide including reduction of greenhouse gases, minimization of waste and promotion of recycling.

How is Mando responding?

With the exception of Pangyo R&D Center, all of our facilities handling manufacturing processes in Pyeongtaek, Wonju and Iksan acquired the ISO 14001 certifications in 2001 to establish a foundation for environmental management system, of which we work to save energy at our facilities and also partake in activities in response to climate change such as improvement of facility efficiency and assistance in energy saving technology for our partners. Moreover, we aim to minimize the amount of waste and wastewater discharged by strictly conforming to the permissible discharge standards and installing recycling facilities, etc. as a means to increase the recycling rate. Mando plans to implement environment inspection tours for each division in order to respond to environmental regulations that continue to be reinforced.

Relevant material topics





Highlights for Material Topics

TOPIC. 1 Reduction in energy/ greenhouse gas



KRW60 mil.

saved every year with
heating efficiency
at plants



**Commended as a
company of merit in
energy savings**

(by Ministry of Trade, Industry
and Energy)



2,256 TJ

energy usage saving
compared to 2017

TOPIC. 2 Waste/wastewater management



95%

Recycling rate of
waste
(Wonju Plant)



64

recycling facilities
installed



40 tons▼

from waste cutting
fluids with efficiency-
improved machines

TOPIC. 3 Compliance with environmental laws



0

violations of
environment
regulations in 2018



ISO 14001

certification
maintained

KRW 187 mil.

of power costs saved at

Pyeongtaek site

Responding to Climate Change

Energy management at worksite

More than 90% of the energy that Mando consumes is generated from its production facilities. To reduce as much unnecessary usage of energy as possible as long as it does not affect production volume, Mando has established and operated energy saving plans

Elimination of waste in power usage

Mando strives to save energy, which is often wasted unnecessarily when operating facilities and optimize power usage. Our Pyeongtaek site implements the “power usage performance management system” through which it sets a monthly target amount of power use for each facility including production and R&D and shares the power usage performances every month. As a result, the Pyeongtaek site has reduced 2.2% in power usage compared to the previous year and annually saved electricity expenses of up to KRW 187 million. Our Wonju Plant shuts off utility supplies such as air, coolant and ventilation when facilities are not being operated in order to minimize power usage. In 2019, the Safe Environment Team at each facility has started to conduct inspection tours of each division in response to the continuously reinforced environmental regulations and plans to share feedback on power usage performances and enhance internal processes to correspond to regulations.

Improving energy efficiency

Mando continues to improve energy efficiency in the product manufacturing process through enhancement of machines. To minimize malfunctions and power waste due to the aging of machines, we replaced old

substations and, by substituting the existing water-cooled heating devices with air-cooled types that use air heat sources, about KRW 60 million of LNG costs has been saved. Moreover, we have also introduced the Energy Storage Systems (ESS) that utilizes solar energy as another means to save energy.

Supporting energy-saving for local SMEs

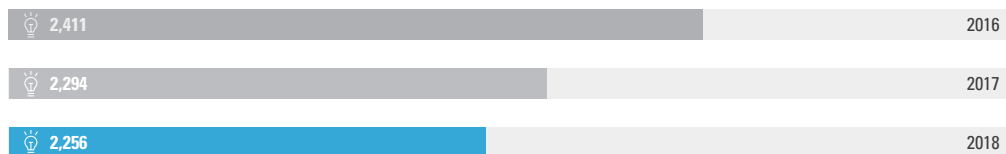
Mando implements environmental technical support mentoring to help our partners reduce the use of energy. After signing an agreement with Wonju Regional Environmental Office for regional environmental technical support, we served as an environmental mentor for our partners in 2018 to provide diagnoses and tailored technical guidance on air, water quality and throughout the environment industry. Mando will continue to offer environmental technical support to enable the partners to be able to deal with climate change through systematic environment and energy control.

Efforts to reduce greenhouse gas emissions

Since the Paris Agreement, activities in response to climate change have been urged worldwide, which has led to reinforced environmental standards, policies on greenhouse gas reduction and many other strengthened environmental regulations. All domestic worksites of Mando have participated in the greenhouse gas target management system since 2012 to take part in the nationwide efforts for the reduction of greenhouse gases, and we have also implemented the emission trading system since 2015, having successfully reduced more greenhouse gas emission quota than we were requested for.

Energy usage

(Unit: TJ)



Greenhouse gas emission and trading of emission rights

(Unit: tCO₂-eq)

Category	Direct greenhouse gas	Indirect greenhouse gas	Surplus emission rights	Emission rights sold
2016	7,790.003	109,931.216	67,366	40,304
2017	8,608.433	103,696.430	57,375	21,938
2018	9,007.097	101,187.85	-	-

* "Surplus emission rights" and "emission right sold" to be announced in June 2019

Wastewater and Waste Management

Waste treatment at worksites

Mando processes waste generated at manufacturing plants in a clean manner via investments in combustion facilities and 100% recycling. Moreover, wastewater that may be created during the production processes such as plating is primarily treated at the wastewater treatment station inside a worksite and then released to and controlled at an external wastewater treatment terminal. In addition, we perform wastewater quality analyses on a regular basis to manage it with standards stricter than the legally permissible thresholds.

Efforts to reduce waste



Vitalizing recycling of waste

To reduce environmental pollution caused by reclamation and incineration of waste, it is essential to maximize recycling and decrease the amount of waste. In 2018, our Wonju Plant supplied waste, all of which had been reclaimed before, as an auxiliary material for cement and a replacement for molding boxes, successfully recycling 14,943 out of 15,801 tons of waste. Meanwhile, the Pyeongtaek site has reused product packaging vinyl and returned plastic containers for products received from the partners to reduce the use of 33 tons of waste plastics.

Waste cutting fluid 40 tons↓

(compared to 2017)

Waste generation and treatment methods

Category	Production process	Processing	Warehousing of materials
 Waste created	Waste oil	Aluminum and other scrap iron	Vinyl, paper and other waste packaging materials
 Treatment method	Investment in combustion facilities	100% recycling	Vinyl sold to recycling companies

Total waste generated

(Unit: kg)

2,251,220	20,533,915	2016
1,794,210	16,253,845	2017
1,765,890	15,809,920	2018
Designated waste		General waste

Total waste treated

(Unit: kg)

1,303,199	Recycling
206,069	Landfill
251,196	Incineration
76,147	Others

Total wastewater and water pollutants¹⁾ generated

(Unit: m³)

278,747	5545.42	2016
273,504	5144.79	2017
272,198	4543.85	2018
Wastewater		Water pollutants

Operating waste recycling facilities

Mando operates recycling facilities to increase the recycling and reuse rate of waste. At the Wonju site, 34 and 31 of such facilities are installed at the plant and office, respectively, to separately process waste generated in each sector into general waste, designated waste and recycled waste. Recycling representatives inspect each of the facilities every week and share the monthly recycling and reduction results to encourage employees to carry out recycling activities.

Introducing efficiency-improving device

When processing metal materials during the manufacturing of products, a significant amount of cutting fluid²⁾ is used. However, cutting fluid becomes spoiled easily in a short period of time so, if it is not used in time, it is regarded as a toxic substance that potentially causes environmental pollution and negatively influences the human body. As a means to reduce the generation of waste cutting fluids, Mando introduced a vaporization device in 2018 with increased efficiency in vaporization temperature and vacuum differential pressure, which prevents the cutting fluid from decaying easily. As a result, we were able to reduce the amount of waste cutting fluids by about 40 tons in 2018 compared to the previous year.

1) COD(Chemical Oxygen Demand), SS(Suspended Solids)

2) A type of oil used in the cutting process of metal materials

“ECO Plant” achieved in Wonju Plant



▲ Energy saving campaign

"Increased inactive time of equipment, need to save energy"

- I Mando's Wonju Plant operates a foundry where metal goods are made and also uses more electricity and energy than other worksites. In particular, inactive hours of the equipment gradually increase after the double shifts on weekdays, which has led us to acknowledge the necessity of saving energy. As a response, a Task Force Team consisting of team managers in Production, Manufacturing Technology and Safe Environment as well as representatives from the Corporate Management Team is formed to discover energy-waste factors and actively execute other activities that can reduce the use of power.

- The most notable activity at the Wonju Plant that practices reducing the use of energy is the annual "energy saving campaign" through which various implementation measures are shared to minimize the energy consumed for facility and equipment operations and save the energy wasted during non-production hours. The 2018 version of the campaign was hosted to help employees practice saving energy as a Safe Environment Team as well as Section Chief Council, Production Support Team and Corporate Support Office came together to collaborate. The Wonju Plant set its goal on saving electricity costs of KRW 150 million, which is equivalent to 3% of the total cost of power used, and also produced and distributed PR posters describing ways to save energy, including "Air conditioners off, Following interior temperature guidelines, Air leak reduction, Optimized air supply pressure", actions that the employees can easily practice at plants and offices alike.

"All employees initiate together"

"Achieving optimized ECO Plant"

- Mando's Wonju Plant has consistently executed energy-saving activities such as energy saving campaigns and power saving, which has helped save 67% of wasted power in 2018, a 67% reduction from the previous year, and KRW 170 million of power costs. In particular, its outstanding efforts in reducing 5.5% and 13% of greenhouse gas emissions and the amount of air pollutants released, respectively, were recognized, leading to the Green Company Award in 2017 given by Ministry of Environment and a company of merit commendation for energy-saving performances given by Ministry of Trade, Industry and Energy in 2018. We will continue to promote detailed improvement activities such as the establishment of a "Zero energy waste" system on our way to becoming an ECO Plant.

67%

of waste electricity reduced

KRW 170 mil. of

power cost saved annually

Wonju Plant awarded the grand prize

at Green Company Awards by Ministry of Environment in 2017

Company of merit

commendation **for energy saving** from Ministry of Trade, Industry and Energy in 2018



Appendix

- 78 Summary of Consolidated Financial Statements
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Summary of consolidated financial data

Financial statement

(Unit: KRW 1 billion)

Category	2016	2017	2018
Assets	4,464	4,451	4,437
Cash and cash equivalents	185	119	118
Liabilities	2,949	3,039	2,956
Debt	1,290	1,339	1,385
Net debt	1,105	1,220	1,268
Equities	1,515	1,412	1,482
Capital	47	47	47
Debt ratio	194.7%	215.2%	199.5%
Net debt to equity ratio	72.9%	86.4%	85.5%

Profit and loss statement

(Unit: KRW 1 billion)

Category	2016	2017	2018
Sales	5,866	5,685	5,665
Cost of sales	5,005	5,012	4,940
Operating profit(%)	305	84	197
	5.2%	1.5%	3.5%
EBITDA(%)	534	467	469
	9.1%	8.2%	8.3%
Net profit(%)	210	18	113
	3.6%	0.3%	2.0%
Net profit of governance	199	5	106
Basic earnings per share	4,261	102	2,257
Total dividend	47	9	23
Dividend payout ratio	23.5%	195.8%	22.2%







1) Refer to 3p of 2018 Mando Business Report for the list of entities included in the financial statement






GRI Content Index




GRI 102: General Disclosures 2016

GRI Standard	Disclosure		Page in report				Verification	ISO 26000	UN SDGs	
Organizational profile	102-1	Name of organization	• 6p				●			
	102-2	Activities, brands, products, and services	• 12-13p				●			
	102-3	Location of headquarters	• 6p				●			
	102-4	Location of operations	• 8-9p				●			
	102-5	Ownership and legal form	• 6p				●			
	102-6	Markets served	• 8-9p, 22-23p				●			
	102-7	Scale of organization	• 6p				●			
	102-8	Information on employees and other workers	• 79p				●			
	Regular employees (Unit: No. of persons)									
	Gender		Region							
	Male	Female	Pangyo	Pyeongtaek	Wonju	Iksan	Others in Korea	Overseas		
	4,145	190	1,350	1,179	1,088	482	114	8,040	6.3.10/ 6.4.1-6.4.2/ 6.4.3/6.4.4/ 6.4.5/6.8.5/ 7.8	
	Non-regular employee									
	Gender		Region							
	Male	Female	Pangyo	Pyeongtaek	Wonju	Iksan	Others in Korea	Overseas		
	21	36	34	8	4	9	2	247		
	Dispatched employees									
	Male		Female							
	29		47							
*Subcontracting personnel perform the process of removing crush and runner after melting, forming, pouring, and desorption at Wonju casting plant.										
Strategy	102-9	Supply chain	• 22-23p, 50p				●			
	102-10	Significant changes to the organization and its supply chain	• No significant change				●			
	102-11	Precautionary Principle or approach	• 74-75p				●			
	102-12	External initiatives	• UN Sustainable Development Goals (UN SDGs) 33p				●		17 PARTNERSHIPS FOR THE GOALS	
	102-13	Membership of associations	• 86-87p				●			
Strategy	102-14	Statement from senior decision-maker	• 5p				●	4.7/6.2/7.4.2		
Ethics and integrity	102-16	Values, principles, standards, and norms of behavior	• 10-11p				●	4.4/6.6.3	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	
Governance	102-18	Governance structure	• 18-21p				●	6.2/7.4.3/7.7.5		
Stakeholder engagement	102-40	List of stakeholder groups	• 22-24p				●			
	102-41	Percentage of total employees covered by collective bargaining agreements	• 100%				●			
	102-42	Identifying and selecting stakeholders	• 24p				●	5.3		
	102-43	Approach to stakeholder engagement	• 24-32p				●			
	102-44	Key topics and concerns raised	• 32p				●			
Reporting practice	102-45	Entities included in the consolidated financial statements	• 75p • 3-4p of 2018 Mando Business Report				●			
	102-46	Defining report content and topic Boundaries	• About this report 83p				●	5.2/7.3.2/ 7.3.3/7.3.4		
	102-47	List of material topics	• 32p				●			
	102-48	Restatements of information	• First publication of the report in 2019				●			
	102-49	Changes in reporting	• First publication of the report in 2019				●			
	102-50	Reporting period	• About this report				●			
	102-51	Date on which the most recent report was published	• About this report				●			
	102-52	Reporting cycle	• About this report				●			
	102-53	Contact to inquire about the report	• About this report				●	7.5.3/7.6.2		
	102-54	Reporting method according to GRI Standards	• About this report				●			
	102-55	GRI Content Index	• 79-83p				●			
	102-56	External verification	• 84-85p				●			

Topic-specific Disclosures

GRI Standard	Disclosure	Page in report	Verification	ISO 26000	UN SDGs																								
Topic 1: Investment and technology R&D																													
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	●		 																								
	103-2	The management approach and its components																											
	103-3	Evaluation of the management approach																											
		R&D investments and manpower	●																										
		<table><tr><th>Unit</th><th>2016</th><th>2017</th><th>2018</th></tr><tr><td>1 bil. KRW</td><td>283(4.8%)</td><td>302(5.3%)</td><td>315(5.6%)</td></tr><tr><td>No. of persons</td><td>1,934</td><td>2,040</td><td>2,115</td></tr></table>	Unit	2016	2017	2018	1 bil. KRW	283(4.8%)	302(5.3%)	315(5.6%)	No. of persons	1,934	2,040	2,115															
Unit	2016	2017	2018																										
1 bil. KRW	283(4.8%)	302(5.3%)	315(5.6%)																										
No. of persons	1,934	2,040	2,115																										
		* Includes global workplace personnel																											
—	—	Status of application and registration of intellectual property rights	●																										
		(Unit: No. of cases)																											
		<table><tr><th>Category</th><th>2016</th><th>2017</th><th>2018</th></tr><tr><td>Applied</td><td>849</td><td>924</td><td>807</td></tr><tr><td>Registered</td><td>397</td><td>435</td><td>326</td></tr></table>	Category	2016	2017	2018	Applied	849	924	807	Registered	397	435	326															
Category	2016	2017	2018																										
Applied	849	924	807																										
Registered	397	435	326																										
Topic 2: Industrial safety and health																													
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	●		 																								
	103-2	The management approach and its components																											
	103-3	Evaluation of the management approach																											
		Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	●																										
GRI 403: Occupational Health and Safety 2016	403-2	<table><tr><th>Category</th><th>2016</th><th>2017</th><th>2018</th></tr><tr><td>Accident accident rate</td><td>0.11</td><td>0.18</td><td>0.09</td></tr><tr><td>disease accident rate</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Number of deaths</td><td>0</td><td>0</td><td>0</td></tr><tr><td>strength rate</td><td>0.07</td><td>0.14</td><td>0.12</td></tr><tr><td>Frequency Severity Index(FSI)</td><td>0.36</td><td>0.44</td><td>0.30</td></tr></table>	Category	2016	2017	2018	Accident accident rate	0.11	0.18	0.09	disease accident rate	0	0	0	Number of deaths	0	0	0	strength rate	0.07	0.14	0.12	Frequency Severity Index(FSI)	0.36	0.44	0.30		6.4/6.8.8	
		Category	2016	2017	2018																								
		Accident accident rate	0.11	0.18	0.09																								
		disease accident rate	0	0	0																								
		Number of deaths	0	0	0																								
		strength rate	0.07	0.14	0.12																								
Frequency Severity Index(FSI)	0.36	0.44	0.30																										
		*Accident type: collision, stenosis group, etc.																											
Topic 3: Compliance of socioeconomic laws																													
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	●	4.6/ 6.7.1-6.7.2/ 6.7.6																									
	103-2	The management approach and its components																											
	103-3	Evaluation of the management approach																											
GRI 419: Socioeconomic Compliance 2016	419-1	Non-compliance with laws and regulations in the social and economic area	●																										
		* No violations																											
Topic 4: Labor and management communication																													
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	●	6.4.3/6.4.5																									
	103-2	The management approach and its components																											
	103-3	Evaluation of the management approach																											
GRI 402: Labor/Management Relations 2016	402-1	Minimum notice periods regarding operational changes	●																										
		<table><tr><th>Contents of changes in management</th><th>Notification period</th></tr><tr><td>Division, merger or cession of company</td><td>3 months in advance</td></tr><tr><td>Relocation to a newly built plant (basic plan for welfare)</td><td>12 months prior to the relocation</td></tr></table>	Contents of changes in management	Notification period	Division, merger or cession of company	3 months in advance	Relocation to a newly built plant (basic plan for welfare)	12 months prior to the relocation																					
Contents of changes in management	Notification period																												
Division, merger or cession of company	3 months in advance																												
Relocation to a newly built plant (basic plan for welfare)	12 months prior to the relocation																												
		* Source: 2018 Mando Collective Agreement																											

GRI Standard	Disclosure	Page in report	Verification	ISO 26000	UN SDGs																				
Topic 5: Evaluation of product quality and safety																									
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	●	6.7.1-6.7.2/ 6.7.4/6.7.5/ 6.8.8																					
	103-2	The management approach and its components				• 46p, 48-51p																			
	103-3	Evaluation of the management approach																							
GRI 416: Customer Health and Safety 2016	416-1	Assessment of the health and safety impacts of product and service categories	●																						
Topic 6: Ban on corruption																									
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	●																						
	103-2	The management approach and its components				• 52, 54p																			
	103-3	Evaluation of the management approach																							
GRI 205: Anti-corruption 2016		Communication and training about anti-corruption policies and procedures	●																						
		Participants and percentages in ethics education ¹⁾ (Unit: No. of persons)																							
		<table><tr><th>Category</th><th>2016</th><th>2017</th><th>2018</th></tr><tr><td>Employees</td><td>1,998(100%)</td><td>259(6%)</td><td>231(5%)</td></tr><tr><td>Executives (%)</td><td>80(100%)</td><td>—</td><td>—</td></tr><tr><td>Partners ²⁾ (%)</td><td>—</td><td>—</td><td>—</td></tr></table>	Category	2016	2017	2018	Employees	1,998(100%)	259(6%)	231(5%)	Executives (%)	80(100%)	—	—	Partners ²⁾ (%)	—	—	—		6.6.1/6.6.2/ 6.6.3					
	Category	2016	2017	2018																					
	Employees	1,998(100%)	259(6%)	231(5%)																					
	Executives (%)	80(100%)	—	—																					
	Partners ²⁾ (%)	—	—	—																					
		1) Education conducted company-wide in 2016 and for the newly employed starting in 2017; in 2019, integrity management education is scheduled to be provided for executives and partners																							
		2) Communicate with business partners with less than 300 billion won in degree of management policy and anti-corruption procedures except for large companies that are difficult to exert influence on.																							
	Topic 7: Investment and technology R&D																								
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	●																						
	103-2	The management approach and its components				• 36p, 44-45p																			
	103-3	Evaluation of the management approach																							
—	—	Investments in startups in 2018	●																						
		<table><tr><th>Name of company</th><th>Amount of investments</th></tr><tr><td>Leap High</td><td>KRW 1 billion</td></tr><tr><td>SOS Lab</td><td>KRW 2 billion</td></tr><tr><td>Sparta Evolution</td><td>KRW 4.5 billion</td></tr></table>	Name of company	Amount of investments	Leap High	KRW 1 billion	SOS Lab	KRW 2 billion	Sparta Evolution	KRW 4.5 billion		—													
Name of company	Amount of investments																								
Leap High	KRW 1 billion																								
SOS Lab	KRW 2 billion																								
Sparta Evolution	KRW 4.5 billion																								
—	—	Sales figure by region	●																						
		(Unit: KRW 1 billion)																							
		<table><tr><th>Category</th><th>2016</th><th>2017</th><th>2018</th></tr><tr><td>Korea</td><td>3,188</td><td>3,095</td><td>3,108</td></tr><tr><td>China</td><td>1,772</td><td>1,643</td><td>1,496</td></tr><tr><td>U.S.</td><td>1,130</td><td>847</td><td>769</td></tr><tr><td>Others</td><td>616</td><td>762</td><td>910</td></tr></table>	Category	2016	2017	2018	Korea	3,188	3,095	3,108	China	1,772	1,643	1,496	U.S.	1,130	847	769	Others	616	762	910			
Category	2016	2017	2018																						
Korea	3,188	3,095	3,108																						
China	1,772	1,643	1,496																						
U.S.	1,130	847	769																						
Others	616	762	910																						
Topic 8: Investment and technology R&D																									
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	●	6.4.7																					
	103-2	The management approach and its components				• 56p, 62-63p																			
	103-3	Evaluation of the management approach																							
GRI 404: Training and Education 2016	404-2	Programs for upgrading employee skills and transition assistance programs	●																						

GRI Standard	Disclosure	Page in report	Verification	ISO 26000	UN SDGs
Topic 9: Reduction in energy/greenhouse gas					
GRI 103:	103-1	Explanation of the material topic and its Boundary			
Management	103-2	The management approach and its components	• 72, 74p	●	
Approach 2016	103-3	Evaluation of the management approach			
		Energy consumption within the organization	• 74p	●	
				(Unit: TJ)	
GRI 302:	302-1	Category	2016	2017	2018
Energy 2016		Fuel	146.102	162.32	170.498
		Electricity	2,253.954	2,102.009	2,059.185
		Steam	12.403	32.032	28.665
		* Calculated in accordance with the guidelines on the operation of greenhouse gas energy target management, etc.			
		Direct (Scope 1) GHG emissions ¹⁾	• 74p	●	6.5.4/6.5.5
				(Unit: tCO ₂ -eq)	
	305-1	2016	2017	2018	
		7,790.003	8,608.433	9,007.097	
		1) GHG emissions caused by burning fuel directly within the organization boundary			
		* Calculated in accordance with the guidelines on the operation of greenhouse gas energy target management, etc.			
GRI 305:		Energy indirect (Scope 2) GHG emissions ¹⁾	• 74p	●	
Emissions 2016				(Unit: tCO ₂ -eq)	
	305-2	2016	2017	2018	
		109,931.216	103,696.43	101,187.85	
		1) GHG emissions generated during production of power or steam used in factories outside the organizational boundaries;			
		* Calculated in accordance with the guidelines on the operation of greenhouse gas energy target management, etc.			
Topic 10: Waste/wastewater management					
GRI 103:	103-1	Explanation of the material topic and its Boundary			
Management	103-2	The management approach and its components	• 72, 75p	●	
Approach 2016	103-3	Evaluation of the management approach			
	306-1	Water discharge by quality and destination	• 75p	●	
		Wastewater discharge		(Unit : m ³)	
		Category	2016	2017	2018
		Pyeongtaek	137.821	132.834	141.510
		Wonju	36.397	30.401	28.583
		Iksan	104.529	110.269	102.105
		Total	278.747	273.504	272.198
		* Excluding Pangyo from reporting because it is a life sewage system			
		* Discharge point: Discharge to industrial wastewater treatment site in Wonju/Iksan and direct discharge to nearby sea after clean-up treatment in Pyeongtaek.			
GRI 306:		Amount of water pollutant ¹⁾		(Unit : kg)	6.5.3/6.5.4
Effluents and		Category	2016	2017	2018
Waste 2016		Pyeongtaek	1,249	1,147	1,091
		Wonju	794	462	447
		Iksan	2,091	2,205	2,042
		Total	4,134	3,814	3,580
		1) COD(Chemical Oxygen Demand), SS(Suspended Solids)			
	306-2	Waste by type and disposal method	• 75p	●	
		Waste generation		(Unit : kg)	
		Category	2016	2017	2018
	Designated waste	Pyeongtaek	1,160,680	828,970	904,200
		Wonju	959,000	822,000	706,000
		Iksan	131,540	143,240	149,690
		Pangyo	-	-	6,000
		Subtotal	2,251,220	1,794,210	1,765,890
	General waste	Pyeongtaek	220,520	212,990	167,970
		Wonju	19,787,000	15,459,000	15,095,000
		Iksan	526,395	581,855	542,450
		Pangyo	-	-	4,500
		Subtotal	20,533,915	16,253,845	15,809,920
		Total	22,785,135	18,048,055	17,575,810

GRI Standard	Disclosure	Page in report	Verification	ISO 26000	UN SDGs																								
	2018 Waste Treatment	(Unit: kg)																											
	<table><tr><th>Category</th><th>Recycling</th><th>Landfill</th><th>Incineration</th><th>Others</th></tr><tr><td>Pyeongtaek</td><td>797,560</td><td>25,160</td><td>177,840</td><td>71,610</td></tr><tr><td>Wonju</td><td>14,979,000</td><td>39,000</td><td>746,000</td><td>37,000</td></tr><tr><td>Iksan</td><td>438,660</td><td>180,870</td><td>72,610</td><td>—</td></tr><tr><td>Pangyo</td><td>52,000</td><td>0</td><td>0</td><td>4,500</td></tr></table>	Category	Recycling	Landfill	Incineration	Others	Pyeongtaek	797,560	25,160	177,840	71,610	Wonju	14,979,000	39,000	746,000	37,000	Iksan	438,660	180,870	72,610	—	Pangyo	52,000	0	0	4,500			
Category	Recycling	Landfill	Incineration	Others																									
Pyeongtaek	797,560	25,160	177,840	71,610																									
Wonju	14,979,000	39,000	746,000	37,000																									
Iksan	438,660	180,870	72,610	—																									
Pangyo	52,000	0	0	4,500																									
Topic 11: Compliance with environmental laws																													
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	• 72p	●	4.6																								
	103-2	The management approach and its components																											
	103-3	Evaluation of the management approach																											
GRI 307: Environmental Compliance 2016	307-1	Non-compliance with environmental laws and regulations	• No violations	●																									
Topic 12: Win-win cooperation with partners																													
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	• 64p, 66-67p	●	—																								
	103-2	The management approach and its components																											
	103-3	Evaluation of the management approach																											
—	—	Outcome of activities to resolve grievances faced by partners	• 66-67p	●																									
		<table><tr><th>Category</th><th>2016</th><th>2017</th><th>2018</th></tr><tr><td>Resolution (No. of cases)</td><td>28</td><td>38</td><td>18</td></tr><tr><td>Resolution rate(%)</td><td>93</td><td>97</td><td>95</td></tr></table>	Category	2016	2017	2018	Resolution (No. of cases)	28	38	18	Resolution rate(%)	93	97	95															
Category	2016	2017	2018																										
Resolution (No. of cases)	28	38	18																										
Resolution rate(%)	93	97	95																										
Topic 13: Domestic and global social contribution activities																													
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	• 64p, 68-69p	●	6.3.9/6.5.1— 6.5.3/6.8																								
	103-2	The management approach and its components																											
	103-3	Evaluation of the management approach																											
GRI 413: Local Communities 2016	413-1	Operations with local community engagement, impact assessments, and development programs	• 68-71p	●																									

Boundaries of topics and reports

- Topic boundaries: Worksites generating the impact of important topics
- Report boundaries: Worksites that report outcome and activities of important topics to 2018 Mando Sustainability Report

Material Topics		HQ	Wonju	Pyeongtaek	Iksan	Asia	Europe	North America	South America
1	Investment and technology R&D	● ●				● ●	● ●	● ●	
2	Industrial safety and health	● ●	● ●	● ●	● ●	● ●	● ●	● ●	●
3	Compliance of socioeconomic laws	● ●	● ●	● ●	● ●	●	●	●	●
4	Labor and management communication	● ●	● ●	● ●	● ●	●	●	●	●
5	Evaluation of product quality and safety		● ●	● ●	● ●	● ●	● ●	● ●	● ●
6	Ban on corruption	● ●	● ●	● ●	● ●	●	●	●	●
7	New businesses & markets	● ●				● ●	● ●	● ●	● ●
8	Fostering talents	● ●	● ●	● ●	● ●	●	●	●	●
9	Reduction in energy/greenhouse gas	● ●	● ●	● ●	● ●	●	●	●	●
10	Waste/wastewater management	●	● ●	● ●	● ●	●	●	●	●
11	Compliance with environmental laws	● ●	● ●	● ●	● ●	●	●	●	●
12	Win-win cooperation with partners	● ●	● ●	● ●	● ●	●	●	●	●
13	Domestic and global social contribution activities	● ●	● ●	● ●	● ●	● ●	● ●	● ●	● ●

LRQA Independent Assurance Statement

LRQA Independent Assurance Statement

Relating to Mando Corporation's Sustainability Report for the 2018 calendar year

This Assurance Statement has been prepared for Mando Corporation in accordance with our contract but is intended for the readers of this Report.



Terms of engagement

Lloyd's Register Quality Assurance (LRQA) was commissioned by Mando Corporation to provide independent assurance on its 'Mando Sustainability Report 2018' ("the report") against the assurance criteria below to a moderate level of assurance using AA1000AS (2008), where the scope was a Type 2 engagement.

Our assurance engagement covered Mando Corporation's operations and activities in Korea specifically the following requirements:

-
- valuating adherence to AA1000 AccountAbility Principles of Inclusivity, Materiality and Responsiveness
 - Confirming that the report is in accordance with:
 - GRI Standards¹⁾ Core option
 - Evaluating the accuracy and reliability of data and information for only the selected indicators listed below:
 - GRI 200 (Economic): 205-2
 - GRI 300 (Environmental): 302-1, 305-1, 305-2, 306-1, 306-2, 307-1
 - GRI 400 (Social): 402-1, 403-2, 404-2, 413-1, 416-1, 419-1
 - Other topic-specific disclosures: Investment and HR in R&D, Status of intellectual property, Investment in start-up companies, Sales by region, Number of registered and resolved grievances
-

Our assurance engagement excluded the data and information of Mando Corporation's suppliers, contractors and any third-parties mentioned in the report.

LRQA's responsibility is only to Mando Corporation. LRQA disclaims any liability or responsibility to others as explained in the end footnote. Mando Corporation's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of Mando Corporation.

LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that Mando Corporation has not, in all material respects:

-
- Met the requirements above
 - Disclosed accurate and reliable performance data and information as all errors or omissions identified during the assurance engagement were corrected
 - Covered all the issues that are important to the stakeholders and readers of this report.
-

The opinion expressed is formed on the basis of a moderate level of assurance and at the materiality of the professional judgement of the verifier.

Note: The extent of evidence-gathering for a moderate assurance engagement is less than for a high assurance engagement. Moderate assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a moderate assurance engagement is substantially lower than the assurance that would have been obtained had a high assurance engagement been performed.

LRQA's approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

¹⁾ <https://www.globalreporting.org>

²⁾ Topic-specific disclosures which are reported in the GRI Content Index but not covered by the topic-specific Standards of the GRI

- Assessing Mando Corporation's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this through reviewing documents and associated records.
- Reviewing Mando Corporation's process for identifying and determining material issues to confirm that the right issues were included in their report. We did this by benchmarking reports written by Mando Corporation and its peers to ensure that sector specific issues were included for comparability. We also tested the filters used in determining material issues to evaluate whether Mando Corporation makes informed business decisions that may create opportunities that contribute towards sustainable development.
- Auditing Mando Corporation's data management systems to confirm that there were no significant errors, omissions or mis-statements in the report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal verification. We also spoke with those key people responsible for compiling the data and drafting the report.
- Reviewing supporting evidence made available by Mando Corporation at their head office in Seongnam-si, Korea.
- Checking that the GRI Content Index allows stakeholders to access sustainability indicators.

Observations

Further observations and findings, made during the assurance engagement, are:

- Stakeholder inclusivity:
We are not aware of any key stakeholder groups that have been excluded from Mando Corporation's stakeholder engagement process.
- Materiality:
We are not aware of any material issues concerning Mando Corporation's sustainability performance that have been excluded from the report. It should be noted that Mando Corporation has established extensive criteria for determining which issue/topic is material and that these criteria are not biased to the company's management. However, Mando should endeavour to integrate the materiality assessment process into key management processes, for example, corporate strategy, goal-setting and performance evaluation, and operations..
- Responsiveness:
Mando Corporation set up and reported its key sustainability performance indicators relating to UN Sustainable Development Goals. However, Mando should establish sustainability targets and report the progress in future reports.
- Reliability:
Mando Corporation has reliable data management systems for the indicators in the report.

LRQA's standards, competence and independence

LRQA implements and maintains a comprehensive management system that meets accreditation requirements for ISO/IEC 17021 Conformity assessment – Requirements for bodies providing audit and certification of management systems that are at least as demanding as the requirements of the International Standard on Quality Control 1 and comply with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants.

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

This verification engagement is the only work undertaken by LRQA for Mando Corporation and as such does not compromise our independence or impartiality.

Dated: 1st April 2019

Signed



Tae-Kyoung Kim LRQA Lead Verifier

On behalf of Lloyd's Register Quality Assurance Limited
17th Floor, Sinsong Building, 67 Yeouinaru-ro, Yeongdeungpo-gu, Seoul, Korea

LRQA reference: SE000000437



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Membership of Associations

No.	Name of organization	Purpose
1	Korea Motor Industry Research Institution	– Sharing of information on automotive market trends
2	Korea Automobile Manufacturers Association	– Sharing of information on automotive market trends
3	Korea Auto Industries Cooperative Association	– Sharing of information on automotive market trends
4	Korea Testing Laboratory	– National calibration
5	Korea Auto Vehicle Safety Association	– Acquisition of information related to policies in the vehicle safety
6	The Korean Society of Automotive Engineers	– Acquisition of papers and trends on new technologies related to automobile – Presentation of papers at spring and fall academic symposiums
7	The Korean Institute of Electrical Engineers	– Activities related to the acquisition of information on advanced technology and publication of papers
8	The Institute of Electronics and Information Engineers	– Activities related to the acquisition of data on advanced technology and publication of papers
9	The Korean Institute of Power Electronics	– Acquisition of papers in the field of power electronics and related activities
10	Korean Institute of Electromagnetic Engineering and Science	– Acquisition of technical data on EMC and activities related to papers
11	Institute of Control, Robotics and Systems Engineering	– Acquisition of technical data in the field of control robotics and activities related to papers
12	AUTOSAR	– Acquisition of information on new technology trends in the automotive industry and response to competitors
13	IWPC (International Wireless Industry Consortium)	– Acquisition of radar technology and consortium activities
14	NAFEMS (international CAE Community)	– Acquisition of information on megatrends and trends specialized in CAE
15	The Korean Institute of Metals and Materials	– Acquisition of information on new technology trends in the automotive industry
16	Korea Industrial Technology Association	– Required for operation of R&D Center
17	Korea Foundation of Nuclear Safety	– Safety control of radiation equipment (X-Ray)
18	Korea Personnel Improvement Association	– Understanding and sharing information of HR trends
19	Emergency Planning Council under the Ministry of Trade, Industry and Energy	– Receipt of work guidelines related to emergency preparation, general affairs planning and cooperation with training – Work cooperation and information exchange among emergency planning agents
20	Korea Fire Safety Institute	– Fire safety (dormitories, Mando plants) education – Training of safety administrators in charge of controlling dangerous articles
21	Korea Industrial Safety Association	– Acquisition of information on safety issues
22	Environmental Engineers Council	– Understanding of information on various environmental issues such as regulations – Sharing of information with local governments related to waste, noise and vibrations
23	Green Company Council	– Acquisition of information on green companies' trends
24	Korea Environmental Preservation Association	– Provision of information related to environmental issues – Provision and management of compulsory education for environment engineers

No.	기관명	목적
25	Korean Nurses Association	<ul style="list-style-type: none"> – Provision of health-related information – Provision of various compulsory education such as refresher training
26	Iksan Corporate Environment Council	<ul style="list-style-type: none"> – Acquisition of information related to the environment – Window through which suggestions are made to the government
27	Iksan Regional Safety and Health Association	<ul style="list-style-type: none"> – Acquisition of information related to safety – Window through which suggestions are made to the government
28	Korea Electric Engineers Association	<ul style="list-style-type: none"> – Education/training and promotion of welfare
29	Citizens Safety Management Council (Wonju)	<ul style="list-style-type: none"> – Acquisition of information on safety issues – Handling of tasks related to rental
30	Wonju Hoengseong Health Administrators Council	<ul style="list-style-type: none"> – Acquisition of information related to safety
31	Korea Chemicals Management Association	<ul style="list-style-type: none"> – Provision of information on chemicals management systems – Reporting once a year of results on the handling of hazardous chemicals
32	Han River Basin Environmental Office	<ul style="list-style-type: none"> – Delivering revisions of laws related to chemicals – Chemical accident response training and accident prevention education
33	Korea Invention Promotion Association (KIPA)	<ul style="list-style-type: none"> – Sharing of information on intellectual property and policy related to invention promotion, etc.
34	Korea Intellectual Property Association (KINPA)	<ul style="list-style-type: none"> – Sharing of information on intellectual property in between companies
35	Korea Electronics Association (KEA)	<ul style="list-style-type: none"> – Sharing of information on ICT

List of Awards in 2018

Region	Business facility	Period	Description
China	MBC	2018.1	Received the title of a leading company of 2017 in maintaining safety and stability
China	MSC	2018.2	Received the "Comprehensive Second-place Award" in 2016 from Feng Gao government of Suzhou New District
China	MBC	2018.2	Received awards in three categories from Miyun District government in 2018 (Employment Promotion award, Investment Contribution award, Financial and Tax Affairs Contribution award)
Korea	Purchasing	2018.5	Presented the company of merit awards to three of its partners on the 15th Automobile Day
Korea	BD	2018.6	Received Most Outstanding award in the Climate category at Gyeonggi-do Environment Awards
China	MBC	2018.10	Acquired the title of the "Star of Philanthropy" for its social contribution activities
Korea	BD	2018.11	Received the Minister Award at the Korea Energy Efficiency Awards
Korea	SD	2018.11	Received the company of merit commendation for energy savings by Ministry of Trade, Industry and Energy
China	MSC	2018.12	Awarded as a Model Smart Plant by Jiangsu Province in 2018
Korea	Purchasing	2018.12	"Excellent" in Win-win Growth Index assessment

* Excluding awards received from clients

Mando Sustainability Report 2018

You can download the report in PDF file through our website. For further questions about our sustainability activities and performances, please contact us as below:

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