



**FUTURING  
SMART  
ENERGY**

Opening the Future of Smart Energy

2018 HIGHLIGHT

04

Chairman Message

06

About LSIS

- 10 Corporate Profile
- 12 Corporate Governance
- 14 Stakeholder Value Chain Map
- 16 Global Business
- 18 Business



08

Core Issues of Sustainability

Management

- 26 Integrated Sustainability Management
- 28 Materiality Assessment

25

30

Ethical Management



38

Customer Satisfaction



48

Safety and Environment



**Cover Story**

This report presents information about LSIS, which is creating a smarter future based on its management philosophy to make people's lives better and improve sustainability.

**Inquiries**

For more information or suggestions, please contact us using the following information:

**Website** [www.lsis.com](http://www.lsis.com)

**Tel** 82-2-2034-4123 **Fax** 82-2-2034-4949

# Contents

# 54

Shared Growth



# 62

Employees



# 68

Local Community



# 73

**Appendix**

74 Economy

75 Safety and Environment

76 Employees

77 Share Growth and Social Contribution

78 GRI Standards Index

80 Third-Party's Assurance Statement

82 UN Global Compact

82 Membership and Awards

## About This Report

**Overview** LSIS has been publishing an annual sustainability report since 2015 in order to share its economic, environmental, and social performance with stakeholders. In this fifth report on our sustainable development performance in 2018, we have attempted to present our progress and achievements in a balanced and transparent manner. This report will serve as a means for collecting opinions and communicating with stakeholders.

**Reporting period** This report is based primarily on data from January 1 to December 31, 2018, but the results for the first quarter of 2019 are included for some contents.

**Reporting scope** This report provides key information from the materiality assessment, mainly covering domestic business sites but also some overseas sites where relevant.

**Reporting standards** This report is in accordance with the GRI Standards Index and the UN Global Compact.

**Assurance** For the credibility of this report, third-party verification was conducted by Korea Management Registrar.

**Selected as one of the Top 100 Global Innovators by Clarivate Analytics for 7 consecutive years**

Clarivate Analytics ranked LSIS among the Top 100 Global Innovators for 7 years in a row. LSIS was evaluated as one of the top companies in terms of quality of intellectual properties in terms such as success rate of patent registrations, ratio of patent application in 4 regions worldwide, and citation index.



**Won a bid to build a High Voltage Direct Current (HVDC) conversion system between Donghaean and Singapyeong**

LSIS was selected as a final bidder for the construction of a HVDC system between Donghaean and Singapyeong. This project is the largest scale of its kind so far in Korea. As part of the project, LSIS signed a 176.5 billion won contract with KAPES, a venture jointly invested and established by Korea Electric Power Corporation and GE Grid Solutions. The establishment of the system is intended to supply power generated from East Coast of the Korean Peninsula to metropolitan areas in a more efficient and stable manner, and is planned to be completed by December, 2021.

**Launched Modular Scalable PCS, a new ESS product**

LSIS launched Modular Scalable PCS, a 125-158kW modular Power Electronic Building Block (PEBB) that is a core part of PCS for ESS. The scalability, stability and economic feasibility have been improved by adding smart independent operation function and connecting 16 units in parallel, offering the largest scalability in Korea.



01 January



04 April



# 2018 HIGHLIGHT

**Completed construction of the solar plant linked with MW-level ESS**

In partnership with Busan City, LSIS completed construction of a solar plant linked with MW-level Energy Storage System (ESS) and started its commercial operations in Hwamyong Purification Plant and Busan Plant of LSIS. Hwamyong Purification Plant is the first solar plant linked with MW-level ESS in Busan City, and is expected to generate 370 million won in profit every year by producing 1,310MWh electricity annually. The solar plant in Busan Plant has a capacity of 910kW photovoltaic power generation and 2.7MWh ESS on the roof of the plant; we expect that the plant will generate 1,140MWh electricity and 330 million won in annual sales.



09 September

**Won the bid for the Flexible AC Transmission System (FACTS) project for Godeok Substation from Korea Electric Power Corporation** LSIS signed its first contract (12.1 billion won) to supply static synchronous compensator (STATCOM), the third generation of FACTS. LSIS plans to expand its market share not only in Korea but also in the global market through successful execution of the project.



**Won the project to establish a KRTCS-based urban railways signal system in Seoul** LSIS was selected as the final bidder for supplying a Korean Radio based Train Control System (KRTCS) developed by LSIS to Sillim Light Rail of Seoul. This is the implementation of a domestic system in the Korean urban railway control system market which has been led by overseas companies including those from Europe. Sillim Light Rail will connect 11 stations along a stretch of 7.8km in total, and is planned to be completed in 2022.



06 June



08 August



12 December

**Won ESS project from SeAH Group** LSIS won a project for the establishment and operation of ESS for 5 factories of the SeAH Group. The project is to supply 175 MWh battery and 34MWh Power Conversion System (PCS), which is of the largest scale as a single project in Korea. The ESS facilities, planned to be installed at places with high energy consumption, are expected to cut about 130 billion won in electricity bill for the next 15 years.

**Acquired Energy Grid Tie Division of Parker Hannifin** LSIS acquired the Energy Grid Tie Division of Parker Hannifin, a US-based company. Parker Hannifin is the largest ESS company in North America. Through this acquisition, LSIS secured the largest references in the global industrial ESS market (utility, C&I) with accumulated supply record of 700MW.



## Chairman Message



Distinguished stakeholders, I would like to take this opportunity to express my gratitude for your continued interest and support extended to LSIS.

In 2018, LSIS established and implemented challenging goals in an effort to lay the foundations for the era of growth. As a result, LSIS was able to achieve record performance in its history despite global economic recession. We achieved continued growth in the areas of power and automation with our quality products and technical expertise, and realized significant growth in the area of smart energy. We are making efforts to be a global leader not only in power and automation but also in the smart energy domain based on our achievements.

A difficult business environment is expected to continue in 2019. However, LSIS has been making efforts to lay the foundations for moving toward the era of growth since last year under adverse conditions, and we will focus on the following 3 activities to strengthen the foundation for a sustainable future in 2019.

First, we aim to increase our competitiveness in the global market.

As uncertainties such as reduction in facility investment are expected in the domestic market, we will focus on capturing overseas markets as much as possible.

Second, we will strengthen technological competitiveness through digital transformation.

Digital transformation is a platform business based on a new concept, which requires innovative thinking at a very fundamental level. We will prepare for the new market to be created in the era of the 4th Industrial Revolution by preemptively responding to the market demands and technological changes and securing technical competitiveness to lead the market.

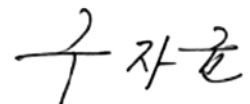
Third, we will improve the efficiency of resources continuously. LSIS achieved the largest ever operating profit as a result of our efforts toward improving the profit structure. We will seek long-term growth by maximizing efficiencies and by managing risks thoroughly throughout the organization regardless of business, research and support groups to achieve more than our potential.

Distinguished stakeholders, in addition to pursuing the economic interests of LSIS, we will continue our efforts at sustainability management in order to fulfill our corporate social responsibility, communicate with stakeholders and build trust based on a positive corporate culture. By doing so, we hope we will be able to spearhead the future of smart energy and enhance value for both ourselves and the society.

In this journey, we look forward to your unwavering support and encouragement.

Thank you.

Chairman & CEO Ja-Kyun Koo



# About LSIS

---

---

---

---

---

---



LSIS, a leader in industrial electric power and automation solutions businesses in Korea since 1974, will lead the future of smart energy with quality products developed through its technical prowess.

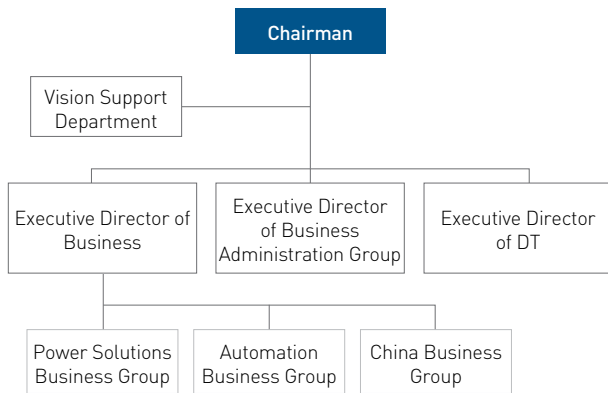
Corporate Profile	10
Corporate Governance	12
Stakeholder Value Chain Map	14
Global Business	16
Business	18



# Corporate Profile

Since its establishment in 1974, LSIS has grown into the No. 1 power and automation solutions company in Korea based on quality and innovation, leading Korea's industrial development. In 2015, the company announced a new mission known as Futuring Smart Energy, to take another leap forward with its quality products and technological prowess. LSIS will continue its efforts to pioneer the future of smart energy.

## Organization chart



## Profile

Company name	LSIS Co., Ltd
Established	July 24, 1974
CEO	Chairman Ja-Kyun Koo, Vice President Yong-sang Park, Vice President Ki-won Nam
Head office	LS Tower, 127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea
Employees	3,371
Credit rating	AA- (corporate bond), A1 (CP) (rated by Korea Investors Service)

## Financial data summary (consolidated basis)

Sales	KRW 2,485 billion
Operating income	KRW 205 billion
Total assets	KRW 2,405.8 billion
Total liabilities	KRW 1,108.4 billion
Total equity	KRW 1,297.5 billion

## Company history

### 1974-1999

- 1974. 07 Established Lucky Packing
- 1987. 03 Renamed to Goldstar Industrial Systems
- 1994. 07 Held an initial public offering (IPO)
- 1995. 02 Renamed to LG Industrial Systems
- 1995. 09 Merged with Goldstar Instrument & Electric and Goldstar Electric Machinery
- 1997. 04 Established a subsidiary(production) in Vietnam
- 1999. 04 Merged with LG Metal

### 2000-2009

- 2000. 06 Opened a plant in Dalian, China
- 2000. 08 Power Testing & Technology Institute designated as a certified testing organization
- 2003. 12 Separated from LG Group
- 2005. 03 Renamed to LSIS
- 2005. 09 Opened a plant to produce electric power& automation equipment in Wuxi, China
- 2007. 02 Established LSIS(ME) FZE in Dubai, UAE
- 2008. 04 Moved the headquarters (LS Tower in Anyang, Korea)
- 2009. 10 Established a subsidiary(sales) in the Europe Incorporated LS Mecapion as a subsidiary

Vision and Strategy

<b>Management Philosophy</b>	<p>Greater value together!</p>  <p><b>LS Partnership</b></p>	<b>Strategy</b>
<b>Mission</b>	 <p><b>FUTURING SMART ENERGY</b></p> <p>Opening the Future of Smart Energy</p>	<b>Vision</b>
<b>Core Value</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><b>Collaboration</b></p> </div> <div style="text-align: center;">  <p><b>Execution</b></p> </div> <div style="text-align: center;">  <p><b>Creativity</b></p> </div> <div style="text-align: center;">  <p><b>Integrity</b></p> </div> </div>	<ol style="list-style-type: none"> <li>1. Boosting Our Market Position as a Power Solutions Provider</li> <li>2. Leading New Markets through Convergence and Combination</li> <li>3. Expansion of Global Markets</li> <li>4. Securing Operational Excellence</li> </ol>  <p><b>G<sup>3</sup>65</b> Global • Green • Great</p>

2010-2014



- 2010. 02 Established LS Sauter
- 2010. 04 Opened a plant in Busan
- 2010. 04 Spun off Metal Processing Business Unit (present LS Metal)
- 2010. 10 Established Japan Sales Corporation
- 2011. 10 Opened a HVDC plant in Busan
- 2011. 11 Selected as 500 Fastest Growing Companies by the Fortune Korea
- 2012. 05 Opened an EV relay plant in Cheongju
- 2012. 12 Established a subsidiary (sales) in the US
- 2013. 05 Signed a contract for HVDC technology transfer and manufacturing with KAPES and GE
- 2013. 11 Received the USD 500 Million Export Tower / Awarded the grand prize in quality sector at the 39th National Quality Management Competition
- 2014. 05 Opened an EV relay plant in Cheongju

2015-2018

- 2015. 01 Declared the guiding principles of value-based management
- 2015. 03 Completed the construction of a R&D Campus
- 2016. 03 The R&D Campus building earned Korea's first BEMS certification
- 2016. 09 Received Presidential Citation for outstanding achievement for FTA
- 2016. 09 Became the first company in Korea in implementing ESS for emergency power supply in the R&D Campus
- 2017. 03 Listed on the Top 100 Companies in terms of patent application in Europe
- 2017. 06 Acknowledged as the Korea's Best Enterprise for 10 consecutive years
- 2017. 09 Awarded the Industry, Trade and Energy Minister's Prize in Strategic Trade CP
- 2017. 11 Received citation of the Minister of SMEs and Startups in the supplier association category
- 2018. 01 Selected as one of the Top 100 Global Innovators for 7 years in a row
- 2018. 11 Won the Power Demand Management Award in terms of efficiency
- 2018. 12 Won the Minister's Prize at Korea Technology Awards
- 2018. 12 Acquired the Energy Grid Tie Division of Parker Hannifin (US company)

# Corporate Governance

## Board of Directors (BOD)

The LSIS Board of Directors consists of 3 inside directors and 4 outside directors in accordance with governance rules including Articles of Association and the Board of Directors Regulations. Within the BOD, 3 subcommittees, viz. the Audit Committee, Outside Director Nomination Committee and Internal Transaction Committee, are operated.

## Committees under the BOD

**Audit Committee** | The audit committee, comprised of 4 outside directors, assists the board of directors in its governance and oversight responsibilities. The Audit Committee reviews operating results and financial statements

on a quarterly basis, and is authorized to audit overall accounting affairs and financial status as needed.

**Outside Director Nomination Committee** | This committee is responsible to conduct the nomination process in a fair and transparent manner. The committee consists of two outside directors and one inside director.

**Internal Transaction Committee** | The committee oversees the internal transactions and is responsible for taking measures to improve the transparency of corporate management through the establishment of the system for voluntary compliance with fair transaction. The committee consists of 4 outside directors.

## Members of the board

As of March 26, 2019

Type	Name	Position	Career background	Date of appointment
Inside directors (3)	Koo Ja-Kyun	Chairman of the board, Chairman & CEO	- (Present) Chairman & CEO, LSIS - (Former) Professor of Graduate School of International and Public Affairs, Korea University	2017.03.17 (reappointed)
	Park Yong-Sang	Vice President & CEO	- (Present) Executive Director of Business and Executive Vice President of China Business Group, LSIS - (Former) Managing Director of Production/Technology Group, LSIS	2017.03.17 (newly appointed)
	Nam Ki-Won	Vice President & CEO	- (Present) Senior Executive Vice President, LSIS - (Former) Vice President & CEO, LS Metal	2018.03.20 (newly appointed)
Outside directors (4)	Moon Seung-Il	Outside director / Audit Committee member	- (Present) Professor of electrical engineering, Seoul National University - (Former) President of Korea Electrical Engineering and Science Research Institute	2017.03.17 (newly appointed)
	Kim Ho-Won	Outside director / Audit Committee member	- (Present) Member, Presidential Council on Intellectual Property - (Former) Commissioner, Korean Intellectual Property Office	2017.03.17 (newly appointed)
	Lee Won-Chang	Outside director / Audit Committee member	- (Former) Professor of accounting, Chungnam National University	2018.03.20 (newly appointed)
	Oh Jung-Kyu	Outside director / Audit Committee member	- (Former) 51st Second Vice Minister of Food, Agriculture, Forestry and Fisheries	2019.03.26 (newly appointed)

## BOD and subcommittee meetings in 2018

Category	Meetings convened	Attendance	Items resolved	Items reported
BOD	5	97%	21	14
Audit Committee	6	95%	7	10
Outside Director Nomination Committee	2	100%	2	-
Internal Transaction Committee	1	100%	2	-

## Remunerations of directors in 2018

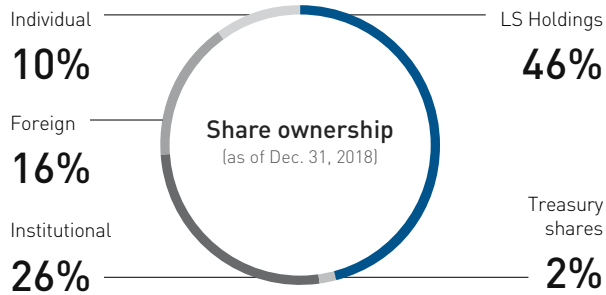
Total remuneration of the board of directors in 2018 /  
**KRW 3.35 billion**

(Total remuneration is limited to KRW 5 billion.)



### Shareholder status

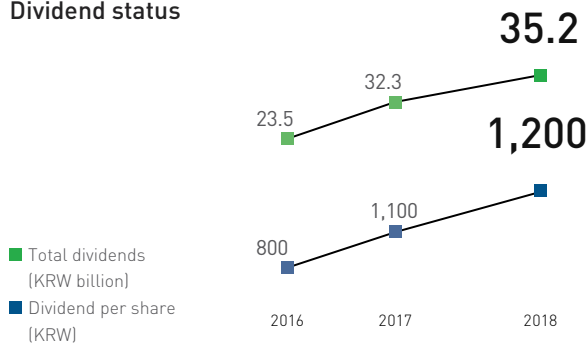
After LS Group adopted a holding company structure in 2008, LS Holdings. is the largest shareholder with 46% ownership, followed by National Pension Service of Korea, the second largest shareholder with 12% ownership as of December 31, 2018.



Category	Relations	Share type	In number	In percentage
LS Holdings	The largest shareholder		13,800,000	46%
Treasury shares	-		674,973	2.25%
Institutional investors	NPS	Common share	3,614,347	12.05%
	Others			
Foreign investors	-		4,773,362	15.91%
Individual investors	-		3,114,282	10.38%
Total		Common share	30,000,000	100%

**Shareholder returns (dividends) |** LSIS has maintained a higher than market average dividend payout to its shareholders and investors.

### Dividend status



Category	2016	2017	2018
Dividend payout ratio(%) <sup>1)</sup>	40.5	34.0	29.5
Dividend yield(%) <sup>2)</sup>	2.01	1.69	2.40

Note 1) Dividend payout ratio: Total dividends / Net profit (separate standards)  
 Note 2) Dividend yield: Dividend per share / Year-end closing price

### Communication with shareholders and investors |

We are communicating with investors at home and abroad through regular earnings release meetings, which are held 4 times a year, in addition to overseas conferences and diverse IR events.

	Category	Note
Regular	Feb. 2017 Q4 earnings release NDR*	Organized by: Samsung
	May 2018 Q1 earnings release NDR	Organized by NH
	Aug. 2018 Q2 earnings release NDR	Organized by Kiwoom
	Oct. 2018 Q3 earnings release NDR	Organized by: Hana Financial
Ad-hoc	Mar. Shinhan Investment Corporate Day	
	May Samsung Securities Corporate Day	
	Jun. Shinhan Investment Corporate Day	
	Jun. Shinhan Investment Mini NDR	
	Jul. Visit to Chitose Solar Plant in Japan	Visit to Chitose Solar Power Plant presentation in Japan
	Sept. Kiwoom Securities Corporate Day	
	Nov. Shinhan Investment Corporate Day	
	Dec. Hana Financial Investment Corporate Day	
	Overseas	Sept. NDR in Hong Kong and Singapore

\* Non-Deal Roadshow

# Stakeholder Value Chain Map

LSIS has been creating and sharing value with stakeholders in every facet of our business activities. Going forward, we will strive to promote even greater value with our stakeholders.



## Organizations

### Safety & Environment Team

#### Key Communication Channels

- Regular meetings
- Company website
- Direct communication with the person in charge

Investment in safety and environment

KRW **6.8** billion

## Employees

### HR Team

#### Key Communication Channels

- Communicator
- LinkerS
- LSIS Monthly Magazine
- Surveys
- WeLS

New employees (permanent)

**65**

Salary and employee training expenses

KRW **300.3** billion

Local communities



Public Relations Team

Key Communication Channels

- Meetings with local communities
- Direct communication with the person in charge
- Meetings with the management
- Surveys

Social contribution activities

122

Participants  
(duplicate counting)

1,677

Shareholders and investors



Treasury Team

Key Communication Channels

- NDR
- Company visits
- Company website

Dividends and interests

KRW 50 billion

Suppliers



Win-Win Growth Team

Key Communication Channels

- ACE Club
- Meetings for shared growth and innovation
- Performance sharing meetings
- Management seminars
- TOPS (internet portal for shared growth)
- ACE innovation networking

Purchase of raw materials and parts

KRW 1,229.5 billion

Financial support

KRW 11.4 billion

Customers



Marketing Team

Key communication channels

- Exhibitions and seminars
- Meetings with customers
- Distributors meetings
- Visit to customers
- Customer service centers

Advertising expenses

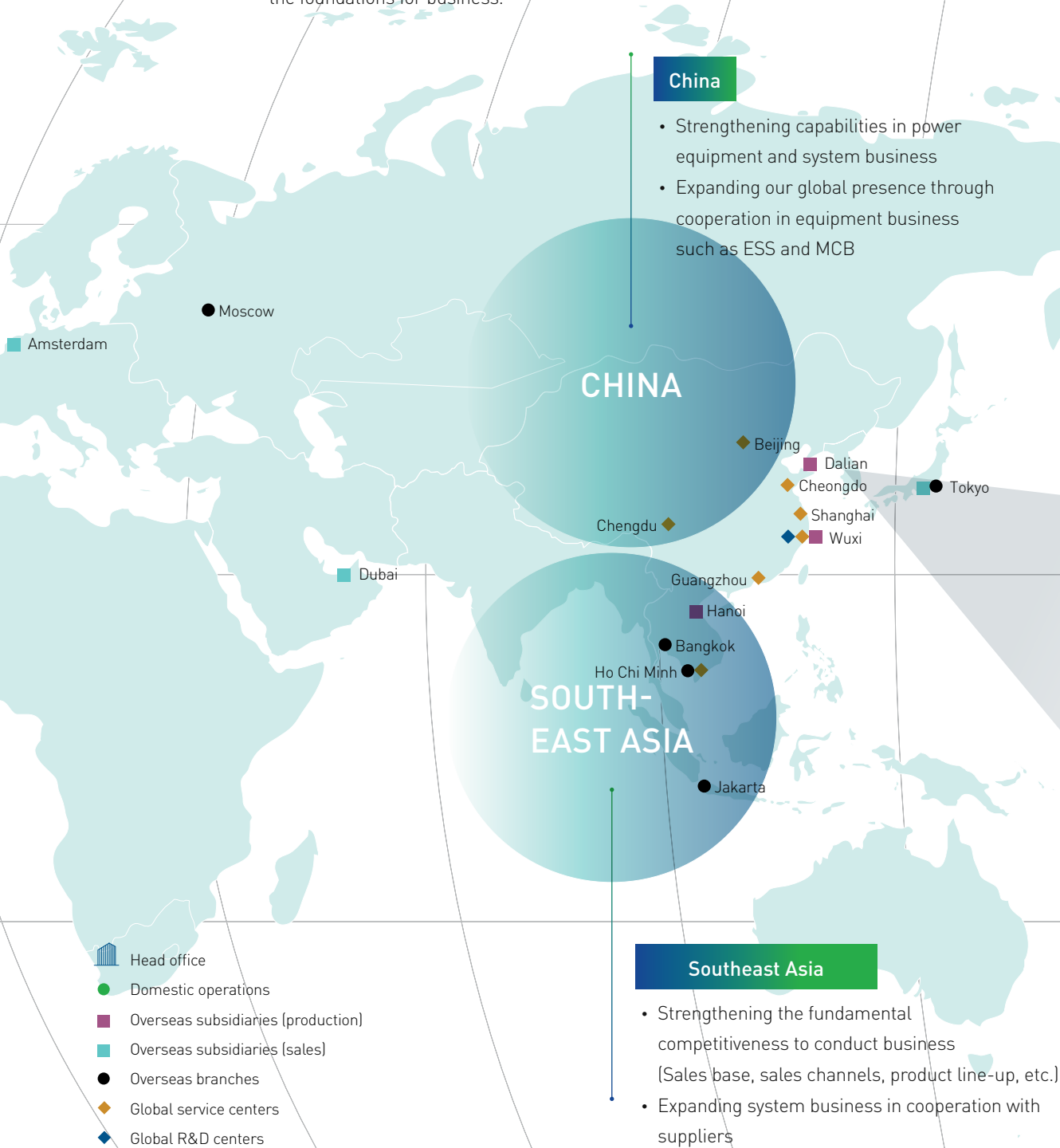
KRW 8.4 billion

Seminars

87

# Global Business

LSIS established mid to long-term vision for each overseas market with a view to expanding our global business. We are conducting business focusing on local markets through not only entry into overseas markets but also identification of new business opportunities and strengthening the foundations for business.



## China

- Strengthening capabilities in power equipment and system business
- Expanding our global presence through cooperation in equipment business such as ESS and MCB

CHINA

- Beijing
- Dalian
- Cheongdo
- Shanghai
- Wuxi

## SOUTH-EAST ASIA

- Guangzhou
- Hanoi
- Bangkok
- Ho Chi Minh
- Jakarta

## Southeast Asia

- Strengthening the fundamental competitiveness to conduct business (Sales base, sales channels, product line-up, etc.)
- Expanding system business in cooperation with suppliers

- Head office
- Domestic operations
- Overseas subsidiaries (production)
- Overseas subsidiaries (sales)
- Overseas branches
- Global service centers
- Global R&D centers



North America

- Accelerating growth through expansion of market channels
- Stabilizing the ESS PCS business and ramp-up

AMERICA

Chicago

Charlotte

- Anyang**  
Head Office  
R&D Campus
- Cheongju**  
Cheongju plant 1  
Cheongju plant 2  
Electronic power R&D center  
Power Testing & Technology Institute
- Cheonan**  
Cheonan plant  
Automation R&D center
- Busan**  
Busan plant



Domestic Subsidiary companies

**LS Metal**  
Core Biz  
Copper tubes and STS  
steel pipes  
Yongsan-gu, Seoul

**LS Mecapion**  
Core Biz  
Industrial  
electronic equipment  
Dalseo-gu, Daegu

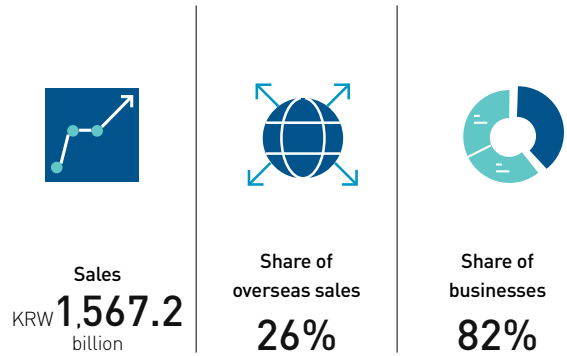
**LS-Sauter**  
Core Biz  
BAS / IBS and GBS  
systems  
Anyang-si, Gyeonggi-do

# Business

## Power Solutions Business

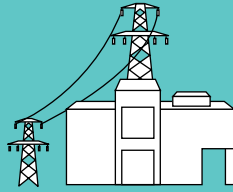
LSIS provides a total solution that allows safe and efficient management of the entire process from power generation to consumption. Our main systems are divided into 2 groups: transformers for adjusting system voltage to a safe value, and circuit breakers designed to maintain safety by isolating circuits in case of abnormal conditions such as overcurrent or short circuit. Recently, High Voltage Direct Current (HVDC) Systems, Energy Storage Systems (ESS), Energy Management Systems (EMS), and Power Conversion Systems (PCS) for ESS have been added to our portfolio.

## 2018 performance in Power Solutions Business (non-consolidated basis)

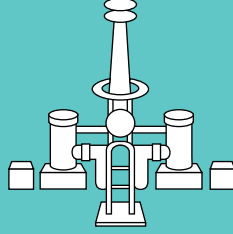


## Key Power Products

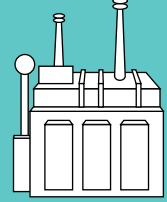
**Electric Power Transmission**



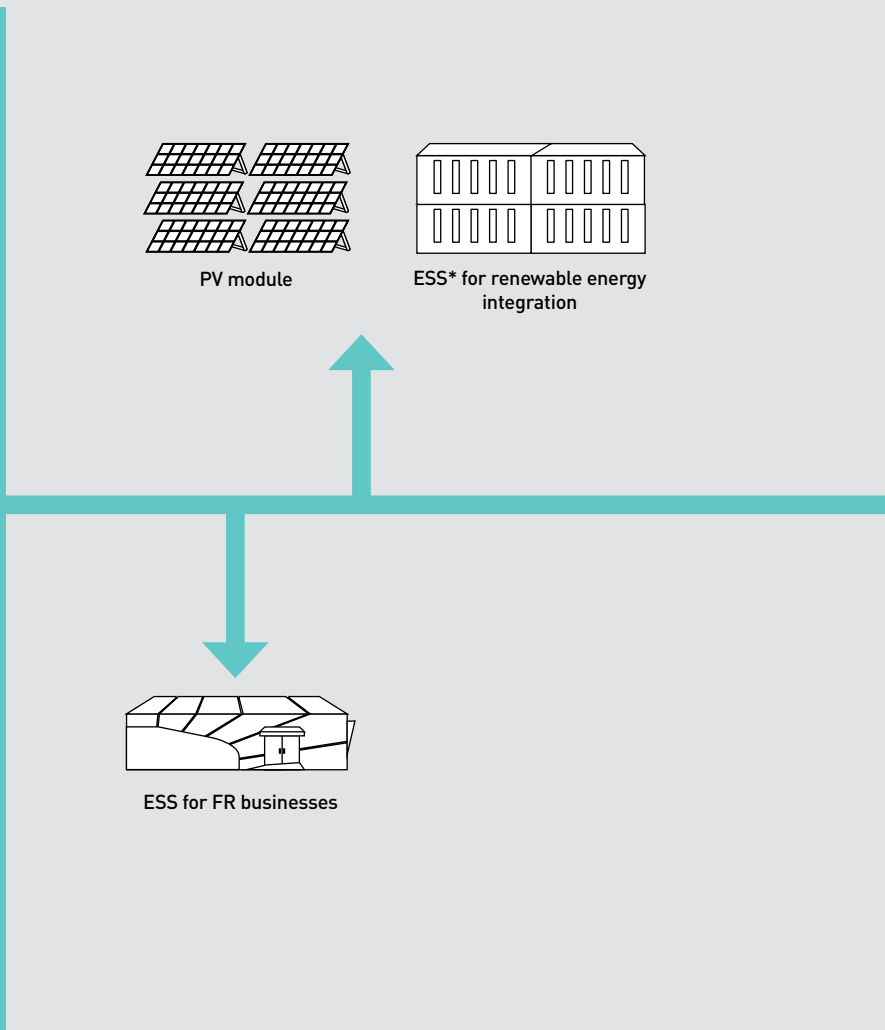
**High Voltage Direct current (HVDC)**  
 This transmits electricity by converting alternating current into direct current.



**Gas insulated switchgear (GIS)**  
 This protects power plants and substations from accidents caused by overload, grounding, and shorted wires.

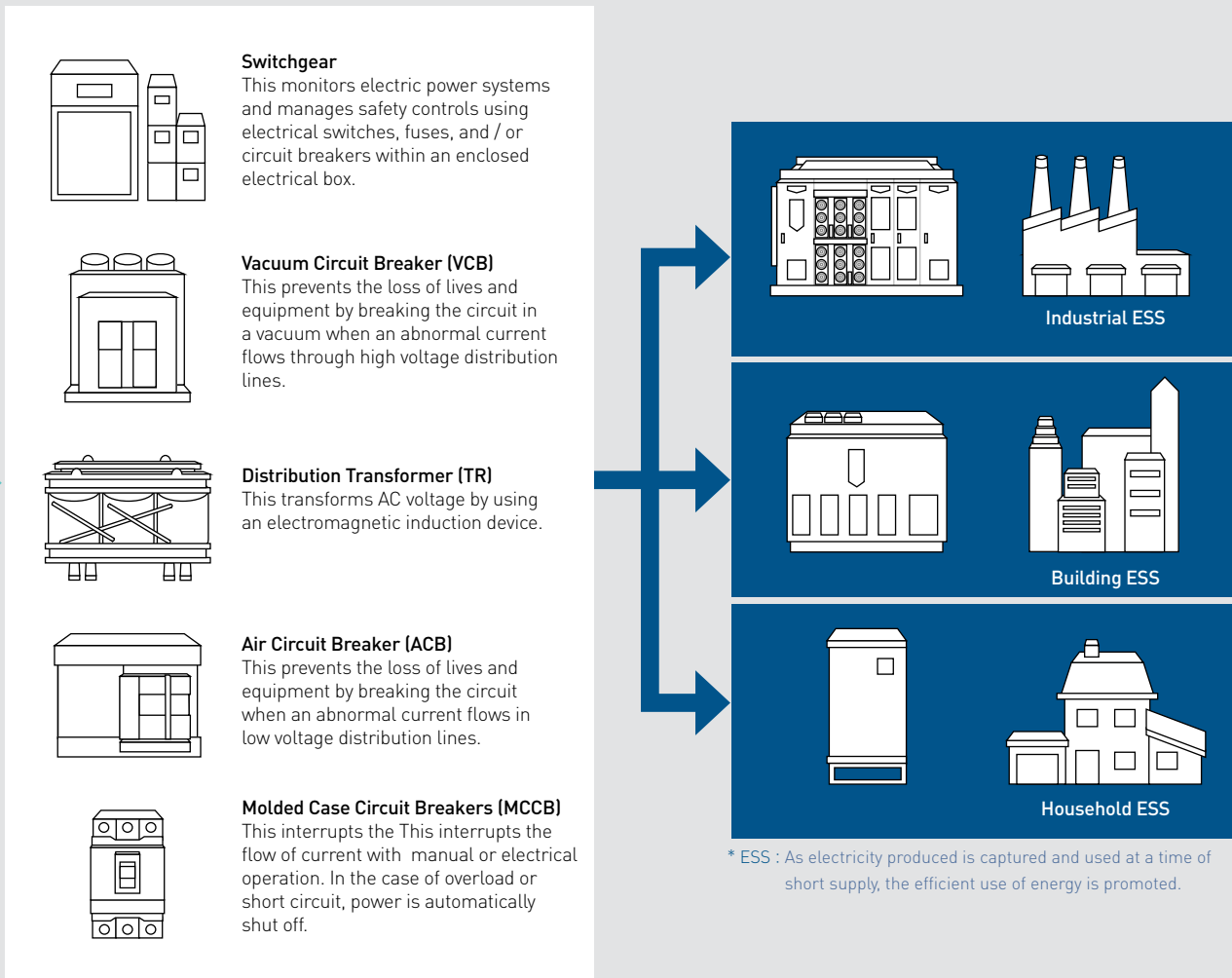


**Power Transformer(HVTR)**  
 This stably transforms voltage and current through either a step up or step down in voltage.



- Plans for 2018**
  - Localize overseas markets with strategic importance and produce results
  - Expand the scope of markets and products
  - Diversify business models
- Performance in 2018**
  - Conducted M&A for growth in the global market
  - Laid the foundations for KEPCO FACTS market
  - Won a large-scale ESS project
- Plans for 2019**
  - Expand total solutions for power distribution systems
  - Place more emphasis on overseas markets with strategic importance
  - Develop new products for the global market

**Smart Energy |** LSIS is developing solar power generation and ESS (Energy Storage System) businesses based on our power solutions technology platform and power electronics technology for automation. Our services are delivered in the form of individual products, turn-key systems or EPC contracts.



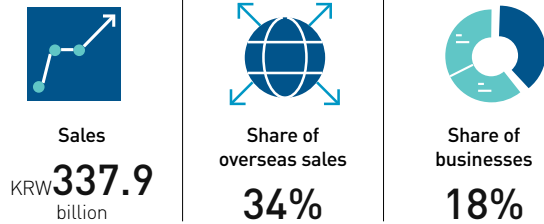
## Automation Business

LSIS provides a wide range of automation solutions from single unit machines to process control capabilities for efficient operation of industrial facilities. Our key product portfolio includes PLC for equipment control, AC Drives for motor speed adjustment, Servo for precise equipment control, and HMI for real-time monitoring of equipment. Moreover, we are promoting smart plant solutions that improve operational efficiency utilizing information collected through plant automation solutions.

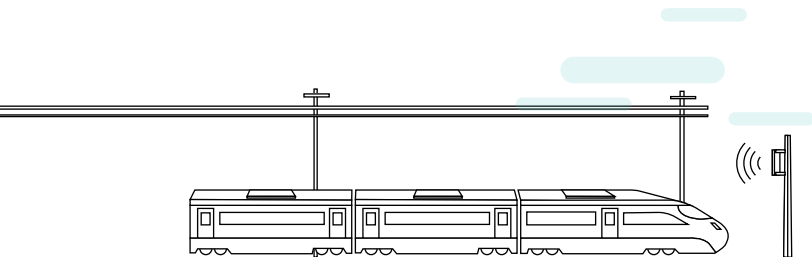
- Plans for 2018**
  - Strengthened the capabilities of domestic / global distributors
  - Expanded the scope of product portfolio and applications
  - Established a business model for smart factories
- Performance in 2018**
  - Laid the foundations for entry into the high-end market
  - Developed a new AC Drive product
  - Developed a business model for smart factories
- Plans for 2019**
  - Expand dominance in the domestic market
  - Target overseas markets intensively
  - Expand the development of new products

## 2018 performance Industrial Automation Business


(non-consolidated basis)



## Railway Infrastructure Business




**CPS solutions**  
As a platform that connects reality with virtual reality, it promotes efficient plant operation. It monitors data generated by field devices and collected by automated devices, and the accumulated information is transferred to the business information system.



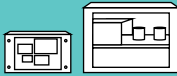

---

**Programmable Logic Controller (PLC)**  
This is a universal controller programmed to operate machinery under set orders and conditions. It has a wide range of applications from large-scale automation equipment in factories / plants to car-wash machines, golf ranges, and general use.



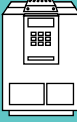

---

**Human Machine Interface (HMI)**  
This allows users to easily check the operative status of different production equipment on a touchscreen so that measures can be taken as necessary.





---

**AC drive (inverter)**  
This helps conserve energy by changing the frequency of the power supply to control the speed or torque of a motor.





---

**Decelerator**  
Connected to the motor shaft, it delivers decreased speed but increased torque by load. It has wide applications for semiconductors, displays, beverage machinery, and logistics machinery.




---

**Motion / Servo**  
This offers precision control through feedback when equipment is moved to a new location or operated at the speed / torque required by the system. (Motion Controller / Servo Drive / Servo Motor)



LSIS contributes to the safe operation of railway by providing, operating and maintaining railway power and signaling systems. In 2018, LSIS won a project for Sillim Light Rail that applies KRTCS\* Level 1 for the first time. Based on this achievement in the domestic market, we will expand our business to overseas markets.

\* KRTCS: Korean Radio based Train Control System

## High-Voltage Substation System

LSIS produces a Power Diagnosis Preventive System (PDPS) that prevents failure and accidents preemptively by monitoring functions and performance of major power equipment including gas insulated switchgear (GIS) and high voltage transformers in the high voltage power systems.





## ESS / Energy Storage System

An Energy Storage System stores power in a battery and makes it possible to use the stored power when necessary. It is an advanced power system that improves the usability of new and renewable energy and maximizes the efficiency and stability of power supply.



## DC Component

In line with the trend of applying DC high voltage and large capacity in the new and renewable energy sector, LSIS provides optimized DC solutions and puts every efforts into R&D to achieve customer satisfaction and thereby ensure its position as Global No. 1.



## Next generation inverter (G100)

G100 is a general purpose drive optimized for use in various industrial areas. The AC Drive, which controls the rotation speed of a motor by changing voltage and frequency of power, makes it possible to manage the motor and save energy.



# Core Issues of Sustainability Management

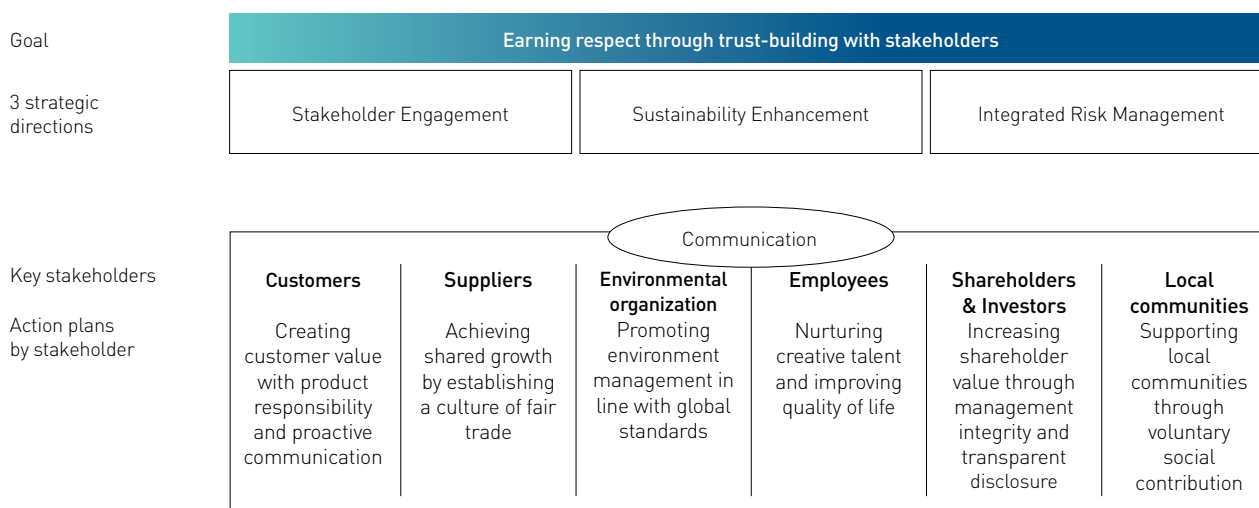
Our target for sustainability management is to earn respect through building stakeholders' trust. To this end, we will strive to build a healthy corporate culture and proactively communicate with our customers, suppliers, shareholders / investors, local communities, and employees as we grow and create value together.

Integrated Sustainability Management .....	26
Materiality Assessment .....	28
Ethical Management .....	30
Customer Satisfaction .....	38
Safety and Environment .....	48
Shared Growth .....	54
Employees .....	62
Local Community .....	68

# Integrated Sustainability Management

Under the goal of earning respect through trust-building with stakeholders, 3 strategic directions have been implemented under stakeholder-specific action plans: Stakeholder Engagement, Sustainability Enhancement, and Integrated Risk Management. LSIS will continue to proactively communicate with stakeholders as we achieve shared growth.

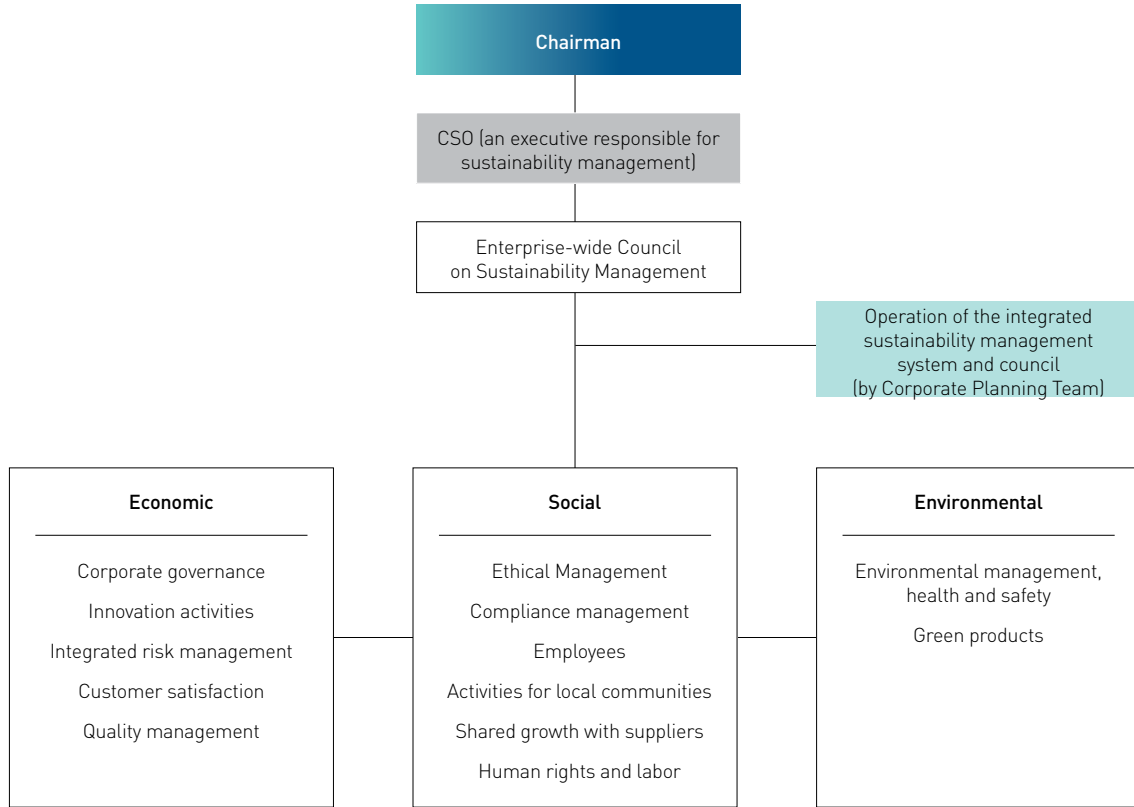
## Framework



## Roadmap for Sustainability Management

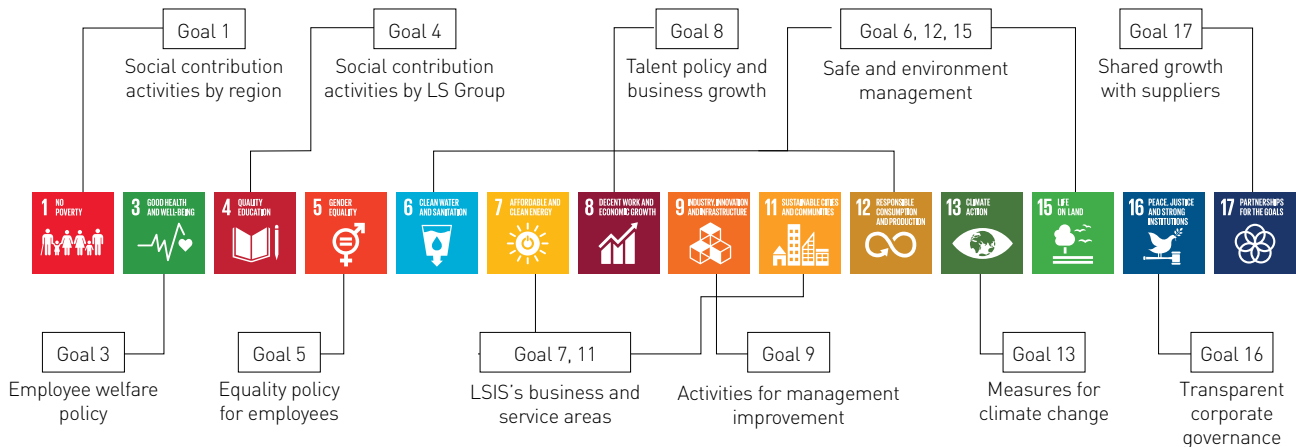
	Building a consensus	Strengthening capability for implementation	Expanding to global operations
Integrated sustainability management	<ul style="list-style-type: none"> <li>Providing in-house training</li> <li>Operating the Council on Sustainability Management</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating performance</li> <li>Reinforcing implementation strategies by function</li> </ul>	<ul style="list-style-type: none"> <li>Strengthening the infrastructure for sustainability management in overseas plants</li> <li>Promoting activities for global initiatives</li> </ul>
Shareholder engagement	<ul style="list-style-type: none"> <li>Assigning teams in charge and defining R&amp;R by stakeholder</li> </ul>	<ul style="list-style-type: none"> <li>Developing a process for incorporating stakeholders' feedbacks</li> </ul>	<ul style="list-style-type: none"> <li>Expanding the scope of stakeholders to the global level and enhancing R&amp;R of each team</li> </ul>
Sustainability enhancement	<ul style="list-style-type: none"> <li>Strengthening requirements on disclosing environmental data</li> </ul>	<ul style="list-style-type: none"> <li>Making an organized effort in the environmental monitoring of the value chain</li> </ul>	<ul style="list-style-type: none"> <li>Reinforcing green marketing activities at a global level</li> </ul>
Integrated risk management	<ul style="list-style-type: none"> <li>Enhancing the integrated system to manage risks</li> </ul>	<ul style="list-style-type: none"> <li>Establishing monitoring processes to identify key risks</li> </ul>	<ul style="list-style-type: none"> <li>Building a system to identify and manage risks in overseas plants</li> </ul>

Implementation system / Council on Sustainability Management



Responding to UN SDGs

LSIS is committed to working toward the sustainable development goals (SDGs) composed of 17 goals and 169 targets presented by the UN.



# Materiality Assessment

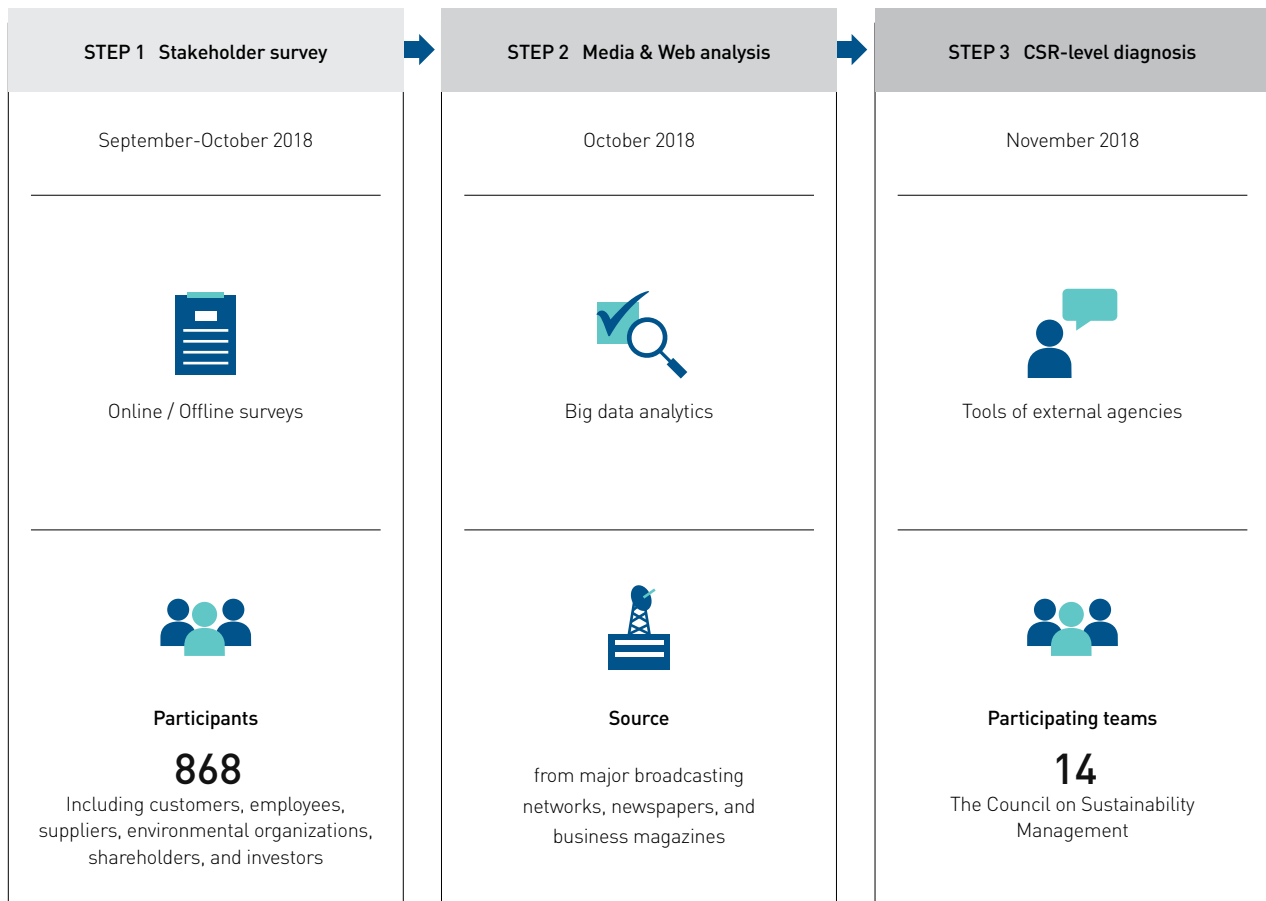
## Overview

LSIS created a pool of 37 topics based on internal and external reviews and opinion from the Council on Sustainable Management, and prioritized 18 topics incorporating stakeholder survey, media & web analysis and opinion of experts.

## Creating a pool of topics

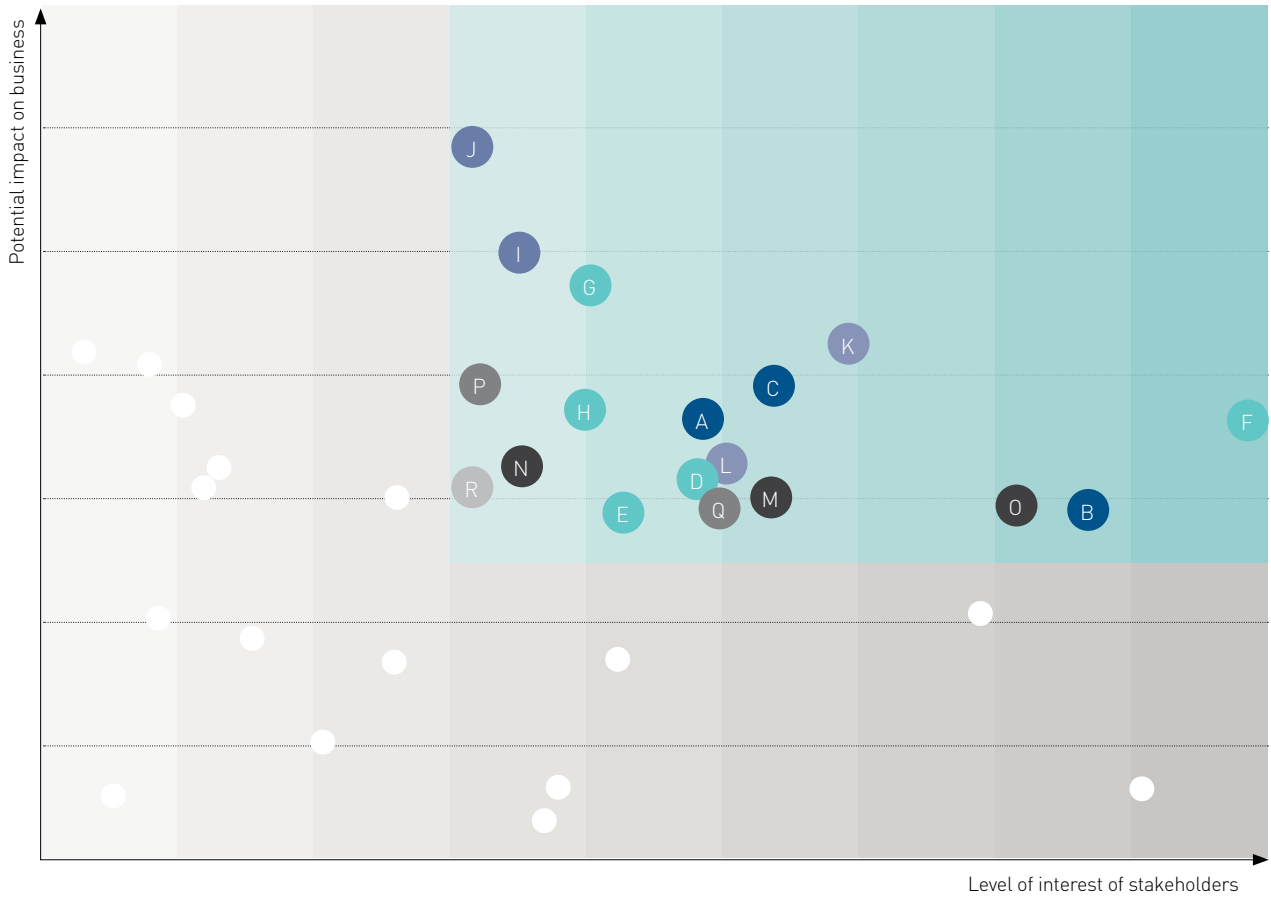


## Prioritizing topics through materiality assessment



### Materiality assessment matrix

The materiality assessment matrix is designed based on the potential impact on business and the level of interest among stakeholders. Please refer to the page indicated in the legend below for details on each key topics.



Category	Material Topic	Page
Ethics & risk	A Ethical management	32
	B Compliance management	35
	C Integrated risk management	35
Customer satisfaction management	D Competitiveness in quality	40
	E Activities to ensure product reliability	41
	F Technological competitiveness	41
	G Intellectual property management	42
Safety and environment management	H Communication with customers	46
	I Worksite safety and health	50

Category	Material Topic	Page
Safety and environment management	J Energy conservation and climate change	51
	K Worksite safety management	52
	L Eco-friendly products and services	53
Shared growth with suppliers	M Establishing a culture of fair trade	56
	N Management of conflict minerals	60
	O A culture of shared growth	61
Employees	P Talents management	65
	Q Human rights and labor-management relationship	67
Contribution to local community	R Employee volunteer activities	70

# Ethics Management

## COMMITMENT

Dae-Seok Chae /  
Vision Support  
Department

LSIS has put LSpartnership, the management philosophy of LS group, into practice and promoted ethical management based on core values of cooperation and integrity for sustainable, shared growth.

We provide regular training on ethics to executives and employees as part of our activities to implement ethical management. In addition, we regularly listen to present and potential difficulties faced by contractors and distributors in their transactions with LSIS. We try to prevent unethical activities by running a cyber reporting channel.





LSIS is committed to fulfill its responsibilities toward customers, partners, shareholders and society through clean and transparent management. We have established the Ethics Committee as the highest decision-making body regarding the implementation of ethics management. Further, the Code of Ethics and Conduct was established as criteria for actions and value judgments among employees. We will continue our efforts to strengthen the culture of ethical management and improve awareness by providing ethical management training not only to our employees but also to contractors.

## KEY PERFORMANCE & PLANS



Number of reports  
**13** case

Plans  
for 2018

- Strengthening the promotion of ethics training



Level of satisfaction with  
ethical management  
**3.96** point

Performance  
in 2018

- Posting information on the promotion of ethical management for executives and employees

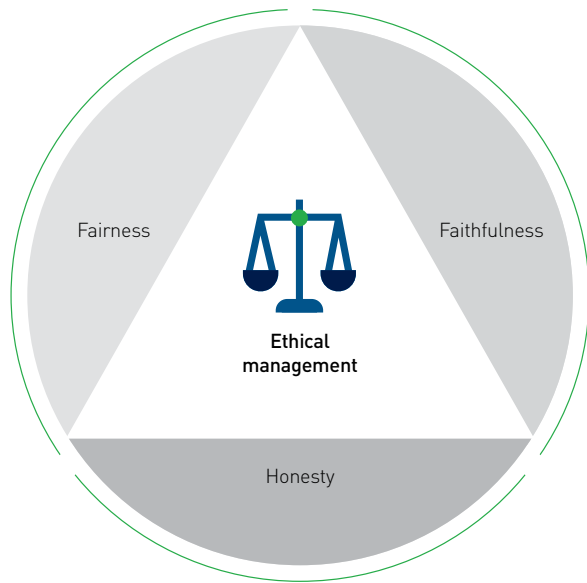
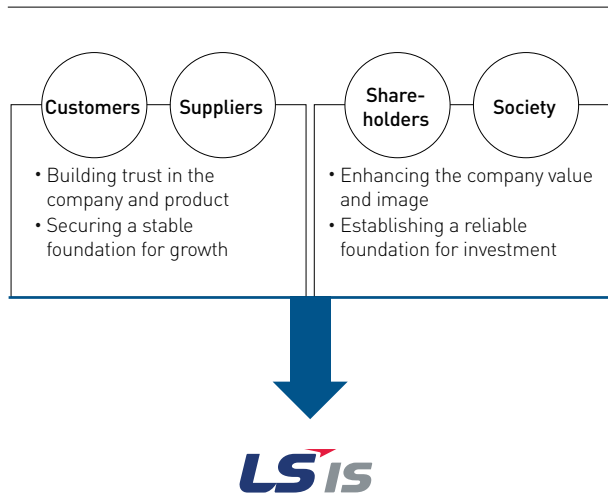
Plans  
for 2019

- Strengthening ethics training (in addition to cyber education)
- Running a reward system for reporting cases of unethical behaviors

# Ethical management

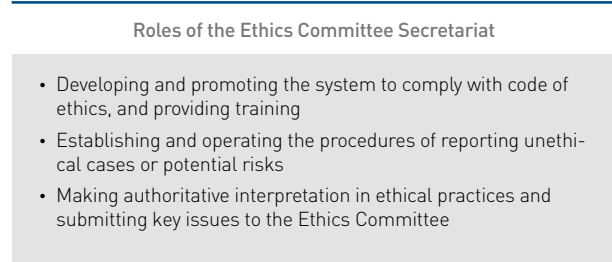
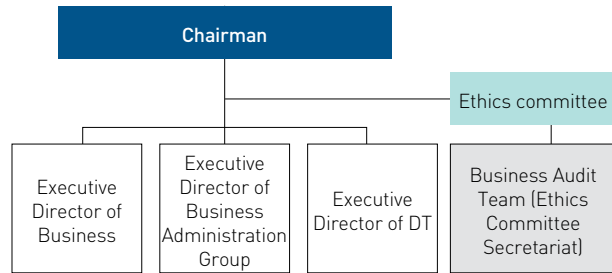
## Goal of ethical management

The goal of ethical management at LSIS is to fulfill our corporate responsibility to customers, suppliers, shareholders, and society based on the principles of fairness, honesty, and integrity.



## Ethical management system

**Organizations in charge** | The Ethics Committee is the highest body for implementing ethics management. This unit is made up of members of the HR Committee. The Audit Department, an independent internal audit organization, serves as the Ethics Committee Secretariat.



## Code of Ethics and Conduct

The Code of Ethics and Conduct was established to provide criteria for actions and value judgments among employees.

### Code of Ethics

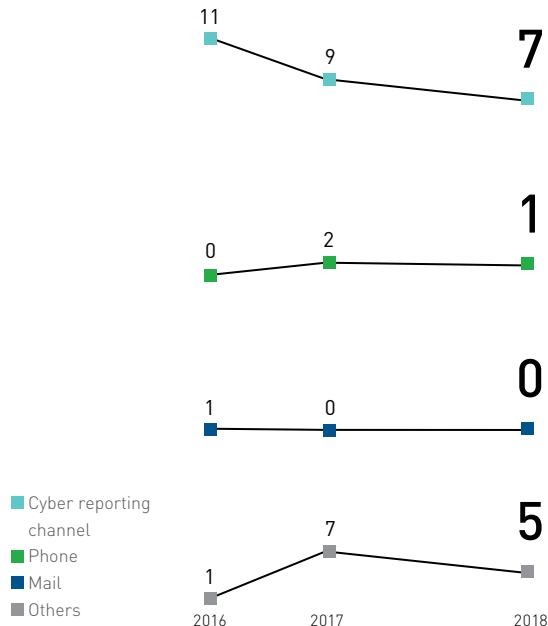
- |                |  |
|----------------|--|
| <b>Chapter</b> | <b>Responsibilities and duties for customers</b>   |
| 1.             | Providing information / Serving customers / Protecting the interests of customers  |
| <b>Chapter</b> | <b>Fair competition</b>  |
| 2.             | Fair competition / Respecting related laws, regulations and business practices   |
| <b>Chapter</b> | <b>Fair trade</b>  |
| 3.             | Selecting suppliers through a transparent process / Promoting fairness in transactions and evaluation / Maintaining order in trade / Supporting suppliers  |
| <b>Chapter</b> | <b>Basic ethics for employees</b>  |
| 4.             | Keeping one's dignity as an LSIS employee / Reporting with honesty and integrity / Protecting the company's property / Avoiding the conflict of interests against the company / Preventing sexual harassment at work |
| <b>Chapter</b> | <b>Responsibilities for employees</b>  |
| 5.             | Fostering talent / Ensuring fair treatment / Promoting health and safety / Respecting employees' opinions  |
| <b>Chapter</b> | <b>Responsibilities for the nation and society</b>   |
| 6.             | Doing business right / Protecting the interests and rights of shareholders / Protecting the environment / Contributing to the nation and society   |



### Policies and systems in operation

**Reporting hotlines** | To eradicate unethical acts within the company, LSIS constantly operates a variety of communication channels, including phone, post mail, e-mail, and a cyber reporting platform. Suppliers, employees, and customers can avail these channels to report any cases of corruption, irregularities, or unfair business practices by LSIS employees. Complaints on product quality or inquiries about products and services are transferred to the customer service center.

Reports received and resolved by channel (unit: case)



Reports received and resolved by category (unit: case)

Reporting category	2016	2017	2018
Unfair trade	1	5	2
Corruption and irregularities	3	2	3
Unfair practices	1	-	-
Claim	-	2	2
Others	8	9	6
<b>Total</b>	<b>13</b>	<b>18</b>	<b>13</b>

**Self-reporting program** | To promote a healthy corporate culture by eliminating unethical acts, LSIS operates a self-reporting program through which employees who might have accepted bribes and / or offers of entertainment can voluntarily report according to defined procedures.

**Reporter protection policy** | LSIS does not disclose the personal information of anyone reporting an unethical act, the reported details, or any other information that could identify them without their consent. If the reporter is placed in a disadvantageous position due to a disclosure, the company will take responsibility to restore the complainant to the original state and assume liability accordingly.



Reported details and the personal information of reporters are kept strictly confidential and the reporting system is operated in a secure and safe manner.



Self-reporting by those who were involved in unethical acts is taken into consideration when resolving the case.



Information on reporters and interested parties is strictly protected and an investigation is conducted to ensure the fair and objective resolution of the case.



If a disadvantage to the reporter is recognized as a result of any information leakage, LSIS will compensate the disadvantage or take equivalent remedial measures.

**Procedures to respond to unethical acts** | In accordance with the Code of Ethics and Conduct, a thorough investigation is conducted on unethical acts, and the Disciplinary Committee takes disciplinary action against those who violate the Code of Ethics and Conduct.

# Implementing ethical management

## Activities for implementation

**Pledge to practice ethical management** | As part of the efforts to raise awareness and promote transparent business process, LSIS employees must biannually take a written pledge to practice ethical management. Since 2013, all employees of LSIS and its subsidiaries have joined these efforts.

**Employee survey** | A biannual survey is conducted to evaluate the level of employee satisfaction on the company's ethical management and to check for unfair acts that might have gone unnoticed. The survey results, such as changes in satisfaction level with the ethical management index, suggestions and feedback, are utilized to set directions for planning subsequent ethical management activities. In 2018, LSIS employees evaluated the company's ethical management index (the full score is 5) at 3.96, and it was pointed out that education on ethical management cases was required. Accordingly, we are planning to collect ethical management cases and add them to the training in 2019.

**Training on ethical management** | Training on ethical management is provided through an introductory course for both non-career and career employees. Since 2013, the training that had been until then conducted only at the company level is being provided to all members of the LS Group. From 2017, training materials are also being made available via the Intranet and starting 2019, cyber training led by the HR department is being provided to all employees.

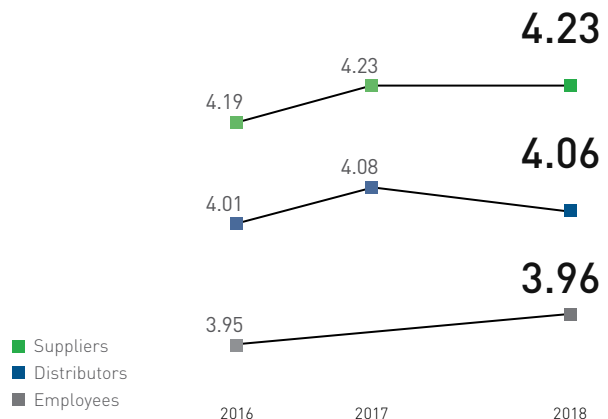
## Strengthening partnership with suppliers / distributors

**Sending an official letter for cooperation to suppliers/distributors** | Before the Thanksgiving (Chuseok) and Lunar New Year's holidays, LSIS sends an official communication asking suppliers and distributors for cooperation in eradicating the practice of giving and receiving gifts, entertainment and money. This announcement is also made to employees to encourage them to report any violations and to further strengthen LSPartnership, the management philosophy of LS Group.

**Survey for suppliers** | LSIS conducts an annual survey of suppliers and distributors to evaluate the level of satisfaction with the company's ethical management. The collected survey results, including changes in satisfaction level, ethical management index, suggestions and feedback, are utilized to set directions for planning subsequent ethical management measures. According to the 2018 survey, the satisfaction levels were 4.23 and 4.06 (full score is 5) respectively for suppliers and distributors, which have remained at the similar level as the previous year.

**Training for suppliers** | The Win-Win Growth Team organizes performance-sharing meetings and lectures by external experts for the benefit of suppliers to help them better understand LSPartnership and to build consensus on ethical management.

Satisfaction level on ethical management (Unit: point)



# Compliance Management

Since the compliance officer system was introduced in 2012, activities to promote compliance management have been reinforced. These included a proclamation ceremony in 2014, CP (compliance program), voluntary inspections, classification of legal risks, and training. The head of Legal Affairs Group serves as the compliance officer and is spearheading these efforts.

## Training and information sharing activities

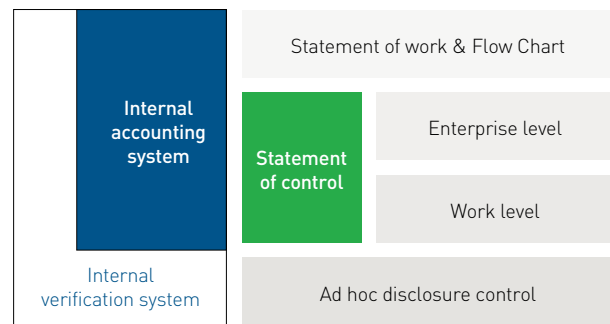
To raise compliance awareness, the compliance officer organizes themed training for employees. Additionally, information on revised laws and regulations and government policy is shared among the related teams. In 2018, 30 sessions of compliance training were offered and information sharing activities were conducted 19 times.

Activities	Details
Reporting to BOD	topics covered
Compliance training	Fair Trade Act, Subcontracting Act, inspections and education on the act of stealing technologies, and strategic commodities business meeting
Sharing information on revised laws and regulations	Subcontracting Act related to stealing technologies (revised), one-strike out system related to Subcontracting Act, and Act on Promotion of Information and Communications Network (revised), Enforcement Decree on Kim Young-ran Act (known as Anti-graft Law)

# Integrated Risk Management

## Internal control of financial reporting

To manage the processes related to the calculation of financial statements, the regulation on internal control based on Act on External Audit of Stock Companies was established and enacted in 2019. Accordingly, the CEO reports the operational status of the internal accounting system to the shareholders' meeting, the BOD and the Audit Committee, and the Audit Committee reports its evaluation results to the BOD.



## Risk management categories

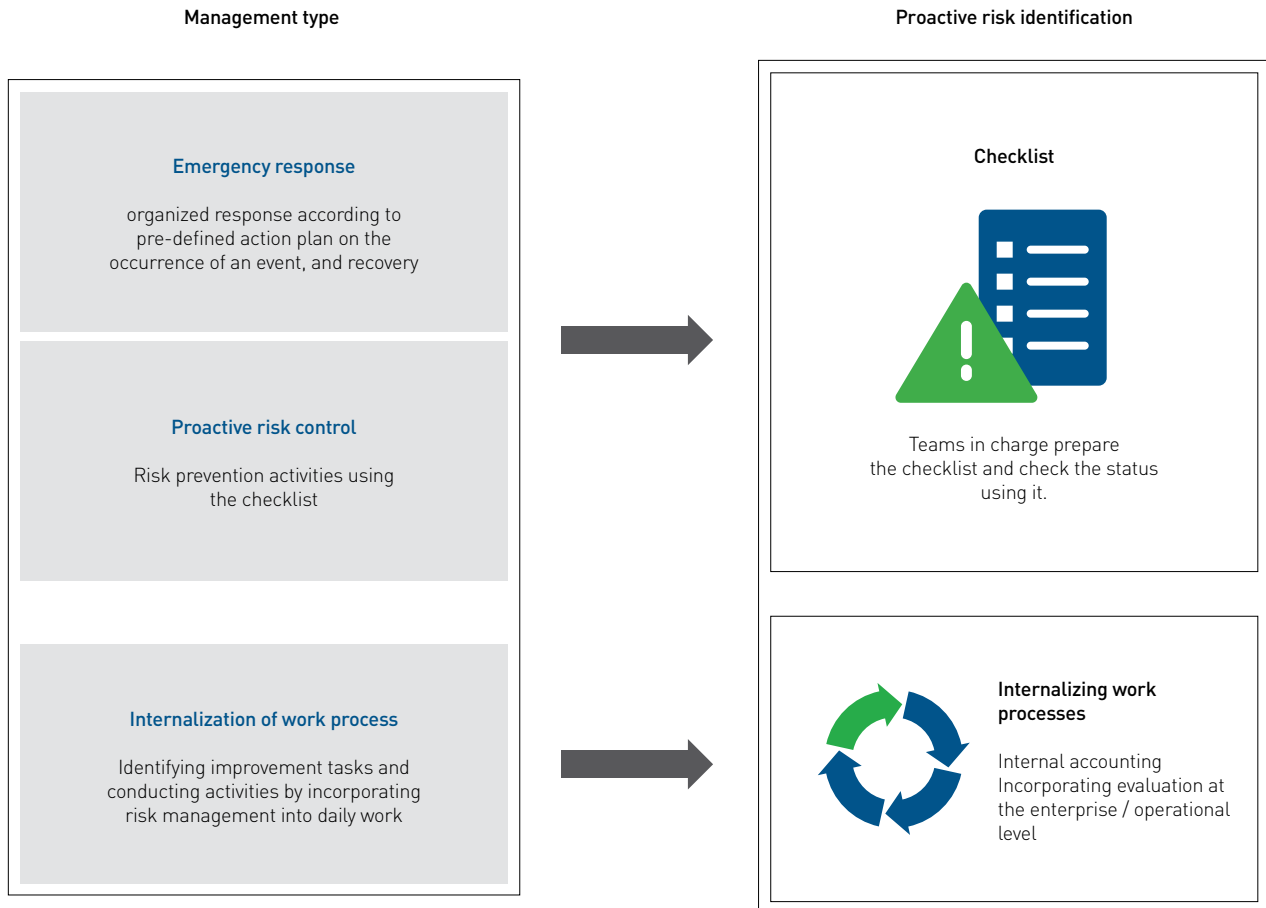
A total of 104 risks have been defined and grouped by category, division, and section. Among them, 26 key risk items were selected based on the quality of their management and evaluation by worksites and the teams in charge.

## The pool of risks at the corporate level

Category	External environment risk	Strategic risk	Financial risk	Compliance risk	Operational risk
Division	<ul style="list-style-type: none"> <li>Economy</li> <li>Country / Politics / Society / Environment</li> <li>Market condition</li> <li>Accident / Disaster</li> </ul>	<ul style="list-style-type: none"> <li>Business plans</li> <li>Growth</li> <li>PR / Communication</li> </ul>	<ul style="list-style-type: none"> <li>Market</li> <li>Capital balance</li> <li>Asset impairment</li> <li>Financial statements</li> </ul>	<ul style="list-style-type: none"> <li>Contract / Lawsuit / Trade</li> <li>Laws / Regulations</li> <li>Ethics / Misconduct</li> </ul>	<ul style="list-style-type: none"> <li>Project</li> <li>Support process</li> <li>Key process</li> </ul>
Section	<ul style="list-style-type: none"> <li>Economy</li> <li>Country</li> <li>Politics</li> <li>Competitors</li> <li>Customers</li> <li>Procurement / Suppliers</li> <li>External stakeholders</li> <li>Natural disaster</li> </ul>	<ul style="list-style-type: none"> <li>Business plans</li> <li>M&amp;A</li> <li>Business portfolio</li> <li>Social contribution</li> <li>Development and investment in new businesses</li> <li>Brand / Reputation</li> <li>Public relations / Communication</li> <li>Investor relations</li> </ul>	<ul style="list-style-type: none"> <li>Credit rating</li> <li>Raw materials prices</li> <li>Exchange rate</li> <li>Liquidity</li> <li>Trade receivables</li> <li>Intangible assets</li> <li>Tangible assets</li> <li>Assets in stock</li> <li>Investment assets</li> <li>Asset impairment (common)</li> <li>Tax</li> <li>Accounting fraud</li> </ul>	<ul style="list-style-type: none"> <li>Contract</li> <li>Fair trade (anti-trust policy)</li> <li>Other laws</li> <li>HR / Labor</li> <li>IP / Privacy protection</li> <li>Overseas / Export</li> <li>Environment / Safety</li> <li>Irregularities</li> <li>Corruption</li> <li>Ethics / Compliance</li> </ul>	<ul style="list-style-type: none"> <li>Project cost</li> <li>Purchasing / Procurement</li> <li>Design / Manufacturing</li> <li>Bidding / Winning contracts</li> <li>Project management</li> <li>Corporation management</li> <li>HR</li> <li>Environment / Safety</li> <li>Logistics</li> <li>Production / Quality</li> <li>Sales / Marketing</li> </ul>
No. of risk items	13	16	22	19	34

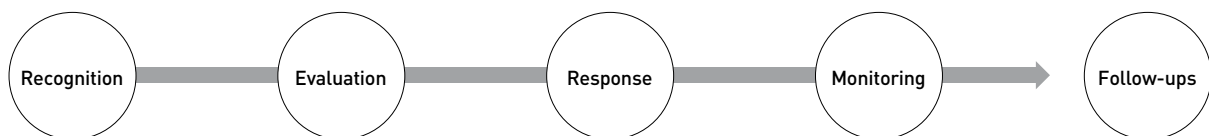
### Proactive risk Identification

Corporate risks are categorized into emergency response, proactive risk control, and internalization of work process depending on management type. In 2016, an approach for proactively identifying and managing risks was devised and applied to key risk items in order to establish an efficient response system.



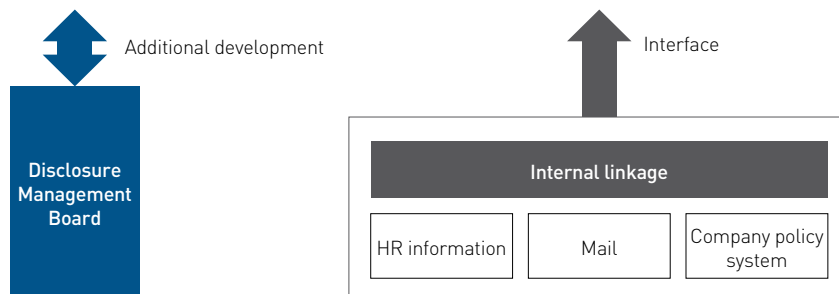
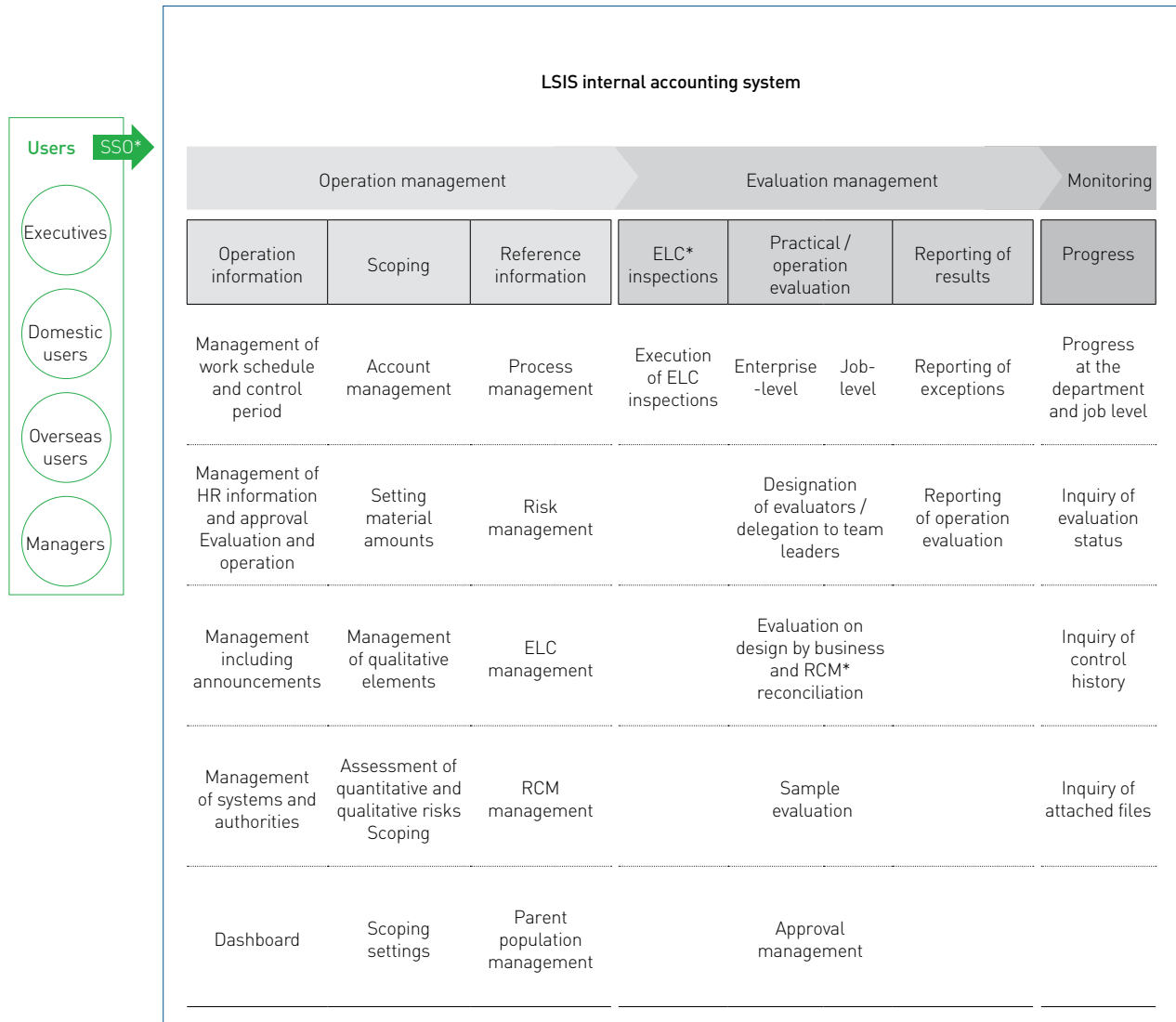
### Risk management process

Risks identified using the proactive approach are evaluated, quantified, and then managed. When a risk exceeds the pre-defined limit, the Emergency Response Committee is convened to monitor conditions and respond at the company level. Through this management process, risks are continuously reviewed and follow-up measures are taken for mitigation.



### Upgrading the internal accounting system

In view of the revision of the Act on External Audit of Stock Companies on November 1, 2018, all control items under the internal accounting system were adjusted accordingly. In addition, we established a systematic evaluation and verification system to respond to audits, and optimized the internal accounting system to improve the management of risks at a global level.



\* SSO : Single Sign On  
 \* ELC : Entity Level Control  
 \* RCM : Risk Control Matrix

# Customer Satisfaction Management

## COMMITMENT

Jeong-Joon Lee  
/ Director at DP  
Research Center-  
in charge of DT  
(Research Fellow)

In recent years, digital transformation (DT) has become a hot topic in the industry. LSIS conducted R&D to enhance efficiency of the internal operation process and improve the value of products and solutions for customers in 2018 utilizing DT. In 2019, we will satisfy our customers by incorporating customer demand actively, and making sure that DT-based products and solutions for communication are launched early. In addition, we will proceed the development of Echo Platform where customers can participate.



Chan-Soo Lee /  
Marketing Team  
Leader, Power  
Solution Business  
Group

In 2018, we focused on marketing activities through which we listened to customers' opinions from home and abroad, assessed demand from the field and provided feedback to customers. We participated in more exhibitions in each area to promote LSIS as a brand, and also increased our participation in technical exchanges including seminars. We will continue our journey of providing value to customers and being the best partner by expanding the portfolio of our products and solutions.





Our goal is to be a reliable partner so that customers can buy our products with confidence. Since 2017, we have established and run development processes based on a reliability management system as part of our efforts to improve product quality and reliability. Further, an R&D productivity improvement system was established to maximize performance and efficiency of our R&D projects. In 2019, we will make our best efforts to satisfy our customers by establishing a digital-based development system and strengthening effectiveness of product verification.



R&D investment

KRW **123.5** billion



No. of IPR (intellectual property rights) (Korea / Overseas)

**3,713 / 5,092**



Customer seminars held

**87**

## KEY PERFORMANCE & PLANS

### Plans for 2018

- Advanced the system for developing and verifying products
- Strengthened customer-oriented diagnosis and evaluation
- Fostered talent in quality and proprietary technologies
- Innovated R&D methodologies
- Promoted participation in exhibitions and seminars at home and abroad

### Performance in 2018

- Established a customer environment DB and advanced verification standards
- Developed a platform and common core modules
- Defined enabling technologies and fostered internal experts
- Expanded participation in domestic and overseas exhibitions and seminars

### Plans for 2019

- Improve the performance of R&D cooperation with external entities
- Establish Digital Transformation
- Strengthen effectiveness of product verification
- Enhance customer satisfaction through technical exchanges

# Customer satisfaction

## Goal of customer satisfaction

Our mission is to be a 'Great Company Prospering for 100 Years with Quality that Creates Customer Satisfaction'. Based on our mission, we seek to meet and exceed our customers' expectations through continued quality improvement and innovation.

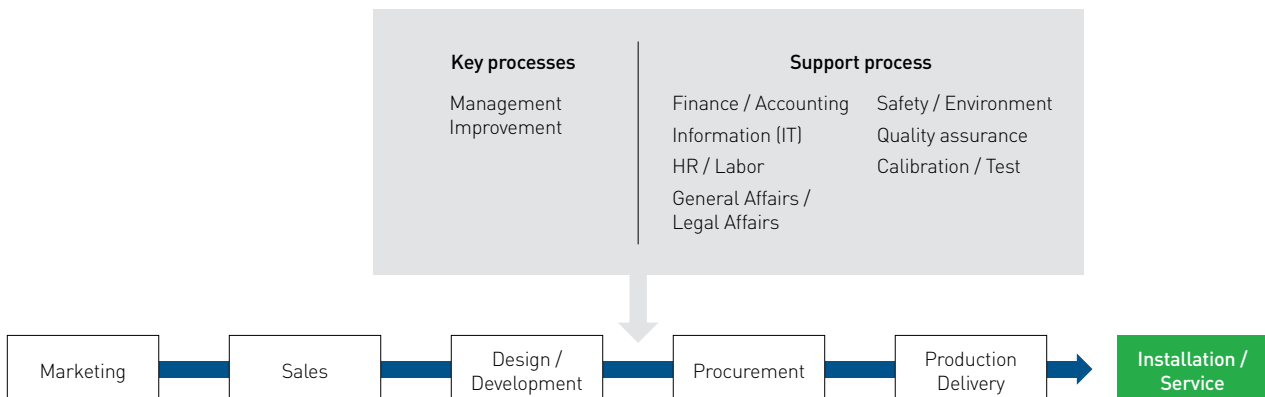
### Mission and vision for quality management and its focus



## Quality management system

The quality management system of LSIS was established by incorporating the requirements of ISO 9001(1993-), ISO14001(1996-), K-OHSMS(2008-), and TS16949(2010-), related laws and regulations, customer and market demands, and requirements identified in business operations. Product planning, development, manufacturing, and services have all been identified as key processes for delivering value to customers. Infrastructure such as IT systems and facilities as well as management and support processes have also been added to the system to ensure efficient operations. This system has been applied to all domestic and overseas worksites to improve performance.

### Quality Management Process





### Power Testing & Technology Institute

The Power Testing & Technology (PT&T) Institute was established in 2000 as the first private sector facility equipped with a capacity of 2,000 MVA to test short circuits, high voltage, and reliability. In particular, the Institute established synthetic test equipment for high voltage product (170kV 50kA) and AC 3-level MS electrical life test equipment, contributing significantly to the improvement of product quality and reliability.



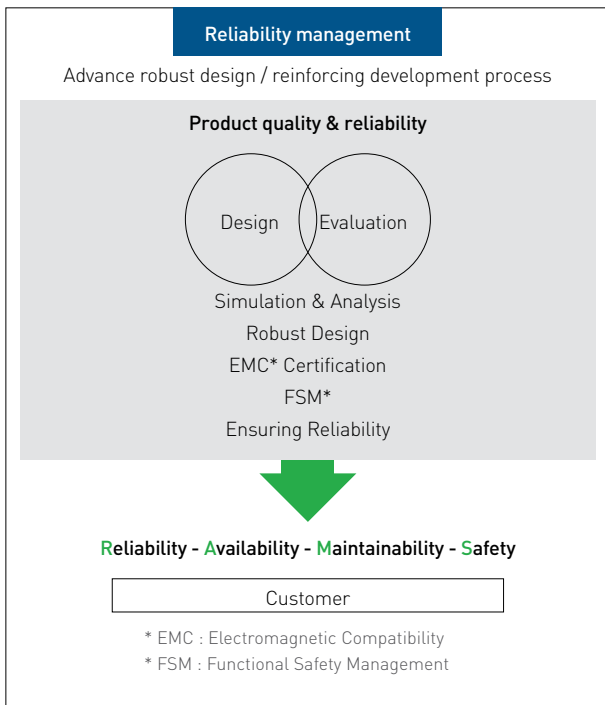
Front view of PT&T



High voltage short-circuit transformer

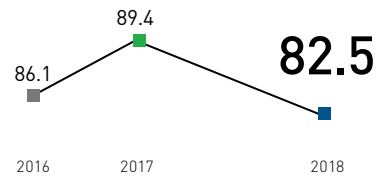
### Reinforcing product reliability

As part of the company's systematic efforts to heighten product quality and reliability, a LSIS-700-based development process has been implemented since 2017. We seek to provide greater value by meeting customer expectations and demands, providing reliable products that meet legal requirements, and reducing / preventing environmental impact and risks. In addition, we will continue to improve business performance through the efficient and effective operation of the management system.



**Complaint handling process** | Customer complaints are managed according to the company's guidelines and a pre-defined process utilizing QIS (Quality Information System). Complaints received by the Customer Service Center are immediately transferred to the responsible teams for prompt resolution.

VOC improvement rate (Unit : %)

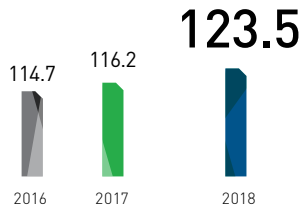


### R&D activities

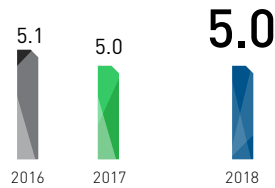
As a total solution provider for smart power and automation, LSIS has been striving to advance its core businesses and secure next-generation growth engines. In particular, we are concentrating resources on R&D in order to proactively respond to rapidly-evolving digital transformations and consolidate a leadership position in the smart energy and plant markets. To this end, a system to enhance R&D productivity has been established, maximizing business performance and efficiency. LSIS maintains R&D centers in Anyang, Cheongju, and Cheonan, Korea, as well as an additional R&D center at the Wuxi plant in China, which creates synergies between research and production. In addition, we are increasing R&D competitiveness by running an in-house Power Testing & Technology Institute for the first time in the private sector.

**R&D investment** | Since LSIS is fully aware that R&D is the key to corporate competitiveness, about 5% of sales is invested in R&D activities to develop next-generation products, new businesses, and core technologies.

**R&D investment** (Unit : KRW billion)



**R&D investment-sales ratio** (Unit : %)



**Key R&D performance in 2018**

**Successful commercialization of 9 PCS products based on ESS G1 Platform PCS** | The commercialization of 9 PCS products, based on G1 Platform PCS, which won the 2017 Power Electronics Manufacturer of the Year Award from the Korean Institute of Power Electronics, paved the way to winning the 100 billion ESS system project.



**Development of power distribution solution** | With an aim to respond to the era of digital transformation, we have commenced the development of a power distribution solution that will Digitalize existing power equipment and strengthen communication function among equipment. The soon to be launched solution will enhance efficiency of power system operations and improve the reliability of power supply.

**Development of new Compact AC Drive product (G100)** | We developed a new product with longer life, improved cost efficiency and better performance in the automation equipment area to consolidate our leadership in the Compact AC Drive market.

**Big data and AI-based technologies** | To keep pace with the 4th Industrial Revolution’s new industrial platforms using digital technologies, LSIS has been working to lay the foundations for smart and specialized solutions for power and automation systems. The new solutions will be based on an IoT and cloud computing platform. In particular, the study of energy efficiency and productivity using big data analysis has confirmed the possibility of enhancing productivity and quality while saving process energy. Based on the results, a range of studies are being conducted to structure a new business model for smart energy, smart factories, and diagnosis.

**Intellectual property strategy**

The strong portfolio of intellectual properties at LSIS allows us to create both tangible and intangible profits, strengthening our competitiveness in the global market. In an effort to hone technological competitiveness in the midst of the

**IP portfolio**

(as of the end of 2018) (unit: case)

Category	Registration	Application	Total	
Domestic	Patent	2,324	1,239	3,563
	Design	146	4	150
<b>Total</b>	<b>2,470</b>	<b>1,243</b>	<b>3,713</b>	
International	Patent	3,603	1,304	4,907
	Design	180	5	185
<b>Total</b>	<b>3,783</b>	<b>1,309</b>	<b>5,092</b>	

4th Industrial Revolution, we have been securing IPs in the fields of IoT, big data, and ICT convergence and integration technology. Notably, in 2016 LSIS was ranked for the first time among the Top 100 Patent Applicant Companies by the European Patent Office as a result of our efforts toward strengthening our international IP portfolio in alignment with our global business strategies. We also take part in efforts for shared growth by transferring IPs to SMEs for free.

**Design management**

LSIS Design Center was established in 2005 as the first design center in Korea’s industrial equipment manufacturing industry. In view of the increasingly specific and sophisticated nature of customer demand, the center ultimately aims to achieve sustainable designs that incorporate customer sentiment and user experience at the core of product design, moving away from manufacturer-oriented industry.

**Design Award**

**2018 iF Design Award**

**DMP i :** DMP i can protect a motor perfectly by detecting signals such as overcurrent that could occur during operation of the motor. Depending on user environment, the display unit can be separated and attached to the front side of a panel, making it possible to check equipment status from outside. It can also be mounted on DIN rail or a wall. In addition, the display unit is designed to improve usability by providing the minimum required information and exposing frequently used buttons on the front side.

**GIMAC i EX :** GIMAC i Ex is a digital power meter to prevent various accidents by performing precise measurement and power quality analysis and detecting various potential risks using a high speed data communications network. Various types of data can be measured and recognized with color differentiation, and intuitive usage is possible thanks to buttons with an icon. The UV Molding Hairline Sheet, which is supposed to be mounted on the front side comes with a sensibility element, improving the standing of the product.

**2018 GOOD Design**

**G100 :** G100 is an AC Drive that controls the rotation speed of a motor by changing voltage and frequency, which makes it possible to save energy and manage the motor. A Jog Dial is applied for precise control of the values set by a user. Further, the product has been designed for easy wiring and installation of optional modules. Various design elements that incorporate our own product identity are applied.

**iXP2 :** iXP2 is used for communication between a user and equipment. It is an industrial HMI (Human Machine Interface) that issues orders to various types of equipment and provides acquired data to the user. The panel comes with a ‘slim’ design, and depending on display size, 4 different models are available in the product line-up. It is intended to secure consistent product identity.



### Customer information protection

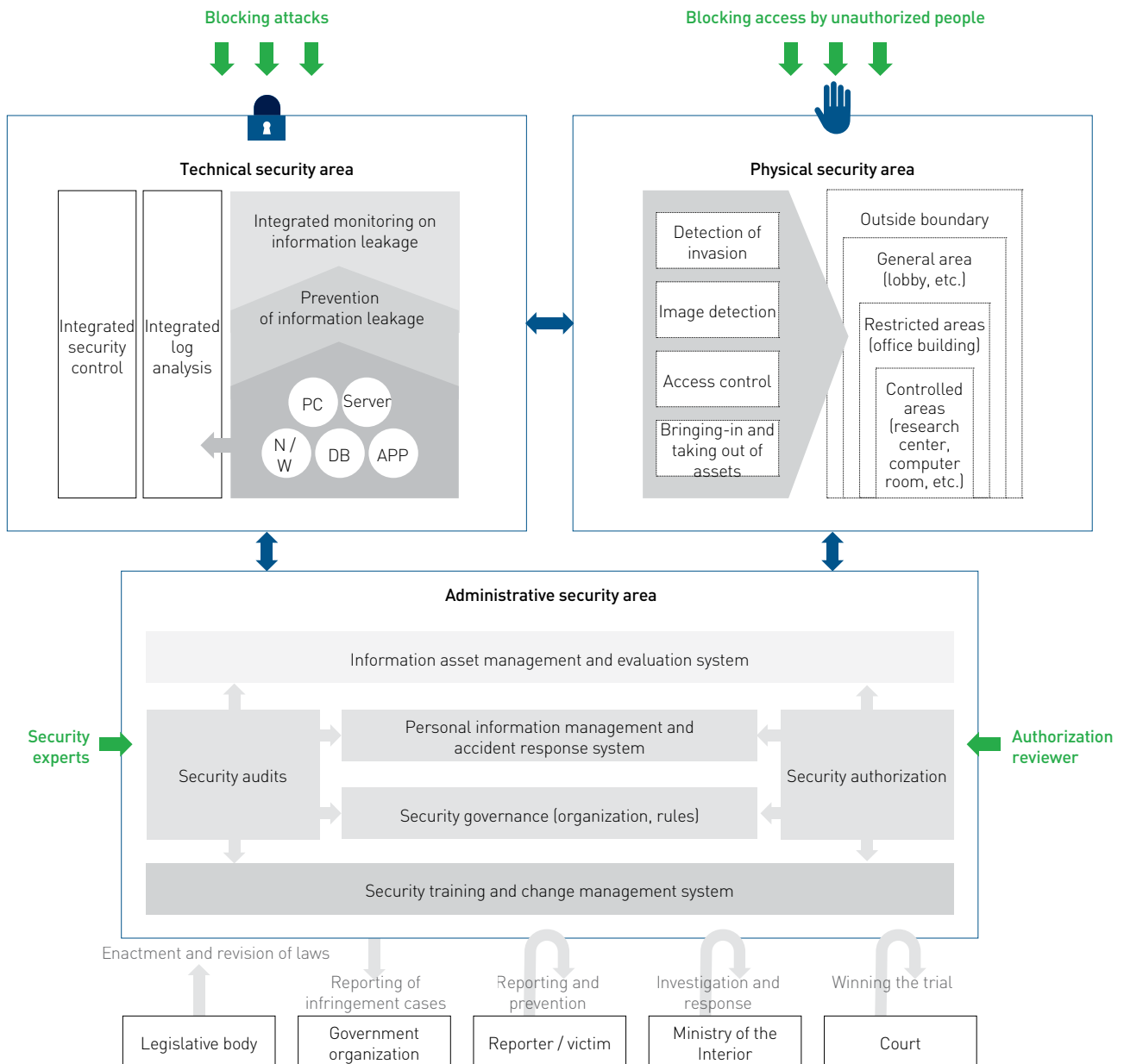
LSIS strictly complies with the domestic Personal Information Protection Act and GDPR<sup>1)</sup>(Europe), CSL<sup>2)</sup>(China) and NIS<sup>3)</sup>(Vietnam) to protect the information of customers at home and abroad. DB access history is managed for all systems where customer information is stored, and DB access control solution has been adopted to make sure that only authorized people can access the DB. A DB encryption solution is installed to manage critical information such that information is collected and stored safely. System vulnerability inspections are conducted to maintain data integrity and

protect systems from external threats. Additionally, systems are monitored for 24 hours by a private security company. As part of information protection activities, all our employees are provided with mandatory security training for more than once, and continuous change management activities are conducted through placement of security posters and communications across the company.

1) GDPR : General Data Protection Regulation (EU)

2) CSL : Cyber Security Law (China)

3) NIS : Network Information Security (Vietnam)

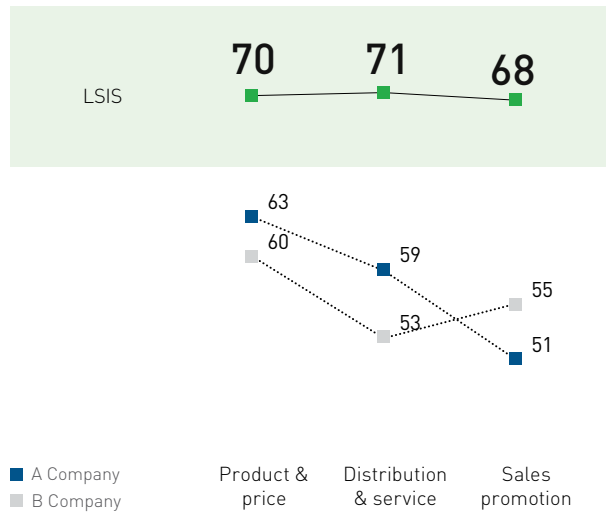


### Customer satisfaction survey

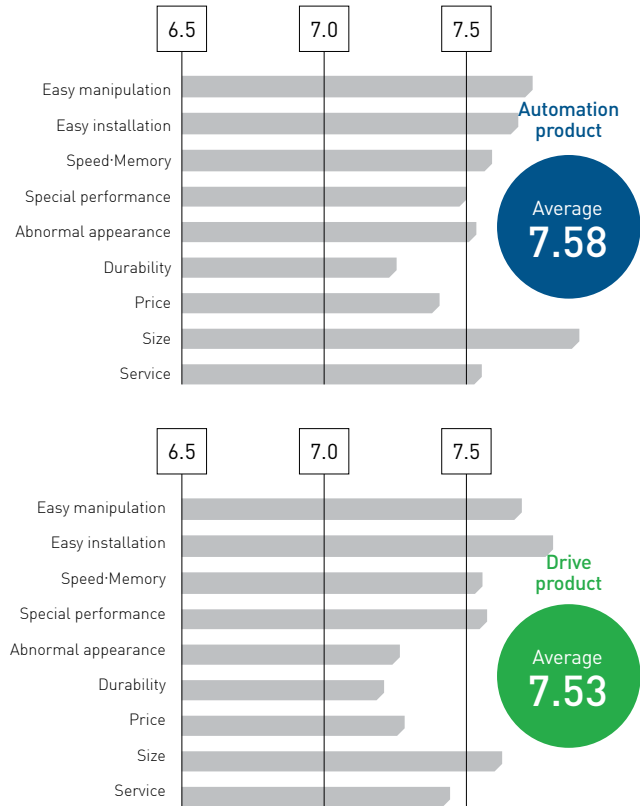
LSIS has conducted regular customer surveys of our customers, home and abroad, for major products every year.

**Power Solutions |** In 2018, the survey was conducted for 200 customers on 15 items related to power distribution products, a major offering in the power solutions business. For the 2018 survey, LSIS received a score of 70 on average, which is higher than that of our competitors. We obtained higher scores in all areas, product & price, place & service and promotion, than other companies.

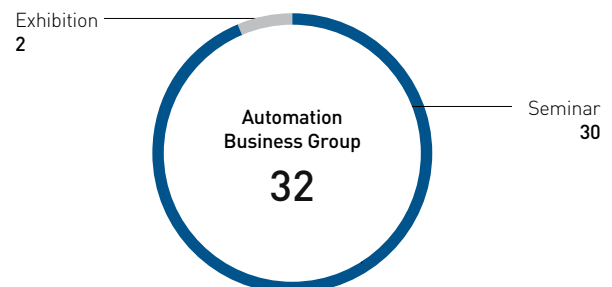
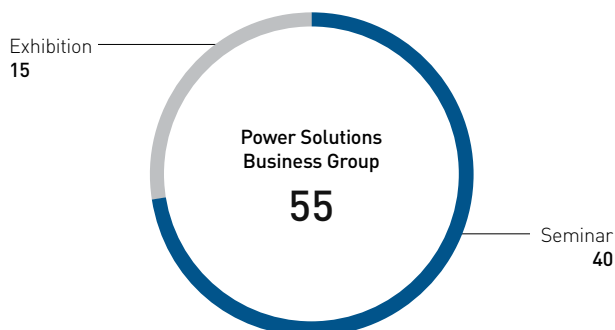
#### Customer survey results for power distribution panel products



**Automation |** In 2018, customer satisfaction survey was conducted for automation (online survey for customers using the product / the full score is 10). For automation products, customers were satisfied with the product size and ease of manipulation. In case of drive products, the highest score was obtained in the areas of ease of installation and manipulation.



#### The number of customer seminars held



# SEMINARS

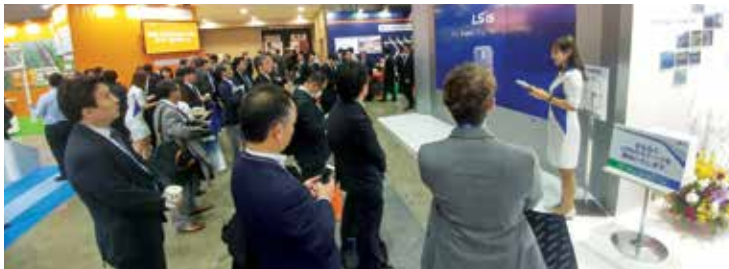
LSIS strives to create additional opportunities to meet with customers by regularly participating in domestic and international exhibitions and seminars to improve customer communications.



## January

### 2018 AHR Expo (Chicago, US)

The largest HVAC(Heating, Ventilation and Air Conditioning) exhibition is organized by ASHRAE(American Society of Heating, Refrigerating and Air-Con. Engineers). It is held every year in major cities in the US to share industry trends and announce new technologies. LSIS joined this exhibition as part of its strategy of targeting the North American market and presented products and solutions dedicated to automation and power.



## February

### PV System EXPO (Tokyo, Japan)

As part of World Smart Energy Week, the largest energy exhibition in Asia, the PV System EXPO 2018 was held. LSIS demonstrated its performance in projects conducted in Japan, promoting its image as a company with EPC competence for supporting PV+ESS power production.



## April

### HANNOVER MESSE 2018 (Hanover, Germany)

At this expo held on the theme of Integrated Industry- Creating Value, LSIS introduced integrated solutions spanning all of its businesses and promoted its brand among participants as a global smart energy company.



## August

### CIGRE 2018 (Paris, France)

LSIS participated in the 2018 edition of CIGRE Technical Exhibition, which is held biennially, to identify technical trends through exchanges of opinion among major figures from the industry and academia. We utilized the exhibition booth as a venue for networking, and promoted our capabilities in high voltage solutions and ESS.



## September - October

### Roadshow utilizing a 5ton wing body truck (Southern part of Korea)

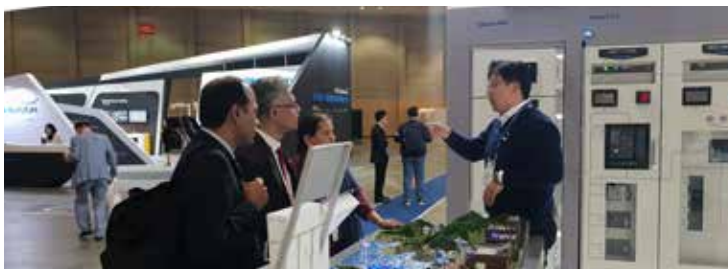
LSIS visited plants, industrial complexes, and government offices around the southern part of Korea to introduce new products, provide consulting services, and host seminars. For these activities, a customized 5ton wing body truck was used. [38 business places, 3 exhibition halls]



## October

### Korea Smart Grid Week (COEX, Seoul)

At Korea Smart Grid Week, the world's largest smart grid exhibition, LSIS promoted its advanced business models alongside its smart energy and technical competence as a total solution provider for the global market.



## October

### IEC\* General Meeting (BEXCO, Busan)

LSIS improved the brand image of LS in Korea, which is a powerhouse in terms of international standards, and promoted our technical capabilities in power solutions and automation areas at the IEC General Meeting in Busan, an event of the largest scale of its kind in Asia.

\* IEC : International Electrotechnical Commission



## November

### Bitgaram International Exhibition of Electric Power Technology Expo (BIXPO) 2018 (KDJ Convention Center, Gwangju)

LSIS participated in BIXPO 2018, which is a venue for technical exchanges in the power sector organized by KEPCO, and promoted our business and technical expertise in the domains of LS Super-grid, Modular Scalable PCS, All-in-One ESS, and DC Solutions.

# Safety and Environment Management

## COMMITMENT

Gi-Seon Kim /  
Safety &  
Environment  
Team Leader,  
Plant Support  
Group

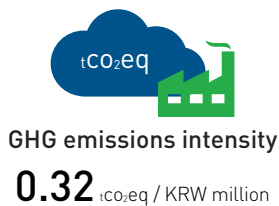
We prioritize investments in accident prevention activities and the environment before everything based on our belief that safety and environmental protection are the top priority for all corporate activities and basis for corporate management. We established the Safety and Environment Management Policy to achieve an accident-free plant and provided continued safety training to improve safety awareness and enforce strict compliance with laws and regulation on safety and environment. In addition, we are removing potential risk factors in advance through thorough inspections on equipment and facilities. We are making the best efforts to create a safe workplace without any accident by making all of our employees understand and internalize safety, thereby establishing a culture of workplace safety.







LSIS has been making efforts to achieve an accident and pollution free workplace by running a process-based safety and environment management system. As part of our responses to climate change, we continually promote eco-friendly design to reduce greenhouse gas emissions. Further, we have established internal criteria for release of environmental pollutants, which is set at less than 50% of the legal limit. We will continue our efforts to realize an accident-free workplace by organizing an enterprise wide team for safety management, assigning roles and responsibilities regarding safety, assessing risks and making continuous improvement.



## KEY PERFORMANCE & PLANS

### Plans for 2018

- Applied a safety management grade system for each production line
- Reduced accident risks and improved vulnerable processes
- Operated an eco-friendly green workplace
- Supported suppliers in acquiring certification for risk evaluation system
- Strengthened emergency response measures

### Performance in 2018

- Managed legal and accident risk through domestic and overseas enterprise-wide SHE diagnosis
- Established safety management systems for the projects we won
- Expanded fire-fighting equipment in fire-vulnerable areas and strengthened the self-defense capabilities of fire brigade
- Improved the corporate image by assuming the green company chairman position in Chungcheongdo Province

### Plans for 2019

- Conduct activities to prevent safety accidents and promote health
- Manage enterprise-wide SHE
- Establish infrastructure for response to fire and disasters
- Operate an eco-friendly green workplace for sustainable management

# Safety and environment

## Safety and environment management

Since LSIS obtained ISO 14001 in 1996 and OHSAS 18001 in 2008, the company undergoes appropriateness check-up by an external verification agency every year, and internal verifications are conducted for more than once a year by the Safety and Environment Department. We aim to establish a Global SHE system meeting global standards by turning to ISO 45001.

## Strategy and vision

In response to the tightening of domestic and international regulations, LSIS is operating a system for safety, health and environment in order to ensure plants free from accidents, pollution and loss.

## Declaration on safety, health and environment management

LSIS will proactively implement the followings to establish an environmentally-friendly, safe and healthy workplace as a foundation for implementing our management philosophy of Great Value Together.

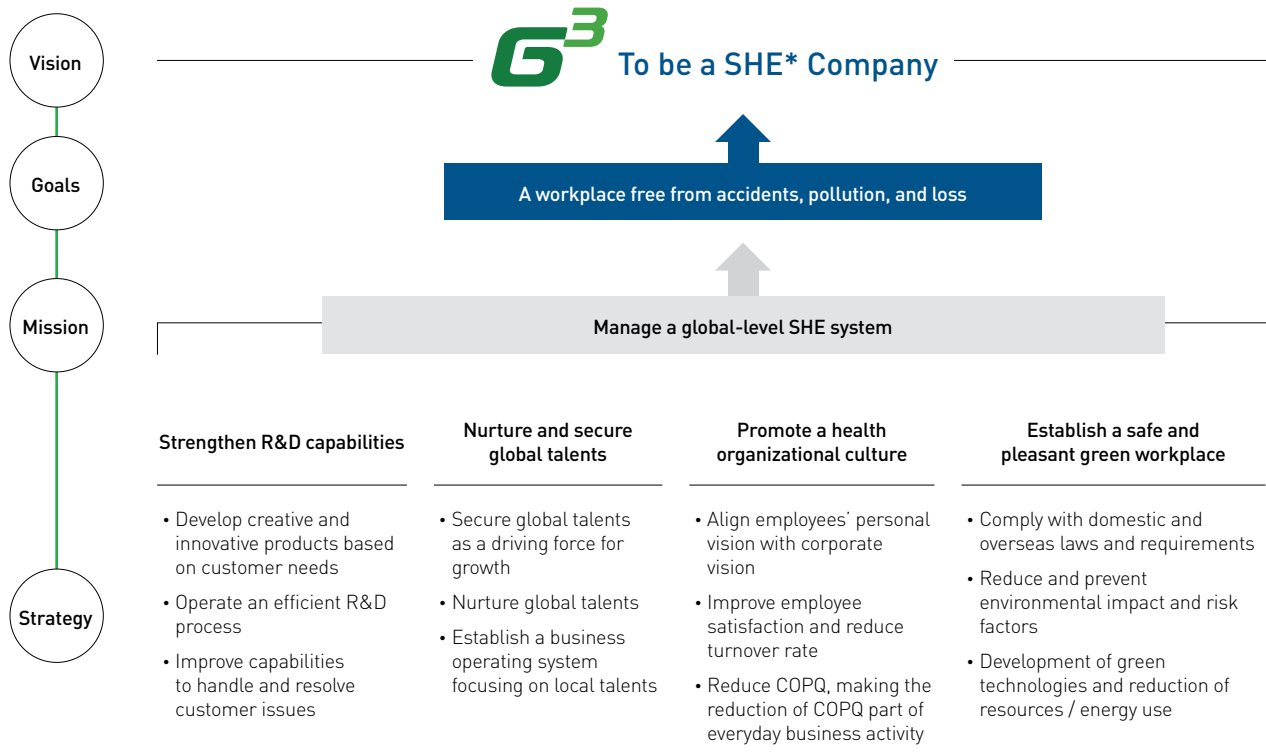
### SHE management policy

#### Promoting green plants

- Minimize environmental impacts by the whole process from product design to disposal to fundamentally prevent pollution.
- Apply green production technologies to conserve resources and energy.
- Comply with related international conventions, laws, corporate standards, and requirements.
- Conduct environmental assessment regularly to analyze performance and improve the environment management system.
- Provide employees with awareness-raising training and encourage them to engage actively in environmental conservation efforts.

#### Creating a safe and health workplace

- Consider as the first concern the impact products, work areas, equipment, processes and technologies have on safety and health
- Set the management standards higher than international conventions, laws, regulations, and requirements and act on them for continuous improvement.
- Use appropriate resources to improve safety and health, and train and encourage employees to join the efforts.
- Identify potential risks, make action plans to minimize them, and implement the plans for improvement.
- Reinforce activities to promote health and prevent accidents thereby enhancing productivity



\* SHE : Safety, Health, Environment

### SHE management system



**SHE inspection activities** | We are conducting various safety inspections to protect workers' health and minimize the loss of corporate property by checking and removing potential risk factors such as production-related risks and elements of a harmful working environment.

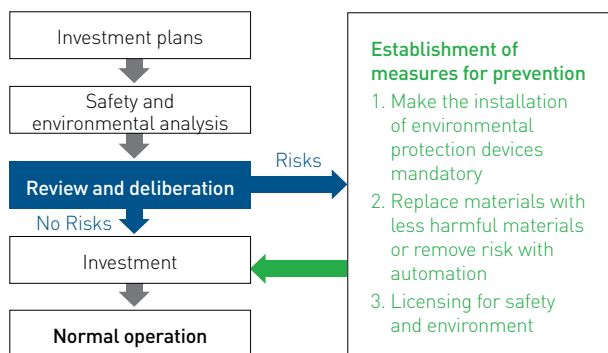
### Inspection results in 2018 (Unit : case)

Category	Number of check-ups conducted	Number of improvements made	Improvement rate	Rejects*
Daily	410	394	96%	16
General	262	258	98%	4
Special	197	197	100%	-
Safety diagnosis	43	43	100%	-
<b>Total</b>	<b>912</b>	<b>892</b>	<b>98%</b>	<b>20</b>

\* Reject: resolution of reasons for improvement, etc.

**Preliminary SHE inspection** | A preliminary SHE inspection is conducted to ensure compliance with laws and remove risk factors when environmental equipment, risky machinery or fire-fighting equipment are newly installed and operated.

**Investment in safety and environment** | LSIS endeavors to minimize the impacts on environment, safety and health in the entire product life cycle from production to disposal by developing green products and enhancing processes. To this end, continuous investment is made to conserve energy and eliminate risks to the environment and safety.



### Response to climate change

**Climate change strategy** | LSIS is committed to handling climate change based on our portfolio to realize smart grids where information from power production to consumption is exchanged in real time. In order to meet the plans of greenhouse gas management, we developed the Guideline for Calculation of Greenhouse Gas Emissions and established a task force to conduct relevant activities. Based on these efforts, we are monitoring potential risks on a regular basis. We also disclose company strategy to manage greenhouse gas emissions through the Carbon Disclosure Project (CDP).

**Verification of GHG emissions** | LSIS calculates the amount of emissions on a regular basis for companywide management of GHG emissions (Scope 1, Scope 2). Third party verifications have been conducted for GHG emissions sources and quantities since 2014 when the Cheongju plant was brought under the Energy Target Management System. The reliability of the verification has been well recognized. We are also identifying the expected amount of GHG emissions for the GIS installed at our clients' facilities to manage other GHG (Scope 3).

### GHG emissions (by source)

Category	Unit	2016	2017	2018*
Scope 1		186,792	250,704	27,212
Scope 2	tCO <sub>2</sub> eq	26,646	25,553	32,785
Scope 3		89,098	506,032	563,338
<b>Total</b>		<b>302,536</b>	<b>782,289</b>	<b>623,335</b>

\* GHG emissions decreased significantly in 2018, as the new ultra-high voltage product (DAIS, etc.) developed in Cheongju plant did away with the use of SF<sub>6</sub> gas.

**Status of energy use** | Amounts of electric power and LNG used for production processes, cooling and heating are increasing every year despite continued efforts for decreasing the usage. Facility investment is being made very year with automation of production facilities and increased activities for production of electricity power, and power consumption is increasing after the establishment of Infineon in Cheonan plant (2017). The use of fuel was maintained at a similar level as the previous year by adjusting cooling and heating temperature depending on outside air temperature and setting air ratio.

### Energy consumption

Category	Unit	2016	2017	2018
Electricity	MWh	57,150	57,153	70,317
	MWh / KRW 100 million (generation cost)	3.30	3.12	3.60
Energy	k <sup>m</sup> ³	2,136	2,337	2,733
	k <sup>m</sup> ³ / KRW 100 million (generation cost)	0.12	0.13	0.14

**Eco-friendly design to reduce GHG emissions** | SF<sub>6</sub> gas, which is used for our product (Gas Insulated Switchgear), is a representative GHG with a global warming index of 23,900. SF<sub>6</sub> has been used for many power equipment due to its excellent insulation capability. In an effort to mitigate climate change, LSIS developed and produced Solid Insulated Switchgear (SIS) and Dry Air Insulated Switchgear (DAIS), which do not use SF<sub>6</sub>. Switchgear using Green Gas for Grid (g<sup>3</sup> gas) is presently under development.

### Pollutant management

**Air pollutants** | Air pollution prevention facilities are being operated for pollutants generated in the production process. Air pollutants are managed to ensure that the emission level remains below 50% of the legal limit. Old prevention facilities are being replaced with new facilities gradually according to the mid to long-term investment plan.

**Water use and wastewater disposal** | Water required for the manufacturing process, human needs and fire suppression is supplied by the respective local governments using the stream near the plant as sources. Wastewater generated in the process is stored in separate water collection systems and disposed of by third-party contractors.

**Waste treatment** | Recyclable waste is screened and separated from the production process. Depending on the disposal method, waste is treated by third-party contractors. In 2018, more than 85% of wastes were recycled and among them more than 90% were metal (ferrous / non-ferrous).

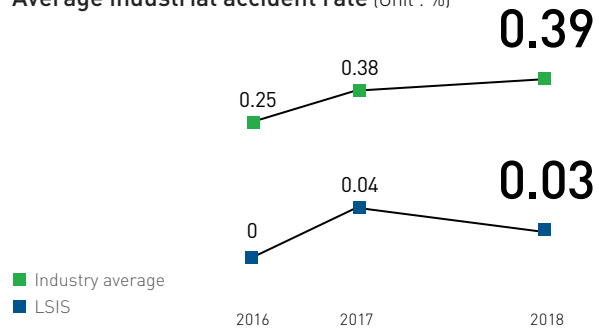
**Chemical substances** | An inventory has been established for the management of the chemical substances used in LSIS plants. These substances are handled based on management of goods receipts. Before issuing goods receipt, MSDS\* is obtained to investigate ingredients and en-

sure compliance with legal requirements under the Act on Chemical Control Act. We ensure safe use of chemicals by providing material information and education to those who handle the chemicals.

\* MSDS : Material Safety Data Sheet

**Hazardous substances** | The usage amount of hazardous substances is identified and managed every year, and new / changed materials are checked in terms of their hazard potential to determine whether to apply the substance or not. We provide special training and hazard information through MSDS to those who handle the hazardous substances and take all measures to prevent impairment and disease of employees by supporting engineering improvement and personal protective gears such as local exhaust device. In addition, we are supporting the creation of a pleasant work environment by linking measurement of the working environment with special examination.

Average industrial accident rate (Unit : %)



### Workplace safety management

**Accident-free plants** | In order to establish an accident-free workplace, LSIS introduced a company-wide safety and health management system in 2008, and has conducted risk evaluations and improvement activities based on redefining roles and responsibilities..

**Working environment** | LSIS has applied thorough standards to each workplace to create a pleasant working environment for employees. Twice a year (first half / second half of the year), a third party agency measures all hazardous factors in the workplace to create a pleasant working environment and promote workers' health. Based on continuous measurement and improvement activities, we maintain the level of hazardous factors below 50% of legal requirements except for noise.

**Supporting suppliers |** We strive to maintain safety and health conditions equivalent to the parent company by ongoing cooperation with in-house suppliers, and support direct and indirect investment toward safety and health. For external suppliers, an annual Safety, Health and Environment (SHE) consultation is provided and capacity building training is conducted twice a year to help them promote health and safety at workplace. Support activities also include safety inspections and certification of potentially dangerous machines and equipment on lease.



**Safety and health training |** To raise safety awareness and promote safety culture at LSIS plants, intensive training is offered by position level. Managers are provided offline and online training to deliver messages clearly. Employees using cranes and forklifts at worksites are required to have a license for operation issued and receive the pertinent training.

Category	Details	Frequency	Note
Basic	Introductory course	Year-round	New employees
	Regular training	Monthly (offline / online)	All employees
	Manager / Supervisor training	Annual (offline / online)	Managers / Supervisors
	Special training	Year-round	Employees handling potentially dangerous machines
Professional	Crane operator training	Year-round	License issuance for operation
	Forklift operator training	Year-round	License issuance for operation

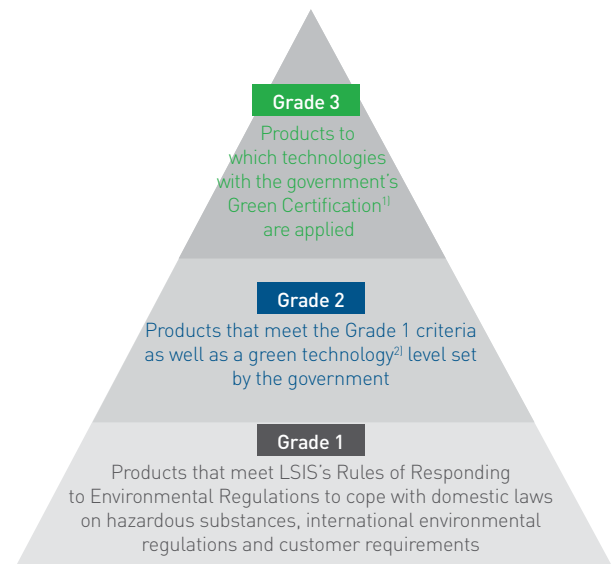
**Fire prevention system |** LSIS has established a suffocation accident prevention system including the installation of equipment for measuring gas concentration levels. We have expanded fire-suppression equipment in areas with fire risks at all plants. In addition, we promoted a disaster management project under which fire-fighting equipment

is reinforced in vulnerable areas. In addition, we provide inspection and repair for fire compartments that have become a social issue. Regular investment is made to strengthen the disaster management system.

**Emergency response procedures |** LSIS verifies the effectiveness of the response system by conducting regular drills. As part of these drills, various scenarios that cover different accident types are run to respond to emergencies in all plants. Drills include fire evacuation and experience-based fire suppression activities. On average, an employee participates in emergency treatment training for more than once. Fire drills are also conducted regularly to promote safety awareness.

**Green product standards**

To enhance its position as a green energy company for Future Smart Energy, and to actualize sustainability management, LSIS has defined its Green Product Grade Model based on which eco-friendly products are categorized by grade. All LSIS product models are evaluated and classified as either Grade 1, 2, or 3 based on the level of their eco-friendliness. This approach will facilitate the development of customer-oriented green products.



<sup>1)</sup> Green Certification: This is a governmental accreditation system to specify green technologies and businesses according to the Framework Act on Low Carbon Green Growth with the aim of expanding participation of the private sector in the green industry and promoting the growth of technology markets and industries.

<sup>2)</sup> Green technology: This includes technologies for GHG mitigation, effective energy use, clean manufacturing, clean energy, resource recycling, and eco-friendliness that help conserve and efficiently use energy and resources in the entire process of social and economic activities, thereby minimizing GHG emissions and pollutants.

# Shared Growth with Suppliers

## COMMITMENT

Cheol-Min Park /  
CEO, GS Tech

LSIS has been implementing many policies to facilitate shared growth with suppliers. Our suppliers received various support including coaching on quality from LSIS in 2018. These supports helped improve the management capabilities and quality competitiveness of the suppliers. LSIS continues its efforts to achieve win-win results with our suppliers. We hope that LSIS and suppliers can continue our relationship in pursuit of shared growth.



Ki-Bok Kim /  
Quality / Shared  
Growth Group,  
Win-Win Growth  
Team Leader

LSIS recognizes suppliers as our partners for sustainable growth, and defines the basic direction for fair trade, compliance, support for improving global competitiveness, establishment of relationships that enable communication and trust, and strengthening of the culture of shared growth. In line with the basic direction, we are conducting various programs to promote shared growth. In addition, we will continue activities to form partnerships for sustainable shared growth and constructive business relationship with suppliers. We will expand our efforts to make sure that the culture of shared growth spreads and takes root across the entire supply chain including primary activities.





We promote shared growth with suppliers by putting LSpartmentship, the management philosophy of LS Group, into practice. ACE Club suppliers are provided benefits including differentiated payment conditions, productivity improvement activities and domestic and overseas benchmarking to support them secure global competitiveness. In 2018, we established the corporation for Joint Work Welfare Fund for Suppliers to provide welfare benefits to a larger number of suppliers' employees through stable management of the funds.



**Purchasing amount  
by ACE Club members**

KRW **216.9** billion



**Financial support  
for suppliers**

KRW **11.4** billion



**Suppliers using the Shared-  
Growth Payment System**

**833**

## KEY PERFORMANCE & PLANS

### Plans for 2018

- Strengthened activities to comply with the Fair Trade Act and Subcontracting Act
- Supported suppliers to strengthen their competitiveness
- Promoted a culture of shared growth

### Performance in 2018

- Systemized activities to prevent violation of laws and ensure compliance with laws
- Expanded the scope of communication and diversified channels
- Achieved 'Excellent' grade in the shared growth index

### Plans for 2019

- Expand activities for shared growth with a view to improving performance
- Conduct activities to increase competitiveness of suppliers

## Establishing a culture of fair trade

### Signing and fulfilling a contract

In compliance with the Fair Trade Act and Subcontracting Act, LSIS has been signing a Basic Subcontracting Contract and Subcontracting Fair Trade Agreement with suppliers on an annual basis. In 2018, we concluded this essential contract with 594 subcontractors. The contract is based on the Standard Subcontracting Agreement as recommended by the Korea Fair Trade Commission, reflecting in particular the article for promoting suppliers' right to fair trade. In addition, the pledge to implement ethical management is included as part of the contract for their compliance. Meanwhile, the Subcontracting Fair Trade Agreement was signed with 351 suppliers in 2018 as a reflection of our commitment to shared growth.

### Activities to prevent violations and promote compliance

**4 action plans for shared growth** | The plans consist of: signing contracts through a fair process;

signing contracts through a fair process	ensuring a fair supplier selection process	operating an internal subcontracting audit committee	issuing and archiving documents
--	--	--	---------------------------------

These are reflected in company standards such as the rules on domestic procurement management and supplier management. In addition, to prevent any violations of subcontracting laws, a monthly internal audit committee is convened by the CPO to review the risks of delayed payment to suppliers, examine the evaluation of newly-registered suppliers, and check the appropriateness of the supplier transaction cancellation process.

**Dispute resolution mechanism** | LSIS maintains a mechanism for the swift resolution of disputes between the company and its suppliers in regards to non-payment or delayed payment, as well as unfair receipt of goods, returns, price decisions, and reductions. Disputes occurring within 3 years after the completion of a transaction can be subject to the resolution mechanism. In addition, complaints from suppliers are collected on a quarterly basis and transferred to the pertinent departments or teams for resolution. TOPS, an internet portal for shared growth, features

the Subcontracting Dispute Resolution, Bulletin Board for Communication, and Cyber Reporting Channel functions.

**Training on the Subcontracting Act** | To comply with the Subcontracting Act and promote a culture of fair trade, annual training is provided for employees of LSIS and its suppliers. In 2018, employees in charge of procurement and design who work closely with suppliers took part in training organized by the Legal Affairs Group. The scope of employees receiving training will be further expanded in the future.

**Post-hoc analysis of the legality of subcontracting Deals** | For self-monitoring of compliance with related laws, LSIS biannually reviews business transactions with suppliers who have signed the Subcontracting Fair Trade Agreement. According to the monitoring for 2018, LS concluded the Subcontracting Basic Contract with 351 suppliers and there was no case of an unfair price decision or addition of unjust special provisions. In cases of changes in design and raw materials prices, prices were adjusted accordingly while a technological information request was issued upon prior agreement with suppliers. Apart from honoring the payment within 60 days of receipt, LSIS set the expiration date for alternative payment of bills to be within 60 days of receipt and abided by it for all trades.

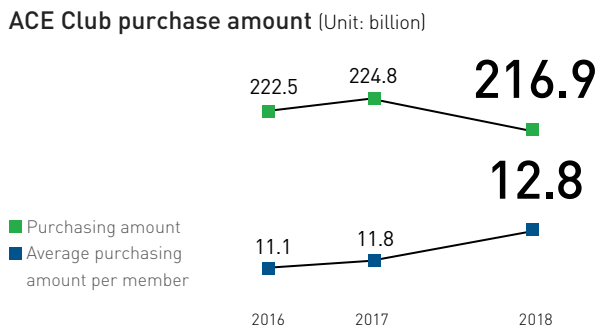
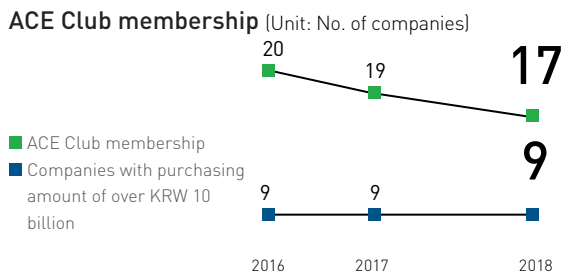
**Difficulties faced by suppliers and cases of quality degradation** | We are collecting cases of difficulties and quality degradation on a quarterly basis in order to identify / improve difficulties that could arise in the business relationship with LSIS and address quality degradation issues, thereby establishing a fair and reasonable business relationship. In 2018, 24 cases were reported regarding difficulties and quality degradation (non-payment of equipment repair costs, other fees, lack of response to the request for design modification, unclear inspection criteria, etc.) and investigation was conducted for those reported cases to identify the situation and make improvements.

### Support for suppliers' growth and development ACE Club

**Member selection and support** Member selection and support The ACE Club was launched in 2008 as a program to select suppliers based on 3 areas: taking swift action (Activity); pushing the envelope (Challenge); and achieving



high performance as superior partners (Excellence). LSIS provides guidance on quality, production, and overall business management based on its existing expertise in order to cooperate with suppliers as partners for shared growth. A comprehensive evaluation is conducted for membership, considering product quality, ontime delivery, cost competitiveness, and advocacy of shared growth. ACE Club members benefit from preferential payment conditions and activities for productivity improvement and benchmarking.



**CEO Seminars** | LSIS conducts annual seminars on corporate management for the CEOs of ACE Club member companies. At these seminars, experts are invited as special lecturers and LSIS executives join in as speakers to share and discuss key management issues. In March 2018, a special lecture was provided on the theme of Tax Management for CEOs of Small and Medium Sized Companies, focusing



on examples on taxation and tax laws. In addition, lectures were provided on the 4th Industrial Revolution and the current state of the manufacturing industry in India, serving as a forum for discussion on how suppliers can prepare in response to such changes and direction for the future.

**Benchmarking activities for innovation** | LSIS is offering programs that enable suppliers make benchmarking visits to leading manufacturers at home and abroad. These visits offer them opportunities to heighten their innovation and global competitiveness. From 2008 to 2017, a total of 288 supplier employees had opportunities to observe the rapidly changing market environment and understand best practices for quality and production management by visiting 34 companies in 12 countries, 3 international exhibitions, and 6 domestic companies. In 2018, suppliers made a benchmarking visit to India and surveyed the Indian market environment. In addition, they explored ways to improve competitiveness as global suppliers by benchmarking small and medium sized companies that went abroad and formed business relationships with leading companies. In particular, it served as an opportunity for suppliers' CEOs to expand their management insight, demonstrated ways to respond to the rapidly changing business environment, and allowed them form a consensus on the need for change by learning examples of Korean small and medium companies that entered overseas markets to start business under adverse conditions.



**ACE Club Innovation Exchanges** | In 2017, innovation activities led by CEOs were directed to programs focused on working-level employees under the ACE Club Innovation Exchanges. These aimed to disseminate awareness of best practices and conduct execution-oriented innovation activities that create synergies. Annual plans were set by suppliers at the kick-off meeting in February and learning activities were conducted where each supplier defined tasks to make sure that working-level employees identified and implemented new ideas, thereby creating actual outcomes. Along with such activities, they visited an innovative manufacturing company in Japan in April to experience manufacturing site of an advanced company. In May, suppliers and LSIS employees participated in Musim Stream Purification as part of SOCIAL CONTRIBUTION activities.



ACE Club Innovation Exchanges



ACE Club Innovation Exchanges

**ACE Club Innovation Contest and Discussion** | The results of innovation activities led by ACE Club Innovation Exchanges were shared at the Innovation Contest in November, 2018. At the contest, 3 suppliers were selected as good examples among 9 companies for individual competition and 8 companies for group competition. The innovation examples were shared with the aim to induce competition among suppliers, nurture an innovative mindset and encourage the

outcome of innovation. The contest was followed by innovation discussion where the management and working-level employees discussed ways to promote innovation activities, introduce changes in the methods of work, internalize innovation, and establish an innovative environment.



ACE Club Innovation Contest and Discussion

**SOCIAL CONTRIBUTION activities with suppliers** | LSIS has conducted Love Volunteering activities together with its suppliers since 2015 as a way to contribute to local communities and act upon its philosophy of sustainable management. In November, 2018, representatives of ACE Club members and 30 LSIS volunteers visited Yesim House (a vocational facility for the disabled in Cheongju) to join work with the disabled. The volunteers provided training on human rights for the disabled and donated goods to Yesim House and other social welfare groups.



CSR activities with suppliers

**ACE Club Reflection** | The ACE Club Reflection program was launched in 2017 to explore possible improvements to the ACE Club by conducting an annual review of its activities and drawing lessons. The activities conducted include CEO seminars, benchmarking at home and abroad, Innovation Exchanges for capacity-building, CEO communication

events, and partnership-building SOCIAL CONTRIBUTION activities. At the Reflection held in December, members reflected on their activities over the year and discussed areas for improvement and ways to hone their competitiveness.



ACE Club Reflection

## Increasing support for suppliers

### Financial support and shared-growth payment system

**Financial support** | LSIS raises funds through a number of avenues to help suppliers finance investment into equipment including expanding manufacturing facilities for enhanced productivity. The supports are typically provided by means of low interest rate loans. In 2018, KRW 31 billion was raised, out of which KRW 3.6 billion was in the form of direct support, KRW 14.8 billion from combined support and KRW 12.6 billion from special support. Within these funds, KRW 11.4 billion won was used to support 63 primary and secondary suppliers, improving their cash flow and financial stability. As part of our efforts to reinforce a culture of shared growth, we provide fund supports not only to primary

**Suppliers with loan support and the amount**  
 (Unit : suppliers(No. of suppliers) / amount(KRW million))

Category	2016		2017		2018	
	Suppliers	Amount	Suppliers	Amount	Suppliers	Amount
Direct	25	3.0	26	2.8	28	2.4
Combined	25	7.2	26	8.1	22	7.0
Special	27	4.2	16	3.0	13	2.0
Total	77	14.4	68	13.9	63	11.4

suppliers but also to secondary suppliers. In 2019, we also plan to provide support funds to make sure that various benefits can be provided to the primary and secondary suppliers in need of financial support. Besides loan support for primary and secondary suppliers, efforts are being made to enhance the cash payment rate and payment conditions for sub-contractors.

### NEWS

#### LSIS made advance payments to its suppliers before Chuseok.

LSIS announced that the KRW 40 billion dollar payment would be made 7 days before Chuseok to relieve suppliers of their financial burden. The payment will be made on the 20th. This measure is intended to support suppliers as the demand for capital increased temporarily due to payment for raw materials and bonus before Chuseok. LSIS stated that the early payment is part of putting 'greater value together', the management philosophy of LS Group, into action. LS Group will continue to create win-win results within the framework of shared growth through various kinds of programs.

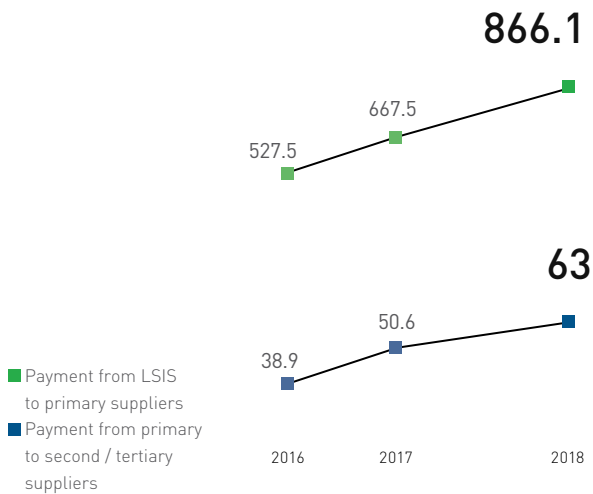
LSIS has made early payments before national holidays including Chuseok since 2014 and paid due amounts less than KRW 100 million in cash. LSIS said "we adopted the shared-growth payment system for the first time in our industry in 2013 to support stabilization of suppliers through improving the recovery rate of amount receivables". The company added that "we are strengthening efforts to induce cooperation and shared growth by making rapid payments to small subcontractors to help them secure liquidity".

(Sept. 12, 2018, Released by Electric Power Journal)

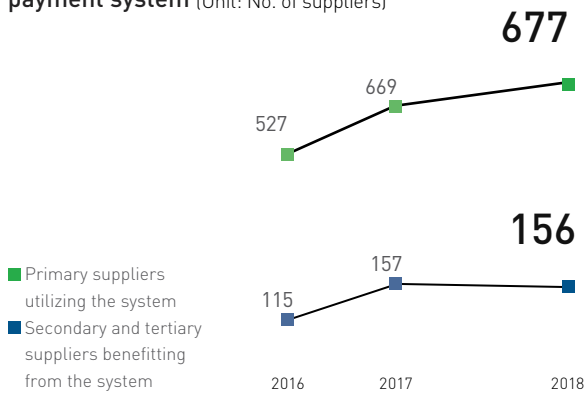
### Shared-growth payment system | LSIS became the first

company within the industry to introduce a shared-growth payment system in August 2013 with the aim of improving payment conditions for its suppliers. The system allows primary, secondary, and tertiary suppliers to access account receivable collateral loans using the credit of LSIS. As of 2018, a total of 833 suppliers have joined the system and availed payments worth KRW 929.1 billion. We will continue to reinforce the system to ensure that suppliers can steadily collect payments and manage concerns over nonpayment of bills, thereby supporting a sound supply chain network.

**Performance of the shared-growth payment system**  
(Unit: KRW billion)



**Number of suppliers that joined the shared-growth payment system** (Unit: No. of suppliers)



**Response to regulations on conflict minerals** | As the regulations on the use of conflict minerals, which started in the US, have spread to advanced countries including Europe, LSIS established a system to address the issue of conflict minerals in 2017 to respond to regulations on conflict minerals and prevent potential risks that could arise with suppliers. In particular, verification of the use and source of conflict minerals for parts and raw materials sourced from suppliers is very important for conflict mineral management. Accordingly, we provided presentation and training to secure integrity of the data on conflict minerals provided by suppliers. LSIS will continue to upgrade our system for conflict mineral management in cooperation with suppliers, and move closer to sustainable management by not using conflict minerals.

**Support for suppliers' FTA origin management system** | FTAs are accelerating the pace of change in the export environment. LSIS has been supporting its suppliers since 2016 in their efforts to establish an origin management system, secure the integrity of origin certificates and minimize post-verification risk. In addition, LSIS supports the consignment of FTA origin management system and origin management work to be performed in coordination with customs agents. Support is presently provided for 48 suppliers, and activities include the establishment of an origin management system, support for consultations on the origin management work process, nurturing suppliers' FTA managers and provision of training on FTA origin management. As a result, tariff benefits totaling KRW 3.6 billion were achieved as of 2018. In addition, the system helps suppliers effectively manage FTA origin issues, and the system of connections between LSIS and its suppliers allows multi-directional communication for origin management.

**Support for the production management system (NAMOS ERP)** | LSIS has provided suppliers with an in-house free-of-charge NAMOS ERP production management system linked to its ordering information system. In 2018, support for the stabilization of system operations was provided. The results included enhanced productivity, stabilized quality, reduced inventory cost, and higher on-time delivery rates.

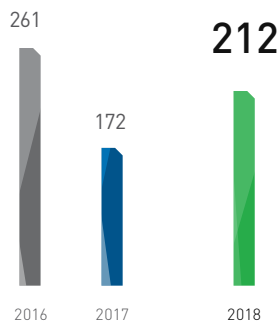
**Training support** | LSIS has been operating training and educational programs for its suppliers since 2007 in an effort to enhance their competitiveness. Programs provided in association with the Korea Standards Association focus on job training. In particular, in 2018 LSIS employees with expertise in FTAs and NAMOS participated as lecturers at the capacity building program for suppliers. In 2018, a total of 246 employees from 212 suppliers attended programs on quality, production, cost and business management, and we will continue to provide quality training program incorporating suppliers' needs.

**Technology protection** | As damage due to the leakage of SMEs' trade secrets is on the rise, LSIS introduced the Certification of Original Documents on Trade Secrets in 2015 to safeguard suppliers' technologies and trade secrets. This certification, provided by the Korea Institute of Patent Information, serves as a means to confirm the ownership of

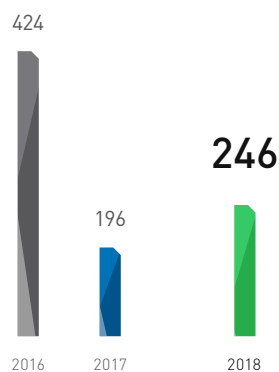
proprietary technologies and business information held by SMEs, helping them protect their interests against theft and leakage of technology and information. In 2018, we assisted 4 suppliers in certifying 12 cases of technology and trade secrets. We will continue to expand this system to suppliers that want protection for their technologies.

**Purchasing (investment) support** | When suppliers require facility investment, LSIS offers to support them with its expertise in the purchase process from the selection of vendors to price analysis so that they can make purchases under competitive conditions.

**Training provided for suppliers** (Unit: No. of suppliers)



**Training for suppliers' employees** (Unit: No. of people)



## Communication with Suppliers and Promoting Shared Growth

### Establishment and Management of the 'Joint Workers' Welfare Fund' for Suppliers

To improve the welfare of suppliers' employees, we estab-

lished a corporation for Joint Workers' Welfare Fund and secured a total of KRW 5.7 billion (KRW 4.9 billion from LSIS, KRW 0.4 billion from members, and KRW 0.4 billion from the government). The fund has been operational since January, 2019. By running the fund, we support welfare benefits for members' employees (children's school fee, medical examination fee, support for funerals). Going forward, we plan to manage the fund stably to provide welfare benefits to more suppliers' employees.

### New Year's Greeting Gathering and Performance Sharing Meeting

We held New Year's Greeting Gathering and Performance Sharing Meeting to reaffirm our commitment to the pursuit of shared growth through LSp partnership, where performance is achieved in cooperation with suppliers. Business direction and purchasing policy of LSIS were shared in January, and Performance Sharing meetings were held subsequently to share performance and the policy for shared growth.

### Shared Growth Innovation Meeting

As an activity to support suppliers and ensure quality of part, the Shared-Growth Innovation Meeting has been held every month since 2014. The meeting is organized by head of the Quality / Shared Growth Group, and attended by major suppliers to review monthly quality status and share examples of improvement and subcontracting issues. This meeting serves as a regular communication channel between LSIS and suppliers. In particular, the purchasing policy, shared growth policy and policy on safety and environment were shared in 2018.



# Employees

## COMMITMENT

Sang-Tae Park /  
HR Team  
Leader, HR /  
Management  
Support Group

We believe that people are the driving force for a successful business. LSIS is making an effort to secure and nurture talents. In particular, we run training programs to enable our employees grow into key people for sustainable growth, and strengthen communication between the management and employees to share the importance and direction of organizational change. We will continue to conduct various activities for sustainable development of the company by improving our employees' capabilities.





LSIS is supporting the improvement of lives by enabling our employees strike the right balance between work and life. LSIS provides its employees with Vacation Weeks, programs and events for employees' families and daycare centers. We are making a continuous effort to secure and nurture talents. In 2019, we established 'Global Growth' as the direction to strengthen global competency through improvement of the HR system and nurturing global talents as a global company.



New employees in 2018  
(permanent position)

**65**



Training expense per  
employee

KRW **2.01** million



Labor union membership rate

**32.4%**

## KEY PERFORMANCE & PLANS

### Plans for 2018

- Balance work and life
- Further promote communication with employees
- Improve the system for HR innovation

### Performance in 2018

- Introduced work and life balance through the expansion of flexible working hours
- Expanded communication with employees through various channels
- Improved HR system focusing on job and capabilities to secure the flexibility of utilizing human resources

### Plans for 2019

- Strengthen global competency by nurturing global talents
- Improve HR system as a global company
- Increase opportunities for communication on institutional change with employees



## Work & Life Balance

LSIS provides its employees with Vacation Weeks, programs and events for employees' families and daycare centers to help employees strike the right balance between work and life for better quality of life.

**Vacation Weeks** | Vacation Weeks is a system that allows employees to take a vacation in addition to their summer vacation within the limits of their paid leaves in accordance with relevant laws and collective bargaining agreements. This is intended to allow employees take a refreshing break if necessary to increase work efficiency. LSIS employees can take a 3 to 5day vacation to refresh themselves (Vacation Weeks) in addition to their summer vacation.

**Family programs** | Families are key to quality of life. Under the motto of 'happy families mean happy employees', LSIS is operating a variety of programs for employees and their families.

**Family Happiness Camp** | The Family Happiness Camp program is designed to encourage communication among family members by providing an opportunity for them to contemplate what makes a family happy. They learn how to communicate with each other, express themselves, and discuss what they can do for family happiness.

**Happy Time with Daddy** | We prepared an opportunity for dads and children to be closer by conducting pleasant

activities such as sports day, finding hidden treasures, and cooking.

**Dream Camp** | Our Dream Camp aims to help children think about their ambitions and how to make them come true. This camp for children of LSIS employees features programs to help them reflect on their good and bad habits and explore ways to realize their dreams.

**Go Camp** | This annual camp held in July is for elementary / middle school children of employees. It aims to develop emotional stability and logical thinking. A variety of activities besides playing go are conducted to help them further develop strategic thinking and teamwork.

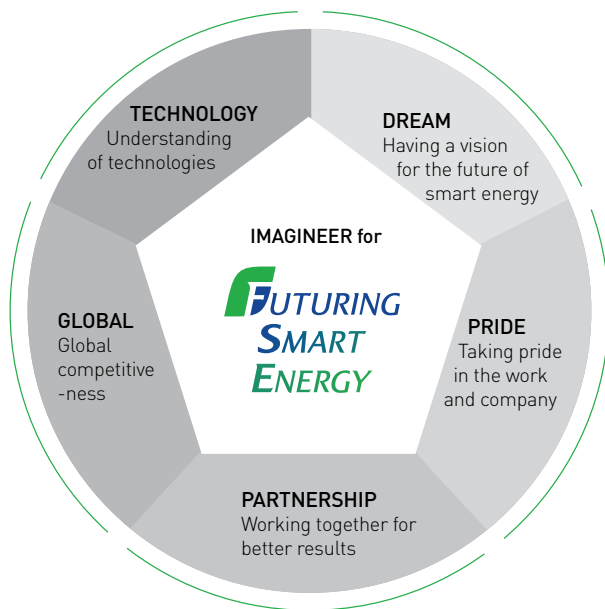
**Smart Working, Happy Life!** | "Smart Working, Happy Life!" is an annual event for celebrating employees promoted to manager positions. It includes the participation of family members and LSIS executives. The event started in 2011 and has become a venue where executives ask new managers to live up to their responsibilities, express their gratitude to family members for their support, and share the company vision.

**Family Fun Event on Children's Day** | This Children's Day celebration serves as an opportunity for the children of employees to better understand the importance of family and develop a sense of pride in their parents' company.



**Daycare centers** | LSIS operates daycare centers at work-sites to promote work-life balance for employees. The LS Daycare Center was opened in Anyang in March, 2015 for employees at LSIS headquarters and the Anyang R&D Campus. LSIS joined a consortium to construct a daycare center in the Cheongju industrial complex. It has been in operation since March, 2014. Third-party daycare institutions are commissioned to operate the centers to ensure that employees' children remain well taken care of in a secure environment.

**Securing and nurturing talent**  
HR philosophy



To proactively respond to shifting business paradigms and achieve our G365 vision, LSIS proclaimed Imagineers for the Future of Smart Energy as an HR philosophy in 2016. Imagineer, a word coined by blending 'imagine' with 'engineer', describes people who take pride in their work and company (Pride), have a vision for the future of smart energy (Vision) based on advanced technology (Technology) and a global outlook (Global Outlook), and work together for better results (Partnership).

**Status of global talents**

We established the direction of 'Global Growth' and have explored opportunities to expand our overseas business from various angles. As of end of 2018, about 1,000 employees are working at 8 production and sales corporations in Netherlands, China, Vietnam and India and 12 overseas branches

in Thailand, Indonesia, and Russia. We established a Global Talent Map to identify and nurture talents required in the mid to long-term with an aim to expand our overseas market and sales through our employees acquiring global competitiveness.

**Recruitment channels and processes**

LSIS strives to secure human resources through a variety of channels, including biannual open recruitment of career and non-career track employees and a global recruitment program that targets Korean college graduates in North America and China along with R&D experts from other countries. Moreover, a year-round recruitment program is being operated to attract researchers in new business areas. Widespread efforts are made to identify needed resources through on-campus recruitment, employee recommendations, and professional search firms.

To recruit good human resources, we consider an applicant's interest in and passion for the area he / she wants to work the most. Additionally, we use document review to evaluate the applicant's basic skills and growth potential. In addition to quantitative evaluation such as job competency test and English proficiency test, we use a standardized interview process to ensure objectivity of evaluation.

**Recruitment process**

<b>STEP1</b> Job application	
<b>STEP2</b> Paper screening	An evaluation is conducted based on the company's recruitment criteria.
<b>STEP3</b> Personality and aptitude test	Applicants' knowledge of and interest in the area are assessed considering their major and targeted job positions. Applicants are required to make a presentation and be interviewed in foreign languages (including English), depending on job positions.
<b>STEP4</b> Interview at the working level	For securing talent in line with LSIS HR philosophy and LSpartneship
<b>STEP5</b> Interview by executives	
<b>STEP6</b> Medical examination	For ensuring candidates are in good health to perform their jobs
<b>STEP7 Announcement of successful</b>	

### Career development programs for prospective employees

Program	Description
Corporate funded scholarships	It provides support to excellent students throughout their master's or doctorate courses, allowing them build expertise before joining LSIS
Lab Tour	LSIS pays a visit to outstanding university labs in electronics to promote communication with schools.
Summer internship program	It allows future employees to experience LSIS and understand its vision by conducting tasks and working with its employees.
LS Job Fair	Job seekers are invited to LSIS to participate in the company overview presentation, mock interviews, and lunch with LSIS employees

### Programs to help new hires adjust to the company

A variety of programs are currently in place to help new hires adjust to the company. On the day successful applicants are announced, they receive a congratulatory message and a flower basket. In addition, new hires are provided with a chance to tour the Jeju HVDC Smart Center before

starting work to induce a sense of affiliation among them. After joining the company, group-wide and company-wide introductory training programs are provided so that they can learn the basics required of LSIS employees. Mentoring programs and on-the-job training also help them strengthen their common competencies and job skills. In addition, after completion of the first year of work at LSIS, employees are offered the Future Camp program to allow them look back on the past year and envision the future of LSIS.

Timing	Programs	Period
Before being assigned to departments	Before joining the company Visit to the Smart Grid and HVDC Center	3 days
	-Feb. Group-wide introductory training	3 weeks
	Company-wide introductory training	1 week
After assigning to departments	Jul. Mentoring	4 months
	On boarding Package	1 week
	1 year Future Camp	3 days

### Training system

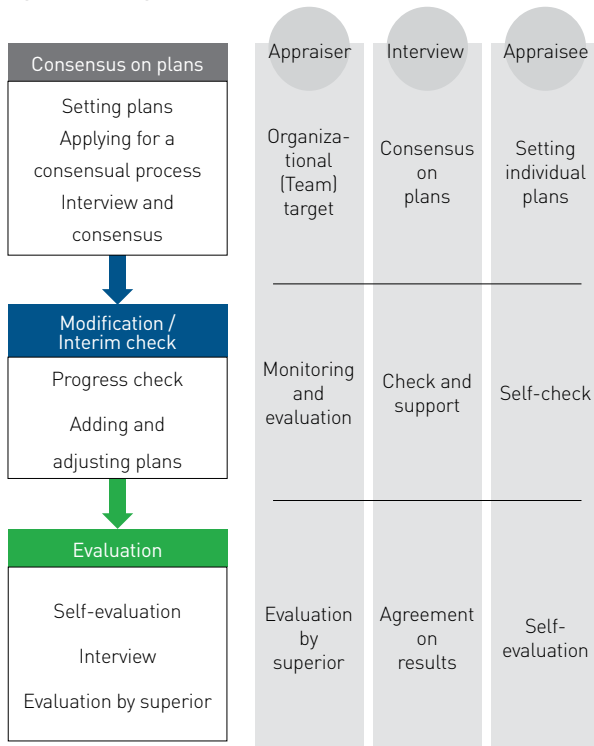
	Global	Position level	Organizational development	Job	Customer / suppliers
<b>Executive</b>	Foreign languages	New executives	Executive seminars	Purchasing	Power solutions (6 programs)
<b>Senior Manager</b>	Global Lounge Program	Team leader capacity-building	Coaching	SW (17 programs)	Automation (9 programs)
	- GBT	New team leaders		LS MBA LST-MBA	
<b>Manager</b>		In company English	New team leader WR		LCP(Leadership Challenge Prj)
	Global communication	Capacity building for Senior Managers (to be developed)	Team building program	Common (4 programs)	
		Manager (newly promoted managers)		Intervention - Assimilation W/ s, p, i, Organizational diagnosis	Production (7 programs)
<b>Associate Manager</b>	Daily News Briefing	Capacity building for Associate Managers (to be developed)	Strengthening innovation capability for office workers		Quality
	Intensive (English / Chinese)	LS Future camp		Mentoring	Reliability (7 programs)
		Introductory program for non-career employees (LSIS)	Production supervisor capacity-building		SPC (3 programs)
	Introductory program for non-career employees (LS Group)	Strengthening innovation capability for plant workers		QMS (6 programs)	Common (13 programs)
<b>Production supervisor / Production worker</b>					
				Support (8 programs)	

### Development of human resources

LSIS has been providing superb facilities and well-organized training programs to enhance employees' competitiveness. Training programs are divided into position-specific programs, global programs, organizational development programs and job-specific programs to support the development of employees' capabilities. In particular, we installed a global lounge at headquarters and Cheongju plant so that employees can improve their language skills as well as capacity to adjust to other cultures. In addition, we provide training for customers in the power solution and automation market as well as students to conduct customer support and social contribution in parallel.

**Evaluation and compensation** | LSIS believes that fair evaluation and compensation are the foundations of sustainable development. In our performance evaluation system, targets are set at the group, division, team and employee level in order to achieve the company's management goals. Teams' ratings based on the evaluation results are linked to individual ratings, and the results are used for determining bonuses, salaries, promotions, and career development.

#### Operational process



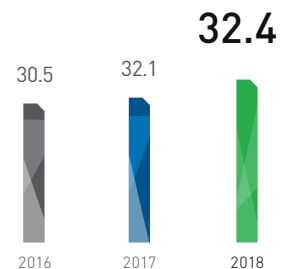
**Respecting human rights and guaranteeing basic labor rights** | LSIS maintains a system to prevent all forms of discrimination with regard to gender, race, religion, or place of origin. To this end, policies to promote diversity are being implemented to foster an environment in which employees are given equal opportunities to reach their full potentials. We strictly abide by all related domestic and international laws. There has never been a case of violation related to these issues. We will remain committed to improving this system of respecting human rights. In addition, annual negotiations over wage and collective agreements are conducted between the management and labor representatives in order to improve working conditions. Freedom of association is guaranteed such that employees are never disadvantaged for their labor union activities.

**Labor union memberships** | According to the collective agreements and labor rules, 100% of production workers have joined the labor union, and 32.4% of LSIS employees are union members as of the end of 2018.

#### Labor union membership (Unit : persons)

Category	Job group	2016	2017	2018	
Non-union member	Office worker	2,233	2,081	2,043	
	Production advisor / Others	79	78	78	
Union member	Production worker	Male	849	854	854
		Female	167	167	164

#### Union membership rate (Unit : %)



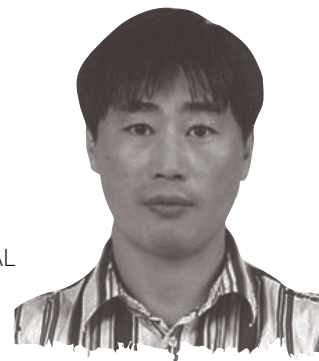
# Local Community Contribution

## COMMITMENT

Seong-Rak Jang /  
Director of Anyang  
Suri Welfare  
Center for the  
Disabled

The reason why people trust and love LSIS is that LSIS has been conducting various SOCIAL CONTRIBUTION activities and been recognized as a reliable partner for the local community.

Our philosophy is to be a reliable partner that enables the dreams of the future generation. We hope to continue our SOCIAL CONTRIBUTION activities incorporating various demands from the local community.





LSIS has been faithfully conducting activities continuously taking into consideration issues such as social conflicts and the challenges faced by vulnerable groups. Based on the 3 principles of Partnership, Initiative and Sustainability, community-based activities are being implemented and donations are provided to low-income families in areas such as Anyang, Cheongju, Cheonan, and Busan where plants are located. In 2019, we plan to start 'Let's Start Together with LSIS', a sponsorship program for children, in addition to conducting community-based customized support programs.



Employees who participated in volunteer activities

**1,677**

(double counting included)



Total amount of annual donation

**5,932**

KRW million



Social contribution activities worth

**53**

KRW million

## KEY PERFORMANCE & PLANS

### Plans for 2018

- Expand the scope of contribution activities
- Expand SOCIAL CONTRIBUTION activities that meet the needs of local communities
- Encourage employees to practice the philosophy of sharing in their daily lives

### Performance in 2018

- Improved the awareness of 'Let's Make Green with LSIS' campaign
- Strengthened customized support for vulnerable groups
- Promote SOCIAL CONTRIBUTION activities in areas such as Anyang, Cheongju, Cheonan and Busan where plants are located

### Plans for 2019

- Strengthen activities of the SOCIAL CONTRIBUTION Council, which is composed of local residents, academia and the government
- Secure customized support programs at the community level
- Start 'Let's Start Together with LSIS', a campaign to support children

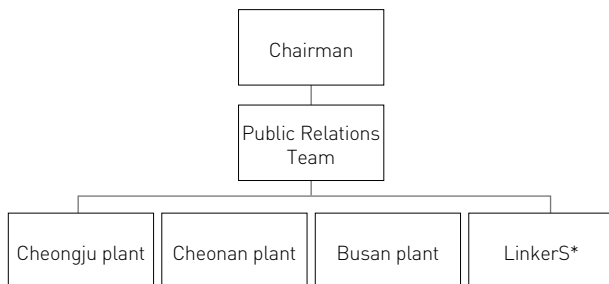
### Social contribution activities

**Philosophy** | The LSpartnership, management philosophy of LS Group, means to create greater value moving together as a trusted partner. It includes the meaning of social contribution.

Our social contribution philosophy is to be a reliable partner that supports the underprivileged and future generations, focusing on creating higher value through sharing and cooperation between volunteers and beneficiaries. Social contribution activities of LSIS are aligned with activities of other affiliates at the LS group level.

LS Group's philosophy of social contribution	LSIS's philosophy of social contribution
<p>A reliable partner to support the underprivileged and future generation</p> <ul style="list-style-type: none"> <li>• Create greater value through sharing and cooperating based on the philosophy of LSpartnership</li> <li>• Devise and run programs in line with the LS Group's philosophy to create synergies</li> </ul>	<p>Providing support to ease social conflicts and help the vulnerable</p> <ul style="list-style-type: none"> <li>• Partnership: Participation to ease social conflicts and help the vulnerable</li> <li>• Initiative: Sincere and voluntary activities</li> <li>• Continuity: Continuous social contribution activities</li> </ul>

**Implementation structure** | LSIS has been developing and operating its own programs rather than simply following programs being pursued at the Group level. Our Public Relations Team leads these company-wide activities. At the plant level, the HR Support (Support Innovation) Team and LinkersS (a representative body for office workers) are conducting activities tailored to specific regional needs.



\* LinkerS: It is a representative body for office workers at LSIS to lead the efforts for open culture and social contribution. It is comprised of 17 employees.

### Activities at the LS Group level

**LS Dream Science Class** | The LS Dream Science Class is an LS Group program that was initiated in 2013 to support elementary school students in cooperation with the Child Fund and the National Academy of Engineering of Korea. Science classes are provided to elementary school students in 9 areas where our plants are located. During summer vacations, cultural and art experience classes, and science classes are provided to 5th and 6th graders of elementary schools across the nation every week. The program provides them with opportunities to learn scientific principles in an easy and fun way, fueling their interest in science and in education in general. College students majoring in science and engineering and volunteer LSIS employees provide science lessons and serve as teachers and mentors after undergoing the relevant training program. LSIS participates in LS Dream Science Program by providing volunteer teachers for science classes from Cheongju, Anyang and Busan areas and providing an opportunity for students to visit our plants.



**LS Dream Village / LS Dream School** | The LS overseas volunteer group is composed of 20 college students selected through an open application process, in addition to employees of LS Group subsidiaries, and experts from the NGOs cohosting the program. Participants undergo a 2 month training and prepare for their volunteer activities before departure. LS Group has been operating this program biannually since 2007 with the aim of providing support for children in developing countries and improving their educational environment. From 2013, the LS Dream School project, which selects 2 old schools every year to establish new buildings, has been implemented in association with overseas volunteer activities. Under this project, the first and second

schools were constructed in 2013, and 2 new schools have been constructed every year to open 11 schools by 2018.



Overseas volunteer group

**LS Dream Orchestra** | LS Dream Orchestra was launched in June, 2012 for children and young people from underprivileged families. It is modelled after El Sistema, a Venezuelan program for social uplift through classic music. This year, the orchestra held its 5th performance. This program is evaluated as a social contribution activity that nourishes the whole personality and supports emotional development of children, empowering them to live a rich life. LSIS will make its utmost efforts to make sure that orchestra members can develop their passion for music and find their talents as well learn cooperation and develop a spirit that seeks challenges, to be healthy citizens of the world.



LS Dream Orchestra regular concert

**Community-based social contribution activities**

LSIS has been faithfully conducting activities that help us contribute to forging a better society. Based on the 3 principles of Partnership, Initiative and Continuity, community-based and seasonal support programs including donations to low-income households are in place in Anyang, Cheongju, Cheonan, Busan where LSIS plants are located.

**Seasonal support** | From 2014, we have donated winter clothes to low-income households in winter, lunchboxes during the Chuseok holidays, and cooling equipment in summer. For the Lunar New Year, a ddeokkuk (a traditional holiday dish) sharing event is held for the elderly living alone in cooperation with local senior welfare service centers. The program of outings and cultural events for the disabled living at home that began in Anyang will be expanded to other worksites.



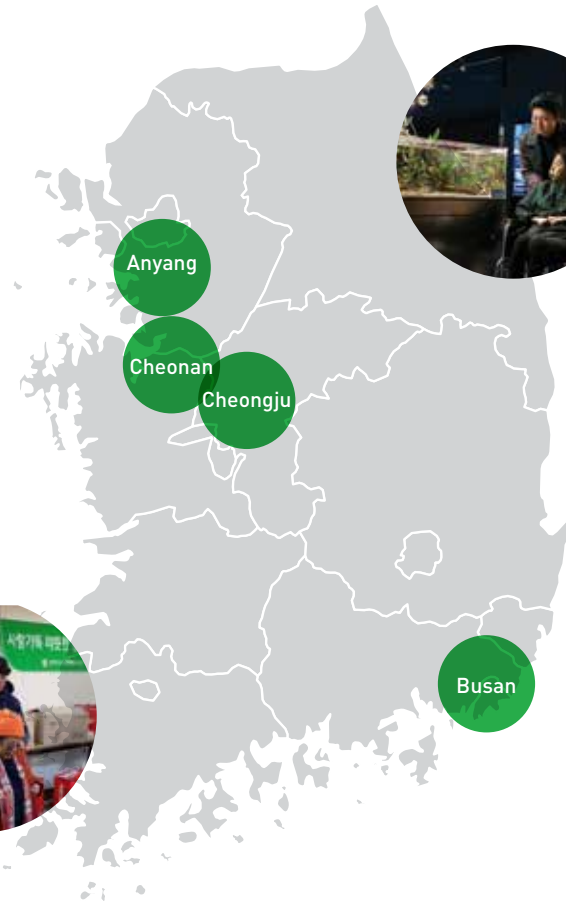
Winter clothes

**Environmental cleanup programs** | 'Let's Make Green with LSIS' is a campaign to preserve ecosystems in cities and protect the environment in cooperation with local communities and civic groups. As part of these efforts, LSIS employees, members of International Environmental Action Association, and local residents visited Anyang Stream in Gyeonggido and Musim Stream in Chungcheongbukdo to throw EM (effective microorganisms) soil balls into the stream, collect waste and remove invasive plants disturbing the ecosystem.



Throwing EM soil ball

## Regional-specific contribution activities



### Anyang

In Anyang, a variety of activities are performed in cooperation with Anyang Senior Welfare Service Center and Suri Welfare Center for the Disabled. Since 2014, winter clothes have been donated to low-income elderly in winter and cool mats are donated to the elderly living alone who are exposed to heat waves in the summer. In addition, theme-based activities such as lunchbox gifts for the Chuseok holidays and sports events for Senior Welfare Service Centers are being conducted.

### Cheongju

Employees at the Cheongju plant take part in efforts to communicate and share with the local communities. The regular activities include the Green & Clean Day and protection of local cultural assets such as Sangdang Fortress. In addition, volunteer employees regularly visit Yesim House and Cheongju Senior Care Center for volunteer activities.

#### Major activities

Gomduri Gymnasium volunteer activity, Yesim House volunteer activity, Support of agricultural products under the 1 Company 1 Village program, Fortress keepers

### Cheonan

The Cheonan plant conducts diverse sharing activities in an effort to promote interaction with the local community. In coordination with the Cheonan Hope Sharing Volunteer Center, LSIS distributes free meals monthly to the homeless and others in need. In addition, the Green & Clean Day for environmental cleanup and blood donation events are organized on a regular basis. Apart from these regular activities, various sharing events are being planned to improve livelihoods of the underprivileged. In addition, the Green & Clean Day for environmental cleanup and blood donation events are organized on a regular basis.

#### Major activities

Free meal events at the Cheonan Hope Sharing Volunteer Center, Rice purchase from a local village under the 1 Company 1 Village program, Coin collection campaign

### Busan

The Busan plant has been conducting various activities by identifying tasks for implementation based on LSIS's CSR model, including volunteer work and social contribution activities. Welfare facilities and meal giveaways are provided as part of the efforts to contribute to local communities. The plant is also managing environmental cleanup programs such as Green & Clean Day and the One Company One Stream campaign, along with free plant tours for students and local residents.

#### Major activities

Meal giveaways, Group volunteer activities at senior centers and welfare facilities



---

# Appendix

Economy .....	74
Safety and Environment .....	75
Employees .....	76
Share Growth and Social Contribution .....	77
GRI Standard(Core) Index .....	78
Third-Party's Assurance Statement .....	80
UN Global Compact .....	82
Membership and Awards .....	82

# Economy

## Consolidated

### Summarized statement of financial position (Unit: KRW million)

Item	2016	2017	2018
<b>Assets</b>	2,261,806	2,255,821	2,405,836
Current assets	1,417,503	1,416,121	1,536,084
Non-current asset	844,302	839,700	869,751
<b>Liabilities</b>	1,195,739	1,107,681	1,108,364
Current liabilities	680,590	649,818	700,173
Non-current liabilities	515,150	457,864	408,191
<b>Equity</b>	1,066,066	1,148,140	1,297,471
Total equity attributable to stockholders of the company	1,064,582	1,145,723	1,294,510
Non-controlling interest	1,485	2,417	2,962
<b>Total liabilities and equity</b>	2,261,806	2,255,821	2,405,836

### Summarized statement of comprehensive income (Unit: KRW million)

Item	2016	2017	2018
Sales	2,213,616	2,343,745	2,484,978
Operating income	124,424	158,442	205,048
Income from continuing operations before tax	101,984	138,489	177,790
Net income	80,748	106,005	132,235
Total comprehensive income for the current term	80,693	105,534	128,026

### Summarized statement of cash flows (Unit: KRW million)

Item	2016	2017	2018
Cash flows from operating activities	242,227	144,598	204,655
Cash flows from investing activities	(101,968)	(163,772)	67,346
Cash flows from financing activities	(87,330)	(54,074)	(80,570)
Net increase / decrease in cash and cash equivalents	52,930	(73,247)	191,431
Cash and cash equivalents at the beginning of the year	286,081	340,137	261,507
Effect of exchange rate changes on cash and cash equivalents	1,125	(5,383)	2,692
Cash and cash equivalents at the end of the year	340,137	261,507	455,629

### Government subsidies (Unit: KRW million)

Item	2016	2017	2018
Machinery	11	7	560
Office equipment	3	41	30
Building	246	225	205
Development cost	1,873	1,678	1,548

# Safety and Environment

Safety and environment index						
Sector	Item	Unit	2016	2017	2018	
Investment in safety and environment	Green product development	KRW million	3,118	9,052	5,879	
	Process improvement		147	191	271	
	Investment in environmental and safety facilities		566	822	405	
	Maintenance of environmental and safety facilities		219	488	274	
Green purchasing	Purchasing of green products		381	399	351	
Environment	Dust emissions	kg	1,076	824	677	
	Water consumption	km <sup>3</sup>	233	212	175	
	Wastewater discharge	m <sup>3</sup>	172	45	22	
	Waste discharge	General	ton	3,671	4,251	4,250
		Designated		92	99	106
	Waste recycling rate	ton	259	278	279	
	GHG emissions (by source)	Scope 1	tCO <sub>2</sub> eq	186,792	250,704	27,212
		Scope 2		26,646	25,553	32,785
		Scope 3		89,098	506,032	563,338
		subtotal		302,536	782,289	623,335
GHG intensity	tCO <sub>2</sub> eq / KRW million	0.17	0.43	0.32		
Energy	Electricity consumption	MWh	57,150	57,153	70,317	
		toe	13,145	13,135	16,173	
	Electricity intensity	MWh / KRW billion	0.33	0.31	0.36	
	LNG consumption	km <sup>3</sup>	2,136	2,337	2,733	
		toe	2,227	2,432	2,850	
LNG intensity	km <sup>3</sup> / KRW billion	0.012	0.013	0.014		
Safety	Industrial accident rate	%	-	0.04	0.03	
	Training hours (cumulative)	hour	92,468	90,446	91,325	
	Trainees (cumulative)	person	37,439	19,027	19,458	
Raw materials	Steel	ton	11,277	12,181	7,908	
	Nonferrous metal		3,566	3,884	3,512	
	Resin		587	700	626	
Production cost		KRW billion	1,732.5	1,832.0	1,954.4	

\* GHG emission data may differ from the national statistics due to differences in aggregate range.

# Employees

## HR index (as of the end of 2018)

Sector	Item	Unit	2016	2017	2018	Note
Total employees	Executive		20	20	18	
	Permanent employee		3,292	3,168	3,128	
	Temporary employee		243	214	225	Responsible person, Temporary employees included
	Total		3,555	3,402	3,371	
Employees by region	Anyang	Person	1,135	1,030	1,011	
	Cheongju		1,537	1,525	1,511	
	Cheonan		550	509	488	
	Busan		187	182	186	
	Others		146	156	175	
	Total		3,555	3,402	3,371	
Employees by age (permanent employees)	20s		357	272	210	
	30s		1,112	1,027	997	
	40s		1,216	1,179	1,150	
	50s and older		607	690	771	
	Total		3,292	3,168	3,128	
Newly hired (permanent)		101	41	65		
Retirement rate (permanent)	%	2.69	3.25	3.43		
Female employees (permanent)	Person	454	418	420		
Percentage of female employees (permanent and temporary)	%	12.8	10.4	12.5		
Female managers	Person	33	36	43	Manager level and higher	
Percentage of female managers	%	1.0	1.1	1.4	Permanent employee	
Employees with disabilities	Person	45	50	50	Permanent employee	
Percentage of employees with disabilities	%	1.4	1.6	1.6		
Foreign employees (permanent and temporary)	Person	15	12	12	Foreign employees working at domestic sites	
Training expenses	KRW 1,000 / person	2,109	1,652	2,017		
Training hours	PD / person	10	7	7	1PD: 8 hours of offline group training; and one month for online training	
Welfare benefit expenses	KRW million / person	14.1	16.5	16.0		
Employees who used childbirth leave	Person	19	13	10		
Employees who used parental leave		19	14	19	Employees returned from parental leave	
Rate of return to work after parental leave	%	100	100	100		

## Retirement pension program (Unit : KRW million)

Index		2016	2017	2018	Note
Defined benefit (DB)	Amount*	182,152	183,483	180,120	
	Subscribers	3,293	3,252	3,062	
Defined contribution (DC)	Amount	-	-	-	
	Subscribers	6	92	239	

\* Management amount is based on the year-end balance of the pension fund management company.

## Shared Growth and Social Contribution

Shared growth						
Index	Category	Unit	2016	2017	2018	Note
Ethics index of suppliers			4.19	4.23	4.23	
Ethics index of distributors		Point	4.01	4.08	4.06	
Supplier training on the subcontracting laws	Sessions	Session	1	-	-	
Signing of the Shared Growth Agreement	Agreements	Case	350	337	351	
Financial support to suppliers	Fund raised	KRW billion	23.8	23.8	31.0	
	Fund provided	KRW billion	14.4	13.9	11.4	
	Suppliers supported	Company	77	68	63	
Shared-Growth Payment System	Total amount of credit issued	KRW billion	564.4	718.2	929.1	
Supplier training support	Participants	Person	424	196	246	
Technology sharing for suppliers	Suppliers benefitted	Company	15	-	-	Offering patent rights for free
Technology protection for suppliers	Support cases	Case	44	11	12	Certification of Original Document of Trade Secrets
Technology development support for suppliers	New product development projects	Case	1	1	-	
			66	-	-	
	Technological cooperation tasks	KRW billion	4.4	-	-	
ACE CLUB (Supplier Association)	Membership	Company	20	19	17	
ACE CLUB innovation capacity support	Suppliers supported	Company	20	19	17	2016 : Innovation Competition, 2017 : Innovation Exchanges, 2018 : Innovation Competition, Working-level innovation meeting
	Employees supported	Person	20	19	17	
Performance sharing meetings with suppliers	Participating suppliers	Company	470	279	248	
Communication activities for suppliers		Session	3	3	3	2016 : CPO Talk Concert 2017 : CLO Talk Concert 2018 : CLO Talk Concert, Donggam-donghaeng (meaning the same feeling, the same way)

### Purchase by region (Unit : %)

Index	2016	2017	2018
Asia (excluding the Middle East)	94	70	68
Europe	5	23	25
Americas	1	5	5
Middle East	1	1	2
Other (Oceania, Africa)	-	0.02	-
Total	100	100	100

### Social contribution activities

Index	Unit	2016	2017	2018	Note
Donation	KRW million	958	494	5,932	Accounting amount
Cost		43	50	53	
Activities	Case	156	119	122	
Participants	Person	1,385	1,590	1,677	Based on volunteer activities

## GRI Standard(Core) Index

Topic	Disclosure	Page	Omissions / Comments	
Organizational profile	102-1	Name of the organization	10	
	102-2	Primary brands, products, and services	18-24	
	102-3	Location of the organization's headquarters	10, 17	
	102-4	Location of worksites	16-17	
	102-5	Nature of ownership and legal form	12-13	
	102-6	Markets served	16-17	
	102-7	Scale of the organization	10-11	
	102-8	Employee Information	10, 76	
	102-9	Supply chain	14-17	
	102-10	Significant changes in the organization and supply chain	10, 14-17	Acquisition Energy Grid Tie Division of Parker Hannifin, a US-based company
	102-11	Principles and approaches in preventive measures	35-37	
	102-12	External initiatives	27, 82	
	102-13	Membership	82	
Strategy	102-14	Statement by the top decision-maker	7	
Ethics and integrity	102-16	Value, principles, standards, and code	32-35	
Governance	102-18	Governance	12-13	
Stakeholder engagement	102-40	A list of stakeholder groups	14-15	
	102-41	Collective bargaining agreement	67	
	102-42	Basis for identification and selection of stakeholders	14-15	
	102-43	The organization's approach to stakeholder engagement	14-15	
	102-44	Key topics and concerns that have been raised through stakeholder engagement	28-29	
Report profile	102-45	Companies included in the organization's consolidated financial statement	16-17	
	102-46	Report details and the scope of topics	28-29	
	102-47	A list of key topics	28-29	
	102-48	Restatement of information	-	No modification
	102-49	Changes in the report	-	No modification
	102-50	Reporting period	3	
	102-51	Date of the latest report	3	
	102-52	Reporting period	3	
	102-53	Contact information	2	
	102-54	Reporting in line with GRI Standards GRI Index	3	
102-55	GRI Index	78-79		
102-56	Third-party assurance	80-81		
Management approach	103	Management approach	31, 39, 49, 55, 63, 69	
<b>Economy</b>				
Economic performance	201-1	Direct economic value generated and distributed	13-15	
	201-3	Coverage of the organization's defined benefit plan obligations	76	
	201-4	Financial assistance received from government	74	
Purchasing procedures	204-1	Proportion of spending on local suppliers at significant locations of operation	14-15, 77	
Anticorruption	205-1	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	32-35	
	205-2	Communication and training on anti-corruption policies and procedures	32-35	
	205-3	Confirmed incidents of corruption and actions taken	-	No anti-corruption cases substances during the reporting period
<b>Environment</b>				
Raw material	301-1	Materials used by weight or volume	75	
	301-2	Percentage of materials used that are recycled input materials	-	No use of recycled raw materials
Energy	302-3	Energy intensity	75	
	302-4	Reduction of energy consumption	52, 75	
	302-5	Reductions in energy requirements of products and services	52, 75	
Water	303-1	Total water withdrawal by source	75	Water supply
	303-2	Water resources significantly affected by withdrawal of water	52, 75	Water supplied from the local governments

Topic	Disclosure	Page	Omissions / Comments
Emission	305-1 Direct GHG emissions (Scope 1)	51, 75	
	305-2 Indirect GHG emissions (Scope 2)	51, 75	
	305-3 Other indirect GHG emissions (Scope 3)	51, 75	
	305-4 GHG emissions intensity	75	
	305-5 Reduction of GHG emissions intensity	51	
	305-7 NOx, SOx and other significant air emissions	52, 75	
Waste water and waste	306-1 Total water discharge by quality and destination	52, 75	
	306-2 Total weight of waste by type and disposal method	52, 75	
	306-3 Total number and volume of significant spills	-	No spill of hazardous substances during the reporting period
	306-4 Transportation of wasted deem hazardous	-	Entirely disposed of by third-party contractors
	306-5 Water bodies significantly affected by the organization's discharge of water and runoff	-	Entirely disposed of by third-party contractors
Compliance	307-1 Sanctions for non-compliance with environmental laws and regulations	-	No violation to environmental laws and regulations during the reporting period
<b>Society</b>			
Employment	401-1 Total number and rates of new employee hires and employee turnover by age group, gender and region	76	
	401-3 Return to work and retention rates after parental leave, by gender	76	
Labor / Management relations	402-1 Minimum notice periods regarding operational changes	67	
Occupational health and safety	403-1 Percentage of workers in the management-worker health and safety committee	75	
	403-2 Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and gender	52, 75	
	404-3 Workers with high incidence of high risk of diseases related to their occupation	52-53	
	403-4 Health and safety topics covered in formal agreements with trade unions	52-53	
Training and education	404-1 Average hours of training per year per employee (by gender, and by employee category)	76	
	404-2 Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career ending	66	
	404-3 Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	66	
Diversity and equal opportunity	405-1 Composition of governance bodies and breakdown of employees	76	
Freedom of association and collective bargaining	407-1 Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	-	No cases of infringement
Child labor	408-1 Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor	67	
Forced or compulsory labor	409-1 Operations and suppliers identified as having significant risk for incidents or forced or compulsory labor, and measures taken to contribute to the elimination of all forms of forced or compulsory labor	56, 67	
Investment	412-2 Total number of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	67	
Local communities	413-1 Percentage of operations with implemented local community engagement, impact assessments, and development programs	72	
Public policy	415-1 Total value of political contributions	-	None
Customer health and safety	416-1 Percentage of significant products and services categories for which health and safety impacts are assessed for improvement	53	
	416-2 Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes (by case result)	-	None
Marketing and labeling	417-3 Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes	-	None
Customer privacy	418-1 Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	-	None
Compliance	419-1 The number of cases of and monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	-	No cases of violation during the reporting period

# Third Party's Assurance Statement

To the Readers of 2018-2019 LSIS Sustainability Report:

---

## Foreword

Korea Management Registrar Inc. (hereinafter "KMR") has been requested by of LSIS Co., Ltd (hereinafter "LSIS") to verify the contents of its 2018-2019 Sustainability Report(hereinafter "the Report"). LSIS is responsible for the collection and presentation of information included in the Report. KMR's responsibility is to carry out assurance engagement on specific data and information in the assurance scope stipulated below.

## Scope and standard

LSIS describes its efforts and achievements of the corporate social responsibility activities in the Report. KMR performed a type2, moderate level of assurance using AA1000AS (2008) and SRV1000 from KMR Global Sustainability Committee as assurance standards. KMR's assurance team(hereinafter "the team") evaluated the adherence to Principles of Inclusivity, Materiality and Responsiveness, and the reliability of the selected GRI Standards indices as below, where professional judgment of the team was exercised as materiality criteria.

The team checked whether the Report has been prepared in accordance with the 'Core Option' of GRI Standards which covers the followings.

- GRI Standards Reporting Principles
- Universal Standards
- Topic Specific Standards
  - Management approach of Topic Specific Standards
  - Economic Performance: 201-1, 201-3, 201-4
  - Procurement Practices: 204-1
  - Anti-Corruption: 205-1, 205-2, 205-3
  - Materials: 301-1, 301-2
  - Energy: 302-3, 302-4, 302-5
  - Water: 303-1, 303-2
  - Emissions: 305-1, 305-2, 305-3, 305-4, 305-5, 305-7
  - Effluents and Waste: 306-1, 306-2, 306-3, 306-4, 306-5
  - Environmental Compliance: 307-1
  - Employment: 401-1, 401-3

- Labor / Management Relations: 402-1
- Occupational Health and Safety: 403-1, 403-2, 403-3, 403-4
- Training and Education: 404-1, 404-2, 404-3
- Diversity and Equal Opportunity: 405-1
- Freedom of Association and Collective Bargaining: 407-1
- Child Labor: 408-1
- Forced or Compulsory Labor: 409-1
- Human Rights Assessment: 412-2
- Local Communities: 413-1
- Public Policy: 415-1
- Customer Health and Safety: 416-1, 416-2
- Marketing and Labeling: 417-3
- Customer Privacy: 418-1
- Socioeconomic Compliance: 419-1

This Report excludes data sand information of joint corporate, contractor etc. which is outside of the organization, i.e. LSIS, among report boundaries.

## Our approach

In order to verify the contents of the Report within an agreed scope of assurance in accordance with the assurance standard, the team has carried out an assurance engagement as follows:

- Reviewed overall report
- Reviewed materiality test process and methodology
- Reviewed sustainability management strategies and targets
- Reviewed stakeholder engagement activities
- Interviewed people in charge of preparing the Report

## Our conclusion

Based on the results we have obtained from material reviews and interviews, we had several discussions with LSIS on the revision of the Report. We reviewed the Report's final version in order to confirm that our recommendations for improvement and our revisions



have been reflected. When reviewing the results of the assurance, the assurance team could not find any inappropriate contents in the Report to the compliance with the principles stipulated below. Nothing has come to our attention that causes us to believe that the data included in the verification scope are not presented appropriately.

### Inclusivity

Inclusivity is the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability

- LSIS is developing and maintaining stakeholder communication channels in various forms and levels in order to make a commitment to be responsible for the stakeholders. The assurance team could not find any critical stakeholder LSIS left out during this procedure.

### Materiality

Materiality is determining the relevance and significance of an issue to an organization and its stakeholders. A material issue is an issue that will influence the decisions, actions, and performance of an organization or its stakeholders.

- LSIS is determining the materiality of issues found out through stakeholder communication channels through its own materiality evaluation process, and the assurance team could not find any critical issues left out in this process.

### Responsiveness

Responsiveness is an organization's response to stakeholder issues that affect its sustainability performance and is realized through decisions, actions, and performance, as well as communication with stakeholders.

- The assurance team could not find any evidence that LSIS's counter measures to critical stakeholder issues were inappropriately recorded in the Report.

We could not find any evidence the Report was not prepared in accordance with the 'Core Option' of GRI standards.

### Recommendation for improvement

We hope the Report is actively used as a communication tool with stakeholders and we recommend the following for continuous improvements.

- LSIS successfully identified key topics for 2018 through the properly developed materiality assessment process and faithfully included them in the sustainability report. It is advised to systematically manage plans and performance based on its sustainability strategies and report results with consistency, enhancing comparability, one of the principles of sustainability reporting quality.

### Our independence

With the exception of providing third party assurance services, KMR is not involved in any other LSIS's business operations that are aimed at making profit in order to avoid any conflicts of interest and to maintain independence.

July,9th, 2019

CEO

*E. J. Hwang*



## UN Global Compact

The 10 Principles of the UN Global Compact		Page	LSIS policies		
Human rights	1. Businesses should support and respect the protection of internationally proclaimed human rights.	Ethical management p.30-37 Employee p.67	LSIS Code of Ethics and Conduct for Employees		
	2. Businesses should ensure they are not complicit in human rights abuses.				
Labor	3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.				
	4. Businesses should uphold the elimination of all forms of forced and compulsory labor.				
	5. Businesses should uphold the effective abolition of child labor.				
	6. Businesses should uphold the elimination of discrimination in respect of employment and occupation.				
Environment	7. Businesses should support a precautionary approach to environmental challenges.			Safety and Environment Management p.48-53	LSIS Environmental policies
	8. Businesses should undertake initiatives to promote greater environmental responsibility.				
	9. Businesses should encourage the development and diffusion of environmentally friendly technologies.				
Anti-corruption	10. Businesses should work against corruption in all its forms, including extortion and bribery.			Ethical management p.30-37	LSIS Code of Ethics and Conduct for Employees

## Membership and Awards

### Membership

#### Domestic

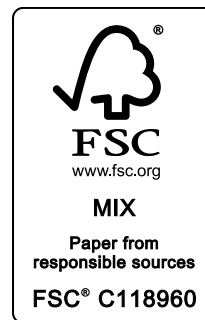
Korea Chamber of Commerce and Industry, Korea International Trade Association, Federation of Korean Industries, Korea Electrical Manufacturers Association, Korea Smart Grid Association, Korean Standards Association, Korea-Japan Economic Association, Korea Electric Association, Korean Institute of Electrical Engineers, Korea Electrical Contractors Association, International Contractors Association of Korea, Korea Listed Companies Association, Korea Engineering and Consulting Association, Korea New & Renewable Energy, Korea Fire Safety Institute, Construction Association of Korea, Korea Customs Association, Korea Invention Promotion Association, Korea Electrical Contractors Association, ,ODVA Korea, Korea Industrial Technology Association, Korean Association for ECOS, Korean Information & Communication Contractors Association, Korea Railway Association, Korea Railway Signal Engineering Association, Korea Mech. Const. Contractors Association, Korea Fire Facility Association, Korea Electric Engineers Association, Korea Products Safety Association, Korea Smart Manufacturing Industry Association, Korean Institute of Power Electronics, Korea Institute of Information & Telecommunication Facilities Engineering, Korean Institute of Electrical and Electronic Material Engineers, Korea Software Industry Association, Korea Software Technology Association, Korea Intellectual Property Association, Korea Industrial Safety Association, Korea Association of Standards & Testing Organizations, Green Company, Environmental Preservation Association, etc.

#### Overseas

UN Global Compact, Mechatro Link, Ether CAT Technology Group, CIRED, CAN in Automation

### Awards

Category	Date	Title	Organized / Hosted by	Awards
Company	2018. 01.	Top 100 Global Innovators	Clarivate Analytics	Top 100 Global Innovators
Individual	2018. 06.	Award of merit for safety of power equipment (Jin-Yong Kang, General Manager)	Ministry of Industry, Trade and Energy	Minister's Citation
Individual	2018. 06.	Award of merit for electrical safety (Bok-Ha Hwang, General Manager)	Ministry of Industry, Trade and Energy	Minister's Citation
Individual	2018. 10.	Award of merit for the development of electrical industry (Senior Manager Gyeong-Ho Kim)	Ministry of Industry, Trade and Energy	Minister's Citation
Company	2018. 10.	IDC Digital Transformation (DX) Award	IDC Korea	Korean awardee in the operation model master area
Company	2018. 11.	10th Power Demand Management Award	Korea Electric Power Corporation	Best prize
Company	2018. 12.	2018 Korea Technology Award	Ministry of Industry, Trade and Energy	Minister's award
Company	2018. 12.	2018 Industry Award Korea	Industry Award Korea	Best prize



---

#### General publication management

Chief Strategy Officer : Young-Shik Shin  
Corporate Planning Team : Sang-Soo Lee,  
Yu-Seok Hong, Yeon-Jeong Kim

#### Contributors to report preparation

Young-Min Kang, Byung-su Ku, Ji-Young Ku,  
Do-Yup Kwon, Yong-Jik Kwon, Ki-Bok Kim,  
Ki-Seon Kim, Deok-Hyeon Kim, Won-Ki Kim,  
In-Kyoung Kim, Ju-Hye Kim, Chul-Gyun Kim,  
Taek-Yoon Kim, Chil-Bong Na, Tea-Hoon Nam,  
Hee-Tack Roh, Hyung-Tack Myung, Dong-Ick Moon,  
Sang-Tae Park, Jae-Hyun Park, Jang-Cheol Seo,  
Kyoo-Keun Seon, Seok-Ki Son, Bong-Soo Shin,  
Ha-Na Yu, Joong-Hyeon Yoon, Tae-Kyun Yun,  
Sang-Kweon Lee, Su-Ho Lee, Woo-Je Lee,  
Jung-Eun Lee, Chan-Soo Lee, Hye-Won Lee,  
Dong-Hoon Jang, Hyung-Jun Jeon, Hwan Jeong,  
Dae-Seok Chae, Myoung-Guen Choi, Si-Ho Choi,  
Jong-sopb Choi, Sang-Hee Hong, Sang-Won Hwang

**Date of Publication** 2019. July  
**Publisher** Ja-Kyun Koo  
**Publishing Company** LSIS Co., Ltd  
**Design** intoGraphic +82-2-583-7688

**LS**<sup>IS</sup>