

2019-2020

Sustainability Report & Annual Report

The World Best Cable Solution Leader

10TH ANNIVERSARY REPORT

LS (Leading Solution)

For LS Cable & System, sustainable management means our belief in the value of going forward together. It is not simply a resolution, but something that must be put into action on a daily basis. We resolutely believe in and act upon our vision to enhance the quality of life of our stakeholders, including suppliers, customers, investors, and local communities. Our goal for sustainable management is to create a society defined by coexistence and a prosperous future.

About this Report

The 2019-2020 LS C&S Sustainability Report is our tenth report. Since 2010, we have been publishing the report on an annual basis to share the value of sustainable management with our stakeholders by transparently disclosing our previous year's performance in economic, social and environmental value creation. On the occasion of its tenth anniversary, this report features special pages sharing our efforts and achievements over the last decade. The opinions of both our internal and external stakeholders will continue to be reflected in this report in years to come, and we continue our efforts at achieving sustainable growth.

Reporting guidelines

- GRI (Global Reporting Initiative) Standards
- UN Sustainable Development Goals
- ISO 26000

Reporting period

- From January 1 to December 31, 2019 (published annually)
- Three-year data from 2017 to 2019 is provided to keep track of performance trends.
 - The 2020 issues deemed necessary to be reported as meaningful performance are included and the point of time is specified.

Reporting scope

Domestic worksites (the head office, Seoul office, plants in Gumi, Indong, and Donghae, and Gunpo R&D center) and domestic and overseas subsidiaries

Assurance

For the credibility of this report, internal review by the management and third-party verification were conducted.

Publication date of the latest report

May 2019

Currency

All financial figures are presented in KRW in the report in Korean and in USD in the English version.

Data collection

We processed and used the data collected from seven working committees through the information management system.

- For any changes in a data collection method, adjustment has been made using the 2019 method and details are specified in the report.

Key changes in terms of the size, structure, and ownership of the organization

None

Website: http://www.lscns.co.kr/kr/intro/sustainability_system.asp
Address: LS Cable & System Sustainability Coordination Group, LS Tower, 127 LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea
E-mail: csr@lscns.com
Tel: +82-2-2189-9134

LS Cable & System
2019-2020 Sustainability Report

Overview

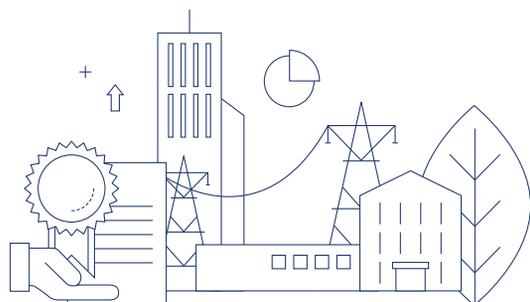
Chairman’s Message	02
President’s Message	04
The 10th Anniversary Highlights	06
About LS C&S and its Business	08
Our Products	10
Company Vision and Philosophy	12
Global Business	14
Key Achievements	16
Achievements in the LS C&S Way	18
Corporate Governance	20
Integrated Risk Management	21
Opportunities and Challenges	24
Sustainable Management System	26
Activities and Responsibilities Raising Stakeholder Value	28
Materiality Assessment	30

10 Special Themes

Customer First	
· New Technology and Products	36
· Quality and Product Responsibility	45
One LS C&S	
· Social Contribution	51
· Shared Growth	55
· Respect for Human Rights and Diversity	60
Rule & Responsibility	
· Compliance Management	64
· Ethical Management	67
· Workplace Safety	70
Expertise	
· Talent Management	74
· Advanced Green Management	82

Appendix

Consolidated Statements of Financial Position	92
Consolidated Statements of Comprehensive Income	93
Consolidated Cash Flow Statements	94
Non-consolidated Statements of Financial Position	95
Non-consolidated Statements of Comprehensive Income	96
Non-consolidated Cash Flow Statements	97
Independent Assurance Statement	98
GRI Standards	100
Additional Information	102



Chairman's Message



**We will do business not only in pursuit of financial growth,
but also to fulfill our social responsibilities and achieve a coherent
growth with the society.**

I would like to take this opportunity to express my gratitude to all of our stakeholders for your continued interest and support.

This year marks the tenth anniversary of our Sustainability Report since its initial publication in 2010. It provides an ideal opportunity to share our efforts and achievements over the last decade.

LS C&S has contributed to industrial development with its products that connect the globe through power and telecommunication technologies. As a result, we have grown into a global cable solution company and our technologies and product quality are recognized around the world.

2020 is a critical juncture for us to make a leap forward based on the our experience and expertise.

The world will experience rapid changes with the emergence of new industrial ecosystems and ways of life that are quite different from the past. Moreover, a wide variety of stakeholders are now expecting businesses to fulfill their social responsibility in accordance with these changes.

To meet the expectations of our stakeholders and achieve sustainable growth under changing market conditions, we are preparing for the coming decade by announcing our new 'Vision 2030, The World Best Cable Solution Leader'.

This new vision reflects our aspiration to become a global leader and commitment to innovation in providing differentiated value to our customers. To achieve this vision, we will increase our presence by focusing on promising markets and establishing a global management system. Along strengthening our expertise in cables, we will expand the business into the area of system and solution. In addition, we will accelerate our efforts at enhancing competitiveness by establishing a digital-based business management system and a proactive and autonomous working atmosphere.

Under this vision, we will do business not only in pursuit of financial growth, but also to fulfill our social responsibilities and achieve a coherent growth with the society.

In line with this, we are constantly striving to reduce green-house gas emissions to take part in the global climate change initiative. Communication with local communities and cooperation with our suppliers are being promoted to ensure a mutual growth. In addition, we will continue our effort at safety accident prevention, ethical management and compliance with fair business transactions.

We look forward to your unwavering support toward our upcoming 10 year journey.

Thank you.

Chairman **Koo Cha-Yub**



President's Message



**The year 2020 will serve as
a turning point as we take another leap forward
and produce results.**

Distinguished stakeholders, I would like to express my sincere appreciation for your support.

Due to your continuous encouragement over the last year, we were able to achieve notable business results and faithfully fulfill corporate social responsibilities.

LS C&S won a record number of orders for the third consecutive year, became the first company in the world to commercialize superconducting cables and entered the African market through the establishment of a joint-venture company in Egypt.

Achievements were also made in the areas of workplace safety, mutual growth with local communities, and social contribution. We obtained OHSAS 18001 certification for submarine cable installation and construction and acquired a bankrupt company in order to revitalize the local economy. In addition, we have conducted electrical safety checks in traditional markets since 2017.

The year 2020 will serve as a turning point as we take another leap forward and produce results in line with the following:

We will pursue profit-oriented business by innovating our business structure.

The business environment is more difficult than ever due to the collapse of the global supply chain and demand shock from the COVID 19 pandemic. However, we will proactively respond to market changes and convert this crisis into an opportunity. Product and business models will be restructured to increase profitability and ensure sustainable growth.

We will continue our efforts to secure the competitiveness of product quality.

To implement quality management, our employees at production and construction sites will stick to basic principles. With our goal of 'zero quality cost' and 'zero failures', we will strengthen our capacity for quality and set customer trust as our highest value.

We will increase our global presence through customized business strategies.

Our global businesses, which have been restructured based on their characteristics and market environments, are now being operated at regional headquarters such as in Europe, Middle East and Africa. We will do our utmost to position ourselves as a leading global company with business strategies tailored to each regional needs.

To this end, all members of LS C&S will fulfill the roles and responsibilities with a sense of ownership in order to achieve our shared vision.

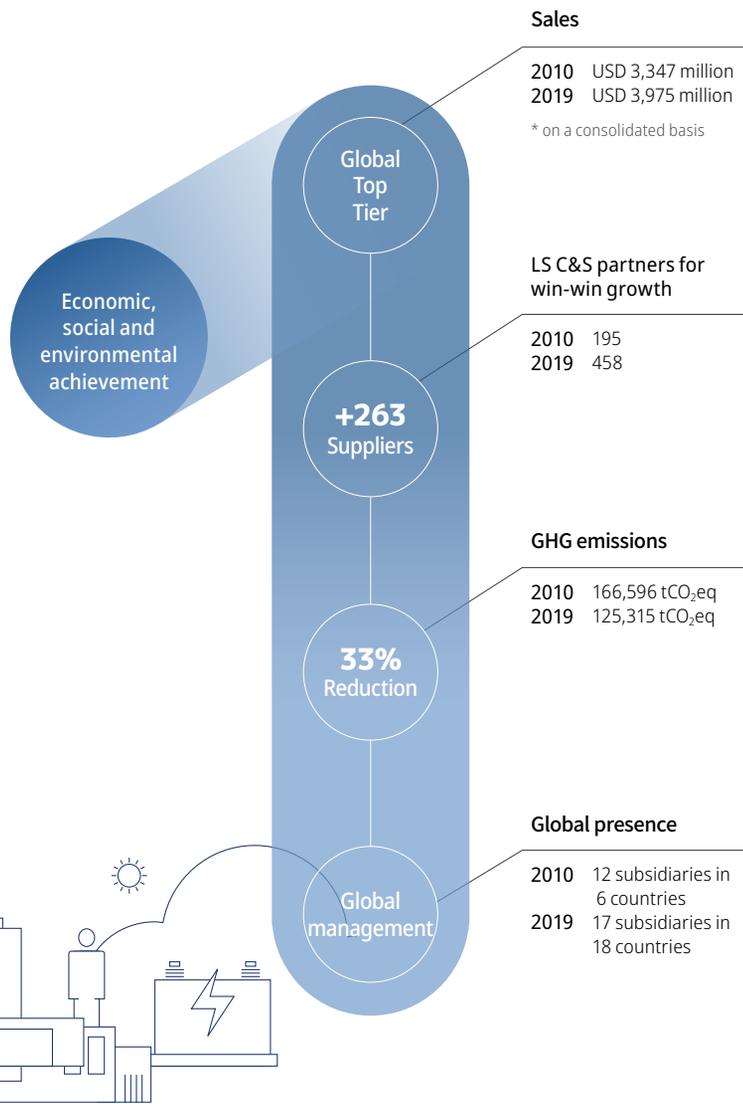
On the occasion of this tenth anniversary of publishing our Sustainability Report, I would like to once again thank all of our stakeholders, including customers, shareholders, and suppliers for their ongoing support.

Thank you.

President **Myung Roe-Hyun**

The 10th Anniversary Highlights

This year marks the tenth anniversary of publishing our Sustainability Report. Over the last decade, we have dedicated ourselves to fulfilling corporate social responsibilities while expanding our businesses, investing in R&D and increasing global presence. LS C&S will continue its efforts at promoting communication and cooperation with its stakeholders, thereby contributing to enhancing the quality of life of our stakeholders and building a brighter future for our society.



Our efforts at sustainable management over the last decade

- Declared the LSpartnership
 - Launched the Shared Growth Council
 - Gumi and Indong plants designated as Green Companies
- Selected as Best Enterprises by the Anyang City Government for its contribution to the development of a local economy

Declared LS C&S Way (Enable the Cabled World)

2010

- Established a strategy and system for sustainable management
- A decision-making body and working committees (13 strategic tasks and 61 action plans)
- Introduced CP (Compliance Program)

2011

- Laid a foundation for green management
- Step 1: establishing a system at the company level
- Step 2: phasing the system in across all of our subsidiaries and suppliers
- Step 3: implementing the system at a global level
- Established a GHG inventory

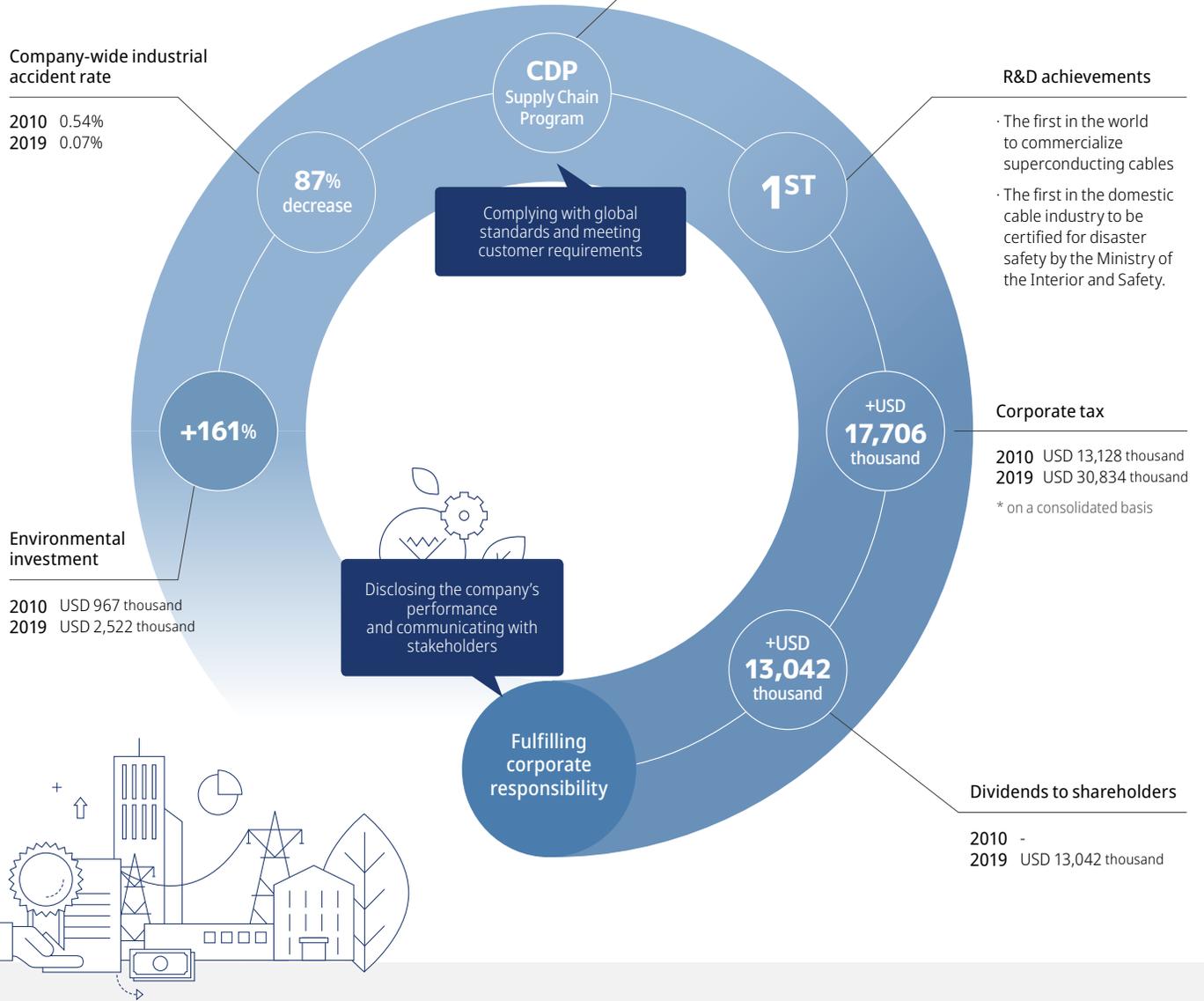
2012

- Introduced four guidelines of the Korea Trade Commission
- Contract signing, an internal review committee, supplier selection, and issuing orders to suppliers in writing

2015

Participation of the CDP Supply Chain program since 2010

* CDP: Carbon Disclosure Project



Promoted LS C&S Way to our subsidiaries

2016

Set targets for achieving UN Sustainable Development Goals

2018

Conducted social contribution activities utilizing our strength (electrical safety checks in traditional markets)

2017

Joined the KBCSD (Korea Business Council for Sustainable Development)

2019

Declared the Vision 2030 (The World Best Cable Solution Leader)

2020

About LS C&S and its Business

Company profile

Since its foundation in 1962, LS C&S has developed, produced and provided cable solutions, contributing to industrial development by establishing power grids and communications networks at home and abroad. We have been developing state-of-the-art products, including submarine and superconducting cables, to lead a global market while pursuing sustainable growth. Going forward, we will continue our efforts at becoming a global cable solution leader through customer-oriented and green businesses that meet customer requirements.

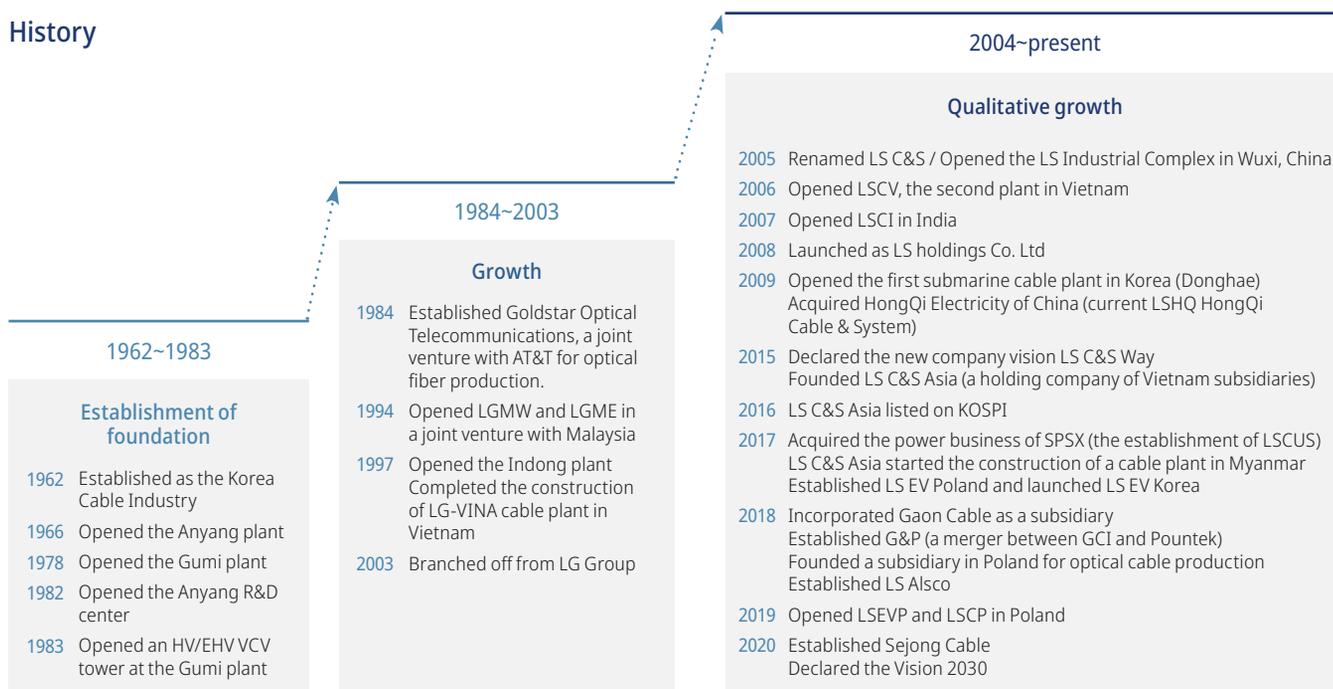
Company name	LS Cable & System
Head office	13th-17th Fl. LS Tower, 127 LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea (zip code: 14119)
Domestic worksites	Seoul office, Gunpo R&D center and plants in Gumi, Indong and Donghae
President	Myung Roe-Hyun
Date of establishment	May 1962
Primary products	Power/telecommunication/industrial cables and materials
Subsidiaries	8 domestic subsidiaries and 17 overseas subsidiaries
Website	www.lscns.co.kr

Company information

* on a consolidated basis as of the end of 2019

Capital	Sales	Employees	Subsidiaries	Corporate tax
USD 933 million	USD 3,975 million	4,612	25	USD 31 million

History

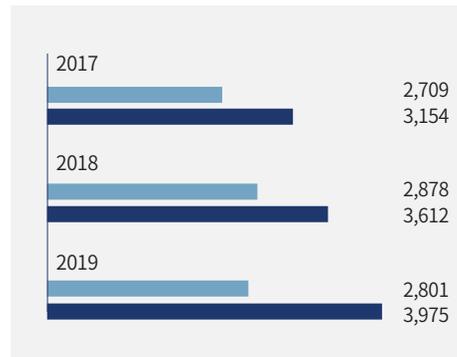


Financial performance

As we won large-scale HV/EHV and submarine projects, consolidated sales for 2019 was recorded at USD 3,975 million, a year-on-year increase of USD 364 million. Operating profit rose USD 40 million to 140 million with increased profitability of LS C&S and growth in its subsidiaries. As of the end of 2019, the total amount of assets stood at USD 3,545 million, a rise of USD 329 million year on year mainly due to increased trade receivable and inventories from expanded sales and tangible assets from investment. Our debt-equity ratio increased with liabilities worth USD 294 million, including USD 202 million worth of borrowings for equipment investment in LS C&S and its subsidiaries.

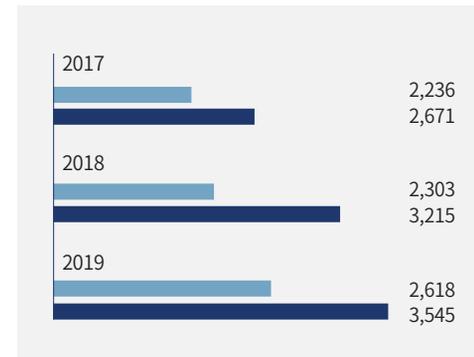
Sales

■ Non-consolidated ■ Consolidated
(unit: USD million)



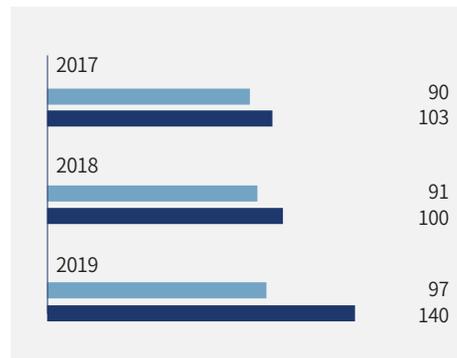
Assets

■ Non-consolidated ■ Consolidated
(unit: USD million)



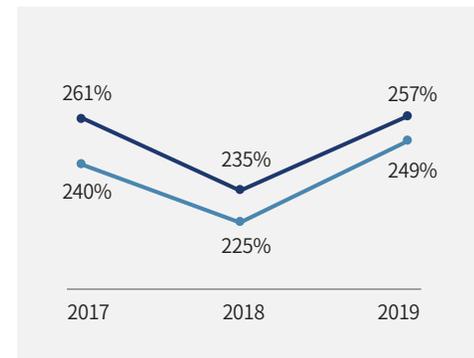
Operating profit

■ Non-consolidated ■ Consolidated
(unit: USD million)



Debt-equity ratio

■ Non-consolidated ■ Consolidated
(unit: %)



Membership

- Korea Personnel Improvement Association
- SERI CEO
- Korea HRD association
- Anyang Reserve Commander Association
- Korea Emergency Planning Council
- Korea Employer's Federation (KEF)
- Anyang Chamber of Commerce
- Korea International Trade Association (KITA)
- Fair Competition Federation
- Korea Listed Companies Association
- Korea Electric Wire Industry Cooperative (KEWIC)
- Korea Engineering & Consulting Association (KENCA)
- Korean Institute of Electrical Engineers (KIEE)
- Korea Electric Association
- Korea Electrical Manufacturers Association
- Korea Electrical Contractors Association
- International Contractors Association of Korea
- CIGRE Korea
- CIRED KOREA
- ICF
- Korea Wind Energy Association
- Korea Information and Communications Contractors Association (KICA)
- FTTH Council Asian Pacific
- Korea Rolling Stock Industries Association
- Korea Railway Association
- Foundation Fieldbus Association (FieldComm Membership)
- Korea Profibus Association
- CLPA (CC-Link Association)
- ODVA
- FTTH Council Europe
- BICSI
- Korea Advertisers Association
- Korea Business Council for Sustainable Development

Our Products

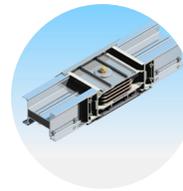
ENERGY



Overhead transmission line
This is mainly installed in steel towers for long-distance power transmission. OPGW(optical ground wire) is overhead ground wire to which telecommunication features have been added



HV/EHV cable
This efficiently transmits large-capacity power with a voltage of 154kV or higher



Busduct system
This has the advantage of distributing power efficiently in confined spaces with a high demand for electricity, such as factories or apartment buildings



Power distribution cable
This supplies power at 0.6/1kV to 22.9kV to residential and commercial buildings and industrial distribution circuits



Superconducting cable system
This transmits and distributes large quantities of energy with little loss since there is minimal electrical resistance



HVDC cable
This supports long-distance transmission with reduced power loss by converting AC to DC



Submarine cable system
This can be installed along the ocean floor to allow electric power transmission and communications between islands or between the mainland and an island

INDUSTRY



Industrial cable
These are used to supply signals and power to electric and electronic devices and industrial robots



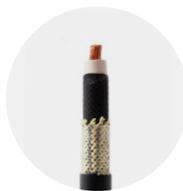
Automotive cables and harnesses and modules for electric vehicles
These are used to provide power to all devices required in a vehicle
*Products of LS EV Korea (LSEVK)



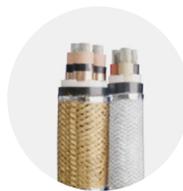
Military cable
This is used for signaling and powering military vehicles, including tanks, aircraft, and naval vessels



Rolling stock cable
This is used to power and control various rail vehicles, such as subway cars and high-speed electric trains (KTX)



Wind power cable
This is used to transmit to transformers the electricity generated from onshore and offshore wind power generators



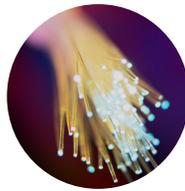
Marine and offshore cables
These are used to power and control ships (such as an oil tanker or container ship) and oil-drilling facilities, and also for telecommunications on such ships and facilities

TELECOMMUNICATION



FTTA (Fiber to the Antenna)

This is installed in wireless base stations to efficiently send electric power and optical signals to an antenna



Optical fiber /Optical cable

This delivers large-capacity data rapidly and accurately by sending communication signals using light



FTTH (Fiber to the Home)

This provides high-speed internet service to homes using optical fiber cables



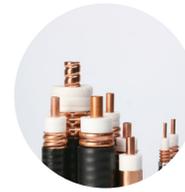
LAN (Local Area Network) Cable

This allows high-speed telecommunications networking within limited geographic areas



Structured cabling system

This supports the planned installation and operation of cables used for communications equipment and personal computers within buildings



Coaxial cable

This stably transmits a high frequency signal from base stations to antennas using broadband

MATERIALS



Copper wire

This is high-purity copper wire made exclusively with electrolytic copper to minimize the loss of electricity



Aluminum

This is made of light-weight, high-strength aluminum with elevated conductivity

* Products of LS AlSCO



Magnet wire

This is used to convert back and forth between electric and mechanical energy in electrical or electronic devices



Company Vision and Philosophy

In January 2020, LS C&S declared its Vision 2030 to set a clear direction for the company over the next decade. With the intense competition in the market, securing future growth engines is increasingly important. Furthermore, paradigm shifts in the industry will present both risks and opportunities. In this regard, we will strive to achieve our vision through four strategic directions: Globalization; an innovative business model; advanced business management systems; and an innovative corporate culture.

Vision 2030



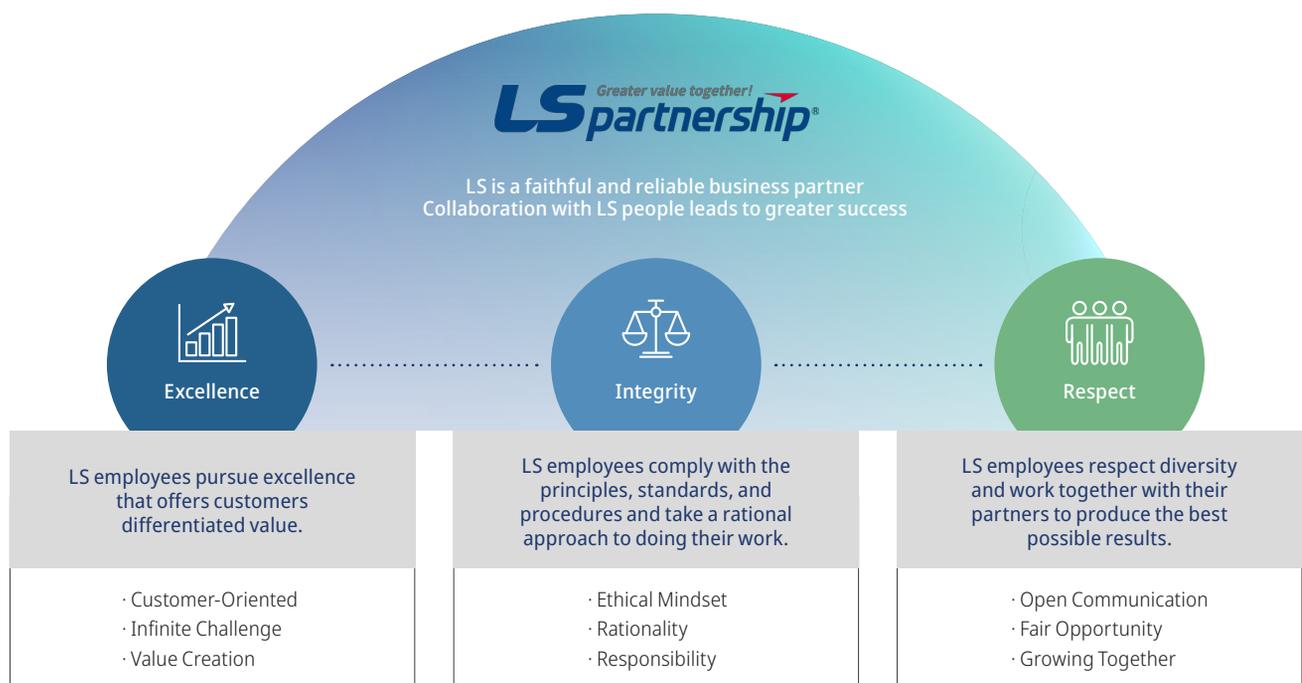
Management policy in 2020



Corporate philosophy - LSpartnership

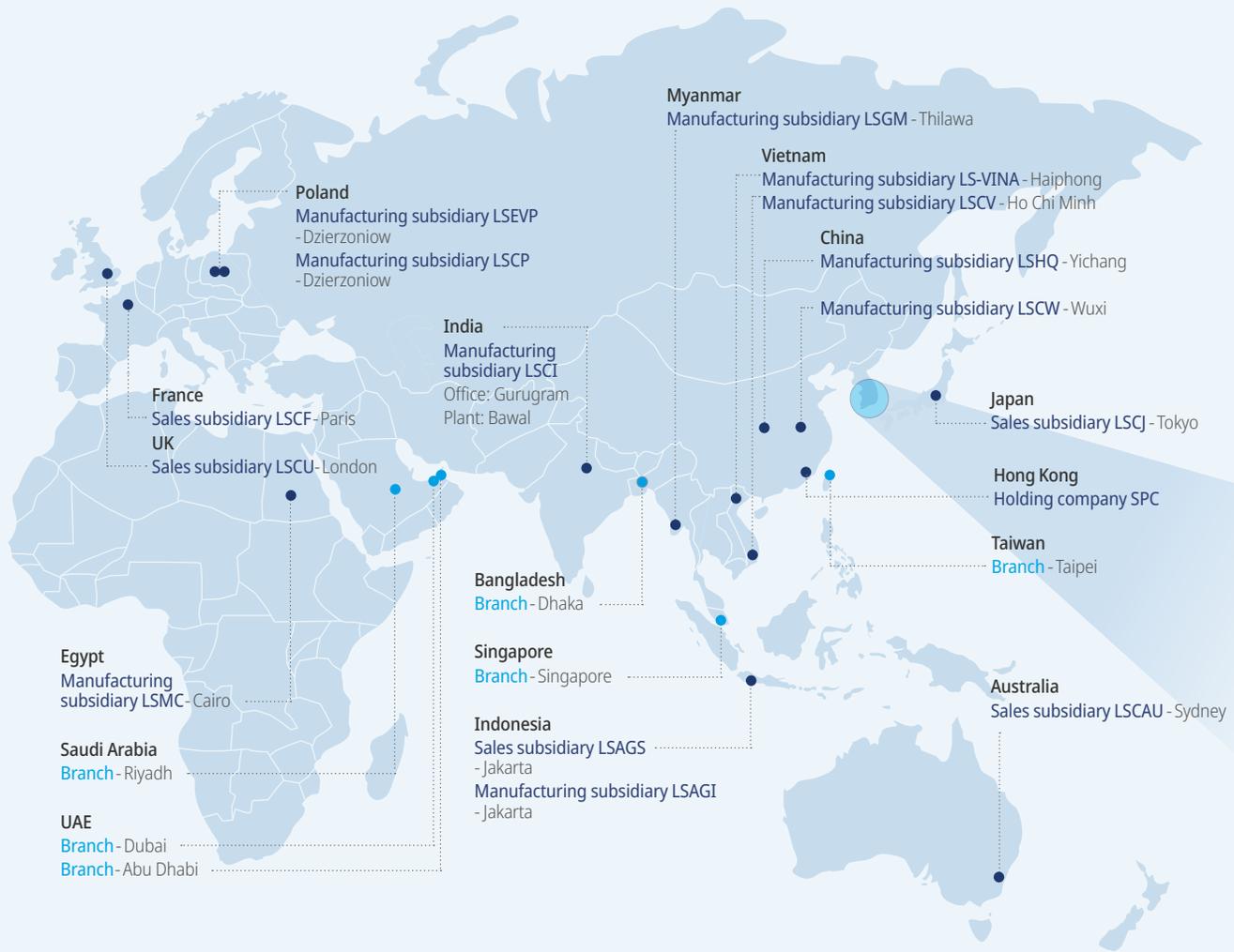
The importance of cooperation and communication is greater than ever. Amid increasing uncertainties and sluggish growth in the global economy, LS Group affiliates are joining forces to become globally competitive by sharing and practicing the corporate philosophy of Greater Value Together.

LSpartnership means employees achieve superior performance through mutual respect, care, and trust. They cooperate based on open-mindedness and grow together with our stakeholders. LSpartnership was created with the participation of all members of LS Group and provides the philosophy upon which employees should act. It serves as a driving force that will bring about a new future.



Global Business

● LSC&S ● Subsidiary ● Branch ● R&D center



19 countries **20** plants **4** R&D centers

* As of Dec. 31, 2019

LSEVP



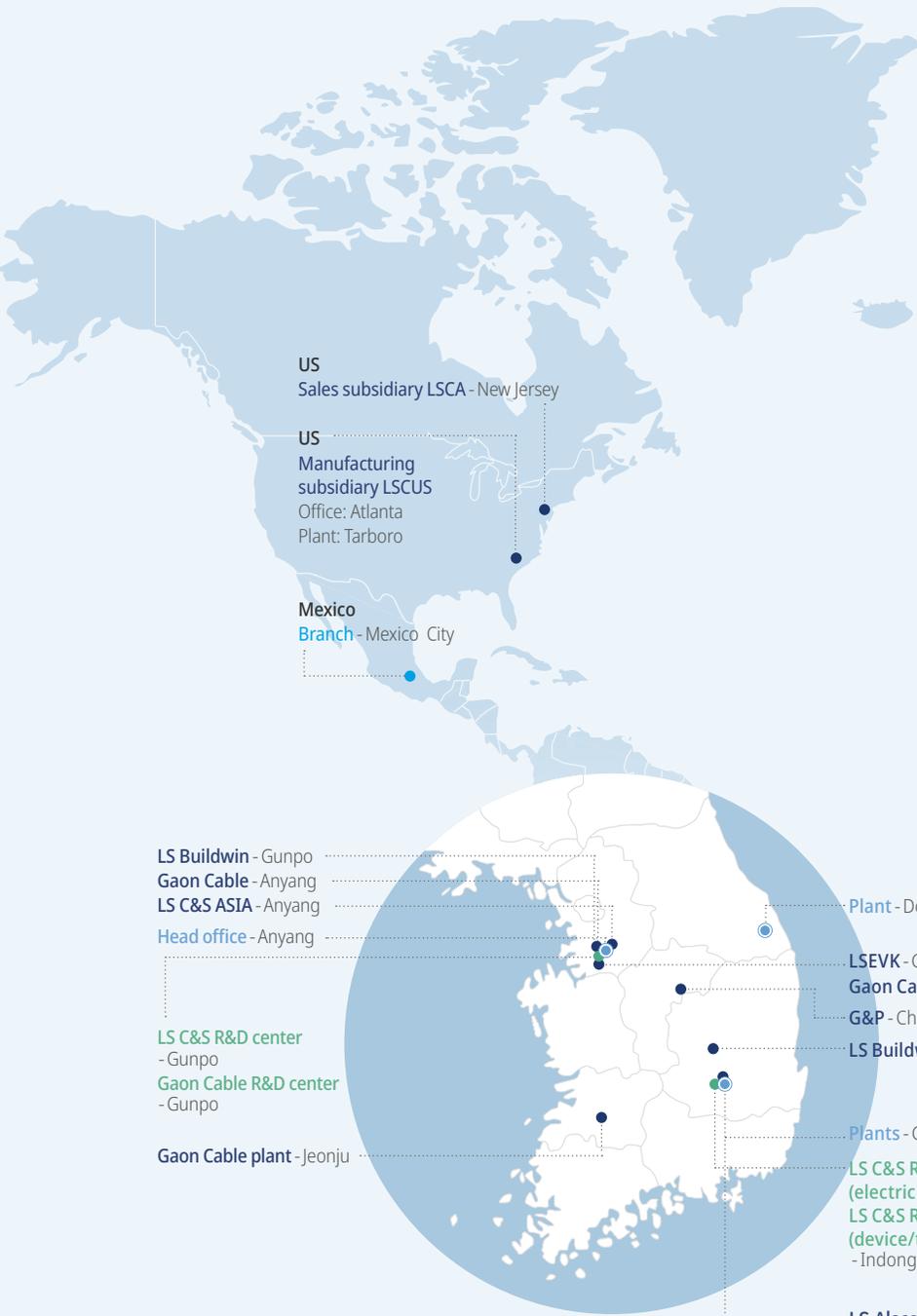
Location	Dzierzoniow, Poland
Year of establishment	2017
Building area	6,846m ²
Employees	42
Primary products	EV battery pack ICB ¹⁾
Capacity	500,000 sets

1) ICB : Inter Connection Board

LSCP



Location	Dzierzoniow, Poland
Year of establishment	2018
Building area	7,234m ²
Employees	105
Primary products	Fiber-optic cables
Capacity	3 million fiber kilometers



LSHQ



Location	Yichang
Year of establishment	2009
Building area	111,550m ²
Employees	358
Primary products	HV/EHV cables; power distribution cables; industrial/specialty cables; and submarine cables
Capacity	610 km (HV/EHV); and 3,866 km (power distribution)

LSCW



Location	Wuxi
Year of establishment	2003
Building area	34,415m ²
Employees	363
Primary products	Automotive cables; industrial cables tubes; H&M; AL PFC; and bus ducts
Capacity	1,680 km (automotive and industrial cables); 770,000 units (H&M); 2,820 tons (AL PFC); and 54,000 sets (bus ducts)

LS-VINA



Location	Haiphong
Year of establishment	1996
Building area	29,337m ²
Employees	511
Primary products	HV/EHV cables; power distribution cables; overhead transmission lines; and copper rod
Capacity	63,000km (power cables); 100,000 tons (copper rod); and 21,000 tons (aluminum rod)

LSCUS



Location	Tarboro, US
Year of establishment	2017
Building area	54,000m ²
Employees	193
Primary products	MV(Cu, Al), LV, C&I ¹⁾
Capacity	5,500 tons (MV); 7,800 tons (LV); and 1,356 tons (C&I)

1) C&I: Control & Instrument

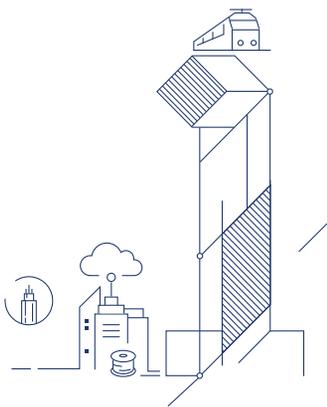
LSCI



Location	Bawal, India
Year of establishment	2007
Building area	29,000m ²
Employees	217
Primary products	Telecommunication cables (RF/FTTA); HV/EHV cables; and OPGW
Capacity	10,200 km (RF); 720 km (HV/EHV); and 3,960 km (MV, LV, OPGW)

Key Achievements

We would like to share our achievements in 2019 in product development, new contracts, and investment with LS C&S stakeholders. As a result of our efforts at challenging ourselves and seeking new growth, we were able to record a number of historical achievements and industry firsts this year. Based on the results, we will continue our efforts at achieving the goal of becoming a leader in the industry as a total cable solution provider.



HV/EHV power cable technology designated as a national core technology (Jun. 2019)

The Ministry of Trade, Industry and Energy has designated our 500kV HV/EHV power cable system design and manufacturing technology as a national core technology. This was awarded based on its competitiveness and global marketability and the impact on the domestic industry if the technology were to be leaked to other countries.



Establishment of power grids in Al-Mutlaa Residential City in Kuwait (Jun. 2019)

One more remarkable achievement was made in the Middle East following previous large-scale HV/EHV cable projects: We signed a contract with the Government of Kuwait to build USD 96,735 thousand worth of power grids in Al-Mutlaa as part of the project for developing nine new cities. We plan to provide 400kV HV/EHV cables and perform the related construction.

Winning large-scale wind power projects in Taiwan (Jul. 2019)

Construction of ten 5.5GW offshore wind farms has been underway in Taiwan, and we won the bid for three submarine cable projects worth USD 216 million. Securing such contracts over other global competitors further strengthens our position in the offshore wind power market.



Building optical networks high in the mountains of Nepal (Aug. 2019)

We signed a USD 70 million contract with state-run telecommunications service provider Nepal Telecom to conduct the first phase of establishing optical networks. Nepal presents challenging environments for network construction due to its mountainous terrain and seismic instability. However, we were able to improve customer satisfaction by applying customized products and construction technology that suit the local conditions.



Certification for disaster safety by the Ministry of the Interior and Safety (Sep. 2019)

Our products became the first in the domestic cable industry to be certified for disaster safety by the Ministry of the Interior and Safety. Our non-toxic cables and fire-resistant power supply cables that continue to function properly for at least 180 minutes under fire conditions can reduce carbon monoxide emissions up to 90%. The development and certification of safety-related products supports our efforts at improving customer satisfaction and trust.

World's first commercialization of superconducting cables (Nov. 2019)

LS C&S successfully installed superconducting cables in a 1km span between Heungduk and Shingal substations in Gyeonggi-do Province and initiated commercial operations. We became the fourth company to develop superconducting cables following counterparts in Europe, Japan and the US, and are the first to succeed at commercialization.



Market entry in Africa through a joint venture in Egypt (Nov. 2019)

We made our first moves into the African market by establishing a manufacturing subsidiary in Egypt through a joint venture with local cable constructor M.A.N. International Contracting. We will continue to strengthen our position in the market based on our technological strength and product and quality competitiveness.

Obtaining ISO 27001 certification for information security (Dec. 2019)

In order to address concerns over the potential theft of company data and respond to the tightening of laws and regulations on information protection, we became the first company in the domestic cable industry to obtain ISO 27001 certification. Strict information security is required for bids on power grids and telecommunication networks since they are directly connected to national security. This certification will allow us to further elevate the confidence in our information security management.



Winning a large-scale HVDC project (Dec. 2019)

We signed a contract worth USD 94 million to provide KEPCO with HVDC cables. This project aims to ensure a stable power supply to industrial complexes in the Seoul Metropolitan area by installing HVDC cables along the 35km span between a power plant on the west coast of Chungcheongnam-do Province and Pyeongtaek in Gyeonggi-do Province. This is our third HVDC project following the Jindo-Jeju electrical grid in 2012 and the first phase of the North Dangjin-Goduk HVDC project in 2016.



The establishment of Sejong Cable (Jan. 2020)

In July 2019 our subsidiary G&P acquired the shipbuilding cable manufacturer S-One Tech. It began releasing products in October following a production and quality stabilization period. In January 2020, S-One Tech was renamed Sejong Cable as part of its renewed focus on industrial and specialty cables for wind power and shipbuilding applications.

Achievements in the LS C&S Way

We are concentrating our efforts to reduce the inefficiency at work so that employees can take the initiative and concentrate on their works to produce results. Communication and cooperation will be further promoted to elevate the vitality of the organization, laying a foundation for our competitiveness.

I Promoting simplicity at work I

We are promoting simplicity at work in connection with the Work Diet activities we started in 2018. Simplicity at work does not simply mean minimizing excess, but maximizing the productivity of our existing resources and thereby raising organizational competitiveness. These efforts reflect our management’s firm commitment to reducing inefficiency in the workplace so that employees can seize the initiative and concentrate on their efforts to produce results. In 2019, the heads of 25 divisions set up a consensus list under the title of “Leaders, Promise Us the Following” and created associated action plans. These are action promises reflecting the expectations of staff members that can provide guidance for team leaders.



‘2019 Corporate culture promotion activity, Simple!’

‘Leaders, Promise Us the Following,’

I Facilitating learning group activities I

We operated team-based learning groups to help teams share information and expertise through active communication, thereby expanding and reproducing our collective knowledge. Each team selected themes for capacity building, and experts on the related themes within the team then shared their knowledge and experiences. In 2019, a total of 385 employees from 48 teams or divisions had an average of 10.2 hours of learning sessions. Based on the feedback that the sessions were helpful and effective in acquiring practical knowledge for work, we will continue to support these activities.

I Promoting cooperation and communication I



Cooperation | Team workshops were held in 2019 in which participants from 11 teams discussed issues and worked on measures to address them. These programs contributed to the promotion of teamwork and capacity-building through communication between team leaders and members.



Communication | We are striving to establish a flexible organizational culture by promoting communication between management and employees. This year, a ‘Talk with the CEO’ was held in which the CEO discussed management philosophy, company vision, and organizational culture and answered questions posed by employees from sales, R&D, and production. In addition, meetings between the heads of business divisions and staff members were held in a variety of formats by job position.



How is our organizational culture changing?



Jeong Jin, Deputy General Manager
(Gumi/Indong Equipment Management Team)



Ha Young-min, Manager
(Quality Management Team)



Gwak Heon-ju, Manager
(Power Transmission Development Team)



Lee Young-woo, Manager
(Material Production Team)

What were the most meaningful related activities and achievements?

Gwak:

The activities of the Energy Cable Production Division focused on creating a culture of learning and promoting cultural exchange. Team experts reviewed in-house technology standards, international specifications, and related papers and shared them with their team members. For exchange activities among team members, we went to the movies and did other cultural activities rather than having team dinners.

Ha:

Instead of theme-based learning, our Quality/CS Management Division held regular sessions where team members could discuss their work and help everyone understand the overall work flow in the division. During time of pressure at work, we had lunch together in a nearby park, which drew a good response from employees as it gave them some time for relaxation in the middle of their busy schedules. Our reporting culture has been made more flexible by using messenger app such as KakaoTalk.

Lee:

The Production Engineering Center concentrated its efforts on promoting communication by holding meetings with the heads of the divisions in a variety of formats, such as sports events and cultural activities.

What changes have been made possible by the efforts at innovating organization culture?

Jeong:

The biggest change was a streamlined work process. Most of the team members felt the need to simplify weekly meetings. They were encouraged to report to their team leaders through email, which team leaders found more efficient. Currently, they have reduced the number of required reports, are holding one-to-one meetings with employees in charge, and personally visit worksites to check their status.

Gwak:

To successfully simplify meetings or documents, the commitment of leaders is critical. Changes in their perception of the way we work have contributed to promoting efficiency not just on our team, but across the worksite. Some of them even took the initiative to propose cultural events to promote communication instead of conventional team dinners with heavy drinking.

Ha:

I agree with Mr. Kwak's comment. For the Quality/CS Management Division, the head of the division proactively participated when we made our "Leaders, Promise Us the Following" list. He put it on the wall at a meeting and worked to make changes based on these promises.

What do we need to produce more concrete results through C.C. activities?

Jeong:

Communication with the younger members within an organization is as important as hierarchical communication. For communication between different generations, it is necessary to lower the average age of C.C.s in order to bring about more dynamic change through new and innovative ideas.

Gwak:

That's a good idea. In addition, I think it would be more effective if support was provided at the company or worksite level. As these activities are being driven by the Corporate Culture & HRD Team, there are some schedule and budget limitations on conducting a wide range of activities. It would be better if these activities were undertaken at the company level with support from the Business Support Division or autonomous employee groups. In addition, it would be helpful if we could hold workshops at the beginning of the year to share a list of previously-conducted activities.

Lee:

I agree with Mr. Kwak's idea. Since educational activities are team-based, their impact is comparatively small. If we expand the scope to worksites and set common themes such as productivity or QM, more employees will join the activities.

Ha:

I believe voluntary participation can produce better results. In this regard, C.C. programs should be operated on a voluntary basis, but with higher incentives. Our efforts at innovating corporate culture are improved when we have motivated and voluntary C.C.s. We look forward to the interest and participation of LS C&S employees in these efforts.

What is a C.C. (CORE Communicator)?

CORE Communicators take the initiative in launching actions, communicate with members of the organization, and support them in making positive changes. They are commonly known as C.A.s, but LS C&S uses the term C.C. in order to emphasize communication.

*Source: OPEN MIND, an LS C&S company magazine published in Dec. 2019

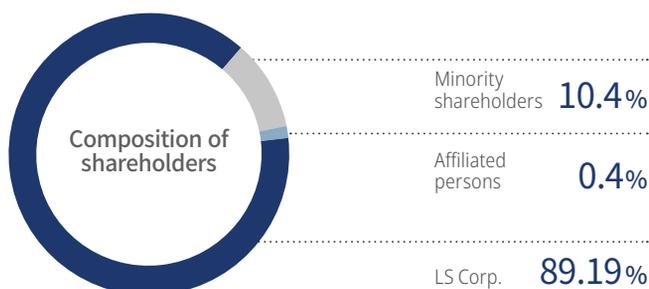
Corporate Governance

Sound and transparent governance is one of key elements for achieving sustainability. LS C&S is doing its utmost in reviewing items regarding company policy and businesses to make decisions considering the interest of our stakeholders.

Enhancing shareholder values

Shareholder status

All of our shareholders exercise their rights in accordance with laws and regulations. Our shareholders are mainly composed of LS Corp. and minority shareholders.



Shareholders	Number of stocks held	Percentage of shareholding (%)
LS Corp.	16,723,370	89.19
Minority shareholders	1,949,961	10.4
Affiliated persons	75,152	0.4

Dividends

Dividends are paid by the resolution of the board of directors and the general meeting of shareholders. In 2019, USD 8,407 thousand worth of cash dividends (on a non-consolidated basis) were paid, and the company's cash payout ratio based on consolidated financial statements stood at 11.9%.

	2017	2018	2019
Cash dividends total (USD thousand)	8,407	8,407	8,407
Cash payout ratio (on a consolidated basis) (%)	19.0	10.9	11.9

Board Meetings

The Board Meetings are held on a regular basis according to the pre-established annual plan. Special meetings are convened for prompt decision-making on major agenda items. In 2019, 18 board meetings were held in which a total of 33 items were resolved, including investment in G&P, and the establishment of a new sales subsidiary and of a joint-venture manufacturing subsidiary in Egypt.

Board of directors (BOD)

Composition of BOD

Directors are appointed at the general meeting of stakeholders. Candidates are selected by the board based on their experience and expertise in industrial environments, finance, and law. As of the end of 2019, the BOD features four registered directors. Director make decisions in accordance with commercial laws and articles of association and promote the rights and interests of stakeholder, including shareholders.

(as of Mar. 2020)

Name	Job title	Full-time (Y/N)	Responsibility	Transaction with the company	Relations with the largest and major shareholders
Koo Cha-Yub	Inside director	Y	Chairman	N/A	Executive of the affiliate of LS Corp.
Myung Roe-Hyun	Inside director	Y	CEO	N/A	
Ju Wan-Seob	Inside director	Y	CSO	N/A	
Lee Sang-Ho	Inside director	Y	CFO	N/A	

Performance evaluation and compensation

Executives are evaluated in accordance with performance indicators linked to the company's business goals and evaluation criteria for financial (sales and operating profit) and non-financial (risk management and improvement of organizational culture) performance. Remuneration is determined based on quarterly and annual evaluation results to increase accuracy and objectivity. In regard to remuneration of the directors and auditor, incentives are provided according to the evaluation results within the amount approved by the general shareholders' meeting. In 2019, the remuneration limit at USD 8,273 thousand was approved in the meeting.

(unit: person; and USD thousand)

	Number of people	Total remuneration	Average per person	Note
Registered director	4	5,415	1,356	-
Audit Committee member or auditor	1	121	35	-

*The above is the remuneration for the year 2019. The average remuneration per capita is based on the calculation of the total amount of remuneration divided by the number of people.

Director profile

The profile details and background information are specified in the published sales and business reports.

Integrated Risk Management

To help us take the lead in the global cable market and ensure market competitiveness, risk management procedures and a related system have been put in place that allow a proactive response. We will do our utmost to identify risks connected to uncertainties and potential losses so that an efficient response can be ensured in crisis situations and a stable business operation environment can be sustained.

Integrated management system

Risk Management Committee

The company-wide Risk Management Committee reviews the risk status and makes a decision on response measures. The committee is led by the President as the chairperson and the head of Management Support Group as the Chief Risk Officer (CRO). Meanwhile, project bidding cases are deliberated on in the Bidding Review Committee; the Copper Futures Committee for copper management; and the Working-level Investment Review Meeting and Investment Risk Review Committee for major investments.

Risk Management Committee meetings

Meetings are held to review the risk status in detail, evaluate potential losses and establish response measures on a quarterly basis. If necessary, special committee meetings are convened for which the monitoring team is required to immediately provide the general management team with the report on the risk and its impact on the business.

Risk management organizations

To identify risks and draw up response measures before conducting businesses, our risk management activities are conducted by three groups: an execution team, monitoring team, and general management team. The execution team implements action plans and takes response measures when risks occur. The monitoring team makes a risk prevention plan at the Division or Group level and examines risks for prevention. When abnormal signals are detected, the team reports them to the general management team. The general management team establishes a risk management plan at the enterprise level, oversees its status, and operates the company-wide risk management committee.

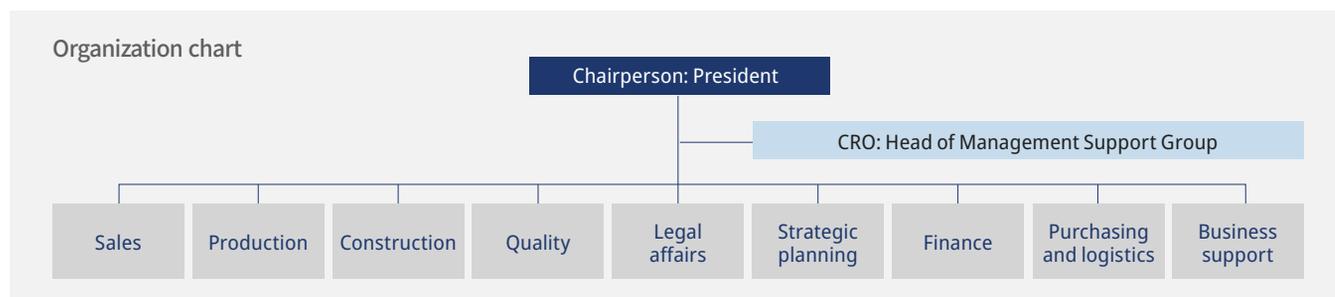
Risk portfolios

We have created risk portfolios for four areas: disaster, financial, operational, and potential risks. Risks are evaluated based on the company's specific criteria, and risks categorized by area are managed in a proactive and continuous manner.

Disaster risks

To prevent disasters and occupational accidents and minimize the damage when they do occur, we are conducting management activities including response policy formulation, inspection and diagnosis, and implementation of improvement measures. For accident prevention at plants and construction sites, safety inspections are carried out on a regular basis. At the same time, we have established a management system and are maintaining a dedicated organization to prevent and respond to emergency situations to prevent unexpected accidents such as earthquakes from negatively impacting our efforts to provide value to employees and customers. Even when production is disrupted by a disaster, we are still able to supply products from our overseas subsidiaries through cross-selling. In order to ensure that our subsidiaries provide comparable products, we operate an integrated Control Tower to support and manage the R&D, quality, and production technologies at our subsidiaries in a comprehensive manner. Under the Control Tower, technical management, quality management and equipment management teams are being operated.

Category	Items	Impact	Related sectors	
Disaster risks	Natural disaster	Natural disasters such as typhoons, floods, earthquakes, snowstorms, thunderstrokes	Suspension of production and sales	All
	Accidents	Fires and explosions	Loss due to fires, suspension of production, casualties, and disruption of process operations	Production
		Leaking of chemicals (toxic materials)	Casualties and tarnished corporate images	Production
		Serious accidents (including inhouse suppliers)	Disaster victims and disruption of process operations	All
Misc.	Wars and coups	Disruption of process operations	All	



Financial risks

We strictly prohibit currency and derivatives trading for speculative purposes beyond essential risk management. Since price fluctuations in raw materials heavily affect our profit structure, such risks are mitigated through futures trading. In particular, the Copper Futures Committee regularly reviews related risks by sharing information, including copper commodity and futures related issues, operational performance, and market conditions by period. In addition, to minimize risks stemming from to fluctuations in foreign exchange rates, we implement a 100-percent foreign currency hedge policy when bidding on international projects. Our debt-to-capital ratio is reviewed on a monthly basis and improvement measures are taken as necessary to maintain capital structure soundness.

Operational risks

Promoting system stability

In order to maintain the stability of the IT system, daily data backup for the entire system is conducted and the backup systems and data are stored in a vault to prepare for disasters or accidents. Measures in place to prevent the leakage of corporate and personal information include document encryption, authentication of external storage media, an approval process for exporting PCs, encryption systems, and firewalls. We have been implementing policy and taking technical protection measures to comply with domestic and international laws, including the Personal Information Protection Act, and the General Data Protection Regulation (GDPR). In 2019, in particular, as part of the efforts at improving our security management, we obtained ISO 27001 for business stability and information security operation.

Ensuring stable equipment operation

In regards to production, regular equipment inspections are being conducted and a response manual has been established for any case of the disruption of equipment operation.

Other risks

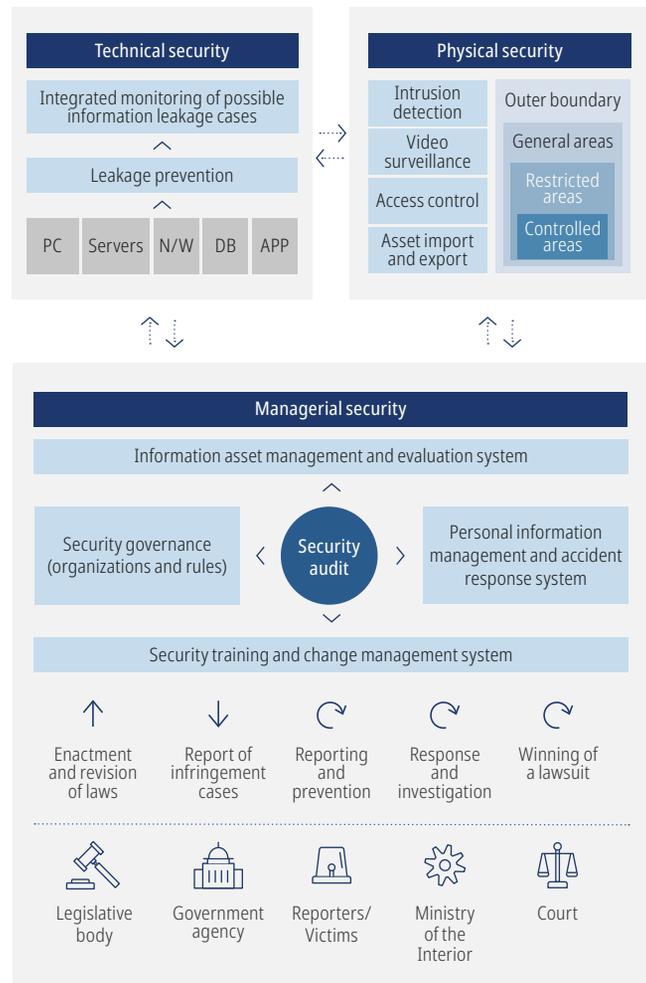
Strategic risks

The possibilities that a company's strategy may fail due to changes in the competitive environment or in strategic partners or to reputational damage are all managed as strategic risks.

Policy and regulatory risks

We also manage the risks of violating HSE laws and regulations. In particular, close attention is paid to legal compliance considering that any violations related to environmentally harmful materials may have a serious impact on our business operations, such as restrictions on sales activities and worksite closure orders.

Personal information and corporate security system



Refining risk management criteria

In March 2018, under a policy to refine risk management measures, specific guidelines and examples were provided to help identify risks. Classifications such as disaster, operational, and financial risks can feature room for subjective interpretation. To minimize subjectivity, we devised six new categories: collusion/litigation, debt, quality, withdrawal of business, subsidiaries, and miscellaneous. In addition, examples of cases identified as risks were provided to improve the efficiency of risk management and increase accuracy in profit and loss estimations.

Risk management process

Risk identification

At this phase, potential cases that may affect the company are identified and then defined as opportunities or risks. Responsible teams host meetings to identify risks of each business process from quotation to contract, production and delivery.

Risk assessment

This is a phase of determining how much impact identified potential risks will have on our efforts to achieve goals. Qualitative or quantitative methods are used in assessing risks. In the qualitative evaluation method, the likelihood of risk occurrence is indicated as high, moderate, and low while the results using a quantitative method is indicated in the form of frequency, percentage, and numerical value (amount).

Risk response

Risk response is a phase of establishing and implementing appropriate responses to eliminate or reduce identified risks. Risk responses are largely classified into three steps: setting a goal and strategy; devising measures and management index; and implementing them.

Risk monitoring

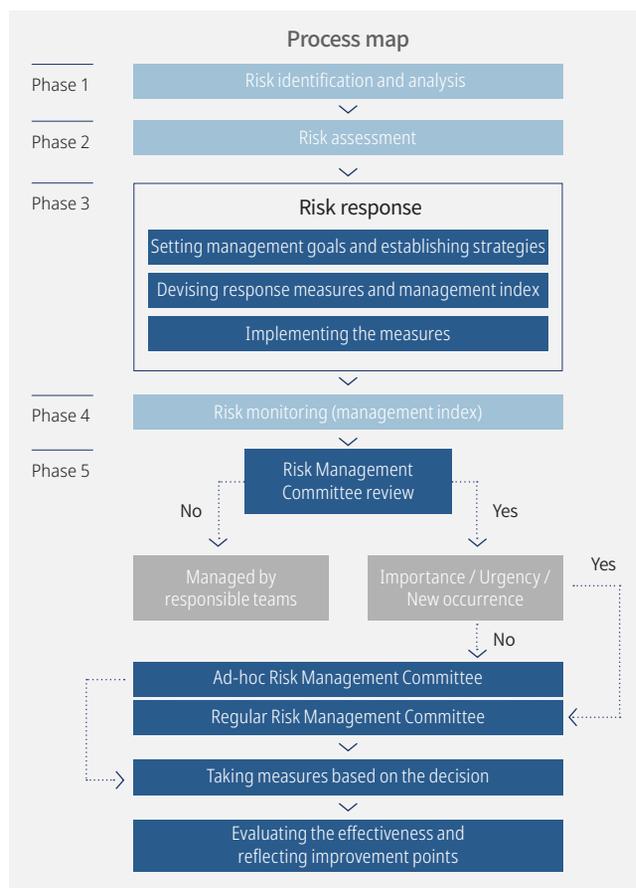
Risk monitoring is a phase of conducting a series of activities from review to supervision, observation, and management in order to identify abnormal signs for the defined risks. Monitoring and general management teams check the status of risk cases and response plans and share the results.

Risk report and closing

Risks are reported to management through the Risk Management Committee for their closing. Based on the three criteria, importance, urgency, and new occurrence, decisions are made on whether pertinent risks are reported to the committee. Once the risk case is closed, results and completion date are documented.

Examples used as criteria

	Examples used as criteria	Risk
Collusion/ litigation	Penalties and fines handed down as administrative measures	0
	Legal claims for payment or damage	0
	Incidental expenses for court decomposition or litigation (legal fees)	X
Debt	Bad debts	0
	Overdue debts	X
	Overdue debts related to other issues, such as quality	0
Quality	Construction loss due to disputes with customers or contractors	0
	Construction loss due to cost overruns (including costs not reflected in the quotation price)	X
	Losses from inventory disposal due to a large volume of (unusual) defects in process (writing-down the value of inventory included)	0
	Inventory or loss from development and production activities (such as remaining PP, execution loss, development samples)	X
Withdrawal of business	Quality claims raised by customers	0
Subsidiaries	Asset impairment due to withdrawal of business	0
Misc.	Impairment of securities, liquidation loss, fund raising	0
	Delivery delay, exceeding planned construction duration, and unpredictable changes on the part of customers (such as contract termination, bankruptcy, unreasonable requests)	0
	Expenses or losses from ordinary business activities (test/certification fees, taxes, and additional cable length required at the start and end of the manufacturing process)	X



Opportunities and Challenges

Emerging market growth forecast

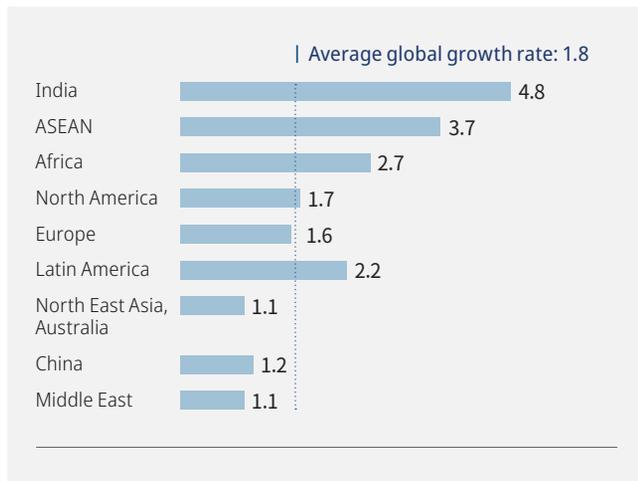
The global cable market is expected to record an annual growth rate of 1.8% through 2024. The rate in emerging markets such as India, ASEAN, Africa and Latin American countries is forecast to reach over 2.0%. Emerging economies are actively investing in power grids and next-generation telecommunication facilities as they promote urbanization and industrialization. Meanwhile, an increasing number of advanced countries are replacing their outdated power infrastructure with high-efficiency and large-capacity electrical grids.



In 2019, extensive efforts were made to increase our global presence, in particular in emerging countries. We strengthened our position in the ASEAN and Indian markets and made an entry into the African market by increasing our equipment investment in Vietnam, constructing a plant for telecommunication modules, and establishing a joint venture with M.A.N International Contracting, a local cable construction company in Egypt. Going forward, we will strengthen our focus on emerging markets to better respond to global demand.

Annual average growth forecast by region

(unit: %)



* Source: LS C&S Global Business Support Team research

Growing green business opportunities

As environmental issues have become global issues, a rapid transition to green business is occurring across all types of industries. Some countries plan to suspend the sales of internal combustion locomotives from 2025 at the earliest, while global carmakers are restructuring their businesses by securing EV performance that matches that of conventional vehicles. Domestic and international research indicates that EV sales in 2025 are expected to increase by 372% compared to 2019 to reach 12 million units, accounting for 12% of global market share. The power industry is facing a new energy transformation challenge. The supply volume of new and renewable energy, in particular solar and wind power, is on the rise in many countries.



LS C&S established LS EV Korea for its EV components and modules business in 2017. In 2019, a manufacturing subsidiary was built in Poland to compete in Europe. This subsidiary has a backlog of orders worth USD 432 million. For renewable energy, we have been concentrating our efforts on the Taiwan market. We signed cable supply contracts for three offshore wind farm projects, allowing us to strengthen our position for future bids.

Global EV sales forecast

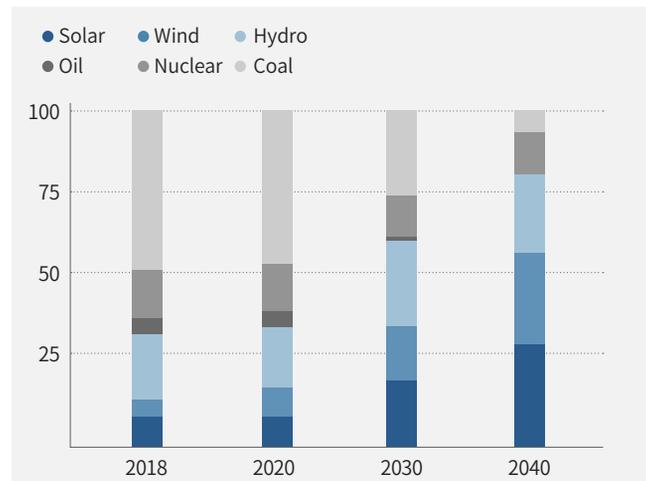
(unit: 10,000 vehicles)

2018	2019	2020	2021	2022	2023	2024	2025
198	254	334	437	570	734	939	1,200

* Source: EV sales, Inside EV, and Samjong KPMG Economic Research Institute

Production forecast by source of power generation

(unit: %)



* Source: IEA, Electricity generation by fuel and scenario

Rising average global temperatures

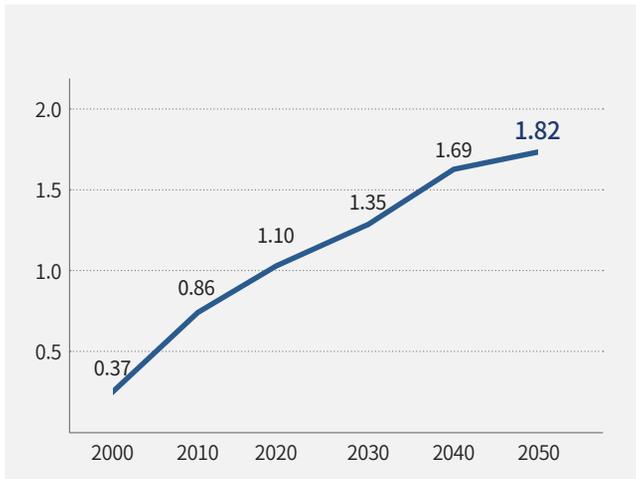
According to The Global Climate in 2015-2019 by the World Meteorological Organization, the last five years were recorded as the hottest years in history. The average temperature on earth has increased 1.1°C from the pre-industrial era (1850-1900) and 0.2°C compared to just the period from 2011 to 2015. Climate change is a mega-trend sparking paradigm shifts across human society, as seen in Paris Agreement, the launch of a New Climate Regime, and the 2030 GHG Reduction Roadmap of the Korean government. Transition to a low-carbon economy is inevitable. In this regard, global companies are proactively responding to these issues to gain a competitive advantage.



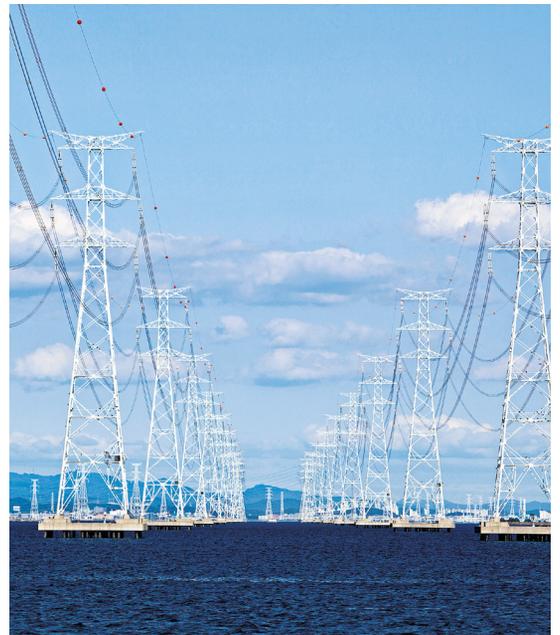
Since we joined the CDP Supply Chain program in 2010, our efforts at responding to climate change have been evaluated and the results are being shared with our customers. In addition, we have been participating in domestic emission trading schemes and fulfilling our legal responsibilities.

Earth's surface temperature changes

(unit: %)



* Source: IPCC



Sustainable Management System

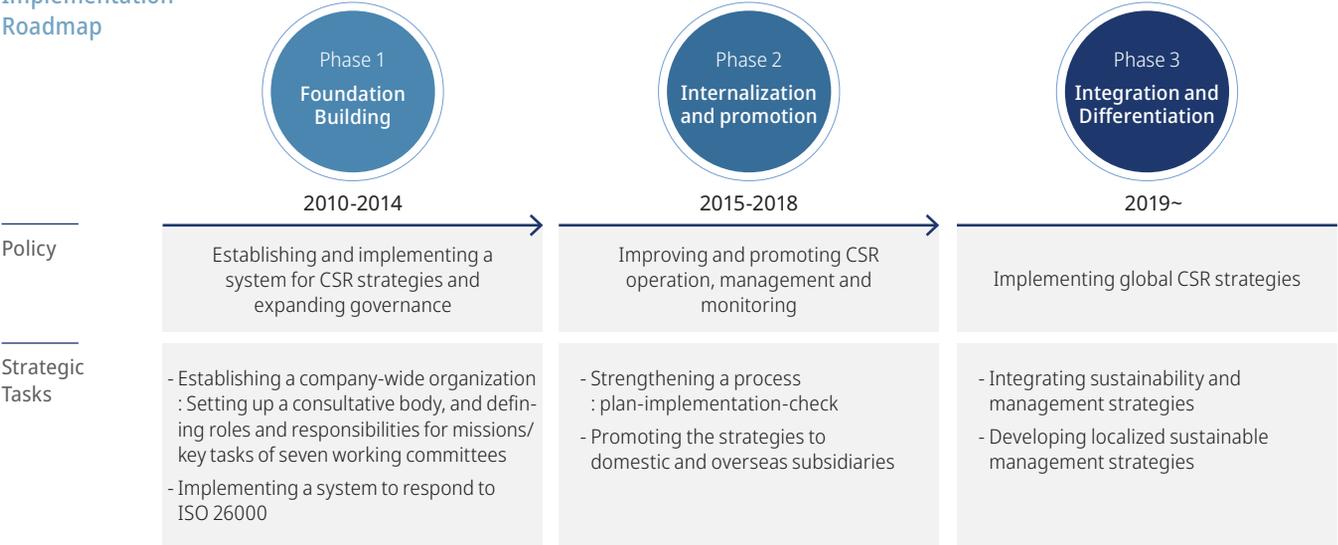
Principles

We are striving to create economic, social, and environmental value. In the rapidly changing business environment, we are seeking both economic and social value while promoting the interests of our customers, shareholders, and local communities. To this end, our efforts to minimize the negative impact of our business activities and maximize social value will continue.

Strategy

In 2010, we established a mid-to-long term strategy and roadmap for sustainable management, focusing on 7 key topics, including customer satisfaction, green management, social contribution, employee wellbeing, shared growth, compliance and fair competition, and ethical management.

Implementation Roadmap



Direction and Organization

We are operating a sustainable management system that reflects our management commitment to its implementation. The Sustainable Management Secretariat is in overall charge of this effort, and its seven working committees are carrying out KPI-based tasks aimed at increasing stakeholder value. Key issues and achievements are reported to the executive meeting, where decisions are made on implementation measures to effectively respond to stakeholder needs.



**Sharing value with stakeholders
(on a consolidated basis)**

Creating shared value is based on the concept of harmonizing the economic value of companies with the social value of communities. We are sharing our technology and know-how through a variety of activities and means in an effort to create new value and achieve sustainability at the corporate and social levels.



Customers

We are proactively responding to changes in markets and customer needs through innovative technology. We aim to provide differentiated solution services and create customer value. In 2019, sales generated by customers reached USD 3,975 million.

* Communication channels: Corporate disclosure system / Seminars for customers and meetings / Business reports

Shareholders and investors

For our shareholders and investors providing us with financial capital, we are striving to achieve qualitative growth and distribute to them the value we create. In 2019, USD 13 million was passed on to shareholders in dividends, and USD 54 million to investors in the form of interest.

* Communication channels: Corporate IR activities / Business reports / BOD meetings / General shareholders' meetings / Corporate disclosure system

Suppliers

We make steady efforts to identify and nurture competitive suppliers and strengthen our global supply network. In addition, unbiased evaluation criteria and systems are being carefully operated. Financial, technical, and educational programs are being provided to support stable management by suppliers. In 2019, USD 2,054 million (on a non-consolidated basis) was paid to suppliers.

* Communication channels: Supplier satisfaction survey / Open discussion meetings / Shared Growth Council

Local communities

As part of our efforts at fulfilling our corporate social responsibility, we utilize our strengths, provide educational support and talent donation, and participate in sharing activities to create social value. In 2019, we donated USD 922 thousand to local communities.

* Communication channels: Social contribution activities / Sharing activities by employees / Cooperation between industry and academia

Employees

Talented human resources are one of our key corporate assets underlying our competitive edge. Based on expertise, one of our core values, we are concentrating our efforts on training and investment for employee capacity-building and on improving employee satisfaction through performance-based evaluation and compensation. In 2019, USD 160 million (a non-consolidated basis) was distributed to employees in the form of wages, benefits, and training.

* Communication channels: Monthly morning assembly / Intranet / Cyber Reporting Channel / Counseling office

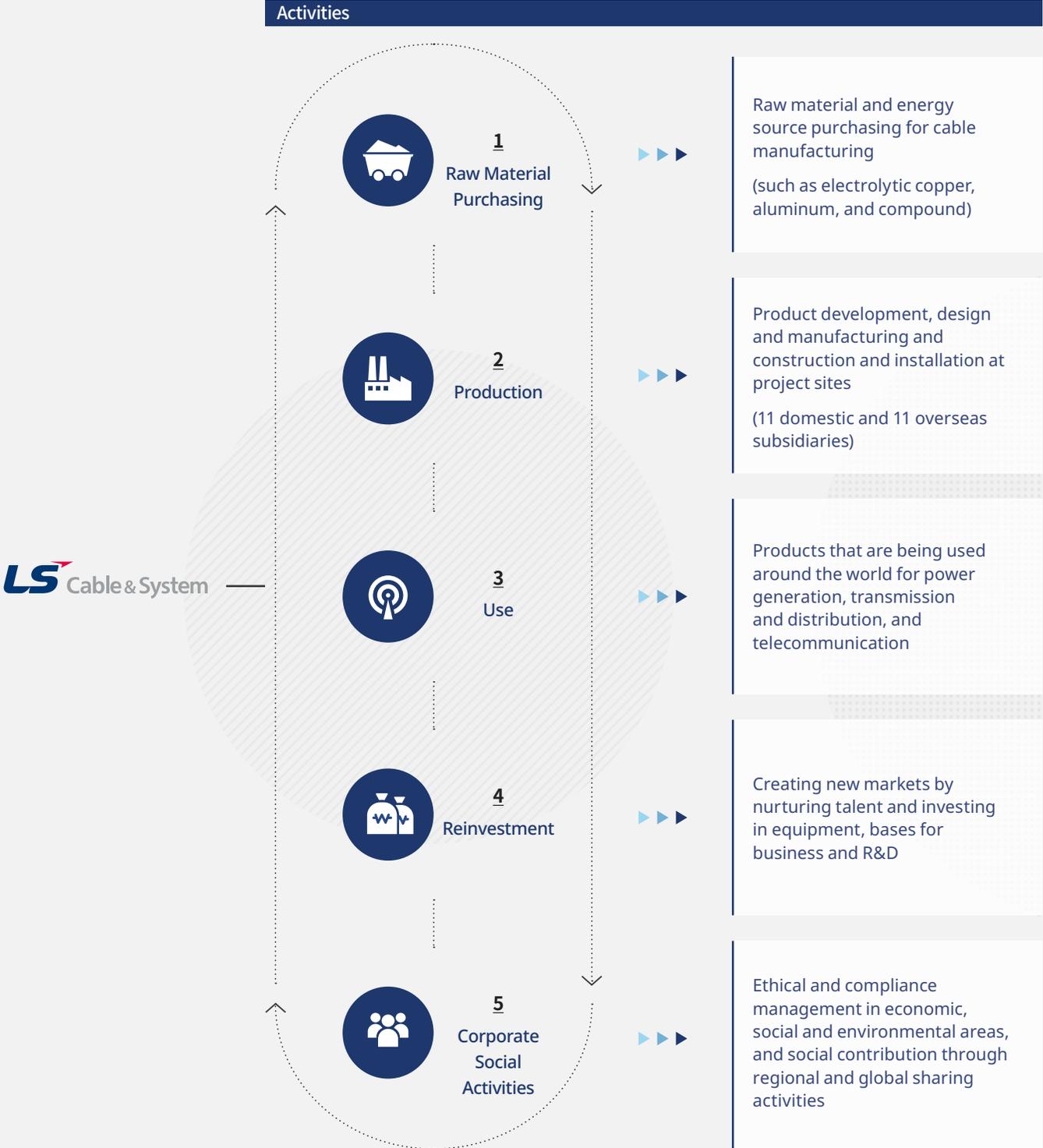
Government

The government establishes laws and systems that ensure the stable operation of companies. We are making every effort to fulfill our corporate responsibility by faithfully complying with all laws and regulations. In 2019, we paid USD 41 million in corporate tax and utility bills.

Activities and Responsibilities

Raising Stakeholder Value

Corporate sustainability can be achieved when trust-based long-term relations are established with stakeholders, including investors, partners, customers, and employees. We hear to the voices of our stakeholders through a variety of communication channels and reflect them in our business activities. We will continue our efforts at promoting shared growth by providing stakeholders with the best possible value created across the entire production process.



Responsibility

Achieving shared growth through fair business transactions with suppliers

*Suppliers: domestic and international companies supplying materials, electricity and water used for production, and services

Suppliers
458

Complying with environmental regulations and ensuring quality life of employees (providing a safe work environment, unbiased evaluation and performance-based compensation)

*Employees: workforce at LS C&S and its domestic and overseas subsidiaries

GHG emissions
125,315 tCO₂eq
Employees at home and abroad
4,612

Ensuring quality and safety, contributing to the development of industries and local communities, and reducing the use of energy

*Customers: our product and service users, including electricity agencies, telecommunications service providers, network operators, construction companies, shipbuilders, and device manufacturers.

Improving shareholder value and contributing to local communities by making profits

*Shareholders and investors: those who make an investment in equipment investment, R&D, and business operations.

R&D cost in 2019
USD 137 million
R&D and equipment investment for LS C&S and its subsidiaries included

Realizing public interest, preventing the occurrence of social cost, and contributing to the development of local communities

*Local communities: Gumi, Indong, and Donghae where our production facilities are located, eleven overseas manufacturing subsidiaries, and wherever our large-scale projects are being operated

Social contribution cost in 2019
USD 922 thousand

The World Best Cable Solution Leader

Materiality Assessment

2019-2020 Key Issues

We conduct a materiality assessment on an annual basis to identify issues of greatest importance impacting our businesses and stakeholders at home and abroad. A pool of economic, social and environmental issues is created utilizing our internal process, GRI Standards Index, ISO 26000, and Sustainable Development Goals. In order to evaluate issues, we analyze our policies and strategies, benchmark other companies, examine press reports, and interview employees. Our 2019-2020 activities related to ten issues identified as highest priority are included in this report, and they are monitored in close consultation with working committees.

Issue selection process

STEP1 Identifying

To identify issues, a pool of 29 issues was created utilizing GRI Standards Index, ISO 26000, and Sustainable Development Goals.



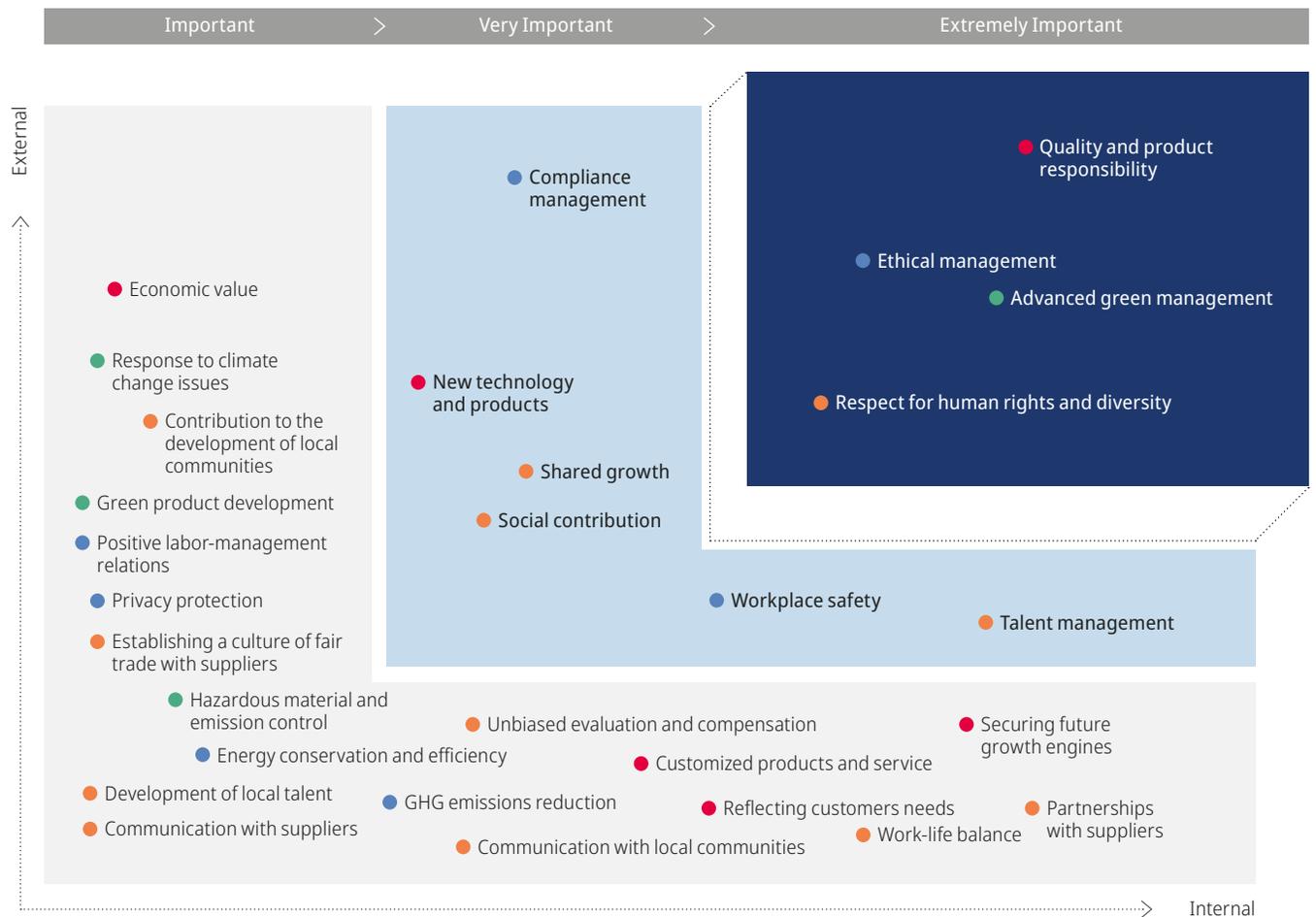
STEP2 Prioritizing

We conducted media research, benchmarked other members of the industry, and analyzed global standards to assess the effect of issues on stakeholders and society. We prioritize issues considering their business impact and strategic importance based on the impact analysis and our business management strategy.



STEP3 Finalizing

We have created a pool of 29 issues and selected ten issues identified as highest priority, which are included in this report. As we continue to pursue our target of enhancing stakeholder value through quality products and becoming the top cable manufacturer through green management, 'quality and product responsibility and 'advanced green management' were selected as key issues.



Core values	Key issues	Customers	Share-holders	government	Suppliers	Local communities	Employees	Future generations	Key tasks	Page
C Customer First	New technology and products	●	●	●		●		●	Providing differentiated products and service	36
	Quality and product responsibility	●	●		●		●		Satisfying the needs of global customers	45
O One LS C&S	Social contribution			●		●		●	Conducting strategic social activities	51
	Shared growth		●	●	●				Establishing a transparent procurement process	55
	Respect for human rights and diversity			●			●	●	Establishing win-win labor-management relations and respecting diversity	60
R Rule & Responsibility	Compliance management	●	●	●	●		●	●	Operating compliance programs	64
	Ethical management	●	●	●	●		●	●	Promoting ethical management and strengthening anti-corruption activities	67
	Workplace safety	●	●	●	●	●	●		Ensuring a safe workplace and promoting a culture of safety	70
E Expertise	Talent management		●				●	●	Securing talent and ensuring unbiased HR management	74
	Advanced green management		●	●		●		●	Establishing a green supply chain	82

Materiality Assessment

LS C&S and SDGs

The Sustainable Development Goals (SDGs) were set by the United Nations General Assembly in September 2015 as an effort to promote sustainability in the areas of economy, society, and the environment. SDGs consist of 17 goals and 169 targets. We have set targets for achieving SDGs considering our business environment and strategic goals and have conducted a wide range of related activities. We will actively join efforts to address global challenges and do our utmost to identify efforts that can contribute to meeting SDGs.



1 **NO POVERTY**
End poverty in all its forms everywhere

2 **ZERO HUNGER**
End hunger

3 **GOOD HEALTH AND WELL-BEING**
Ensure healthy lives and promote well-being

4 **QUALITY EDUCATION**
Ensure quality education

5 **GENDER EQUALITY**
Achieve gender equality

6 **CLEAN WATER AND SANITATION**
Ensure sustainable management of clean water and sanitation

7 **AFFORDABLE AND CLEAN ENERGY**
Ensure access to affordable and clean energy

8 **DECENT WORK AND ECONOMIC GROWTH**
Promote sustainable economic growth, full employment and decent work

9 **INDUSTRY INNOVATION AND INFRASTRUCTURE**
Build infrastructure

10 **REDUCED INEQUALITIES**
Reduce inequality

11 **SUSTAINABLE CITIES AND COMMUNITIES**
Make cities and human settlements sustainable

12 **RESPONSIBLE CONSUMPTION AND PRODUCTION**
Ensure sustainable consumption and production patterns

13 **CLIMATE ACTION**
Combat climate change

14 **LIFE BELOW WATER**
Conserve the oceans, seas and marine resources

15 **LIFE ON LAND**
Protect terrestrial ecosystems

16 **PEACE, JUSTICE AND STRONG INSTITUTIONS**
Provide access to justice for all

17 **PARTNERSHIPS FOR THE GOALS**
Strengthen the means of implementation and revitalize the global partnership

Area	SDG targets	Activities and achievements in 2019	Page
Customer First	 7. Affordable and clean energy Ensure access to affordable, reliable, sustainable and modern energy for all.	* Enhancing customer value by strengthening product competitiveness (strengthening competitiveness of HV/EHV and submarine cable products) * Strengthening quality management and securing evaluation technologies * Satisfying the requirements of global customers (quality)	36, 45
	 8. Decent work and economic growth Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	* Enhancing customer value by strengthening product competitiveness * Continuing innovation activities to respond to market changes	36
	 9. Industry, innovation and infrastructure Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	* Developing new technology and products that meet customer needs * Continuing innovation activities to respond to market changes (responding to a trend of increasing renewable energy sources and securing green materials prescription technology)	36
	 11. Sustainable cities and communities Make cities and human settlements inclusive, safe, resilient and sustainable.	* Enhancing customer value by strengthening product competitiveness (developing products for disaster prevention: fire-resistant and low-toxic cables)	36
One LS C&S	 3. Good health and well-being Ensure healthy lives and promote well-being for all at all ages.	* Complying with the Labor Standards Act of Korea and the UN Global Compact (no child/forced labor) * Direct/indirect employment of people with disabilities	60
	 4. Quality education Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	* LS Dream Science Class (science class for children) * The Job Schooling	51
	 5. Gender equality Achieve gender equality and empower all women and girls.	* Support for female employees (maternity protection and an LS daycare center) * Leadership training programs for female employees	60
	 7. Affordable and clean energy Ensure access to affordable, reliable, sustainable and modern energy for all.	* Electrical safety checks in traditional markets	51
	 10. Reduced inequalities Reduce inequality within and among countries.	* LS Code of Ethics and Practical Guidelines (Chapter 5. Corporate Responsibilities for Employees) * Respect for employee rights (no discrimination)	60
	 12. Responsible consumption and production Ensure sustainable consumption and production patterns.	* Building a fair and transparent procurement process * Sharing information on fair business transactions and revising subcontractor training materials * Supporting shared growth with suppliers (direct and indirect support)	55
	 17. Partnerships for sustainable development Strengthen the means of implementation and revitalize the global partnership for sustainable development	* Providing selected suppliers with superior performance with an opportunity to supply products to our overseas subsidiaries	55
Rule & Responsibility	 3. Good health and well-being Ensure healthy lives and promote well-being for all at all ages.	* Ensuring a healthy worksite (hazardous chemicals management and work environment measurement) * OHSAS 18001 certification (for domestic and overseas worksites and construction sites)	70
	 12. Responsible consumption and production Ensure sustainable consumption and production patterns.	* Managing critical accident risks at worksites * Modifying and promoting process-specific safety rules * Supporting suppliers to strengthen their safety management	70
	 16. Peace, justice and strong institutions Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	* Strengthening the foundation for ethical management (reviewing the Code of Conduct and implementation guidelines for their utilization) * Operating an organization and systems (a counseling center, the Cyber Reporting Channel, and Clean Company) * Providing compliance and ethical management training * Reviewing domestic and international contracts and laws	64, 67
Expertise	 4. Quality education Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	* Strengthening the job expertise of employees (quality and technology) * Establishing a platform to support employees to develop leadership skills * Capacity building of local employees at overseas subsidiaries (job/leadership)	74
	 7. Affordable and clean energy Ensure access to affordable, reliable, sustainable and modern energy for all.	* Green production (throughout the product lifecycle)	82
	 10. Reduced inequalities Reduce inequality within and among countries.	* Securing talent and ensuring unbiased HR management (employment and evaluation)	74
	 11. Sustainable cities and communities Make cities and human settlements inclusive, safe, resilient and sustainable.	* Green production (water resource use and management) * Minimization of environmental impact (chemicals management at worksites, waste management, and (air/water) pollutants management)	82
	 12. Responsible consumption and production Ensure sustainable consumption and production patterns.	* Green product R&D and raw material purchasing (including supplier management) * Environmental equipment investment	82
	 13. Climate action Take urgent action to combat climate change and its impacts.	* Green production (energy use and GHG emissions management, and energy saving and GHG emissions) * Participation of the CDP (Carbon Disclosure Project) Supply Chain program	82

Ten Key Topics Based on Our C.O.R.E Values



One LS C&S

- Promoting CSR activities that allows businesses and the society to grow sustainably together
- Establishing a system to achieve shared growth through fair business transactions with suppliers
- Respecting human rights and diversity in our employees and pursuing global standards

Customer First

- Developing new technology and products and providing competitive products that meet customer needs
- Providing products and services that meet customer expectations and needs anytime, anywhere and under any circumstances





Expertise

- Supporting employees with a sense of ownership to achieve superior performance together based on trust
- Establishing a green supply chain to respond to customer requirements and complying with laws

Rule & Responsibility

- Operating compliance programs to create a culture of fair competition
- Establishing a network based on mutual trust through fair business transactions with our suppliers
- Strengthening the foundation for ethical management and raising employee awareness of its implementation
- Ensuring a healthy and safe workplace by conducting activities focusing on the prevention of four critical accident risks



1

New Technology and Products

We strive to secure future growth engines and enhance customer value by developing core technologies and competitive products.



To achieve its vision 2030 of becoming The World Best Cable Solution Leader, LS C&S aims to increase its presence in global growth markets and innovate business models for high values by dedicating itself to the research and development of new technology and products. In addition, activities for innovation are being conducted to secure future growth engines in a rapidly-changing market environment.

Strategic direction

Developing new technology and products and providing competitive products that meet customer needs

Key tasks

Enhancing customer value by strengthening product competitiveness

- Strengthening competitiveness in HV/EHV and submarine cable products
- Diversifying a product portfolio for disaster prevention

Continuing innovation activities to respond to market changes

- Responding to a trend of increasing renewable energy sources
- Securing eco-friendly materials prescription technology

Achievements in 2019



Secured technology for HV/EHV and submarine cable products

- Factory joints for DC 525kV MI cables
- HV/EHV XLPE foreign substance monitoring device during pre-extrusion process



Developed customer-oriented products

- Fire-resistant cables and industrial rubber components
- DC 1500V solar system



Expanded a product portfolio

- AC 23kV superconducting cables
- e-Flatek™, a moving cable system for cleanrooms
- 250km/h overhead conductor rail system
- Busduct applications for IDCs

Link to SDGs



AC 23kV Superconducting Cables

Overview

As large cities expand and the construction of new towns is underway, there is a growing need for the transmission of large volumes of electricity and the construction of low-carbon and environmentally-friendly power facilities. Superconducting cables are solutions that can help meet these needs, providing a new paradigm for electric power systems. These highly-efficient cable systems allow the transmission of massive flows of electric power at lower voltage and with reduced loss compared to existing underground cables. Moreover, as a next-generation green system, they do not emit a magnetic field during operation.

LS C&S testing validated its 23kV 50MVA and 120MVA systems in 2013, making it the first company in the world to develop DC cables for transmission. It conducted a pioneering empirical study in 2014 and in 2016 successfully transmitted power at a world-record capacity over the longest distance ever. Superconducting cables face considerable technical barriers to market entry. As of now, only five companies have managed to develop them, with LS C&S demonstrating the most advanced technology of all. The company completed the Shingal Project in 2019 in partnership with KEPCO, installing and operating AC 23kV 50MVA products in actual systems for the first time in the world. Once again, its technological superiority and business competencies were placed on full display.

Concept

Since their electric resistance can reach essentially zero under certain critical conditions, superconducting cables have minimal transmission loss compared to older-generation products using copper and aluminum as conductors. As a result, they allow the transmission of large volumes of electricity at a low voltage and provide more stable operational conditions. To meet the conditions necessary for superconductivity throughout their lifecycle, however, advanced technology is required from design to production and installation to ensure that the interior of the cables can be maintained at extremely low temperatures and the penetration of any external magnetic field is fully prevented. A copper-cable core is surrounded by layers of superconductor, allowing the transmission of fault current in the case of line accidents. Liquid nitrogen is circulated around these layers to keep the cable's internal temperature at -200 °C while insulation materials and two layers of metallic conduits deter external heat infiltration.

Advantages

As superconducting materials with no electrical resistance are used instead of copper, the product loses less electricity to heat during power transmission, resulting in reduced power supply cost, minimized transmission losses, and curbed carbon emissions. In particular, its higher power transmission capacity at low voltage allows the same or a higher volume of electricity to be transmitted after replacing multi-cables in underground utility tunnels in highly-populated urban areas with single superconducting cables. Alternatively, the cables can be installed in a pipeline instead of constructing new underground utility tunnels. In addition, this eco-friendly product made with recyclable materials does not emit a magnetic field.



e-Flatek™, a Moving Cable System for Cleanrooms

Overview

A moving cable system is essential for certain equipment and facilities required in the semiconductor, display, and automotive industries. It provides protection to cables and pneumatic and hydraulic hoses, ensuring their safe and accurate operation. There has been a shift in display industry technology from liquid crystal displays (LCDs) to organic light emitting diodes (OLEDs). Semiconductor manufacturers are investing in the development of micro-process technology for increased productivity and processing speed.

Moving cable systems can be fitted to the equipment and facilities required for product manufacturing and inspection in the display, semiconductor, medical and pharmaceutical, and food industries. While existing systems do provide economic benefits, a large amount of microscopic dust that can contaminate products is generated due to friction and wear, negatively impacting productivity and yield (proportion of defects). To address this, LS C&S became the first enterprise in Asia to create a moving cable system for cleanrooms that minimizes such microscopic dust caused by friction and wear. It has obtained Class 1 (the highest level) in Fraunhofer IPA's dust test, and includes an antistatic feature that prevents performance degradation and defects in electronic components. This product is expected to replace existing imported cable systems and offer a range of solutions for smart factories.

Concept

In a moving cable system, a component within a fluoroplastic film with openings for insertion is assembled using cables, chains, and hoses. The system features a layered structure for friction prevention so that the cables, chains, and hoses cannot come into contact. Moreover, the fluoroplastic film with its extremely low coefficient of friction minimizes dust generation.

However, the high level of electrostatic discharge from fluoroplastic materials could damage sensitive components in LEDs and semiconductors or cause the ignition of flammable or explosive substances, making it necessary to carefully control static electricity. In this regard, LS C&S applied its polymer surface treatment technology to develop products that minimize the occurrence of static charge and feature ESD¹⁾ protection.

1) ESD: Electrostatic discharge

Advantages

With the technological changes taking place in display panels and ultra-micro line width of semiconductor circuits, micro-processing is now required in display and semiconductor products. Our moving cable system minimizes the occurrence of microscopic dust that can lead to contamination and defects in these products. Its electrostatic control feature has been specially designed to prevent any issues related to static charge.



Busduct Applications for IDCs

Overview

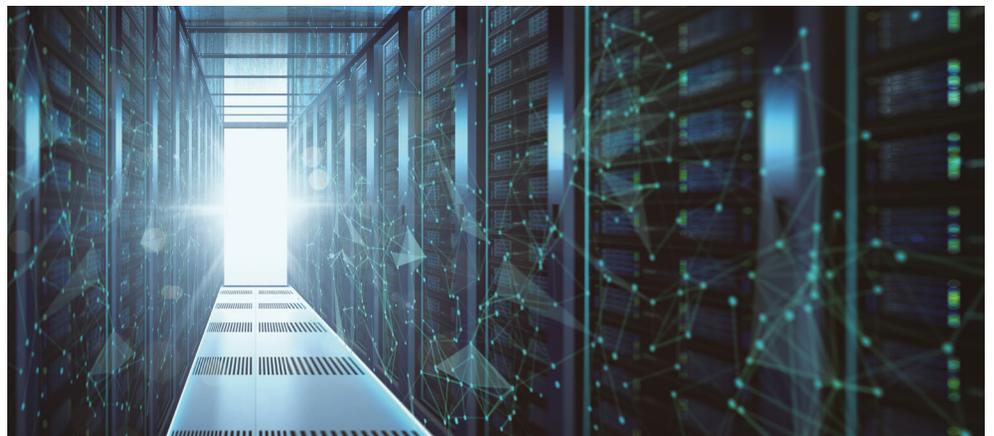
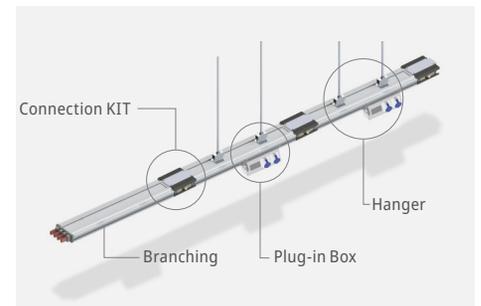
The surge in the volume of information flowing worldwide has already led to an increase in power usage by IDCs (Internet Data Center), and this volume and flow of information will only continue to grow. In this regard, LS C&S has developed busduct products for IDCs that allow the stable transmission of large amounts of electricity. Starting with the financial, web portal, and telecommunication industries and then spreading to other fields, demand is expected to grow rapidly. With 5-7% annual growth forecast for global markets by 2025, our competitors in other countries are also launching IDC-related products. LS C&S is striving to lead the domestic market and enhance its global competitiveness by offering customers a wide range of IDC-related products developed based on our technological strengths. Equipment installed in IDCs includes server room backbone cables, branching devices, and monitoring systems.

Cocept

Containing a copper or aluminum busbar conductor, insulator, metal enclosure, and joint parts, a busduct is a key trunk line in a low-voltage power system. Busducts for IDCs are small-sized and come with a capacity of 160, 250, 400, 630 or 800A. As a PH-box for power branching can be easily installed, removed or moved, users can install them in a desired location along the rack trunk line. Meanwhile, the monitoring system allows users to oversee pertinent data including amperage, voltage, power, and temperature in real-time.

Advantages

The compact size and simple design of our busduct products for IDCs make them space-efficient and easy to install. Their structure promoting thermal dissipation increases electrical performance. A PH-box can be installed in a desired location without the need to shut down the main power. Communication modules and contacts within the box allow the implementation of the monitoring system.



DC 1500V Solar System

Overview

The global solar market reached 105GW in 2018, finally surpassing three-digit gigawatt demand. The market has been steadily growing due to technological progress, affordability, and the increasing preference for renewable energy. Solar power systems are composed of solar arrays, electric condensers, inverters, system controllers, and system connection devices. The demand for DC solar power cables for system connection is also on the rise. As the solar power cable market is based on public confidence in the quality ensured by TÜV¹⁾ certification, our products with EN/IEC specifications are undergoing this process and we plan to ensure that our products meet JCS²⁾ and UL³⁾ specifications for global customers and markets.

1) Technischer Überwachungs Verein (Germany)

2) Japanese Cable maker's Association (Japan)

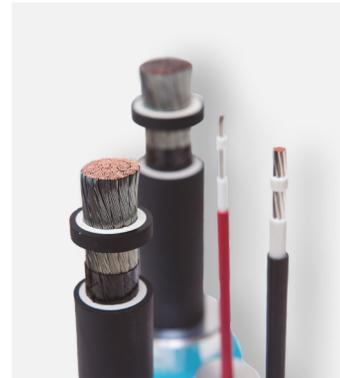
3) UL: Underwriter's Laboratory (US)

Concept

DC solar power cables are optimized for the outdoor environment. A tin plating conductor is used to prevent corrosion, and the insulating sheath materials must be able to withstand 20,000 hours at 120°C. Compared to AC cables, the product must stand up to external conditions such as water, UV light, temperature, and acid.

Advantages

In line with the increase in sources of DC power supply accompanying the expansion and diversification of new and renewable energy, the product satisfies the requirements of DC voltage and has demonstrated the level of quality required by EN 50618 and IEC 62930 specifications. Its long-term heat resistance properties have allowed the service life to be extended from 20-25 years to 25-30. This halogen-free, eco-friendly cable can maintain its functionality in challenging environments such as extreme temperatures and high humidity. Instead of using AC power cables, products suitable for DC solar power systems are applied to ensure stable system operations and power supply to consumers.



Fire-resistant Cables and Industrial Rubber Components

Overview

Many of the power and communications cables installed during the period of industrialization in Korea were vulnerable to fire and other accidents due to their technological limitations and the lack of related regulations. In many cases, cables have become a source of fires, sometimes leading to casualties. Considering that most fire deaths are caused by poisonous gases in the smoke, safety can be ensured by increasing the critical time available for fire suppression. In September 2019, our products became the first in the domestic cable industry to be certified for disaster safety by the Ministry of the Interior and Safety.

Concept

What is a fire-resistant power supply cable?

When a fire or disaster occurs, it is essential that emergency lights, fire alarms, sprinklers, ventilation systems, and evacuation facilities continue to operate for as long as possible. A fire-resistant cable can supply power even in the midst of fires and other disasters so that safety facilities can function properly for a greater period of time.

What is a self wrapping tube for preventing the spread of fires?

This industrial rubber component is designed to minimize the spread of fire or related damage by being installed over existing power and telecommunication cables that lack flame-retardant or fire-resistant properties.

What is a low-toxic cross-linking polyolefin insulating cable?

This 450/750V cable is used for cabling indoor electric facilities, electronic devices, refrigerators, and air conditioners.

Advantages

Fire-resistant power supply cables

To protect conductors, a tape made of non-combustible mica materials is used in the cable. If the cables burn, strong carbide-forming filling materials protect the conductors from external shocks. This product can continue to function properly at 950 °C for 180 minutes. In comparison, other products function for 90 minutes at 750 °C, meaning the critical time for fire suppression is doubled.

Self wrapping tube for prevention of flame extension

These special industrial rubber tubes have reinforced flame-retardant properties. These properties can be added to plain cables or tubes by simply covering them with the self-curling tubes. This product meets IEC¹⁾ 60332-3 (Category C) flame-retardant standards.

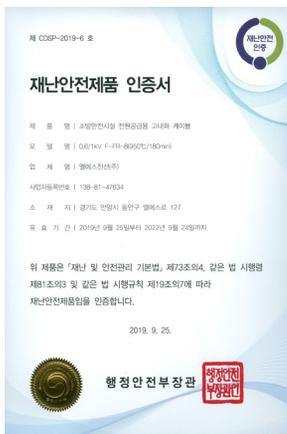
1) IEC: International Electrotechnical Commission

Low-toxic cross-linking polyolefin insulating cables

An eco-friendly compound (zero halogen) is used to minimize the casualties caused by toxic gases in fires. This product has obtained eco-friendly and KS certifications from Korean government agencies.



*Certification for Disaster Safety Products.



Factory Joints for DC 525kV MI Cables

Overview

DC Power transmission has become an important topic with the recent trend toward large-capacity, long drum-length and HV/EHV cables. It results in less power loss and shows advantages over AC power transmission for long-distance transmission in cross-border grids and new and renewable energy. In particular, as HVDC (High Voltage Direct Current) allows the transmission of a large volume of electricity over great distances, it is considered a core technology for a planned Asian Super Grid potentially connecting power system networks in the two Koreas, Mongolia, China, Japan, and Russia.

LS C&S developed a conventional DC 500kV Kraft MI¹⁾ cable system in addition to a DC 500kV MI underground cable system insulated with polypropylene laminated paper. These cable systems were certified by the 3rd party in February 2018, allowing the product to be qualified for a bid for cross-border grids projects in Europe. In July 2019, certification was also obtained for FJ²⁾, an essential component for long drum-length cables, diversifying our cable system product portfolio.

- 1) MI: Mass impregnated
- 2) FJ: Factory joint

Concept

Depending on the insulating materials, HVDC cables are classified as MI cables or XLPE cables (cross-linked polyethylene). MI cables have traditionally been used for DC power transmission since long drum-length cables can be manufactured and they show stable insulating performance. Manufacturing MI cables requires a high level of process technology, including in lapping and impregnation. In particular, the lapping process must be conducted manually and is heavily dependent on the proficiency of the workers involved. Factory joints are an essential component of long drum-length cables. As their external diameter is almost the same as that of the cables, they can be applied in turntable winding. In addition, an assembly process has been established based on the MI cable concept, allowing us to reduce the connection construction times for 500kV flexible type joint by half.

Advantages

Unlike OF¹⁾ cables, Kraft MI cables do not require pressure tanks for maintaining the insulating performance of cable systems. This makes them applicable for underground or undersea installation, large-capacity and long drum-length cable manufacturing, and reducing underground utility tunnel size to minimize related environmental impacts.

- 1) Oil Filled



250km/h Overhead Conductor Rail System

Overview

In 2013, LS C&S developed a domestic 120km/h overhead conductor rail system to replace elements that had previously been entirely imported. After the performance of the system was validated by the Korea Rail Network Authority (KRNA), it was installed in rail lines in Korea, including the Seongnam-Yeosu line, the extension of the Suin line, the Wongang line's Gangneung Station tunnel section, and the Sosa-Daegok line. In 2014, a state-funded project was sponsored by the Ministry of Land, Infrastructure and Transport to develop a 250km/h overhead conductor rail system. To check the safety and suitability of the systems, it was installed in the Wonju-Gangneung line's Daegwallyeong tunnel where KTX trains were test operated. This was followed by performance validation by KRNA. As a result, the company became the second in the world to develop a 250km/h overhead conductor rail system and demonstrated core and source technology equivalent to anything possessed by its European counterparts.

Concept

The system is composed of R-Bar, joint, transition element, expansion joint, brackets, shock-absorbing devices (support clamps), and polymer post insulators, as well as section insulators for the same phase installed separately on sidetracks. In the system, R-Bar integrated with an aluminum-alloy rigid body also serves as a power supply line. As a bracket is attached to fix a rigid body to the side or top of underground and tunnel sections, the system can be installed without auxiliary devices in narrow spaces such as tunnels.

Advantages

Conventional catenary lines are composed of a messenger wire and droppers. For installation in tunnels, the cross-section area of the tunnels must be expanded, incurring increased construction costs. In contrast, overhead conductor rail system allows a narrower cross-sectional area that provides cost savings. Moreover, the system does not put any tension on the lines, which eliminates the concern over disconnection caused by heat. As a result, little maintenance is required. This product is expected to be applied to high-speed rail systems such as the GTX (the 74km span between Paju and Dongtan and the 49km stretch between Cheongnyangni and Songdo) and replace existing imported systems.



HV/EHV XLPE Foreign Substance Monitoring Devices During Pre-extrusion Process

Overview

HV/EHV XLPE cables are manufactured using a polymer extrusion process. To ensure product reliability, extrusion should be performed for extended periods without creating foreign substances. A variety of substances may be found inside extruders that are left over from resins not melted at the beginning of the process or from the cleaning process. Pre-loading is a key process for HV/EHV XLPE cable production. However, hundreds of tons of XLPE materials are lost annually in this process.

To address this issue, it is necessary to quantify the pre-load time during which a stable state is reached that does not cause any foreign substances. However, as times had been set simply based on previous experience and product reliability evaluation results, excessive pre-loading often occurred. We have developed a pre-load foreign substance monitoring device that allows us to accurately measure the size and amount of substances in real time and use the results to minimize the pre-loading time and ultimately reduce raw materials losses.



Concept

The monitoring device is composed of a precision camera and ultrasonic sensor for accurate measurement of the amount and number of foreign substances inside the XLPE and of the resin temperature. As XLPE becomes transparent above its melting temperature, substances can be quantified using a camera. The ultrasonic sensor measures resin temperatures in real-time to see whether the extrusion is stabilized. For different XLPE material, pre-extrusion time can be quantified and determined by checking the conditions of extrusion and occurrence of foreign substances.

Advantages

Quantified pre-load times contribute to cost savings. In addition, extrusion quality monitoring, which is necessary for ensuring reliable HV/EHV XLPE cable production, allows us to validate the reliability of insulating extrusion equipment. Stable quality can be ensured in the cable using this device by identifying whether the conditions in an extrusion process are normal. As the device is designed to be applicable for a wide range of XLPE equipment, consistent quality is ensured for our HV/EHV XLPE cables.

Using this monitoring device, the need for petrochemicals can be reduced, including PE and XLPE for cable manufacturing. We will continue our efforts to support the global movement to protect the environment.



2

Quality and Product Responsibility

We continue to provide greater value through customer-oriented product quality innovation.



As our cable products are used for power and telecommunication transmission for industrial infrastructure and people's lives and applied to a variety of power devices, we are proactively conducting quality management activities to increase reliability and meet the requirements of eco-friendly products. In addition, considering the impact of our products has on local communities and the country, we are striving to secure the best possible product quality and meet the needs of our customers and stakeholders by establishing a risk management system across the entire process.

Strategic Direction

Providing products and services that meet customer expectations and needs anytime, anywhere and under any circumstances

Key Tasks

- Satisfying the requirements of global customers
 - Acquiring certifications by area to meet global standards
 - Conducting activities to ensure stable production
- Strengthening quality management at worksites and securing evaluation technologies
 - Innovation activities at worksites in 2019 (Clean Factory! 2019)
 - Product quality evaluation technologies
- Operating the Quality Control Tower
 - Establishing a global Q-Cost system
 - Conducting 'level-up' activities for suppliers

Achievements in 2019

- 
Satisfied the requirements of global customers
 - Global certification:
 - newly obtained (2 cases); maintained (3 cases)
- 
Promoted activities to ensure stable production at LSCUS
 - Implementation of seven tasks
- 
Conducted 207 activities by quality circles and secured 29 cases of evaluation technologies in 2019
- 
Operated the Quality Control Tower

Link to SDGs



Satisfying the Requirements of Global Customers

Satisfying the requirements of global customers

Activity 1 - Acquiring certifications by area to meet global standards

To operate a quality management system tailored to customer needs worldwide and each product group, VoCs, pertinent laws and regulations, and global standards are identified and reflected within the system.

Energy Transmission /Construction	ISO 9001, KEPIC	<p>We are operating a risk-based quality management system in line with ISO 9001:2015. For construction area, we obtained OHSAS 18001¹⁾ certification based on which a dedicated quality system has been implemented. To meet global customer needs, particularly in Europe, we have established and regularly operated our QMS IT system for providing quality-related information.</p> <p>1) LS C&S plans to transition from OHSAS 18001 to ISO 45001 in September 2020</p>
IT	TL 9000	<p>Efforts are in place to meet requirements for risk assessment and disaster recovery for optical communications products. In 2019, we maintained TL 9000 R6.0.</p>
Auto Mobiles	IATF 16949	<p>Activities have been conducted to ensure product safety in line with the IATF 16949 certification, the Product Liability Act and the end-of-life vehicle directive by the German Automotive Industry Association. In 2019, we maintained the IATF 16949 certification (wires, tubes and magnet wires for automobiles).</p>
Misc.	CPR, railways, explosion protection and classification of ships	<p>Our products are globally certified by respective industries, including construction products regulation (CPR), railways, blast protection, structures, and shipbuilding.</p>
Security process	ISO 27001	<p>To meet increasing customer demand and strengthen our global competitiveness, LS C&S became the first company in the domestic cable industry to acquire ISO 27001 certification (information security standards).</p>

Activity 2 - Conducting activities to ensure stable production

Activities for stable production at LSCUS were implemented through internal benchmarking.

Selection of seven tasks

Stable production at LSCUS	
1 Master data integrity	Precision cost Rolling plan
2 3R5S	Inventory Mgmt. Quality/Safety
3 Defective product detection	Claim prevention Defect rate improvement
4 Facilities Mgmt. system	MTTR ¹⁾ MTBF ²⁾
5 Facilities layout rationalization	Logistics Lead time
6 Φ 200 CCV #2 equipment stabilization	Production capacity increase
7 Material loss reduction	Batch production for product loss reduction

1) MTTR (Mean time to repair)
2) MTBF (Mean time between failure)

Implementation approaches for the tasks

1 Master data integrity

- Validating data integrity related to defect rate and material loss calculation
- Establishing a Q-Cost monitoring system

2 3R5S

Ensuring stable inventory management and quality through visual management

Visual management	Defective goods	Three-to-six-month inventory	Locations of facilities, pedestrian passage, and material storage and shipping areas
	Inventory over six months	One-to-three-month inventory	

3 Defective product detection

Preventing the same mistake from happening again through the process of 'detection → raising issues → troubleshooting → learning lessons'

4 Facilities management system

Ensuring stable production through enhanced capacity during scheduled and breakdown maintenance

5 Facilities layout rationalization (The establishment of a production technology center under review)

An overhaul of copper wire drawing machines

6 Φ 200 CCV #2 equipment stabilization

Conducting test operation, pilot production and evaluation of finished goods

7 Material loss reduction

Implementing tasks to improve over-thickness, over-length, and replacement-related product loss issues

Strengthening Quality Management at Worksites and Securing Evaluation Technologies

For product quality management, CTQ and CTP tasks by product/process are identified. The tasks are incorporated into improvement tasks for quality circle activities and engineers.

Activity 1 - Innovation activities at worksites in 2019 (Clean Factory! 2019)

In 2019, quality circles conducted Theme tasks to reduce product losses and internal failure cost. In addition, 'Clean Factory! 2019' was launched for Clean tasks (maintaining a pleasant work environment) and Safety tasks (preventing potential safety accidents) to raise employee awareness.

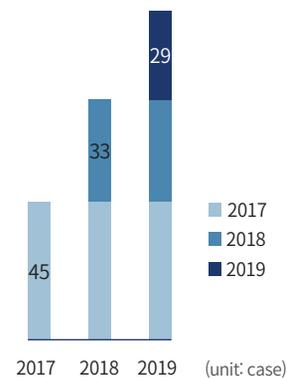
Innovation activities in 2019

Theme tasks	131
Clean tasks	38
Safety tasks	38
Total	207

Activity 2 - Product quality evaluation technologies

To prevent the potential impact of product defects on industries and people's lives, we continue our efforts at developing evaluation technologies. In response, we have secured technologies related to long-term reliability, electrical and material tests to ensure high product quality and win the trust of customers. Meanwhile, we are developing available substitute characteristics.

Evaluation technologies secured on an annual basis



Evaluation technologies secured in 2019

Energy  10 cases	<ul style="list-style-type: none"> · Submarine_ Comprehensive DC cable test voltage, current and temperature management system · Submarine_ DC cable dissipation factor test terminal technology · HV/EHV_ 500kV PQ certification test · HV/EHV_ PMJ barrier coating automation application and evaluation
Distribution/Overhead  6 cases	<ul style="list-style-type: none"> · Distribution_ Improvement in sample conductor resistance measurement precision (deviation: 0.3% → 0.05%) · Overhead_ Stranded cable tension test epoxy evaluation technology
Telecommunication/Industrial cables  6 cases	<ul style="list-style-type: none"> · Wireless network_ Investment in 5Ga PIMD analysis equipment and 5G test capability · Automotive cable_ A3Z contraction-related strip force requirements and contraction test · Industrial equipment_ Evaluation method for white rust occurrence on cables used for railway signals · Industrial/Specialty_ Torsion and toxicity index evaluation technology
Materials/Busduct  7 cases	<ul style="list-style-type: none"> · Materials_ Oxygen-free copper measuring equipment (Less than 100ppm) · Magnetic wire_ Production condition monitoring infrastructure · Busduct MV_ Validation test technology (current and voltage simultaneously applied)

Operating the Quality Control Tower

The Quality Control Tower is being operated to cut Q-costs by comparing rates of defects or losses within a given product group between the head office and overseas subsidiaries.

Activity 1 - Establishing a global Q-Cost system

Q-Cost monitoring systems in overseas subsidiaries

- Target: sales, accounting, production, production management, QA
- Q-Cost items: ERP system (customer complaint, internal failure, evaluation cost), BI system (product losses)

Customer complaint, Internal failure, Evaluation cost

ERP system Q-Cost structure developed and expensing requirements established

Customer complaint

- Disposal of returned goods/ Delivery due to customer claims
- Loss compensation/ Defect repair
- Quality accident related business travel expense
- Repayment due to delay

Internal failure

- Disposal of defective products
- Remaining PP/LES
- Disposal of long-term inventory
- Repair and rework

Evaluation cost

- Certified test fees
- Quality certification fees
- Test sample disposal cost
- Pilot production cost

Product losses

Material loss rate data validated

- The data allows the comparison and analysis of loss rate within the same product category by subsidiary

Improvement tasks identified

- Fiber: Material loss increase due to shorter-than-required length (200µm fiber)
- PE: The accuracy of inventory check results needs to be checked
- PBT: Increased material loss due to excessive extra length at the beginning of the manufacturing process

Activity 2 - Conducting 'level-up' activities for suppliers

We have implemented a module for supplier within the QMS IT system in order to strengthen quality management of raw materials and products from suppliers. The system allows suppliers to check product specifications, create quality checklists and manage inspection results. All of these activities can be monitored by LS C&S.

Inspection report



NO	Type	Inspection category(main)	Inspection category (sub)
10	Qualitative	Appearance	No foreign substances or bubbles
20	Qualitative	Appearance	Color
30	Qualitative	Properties	Dispersibility
40	Quantitative	Structure	Pellet size
50	Quantitative	Misc.	Pellet weight ratio
60	Qualitative	Structure	Thermal stability
70	Qualitative	Properties	Migration resistance
80	Qualitative	Properties	Weather resistance
90	Quantitative	Electricity	Volume resistivity

Exchanges meetings were held for suppliers to raise awareness on quality. Our engineers checked the process of suppliers, identified improvement points and provided guidance.

Power device suppliers

Suppliers	Key products	Time	Issues
Company Han	Fittings and shield rings	Feb.	-
Company D	Fittings and link boxes	Feb.	Poor L/B welding
Company Shin	Bourdon tubes	Feb.	Inspection report errors
Company H	Pressure tanks	Feb.	Poor PT welding
Company Ji	Semi-conductive paint	Apr.	Customer complaints of steam supplier & power generation EB-G (Shinseo)
Company Won	Main insulation processing	Jun.	Processing defects
Company Sung	Main insulation processing	Jun.	Processing defects
Company Dae	Coffin boxes and bourdon tubes	Jun.	-
Company Shin	Cleats	Aug.	Poor surface condition
Company D	Epoxy-molded metals	Aug.	Processing defects
Company L	Fittings and shear bolts	Aug.	Defective terminal lugs inside corona shields

Future Plans

Upgrading the QMS IT system

After the completion of the first phase of the QMS IT system project in 2018, the second phase of the system upgrade is underway. This system will be gradually phased in across our overseas subsidiaries starting from 2021 to create a quality management system operating at the global level.

1. Proactively detecting and addressing quality risks using the statistical analysis of data

- Taking measures on potential quality risks by conducting a statistical analysis of accumulated data
- Comparing and analyzing data by level (equipment/product/period)
- Utilizing graphs for visual quality management
- Detecting abnormalities and analyzing trends to proactively address defect issues

The volume of quality-related data in the QMS IT (unit: case)

Inspection data	Test request	NCR	Customer complaints	Points raised after inspection	Action items
265,516	1,063	1,275	1,450	192	359

2. Maximizing its utilization with integrated information management and enhanced user convenience

- Integrated search of data in ten processes
- History tracking by product and enhanced project quality
- Comprehensive analysis of quality index and efficient operation of quality meetings
- Reduced time spent in using the system with increased user convenience for suppliers
- Development of a mobile version allowing data entry for inspection lots or test requests

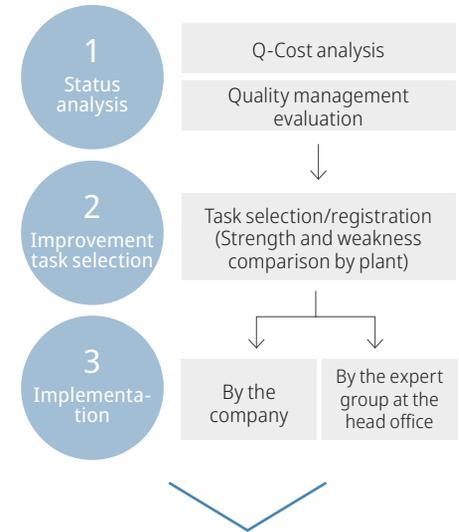
3. Increasing efficiency in operating quality circles and building knowledge assets

- Managing the history of case studies in quality circles and building knowledge assets
- Best practice (Q/C/D) search and application at the company level
- Monitoring of CTQ development according to improvement results

Contributing to cost reduction through the operation of the Quality Control Tower

A foundation has been established to allow LS C&S and its overseas subsidiaries to compare and analyze their Q-Costs and benchmark one another. In order to promote these activities, a control tower for Q-Cost improvement will be operated.

Identifying and implementing tasks through Q-Cost analysis and quality management evaluation



Control tower operation for Q-Cost improvement (Steering Committee: review and decision-making)

① Status analysis

- Identifying tasks through Q-Cost performance analysis and diagnosis
- Global Q-cost management standards established in 2019
- Identifying tasks through a comprehensive analysis of plant quality management
- Quality management system (such as NCR), and strength and weakness in process management

② Improvement task selection

- Selecting tasks considering the importance and urgency of issues
- Prioritizing high performance, Quick-Win, and the diffusion of technology in task selection
- Implementing the tasks and managing their status using sheets

③ Implementation

- By the company: Implementing tasks at the company level or in cooperation with related business divisions
- By the expert group: Implementing tasks by forming an expert group

Future plans

Global quality evaluation system

- It aims to strengthen the competitiveness of overseas subsidiaries through 'level-up' activities according to mid- and long-term master plans

Identifying and implementing improvement tasks with the introduction of a quality management evaluation system in 2020



- Global standards, and Q-Cost performance evaluation
- Granting a composite grade

Comprehensive evaluation 100%



A composite grade granted: S, A, B+ or B-

Q-Cost \ Global Standard	Global Standard				
	S	A	B+	B-	Fail
S	S	S	A	B+	-
A	S	A	B+	B-	-
B+	A	B+	B-	B-	-
B-	B+	B-	B-	B-	-
Bad	B-	B-	B-	B-	-

Global Standard

Eight evaluation items considering global standards and customer requirements

- Eight items (76 questions)

- ① Procurement quality
- ② Process quality management (including NCR)
- ③ Production management
- ④ Facilities and equipment management
- ⑤ Technology/Mgmt. standard management
- ⑥ Design quality management
- ⑦ Quality management
- ⑧ Education/Training management

Q-Cost performance

Scoring according to the Q-Cost performance evaluation table

- Evaluation compared to the 2019 performance

3

Social Contribution

We will fulfill our corporate social responsibility to future generations and local communities by contributing to the sustainable development of society.



LS C&S is always striving to fulfill its corporate social responsibility. As part of these efforts, activities such as talent donation, sharing events in partnership with local communities, programs for nurturing future talent, and regional and global sponsorship events are being conducted. Our efforts will continue through these activities so that we can grow together with local communities and strengthen our position as a global leader in our industry.

Strategic direction

Promoting CSR activities that allows businesses and the society to grow sustainably together

Key tasks

Local community support

- Supporting welfare organizations and offering scholarships in Donghae
- Sharing activities by employees

Donation of talent

- Electrical safety checks in traditional markets

Nurturing future talent

- LS Dream Science Class (science class for children)
- Industry-academia cooperation

Global sharing activities

- LS overseas volunteer group
- Local community support by overseas subsidiaries

Achievements in 2019



Providing donations and sponsorships

Scholarships/donation, and sponsoring a drawing contest for environmental protection USD **787** thousand



Supporting volunteer/sharing activities of Chamsarang Society and Jeongnanum Society

In-house volunteer clubs at the Gumi, Indong and Donghae plants USD **48** thousand



LS overseas volunteer group

Educational and cultural exchange activities and cheerleading **50** participants



Local community support by overseas subsidiaries

Sponsoring local social welfare centers and stream cleaning activities USD **87** thousand

Link to SDGs



Local Community Support/ Donation of Talent

Local community support

Supporting welfare organizations and offering scholarships in Donghae

Since our submarine cable worksite was built in the city in 2009, a special bond has been formed between LS C&S and Donghae. We are striving to sustain our efforts to contribute to local communities through designated donation, scholarships and sharing activities by employees. LS C&S has been making an annual donation of USD 86 thousand to the city of Donghae to support welfare centers. In September 2019, a donation ceremony was held to provide two passenger vans and culture and arts education support to people with disabilities and for repairs to residential facilities for the disadvantaged. In addition, USD 432 thousand in scholarships were donated in order to foster the future of Donghae City.



Sharing activities by employees

All employees of LS C&S have voluntarily donated up to USD 1 from their monthly salary, and the company matches its employees' charitable contributions. The funds collected through employee donation is used to support children living with their grandparents, people with disabilities, and senior citizens living alone. In 2019, we donated USD 32 thousand. Chamsarang Society, a volunteer group established in 1999 at the Gumi and Indong plants consists of 600 employees, while 200 employees at the Donghae worksite are working as volunteers of Jeongnanum Society that was started in 2009. They visit local social welfare centers on a regular basis and conduct a variety of activities, including cleaning, repairs, birthday parties, sports events, free meals, and free haircut services. In addition, fuel and food support, scholarships to child breadwinners, and stream and cultural heritage protection are provided. At the end of the year, coal briquette delivery and kimchi making events for the vulnerable are held.



Donation of talent

Electrical safety checks in traditional markets

We have been providing monthly electrical safety checks in traditional markets since September 2017. Employees with cable inspection expertise visit shops to check cable insulation performance, sheathing, and possible short-circuits and provide repair or exchange services. They offer education on the risks posed by cable misuse. As of December 2019, such activities had been conducted at 300 shops in 22 traditional markets not only in Anyang, Gunpo, Gumi, and Donghae where our worksites are located but also in Busan, Daejeon, Gwangju and Ulsan.



Nurturing Future Talent/ Global Sharing Activities

Nurturing future talent

LS Dream Science Class

The LS Dream Science Class has served as a program helping children to increase their interest on basic science since 2013. College students majoring in science and engineering participate as teachers during summer and winter vacations and teach science classes to the elementary school students in Anyang, Gumi and Donghae where our headquarters and worksites are located. Our researchers also take part in as one-day lecturers to provide in-depth classes. This program helps children to learn about scientific principles such as superconductivity in magnetic levitation trains and the difference between DC and AC, as well as heightening their interest in science by making self-generating flashlights and robots. We will continue our efforts to make The LS Dream Science Class a more effective and interesting program for children.



Industry-academia cooperation

We are actively promoting cooperation between industry and academia in order to develop basic science and nurture talent. Technological information regarding our power transmission and telecommunication projects is shared with universities. Our employees with expertise serve as mentors, which allows college students to have chances to learn on-the-job skills. The Job Schooling, an internship program started in 2012, provides the students of Kangwon National University majoring in electricity and electronics and IT engineering with education and employment opportunities. Its curriculum includes lectures on the systems, design, manufacturing, and quality management of our main products. In particular, our researchers and senior-level employees with expertise and experience participate as lecturers, allowing students to learn both theories and practices. Students who complete the program are given preference in applying for our company.



Global sharing activities

LS overseas volunteer group

We have participated in the LS overseas volunteer group program and elementary school construction projects in developing countries to improve their educational environment. Since 2007, 24 teams consisting of 1,000 college students and employees have joined these program for 13 years. In addition, as part of LS overseas volunteer group activities, the construction of LS Dream School buildings is underway near the location of our subsidiary to provide students with better educational environments in Vietnam.



Local community support by overseas subsidiaries

LS-VINA and LSCV, our subsidiaries in Vietnam raise funds to support the socially vulnerable. Employees regularly make a visit to schools for the blind and orphanages for volunteer activities and support the activities of social welfare centers and the construction of community health centers. Moreover, they are also sponsoring Women's Day in Vietnam, the LS-Vietnam national go competition and the Hải Phòng fireworks festival, contributing to promoting human rights and cultural exchanges with Vietnam. For subsidiaries in China, LSHQ donated CNY 300,000 (USD 43 thousand) on September 19, 2019 to improve the educational environment in Dianjun District, Yichang City where our worksite is located. It also selects employees in need and offers their families monthly financial support and provides support for a wide range of groups who need help. In addition, stream cleaning activities are being conducted to protect the environment. Meanwhile, LSCW provides a support fund for the local Korean vendor association in Wuxi City and conducts a variety of volunteering activities.



Social Contribution Activities in 2019

Social contribution activities in 2019 (Domestic)

Volunteer and sharing activities

(unit: USD)

	Activities	Beneficiaries / Organizations	Frequency	Participants	Support fund in 2019
Head office	Electrical safety checks in traditional markets	Traditional markets	9 times/year	45	13,819
	Monthly support	Gyeongbuk Red Cross/ Hwangsang Children's Center/ community health centers/ Seongshim Care Home	Monthly	-	8,292
Chamsarang Society	Free meals; meal box delivery to the elderly living alone; cleaning and repairs	Gumi Social Welfare Center	Monthly	240	6,823
	Kimchi sharing events	Local residents in need	Annually	50	6,478
	Activities to spread positive interactions, birthday parties, and sports day events	Aehyang Welfare Home	13 times/year	30	2,591
	Free hair cut services; birthday parties; event sponsorship	Sunsan Seongshim Care Home/ Seongshim Nursing Home	Annually	10	2,591
	Coal briquette-sharing events	Local residents in need	Annually	25	1,123
	Daily necessities support; house visits, Fuel expense support; bathing support; cleaning	Uiseung Ansa Community	6 times/year	10	259
Jeongnanum Society	Kimchi sharing events	The elderly living alone and senior citizen centers near the location of the Donghae plant	Annually	25	5,625
Total					47,601

Donation and sponsorship

(unit: USD)

	Activities	Beneficiaries / Organizations	Frequency	Participants	Support fund in 2019
Head office	Scholarships	High school and college students in Donghae	Annually	-	431,854
	Donation	Community Chest of Korea	Annually	-	309,207
	Donation from monthly salary	Children living with their grandparents; senior citizens living alone; children's home	Monthly	-	32,303
Donghae worksite	Support for people in need	Senior citizens living alone	Monthly	-	8,637
	Sponsorship of local events, including the Donghae Mureung Festival	Donghae city; the Donghae Mureung Festival Organization Committee	Annually	-	4,491
	Sponsorship of events at senior citizen centers	Songjeong-dong senior citizen center	Annually	-	432
	Sponsorship of a drawing contest for environmental protection	Korea Headquarters of Environmental Movement	Annually	-	173
Total					787,096

Social contribution in 2019 (overseas)

(unit: USD)

	Activities	Beneficiaries / Organizations	Frequency	Participants	Support fund in 2019
LS-VINA	Sponsorship of the LS-Vietnam national go competition	Go players; the Vietnam Go Association	Annually	3	10,364
	Sponsorship of the Hải Phòng flower festival	Hải Phòng City	Annually	-	8,637
	Gifts for low-income families; support for schools for the blind, for children with HIV/AIDS and for orphanages	Low-income families, welfare centers and orphanages in Hải Phòng City	Annually	6	4,664
	Sponsorship of the Hải Phòng fireworks festival	Hải Phòng City Authority	Annually	-	4,319
	Support for the family members with disabilities of employees and for retirees	Families of employees/retirees	As needed	4	2,570
	Donation for housing construction	Hải Phòng Federation of Labor	Annually	-	2,159
	Support for community health centers	Community health centers in Truong Sa islands	Annually	-	1,080
	Sponsorship of the 'Happy New Year's Day' foundation	Social welfare foundation	Annually	-	432
	Sponsorship of the 'Returning a Favor' foundation	Social welfare foundation	Annually	-	432
	Sponsorship of the LS-Vietnam national go competition	Go players; the Vietnam Go Association	Annually	-	1,727
LSCV	Support for employees in need	Employees	4 times/year	12	1,036
	International Women's Day; Women's Day in Vietnam	Employees	Biannually	80	432
LSCW	Support fund for the local Korean vendor association	Korean vendor association in Wuxi City	As needed	-	1,727
	Donation to the Educational Development Promotion Association	Office of Education in Dianjun District	Annually	-	44,049
LSHQ	Support for employees in need	Employees	Monthly	-	1,762
	Charity donation to military veterans	Dianjun District Government	Annually	-	1,468
	Tanjahe Stream cleaning activities	Cleaning of stream near the location of the subsidiary	Annually	40	294
Total					87,152

4

Shared Growth

A wide range of programs are being operated to foster a culture of shared growth with our suppliers.



Cooperation and the competitiveness of our suppliers provide a starting point for building our mutual strength by creating synergies. LS C&S establishes partnerships with suppliers based on a long-term perspective and supports their sustainable development through a transparent procurement process.

Strategic Direction

Establishing a system to achieve shared growth through fair business transactions with suppliers

Key Tasks

Building a fair and transparent procurement process

- Transparent purchasing process
- Strengthening internal regulations to prevent unfair business transactions

Supporting shared growth

- Financial support
- Local economic development

Supplier management

- AVL (Approved Vendor List) system
- Support of suppliers in expanding their overseas sales
- Credit rating system

Achievements in 2019



Direct loans to suppliers USD **864** thousand



A win-win cooperation fund USD **35** million



Local economic development
Supply networks in China, Vietnam, and India USD **241** million



AVL system Approved Vendor List system

Link to SDGs



Building a Fair and Transparent Procurement Process

Transparent purchasing process

Supplier selection

In order to select suppliers in a fair manner, the entire process from registration to final selection is managed through our e-Procurement system. In principle, competitive bidding is always conducted except in special cases such as the application of new technologies or customer requests. Applicants are evaluated through both paper screening and on-site inspections. The results based on production capability, quality, price, worksite safety and other evaluation criteria are announced to individual applicants in writing within 15 days of the final selection.

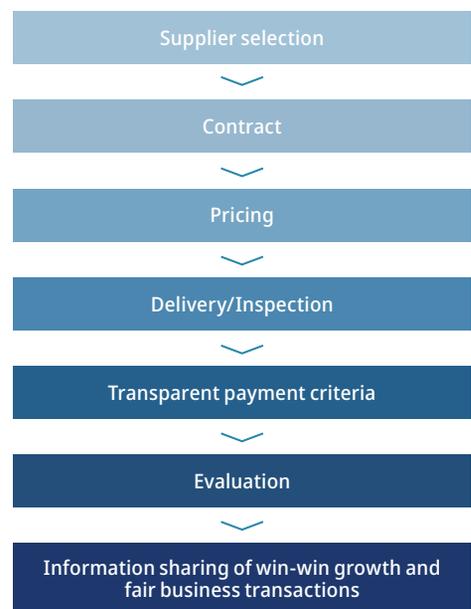
Contract

We use a standard form of subcontractor agreement that includes the following information: payment amount; payment methods; and price adjustment conditions for raw material price fluctuations. In principle, contracting parties' signatures should be included on the contract.

Pricing

We set a reasonable price by considering product quality, quantity, and delivery as well as market price. Unjustly lowering the unit price without sufficient reason is disallowed. Suppliers can file for a purchase price adjustment at any time. If a valid reason exists, a contract price can be adjusted based on mutual agreement between within 30 days from the date of request.

Procurement process



Delivery/Inspection

After delivery and service are completed, a confirmation slip is issued and an inspection is performed in accordance with the pre-agreed standards and procedures. We strictly comply with pertinent rules and inspectors' duties and due diligence to prevent the return of supplied goods without sufficient cause.

Transparent payment criteria

Payment criteria transparently set according to transaction type and payment amount are available through the e-Procurement system allowing suppliers to make a predictable plan for bill collection. For suppliers that have signed subcontracting contracts, payment is made in cash and cash equivalents on 15th day of the following month after delivery. In 2019, the subcontracting payment rate was 28% in cash and 100% in cash equivalents (bills with a maturity of less than 60 days).

Payment criteria by supplier type

SUBCON-TRACTING	<ul style="list-style-type: none"> · USD 268,312 or less Cash (paid on 15th of the following month of delivery) · More than USD 268,312 Bills with a maturity of 45 days from the delivery date or the end of the delivery month
NON-SUBCON-TRACTING SMES	<ul style="list-style-type: none"> · USD 4,472 or less Cash (paid on 24th of the following month) · More than USD 4,472 and USD 17,887 or less Bills with a maturity of 60 days from the delivery date or the end of the delivery month · More than USD 17,887 Bills with a maturity of 90 days from the delivery date or the end of the delivery month
LARGE-SIZED COMPANIES	<ul style="list-style-type: none"> · USD 4,472 or less Cash (paid on 24th of the following month) · More than USD 4,472 or USD 17,887 or less Bills with a maturity of 90 days from the delivery date or the end of the delivery month · More than USD 17,887 Bills with a maturity of 120 days from the delivery date or the end of the delivery month

Evaluation

Annual supplier evaluations are conducted to help them elevate their competitiveness. Evaluations are conducted in the areas of process, quality, labor, and financial management in accordance with detailed supplier evaluation and management rules. Feedback is provided to encourage suppliers to work on areas for improvement. In 2019, a total of 458 companies were evaluated, an increase from 331 in 2018.

1. EG ¹⁾ classification	High	SHOP Minimizing procurement efforts	LEVERAGE Requiring strategic cooperation	
	Low	MANAGE RISK Securing reliable suppliers	PARTNER Establishing continued relationships	
		Low	High	
		Product importance (Purchase price)		
2. QCDS ²⁾ evaluation	Basic	Area	Description	Evaluation method
		Quality	Quality defect rate and improvement rate	System
		Price	Price reduction rate	System
		Delivery	Delivery compliance rate	System
	Cooperation	Developing measures to respond to urgent delivery	Manual	
Additional	Cooperation and measures taken		Manual	
3. Results	Improvement measures for low-performing suppliers			

1) EG (Evaluation Group) classification: grouping suppliers for evaluation by business and material characteristics

2) QCDS: Quality, Cost, Delivery, and Service

Information sharing of win-win growth and fair business transactions

Fair trade issues and best practices of other companies are shared at the company level on a monthly basis and an internal check is made to prevent potential risks of unfair business transactions. Our internal standard form of subcontracting contracts, detailed rules for work, and training materials are revised accordingly based on the updated information from the Korean Fair Trade Commission and the Korea Commission for Corporate Partnership.

Strengthening internal regulations to prevent unfair business transactions

Our internal regulations have been tightened to prevent unfair business transactions. Firstly, our Guidelines for Contract Signing were introduced to promote fairness and discourage any potential standards violations among our employees and suppliers. Secondly, regulations on supplier registration were strengthened to ensure that our employees responsible for purchasing select suppliers in a fair and transparent manner based on a clear understanding of the selection criteria. In addition, our internal policy on these matters is available to all of our employees and suppliers through the e-Procurement system (<http://epro.lscable.com>) so that any potential unfair acts can be monitored both internally and externally.

LS C&S Guidelines for Contract Signing

• Purpose

The purpose of the guidelines is to establish business transaction practices in which contracts between LS C&S and its supplier are concluded in a reasonable and fair manner. In the guidelines, contract signing includes a standard form of a contract with suppliers as well as contracts on supplier selection for individual items and on pricing.

• Laying a foundation for contract signing

- 1) Contract options: available options for suppliers are specified.
- 2) Operation of a means for companies to propose their registration as one of our suppliers

• Introducing a contract signing process

• Specifying matters to be observed and prohibited

LS C&S Guidelines for Supplier Selection and Management

• Purpose

The purpose of the guidelines is to secure transparency and fairness in supplier selection and management so that fair business transactions can be ensured.

• Selection criteria

- 1) Evaluation in five areas, including general business administration, and process, quality, environment and labor, and finance management
- 2) Pass (70 points or higher), Temporary Pass (60 to less than 70), Fail (less than 60)

• Equal opportunities for initiating business transactions

Companies selected and registered as suppliers of LS C&S are not prevented from or discriminated against being given opportunities to join a bid for business transactions.

Supporting Shared Growth

Financial support

To help suppliers improve their cash flow, we operate financial support systems, including direct loans, a win-win cooperation fund, and a network loan. We will further strengthen promotional activities to benefit more suppliers.

Win-win cooperation fund

We also provide a win-win cooperation fund worth USD 35 million that was created in partnership with KEB Hana bank. It allows our suppliers to secure loans at lower-than-market interest rates. In 2019, a total of 37 primary and secondary suppliers were provided with loans of USD 8 million.

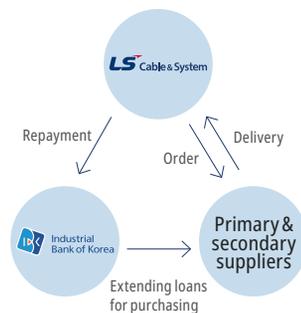
Shinhan shared-growth loan

Shinhan shared-growth loans allow our secondary and tertiary suppliers to access secured loans for credit sales using the credit of LS C&S. This helps them to secure cash flow at a low interest rate and improve their financial soundness.

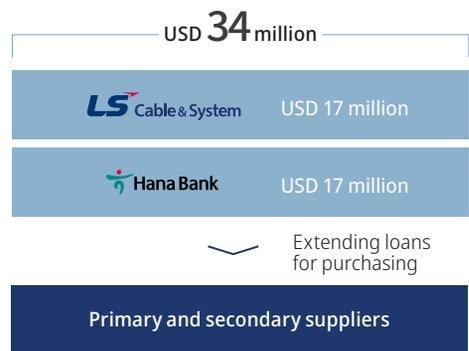
Direct support

We have created a fund worth USD 864 thousand to extend direct interest-free loans to suppliers and elevate their technology development and equipment investment. In addition, network loans are being operated at a low interest rate to support our partners in improving their cash flow.

Network loans



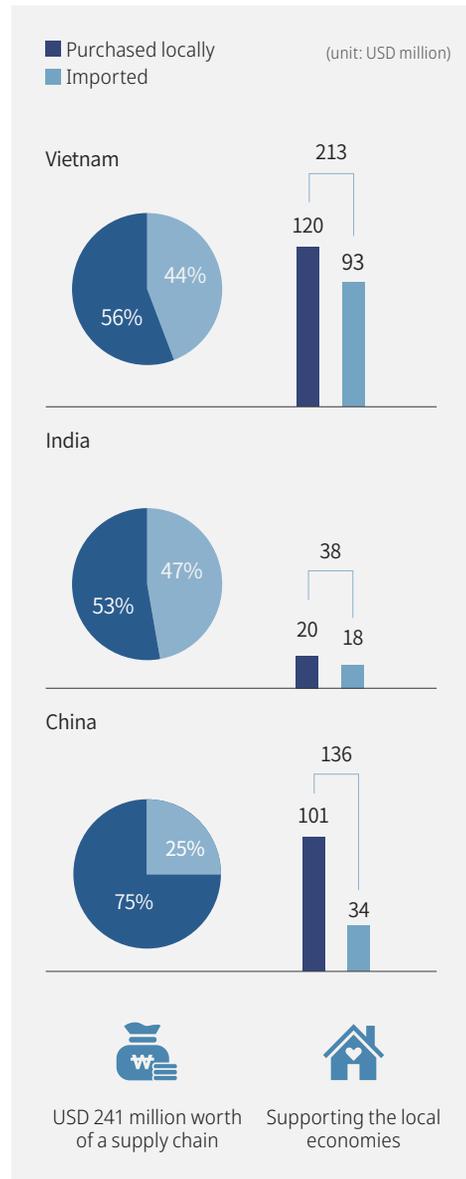
Win-win cooperation fund



Local economic development

As part of the efforts to support our suppliers in expanding their overseas sales, selected suppliers with superior performance are given an opportunity to supply products to our overseas subsidiaries. At the same time, overseas subsidiaries in China, Vietnam, and India have created a supply chain to promote the local economies in our international locations. In 2019, raw materials (nonferrous metals not included) worth USD 241 million were purchased locally, accounting for 62% of total procurement.

Raw material procurement by region

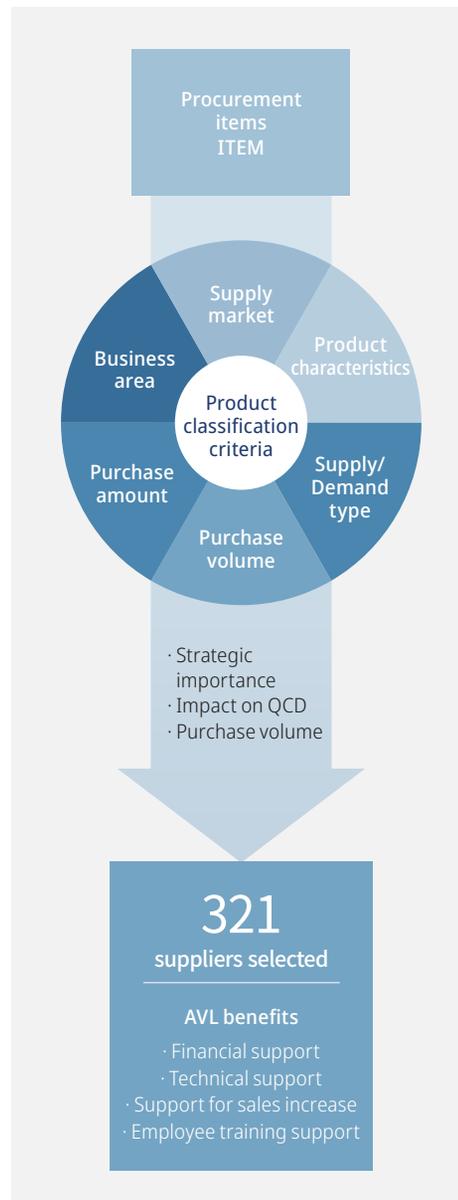


* Nonferrous metals linked to international market prices not included

Supplier Management

Approved Vendor List (AVL) system

Since the AVL system was introduced in 2016 based on the belief that the competitiveness of our suppliers is one of our core strengths, we have been working to enhance the competitiveness of key suppliers and manage risks together. Companies selected as key suppliers under the AVL system are guaranteed one year of supply to LS C&S, allowing them to minimize uncertainties in sales. In addition, along with financial benefits, they receive support for conducting improvement activities that are identified together with LS C&S. In 2019, 321 companies were selected as AVL suppliers for a total of 99 product groups. We will continue our efforts to promote their competitiveness through regular inspection and improvement tasks.



Support of suppliers in expanding their overseas sales

Not only do we help our suppliers operate their businesses in a stable manner through financial and technological support, but we also provide opportunities for them to achieve growth by supporting them in expanding their overseas sales. As part of these efforts, we share information with domestic suppliers on demand for raw and subsidiary materials by our overseas subsidiaries in China, Vietnam, and India. Moreover, selected suppliers with superior performance are given an opportunity to supply products to our overseas subsidiaries and increase their overseas sales.

Credit rating system

We are regularly monitoring and evaluating the credit of our suppliers with high transaction volumes. The results are utilized as AVL supplier selection criteria. To ensure the transparency of evaluations, we cooperate fully with credit rating agencies. In 2019 the credit of 136 suppliers was evaluated. With rising uncertainties in the internal and external environments, we plan to establish a management system that allows us to monitor financial risks and proactively respond to any signals of bankruptcy.

Items for evaluation

① The rate of increase in sales	④ Net profit margin ratio
② The rate of increase in total assets	⑤ Debt-equity ratio
③ Operating profit to sales ratio	⑥ Total borrowings and bonds payable to total assets

5

Respect for Human Rights and Diversity

We make the human rights of our employees our top priority.



LS C&S works to integrate respect for human rights into all of our business activities in order to fulfill our corporate social responsibilities and communicate with a variety of stakeholders. We actively support UN and ILO conventions on labor and human rights. Drawing upon the concept of horizontal partnership, we respect our employees and strive to treat them fairly. To promote work-life balance, a variety of support measures are in place. We also put considerable efforts into creating a pleasant working environment. Our management and labor representatives cooperate fully based on a sound relationship.

Strategic direction

Respecting human rights and diversity in our employees and pursuing global standards

Key tasks

Respect for employee rights

- No discrimination
- Education on human rights protection
- No child/forced labor

Labor-management relations for shared growth

- Operation of a labor union
- Labor-management communication
- Joint labor-management social contribution activities
- Worksite satisfaction survey

Respect for diversity

- Support for female employees
- Employment of people with disabilities

Achievements in 2019

 Employees who took programs on human rights 1,958

 A three-year increase in worksite satisfaction
73.6/100 points in 2017
74.5/100 points in 2018 **75.1**/100 points in 2019

 No labor disputes for 31 years No labor disputes for **31** years

 The ratio of female employees and managers Employees **15.1%**
Managers **4.9%**

Link to SDGs



Respect for Employee Rights

No discrimination

According to the Article 6 (Equal Treatment) of the Labor Standards Acts, no employer should not discriminate against workers on the basis of gender, or give discriminatory treatment in relation to the working conditions on the basis of nationality, religion or social status. Our Code of Ethics clearly states discrimination against employees. All employees are given equal opportunities, and reward is made based on their performance. To prevent any unfair act, we operate support systems, such as the help center, grievance channel, cyber reporting channel and appeal against employee performance evaluation results where anyone can freely get counseling and report in anonymity. No correction requests for cases of discrimination were filed in 2019.

LS Code of Ethics and Practical Guidelines

Chapter 5. Corporate Responsibilities for Employees

1. Nurturing talent

- 1) The company has established, supports, and promotes a system to nurture the autonomy and creativity of our employees.
- 2) Team leaders give advice and guidance to team members in consideration of their aptitude and abilities based on our determination to help them develop into strong individuals who challenge themselves.

2. Performance-based evaluation

- 1) The company provides employees with equal opportunities for capacity building (training, job rotation, promotion and work assignment) and does not discriminate them for reasons of academic background, gender, age, religion, birthplace, age, disability, marital status, nationality, and race.
- 2) The company clearly sets, discloses, and complies with criteria for evaluating the abilities and performance of employees in order to create a culture of fair competition.

Education on human rights protection

In order to create and maintain an organizational culture in which social and cultural diversity is respected, we conducted educational sessions on human rights. In addition, annual training on the prevention of sexual harassment is provided. In 2019, a total of 1,958 employees participated in programs for improving awareness of people with disabilities and prevention of workplace harassment. These topics are also covered in other employee training programs in an effort to raise awareness of human rights.

Training notice

Course

[LS C&S] Required statutory course in 2019
- Prevention of sexual harassment, awareness-raising on people with disabilities, and anti-bullying

Period

Sept. 16 – Oct. 31, 2019 (6 hours)

No child/forced labor

We strictly prohibit any labor by children under 15 years old in accordance with the Labor Standards Act of Korea and the labor principles of the UN Global Compact. We prevent the employment of children and adolescents through ID checks during the hiring process. Our employees work only based on their free will. We do not unfairly restrict our employees' mental or physical freedoms and will never force them to work. Our employees are not disadvantaged for reason of not working at night or on holidays.

Employment of minors

(unit: case)

	2017	2018	2019
Employment of minors (aged below 18)	0	0	0

Employees receiving training

Sexual harassment prevention, awareness-raising on people with disabilities, and workplace anti-bullying laws

* Three courses were simultaneously provided online (a total of 6 hours)



Labor-Management Relations for Shared Growth

Operation of a labor union

Our labor union was launched as the Anyang branch of the GoldStar chapter of the Federation of Korean Metal Workers Trade Unions on May 12, 1967, and has comprised of 863 members as of the end of 2019. LS C&S honors freedom of association and collective bargaining, guarantees the right to organize and form workers' organizations, and respects employees' right to join a labor union. Both the labor and the management are working hard to establish a sound and harmonious relationship. The management strives to ensure employment stability and compensation based on business performance while the labor union actively conducts task and activities to achieve the company's business goals. Based on these relationships, we have cooperated and communicated each other to address critical issues. As a result, there have been no labor disputes for the last 31 years since 1989.

Labor-management communication

The autonomy of our labor unions is guaranteed. A variety of channels are used on a regular basis for labor-management communication regarding business status and work environment matters. We listen to the voices of our employee and work together in order to improve a working environment and welfare benefits.

Joint labor-management social contribution activities

Since the labor-management agreement was made in 2007, we have operated a program that all employees of LS C&S donate up to USD 1 from their monthly salary and the company matches its employees' charitable contributions. In addition, volunteer activities, such as living expense support for the underprivileged, and kimchi- and coal briquette-sharing events are conducted. Employees also participate in environmental cleanup activities, including the One Company One Stream campaign, to fulfill corporate responsibility.

Worksite satisfaction survey

An annual worksite satisfaction survey is jointly conducted by the labor and management to diagnose and improve a working environment and organizational culture at our plants. The survey consists of the following items: 1) managers; 2) supervisors; 3) communication; 4) organizational culture; 5) labor-management relations; 6) labor union; 7) working environment; 8) job management; and 9) welfare benefits. Based on the survey results, improvement measures are devised for any issues identified so that employee satisfaction at work can improve. In 2019, worksite satisfaction increased for the third consecutive year, scoring 75.1 points out of 100.

	Monthly morning assembly	Participation and Cooperation Promotion Council meetings	Labor-Management working-level meetings
Participants	All employees	Management: six persons including the President Labor: six persons including the head of the union	Management: led by the head in charge of labor-management affairs Labor: led by a member fully dedicated to the union
Frequency	Monthly	Quarterly	Monthly/As needed
Activities	Sharing information on business status, financial performance and pending issues	Sharing information on business status and performance, and discussing systems and working conditions	Discussing how to improve working conditions and employee benefits

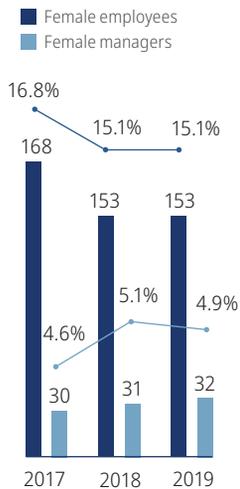
Labor union membership by worksite

(unit: employee)

	2017		2018		2019	
	Membership	Percentage	Membership	Percentage	Membership	Percentage
Anyang	7	1%	6	1%	6	1%
Gumi	498	71%	469	70%	459	68%
Indong	273	74%	260	73%	256	73%
Donghae	146	71%	137	71%	142	72%
Total	924	49%	872	47%	863	47%

Respect for Diversity

Female employees in managerial positions (unit: percentage/person)



Use of parental leave and returning to work

	2017		2018		2019	
	Parental leave	Returning to work(%)	Parental leave	Returning to work(%)	Parental leave	Returning to work(%)
Female	8	6(75%)	17	14(82%)	7	0(still on leave)
Male	3	3(100%)	3	3(100%)	2	2(100%)
Total	11	9(82%)	20	17(85%)	9	2(-)

Support for female employees

Due to the characteristics of the cable manufacturing industry, female employees are a minority at the company, accounting for 15.1% of all employees and female managers for 4.9% of all managerial positions. We are making continued efforts at increasing the percentage of female workforce. In the 2019 open recruitment, female applicants accounted for 17% of new hires. To create a women-friendly workplace, we plan to provide leadership training programs for female employees and actively support them through applicable welfare benefits, including parental leave and flexible work hours.

Safe workplaces free of sexual harassment

Annual training on the prevention of sexual harassment at workplace is provided to all of our employees. To ensure a safe workplace, sexual harassment prevention officers are appointed for each worksite and strict punishments are applied to employees who commit sexual assault.

Maternity protection

Taking time off from work for pregnancy check-ups is guaranteed for maternity protection and working hour reduction and flexible work hours systems are in place. Both male and female employees can take parental leave and their return to work is guaranteed. In 2019, a total of 9 employees took the leave, and two of them were male employees. Six employees took pre- or post-maternity leaves.

LS daycare center

An LS daycare center that was established in Anyang at the end of 2014 helps employees reduce the burden of childcare and concentrate on their work. Currently, a total of 70 employees from LS Group subsidiaries are utilizing this daycare center.

Space for female employees

There are nursing rooms and lounges for female employees at our worksites. The female employee club Arom Society is operated to provide counseling and promote good fellowship among female employees.

Employment of people with disabilities Considering the employees with disability

As employees in the cable manufacturing industry are required to be more careful about their safety and health, the ratio of our employees with physical disabilities is relatively low. However, in accordance with the Act on Employment Promotion and Vocational Rehabilitation for Disabled Persons, we hire those who with physical disabilities at our plants. We actively support and help them successfully adjust to and do their jobs through guidance and preparatory training so that they can stand on their feet.

Increasing the number of employees with disabilities through indirect employment

We have been contributing to supporting people with disabilities through indirect employment in cooperation with Butyi since April 2017. The company was established to provide stable jobs to the socially vulnerable, including the disabled, according to the 'subsidiary-type standard business system' of the Korea Employment Agency for the Disabled and the Act on Employment Promotion and Vocational Rehabilitation for Disabled Persons. Employees are selected from the day-hospital center named Haeddeulnal within the Yongin Mental Hospital in Korea. They receive training prior to starting work, and all cases of trainees are managed to provide support them to continue working.

Employment of people with disabilities

	2017	2018	2019
Direct employment	23	24	26
Indirect employment (Butyi)	12	12	12
Total	35(1.7%)	36(1.8%)	38(1.9%)

Employment period of employees returning to work after parental leave in the last three years

Less than 6 months	6 months	12 months	18 months	24 months	30 months	Total
7 (27%)	11 (42%)	5 (19%)	- (-)	3 (12%)		26

* Employees who took the leave two times, the period was calculated starting from the day after the second leave.

Number of employees taking maternity leave in the last three years

	2017	2018	2019
Pre-/Post-maternity leave	5	16	6

6

Compliance Management

We strive to establish a culture of fair business transactions by supporting our employee to internalize the value of compliance management.



To realize our vision of becoming The World Best Cable Solution Leader, our employees are giving their all to fulfill four action promises. To promote corporate citizenship, one of our promises, we are operating a variety of compliance programs, including providing related training and a compliance management bulletin board. We fulfill the principles and fundamentals for meeting corporate responsibility and gaining the trust of stakeholders, thereby supporting our sustainability. We will continue our efforts at raising our corporate value by promoting fair competition and shared growth with our partners.

Strategic direction

Operating compliance programs to create a culture of fair competition

Establishing a network based on mutual trust through fair business transactions with our suppliers

Key tasks

Strengthening compliance programs

- Compliance training for employees
- Operation of an in-house compliance management bulletin board

Preventing potential risks

- Risk prevention in international projects
- Prevention of illegal acts

Achievements in 2019

	Provided compliance training to employees	4 times a year
	Operated a compliance management bulletin board	8 postings
	Reviewed domestic and international contracts and laws	Domestic 418 cases Overseas 6,520 cases
	Violation cases related to fair competition	0 case

Link to SDGs



Strengthening Compliance Programs

Compliance training for employees

To help our employees internalize Rule & Responsibility, one of our core values, we provide regular training targeting newly-hired career and non-career employees. In addition, not only enterprise-wide programs for all employees but also division-specific programs are also operated.

Compliance training in 2019

For newly-hired career and non-career employees

2 sessions per year



Fair business transactions and legal affairs 2 sessions

- Non-career: Jan. 14
- Career: Jun. 13

Enterprise-wide training

1 session per year



Subcontracting (Prohibition on misappropriation of technology)

- Head office/R&D centers: Apr. 8
- Gumi/Indong: Jul. 22
- Donghae: Jul. 23

For sales employees

1 session per year



Education for preventing collusion and submission of a pledge to eradicate collusive actions

- Sales employees: Jul. 10

Operation of an in-house compliance management bulletin board

As part of our efforts at fully internalizing the value of compliance management, we are maintaining a bulletin board on a range of themes including fair competition and anti-corruption efforts. To help employees better understand related legal issues, a Q&A format is used and case studies are included to illustrate the postings. In 2020, more practical and useful information will be posted to encourage employees to apply it at work.

Bulletin board operation in 2019

(A total of 8 postings in 2019)

Theme (posting date)	Related laws
Prohibiting the misappropriation and leaking of suppliers' technologies (Apr. 1)	The Subcontracting Act
[Collusive actions] Strengthened monitoring of public sector bid rigging (May. 2)	The Fair Trade Act
Key points in the Improper Solicitation and Graft Act (Jun. 3)	The Improper Solicitation and Graft Act
Types of prohibited acts and cautions under the Fair Agency Transactional Act (Aug. 1)	The Fair Agency Transactional Act
The Fair Agency Transactional Act violation cases (Sep. 3)	The Fair Agency Transactional Act
The Subcontracting Act violation case 1: unfair payment reduction (Oct. 2)	The Subcontracting Act
The Subcontracting Act violation case 2: violation of issuance in writing (Nov. 4)	The Subcontracting Act
Key points in the Improper Solicitation and Graft Act and case studies	The Improper Solicitation and Graft Act

Q&A on the Improper Solicitation and Graft Act

(1) Sending a gift when there is no professional connection



My friend is a government employee. I used to send him a gift at the end of the year. Do I need to stop sending him a present? He was recently promoted at work and is getting married soon. Can I send flowers to congratulate him?

If you have no professional connection to your friend, sending a gift worth USD 864 or less is not a violation of the Improper Solicitation and Graft Act. Even if there is some professional connection, a gift or cash worth USD 43 or less is not a violation. Sending flowers worth USD 86 or less instead of a cash gift for a wedding is also not subject to any violation. However, if it is determined that there is a professional connection related to contracts, licensing, supervision, evaluation, or inspection then sending any gift at all is strictly prohibited, regardless of the price.

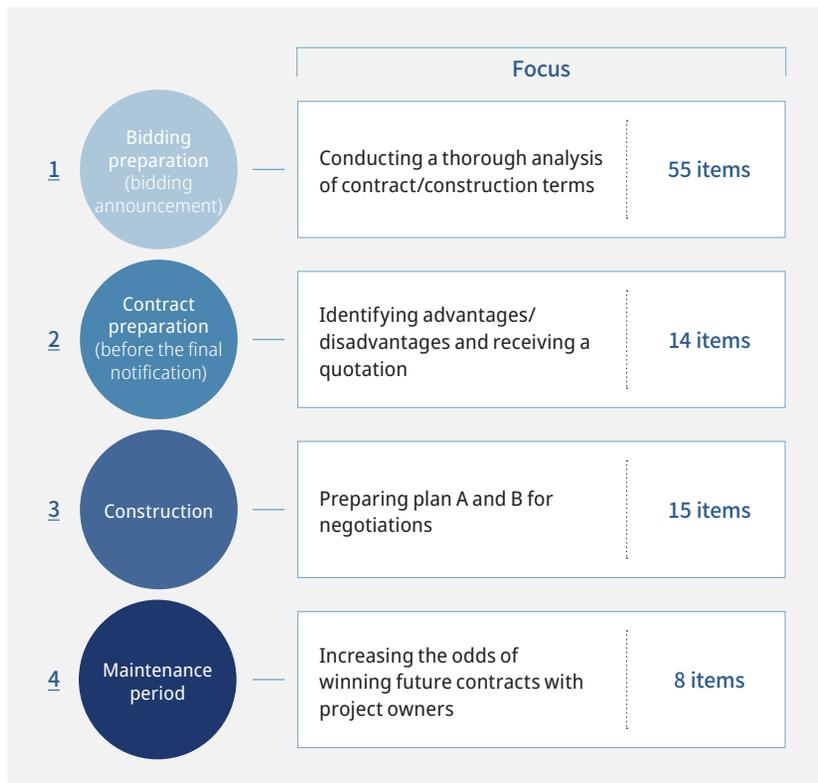
LS

Preventing Potential Risks

Risk prevention in international projects

LS C&S is participating in a variety of international projects as part of our efforts to respond to weakness in the domestic cable market and strengthening our position as a global company. For preventing risks at project sites, we have created a checklist with 92 items by categorizing risks at each bidding stage. We plan to work next on guidelines for operating international projects.

Checklists at each bidding stage



Prevention of illegal acts

We provide the support needed by our employees as they review contracts, laws, and regulations and provide legal advice in regard to risk identification, customers, suppliers, fair competition, and CSR. This approach is to help our employees remain fully in compliance with laws and regulations and serve as a basis for us to prevent economic loss to the company and to society.

Contract and legal review in the last three years

(unit: case)

		2017	2018	2019
Domestic	Contract review ¹⁾	138	170	173
	Legal review ²⁾	2,369	2,606	2,168
International	Contract review ¹⁾	216	223	245
	Legal review ²⁾	2,585	2,885	4,352

1) Number of review requests in the in-house legal review system

2) Number of emails sent



7

Ethical Management

We are striving to create a sound organizational culture by implementing ethical management and heightening employee awareness of ethics.



Ethical management means companies must remain economically, legally, and ethically responsible at all times while doing business. Ethical management is a fundamental global standard, but it also provides a strategy to support competitiveness and achieve sustainable growth. It allows companies to give trust and confidence to their customers, employees, competitors, suppliers and shareholders. We will continue our efforts at creating an environment in which our employees can implement the philosophy of ethical management.

Strategic direction

Strengthening the foundation for ethical management and raising employee awareness of its implementation

Key tasks

Strengthening the foundation for ethical management

- Reviewing the utilization of the Code of Conduct

Operating systems for ethical management

- Counseling center
- Ethical management website
- Cyber Reporting Channel
- Reporter protection programs
- Rewards for reporting
- Clean Company

Raising stakeholder awareness

- Ethical management training
- Promotional activities
- Sending an official document for cooperation to suppliers
- Evaluation of Ethics

Achievements in 2019



Utilization of the Code 71.4/100points



Completion of case reporting through the Cyber Reporting Channel 100%



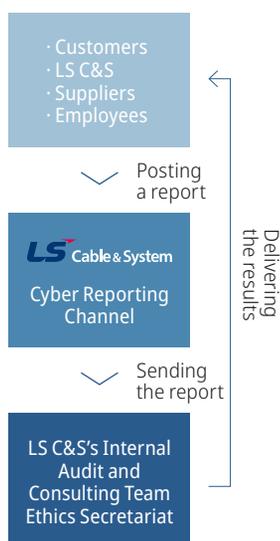
Ethics evaluation 76.7/100points

Link to SDGs



Strengthening the Foundation for Ethical Management/ Operating Systems for Ethical Management

Cyber Reporting Channel



Strengthening the foundation for ethical management

Reviewing the utilization of the Code of Conduct

We established our Code of Conduct as criteria for our employees to make decisions and take actions in ethically challenging situations at work. The Code of Conduct consists of six categories: responsibilities and obligations toward customers; basic ethics for employees; fair competition; fair business transactions; corporate responsibilities for employees; and responsibilities toward the country and society.

In addition, implementation guidelines help our employees understand and act upon our Code of Conduct. These guidelines offer information on appropriate actions regarding the giving and receiving of gifts, entertainment, money, and special favors.

An ethics evaluation has been conducted on an annual basis to assess the utilization of the Code by employees and review the need for revisions or refinements to it and related guidelines. In the upcoming revision of the Code of Conduct, the Improper Solicitation and Graft Act and specific cases of violations will be reflected to further improve its utilization and the provided guidelines.

Operating system for ethical management

Counseling center

A counseling center is being operated for employees who face ethical issues or want to know about ethical management. They can not only have counseling on ethical conflicts at work but also get general information on ethical management and advice on how to interpret and apply the Code through the Cyber Reporting Channel, phones or emails. Reports are received and handled confidentially, and the center does not disclose the personal information of anyone reporting and the reported details without their consent.

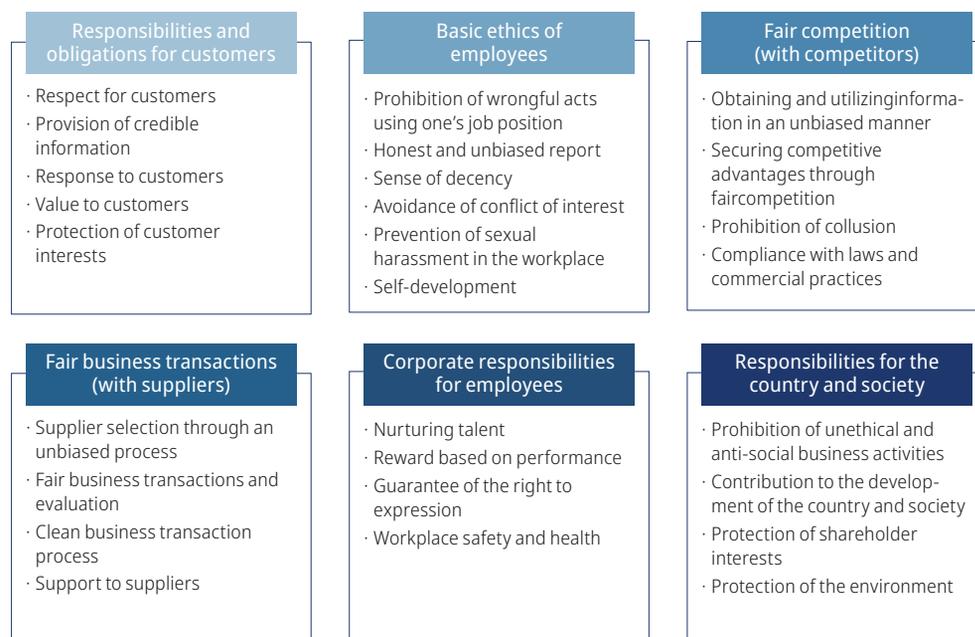
Ethical management website

To introduce ethics management and promote the implementation of its values, a dedicated website is being maintained. A full text of the Code of Conduct and the pertinent programs for its implementation, including the Cyber Reporting Channel, reporter protection programs, rewards for reporting, and Clean Company can be found on the website along with articles on ethical management.

Cyber Reporting Channel

The Cyber Reporting Channel allows employees as well as stakeholders, including customers and suppliers, to report any unethical activities they witness or disadvantages they suffer. We keep personal information and reporting details of all reporters confidential. Their identities are strictly kept confidential to protect reporters.

LS C&S Code of Conduct



Operating Systems for Ethical Management/ Raising Stakeholder Awareness

Reporter protection programs

We operate programs to protect reporters from being disadvantaged due to the reporting. Their identities, evidence presented by them, any other information that could identify them, and measures taken based on the results are strictly kept confidential to protect reporters.

Confidentiality

Identities of reporters, or any other information that could identify them are strictly kept confidential.

Guarantee of status

We protect those who report violations from being disadvantaged or discriminated against in their teams or business relationships due to reporting, providing testimony, or submission of evidence.

Reduction and exemption from responsibility

Those who voluntarily report unethical acts are exempted from responsibility or receive consideration in the disciplinary response.

Rewards for reporting

To prevent unethical acts and create a sound organizational culture, those who report irregularities such as cases of bribery are offered a reward of up to five times of the amount of the bribe (USD 4,319 in maximum). Those who voluntarily report unethical acts are exempted from responsibility and the money they received is used for volunteer activities.

Clean Company

We established a system called Clean Company that helps employees voluntarily report any past acceptance of money or gifts. Once they fill out a report form and submit it to the Internal Audit and Consulting Team, any money or gifts received are returned to the givers with an explanation regarding our ethical management policies. If there is a situation in which the received items are difficult to return, they are donated to social welfare facilities or to religious groups under the name of the giver.

Raising stakeholder awareness

Ethical management training

To prevent any possible violation cases of the Code of Conduct, ethics training is provided to employees of the head office and subsidiaries to be dispatched overseas before leaving. The training programs, including the concept of ethical management, internal ethical management system and the Code of Conduct, and violation cases, are provided to employees at overseas branches, sales manufacturing subsidiaries, and construction sites.

Promotional activities

LS C&S has been posting articles on ethical management, including the Code of Conduct, implementation guidelines and violation cases on the company intranet. In 2019, twelve articles on whistleblowing systems, case related to corruption and irregularities, and the Anti-corruption Act were posted. They received total 3,815 hits.

Sending an official document for cooperation to suppliers

Before the Chuseok and Lunar New Year's holidays, we send an official document asking suppliers for cooperation in eradicating practices of giving and receiving gifts, entertainment, and money and informing them of our Code of Conduct and reporting channels. After the document is sent, it is also posted on the company purchasing intranet so that all of suppliers can check the information.

Evaluation of Ethics

An ethics evaluation has been conducted for all employees on an annual basis to identify improvement areas for our ethical management activities. From Nov. 27 to Dec 13, 2019, an online survey was operated for all employees. The evaluation survey consists of 33 questions in three categories: the basis of ethical management, implementation of corporate ethics, and ethics being practiced in our workplaces. The 2019 result was 76.7/100 points, a slight increase of 0.2 from the previous year.

8

Workplace Safety

As a global company, we ensure an advanced culture of worker safety.



We are implementing a variety of health and safety policies to ensure a healthy and safe environment for our employees. To this end, we are striving to establish a robust health and management system in accordance with the OHSAS 18001 in which labor and management are working together to identify and address potential risks.

Strategic direction

Ensuring a healthy and safe workplace by conducting activities focusing on the prevention of four critical accident risks

Key tasks

Conducting activities focusing on the prevention of four critical accident risks

- Selecting risks and identifying and implementing improvement tasks
- Revising prevention rules for four critical accident risks
- Modifying process-specific safety rules

Supporting suppliers to strengthen their safety management

- Preventing risks related to subcontracting construction work : Monthly meetings, and HSE diagnoses and win-win partnership programs

Ensuring a healthy worksite

- MSDS(Material Safety Data Sheets) management
- Work environment measurement and general/special examinations

Internal and external safety management

- Occupational Safety and Health Committee
- OHSAS 18001 certification for submarine cable installation and construction
- Safety checks at construction sites
- One LS HSE program for overseas subsidiaries

Achievements in 2019

 Investment in the prevention of four critical accident risks USD 4,750 thousand

 HSE diagnoses for suppliers 93 cases

 MSDS¹⁾ update 344 cases

 OHSAS 18001²⁾ certification for submarine cable installation and construction
HSE check for overseas subsidiaries: LSHQ and LS-VINA

1) MSDS: Material Safety Data Sheet

2) International standard for occupational health and safety management systems

Link to SDGs



Conducting Activities Focusing on the Prevention of Four Critical Accident Risks

Technical improvement
85 cases
 Investment worth
USD 4,750 thousand

Cranes	Replacement of an outdated crane
Forklifts	Establishment of safety device standards, and installation of proximity alert, Red Zone displays, loudspeakers, front/rear cameras, and blue LEDs in 32 mid- and large-size forklifts
Rotating equipment	Installation of fences and interlocks in 10 pieces of rotating equipment
Fire/explosion accident prevention	Installation of fences of automatic diffusion fire extinguishers in 42 areas vulnerable to fire

Selecting risks and identifying and implementing improvement tasks

Safety and environmental accidents at industrial worksites can directly impact the survival of businesses operating in related areas. To lower critical accident risks at our worksites in Gumi, Indong, and Donghae, we identified four high-risk work processes and made the following improvements: An outdated crane was replaced. Forklift safety standards were established, based on which proximity alerts, Red Zone displays, loudspeakers, front/rear cameras, and blue LEDs were installed in 32 mid- and large-sized forklifts. Fences and interlocks were installed in 10 pieces of rotating equipment. Automatic diffusion fire extinguishers were installed in 42 areas vulnerable to fire.

Revising prevention rules for four critical accident risks

We completely revised the prevention rules for four high-risk work categories, namely the operation of cranes, forklifts, rotating equipment and processes with fire and explosion hazards. These rules were shared with all of our worksites. We will continue to improve worker awareness and compliance with safety rules.

Crane (hoist) safety rules
<ol style="list-style-type: none"> 1. Steer clear of areas where cranes are moving 2. Steer clear of areas where heavy loads are being lifted 3. Work in pairs when handling crab cranes (one team member for operation and the other for monitoring the area around the equipment) 4. Check whether heavy loads are securely fastened before lifting (such as vertical lifting and safety bar installation) 5. Move cranes to new work areas with the hoist lowered as close to the ground as possible (50cm in minimum)

Forklift safety rules
<ol style="list-style-type: none"> 1. Always use safety passages while walking 2. Steer clear of areas where forklifts are operating 3. Always stop and sound the alarm before crossing the entrance/exit 4. Operate forklifts at 10km/h or slower. Do not make any sharp turns. 5. Secure a proper forward view. If this is not possible, operate the forklift in reverse. 6. On-site workers such as signalers and shipment-related personnel must wear fluorescent safety vests.

Modifying process-specific safety rules

Besides these four high-risk work areas, the safety rules for other processes were revised as well. With the diversification of our facilities and work environments, the work safety rules for each process have been updated and revised as needed.

Accident statistics

		2017	2018	2019
Accidents (unit: case)	Gumi	3	1	1
	Indong	0	0	0
	Donghae	0	1	0
	Construction ¹⁾			0
	Total	3	2	1
Company-wide industrial accident rate (%)		0.22	0.16	0.07
Industry-wide industrial accident rate (%)		0.29	0.28	0.35
		2017	2018	2019
Frequency rate of accident ²⁾	Gumi	2.12	0.77	0.74
	Indong	0	0	0
	Donghae	0	2.54	0
	Construction			0
Total (%)		1.17	0.83	0.38

1) Newly added on Jan. 1, 2019

2) (Number of accidents/Annual work hours) X1,000,000

Rotating equipment safety rules
<ol style="list-style-type: none"> 1. Do not attempt to access rotating equipment 2. Do not disassemble or damage the safety cover 3. Check whether interlocks are properly operating before starting work 4. Check whether the power is off before undertaking repair work. Put up a sign indicating 'repairs in progress'. 5. When equipment is not working properly, report it to supervisors instead of taking action on your own.

Fire/explosive safety rules
<ol style="list-style-type: none"> 1. Remove and clean up flammable materials (hazardous materials and organic solvents) before starting hot work 2. Conduct ventilation/displacement to completely eliminate the vapors from flammable liquids 3. Ensure safety measures, including fire extinguishers and spark-shattering prevention, are in place when conducting hot work 4. Have safety supervisors (in red safety vests) in attendance when conducting hot work 5. Store gas containers (LPG, acetylene, and oxygen) securely so that they cannot be moved.

Supporting Suppliers to Strengthen their Safety Management/ Ensuring a Healthy Worksite

Supporting suppliers to strengthen their safety management

Conducting HSE diagnoses for domestic and international suppliers

Meetings, regular diagnoses and win-win programs

To strengthen our safety efforts, close attention is being paid to safety management by our suppliers. In this regard, monthly meetings with suppliers are held at all of our worksites and a quarterly HSE diagnosis is conducted for our suppliers. In 2019, a total of 93 risk factors were identified and improvement measures were taken.

As the scope of our global business is expanding, a broad range of stakeholders including end customers and local communities, are devising measures to prevent health- and safety-related accidents or minimize the damage if they occur. In this regard, HSE diagnoses are being conducted among our international construction- and connection-related suppliers. We will continue our efforts at strengthening our partnerships with suppliers to ensure safety at all our worksites.

Preventing risks related to subcontracting construction work

Work permit process improvement

With facilities improvement underway as part of our intensive management of four critical accident risk factors, there has been an increase in visits by subcontractors for related construction work. To prevent risks related to subcontracting construction work, we have updated our work permit process as follows:



Ensuring a healthy worksite

MSDS management

We are managing data on the materials used in all of our production processes in order to protect employees from the risks of hazardous chemicals. This year, a total of 344 types of chemicals were updated in the MSDS (Material Safety Data Sheets), providing detailed information on hazards, handling instructions, and emergency measures in case of accidents. This information is also reported to the government, and the channels for chemical purchase and sales are strictly supervised to lower related risks.

Work environment measurement and general/special examinations

Work environment measurement is conducted biannually for all processes to create a healthy and pleasant working environment. The results are monitored to determine whether harmful factors are exceeding set limits or abnormal phenomena are occurring. In 2019, measurement was conducted in 233 sites and improvement measures were taken for five cases (pollution and dust).

In addition, general and special health checkups are provided for all employees (985 and 542 employees respectively) on an annual basis. Employees who receive abnormal findings in their health checkups are provided with consultations with doctors and drug prescription benefits.



Noise barriers



Work environment measurement and general/special examinations

Internal and External Safety Management

Internal and External Safety Management Occupational Safety and Health Committee

The Occupational Safety and Health Committee is operated under the heads of divisions in charge of worksites. Key health and safety issues are jointly reviewed and decided by representatives of labor and management through this committee. It is composed of 15 members from management, including a person responsible for safety management, and 15 labor representatives, including the head of the labor union. Key considerations include: making a plan to prevent industrial accidents; establishing and revising pertinent regulations; providing training to workers; checking and improving the working environment; managing employee health; and collecting statistics on industrial accidents. The committee meets on a quarterly basis to consider and vote on key issues. Approved items are announced to all employees. In 2019, a total of 43 items were considered and decided, and actions have been taken in response.

OHSAS 18001 certification for submarine cable installation and construction

We have been maintaining OHSAS 18001, and additionally obtained certification for submarine cable installation and construction this year. Each team internally analyzes implementation status, identifies issues, and conducts independent improvement activities.

Our OHSAS 18001 compliance status is evaluated by the certification organization DQS-UL on an annual basis to ensure we are meeting global standards for safety and health management.

OHSAS 18001 certification

Domestic worksites	Gumi, Indong, Donghae
Overseas worksites	LSCW, LSHQ, LS-VINA, LSCI
Construction	Underground and submarine (newly added) construction



underground cable installation and construction



submarine cable installation and construction

Safety checks at construction sites

A special winter safety check is conducted every year to prevent accidents at our construction sites. From Nov. 15 to Dec. 12, 2019, two submarine and three underground cable installation and construction sites were investigated, with 20 improvement points identified and measured.

Winter safety management

- Fire prevention (placement of sand for firefighting and fire extinguishers)
- Prevention and safety training and promotion
- Prevention of slipping

General safety management

- Preventive measures against fire or suffocation in a sealed space
- Preventive measures against falling during elevated work
- Preventive measures against traffic accidents



One LS HSE Program for overseas subsidiaries

In an effort to encourage our subsidiaries to establish an environment promoting safety management, we implemented the One LS HSE Program at two worksites, one in Vietnam and the other in China. Their health and safety management systems were examined and improvement measures were taken for 92 cases that fell under one of four critical safety groups. We are striving for zero accidents at all of our overseas subsidiaries by conducting HSE activities matching those we practice at domestic worksites.

		LS-VINA	LSHQ
Worksite improvement (four critical risk groups)	Forklift safety	1	1
	Rotating equipment safety	24	24
	Fire fight (fire/explosion) safety	14	8
	Hoist (crane) work safety	3	17
Total(cases)		42	50

Talent Management

LS C&S and its employees are growing together through a wide range of systematic training programs.



Based on our belief that sustainable performance can be achieved only through the efforts of the people involved, we are running a variety of programs to secure and nurture creative talent. The talent we seek includes: professionals with outstanding job competence; members leading the development of the organizational culture by implementing its core values; and global leaders actively responding in an ever-changing environment. We aim to create an environment in which the company and its employees grow together, thereby creating greater value.

Strategic direction

Supporting employees with a sense of ownership to achieve superior performance together based on trust

Key Tasks

Securing talent and ensuring unbiased HR management

- Employment / Performance management / Unbiased evaluation
- Performance-based compensation / Global talent

Nurturing talent

- ① **Enhancing business capability**
 - Strengthening job expertise
 - Establishing a platform to develop leadership skill
 - Building capacity at overseas subsidiaries
- ② **Promoting organizational vitality**
 - Conducting work-life balance activities
- ③ **Responding to the Fourth Industrial Revolution**
 - Strengthening DT capability

Achievements in 2019

- 
Awards for outstanding performance
 - Overseas training **84** employees
 - C.O.R.E Prize awarded to **118** employees and **11** teams
- 
Training for nurturing talent
 - Average training hours per employee **54** hours
 - Employee training cost USD **2,677** thousand
- 
Capacity-building training for overseas subsidiaries
 - LSCI Future Together
 - Leadership training for local team leaders in Vietnam
 - Dispatch programs for exemplary local employees

Link to SDGs

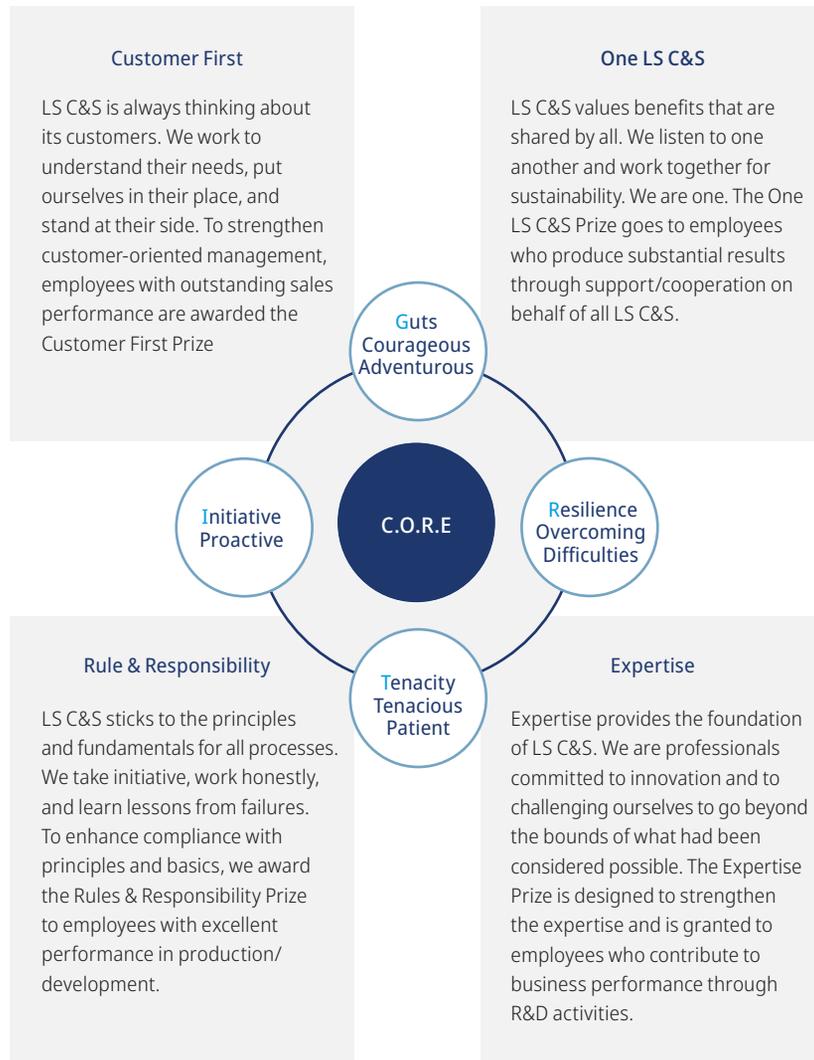


Securing Talent and Ensuring Unbiased HR Management

Employment

We strive to find the right people in line with C.O.R.E, our four principle of LS C&S Vision 2030. In order to strengthen our competitiveness, we also hire international professionals through an overseas recruitment network.

Our perception of talent (CORE_GRIT)



CORE: Job competence
GRIT: personality trait

Employment process



Performance management

We operate the SPCM (Strategic Performance & Competency Management) system to achieve outcomes that align the company's goals with individual goals. Once key tasks are set to ensure each functional organization and team achieves its management goals, employees establish a development plan for the competencies required for reaching performance targets for the defined key tasks. The advantages of SPCM are as follows: employees feel more responsible for their work when they take part in the setting of performance targets. They are motivated to determine a direction for their career development in a systematic manner by analyzing their strengths and identifying what needs to be improved and developed.

SPCM (Strategic Performance & Competency Management) system



Composition of employees

(as of the end of Dec. 2019)

Office workers	980
Production workers	863
Total	1,843

* Non-regular employees not included

Securing Talent and Ensuring Unbiased HR management

Unbiased evaluation

In order to evaluate performance in a fair and objective manner, we disclose our evaluation criteria and follow a pre-defined process. Coaching and progress check are provided to help employees produce results and develop capacity. The results are released to the pertinent employees, teams, or divisions to ensure transparency and they are allowed to raise their objections to the results. While doing so, employees become more receptive to evaluation results. In addition, we also provide coaching to employees to help them design and implement self-development plans that support their personal capacity-building.

Performance-based compensation

Based on our HR policy, we operated a compensation system reflecting employee performance. Compensation is provided based on the evaluation results of group and individual performances in the form of annual base salary, management incentives, and individual incentives. Employees with outstanding performance are provided with overseas training and awards as well.

Overseas training

Since 2014, we have been offering special opportunities for overseas training to employees with outstanding performance as part of our efforts to elevate the vitality of the organization. Participants attend exhibitions or international conferences related to their jobs while refreshing themselves by experiencing local culture. This program serves as a chance for increasing job satisfaction of employees.

C.O.R.E Prize

Every month, we select and award individual employees and teams with outstanding performance for their implementation of our C.O.R.E values, that is Customer First, One LS C&S, Rule & Responsibility, and Expertise. In 2019, a total of 118 employees and 11 teams received the C.O.R.E prize.

Employment welfare system

We operate a welfare system that covers six areas crucial to employee health and economic stability, thus allowing them to take pride in the company and concentrate on their work. In addition, we are offering programs to promote family-friendly management so that a positive working environment can be created. In February, June, August, October, and December 2019, employees were encouraged to take vacation days on sandwich days falling between two holidays in order to refresh themselves and restore their energy. In 2020, we will encourage them to take advantage of sandwich days occurring in January, May, August, September and December. We will continue our effort to enhance productivity and performance by concentrating work and ensuring work-life balance.

Employment welfare system

<p>Healthy life</p> <ul style="list-style-type: none"> · Medical expense reimbursement for employees · Medical expense reimbursement for family members of employees by using a company welfare fund · Free medical checkups for employees and their spouses · Sports facilities for employees · Healthcare rooms or clinics at worksites · Counseling programs at the head office and R&D center 	<p>Cultural life</p> <ul style="list-style-type: none"> · Support for in-house club activities · Money gift for anniversaries, including birthdays or wedding anniversaries · Cultural events such as the provision of sports game tickets and lectures for family members of employees 	<p>Energetic life</p> <ul style="list-style-type: none"> · Reward for long-term employees: vacation and cash gifts for employees with 5, 10, 20, 25, 30, and 35 years of service · Free recreational facilities such as condominiums and a Baekam training center · Company outings: biannually (in spring and autumn)
<p>Stable life</p> <ul style="list-style-type: none"> · Family occasion support: cash gifts or condolence money for family occasions of employees such as weddings or funerals · Dormitories or employee apartments at local worksites · Group life and health insurances for employees · Commuting support: commuting bus services · Golden baby ring gifted to the children of employees on their first birthday 	<p>Hopeful life</p> <ul style="list-style-type: none"> · Monthly in-house online training programs on job skills, leadership, foreign languages · Mid-/long-term educational support for graduate schools, MBA, and intensive foreign language programs · Outside training programs on job skills and foreign languages 	<p>Prosperous life</p> <ul style="list-style-type: none"> · Financial aid of middle school, high school and college tuitions for the children of employees · Housing loan support · Discount for our sister company products (LS Networks) · Retirement gifts · LS daycare center

Employee welfare expenses

		2017	2018	2019
Medical expenses of family members of employees	Number of persons (person)	339	361	385
	The amount paid (USD thousand)	447	447	607
School expenses	Number of persons (person)	420	365	333
	The amount paid (USD thousand)	2,100	1,914	1,724

Retirement pension system

Since 2011, the retirement pension system has been operated for all employees. They can choose between DB (Defined Benefit) and DC (Defined Contribution) plans.

Global talent

LS-VINA, our first overseas production subsidiary, was established in 1996 and has been playing a major role in ASEAN markets ever since. To reward local employees for their contribution to the growth of LS-VINA, reflect our vision for growth, and provide motivation, a system was introduced to select candidates for managerial positions from among local employees. We will continue our efforts at nurturing our global talent to further promote cooperation between our headquarters and subsidiaries.

The promise of a new dream

NgocThap Do LS-VINA Plant Manger

“We will dedicate ourselves to achieving this 2020 target and ultimately become the top cable manufacturer in the ASEAN region.”

I am very pleased to become the first local employee in a managerial position at LS C&S. For 2020, LS-VINA has set a sales target of 30% growth over the previous year. To reach this, all of our employees have to join in. In the early days, LS-VINA faced many difficulties, but the hard work and dedication of our employees allowed us to become the top cable manufacturer in Vietnam. Going forward, we will do our utmost to continue these efforts. In order to achieve our 2020 target, we will steadily monitor the status of our competitors, customers, markets, and systems, and develop timely response measures. We will secure human resource with clear expertise and determination. In addition, efforts will be made to enhance the cost competitiveness of our key products and ensure quality and productivity. We will dedicate ourselves to achieving this 2020 target and ultimately become the top cable manufacturer in the ASEAN region.



*Source: OPEN MIND, an LS C&S company magazine published in Jan. 2020

Nurturing Talent

Enhancing business capability Strengthening job expertise

A wide range of programs are operated to strengthen the job expertise of employees.

Quality Zero Human Error training

To improve quality at the company level, the Quality Zero Human Error training program was provided to engineers at our worksites. They learned about three factors causing human error, examined case studies, and studied a methodology for creating a five-layered protective barrier against it. Practical exercises such as model car assembly and racing helped them better understand human error. All of the participants made 'quality contact cards' and worked on utilizing them through the QMS system. We plan to customize this program to the needs of each worksite and provide support through additional training and the development of related tools.



Securing technology talent

We plan to create a technology talent pool by carefully identifying our core technologies and the expertise of individual employees in R&D, production and development, and to establish and implement training programs for them.

Establishing a platform to develop leadership skills

Based on the recognition that leadership is an essential element allowing us to achieve sustainable growth, efforts are being made to help our employees improve leadership skills.

Leadership coaching for new executives

One-to-one leadership coaching was provided to recently-promoted executives to help them adjust to their new roles and develop leadership skills. Before the session, a leadership diagnosis was conducted. Based on the results, coaching programs were offered on three themes, including self improvement, performance management, and changing the way we work. The training aims to improve the working environment through changes in decision-making and meeting practices and by supporting staff members through coaching.



Leadership coaching for new team leaders

Group coaching was provided to develop leadership skills required for team leaders such as strategic goal-setting, unbiased performance evaluation, and effective feedback for their team members. They learned about how to set and achieve goals and to evaluate and train their staff, identified improvement points and developed measures to address them.

Building capacity at overseas subsidiaries

We are supporting our overseas subsidiaries to build capacity for enhanced global competitiveness.

LSCI Future Together

The LSCI Future Together program was operated for all of the employees at LSCI, our production subsidiary in India, to help them understand our vision and global strategy and create an organizational culture based on our core values. A variety of team activities were conducted to promote a sense of unity with LS C&S, improve the way that we work, and imagine the forms of cooperation, trust, and vision we all wish to achieve.



Leadership training for local team leaders in Vietnam

Leadership training for local team leaders in Vietnam was provided in an action learning format. During the training, issues that they are actually facing at worksites were selected as tasks. While figuring out ways to address the issues, they identified leadership skills that could contribute to promoting communication with team members and improving results. Participants were asked to apply these skills they identified to the actual work process when they returned to the office. In 2020, follow-up programs and a result-reporting session will be held to share their achievements.

Dispatch programs for exemplary local employees

Local employees of overseas subsidiaries who show exceptional performance at work are given opportunities to receive on-the-job training in Korea. These programs are aimed at motivating them to take pride in the company and gain experience at our domestic production worksites. Employees at LSCI (India) and LSCV (Vietnam) participated in the programs.

Promoting organizational vitality Conducting work-life balance activities

We strive to enhance productivity and performance by concentrating working efforts and ensuring work-life balance.

Encouraging employees to use all of their vacation days

Starting from 2018, sandwich days falling between holidays are designated as company holidays so that employees can fully refresh themselves and restore their energy. In addition, we are encouraging people to use all of their assigned annual vacation days and they can also take a half-day (four-hour) or two-hour off.

Concentrating on working during office hours and leaving the office on time

Activities are being conducted to establish a work environment in which employees can concentrate on their work during office hours and leave the office on time. As announcements have been made on an in-house broadcasting station at the start and end of office hours, employees have begun feeling comfortable with leaving work on time. Meanwhile, a weekly in-house broadcasting program called Happy Wednesday Evening is being operated to deliver thank-you and encouragement messages from employees and their family members.

Family Happiness programs

We are running a variety of programs for our employees and their children to increase employee satisfaction. The programs, including sports day events for employees and their children aged 6 to 13, Camp with Daddies, and Go Camp and Dream Camp for adolescents, allow employees and their families gain a chance to come to further understand each other and strengthen their family bonds.



Dream Camp for the children of our employees

Nurturing Talent

Responding to the Fourth Industrial Revolution

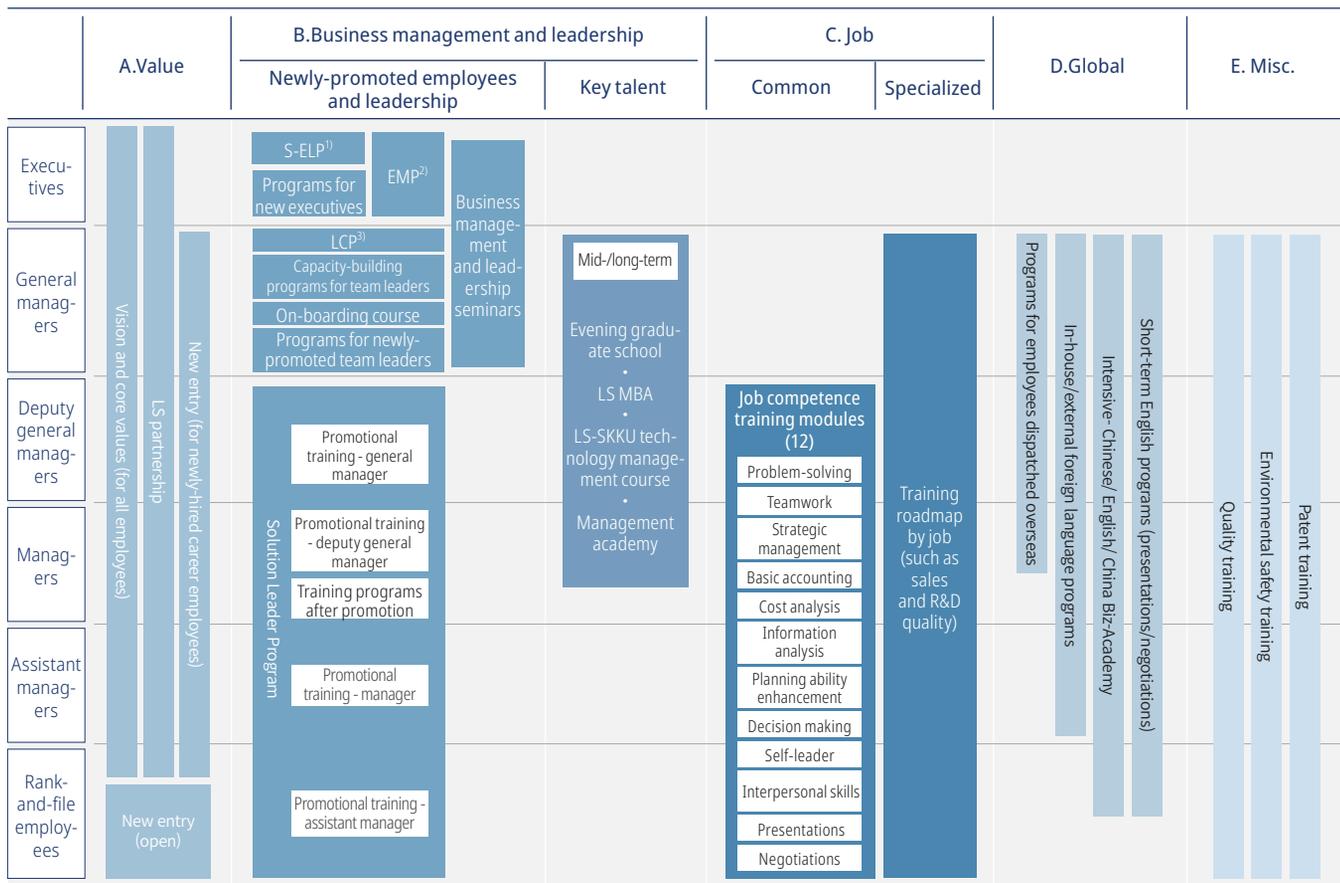
Strengthening DT capability

We are operating customized DT (digital transformation) programs by job group to help employees understand its concept to recognize the direction of social changes. In the course for team leaders and working-level employees, actual data is used in exercises so that they can work on measures to apply the results to their work. The expert course is composed of sessions covering R and Python, and machine and deep learning.

HR development system

Our HR development system is classified into five tracks and six development stages. They include programs for newly recruited career/non-career employees, the SLP (Solution Leader Program) course, leadership programs, common/specialized training courses, and foreign language programs. There are also programs on sexual harassment prevention, workplace quality, and environment safety that are compulsory for all employees.

HR development system



1)S-ELP: Senior Executive Leadership Program 2)EMP: Executive Management Program 3)LCP: Leadership Challenge Program

Employee training for the last three years

	2017	2018	2019
Average training hours per employee (including production workers)	42	54	54
Average training hours per employee by job position			
Executives (including heads of divisions)	20	24	29
Managers (from managers to general managers)	77	78	86
Assistant managers and rank-and-file employees	97	136	137
Training expenses (USD thousand)	2,728	2,773	2,773

Improving Employee Satisfaction

Organizational competence/vitality indexes

We are conducting an organizational competence survey on an annual basis. Organizational competence recently rose two points from 2018 to reach 56/100 points, while organizational vitality recorded 72/100 points, the same as in the previous year. Among the five elements on the organizational competence index, the score for functional capacity showed the largest increase (five points) which is attributable to enhanced cooperation and understanding among R&D, production, sales and support teams. Organizational vitality, an element of work effectiveness rose slightly (two points).

Organizational competence survey

Date: Sep. 2 (Mon) – Sep. 27 (Fri), 2019

Target: All of 1,023 office employees (domestic)

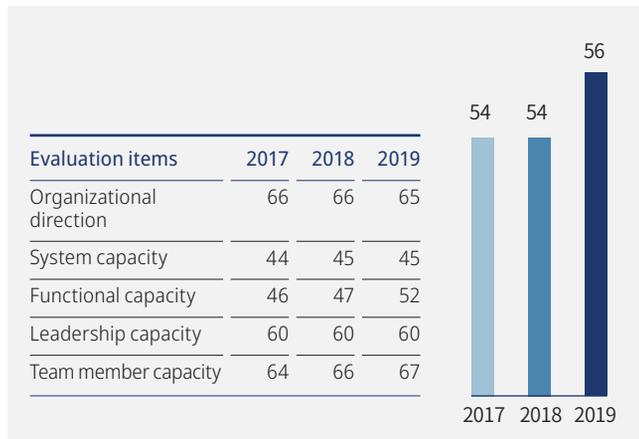
Method: Online survey (by clicking a link in the email)

Worksite satisfaction survey

An annual worksite satisfaction survey is jointly conducted by labor and management to diagnose and improve working environment and organizational culture at our worksites. The survey consists of nine items, including managers, supervisors, communication, organizational culture, labor-management relationships, labor union, working environment, job management, and welfare benefits. Based on the survey results, improvement measures are taken for issues identified to increase employee satisfaction at work. The company-wide worksite satisfaction in 2019 recorded at 75.1/100 points, a three-year increase in a row.

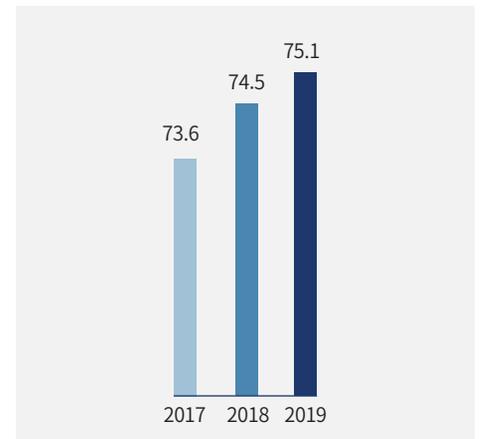
Organizational competence index
(a three-year trend)

(unit: point)



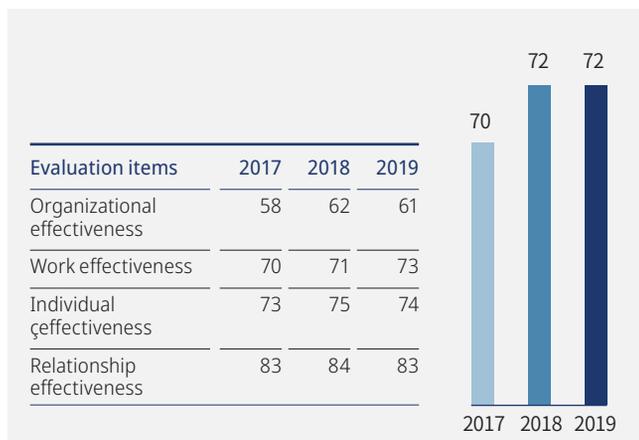
Company-wide satisfaction level

(unit: point)



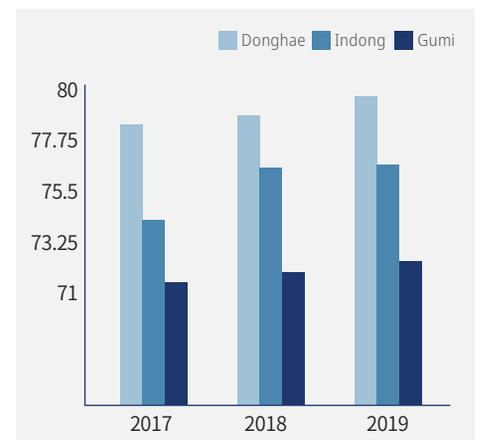
Organizational vitality index
(a three-year trend)

(unit: point)



Worksite satisfaction level

(unit: point)



10

Advanced Green Management

We work to safeguard the environment from product research and development to disposal, and in every aspect of doing business as well.



We are striving to minimize the environmental impact of every aspect of our business. We consider the impact in advance throughout the product lifecycle and apply standards that surpass the legal requirements for pollutant management. Considerable efforts are being made at our domestic plants, overseas subsidiaries and suppliers to manage the environmental issues.

Strategic direction

Establishing a green supply chain to respond to customer requirements and complying with laws

Key tasks

Environmental management system

- Environmental policy and the operating organization
- Product lifecycle management

Green product R&D and raw material purchasing

- Green product R&D
- Management of hazardous materials and chemicals in products
- Green purchasing and supplier management

Green production

- Green management system at worksites
- Response to climate change
- Efficient use of resources
- Minimization of environmental impact

Logistics and product disposal

- Logistics using green fuel
- Plastic collection and recycling

Environmental communication

- Disclosure of environmental information
- Environmental pollution liability insurance
- Participation in the CDP Supply Chain Program

Achievements in 2019

Environmental equipment investment



Decrease in air pollutant emission intensity



Decrease in water usage



Reduction in water contamination material discharge intensity



Reduction of GHG emissions



Increase in waste recycling rate



Link to SDGs



Environmental Management System

Environmental policy and the operating organization

We are steadily promoting green management programs based on our policy of becoming a leading company in the field of HSE¹⁾ by caring about people and the environment.

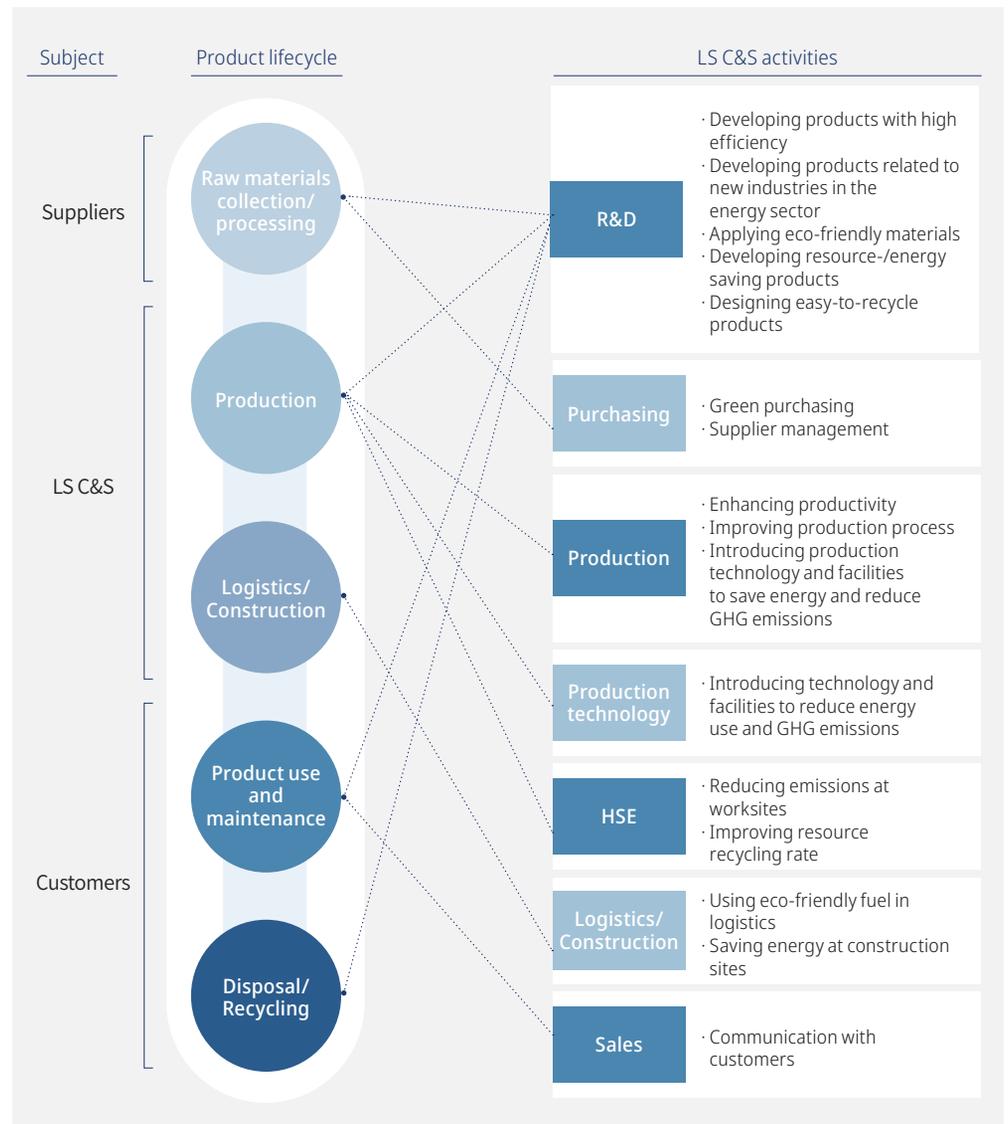
All of our worksites are proactively managing HSE by making efforts to minimize environmental impacts throughout the product lifecycle and applying standards that surpass the legal requirements for pollutant management. To proactively respond to legal and customer requirements and reduce related risks, our HSE organization was integrated into the compliance division in 2019 to allow close cooperation with legal and compliance management teams.

Product lifecycle management

We consider environmental aspects from product design to disposal, manufacture products minimizing impact on the environment, and reflect customer and legal requirements in our systems and processes. In addition, related training programs are provided to employees on a regular basis.

1) Health, Safety, Environment

Product lifecycle and LS C&S activities

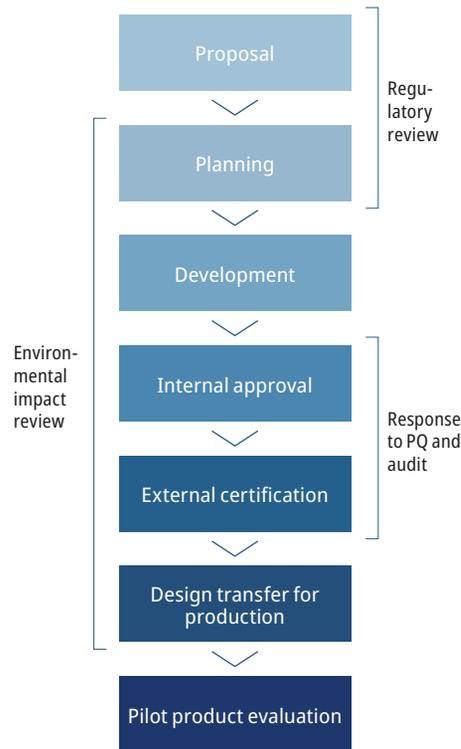


Green Product R&D and Raw Material Purchasing

Green product R&D

During product research and development, environmental impact is considered at each stage of the design review process. In the proposal and planning stages, customer requirements and regulations are reviewed in order to identify information on hazardous materials. In addition, we are developing products that can conserve resources and energy during the manufacturing process or with high-efficiency power transmission. With the currently increasing Extended Producer Responsibility, we are working on recycling technology for XLPE used as insulation.

Product design review (DR) process



Key eco-friendly products

PP cables	<ul style="list-style-type: none"> - Non-cross-linking process allowing energy saving - Easier recycling compared to XLPE cables
Super conducting cables	<ul style="list-style-type: none"> - Reducing energy loss through high-efficiency power transmission - Not using insulating oil and SF6 gas - Recyclable
XLPE recycling	<ul style="list-style-type: none"> - Commercialization of scrap and XLPE cable waste recycling technology

Management of hazardous materials and chemicals in products

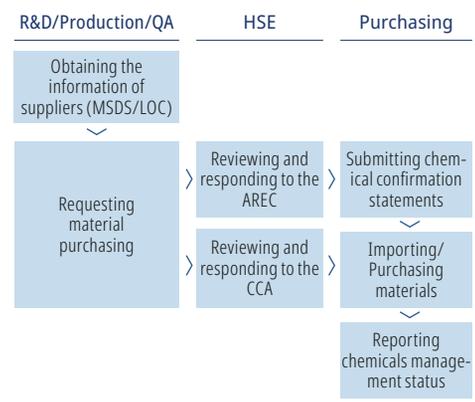
We have reviewed and revised our hazardous materials management process for equipment and automotive cables to meet domestic and international regulations and customer requirements, including EU's RoHS and ELV Directives and the Act on Resource Circulation of Electrical and Electronic Equipment and Vehicles. In addition, to respond to stricter regulations such as the Act on registration, evaluation, etc. of chemicals¹⁾ and the Chemicals Control Act²⁾, a chemical review and approval process is being operated. R&D, production, quality, procurement, and HSE teams are all involved in the process at multiple stages. Purchasing is done only after a review process and the history of chemical use in our products is completed. To strengthen our efforts at chemicals management, we plan to establish a CMS³⁾ system as well.

1) Act on registration, evaluation, etc. of chemicals: AREC

2) Chemicals Control Act: CCA

3) Chemical Management System

Our chemical review and approval process



Green purchasing and supplier management

For the environmental impact assessment of our supply chain, we are conducting supplier evaluation in the areas of HSE systems and leadership, environmental management status at worksites, and hazardous materials and chemicals management. Our worksites are regularly providing environment-related technical support to their suppliers. Meanwhile, a waste disposal company management process is in place to prevent any possible violation of environmental regulations, including onsite inspection, contract signing and registration, and post-check.

Waste disposal company management process



Green Production

ISO 14001: 2015 Certificate



Green management system at worksites Environmental management system

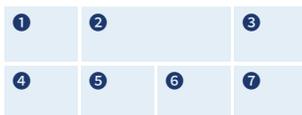
Since the transition to ISO 14001:2015 in 2018, we have addressed the improvement points identified in the early stages of implementation. In 2019, activities were conducted to meet requirements of ISO 14001:2015, including 'risks and opportunities at the organization', and 'environmental impact evaluation considering a life cycle perspective'. As a result, we were able to maintain our certification in a surveillance audit. We will continue our efforts at the systematic operation of our HSE system.

Environmental equipment investment

In 2019, a total of USD 2,522 thousand was invested in our domestic worksites. We are making an active investment to meet increasingly tightening regulations and address environmental issues such as PM10.

Environmental facilities investment in 2019

Details	Worksites	Investment amount (USD thousand)
1 Hazardous chemicals handling equipment upgrade	Gumi and Indong	432
2 Improvement of equipment generating fugitive emissions	Gumi	199
3 Regenerative thermal oxidizer (RTO) replacement	Gumi	665
4 Dust collectors upgrade and installation	Gumi and Indong	864
5 Boiler replacement	Gumi, Indong, and Donghae	173
6 Replacement of rooftop stormwater pipelines	Indong	60
7 Investment to build a waste storage at LS AlSCO	Indong	130
Total		2,522



Green Production

Cooperation with domestic and overseas subsidiaries

We are promoting technical cooperation with our domestic and overseas subsidiaries to improve HSE management and reduce related accidents. Cooperative activities conducted in 2019 are as follows:



- 1
 - [LS AlSCO] Cooperation for environmental safety technology regarding dust collectors (Jun)
 - [LSEVK] ISO 14001: 2015 upgrade (Jul)
 - [LS Buildwin] OHSAS certification in construction (May/Jul)
 - [G&P] HSE-related regulation review for new plants in Sejong and Mungyeong (Aug/Sep)
- 2
 - [LS-VINA] Response to HSE audit by major customers (Feb/May)
- 3
 - [LSCW] HSE technology review for the newly-invested process (Jan)
 - [LSHQ] Environmental safety diagnosis and technical cooperation (Aug)
- 4
 - [LSEVP] HSE technology review for the newly-invested process (May)

Response to climate change Climate change response system

We are managing climate change concerns by identifying opportunities and risks in our business. Trends, response measures, and performance are being reported to management so that they can consider the information as part of key decisions such as investments.

Opportunities

- R Sales increase in products related to new industries in the energy sector (such as superconducting cables, renewable energy, and submarine/industrial specialty cables)
- R High-strength/heat-resistant/fire-resistant product innovation for corporate competitiveness
- P Advanced construction technology that meets increasing requirements due to climate change
- O Improved image by strengthening external communication

Risks

- R Weakening price competitiveness due to increased carbon cost to respond to domestic emission trading scheme
- P Additional expenses for preventing or recovering damages, strengthening clean room management due to abnormal climate changes
- O Loss of business opportunity if the company fails to meet customers requirements related to climate change
- O Request for GHG emissions reduction and energy transition

R Regulatory element P Physical element O Misc.

Energy use and GHG emissions management

Our worksites are monitoring monthly energy use against the target and making and implementing annual investment plan for energy saving. As a participating company in domestic emission trading scheme, we calculate Scope 1 and 2 emissions generated by the worksites. In addition, we voluntarily calculate Scope 3 emissions regarding waste disposal, fuel and energy production, and leased assets.

Energy use and intensity

	2017	2018	2019
Fuel	719	656	547
Electricity	2,133	1,999	1,802
Steam	157	159	135
Total (TJ)	3,009	2,814	2,484
Intensity (TJ)/KRW 100 million)	0.099	0.084	0.077

* Electric energy conversion factors: 9.6MJ/kWh (loss from power transmission and distribution and production included)

Scope 1-2 GHG emissions and intensity

	2017	2018	2019
Scope 1	40,077	36,595	30,663
Scope 2	112,058	105,638	94,652
Total (tCO ₂ eq)	152,135	142,233	125,315
GHG emission intensity (tCO ₂ eq/KRW 1 million)	0.050	0.043	0.039

Scope 3 GHG emissions

(unit: tCO₂eq)

	2017	2018	2019
Waste disposal	3,396	1,767	2,843
Fuel/energy production	5,962	5,430	4,522
Leased assets	5,182	7,030	18,412

* Calculation is internally made based on domestic and international criteria.

Energy saving and GHG emissions

To reduce energy use at worksites, we are steadily making equipment investments to meet the annual target while strengthening on-site energy management. In addition, we have been seeking consultations with external energy agencies to find avenues for further energy savings. In 2019, we completed a total of six tasks, including establishing an integrated compressor management system and making pump energy more efficient, resulting in a decrease of 1,940 tons of annual GHG emissions.

Integrated compressor management system

56.3%

Pump energy efficiency

38.7%

Turntable tent house LED light replacement

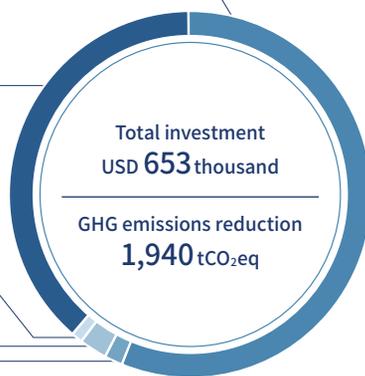
1.0%

Turntable drying system replacement

2.4%

Boiler fuel economizer replacement

1.6%



Establishment of an integrated compressor management system

Our Gumi plant used to manually manage twenty-one compressors in five rooms. As only the lower limit was managed, it was difficult to respond to equipment error or failures in real-time. Insufficient history management was leading to energy loss. As a solution, we established a system that allows real-time monitoring of all compressors and automatic control of the highest and lowest pressure, resulting in a decrease of 1,092 tons of GHG emissions in one year.



Efficient use of resources

Usage of primary resources

Primary resources of our products are electrolytic copper and aluminum used for conductors, and polyethylene and polyvinyl chloride for insulators. We will continue our efforts at identifying measures to reduce manufacturing losses and wastes and to recycle raw materials and products.

Usage of primary resources

(unit: ton)

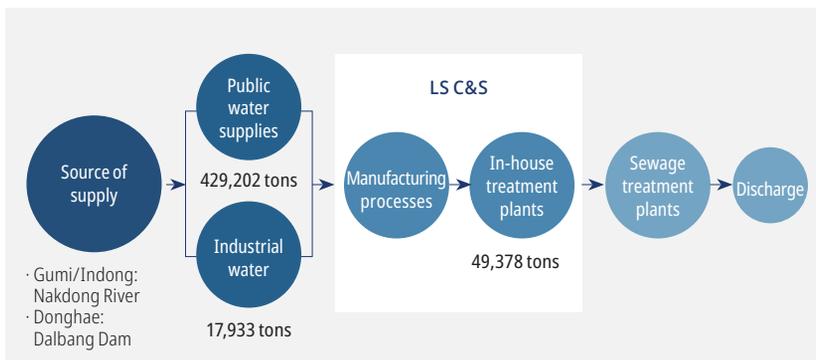
	2017	2018	2019
Electrolytic copper (Cu)	289,494	288,368	283,644
Aluminum (Al)	32,113	22,302	6,901
Polyethylene (PE)	23,474	15,626	16,717
Polyvinyl chloride (PVC)	4,165	3,629	3,410

Green Production

Water resource use and management

Water is one of the most important resources for the survival of human beings. To protect and make use of water in an environmentally sustainable and economically beneficial way, we are engaging in activities to minimize risks related to water supply needed for our business operations. Water resources are used for cooling water at plants. It is also required for human uses such as drinking and sanitation. As a result of water conservation activities in 2019, total water consumption dropped 11% from the previous year and water use intensity decreased by 10%. Going forward, we will continue our efforts to conserve water resources based on our medium-/ and long-term plans.

Water resources flowchart



Water usage and intensity

(Unit: ton)

	2017	2018	2019
For human uses	514,951	447,904	429,202
For industrial uses	16,250	25,966	17,933
Underground water	5	0	1,365
Company total	531,206	503,870	448,500
Water usage intensity [Usage (ton) / Production volume (ton)]	1.27	1.31	1.23

Minimization of environmental impact Chemicals management at worksite

We are striving to ensure the safe management of chemicals. The chemical management status at our worksites was diagnosed in cooperation with an external agency in 2017. To address the issue identified through the diagnosis, we have conducted and completed activities for improvement as follows: repair of leakage protection walls and firewalls; application of corrosion-resistant paint; making changes to pipe materials; and improvement of lighting and exhaust systems. Meanwhile, the use of hazardous chemicals significantly increased in 2019 because the use of newly-approved lead for the lead sheathing process. We gained approval for our processes using lead from the Ministry of Environment by conducting off-site risk assessment and supplying all employees handling chemicals with pertinent training. We are also maintaining an emergency response system for any possible chemical-related accidents.

Use of harmful chemicals

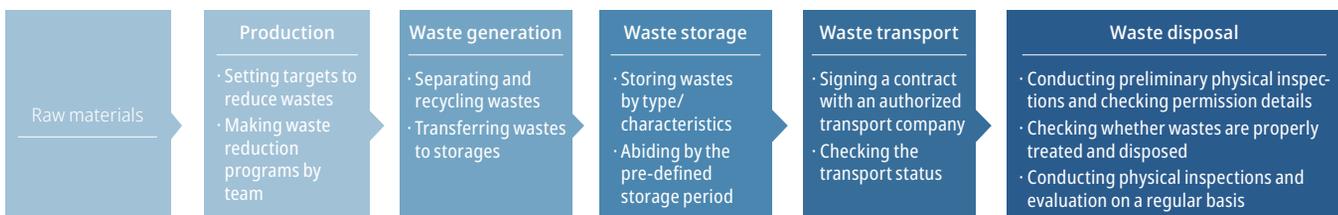
(Unit: ton)

	2017	2018	2019
Use of harmful chemicals	849	1,313	6,184

Waste management

Since we conducted a five-year pilot project for a waste reduction and resource recycling by signing an agreement with the Ministry of Environment, we have been continuing our efforts at increasing our waste recycling rate. To properly manage wastes and protect the environment in local communities, we keep in place a waste disposal process from product development to final disposal. Wastes generated during our manufacturing processes are made of plastic such as HDPE and PVC used as cable sheathing materials, and they have a comparatively minimal environmental impact. In 2019, wastes totaled 11,825 tons, a decrease of 494 tons from the previous year. Recycled wastes dropped by 153 tons year-on-year to reach 10,954 tons. However, the recycling rate increased from 90% in the previous year to 92.6% as some previously incinerated wastes became recyclable.

Waste disposal process



Wastes generated and intensity

(Unit: ton)

	2017	2018	2019
Designated wastes ¹⁾	2,234	2,021	2,134
General wastes ²⁾	12,147	10,298	9,690
Total	14,381	12,319	11,825
Intensity [Wastes generated / Production volume (1,000 tons)]	34.4	32.1	32.3

1) Designated wastes: waste oil, waste organic solvent, paint waste, and waste acid

2) General wastes: cable scrap, waste synthetic resins, rubber wastes, and residential wastes

Waste disposal

(Unit: ton)

	2017	2018	2019
Incineration	1,830	756	1,263
Landfill	395	434	348
Recycling	12,055	11,107	10,954
Recycling rate (%)	84	90	93

Pollutants management

Air pollutants management

We have continued our efforts to reduce air pollutants. We have conducted air measurement and raw materials and process analyses, upgraded outdated facilities, and invested in advanced air pollution control facilities. The air pollutants we produce are mainly dust, NO_x, HCl, and HF. As part of the efforts at PM₁₀ reduction, a large-scale equipment investment was made in 2019. In order to cut NO_x, which is known as substances accounting for over 90% of our air pollutants, we invested in RTO (Regenerative Thermal Oxidizer) and SCR (Selective Catalytic Reduction) systems. In addition, with the installation of low-NO_x burners in boilers at our worksites, we were able to reduce 30% of nitrogen oxide.

Primary air pollutant emissions

(unit: kg)

	2017	2018	2019
Dust	1,856	1,326	969
NO _x	44,224	20,621	14,387
HCl	2,120	1,746	947
HF	202	144	80
Intensity [kg / Production volume (1,000 tons)]	117.6	63.6	47.8

Water contaminants management

We are operating wastewater treatment systems to treat and discharge wastewater generated in the cable manufacturing process. We apply in-house limits on water contaminants that are stricter than the legal limits. In 2019, the contamination level in wastewater discharged was within 10% of the legal limits. Due to a spin-off of the aluminum division and contaminants reduction activities, water contamination material dropped 50% and an intensity was reduced 37%. Although none of our worksites are located in or near water source protection areas, restricted zones, special management zones, or biodiversity protection areas, we have worked continuously to reduce water contamination by effectively operating wastewater treatment plants.

Primary water contaminants discharged and intensity

(unit: kg)

	2017	2018	2019
BOD	109	25	42
COD	1,128	940	311
SS	203	112	97
T-N	396	247	206
Total	1,836	1,324	656
Intensity [Discharged volume (kg) / Production volume (1,000 tons)]	4.4	3.5	2.3

Logistics and Product Disposal/ Environmental Communication

Logistics and product disposal

Logistics using green fuel

All of the ships used for our logistics comply with IMO 2020 requirements. Our cable products are delivered to customers by ships using environmentally-friendly fuel, low-sulfur oil, allowing us to reduce sulfur oxide emissions known as the main cause of acid rain.

Plastic collection and recycling

There is a rising demand for resource recycling due to increasing volumes of waste in Korea. To fulfill our responsibility as a producer of plastic products and packaging, we signed a voluntary agreement on plastic waste collection and recycling with the Ministry of Environment and have been proactively participating in its EPR¹⁾ programs. In addition, we are sharing materials information with recycling companies to promote the recycling of plastic from power/communication lines and packaging. Regarding hard-to-recycle XLPE materials, we are working on the development of related recycling technology.

1) Extended Producer Responsibility

Voluntary collection and recycling of plastic from power/communication cable wastes in Korea

	2017	2018	2019
Plastic used (ton)	21,708	22,799	22,700
Plastic collected and recycled (ton)	3,578	4,063	4,688(E)
Plastic collection and recycling rate (%)	16.48	17.82	20.65(E)

* Calculation was made for finished products sold to end-customers only. The 2019 recycling volume will be aggregated in the second half of 2020.

Plastic packaging collection and recycling in Korea

	2017	2018	2019
Plastic packaging collected (ton)	211	233	-
Required recycling volume (ton)	156	178	-
Recycled volume (ton)	212	225	-

* The 2019 recycling volume will be aggregated in the second half of 2020.

Environmental communication

Disclosure of environmental information

We publicly disclose environmental impact of business activities at our worksites and headquarters through the state-run environmental information disclosure system (<https://www.env-info.kr>). Information regarding company overview, green management, resource and energy saving, GHG emissions and air pollutants, water contaminants, wastes, and harmful chemicals, are available online. We will do our utmost to provide accurate information and promote sustainable green management.

Pollution liability insurance

We are doing our utmost to create an accident-free work environment, but for any environment and pollution accidents that could occur in our business operations, we have renewed environmental pollution liability insurance on an annual basis. The insurance provides coverage of compensation up to USD 25,911 thousand per environmental pollution accident case related to air pollutants, water contaminants or harmful chemicals.

Participation in the CDP (Carbon Disclosure Project) Supply Chain program

Since joining the CDP Supply Chain program in 2010, we have disclosed to our customers our response to climate change issues. CDP evaluation results and feedback give an insight allowing us to check the areas for improvement to address climate change issues.

APPENDIX

Consolidated Statements of Financial Position	92
Consolidated Statements of Comprehensive Income	93
Consolidated Cash Flow Statements	94
Separate Statements of Financial Position	95
Separate Statements of Comprehensive Income	96
Separate Cash Flow Statements	97
Independent Assurance Statement	98
GRI Standards	100
Additional Information	102

Consolidated Statements of Financial Position

(Unit: USD Million)

		2017	2018	2019
Assets	Total current assets	1,870	2,136	2,343
	Cash and cash equivalents	201	173	289
	Financial deposits	27	46	26
	Trade receivables	829	1,091	1,114
	Other receivables	62	58	64
	Financial assets at fair value through profit or loss	19	3	3
	Derivative financial assets	89	17	21
	Firm commitment assets	23	51	45
	Inventories	458	530	568
	Other assets	161	167	214
	Non-current assets held for sale	44	40	40
	Total non-current assets	758	1,040	1,162
	Property, plant and equipment, net	608	868	933
	Intangible assets, net	38	48	49
	Investment properties, net	12	20	8
	Right-of-use assets	-	-	41
	Financial deposits	0.6	0.9	1.0
	Trade receivables	29	32	56
	Other receivables	26	30	15
	Investments in joint ventures	-	0.5	38
Available-for-sale financial assets	2	-	-	
Financial assets at fair value through other comprehensive income	-	2	2	
Financial assets at fair value through profit or loss	-	1.0	0.8	
Derivative financial assets	8	4	15	
Firm commitment assets	0.1	3	0.5	
Deferred tax assets	15	11	3	
Other assets	20	19	0.5	
Total assets	2,671	3,215	3,545	
Liabilities	Total current liabilities	1,372	1,504	1,658
	Trade payables	504	566	622
	Borrowings	493	601	666
	Derivative financial liabilities	20	44	26
	Firm commitment liabilities	99	18	29
	Other payables	113	121	126
	Current income tax liabilities	20	9	4
	Provisions	2	12	20
	Lease liabilities	-	-	9
	Other liabilities	122	133	156
	Total non-current liabilities	559	753	893
	Borrowings	514	681	818
	Derivative financial liabilities	0.4	4	1.0
	Firm commitment liabilities	8	0.2	1.3
	Other payables	0.1	0.2	0.2
	Net defined benefit liabilities	9	11	9
	Deferred income tax liabilities	3	43	43
Provisions	25	13	0.02	
Lease liabilities	-	-	20	
Total liabilities	1,931	2,257	2,551	
Equity	Equity attributable to owners of the Parent Company	628	679	751
	Share capital	84	81	81
	Share premium	485	469	469
	Accumulated other comprehensive income	(23)	(20)	(15)
	Other components of equity	301	301	310
	Accumulated deficit	(220)	(151)	(94)
Non-controlling interests	112	279	242	
Total equity	740	958	993	
Total liabilities and equity	2,671	3,215	3,545	

Consolidated Statements of Comprehensive Income

(Unit: USD Million)

		2017	2018	2019
Continuing operations	Revenue	3,154	3,612	3,975
	Cost of sales	2,847	3,279	3,581
	Gross profit	307	333	395
	Selling and administrative expenses	205	223	249
	Credit loss (reversal)	(0.6)	10	5
	Operating profit	103	100	140
	Other income	313	290	234
	Other expenses	296	226	230
	Interest income	4	4	4
	Other finance income	2	0.3	0.1
	Finance costs	37	43	54
	Share of profit of equity method investments, net	-	75	2
	Other non-operating expenses	(4)	(90)	11
	Profit before income tax	85	110	108
	Income tax expense	32	24	31
Profit from continuing operations	53	86	77	
Discontinued operations	Loss from discontinued operations, net of tax	4.5	8	2
Profit for the year	49	78	75	
Profit is attributable to	Profit from continuing operations	49	82	70
	Loss from discontinued operations	4.5	8	2
	Owners of the Parent Company	44	74	68
	Profit from continuing operations	5	4	7
	Profit from discontinued operations	-	-	-
Other comprehensive income	Non-controlling interests	5	4	7
	Items that will not be reclassified to profit or loss	(1.2)	(4)	(3)
	Remeasurements of post-employment benefit obligation	(1.2)	(4)	(3)
	Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net	-	0.02	(0.3)
	Items that may be subsequently reclassified to profit or loss	(18)	2	4
	Cash flow hedges	0.3	0.4	(0.5)
	Gain (loss) on valuation of available-for-sale financial assets, net	(0.8)	-	-
Changes from equity method	-	-	(0.1)	
Exchange differences	(17)	2	5	
Other comprehensive income (loss) for the year, net of tax	(19)	(2)	0.5	
Total comprehensive income for the year	30	76	75	
Total comprehensive income for the year attributable to	Owners of the Parent Company	20	73	71
	Non-controlling interests	10	3	5
Earnings (losses) per share	Earnings per share from continuing operations	\$2.4	\$4.4	\$3.8
	Losses per share from discontinued operations	\$0.1	\$0.4	\$0.1
	Basic earnings per share	\$2.4	\$3.9	\$3.6

Consolidated Statements of Cash Flows

(Unit: USD Million)

	2017	2018	2019
Net cash inflows (outflows) from operating activities	(79)	(199)	50
Cash generated from operations	(29)	(135)	123
Interest received	3	3	4
Dividends received	0.1	0.03	0.1
Interest paid	(36)	(43)	(49)
Income taxes paid	(17)	(24)	(27)
Net cash outflows from investing activities	(93)	(47)	(96)
Decrease (increase) in financial deposits	11	(3)	21
Decrease (increase) in other receivables	(3)	8	(1)
Proceeds from disposal of available-for-sale financial assets	4	-	-
Proceeds from disposal of financial assets at fair value through profit or loss	81	43	8
Proceeds from disposal of property, plant and equipment	20	1.4	15
Proceeds from disposal of intangible assets	2	-	2
Proceeds from disposal of other investment assets	0.01	-	0.1
Payments for acquisition of property, plant and equipment	(63)	(103)	(128)
Payments for acquisition of intangible assets	(2)	(2)	(8)
Payments for acquisition of available-for-sale financial assets	(0.1)	-	-
Payments for acquisition of financial assets at fair value through profit or loss	(82)	(28)	(8)
Loss of control over subsidiaries	4	0.02	24
Payments for acquisition of investments in subsidiaries, associates, and joint ventures	-	(2)	(9)
Payments for acquisition of business	(30)	-	-
Decrease (increase) in derivative financial instruments	(34)	39	(13)
Net cash inflows from financing activities	215	224	156
Proceeds from (Repayments of) short-term borrowings (excluding CP)	(58)	46	(16)
Proceeds from short-term borrowings (CP)	452	946	544
Repayments of short-term borrowings (CP)	(380)	(825)	(605)
Proceeds from long-term borrowings	170	52	160
Repayments of long-term borrowings	(71)	(20)	(65)
Proceeds from issuance of debentures	159	216	276
Repayments of debentures	(98)	(203)	(104)
Repayments of current lease liabilities	-	-	(8)
Cash inflows from consolidated equity transactions	40	32	-
Cash outflows from consolidated equity transactions	-	(10)	(12)
Dividends paid	(11)	(11)	(13)
Issuance of shares	15	2	-
Others	(0.4)	(0.9)	(1.1)
Net increase (decrease) in cash and cash equivalents	44	(22)	111
Cash and cash equivalents at beginning of the year	164	194	173
Effects of exchange rate changes on cash and cash equivalents	(6)	0.6	5
Cash and cash equivalents at end of the year	201	173	289

Separate Statements of Financial Position

(Unit: USD Million)

		2017	2018	2019
Assets	Total current assets	1,412	1,420	1,615
	Cash and cash equivalents	109	102	200
	Financial deposits	16	8	5
	Trade receivables	717	798	822
	Other receivables	55	60	58
	Derivative financial assets	79	13	16
	Firm commitment assets	23	41	41
	Inventories	296	267	295
	Other assets	116	131	178
	Non-current assets held for sale	2	0	-
	Total non-current assets	822	884	1,003
	Property, plant and equipment, net	443	421	443
	Intangible assets, net	29	34	37
	Investment properties, net	10	11	5
	Right-of-use assets	-	-	20
	Financial deposits	0.02	0.02	0.02
	Trade receivables	29	32	56
	Other receivables	24	23	8
	Available-for-sale financial assets	0.7	-	-
	Financial assets at fair value through profit or loss	-	0.2	0.2
Financial assets at fair value through other comprehensive income	-	0.4	0.4	
Derivative financial assets	8	4	14	
Firm commitment assets	0.1	1.3	0.4	
Investments in subsidiaries	267	346	393	
Investments in joint ventures	-	0.5	25	
Deferred tax assets	11	10	-	
Other assets	0.4	0.4	0.4	
Total assets	2,236	2,303	2,618	
Liabilities	Total current liabilities	1,058	1,010	1,074
	Trade payables	462	393	487
	Borrowings	282	368	298
	Derivative financial liabilities	15	33	21
	Firm commitment liabilities	90	17	26
	Other payables	86	91	97
	Current income tax liabilities	18	8	1.2
	Provisions	-	-	6
	Lease liabilities	-	10	8
	Other liabilities	104	91	130
	Total non-current liabilities	519	584	793
	Borrowings	485	576	771
	Derivative financial liabilities	0.1	1.3	0.6
	Firm commitment liabilities	7	0.1	1.3
	Other payables	0.2	0.1	0.4
	Deferred income tax liabilities	-	-	0.4
	Net defined benefit liabilities	6	6	6
Lease liabilities	-	-	14	
Provisions	20	0.8	-	
Total liabilities	1,577	1,594	1,867	
Equity	Share capital	84	81	81
	Share premium	485	469	469
	Reserves	0.4	0.4	0.3
	Accumulated other comprehensive income	(16)	(15)	(12)
	Other components of equity	(0.1)	(0.1)	(0.1)
	Retained earnings	105	174	214
Total equity	658	709	751	
Total liabilities and equity	2,236	2,303	2,618	

Seperate Statements of Comprehensive Income

(Unit: USD Million)

		2017	2018	2019
Continuing operations	Revenue	2,709	2,878	2,801
	Cost of sales	2,467	2,636	2,541
	Gross profit	242	242	260
	Selling and administrative expenses	153	149	156
	Credit loss (reversal)	(0.3)	2	7
	Operating profit	90	91	97
	Other income	276	181	184
	Other expenses	271	167	184
	Interest income	2	2	3
	Other finance income	2	0.5	0.01
	Finance costs	26	29	36
	Share of profit of equity method investments, net	9	34	44
	Other non-operating expenses	32	(3)	(17)
	Profit before income tax	112	110	91
	Income tax expense	21	16	22
Profit from continuing operations	91	94	69	
Discontinued operations	Loss from discontinued operations, net of tax	3	8	2
Profit for the year	88	87	67	
Other comprehensive income	Items that will not be reclassified to profit or loss	(1.1)	(4)	(3)
	Remeasurements of post-employment benefit obligation	(0.7)	(4)	(2)
	Remeasurements of post-employment benefit obligation of subsidiaries	(0.5)	(0.2)	(0.4)
	Items that may be subsequently reclassified to profit or loss	(14)	1.3	3
	Gain (loss) on valuation of available-for-sale financial assets, net	(0.8)	-	-
	Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net	-	(0.01)	-
	Cash flow hedges	0.3	(0.2)	(0.3)
Share of other comprehensive income (loss) of equity method investments, net	(14)	1.4	3	
Other comprehensive income (loss) for the year, net of tax	(15)	(3)	(0.03)	
Total comprehensive income for the year	73	84	67	
Earnings (losses) per share	Earnings per share from continuing operations	\$4.9	\$5.0	\$3.6
	Losses per share from discontinued operations	\$0.2	\$0.4	\$0.1
	Basic earnings per share	\$4.7	\$4.6	\$3.6

Separate Statements of Cash Flows

(Unit: USD Million)

	2017	2018	2019
Net cash inflows (outflows) from operating activities	(60)	(154)	38
Cash generated from operations	(29)	(108)	79
Interest received	1.4	1.3	3
Dividends received	4	3	5
Interest paid	(25)	(29)	(31)
Income taxes paid	(11)	(22)	(17)
Net cash outflows from investing activities	(74)	(40)	(49)
Decrease (increase) in financial deposits	(3)	7	3
Decrease (increase) in other receivables	(15)	(12)	17
Proceeds from disposal of available-for-sale financial assets	4	-	-
Proceeds from disposal of property, plant and equipment	20	23	1.2
Proceeds from disposal of intangible assets	2	-	2
Proceeds from disposal of other investment assets	-	-	0.1
Proceeds from disposal of investments in subsidiaries	45	35	27
Payments for acquisition of available-for-sale financial assets	(0.05)	-	-
Payments for acquisition of investments in subsidiaries, associates, and joint ventures	(56)	(74)	(48)
Payments for acquisition of property, plant and equipment	(44)	(54)	(56)
Payments for acquisition of intangible assets	(1)	(0.4)	(7)
Decrease (increase) in derivative financial instruments	(27)	34	13
Others	0.01	2	-
Net cash inflows from financing activities	153	190	110
Proceeds from (Repayments of) short-term borrowings (excluding CP)	35	9	16
Proceeds from short-term borrowings (CP)	(380)	(825)	(605)
Repayments of short-term borrowings (CP)	452	946	544
Proceeds from long-term borrowings	(27)	-	(65)
Repayments of long-term borrowings	22	56	61
Proceeds from issuance of debentures	159	216	276
Repayments of debentures	(98)	(203)	(104)
Repayments of current lease liabilities	-	-	(5)
Dividends paid	(8)	(8)	(8)
Others	(0.4)	(1.1)	(1.1)
Net cash overflows from others	(1.2)	-	-
Decrease due to split-off	(1.2)	-	-
Net increase (decrease) in cash and cash equivalents	18	(4)	99
Cash and cash equivalents at beginning of the year	92	106	102
Effects of exchange rate changes on cash and cash equivalents	(0.05)	(0.1)	(0.6)
Cash and cash equivalents at end of the year	109	102	200

Third Party's Assurance Statement

To the Readers of 2019-2020
LS C&S Sustainability Report & Annual Report :

Foreword

Korea Management Registrar Inc. (hereinafter "KMR") has been requested by of LS Cable & System (hereinafter "LS C&S") to verify the contents of its 2019-2020 LS C&S Sustainability Report & Annual Report (Hereby referred to as "the Report"). LS C&S 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

LS C&S 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 : 103-1, 103-2, 103-3

· Economic Performance : 201-1, 201-3, 201-4

· Market Presence : 202-1

· Indirect Economic Impacts : 203-1, 203-2

· Procurement Practices : 204-1

· Anti-Corruption : 205-1, 205-2, 205-3

· Anti-competitive Behavior : 206-1

· Materials : 301-1, 301-2, 301-3

· Energy : 302-1, 302-2, 302-3, 302-4

· Water : 303-1, 303-2

· Emissions : 305-1, 305-2, 305-3, 305-5, 305-7

· Effluents and Waste : 306-1, 306-2, 306-3, 306-5

· Environmental Compliance : 307-1

· Employment : 401-2, 401-3

· Labor/Management Relations : 402-1

· Occupational Health and Safety : 403-1, 403-2, 403-4

· Training and Education : 404-1, 404-2, 404-3

· Diversity and Equal Opportunity : 405-1, 405-2

· Child Labor : 408-1

· Forced or Compulsory Labor : 409-1

· Security Practices : 410-1

· Rights of Indigenous Peoples : 411-1

· Human Rights Assessment : 412-2, 412-3

· Local Communities : 413-1

· Supplier Social Assessment : 414-2

· Socioeconomic Compliance : 419-1

This Report excludes data and information of joint corporate, contractor etc. which is outside of the organization, i.e. LS C&S, 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 LS C&S 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

· LS C&S 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 LS C&S 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.

· LS C&S 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 LS C&S'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.

| LS Cable & System explained the development background, concepts, and advantages of its products in the context of sustainability and disclosed future directions and KPIs of individual businesses as well as safety indicators of overseas subsidiaries. Its commitment to transparent communication with stakeholders was also shown in detailed descriptions of environmental indicators. The company is advised to expand ESG assessment of its supply chain in order to strengthen the integrated risk management system and use easy-to-understand terms and more quantitative expressions for indicators for a better understanding of the report.

Our independence

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



May, 10th, 2020

CEO *E. J. Hwang*

GRI Standards

Topic	Disclosure	Page	Assurance	
GRI 102: General Disclosures				
Organizational Profile	102-1	Name of the organization	08	0
	102-2	Activities, brands, products, and services	08, 10-11	0
	102-3	Location of headquarters	08	0
	102-4	Location of operations	08	0
	102-5	Ownership and legal form	20	0
	102-6	Markets served	14-15	0
	102-7	Scale of the organization	08-09	0
	102-8	Information on employees and other workers	75	0
	102-9	Supply chain	55-59	0
	102-10	Significant changes to the organization and its supply chain	About This Report	0
	102-11	Precautionary Principle or approach	21-23	0
	102-13	Membership of associations	09	0
	Strategy	102-14	Statement from senior decision-maker	02-05
102-15		Key impacts, risks, and opportunities	24-25	0
Ethics and integrity	102-16	Values, principles, standards, and norms of behavior	68	0
	102-17	Mechanisms for advice and concerns about ethics	67-69	0
Governance	102-18	Governance structure	20	0
	102-22	Composition of the highest governance body and its committees	20	0
	102-23	Chair of the highest governance body	20	0
	102-24	Nominating and selecting the highest governance body	20	0
	102-30	Effectiveness of risk management processes	21	0
	102-32	Highest governance body's role in sustainability reporting	26	0
	102-35	Remuneration policies	20	0
	102-36	Process for determining remuneration	20	0
	102-37	Stakeholders' involvement in remuneration	20	0
Stakeholder engagement	102-40	List of stakeholder groups	27-29	0
	102-41	Collective bargaining agreements	102	0
	102-42	Identifying and selecting stakeholders	27-31, 102	0
	102-43	Approach to stakeholder engagement	27-31	0
	102-44	Key topics and concerns raised	30-33	0
	102-45	Entities included in the consolidated financial statements	14-15	0
Reporting practice	102-46	Defining report content and topic Boundaries	30-33	0
	102-47	List of material topics	30-33	0
	102-48	Restatements of information	About This Report	0
	102-49	Changes in reporting	About This Report	0
	102-50	Reporting period	About This Report	0
	102-51	Date of most recent report	About This Report	0
	102-52	Reporting cycle	About This Report	0
	102-53	Contact point for questions regarding the report	About This Report	0
102-54	Claims of reporting in accordance with the GRI Standards	98-99	0	
102-56	External assurance	98-99	0	

Topic	Disclosure	Page	Assurance	
GRI 103: Management Approach				
Management Approach (DMA)	103-1	Explanation of the material topic and its Boundary	DMA	0
	103-2	The management approach and its components	30-33	0
	103-3	Evaluation of the management approach	30-33	0
GRI 200: Economic topics				
GRI 201: Economic Performance	201-1	Direct economic value generated and distributed	8-9, 27	0
	201-3	Defined benefit plan obligations and other retirement plans	77	0
	201-4	Financial assistance received from government	102	0
GRI 202: Market Presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	102	0
GRI 203: Indirect Economic Impacts	203-1	Infrastructure investments and services supported	51-54	0
	203-2	Significant indirect economic impacts	27-29, 54	0
GRI 204: Procurement Practices	204-1	Proportion of spending on local suppliers	28-29	0
	205-1	Operations assessed for risks related to corruption	102	0
GRI 205: Anti-corruption	205-2	Communication and training about anti-corruption policies and procedures	64, 69	0
	205-3	Confirmed incidents of corruption and actions taken	67	0
	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	102	0
GRI 300: Environmental topics				
GRI 301: Materials	301-1	Materials used by weight or volume	87	0
	301-2	Recycled input materials used	88-90	0
	301-3	Reclaimed products and their packaging materials	88-90	0
GRI 302: Energy	302-1	Energy consumption within the organization	86-87	0
	302-2	Energy consumption outside of the organization	86-87	0
	302-3	Energy intensity	86-89	0
	302-4	Reduction of energy consumption	86-87	0
GRI 303: Water	303-1	Water withdrawal by source	88	0
	303-2	Water sources significantly affected by withdrawal of water	88, 102	0
GRI 305: Emissions	305-1	Direct (Scope 1) GHG emissions	87	0
	305-2	Energy indirect (Scope 2) GHG emissions	87	0
	305-3	Other indirect (Scope 3) GHG emissions	87	0
	305-5	Reduction of GHG emissions	87	0
	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	89	0
GRI 306: Effluents and Waste	306-1	Water discharge by quality and destination	89	0
	306-2	Waste by type and disposal method	88-89	0
	306-3	Significant spills	102	0
	306-5	Water bodies affected by water discharges and/or runoff	88	0
GRI 307: Environmental Compliance	307-1	Non-compliance with environmental laws and regulations	102	0
GRI 400: Social topics				
GRI 401: Employment	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	76	0
	401-3	Parental leave	63	0
GRI 402: Labor/Management Relations	402-1	Minimum notice periods regarding operational changes	102	0
GRI 403: Occupational Health and Safety	403-1	Workers representation in formal joint management-worker health and safety committees	73	0
	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	71	0
	403-4	Health and safety topics covered in formal agreements with trade unions	73	0
GRI 404: Training and Education	404-1	Average hours of training per year per employee	80	0
	404-2	Programs for upgrading employee skills and transition assistance programs	78-80	0
	404-3	Percentage of employees receiving regular performance and career development reviews	80	0
GRI 405: Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	75	0
	405-2	Ratio of basic salary and remuneration of women to men	102	0

GRI Standards

Topic	Disclosure	Page	Assurance
GRI 408: Child Labor	408-1 Operations and suppliers at significant risk for incidents of child labor	61	0
GRI 409: Forced or Compulsory Labor	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	61	0
GRI 410: Security Practices	410-1 Security personnel trained in human rights policies or procedures	61	0
GRI 411: Rights of Indigenous Peoples	411-1 Incidents of violations involving rights of indigenous peoples	102	0
GRI 412: Human Rights Assessment	412-2 Employee training on human rights policies or procedures	61	0
	412-3 Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	102	0
GRI 413: Local Communities	413-1 Operations with local community engagement, impact assessments, and development programs	54	0
GRI 414: Supplier Social Assessment	414-2 Negative social impacts in the supply chain and actions taken	58	0
GRI 419: Socioeconomic Compliance	419-1 Non-compliance with laws and regulations in the social and economic area	102	0

Additional Information

Indicators	Additional information																												
102-41	All employees are subject to the results of collective bargaining agreements.																												
102-42	Our stakeholders are: (1) those who are affected by business activities; (2) those who affect business performance; and (3) those who are legally, financially, and operationally responsible. We listen to their voices through a variety of communication channels and reflect them in our business activities.																												
201-4	Government subsidies																												
	(Unit: USD Million)																												
	<table border="1"> <thead> <tr> <th>Category</th> <th>2017</th> <th>2018</th> <th>2019</th> </tr> </thead> <tbody> <tr> <td>Tangible assets</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Land</td> <td>13,928</td> <td>14,402</td> <td>13,967</td> </tr> <tr> <td> Buildings</td> <td>1,475</td> <td>1,353</td> <td>2,018</td> </tr> <tr> <td> Machines and equipment</td> <td>201</td> <td>172</td> <td>732</td> </tr> <tr> <td>Intangible assets</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Development cost</td> <td>72</td> <td>191</td> <td>269</td> </tr> </tbody> </table>	Category	2017	2018	2019	Tangible assets				Land	13,928	14,402	13,967	Buildings	1,475	1,353	2,018	Machines and equipment	201	172	732	Intangible assets				Development cost	72	191	269
	Category	2017	2018	2019																									
	Tangible assets																												
Land	13,928	14,402	13,967																										
Buildings	1,475	1,353	2,018																										
Machines and equipment	201	172	732																										
Intangible assets																													
Development cost	72	191	269																										
202-1	The ratio of entry level wage to legal minimum wage is 137%.																												
205-1	None of our worksites were found to have risks of any corruption cases according to the analysis results																												
206-1/419-1	We are striving to promote transparent and fair competition. However, some violation cases that occurred before implementing our compliance programs are still under investigation and subject to lawsuits. For further details, please refer to our 2019 audit report. Going forward, we will further strengthen our efforts to promote compliance activities of our employees and prevent any violations that could lead to market disruptions.																												
303-2	Our water resources are from the Nakdong River for the Gumi/Indong plants, the Paldang Dam for the Anyang plant, and the Dalbang Dam for the Donghae plant. They are purified by the K-Water and provided through water supply offices in each area.																												
306-3/307-1	There were no cases of harmful substance leakage and environmental violations in 2019.																												
402-1	We disclose key information and major changes regarding management and employee welfare in real time through our website.																												
405-2	Employees with the same positions and jobs are equally paid. There is no wage discrimination for reason of gender.																												
411-1	There were no violations involving the infringement of the rights of local residents during the reporting period.																												
412-3	When deciding new investment, including the establishment of a worksite, acquisition, and joint venture, we review and consider local labor practices. As of now, there have been no human rights issues. However, if newly invested worksites do not meet the international human rights standards, actions will be immediately taken to address these issues.																												

2019-2020 LS Cable & System Sustainability Report & Annual Report

Date of Publication	May 29, 2020 (Korean Version April 30, 2020)
Publisher	Roe-Hyun Myung
Company	LS Cable & System
Design	Reddot Branding
Production management	The Sustainable Management Secretariat (Wan-Seob Ju, Byung-Ok Kim, Woo-Jin Choi, Ju-Young Dong, and Hee-Jung Kim)

Contributors

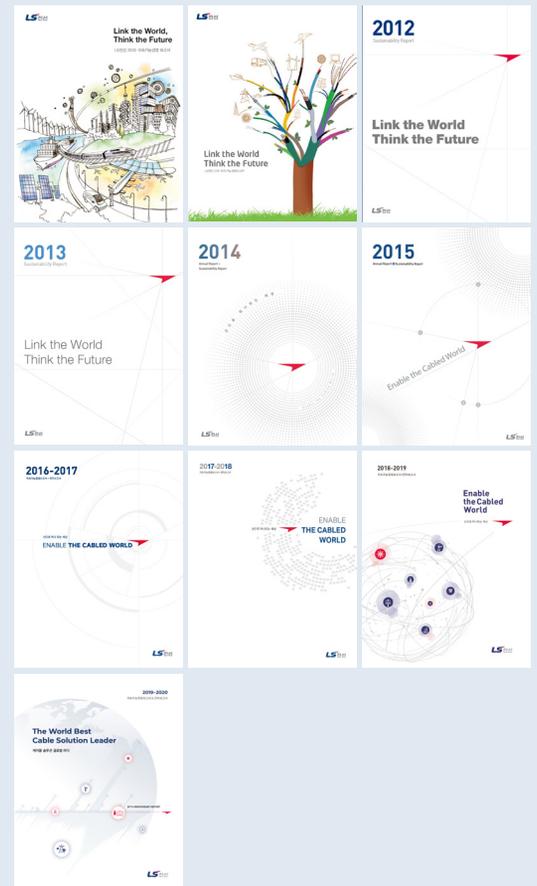
Working Committees

Technology Management Team	Min-Soo Ko, and Jung-Min Lee
Quality management & Environment planning Team	Ho-Eun Kim, and Seung-Hwan Paik
Communications Team	Dong-Hee Keum, and Yoon-Suk Kim
Purchasing Planning Team	Soon-Il Jung, and Min-Young Lee
Labor Relations Planning Team	Kyun-Woong Yang, and Dong-Gyu Lee
HR Team	Sung-Joon Kim, and Jung-Min Kim
Compliance Team	Young-Jun Oh, and Jung-Rae Kim
Internal Audit & Consulting Team	Chang-Won Choi, and Jin-Young Hyun
Corporate Culture & HRD Team	Seung-Geun Ahn, and Min-Jin Kim
Health, Safety & Environment Planning Team	You-Hwan Lee, Jeong-Rim Kang, and Seong-Kyu Jeong

Others

Corporate Strategy Team	Ung-Sik Chae, Hyun-Soo Cho, Ji-Hwa Jung, and Chang-Bae Yoo
Business Management & Planning Team	Yong-Gyu Choi, and Min-Jun Ahn
Business Information Management Team	Yong-Phal Yoo
Investor Relation Team	Kyoung-Su Oh
Accounting Team	Ji-Eun Choi
HR Team	Dong-Hyung Lee
Legal Team	Jae-Woon Lee
Communications Team	Hye-Rin Hwang
Business Support Division	Jung-Won Han
Health, Safety & Environment Team	Suk-Ho Park, Jeong-Wook Jang, Jin-Tak Lee, Ju-Hyeong Og, and Seung-Yoon Hong
Energy Cable System Sales Team2	Cheol-Hwi Ryu
Energy Research Team	Byung-Ha Chae
Platform Technology Research Center	Sang-Hoon Lee
Communication/Industrial Cable & System Research Team	Sung-Hoon Moon, and Kwang-Dong Jang
Global LV/MV Research Center	Hyun-Joo Hwang
Busduct Development/ Production Team	Geun-Young Jeong
LSHQ	Sang-Gab Lee
LS-VINA	Joo-Hwan Park
LSCV	Min-Hye Jo
G&P	Jong-Hyuk Yoon

Our reports since 2010



Enable the Cabled World
