2021
SUSTAINABILITY REPORT

The Future

LOTTE
DATA COMMUNICATION

About This Report

Since 2021, LOTTE Data Communication began to publish its sustainability report with an aim to share its efforts to increase its economic, environmental, and social values with various stakeholders. This 2022 report is its second annual sustainability report. Going forward, we will continue to transparently disclose the goals, policies, systems, and achievements in its pursuit of sustainability through annual sustainability reports.

Reporting Standards
Prepared in accordance with the Core Options of the Global Reporting Initiative (GRI) Standards, a guideline for preparing global sustainability reports, this sustainability report follows global initiatives such as UN Sustainable Development Goals (SDGs) and Task Force on Climate-Related Financial Disclosures (TCFD) in reporting its environmental and social indicators.

Reporting Period
This report covers LOTTE Data Communication's ESG activities and performance from January 1 to December 31, 2021, with some informations on ESG activities until April 2022. In addition, quantitative data from the last three years (January 2019 to December 2021) were included in this report to show trends over the years, with significant changes in management during the reporting period for the readers' convenience.

Reporting Scope
The report covers financial and business performance on LOTTE Data Communication's head office and all its domestic and overseas workplaces, with some topics centered on domestic business. The company states its non-financial business performance per individual workplace. Its consolidated financial information is presented in line with the Korean International Financial Reporting Standards (K-IFRS). Data requiring additional attention in terms of scope and boundary of reporting have been annotated separately.

Assurance
To ensure its reliability, this report was assured by the Korea Management Registrar (KMR), an independent external verification agency. This report was also verified in accordance with AA1000AS Type II, the international standard, and detailed Assurance Statement can be found on page 98 of this report.

For any inquiries or suggestions on this report, please contact LOTTE Data Communication.

Communication Team, ESG Office

+82-2-2626-4000
ldccir@lotte.net
179, Gasandigital 2-ro, Gasan-dong, Geumcheon-gu, Seoul, Korea

Website   YouTube

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Interactive PDF

This report has been published as an interactive PDF, allowing readers to move to pages in the report, and including shortcuts to related web pages and video clips.

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CEO MESSAGE

Dear esteemed stakeholders, I'm Jun-hyung Rho, CEO of LOTTE Data Communication.

Upon publishing the 2022 Sustainability Report, I sincerely thank you for your trust and support in LOTTE Data Communication.

The prolonged COVID-19 pandemic has changed society and our daily lives in an unprecedented way. While everyone feels the need for innovation more than ever, the world is also paying keen attention to key ESG factors such as "information security", "carbon neutrality", and "the enforcement of the Serious Accident Punishment Act" as a way to build a sustainable society.

Based on our experiences accumulated in various industries over the years, ongoing crisis is an opportunity for development and growth to us, LOTTE Data Communication. We will continuously strive to contribute to creating a better society through transparent communication with our stakeholders.

2021 was a year of both challenge and growth for LOTTE Data Communication.

While increasing R&D investment, we further expanded our business portfolio including the metaverse, EV charging, self-driving and data integration to enhance our business capabilities; thereby, developing new growth engines and achieving high-quality growth. In January 2022, our technological competitiveness in new businesses was highly recognized at CES 2022, the world's largest IT exhibition. In 2022, we will introduce our metaverse-linked payment system to the global market.

Over the next three to five years, we will lead our customers' needs in not only comprehensive mobility solutions such as EV charging platforms, charging stations, personal mobility, and self-driving shuttles, but also a whole range of new businesses that respond to future demands such as user interactive metaverse platforms and data-driven healthcare service.

What has driven LOTTE Data Communication's external growth is the great responsibility the corporation feels toward its stakeholders, customers, employees, and partners. For a future society where we will grow with the new generations, LOTTE Data Communication will pursue sustainable management by creating an ESG ecosystem based on the core of IT business.

On the environmental side, we are equipped with an enterprise-wide environmental management process to establish and accomplish our annual goals based on the action plan that we have set to meet the long-term needs of our various stakeholders. In line with the national move to net zero by 2050, LOTTE Data Communication is making a variety of eco-friendly efforts such as building eco-friendly data centers, switching our business vehicle fleet to EVs, and expanding smart transportation infrastructure.

On the social side, we continue to perform CSR activities with the local community, apply CSV initiatives including the recruitment of disabled athletes, participate in win-win growth programs with partners. Most notably, we signed an agreement with Korea Commission for Corporate Partnership in 2021 to bridge the wage gap driven by innovation, and accordingly we will promise to support our partners for three years with a budget of KRW 20.2 billion.

On the governance side, the ESG Committee launched in July 2021 will take the lead in communicating transparently with our stakeholders about the company's major risks and opportunities. We will also do our utmost to enhance corporate value through improved performance in the fair trade compliance program and the in-house Ethics Committee operation, which will contribute to building trust.

Going forward, LOTTE Data Communication will focus on not only the achievement of its external growth, but also the creation of an organizational culture armed with the spirit of challenge and growth. And we will continuously share with our stakeholders new value we create.

We will pave the way for a new future, and we ask for your continuous support and encouragement. Thank you.

July 2022

CEO Jun-hyung Rho

OUR COMPANY

Company Profile

LOTTE Data Communication is a platform service provider that leads "business transformation" by establishing business models that meet our customer needs. We are conducting business using cutting-edge IT technologies in various fields, from AI to big data, smart factories, retail tech, and digital healthcare as well as state-of-the-art infrastructure such as cloud and internet data center (IDC). In particular, we are actively promoting new mobility business such as self-driving and EV charging, a key element of a smart city. Going forward, we will proactively respond to our customers' needs for business innovations with various technologies while exploring new types of business for our sustainable growth.

Corporate Overview

Establishment[1]	December 28, 1996
Head Office	179, Gasan digital 2-ro, Gasan-dong, Geumcheon-gu, Seoul, Korea (Gasan-dong 533-2)
CEO	Jun-hyung Rho
Date of Listing	Listed on KOSPI on July 27, 2018
No. of Employees	2,885 (As of 2021 year-end)
Industry	Integrated IT system construction, software development, etc.
Business Area	IT outsourcing, software development, cloud, data center, digital transformation (DT), smart city, security, AI, big data, metaverse, mobility, healthcare, data integration, etc.

[1] On November 1, 2017, LOTTE Data Communication was launched as a spin-off of LOTTE IT Tech (formerly LOTTE Information Communications), following its foundation in 1996 as a firm specializing in building system integration, developing/supplying solutions; and doing business related to integrated IT system operation.
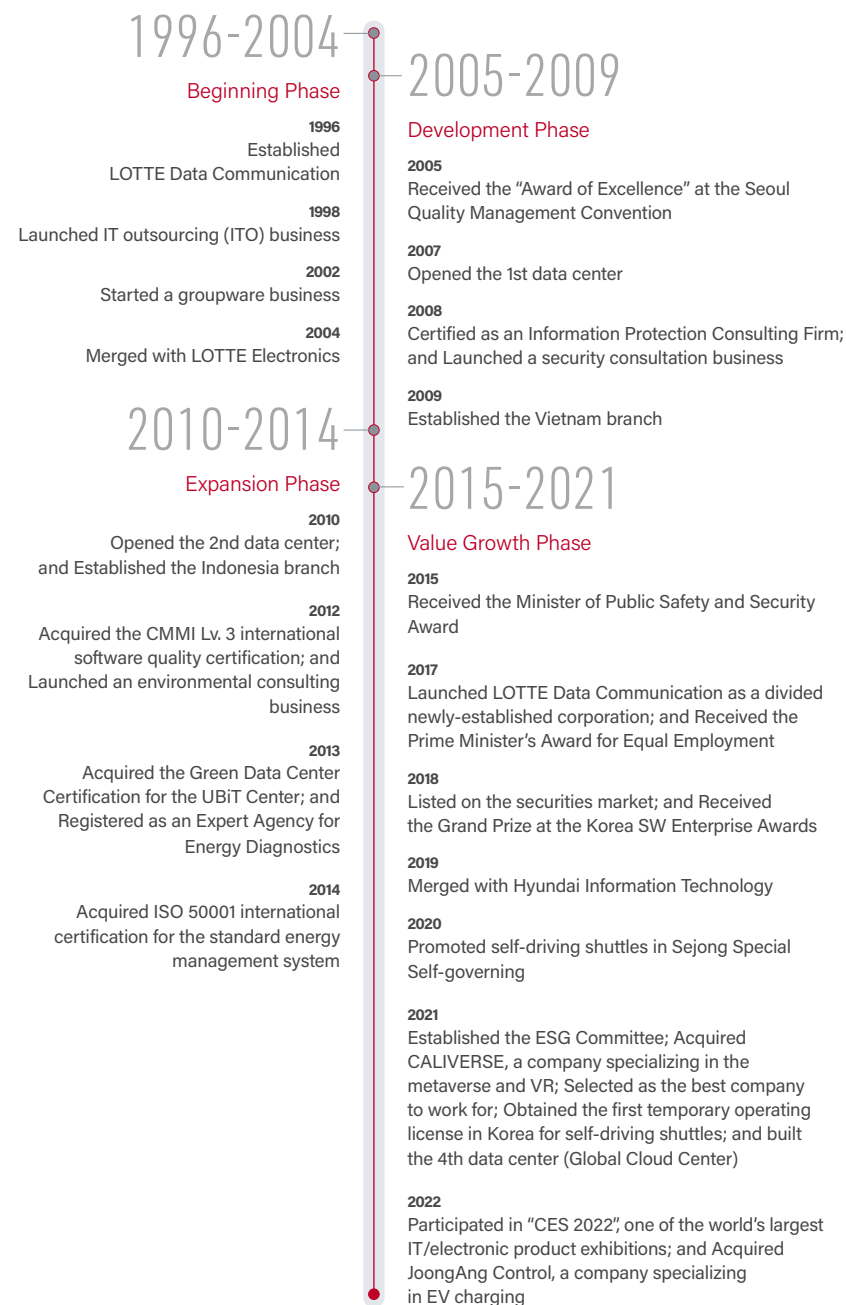
Global Network

Country   Vietnam
Region   Hanoi (branch), Ho Chi Minh City (subsidiary, R&D center)
Employees   231
Establishment   December 2009
Sales   KRW 13,630 million (as of 2021)
Business   Retail, finance/securities, medical, smart city/IBS[2], data center/cloud, R&D/offshoring, etc.

Country   Indonesia
Region   Jakarta (subsidiary)
Employees   33
Establishment   October 2010
Sales   KRW 5,962 million (as of 2021)
Business   Retail (on/offline), SI[3], SM[4], networking, infrastructure construction, data center operation, etc.

[2] IBS: Intelligent Building System
[3] SI: System Integration
[4] SM: System Management

Key Milestones

1996-2004
Beginning Phase

1996
Established LOTTE Data Communication

1998
Launched IT outsourcing (ITO) business

2002
Started a groupware business

2004
Merged with LOTTE Electronics

2005-2009
Development Phase

2005
Received the "Award of Excellence" at the Seoul Quality Management Convention

2007
Opened the 1st data center

2008
Certified as an Information Protection Consulting Firm; and Launched a security consultation business

2009
Established the Vietnam branch

2010-2014
Expansion Phase

2010
Opened the 2nd data center; and Established the Indonesia branch

2012
Acquired the CMMI Lv. 3 international software quality certification; and Launched an environmental consulting business

2013
Acquired the Green Data Center Certification for the UBiT Center; and Registered as an Expert Agency for Energy Diagnostics

2014
Acquired ISO 50001 international certification for the standard energy management system

2015-2021
Value Growth Phase

2015
Received the Minister of Public Safety and Security Award

2017
Launched LOTTE Data Communication as a divided newly-established corporation; and Received the Prime Minister's Award for Equal Employment

2018
Listed on the securities market; and Received the Grand Prize at the Korea SW Enterprise Awards

2019
Merged with Hyundai Information Technology

2020
Promoted self-driving shuttles in Sejong Special Self-governing

2021
Established the ESG Committee; Acquired CALIVERSE, a company specializing in the metaverse and VR; Selected as the best company to work for; Obtained the first temporary operating license in Korea for self-driving shuttles; and built the 4th data center (Global Cloud Center)

2022
Participated in "CES 2022", one of the world's largest IT/electronic product exhibitions; and Acquired JoongAng Control, a company specializing in EV charging

KEY FIGURES

Environment

Energy Consumption	**1,947**	TJ
GHG Reduction	**2,307**	tCO_2eq
Waste Discharged	**174**	tons
Water Consumption	**109,394**	tons
Exhaust Gas Emissions	**0.082**	tons

ISO 50001

Certified to ISO 50001

Social

Ratio of Female Employees	**29**	%
Lost Time Incident Rate	**0**	%
Shared Growth Funds	**15.0**	KRW billion
Volunteer Hours	**1,550**	hours
Information Security Violation	**0**	cases

ISO 27001

Certified to information security management system (ISMS) and ISO 27001
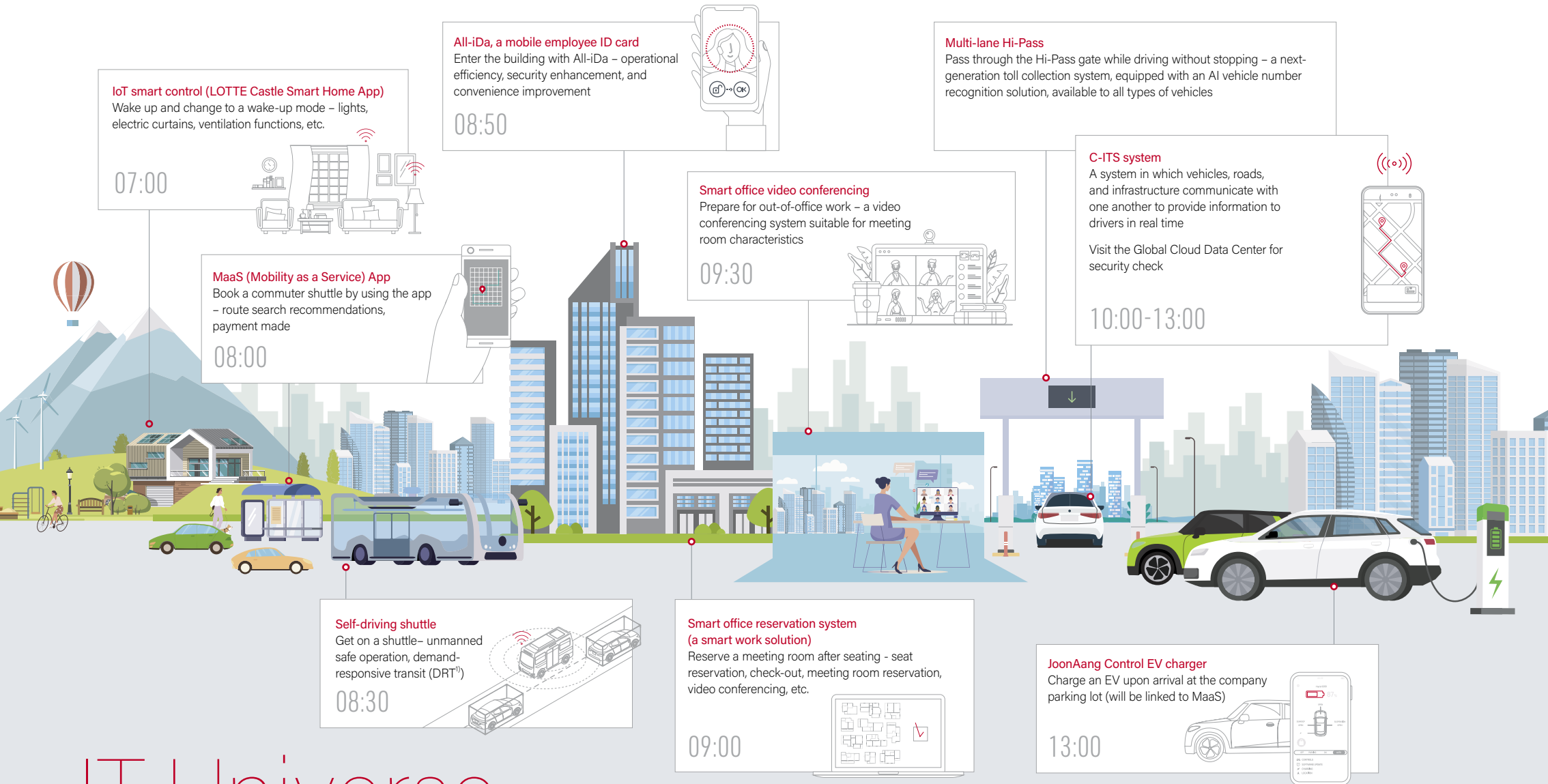
Governance

Violations of Anti-corruption Laws	**0**	cases
	A	Obtained overall grade A in the KCGS ESG Evaluation

SUSTAINABLE LDCC

IoT smart control (LOTTE Castle Smart Home App)
Wake up and change to a wake-up mode – lights, electric curtains, ventilation functions, etc.

07:00

All-iDa, a mobile employee ID card
Enter the building with All-iDa – operational efficiency, security enhancement, and convenience improvement

08:50

Multi-lane Hi-Pass
Pass through the Hi-Pass gate while driving without stopping – a next-generation toll collection system, equipped with an AI vehicle number recognition solution, available to all types of vehicles

MaaS (Mobility as a Service) App
Book a commuter shuttle by using the app – route search recommendations, payment made

08:00

Smart office video conferencing
Prepare for out-of-office work – a video conferencing system suitable for meeting room characteristics

09:30

C-ITS system
A system in which vehicles, roads, and infrastructure communicate with one another to provide information to drivers in real time

Visit the Global Cloud Data Center for security check

10:00-13:00

Self-driving shuttle
Get on a shuttle– unmanned safe operation, demand-responsive transit (DRT[1])

08:30

Smart office reservation system (a smart work solution)
Reserve a meeting room after seating - seat reservation, check-out, meeting room reservation, video conferencing, etc.

09:00

JoonAang Control EV charger
Charge an EV upon arrival at the company parking lot (will be linked to MaaS)

13:00

IT Universe

[1] Demand Responsive Transit: A transportation system in which public transportation operates freely without fixed routes according to the demand of passengers

Hi-U (healthcare solution)
Check conditions– reservation of health checkup through a healthcare platform and analysis based on health data

15:00

RPAZ (RPA Platform)
Consult with the RPA Team to improve work efficiency – RPAZ is a platform that provides everything from A to Z of robotic process automation (RPA), supporting all processes from RPA introduction to operation and performance management

17:00

Butter Yum
Cooking– a recipe-specialized app, which even beginners find easy to use, which recommends customized recipe video content and features various functions such as section repeat viewing
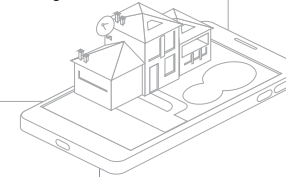
19:00

IoT smart control (LOTTE Castle Smart Home App)
Turn on the Home Mode upon arriving at home – heating and cooling, living room lights, etc.

18:00

DT LAB (Retail Tech)
Visit a convenience store after a meal – shopping at an unmanned store with facial recognition payment, prevention of shortages by applying Vision AI, management of the store environment with IoT sensors, etc.
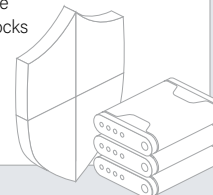
14:00

SecuFy Anti-ransome
The SecuFy solution blocks ransomware while working – a solution that even blocks unknown ransomware in real time
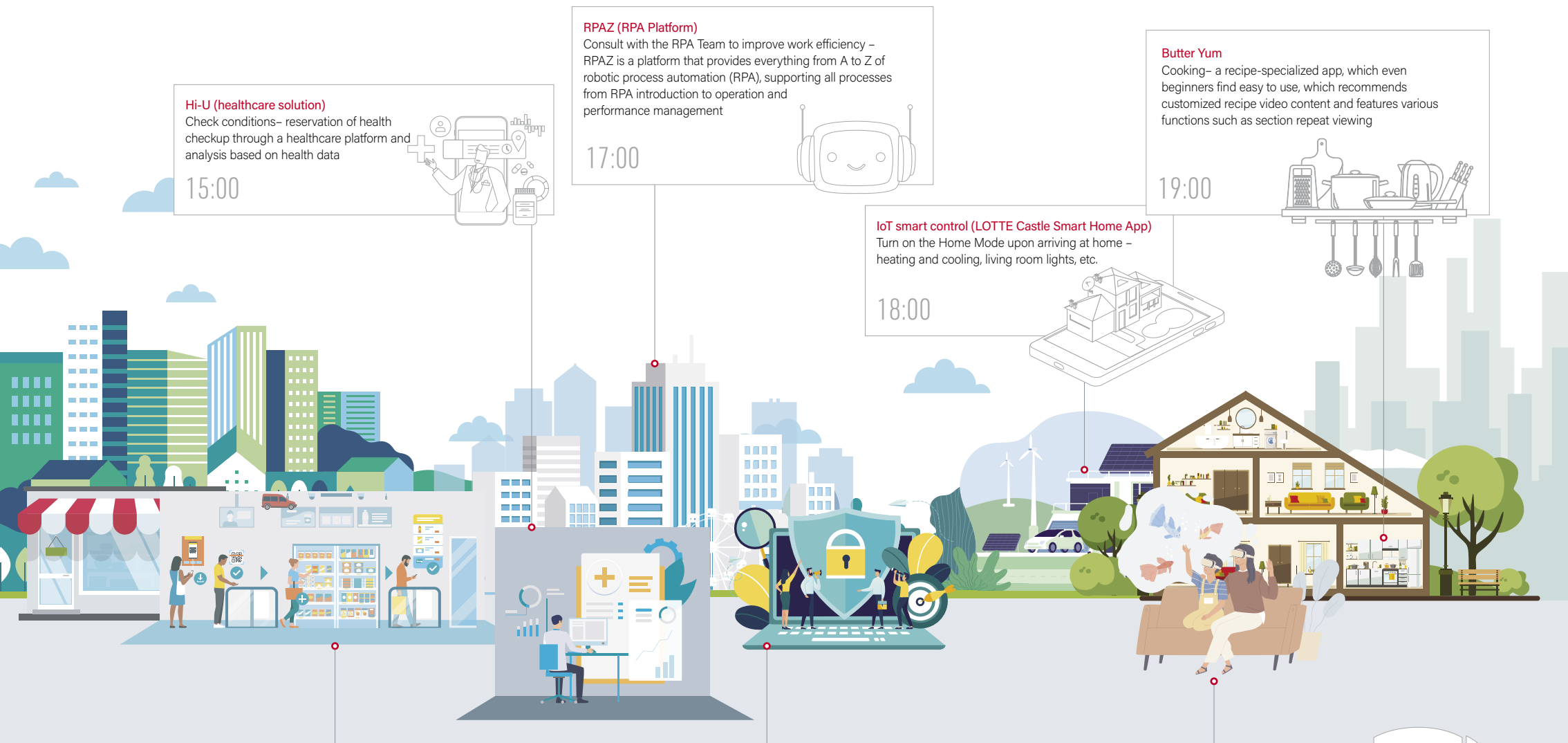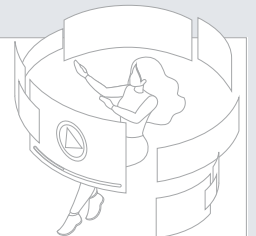
16:00

Metaverse platform
Wear a head-mounted display (HMD) device to enjoy virtual shopping and watch movies in the metaverse world

20:00

LOTTE Data Communication has newly redefined its mission as "a platform service company that leads customer's business transformation (BT)". To achieve the goal, we are creating synergies in various types of infrastructure and industries based on differentiated core competencies, while expanding new business portfolio into non-IT, B2C, and global. The new businesses that we are focusing on include mobility business, such as EV charging and autonomous driving; B2C business represented by cooking recipe platform "Butter Yum" and companion animal platform "HeyNana"; and the metaverse and non-fungible token (NFT) targeting the global market. Going forward, we will proactively respond to the rapidly changing industry trends and clients' business needs, as a way to discover future-oriented services and thus achieve sustainable growth.

From DT To BT

Services reflecting future trends

Transform business platform to digital space
→ Create new business for customers

Transcend the concept of fixed business space
→ Provide services using virtual space

Integrated online/offline services

BT services increasing clients' business value

Expand digital-oriented new business and a way of working
→ Expand customer's existing business

Provide business space suitable for service
→ Share physical space; and Build and provide service-specialized space

Co-existing online/offline services

Service flow — **DT services focused on customer needs**

Technology expansion direction — Improve efficiency by applying digital technology to existing business and a way of working
→ Optimize customer's existing business

Biz space — Make the most of the existing business space
→ Provide services tailored to existing business space

Platform direction — Separate online/offline services

BT

DT → BT

PHASE 3

DT

PHASE 2

PHASE 1

Main items — Smart Eco System   DT 2.0   Mobility Service   Smart Healthcare   Hyper Real Metaverse   Creation of Future-oriented Services

BIG DATA

CLOUD COMPUTING

HYPER REAL METAVERSE

WHAT   Hyper real metaverse refers to a 3D immersive virtual world where social, economic, and cultural activities take place as in the real world. It is a concept that has evolved one step further from the traditional virtual world. By maximizing user immersion, users can have a lifelike experience as they do in the real world, and as the real and virtual worlds are linked, they can experience economic activities, community communication, and other in a variety of ways, regardless of time and space.

The rise of new
#universe for real

HOW   LOTTE Data Communication has been building a VR[1] hyper real metaverse platform equipped with HMD[2] in order to realize the hyper real metaverse – a virtual world with a high level of reality, just like the real world we live in, and a strong level of connection to reality. To this end, we will be fulfilled with content production capabilities and prepare to connect on/offline economic activities between the virtual and real worlds while providing platform-based services. Under the strategy, we provide VR content that can interact with customers by leveraging cutting-edge technologies such as VR video shooting/compositing, real-time rendering, and resource optimization. We are also making continuous efforts to expand MOUs with specialized global companies for technological advancement.

LOTTE Data Communication is preparing to launch a platform in which we create synergy with LOTTE Group affiliates and provide various services to companies and customers at home and abroad. In the metaverse platform, users can even create economic activities as well. At "CES 2022" held in January 2022, we proposed a metaverse space consisting of a virtual home, a virtual store, a virtual fitting room, a virtual theater, and a virtual concert hall, visualizing that the metaverse will enter our living space soon.

ESG VALUE   Hyper real metaverse can implement all elements in real world as a digital twin, and on the back of this great advantage, its social and environmental values will continue to grow. Companies can contribute to strengthening the competitiveness of their nation and tech companies through the introduction of new technologies in the metaverse, while created contents become eligible for information security and intellectual property protection. Meanwhile, the creation of social value based on big data can consolidate social indicators by realizing the public good, and the metaverse system based on cloud computing and big data in the traditional offline system can enhance corporate value, which is expected to improve governance indicators as well. In terms of social value, the new technology will create an ethical ecosystem by continuously monitoring issues related to indiscriminate verbal violence in virtual space; reduce social discrimination by bridging the generational digital divide; and promote information sharing and communication among users.

| 1 | 2 |
| 3 | 4 |
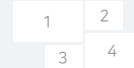
1 CES 2022: Virtual store
   – LOTTE Duty Free
2 CES 2022: Virtual concert
3 LOTTE Data Communication's Booth
   at CES 2022
4 CES 2022: Virtual store
   – LOTTE Hi-Mart

#New

In July 2021, LOTTE Data Communication acquired Caliverse (formerly VISION VR), an immersive VR content producer with patented technologies for 3D graphic production and deep interactive[3]. Based on close cooperation, we are speeding up the establishment of a metaverse platform.

#First

For the first time among LOTTE Group affiliates, we participated in CES 2022 held in Las Vegas, USA, and implemented a VR HMD-based hyper real virtual home, store, fitting room, cinema and concert hall. We laid the foundation for expansion into the global market by receiving positive reviews about user-responsive content that maximizes user's immersion through real-time interaction based on gaze, touch and voice.

#Collaboration

We have signed an MOU with Mimic Productions, a German digital human production company, for technical cooperation on the metaverse platform and realization of real metaverse services. We have also signed a technical partnership with Epic Games Korea, a Korea branch of Epic Games, Inc., the producer of Unreal Engine[4] in order to collaborate for advancing the metaverse development engine and the virtual content production technology.

[1] VR: Virtual Reality, A computer-generated environment with scenes and objects that appear to be real, making the user feel they are immersed in their surroundings
[2] HMD: Head-Mounted Display, Displays or projection technology integrated into eyeglasses to enjoy videos
[3] Deep interactive: A technology in which a person filmed in "live-action" reacts to the viewer's actions
[4] Unreal Engine: Used for the creation of 3D content in a number of industries such as games, movies, TV, architecture, and automobiles, and is emerging as a key development tool for metaverse construction

MOBILITY SERVICE

WHAT   Mobility service refers to all services that support movement of people and things more convenient. Technological innovation and socio-economic changes brought about by the Fourth Industrial Revolution are rapidly changing the traditional transportation service into a mobility market centered on autonomous driving and EVs prioritizing user efficiency and convenience.

For safer, greener, & smarter
cities of the #future

HOW　Based on its eco-friendly and smart mobility technologies, LOTTE Data Communication continues to expand its horizon of new business. We are leading the eco-friendly service that reduces CO_2 emissions about fivefold compared to internal combustion engine vehicles (ICEVs) through electric-powered SAE Level 4[1] self- driving shuttle service based on cutting-edge mobility service innovation. In addition to building EV charging infrastructure, we are taking active part in the transition to zero-emission vehicles as a participating company in the K-EV100[2] campaign, to shift to zero-emission car, led by the Ministry of Environment of Korea. We are also providing advanced transportation services that reduce CO_2 emissions and energy consumption by improving traffic flow through intelligent transport system C-ITS[3] and multi-lane Hi-Pass[4] solutions. We plan to expand into an eco-friendly total mobility platform by continuously developing the core competencies of our mobility business including self-driving vehicles, advanced transportation systems, and EV charging infrastructure.

ESG VALUE　Autonomous driving is a technology in which a car autonomously drives instead of a person by collecting and analyzing driving-related information through sensors attached to it. It boosts driver safety by reducing traffic accidents as it allows the car to be aware of road conditions that the driver does not identify. Traffic congestion will be reduced as traffic information can be checked in real time through C-ITS, a key technology for the commercialization of fully autonomous vehicles, with the quality of life improved on the back of increased convenience of road users. Furthermore, the expansion of mobility services, including autonomous driving and C-ITS enables efficient traffic flow, thereby reducing environmental impacts such as GHGs, fine dust, and noise.

Smart City to be Shaped by LDCC's Mobility Technology

LOTTE Data Communication has the core technologies required to implement a smart city such as SOC, smart building solutions, and mobility. Deploying core mobility technologies, we enhance mobility convenience. We make people's movement more efficient and effective through intelligent road infrastructure controlling traffic/signals; SAE level-4 self-driving; EV charging infrastructure accessible anytime, anywhere; and mass transit such as subways, trams, and railways that are connected through various types of mobile infrastructure. In addition, we are equipped with core technologies for smart buildings that can integrate mobile infrastructure with living infrastructure. Linking with smart homes and offices provides optimal accessibility to check and use information on mobility and living area anytime, anywhere, while also helping improve quality of life through monitoring and real-time control of the overall situation.

1　EV charging station
2　Self-driving shuttle without a driver's seat

#First

In June 2021, LOTTE Data Communication acquired a temporary operating license for the first self-driving shuttle (Type B self-driving vehicle) without a driver's seat in Korea following the amendment of the Act on the Promotion of and Support for Commercialization of Autonomous Driving Motor Vehicles[5]. The shuttle, which can accommodate a total of 15 passengers, is equipped with advanced technologies such as detection sensors, a location information system, C-ITS, and a video system, so it can operate without driver intervention by recognizing and judging various situations on its own. We have conducted autonomous driving technology and safety verification through a 3,800km test run in Sejong City, the autonomous vehicle pilot zone as well as Suncheon City and Korea National University of Transportation.

#Partnership

We are building robust partnerships with various institutions to expand the scope of autonomous driving business while further advancing technologies in the area. We have completed the formation of the essential value chain for the autonomous driving business based on external partnership: a technological partnership was formed with in Feb 2022 to develop and product of self-driving shuttles with Ohmio Automotion, a New Zealand company specializing in autonomous driving; a C-ITS infrastructure business partnership was signed with Chemtronics in Feb 2021; and a partnership established with Daechang Motors in May 2021 in order to localize self-driving vehicles and EVs. We are also strengthening cooperative relationships with local governments and research institutes in Korea. We have signed an MOU with Suncheon City in Jeollanam-do Province for cooperation in the Green Smart City Project and with the Korea Transport Institute and the Korea Automotive Technology Institute for technological advances and pilot projects.

#Leadership

After obtaining a temporary license for self-driving without a driver's seat for the first time in Korea, we have successfully completed the self-driving demonstration project in Sejong City. We are expanding our service to Suncheon and Gangneung. For C-ITS, we are conducting an infrastructure construction project on national highways while expanding our local ITS network by building ITS in Incheon, Anyang. and Seoul. We are also leading the road transportation industry as the country's top-tier builder of the Hi-Pass toll collection system network.

[1] SAE Level 4: The level at which complete autonomous driving is possible according to the levels of driving automation presented by the Society of Automotive Engineers (SAE)
[2] K-EV100: Electric Vehicle 100%, Korea's initiative aimed at 100% transition to pollution-free vehicles
[3] C-ITS: Cooperative-Intelligent Transport Systems, A service through which vehicles can share information on surrounding roads and traffic conditions with drivers in real time
[4] Multi-lane Hi-Pass: A new type of Hi-Pass system that connects two or more Hi-Pass lanes (lane-separating facilities removed) to create a wider lane which reduces the risks of accidents and facilitate quick and convenient passage
[5] Laws and relevant administrative regulations for the promotion of and support for commercialization of autonomous vehicles

DIGITAL TRANSFORMATION 2.0

WHAT   Digital Transformation (DT) 2.0 refers to a total service provided for the entire value chain by expanding the company's existing business area and providing higher value to customers. This is enabled by accumulated know-hows through several DR project references in different industries.

Next phase of
#digital innovation

HOW   LOTTE Data Communication is equipped with experience and competence it has accumulated while carrying out a number of projects in the logistics industry ranging from design/consulting to system/BPO, automation facilities, operation/maintenance, and control of logistics centers. Based on expertise, we have launched the EPC (Engineering, Procurement, Construction) project for logistics centers to serve as a total service provider for smart logistics. Going forward, we plan to expand our business beyond logistics into various other services such as data centers.

ESG VALUE   By performing the entire project including pre-planning, design, construction, operation, and maintenance, we provide an optimized service that considers every step of the way. This enables us to minimize the waste of resources while also allowing to identify, respond to, and manage various risks involved in each process.

#Expertise

In April 2021, LOTTE Data Communication acquired a general construction license as part of its efforts to secure various capabilities and qualifications required to provide integrated services for its diverse areas of business in terms of strategy establishment, planning, design, system configuration, and facility construction/operation. We will expand our business portfolio to external logistics and data center development.

#Partnership

In April 2021, we signed an MOU with GC Bio for the EPC business. Going forward, we plan to build smart logistics centers through comprehensive collaboration ranging from planning/design to construction/maintenance of logistics centers in port hinterlands in Korea.

LDCC's Smart Logistics Competency by Sector

Classification

SP			EPCA				Q&M	
Feasibility Study >	Strategy >	Planning >	Engineering >	Procurement >	Construction >	Automation >	Operation >	Management

Project

Indonesia LINE Project of LOTTE Chemical	Namyangju Automatic Warehouse of LOTTE Chilsung Beverage	Bupyeong Logistics Center of LOTTE Chilsung Beverage	Yangsan Integrated Logistics Center of LOTTE Global Logistics	Integrated Monitoring System of LOTTE Chilsung Beverage

Competency

- **Logistics Strategy Consulting**
  Business model, IT/DT, SCM/S&OP/logistics, automation equipment, etc.

- **Participation in the Pre-planning Stage**
  Automatic warehouse of LOTTE Chilsung Beverage in Namyangju and LOTTE Chemical Indonesia (LINE), Pyeongtaek Port hinterland complexes

- **Experiences and Expertise in Facility Automation**
  Integrated logistics centers in Northern Seoul, Ulsan, Dongdaegu and Yeongnam of LOTTE Global Logistics

- **Facility Control (WCS)**
  * Completion of the LOTTE Global Logistics platform (Nov. 2020) and upgrade/application

- **Acquisition of a general construction license (Apr. 2021)**

- **Expertise in Operation/Maintenance**
  Factories, IDCs, etc.

- **Platform (L-Lis), Integrated Control**
  Bupyeong Plant of LOTTE Chilsung Beverage, Dongdaegu Terminal of LOTTE Global Logistics, etc.

CLOUD COMPUTING

WHAT   Cloud computing refers to services in which virtual servers, applications, and other IT resources are provided against payment. In other words, companies "lease" and use cloud providers' computing resources as needed instead of "owning" the resources within their business sites or in a data center. Cloud computing consists of three major types such as IaaS[1], PaaS[2], and SaaS[3] which provide different levels of control, flexibility, and management. Customers can choose services that suit their needs. Depending on who builds and operates the cloud environment, cloud computing is divided into three types such as public, private, and hybrid.

[1] IaaS: Infrastructure as a Service, A service that allows consumers to borrow data center resources such as servers and storage through the Internet
[2] PaaS: Platform as a Service, A service that provides a platform needed for the development of software services
[3] SaaS: Software as a Service, Application services operating in a cloud environment

New way of
#connecting your business

HOW   LOTTE Data Communication presents a strategy for and roadmap to cloud computing through systematic service diagnosis and proof of concept (PoC), and provides an optimal cloud environment based on its abundant cloud architecture experiences. By providing customized managed services, we also support our customers in terms of effective cost operational management and monitoring. We offer differentiated hybrid-cloud service through a private cloud called "L.Cloud" in addition to the optimal multi-cloud for each business based on the Cloud Hub Platform. Furthermore, by constructing a differentiated portfolio that considers the characteristics of each customer, we secure business services bolstered by compatibility, continuity, and scalability.

ESG VALUE   For stable server operation, specifications are configured based on the maximum peak value, so the actual CPU[1] utilization is only 10% on average. In order to utilize these wasted resources, cloud computing can build and operate multiple virtual machines by applying virtualization technology to one real server. When the resources of a specific server are insufficient, additional identical virtual servers can be created to reduce the load. When companies build and operate their own data centers, huge amounts of energy are invested in maintaining the resources required to create servers, in keeping server and network temperatures at appropriate levels, and in operating various facilities. Cloud computing is therefore one of the best ways to dramatically reduce energy consumption and GHG emissions.

1	2

1 LOTTE Data Center
2 MOU with ClouFlake

#Collaboration

In August 2021, LOTTE Data Communication signed an MOU for cloud business cooperation with ClouFlake, which has competitiveness in cloud computing such as consulting, architecture, and service development. We are building a strategic collaboration system with the company for cloud business expansion through joint discovery and promotion of new businesses as well as technology exchange.

#Milestones

· Launched and operate a cloud computing system for online shopping mall of LOTTE ON, LOTTE's e-commerce business
· Built a cloud computing system for "wyd", a new video commerce platform of LOTTE Home Shopping
· Built a cloud computing system for an online shopping mall of LOTTE GFR launched
· Renewed a cloud computing system for the Pasteur official shopping mall of LOTTE Foods
· Built a cloud computing system for the Purina official shopping mall of LOTTE Nestlé

[1] CPU: Central Processing Unit, A device that processes all data on a computer

BIG DATA

WHAT　Big data refers to all types of large-capacity structured/unstructured data generated in the digital environment. A company that uses big data means that it collects, processes, and analyzes various types of data existing inside and outside the company to extract meaningful values. Companies use big data to make strategic decisions and discover new businesses. As big data emerges as an essential element for corporate DT and BT, corporations' internal capabilities are becoming more important not only to collect data, but also to select the necessary data among numerous data, use it appropriately, and apply it to their business.
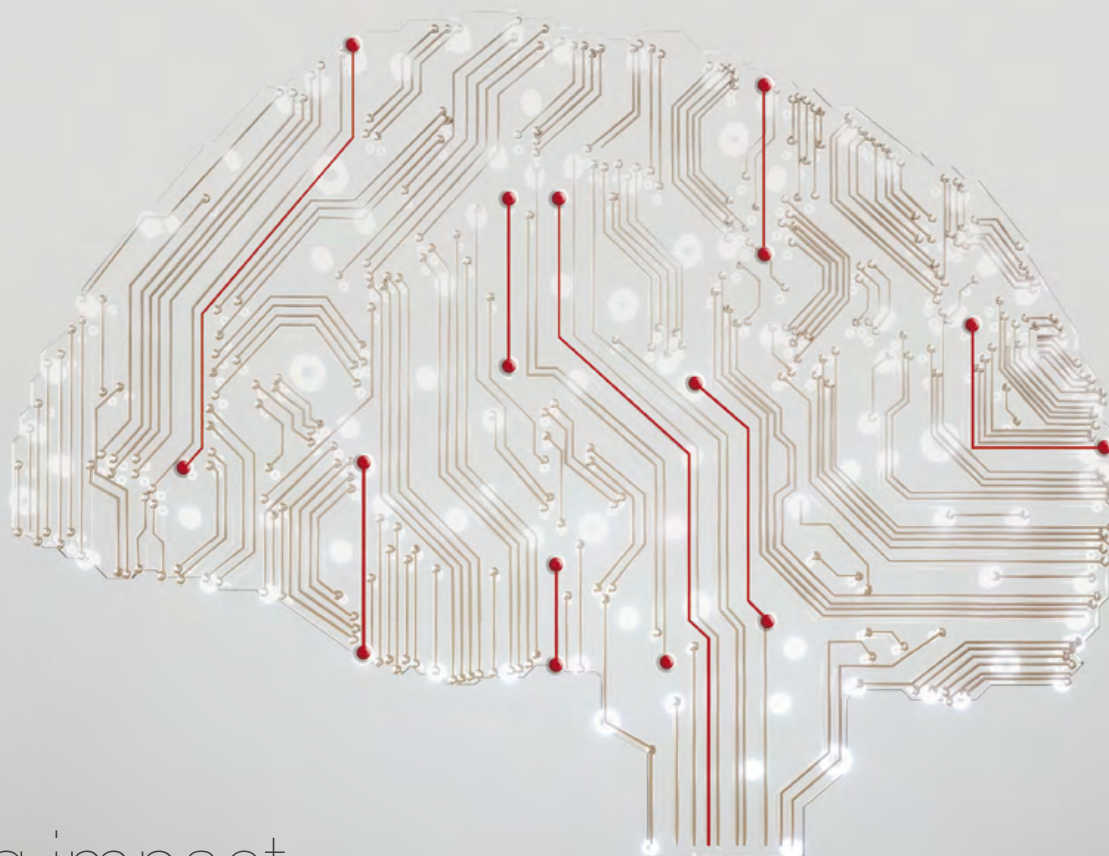
Big data, big impact,
#big insight

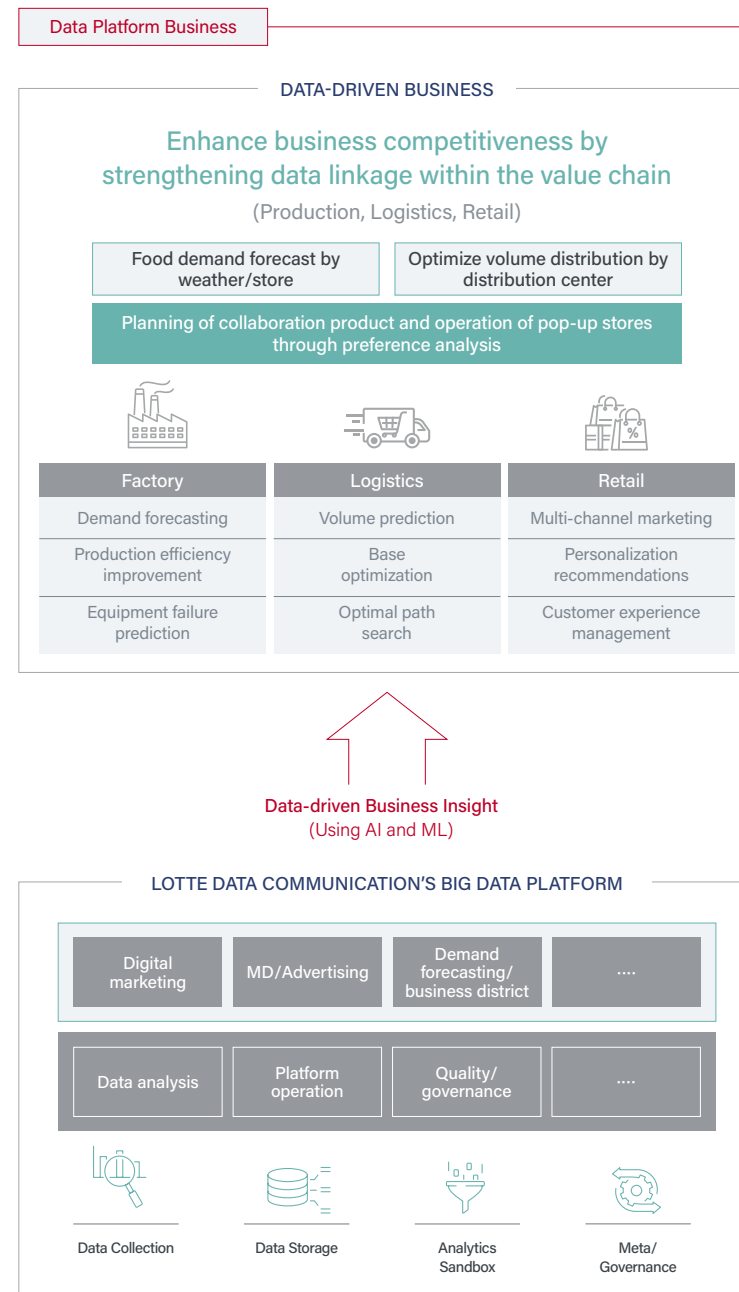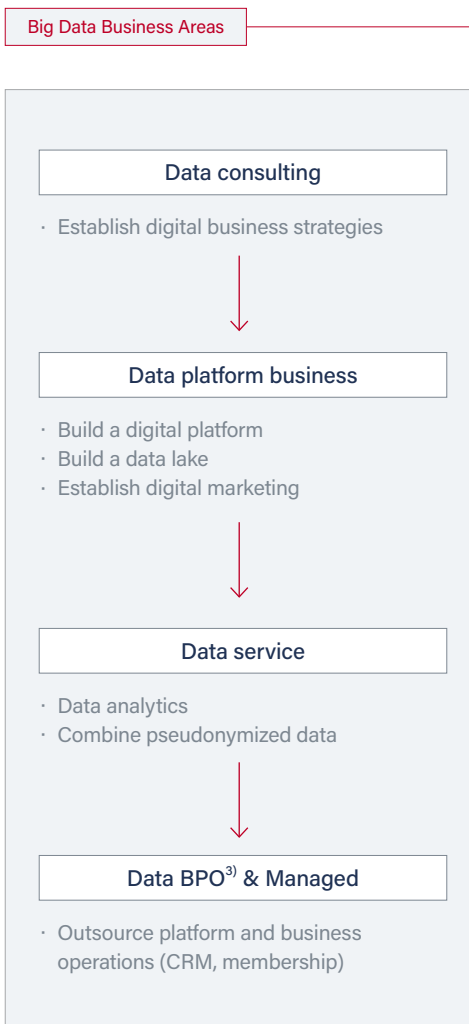**HOW**   Enabling customers to improve their DT and BT competitiveness through big data requires insight into various industries based on understanding and experience. To provide customers with a significant data value, LOTTE Data Communication promotes total business services in the data field, from data consulting designed to identify customer needs to data lake design and construction, and data analysis and data BPO service[1] based on the Smart Eco System. This enables customers to implement data-driven[2] management throughout their entire business value chain, while also realizing BT innovation through DT.

Based on many years of industry-specific domain knowledge and experience, we offer services in the entire value chain of the data industry, from consulting that supports data-based decision-making to building data platforms and utilizing internal/external data.

Through the big data platform, we collect and analyze all internal and external data generated from business activities of a company and utilize the business insights to provide the company with data-based business strategies and services. In areas requiring data connection in addition to a company's data, we can offer a variety of business insights by combining pseudonymized data through Data Specializing Institution.

To strengthen customer data business competitiveness, LOTTE Data Communication's big data platform discovers data business synergies among customers and leads business innovation with differentiated data analysis services. The platform can be used in wider range of businesses when linked with data from our core business areas such as mobility, metaverse, smart factory, smart logistics, and smart retail.

[1] Data BPO: Data business process outsourcing service after the construction of data platform
[2] Data-driven: A new management trend to make corporate decisions based on data
[3] BPO: Business Process Outsourcing, Switching to platform operation after establishment of the platform

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Big Data Business Areas

Data consulting
· Establish digital business strategies

↓

Data platform business
· Build a digital platform
· Build a data lake
· Establish digital marketing

↓

Data service
· Data analytics
· Combine pseudonymized data

↓

Data BPO[3] & Managed
· Outsource platform and business operations (CRM, membership)

Data Platform Business

DATA-DRIVEN BUSINESS

Enhance business competitiveness by strengthening data linkage within the value chain
(Production, Logistics, Retail)

| Food demand forecast by weather/store | Optimize volume distribution by distribution center |

Planning of collaboration product and operation of pop-up stores through preference analysis

Factory	Logistics	Retail
Demand forecasting	Volume prediction	Multi-channel marketing
Production efficiency improvement	Base optimization	Personalization recommendations
Equipment failure prediction	Optimal path search	Customer experience management

↑

Data-driven Business Insight
(Using AI and ML)

LOTTE DATA COMMUNICATION'S BIG DATA PLATFORM

| Digital marketing | MD/Advertising | Demand forecasting/ business district | .... |

| Data analysis | Platform operation | Quality/ governance | .... |

| Data Collection | Data Storage | Analytics Sandbox | Meta/ Governance |

ESG VALUE   In implementing ESG management, companies can collect and analyze big data in various fields of environment, social, and governance to make more systematic decisions and monitor their ESG-related issues. In addition, as they increase the accuracy of prediction through big data, they can improve performance in the stock management of raw materials, thereby reducing procurement costs and potential financial losses.
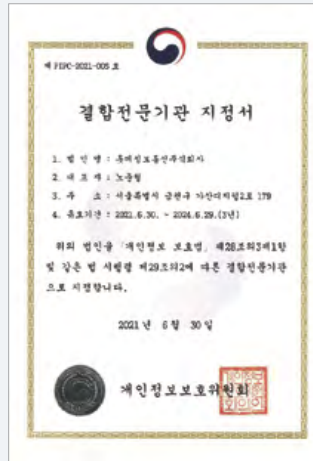
Data Combination Specialty Agency
Certification

#Expertise

In June 2021, our Data Specializing Institution obtained the "Data Combination Specialty Agency Certification" from the Personal Information Protection Commission for its expertise in data consulting/analysis, as well as years of IT operation expertise.
The Data Specializing Institution connects data to drive insights and business innovation for the continued growth of enterprises.

#Milestones

Conducted data consulting, platform construction, and data service (analysis/BPO)

· Offered consulting on digital marketing strategies, built a platform, and provided data BPO services to LOTTE Duty Free
· Built a product/customer data analysis marketing platform for LOTTE Mart
· Offered marketing and membership pre-diagnosis consulting and built a platform for LOTTE Hotel
· Built a B2B/B2C platform for LOTTE Rental
· Built a data lake (including sales advisor) for LOTTE Chilsung Beverage
· Built a data lake (integration of online customer data) for LOTTE e-commerce

SMART ECO SYSTEM

WHAT   Smart eco system creates synergy and sets differentiated business strategies by connecting automated, intelligent services and platforms by value chain areas such as manufacturing, logistics, retail and services. We enable LOTTE Group with a whole host of businesses to realize business transformation through the discovery of optimal services and new business models by reflecting customer needs and external environmental trends based on the smart eco system.
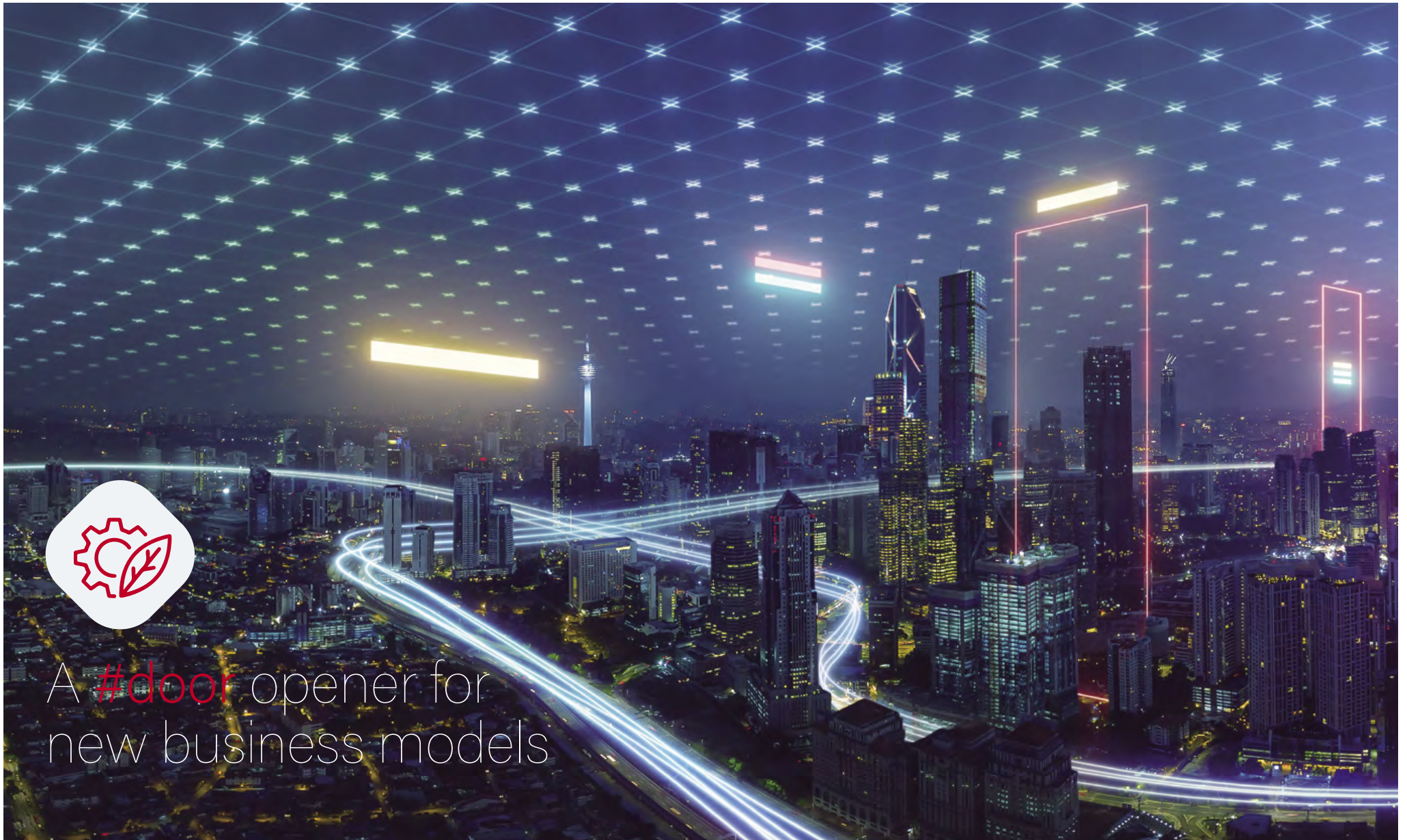
A #door opener for
new business models

HOW

Consulting   LOTTE Data Communication's smart eco system starts with consulting service that enables customers to strengthen their competitiveness in a rapidly changing business environment. Key account managers (KAM) with expertise in various industries, such as retail, logistics, and food, provide end-to-end consulting services from market/trend analysis to IT/DT strategy establishment and system establishment based on insight into different types of business and customers. To strengthen our consulting capabilities, we created brand for our consulting business, named "INWAYIN", meaning innovation way insight, and have hired exceptional talent with industry-specific insights, aimed at growing into a world-class professional consulting firm.

Smart Factory/Logistics/Retail   LOTTE Data Communication continues to expand its automated and intelligent services and platforms in the fields of manufacturing, logistics and retail. In manufacturing, we will internalize solutions and present them as a platform to an increased number of customers in food and beverage services, in particular based on our experience of building a smart factory at the Anseong Factory of LOTTE Chilsung Beverage in 2020. In logistics, we completed the application of "L-Lis", a logistics business process outsourcing (BPO) platform, to 28 logistics centers of Korea Seven and 20 logistics centers and 47 production plants of LOTTE Confectionery in 2021 along with the establishment of the existing logistics system. We are currently expanding our automation facility business directly linked to the system and platform. Going forward, we will provide a total service for logistics including EPC of logistics centers.

In retail, we are exploring a variety of new concept retail tech services. In August 2021, we opened "DT Lab", a future-oriented convenience store equipped with various DT technologies including unmanned/automated services such as VISION & PICK[1], SCAN & GO[2], AI human, and facial recognition payment, on the first floor of our head office, ramping up the convenience and efficiency of the store operation. Going forward, we will continue to develop differentiated services for retail customers.

Big Data   A key area of the smart ecosystem, big data enables users to leverage data generated by each industry to uncover business insights and discover new business models through the connection and combination of the data. LOTTE Data Communication will build a data lake for each company/industry that gathers necessary internal data, and thus establish and utilize a system that we can use for common analysis by combining useful public data. When external data needs to be linked, we will proceed with the combination of pseudonymized data to provide a wider range of business insights.

DT Infrastructure   A cloud environment with scalability and flexibility is required to accommodate the smart ecosystem that has data generated in various areas as well as systems/services. LOTTE Data Communication's cloud computing service provides an environment optimized for customer business characteristics and purpose by enabling them to select a private cloud for extremely important data and a public cloud to meet real-time/temporary needs.

Another crucial area of DT infrastructure is the software-based SD-WAN[3] services enabling customers to easily control or switch between different networks to provide reliable services. As of 2021, 14 LOTTE Group affiliates have adopted the service, with PoC being completed for LOTTE Department Store and LOTTE Mart, the Group's large retail businesses. In 2022, we will continue providing infrastructure equipped with enhanced stability, security, and efficiency to various workplaces in addition to eight companies contracted for the year including LOTTE E&C and LOTTE Chilsung Beverage.

[1] Vision & Pick: A system enabling customers to automatically pay when exiting after picking a product through AI camera-based vision technology
[2] SCAN & GO: A method in which customers can scan the product barcode directly with their mobile device and make payment
[3] SD-WAN: Software-defined Wide Area Network, A line service used to manage/operate the entire equipment by integrating and configuring different types of wide area lines (VPNs, Internet), used in various workplaces, into a software
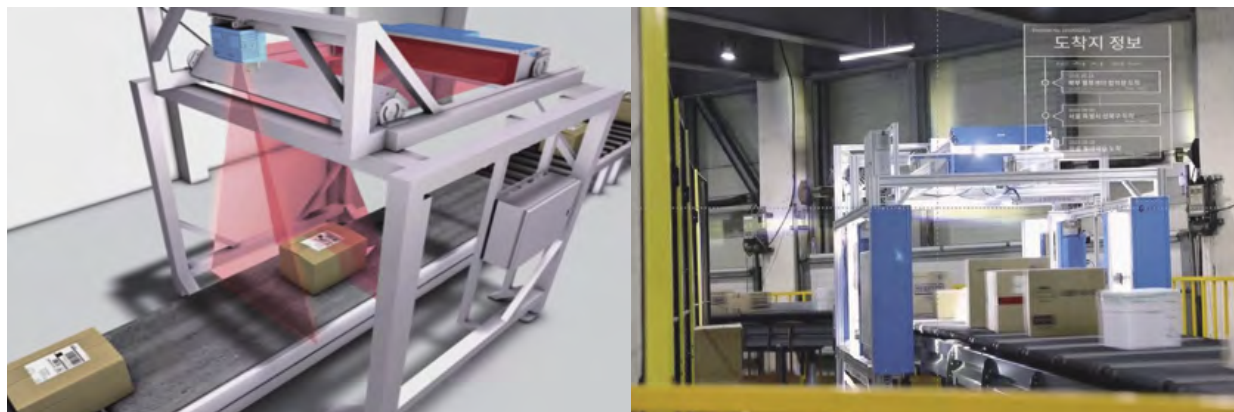
Smart Logistics IPS (Image Processing System): AI-based cargo image recognition system

ESG VALUE   LOTTE Data Communication continues innovating corporate business by introducing differentiated platform services based on the latest DT technology across the entire value chain from production to sales. We provide our customers with a variety of services customized for each area so that they can improve productivity, reduce costs, and optimize inventory through the automation of factories and distribution centers. We also promote sustainability in business operations through GHG emission reduction based on improved energy efficiency as well as the prevention of workplace accidents such as breakdowns and fires. By promoting data-based connection of these value chain areas, we help our customers to grow continuously in a rapidly changing business environment through the overall optimization ranging from plant to logistics to service.

1	
2	3
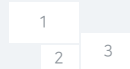
1 Front view of DT LAB
2 Vision & Pick
    (An unmanned store using vision cameras)
3 Catch Kiosk
    (A loss prevention self-checkout kiosk using 3D cameras)

#Milestones

Smart Factory

· Conducted a pilot project to build a smart factory at the Jincheon Factory of LOTTE Aluminum

· Built an MES for LOTTE Aluminum Hungary

· Upgraded an EHS system for LOTTE Chemical

· Built a company-wide sales planning system for LOTTE Confectionery

· Built a PLM system for LOTTE R&D Center

Smart Logistics

· Built an automatic warehouse for the Yeongnam Region Integrated Center of LOTTE Global Logistics

· Built freight image classification and volumetric AI for LOTTE Global Logistics

· Built an automatic classification system for the Ulsan Delivery Center of LOTTE Global Logistics

· Built an automatic sorter for the Yongin Subterminal of LOTTE Global Logistics

· Built an automatic classification system for the Dongdaegu Subterminal of LOTTE Global Logistics

Smart Retail

· Opened DT LAB, a convenience store equipped with the latest retail technology (LOTTE Center in Gasan-dong, Seoul)

· Seoul Station Branch of LOTTE Hi-Mart

· LOTTE Mart Zettaplex

SMART HEALTHCARE

WHAT   Smart healthcare refers to a prevention- and consumer-oriented medical service that provides customized health management services instead of existing treatment- and hospital-centered medical care. Smart healthcare services are based on the convergence of the medical industry with ICT technologies of the Fourth Industrial Revolution, such as big data, AI, and IoT. The evolution of mobile and wearable devices, the development of big data processing capabilities, and the advance of various IoT devices have created an environment enabling the collection and analysis of personal health-related data and biometric information in real time, leading to a shift to a new healthcare paradigm that realizes personalized, preventive, and predictive precision healthcare. In Korea, with the increase in the prevalence of chronic diseases associated with aging, the reduction of social costs through disease prevention and management has become an important topic of the times. Also, the importance of disease prevention and health management is on the rise for a healthy and happy life amid the growing social awareness of the importance of quality of life.

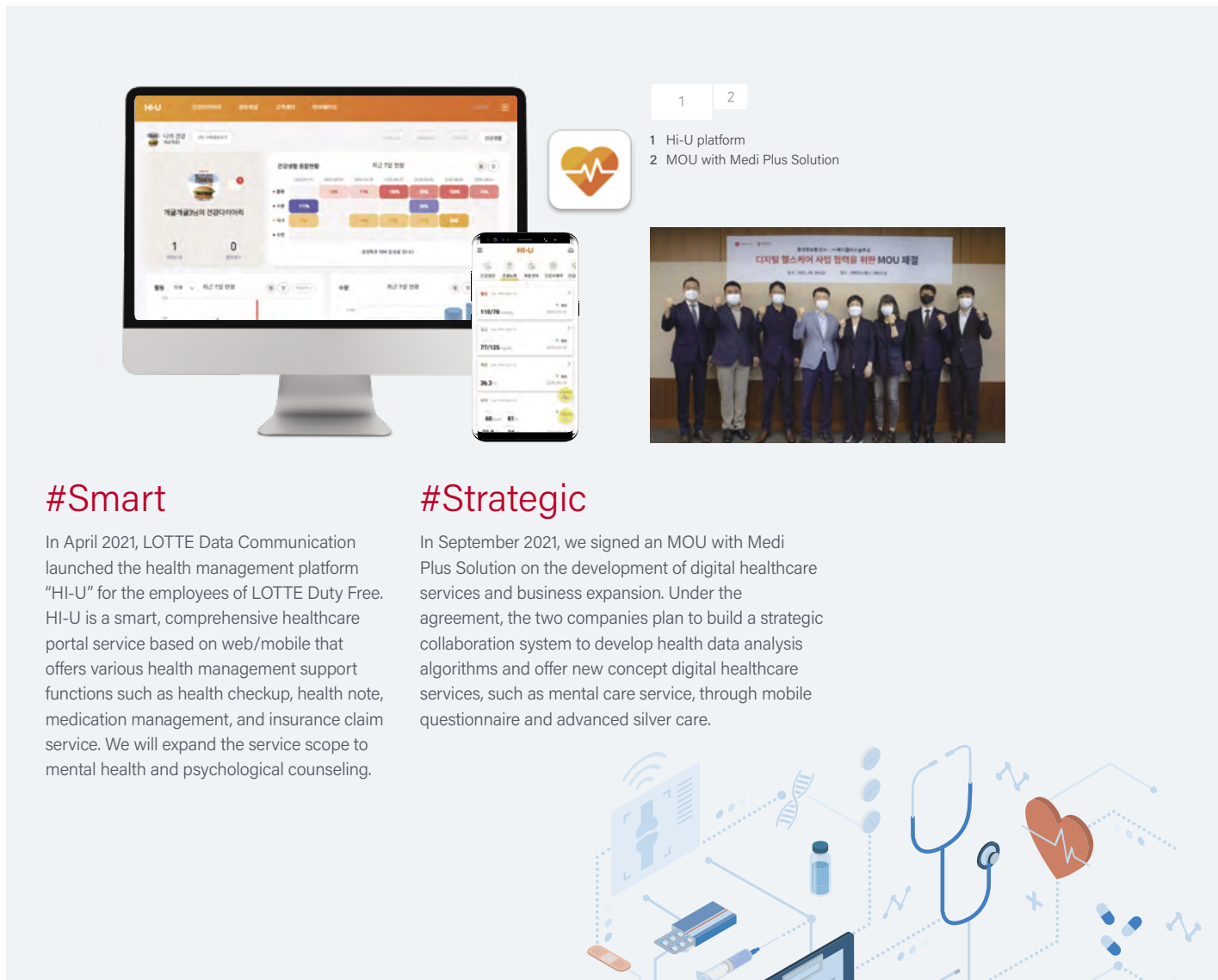Silver tsunami as golden #opportunity

HOW   LOTTE Data Communication is striving to contribute to the happy life of customers by providing them with lifelong health services based on a healthcare platform built on the know-how accumulated over the years in the medical ICT field as well as the introduction of the latest DT technologies. We are operating a healthcare platform that provides personalized lifelong healthcare services based on data collected in various areas such as users' environment, genome, medical records, and daily life.

We are also engaged in a B2B business that cares for the physical and emotional health of corporate workers while expanding our business portfolio to include silver care services. Corporate worker health management services include health checkup and special care for those with health issues, mental health and stress management, response to the Serious Accident Punishment Act, occupational accident prevention and hygiene management. Our silver care consists of health management and lifestyle services for silver town residents, ranging from chronic disease management, personalized health/exercise programs, health check-up concierge[1], emotional and dementia management, senior lifestyle management, AI-based healthy diet, and nutritional supplement recommendations.

ESG VALUE   We offer smart healthcare services as telemedicine to those having difficulty accessing medical services to raise their medical access. Our smart healthcare services also enable corporate employees to enhance employee engagement and work satisfaction by helping them managing health and preventing occupational accidents, thus improving work environment. Smart healthcare predicts diseases based on various ICT technologies, provides individuals with personalized services to help prevent diseases and lead a healthy life, and to improve quality of life for a healthy, happy community.

1   2

1 Hi-U platform
2 MOU with Medi Plus Solution

#Smart

In April 2021, LOTTE Data Communication launched the health management platform "HI-U" for the employees of LOTTE Duty Free. HI-U is a smart, comprehensive healthcare portal service based on web/mobile that offers various health management support functions such as health checkup, health note, medication management, and insurance claim service. We will expand the service scope to mental health and psychological counseling.

#Strategic

In September 2021, we signed an MOU with Medi Plus Solution on the development of digital healthcare services and business expansion. Under the agreement, the two companies plan to build a strategic collaboration system to develop health data analysis algorithms and offer new concept digital healthcare services, such as mental care service, through mobile questionnaire and advanced silver care.

[1] Concierge: A guide that handles everything according to customer needs, such as reservation, pick-up, and follow-up management

OUR APPROACH TO ESG

SUSTAINABILITY MANAGEMENT FRAMEWORK
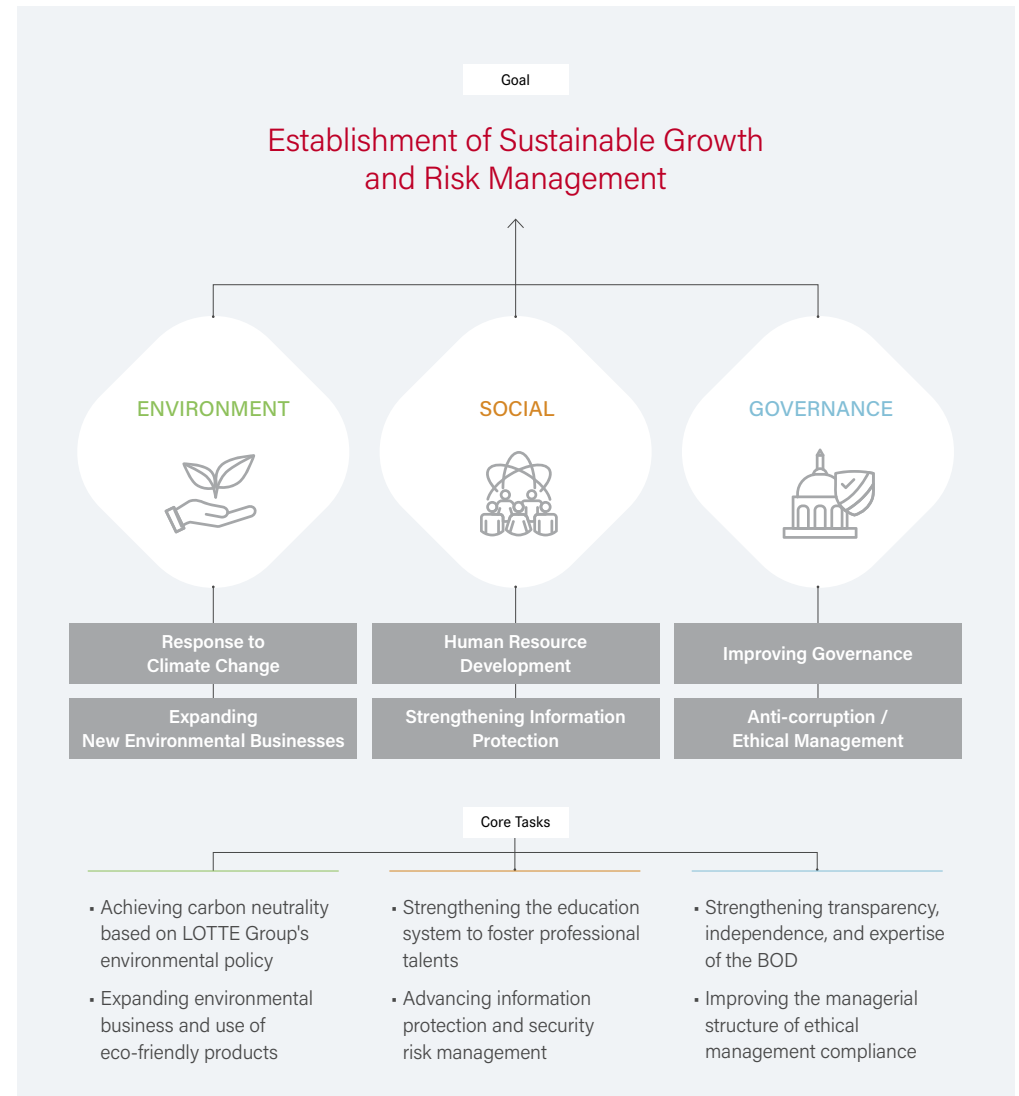
Sustainability Management Strategy

LOTTE Data Communication contributes to society by developing and applying IT technologies that solve various social problems and create positive social values while continuing to work with various stakeholders such as partners, customers, and local communities for sustainable business expansion. We make continuous efforts to improve our environmental management system in line with the LOTTE Group's goal for "2040 Net Zero", facilitating eco-friendly clean technology business, and reducing GHG emissions to respond to climate change as well as to achieve carbon neutrality. We also plan to establish a transparent and fair corporate governance system. LOTTE Data Communication pursues sustainable growth based on its ESG management system that encompasses environment, society, and governance.

For systematic ESG management, we have established ESG strategic tasks and implemented them faithfully to achieve our ESG vision and goals for each sector, and strive to become a respected company in society. In 2022, we will focus on practical improvement activities based on our core ESG tasks and the results will be reported to and approved by the ESG Committee.

Core ESG Tasks for 2022

Sector	Task	Progress
Environment	Establish and implement measures for carbon neutrality	Set a carbon neutrality roadmap
	Upgrade the eco-friendly management system	Acquire environmental management system (ISO 14001) certification
	Discover eco-friendly business	Set goals for strengthening clean technology (eco-friendly) business
Social	Strengthen human capital management	Set mid- to long-term goals to advance the employee training system
	Establish safety/health management system	Reinforce autonomous safety inspection capabilities and receive on-site safety consulting services
	Create a culture that respects diversity and human rights	Conduct human rights education for all employees
	Expand ESG supply chain management and win-win management	Promote ESG supply chain management through reinforced win-win management
	Diversify social contribution programs	Operate a total of 11 social contribution programs annually
	Strengthen personal information and data security	Improve information security policies and systems for the company and its subsidiaries
Governance	Reinforce ethical management	Reorganize anti-corruption and ethical management policies for the company and its partners
	Expand stakeholder communication	Publish the 2021 Sustainability Report

Sustainability Management Goal & Core Tasks

Goal

Establishment of Sustainable Growth and Risk Management

ENVIRONMENT

SOCIAL

GOVERNANCE

Response to Climate Change	Human Resource Development	Improving Governance
Expanding New Environmental Businesses	Strengthening Information Protection	Anti-corruption / Ethical Management

Core Tasks

- Achieving carbon neutrality based on LOTTE Group's environmental policy
- Expanding environmental business and use of eco-friendly products

- Strengthening the education system to foster professional talents
- Advancing information protection and security risk management

- Strengthening transparency, independence, and expertise of the BOD
- Improving the managerial structure of ethical management compliance

ESG Governance

In 2021, LOTTE Data Communication established an ESG governance, centered on the ESG Committee and ESG Office, to reinforce its ESG management execution based on effective decision-making and a strong execution system.

ESG Governance Composition

ESG Committee	ESG Office

- ESG strategy and management decision making
- Establishment of basic policies and strategies for company-wide promotion of ESG measures
- Decision making regarding investments for ESG management
- Planning and implementation of other major tasks set by the ESG strategy
- Significant ESG risks and response

Environmental Management Team
- Engaging in the development and use of eco-friendly products
- Addressing risks related to climate change and environmental pollution

Mutual Growth Management Team
- Handling internal and external compliance and transparent governance issues
- Responsible for shared growth with partners

Communication Team
- Ensuring smooth communication with stakeholders such as employees, shareholders, partners, and customers
- Improving credibility of stakeholders through transparent disclosure
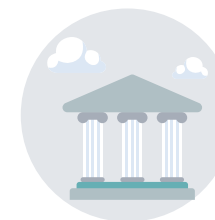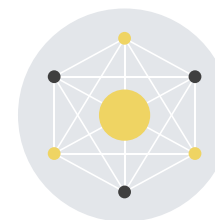
ESG Committee

Established as an organization within the BOD, the ESG Committee consists of two non-executive directors and one executive director. It takes charge of major ESG management strategies, investment decisions, and response to material risks. Launched in July 2021, the Committee held a meeting once during the year to approve the publication of the company's first sustainability report and deal with reports on 11 core ESG tasks for 2022. In 2022, the Committee held two meetings as of April to review the progress of the company's key ESG initiatives. It plans to hold more meetings during the year to receive and deliberate on the results of each ESG initiative.

ESG Office

In July 2021, LOTTE Data Communication established ESG Office consisting of specialized teams and personnel in the fields of environmental management, stakeholder communication, and compliance. Placed under the direct control of the CEO, the Office strives to strengthen our company-wide ESG execution capability. In charge of overall ESG management, ESG Office supports the ESG Committee's activities as well as the overall ESG management including strategy and goal setting, performance monitoring, and stakeholder communication. To minimize risks, it manages ESG issues by business unit and takes necessary measures in advance while implementing performance inspections and support activities for the effective promotion of key ESG tasks.

For ESG-oriented management activities, LOTTE Data Communication has improved its internal processes along with the establishment of the ESG Office. First, by publishing sustainability reports, we have analyzed our ESG status and established a data management system. Second, we have improved regular environmental audit process and reporting system based on the "PDCA (Plan-Do-Check-Action)" methodology while striving to minimize environmental risks. Third, to minimize compliance issues, we have analyzed our current status and improved employee training programs and related systems.

STAKEHOLDER ENGAGEMENT

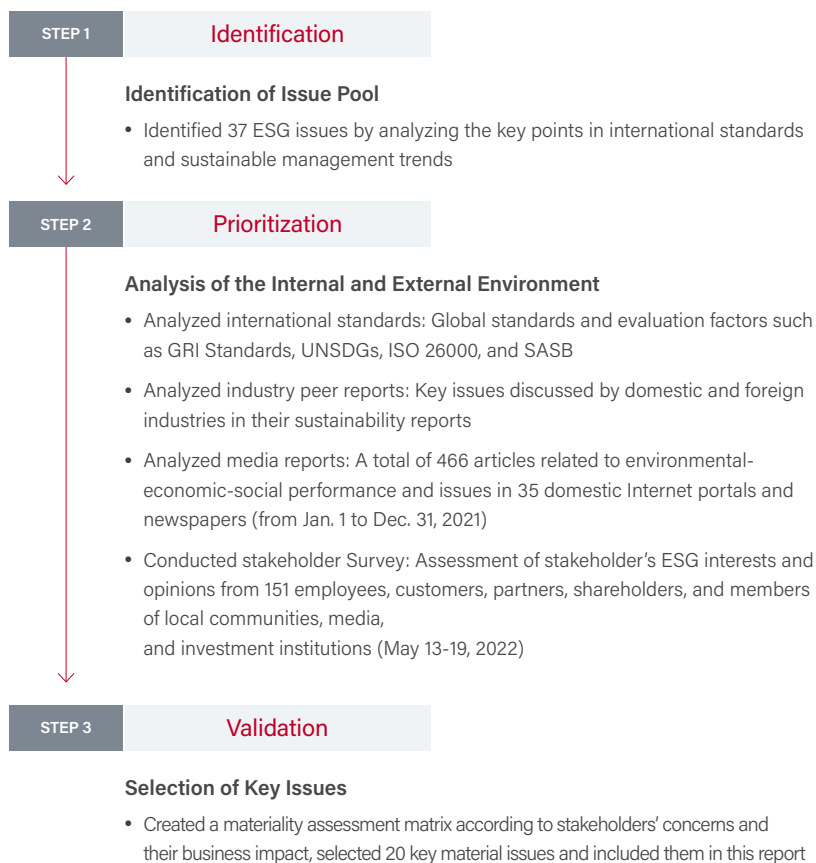| Stakeholders	Employees	Customers	Partners	Shareholders & Investors	Local Communities	Government
Key Issues	· Work-life balance · Fair performance evaluation · Health and safety · Smooth communication · Flexible organizational culture	· Safe and competitive services · Service quality · Protection of personal information	· Shared growth · Establishing a fair partnership · Partner communications	· Economic performance · Risk management · Stable governance	· Contributing to local community development · Creating social values	· Compliance with environmental and safety laws · Strengthening public-private partnership
Communication Channels	· Intranet · Anonymous suggestion channel (Maum Talk-Talk) · Employee surveys (Anonymous/Open) · In-house magazine (Blog-type) · GWP[1] Wannabe · GWP Live Message · Culture-Rise campaign · Whistleblowing Channel on the website	· Customer inquiry on the website · Customer center (Phone) · Social media (YouTube) · Customer satisfaction survey	· Shared growth website · Social media channel for partners	· General shareholders' meetings · Performance briefing · NDR[2], Corporate Day · Disclosure of quarterly and half-yearly business performance data	· CharLOTTE Volunteer Group · IT Supporters · Support for disabled athletes	· Communication between the government and public authorities
Major Activities	· Performance evaluation system · Employee welfare and benefit systems · Employee competency-building programs · Creating a safe workplace and working environment	· Organization dedicated to customer satisfaction · Securing service competitiveness · Prompt information provision through press release, web site, etc.	· Fair transaction culture · Fair transaction agreement with partners · Shared growth program	· Disclosure of financial performance through business reports · Enhancing corporate value through new business, collaboration, and investment · Operating the ESG Committee for the company-wide risk management	· Social contribution activities · Creating a transparent donation culture	· Cooperation with the government and public authorities · Cooperation in technology R&D such as autonomous driving and eco-friendly products

[1] GWP: Great Work Place
[2] NDR: Non-Deal Roadshow

MATERIALITY ASSESSMENT

LOTTE Data Communication conducts a materiality assessment to identify issues related to sustainability management across the economy, environment, and society that are important to stakeholders, and to effectively reflect them in our sustainability management. In 2022, we formed a pool of sustainability issues based on ESG initiatives, global sustainability management standards, and media report analysis. We analyzed the materiality of issues considering benchmarking in the same industry and results of internal and external surveys. Having selected the key areas of interest of the stakeholders as material issues, we have organized the contents of the report based on them while striving to reflect the relevant information faithfully. LDCC will identify and manage its sustainability issues by regularly conducting materiality assessments while continuing to communicate with its stakeholders by disclosing such efforts transparently through sustainability reports.

Materiality Assessment Process

| STEP 1 | Identification |

Identification of Issue Pool
- Identified 37 ESG issues by analyzing the key points in international standards and sustainable management trends

| STEP 2 | Prioritization |

Analysis of the Internal and External Environment
- Analyzed international standards: Global standards and evaluation factors such as GRI Standards, UNSDGs, ISO 26000, and SASB
- Analyzed industry peer reports: Key issues discussed by domestic and foreign industries in their sustainability reports
- Analyzed media reports: A total of 466 articles related to environmental-economic-social performance and issues in 35 domestic Internet portals and newspapers (from Jan. 1 to Dec. 31, 2021)
- Conducted stakeholder Survey: Assessment of stakeholder's ESG interests and opinions from 151 employees, customers, partners, shareholders, and members of local communities, media, and investment institutions (May 13-19, 2022)

| STEP 3 | Validation |

Selection of Key Issues
- Created a materiality assessment matrix according to stakeholders' concerns and their business impact, selected 20 key material issues and included them in this report

Materiality Assessment Results

Material Issue	Ranking			Key Stakeholder Impacted by the Topic					
	Total Ranking	Stakeholder's Level of Interest	Business Impact	Customers	Shareholders & Investors	Local Communities	Employees	Partners	Government
Boost job creation, and ensure job security and work-life balance	1	3	3				●		
New business growth and climate change governance	2	1	6	●	●			●	●
Thorough customer privacy management and data privacy protection	3	6	1	●	●			●	●
Global market entry, business portfolio expansion, and contribution to social economy	4	2	12	●	●				
Expansion of workplace "safety and health" culture, and promotion of "safety and health"	5	4	8			●	●	●	
Diversity, inclusion and equal opportunity	6	8	5				●		●
Identification of sustainability issues through stakeholder engagement, and promotion of stakeholder engagement and communication	7	5	11	●	●	●	●	●	●
Social contribution activities	8	9	15			●			●
Development of eco-friendly products and services including eco-friendly IT services	9	7	17	●	●				
Improvement of the labor-management culture	10	10	14				●		

Materiality Assessment Matrix
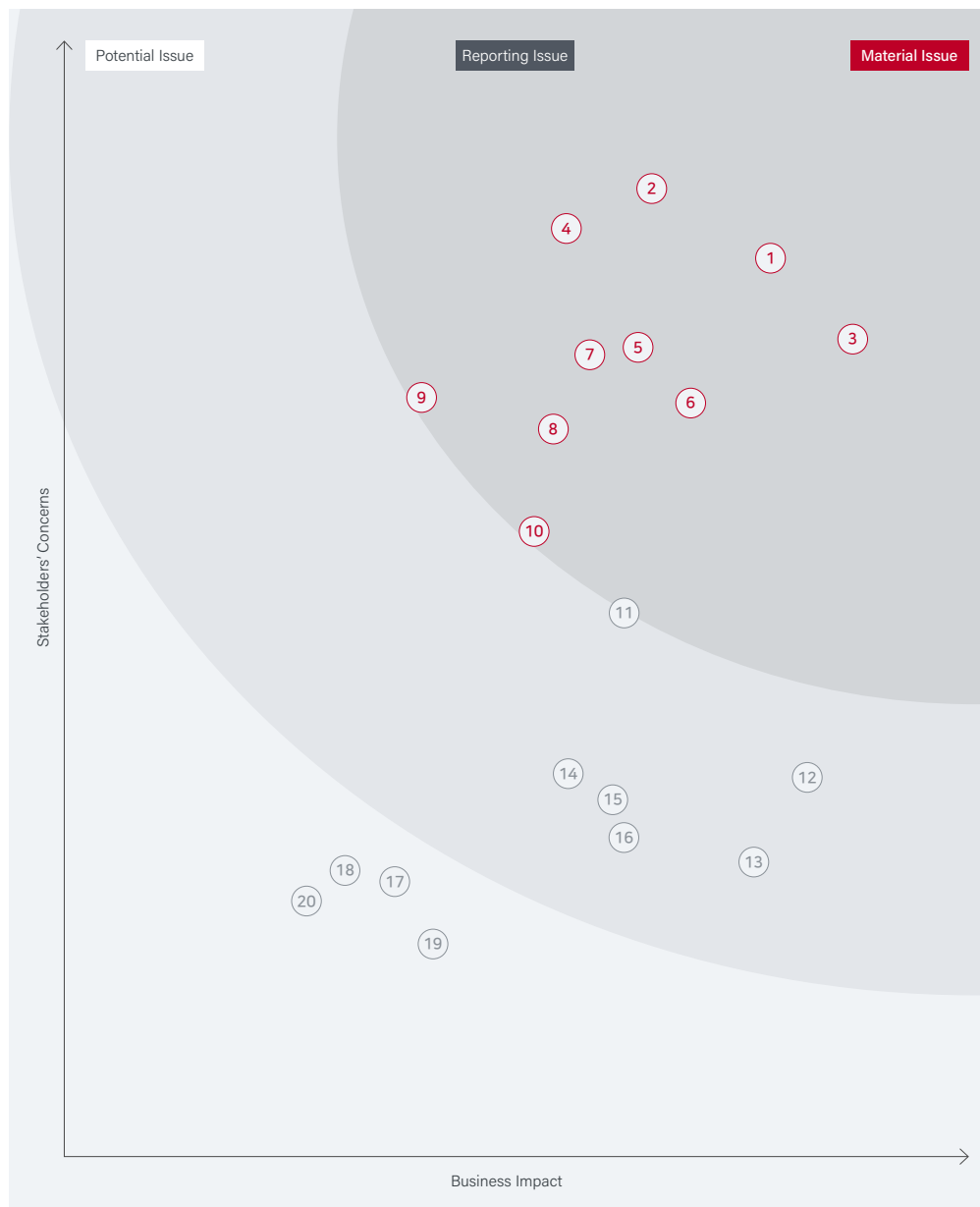
Ranking	Category	Material Issue	Report Pages	Related GRI
1	Social	Boost job creation, and ensure job security and work-life balance	49, 51-54	401
2	Economy	New business growth and climate change governance	7-25, 41-45	201, 305
3	Social	Thorough customer privacy management and data privacy protection	62-65	418
4	Economy	Global market entry, business portfolio expansion, and contribution to social economy	5, 7-25	-
5	Social	Expansion of workplace "safety and health" culture, and promotion of "safety and health"	55-58	403
6	Social	Diversity, inclusion and equal opportunity	48	405
7	Governance	Identification of sustainability issues through stakeholder engagement, and promotion of stakeholder engagement and communication	29-31	102-40, 42, 43, 44
8	Social	Social contribution activities	70-74	413
9	Environment	Development of eco-friendly products and services including eco-friendly IT services	12-13, 16-17, 21-23, 40	-
10	Social	Improvement of the labor-management culture	51-53	102-8
11	Governance	Establishment and reinforcement of the sustainability management strategy system	27-28	102-19, 27, 29, 32
12	Economy	Strengthen prevention of unfair/corrupt acts	79-81, 83	205, 206
13	Social	Human rights protection	47-48	412
14	Social	Fair performance evaluation and compensation system	51	404-3
15	Social	Employee competency development	50	404
16	Governance	BOD composition, operation and communication; protection of shareholders' rights; and securing independence in the appointment of the BOD and its committee members	76-77	102-18, 22, 23, 24
17	Environment	Establishment of the governance system to respond to climate change and management of energy efficiency (PUE)	40, 42, 86	302, 305
18	Environment	Reduce GHG emissions and strengthen relevant monitoring	44-45, 85	305
19	Environment	Water management and increased use of recycled water	39, 87	303
20	Environment	Waste recycling and contribution to transition to the circular economy	39, 86	306

CREATION AND DISTRIBUTION OF ECONOMIC VALUE

Throughout its entire business process, LOTTE Data Communication implements ESG management and creates corporate value by exchanging influences with its various stakeholders. In 2021, we achieved sales of about KRW 930 billion, which it shared, directly or indirectly, with our stakeholders such as employees, customers, partners, shareholders and investors, local communities, and the government.

Economic Value Created in 2021

Economic Value Distributed in 2021

(Unit: KRW million)

Economic Value Created in 2021

Sales

929,999

KRW million

Economic Value Distributed in 2021

Employees	Customers	Partners
256,757	929,999	536,268

Shareholders & Investors	Local Communities	Government
11,228	770	9,661

* Based on consolidated financial statements

ENVIRONMENT

SOCIAL

GOVERNANCE

OUR ESG PERFORMANCE

ENVIRONMENT

LOTTE Data Communication's environmental management vision, "Creating Green Value", embodies eco-friendly value that is beneficial to all, including the company, society, and Earth. Based on the vision, we strive to minimize our carbon footprint in the process of running existing businesses and also developing future growth drivers, and achieve green growth in our efforts to protect precious natural environment.

Environmental Management

Environmental Management System

Environmental Management Strategy

LOTTE Data Communication pursues the value of environmental protection throughout its business activities, and has established and is implementing three detailed strategies under the environmental management vision, "Creating Green Value", to respond effectively to the global issue of climate change. To enhance our ability to implement environmental management, we adopted and operate internal evaluation systems, and continually improve standards, procedures, and processes for environmental management activities.

Detailed Environment Management Strategy

1 Establishment of environmental management foundation

Greenhouse gas reduction activities, energy reduction campaigns, establishment of safe working environment, environmental education system for employees

2 Advancement of environmental process

Strengthening greenhouse gas monitoring, improving energy efficiency, actively responding to carbon regulations and initiatives, and implementing KPI management related to environmental improvement activities

3 Operation of environmental management evaluation system

Advancement of environmental management plan, implementation and verification system based on LOTTE Environmental & Energy Total Solution (LETS)

To effectively respond to climate change, LOTTE Data Communication carries out GHG reduction activities based on its environmental management strategy and established an energy-saving campaign and environmental education system for employees. We upgrade our environmental management processes, improve our internal performance monitoring system, and have a structure in place that enables active responses to carbon regulations and initiatives in Korea and abroad.

In addition, we are striving to develop business capabilities that make use of eco-friendly clean technologies. We are strategically focusing on optimized operation of data centers and cloud services, and improving energy efficiency by integrating IT equipment and transitioning to cloud. We are also working on logistics automation technologies of smart eco systems, establishment of an eco-friendly EV-charging infrastructure, and operation of autonomous vehicles. Going forward, we will make more active efforts to continually identify clean technologies and expand relevant businesses.
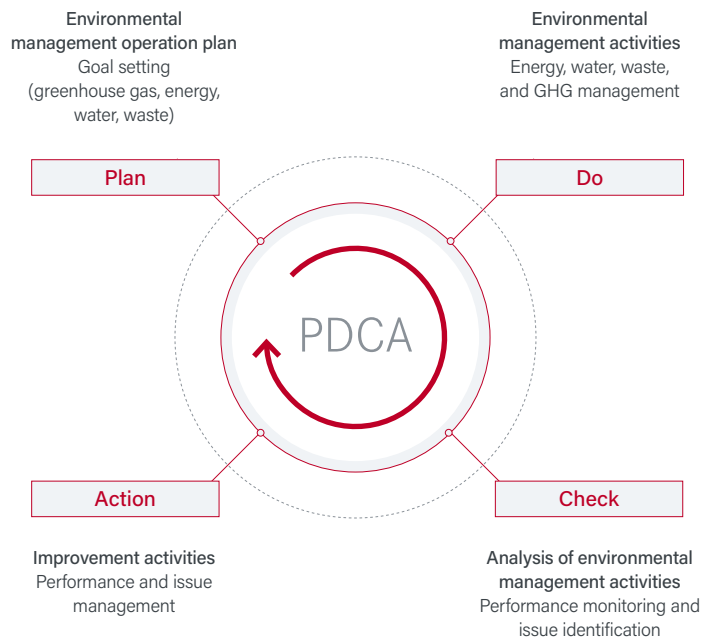
Environmental Management Goals for 2022

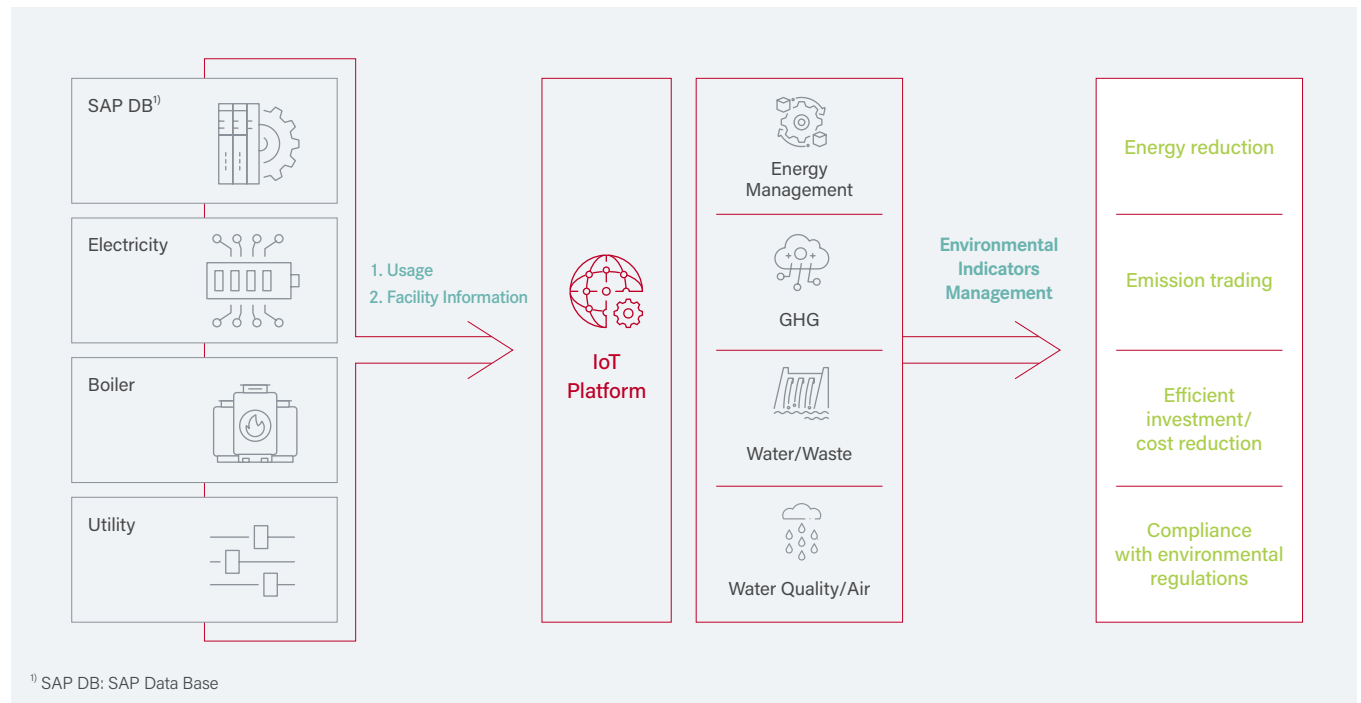| Category	Key execution areas
Environmental management	• Plan to receive the environmental management system (ISO 14001) certification in 2022 • Strengthen internal PDCA-based environmental reviews • Provide training to strengthen the competencies of employees in charge of the environment • Maintain the energy management system (ISO 50001) certification and expand the scope
Energy and GHG	• Achieve the annual GHG reduction target for 2022 (836 tCO_2eq) • Establish net-zero strategies and a mid- to long-term roadmap • Raise energy efficiency and adopt renewable energy • Reduce power consumption by introducing a free cooling system of thermo-hygrostats
Waste	• Adopt a management system by disposal step resulting from the use of equipment and consumables • Reduce the amount of waste generated and increase the recycling rate • Conduct employee campaigns to reduce the generation of waste
Water	• Review the application of water-saving technologies and establish an adoption plan
Air pollution management	• Expand management of pollutants discharged from combustion facilities (boiler, absorbent cold/hot water heater) • Prevent air pollution through regular management of emissions
Stakeholder engagement	• Comply with environmental regulations and policies • Actively implement K-EV100

Environmental Management Process   LOTTE Data Communication establishes and implements environmental goals and plans based on the PDCA methodology by environmental area, including climate change, energy, waste, and water, and carries out activities to implement and manage improvement measures based on regular performance reviews and evaluations.

LOTTE Environmental & Energy Total Solution   LOTTE Data Communication implements environmental management by using LOTTE Environmental & Energy Total Solution (LETS) – is an integrated energy and environment solution developed in-house. It supports stable, professional system-based environmental management implementation, and thus helps raise work efficiency and manage potential environmental management risks. Staff in charge of environmental management at each business site of LOTTE Data Communication sets annual goals of environmental management indexes and monitors performance through LETS, and uses an IT system to manage the registration of performance every month and results of analyzing performance against goals. In addition, when responding to environmental regulations and internal/external environmental audits, they raise data credibility and work efficiency based on computer data.

Composition of Environmental Management Process

Environmental management operation plan
Goal setting (greenhouse gas, energy, water, waste)

Environmental management activities
Energy, water, waste, and GHG management

Plan

Do

PDCA

Action

Check

Improvement activities
Performance and issue management

Analysis of environmental management activities
Performance monitoring and issue identification

Integrated Management of Environmental Energy Data based on IoT Platform

SAP DB[1]

Electricity

Boiler

Utility

1. Usage
2. Facility Information

IoT Platform

Energy Management

GHG

Water/Waste

Water Quality/Air

Environmental Indicators Management

Energy reduction

Emission trading

Efficient investment/ cost reduction

Compliance with environmental regulations

[1] SAP DB: SAP Data Base

Environmental Management Governance

LOTTE Data Communication established company-wide environmental management governance, based on which it strives to implement environmental actions and achieve goals through systematic cooperation among departments. The Environmental Management Team under the ESG Office, an organization under the CEO, oversees practical matters related to environmental management, such as establishing key environmental management strategies and annual plans, while a working-level organization executes detailed work. We also have an ESG Committee-centered decision-making process, and deliberate, approve, and supervise important agenda, such as establishment of company-wide environmental management goals, investments, and inspection of execution.

Environmental Management Organization

CEO

General supervision of environmental management, management of environmental performance and review of improvements

Environmental Management Team

LETS management, establishment of annual plans and KPI, monitoring and performance evaluation, response to environmental issues

Strategic Planning Team

General management and review of environmental management investments

Accounting Team

Support for accounting affairs pursuant to carbon trading purchasing

Facility Team

Facility operation management, energy management (electricity) and water management

Business Support Team

Energy management (LNG, Vehicles), waste management

IDC Business Team

Response to the GHG emission trading system, preparing annual plan for GHG management, performance management and monitoring, etc.

Major areas of environmental management

Climate change - Energy   Waste   Water   Management of air pollutants

Environmental Management Activities

Environmental Management Performance Evaluation   LOTTE Data Communication is evaluated annually for its environmental management level according to the "LOTTE Sustainable Growth Environmental Management Indicators" that was established based on LOTTE Group's environmental management policy. The LOTTE Sustainable Growth Environmental Management Evaluation is a system that manages performance indicators for core topics (organization, strategy, activity, performance, report) aimed at practicing environmental management that is in compliance with government systems, including the environmental information disclosure system and GHG emission trading system, and major domestic and overseas ESG standards.

We plan to make focused improvements to the emission intensity management of GHG, energy, and environmental pollution (waste/water/air pollution) indexes, which fall under major management indexes. To this end, we set goals according to each index's intensity standard in 2021, and continue to compare and review performance to improve intensity standard adequacy and target-establishing methodology in an effort to more effectively and systematically establish and manage goals.

Environmental Management Audit   LOTTE Data Communication conducts internal/external environmental audits to implement company-wide environmental management policies and continue improving them. As an internal environmental audit, we manage the environmental management operation status of departments according to an environmental management procedure and audit checklist, and also inspect the system for managing environmental management as well as the establishment of annual goals and performance, in addition to monitoring whether improvements were made to shortcomings. Based on internal environmental audit results of 2021, we improved the system of reporting environmental pollution index emissions and re-examined our annual target-setting methodology and made upgrades to enable the establishment of annual goals based on emission intensity.

For an external environmental audit, we receive Ministry of Environment evaluations and verification for workplaces that are subject to the GHG emission trading system, and a renewal audit for energy management system ISO 50001 certification every year. In 2021, we completed a renewal audit for ISO 50001 and maintained qualifications. Our plan for 2022 is to acquire the environmental management system ISO 14001 certification for our corporate-level environmental management system.

Environmental Investment   LOTTE Data Communication continues to make environmental investments to enhance energy efficiency and reduce GHG emissions. To adopt eco-friendly vehicles and save electricity used for its data center heating, ventilation, and air conditioning (HVAC) system, main energy-saving areas of the company, it applied free cooling as an optimal cooling method to reduce HVAC power consumption and also strives to reduce GHG emissions by operating eco-friendly electric vehicles (EVs). We built an EV-charging infrastructure at the 1st center in 2021, and adopted free cooling thermo-hygrostats at the 2nd and 3rd centers, thereby reducing around 500 tCO$_2$eq of GHG emissions annually. In 2022, we will adopt eco-friendly vehicles at the 1st center and additionally adopt free cooling thermo-hygrostats at the 4th center to reduce GHG emissions by additional 237 tCO$_2$eq.
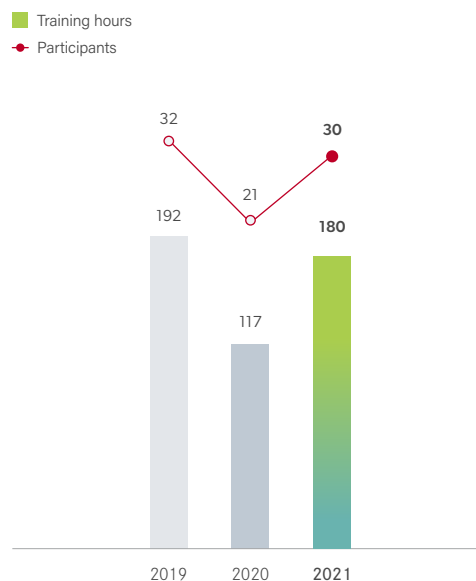
Major Environmental Management Activity Investment Plan and Performance

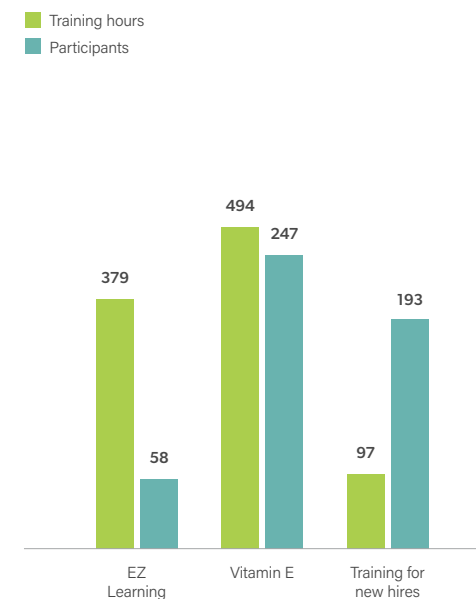| Year	Workplace	Plan	Time of investment	Environmental management activities	Environmental effect	Implementation
2020	1st center	Introduced free cooling thermo-hygrostat	Jul. – Dec.	Reduced the operating power of compressor by applying integrated air-cooled and water-cooled cooling technologies	Reduced emissions by 950 tCO$_2$eq/year	○
		Replaced the existing boiler with low NOx boiler	Aug.	Introduced low NOx burner to boiler	Reduced NOx emissions	○
	3rd center	Replaced the thermo-hygrostat and existing fans to higher efficiency fans	Feb. – Apr.	Managed the speed of thermo-hygrostat fans and introduced variable fans	Reduced emissions by 600 tCO$_2$eq/year	○
		Replaced normal lights with LED lighting	Aug. – Dec.	Replaced normal lights with LED lighting	Reduced emissions by 100 tCO$_2$eq/year	○
2021	1st center	Adopted an EV-charging infrastructure	Dec.	Adopted a standard charging infrastructure for electric vehicles	Reduced GHG emissions	○
	2nd center	Introduced free cooling thermo-hygrostats	Jan. – Apr.	Reduced the operating power of compressor by applying integrated air-cooled and water-cooled cooling technologies	Reduced emissions by 200 tCO$_2$eq/year	○
	3rd center		Jan. – Dec.		Reduced emissions by 300 tCO$_2$eq/year	○
2022	1st center	Adopted an EV-charging infrastructure	Jan.	Adopted a quick charging infrastructure for EVs	Reduced GHG emissions	○
		Adopted electric vehicles		Adopted five EVs that will replace ICEVs	Aiming to reduce emissions by 13 tCO$_2$eq/year	○
	4th center	Introduced free cooling thermo-hygrostat	Oct.	Reduced the operating power of compressor by applying integrated air-cooled and water-cooled cooling technologies	Aiming to reduce emissions by 237 tCO$_2$eq/year	In progress

Environmental Education   LOTTE Data Communication's environmental education consists of an expert course for departments related to environmental management and a general course for all employees. Offered to employees in charge of environmental management at each LOTTE Group affiliate, the expert course mainly comprises seminars and workshops in which instructors with environmental expertise share outstanding cases of the Group affiliates. The general course for employees consists of diverse ESG and environmental education programs that are opened in "EZ Learning" and "Vitamin E", the Group's online education platforms, and a course for new hires. In 2021, education was provided to 193 new hires and 247 managers. In 2022, more than ten new education courses were additionally opened for company-wide employees. We plan to strengthen employee awareness of environmental management and relevant expertise by actively recommending participation in the LOTTE Group-level expert education as well as company-wide employee education.

Environmental Campaign   LOTTE Data Communication carries out a wide array of internal activities that reduce the generation of plastic wastes as part of its environmental campaign. We replaced a shopping bag for in-house use that was made of coated paper and consisted of a plastic handle with an eco-friendly shopping bag that applied Kraft paper. Also, some cold and hot water dispensers that used plastic mineral water containers were replaced with water purifiers as part of efforts to reduce plastic wastes. We fully understand how serious the plastic waste issue is and will conduct company-wide, employee participation-based campaigns to enhance employee awareness on the environmental issues and encourage them to take actions.

Expert Training Course

- Training hours
- Participants

	2019	2020	2021
Training hours	192	117	180
Participants	32	21	30

General Training Course

- Training hours
- Participants

	EZ Learning	Vitamin E	Training for new hires
Training hours	379	494	97
Participants	58	247	193

Participating in "K-EV100"   LOTTE Data Communication joined "K-EV100" in April 2021 and is carrying out relevant activities. K-EV100 is a project organized by the Ministry of Environment in which companies declare that they will transition 100% of their business fleet, owned or leased, to pollution-free vehicles by 2030. We support the K-EV100 project, and established a mid- to long-term roadmap on transitioning to pollution-free vehicles by 2030 and an implementation plan by year. Leveraging our mobility business competencies, we are taking the lead in building EV-charging infrastructure and striving to practice ESG management by reducing carbon emissions.

K-EV100 company acceptance letter

2nd declaration ceremony on "100% transition to pollution-free vehicles by 2030"

Minimizing Environmental Impact

Wastes   Wastes generated from LOTTE Data Communication workplaces are general waste and contain no designated waste. The amount of generated waste is somewhat rising as a result of increased use of disposables as part of our response to COVID-19 after 2020, but we are making efforts to raise the recycling rate by increasing the number of times we sort wastes for waste treatment, in addition to efforts to more thoroughly separate wastes for collection. In 2022, we will conduct a campaign on refraining from using disposable plastics and come up with various measures to reduce wastes.

Waste Generated in the Workplace and Targets

Location	Unit	2019	2020	2021	Goal for 2022
Seoul office	Tons	113.87	128.45	132.97	145.80
Recycled waste materials	Tons	33.34	45.73	47.73	
Yongin office	Tons	39.65	32.12	36.05	40.20
Daejeon office	Tons	4.38	5.70	5.04	5.64

* The Daejeon office uses standard plastic garbage bags and generates less waste.

Waste Management Activities at Data Centers

Location	Description
1st center	Additional sorting to increase the rate of waste recycling
	Consignment of transportation and disposal to vendors responsible for treating wastes
3rd and 4th centers	Monitoring all processes from waste discharge to transport and treatment through "Allbaro", an online legitimate waste treatment system of the Korea Environment Corporation for management and reduction of generated waste
	Depending on the type of waste, it is then sorted, classified and separated to promote recycling activities

Air   LOTTE Data Communication installed a low NOx burner, a prevention facility for air pollutant-emitting facilities, and completed the acquisition of related licenses in line with the strengthening of the Clean Air Conservation Act in 2020. We conduct self-measurements twice a year and perform management activities such as creating and keeping logs of the prevention facility for safe facility operation. We recently increased the scope of pollutant measurement and management of air pollutant-emitting facilities and added sulfur oxides and dust as measurement items, to the previous nitrogen oxide, thus strengthening air pollutant management.

Water Resources   Water used at LOTTE Data Communication is categorized into domestic water and water used by facilities. Water used by facilities mainly takes up overall water consumption. It is water used for chilled water-type free cooling thermo-hygrostats to manage data center heat and sprinkling water for thermo-hygrostat outdoor units. The method of reducing thermo-hygrostat heat by using water is an eco-friendly technology that can reduce air-conditioning power that takes up a considerable proportion of HVAC power. Although water consumption somewhat increases, this method can reduce environmental impact in comparison to electric power consumption. We are continually adopting chilled water-type thermo-hygrostats as a way to reduce data center energy consumption. We will review cooling tower free cooling facility and outdoor unit water sprinkling conditions when operating thermo-hygrostats and make efforts to establish an optimal operation environment that can efficiently reduce electric power and water consumption.

Cooling tower for free cooling

Thermo-hygrostat outdoor units
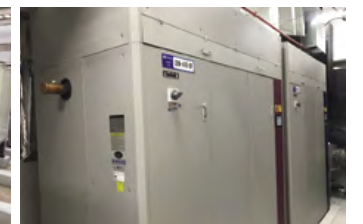
Thermo-hygrostat indoor units

Eco-friendly Data Center Operation

For efficient operation of a data center's servers and networks, a computer room's temperature and humidity should be maintained at appropriate levels. Considerable energy input is needed to operate diverse infrastructure that is installed to maintain appropriate temperature and humidity levels. LOTTE Data Communication replaced all old thermo-hygrostats in the 1st center in 2020 and the 2nd center in 2021. We adopted a free cooling system that enables combined operation (summer: air-cooled, winter and in-between seasons: water-cooled) at all centers, thereby improving all centers' power usage effectiveness (PUE)[1] value from 1.71 in 2020 to 1.60 in 2021. We are making preparations to replace old thermo-hygrostats at the 3rd center. At the 4th center, we adopted and operate the latest energy management systems, including free cooling and CAC[2] control. In addition, we built a spray system at all centers so that water is sprayed directly on outdoor units when the outside temperature reaches 35℃ or higher in the summer to reduce their temperatures, in our utmost efforts to improve performance and reduce power consumption.

To manage energy consumption of the infrastructure at a data center, we operate Data Center Infra Management System (DCIM), a real-time monitoring system. By aggregating energy consumption per major facility (UPS, generator, thermo-hygrostat), we analyze PUE values and manage energy efficiency. We plan to continually upgrade DCIM to efficiently improve operation and energy management. We will make continued efforts to reduce energy waste and raise consumption efficiency by managing DCIM operation of all centers.

Infrastructure monitoring system

1st center (Integrated center of LOTTE Group)	**2nd center** (Specializing in disaster recovery)	**3rd center** (Global specializing center)	**4th center** (Global cloud center)
Completed construction Jun. 2007	Completed construction Nov. 2010	Completed construction Nov. 1996	Completed construction Dec. 2020
Total floor area 7,411 m²	Total floor area 4,036 m²	Total floor area 26,810 m²	Total floor area 16,350 m²
Size 4 floors above ground	Size 2 floors above ground	Size 2 basement floors – 5 floors above ground	Size 2 basement floors – 7 floors above ground
Thermo-hygrostat EC FAN Free cooling CAC Rainwater recycling system	Thermo-hygrostat EC FAN Free cooling CAC	Thermo-hygrostat EC FAN Free cooling CAC	Thermo-hygrostat EC FAN Free cooling CAC

[1] PUE: Power Usage Effectiveness, A value measured by dividing total amount of electric power used by a data center by the amount of electric power consumed by IT equipment, and is used to indicate a data center's efficiency – a value closer to 1 means that electric power consumption was substantially reduced
[2] CAC: Cold Aisle Containment, Control thermo-hygrostats by measuring temperature and pressure by containment

Special Report
TCFD

LOTTE Data Communication's Responses to Climate Change

LOTTE Data Communication built its 4th center in 2021 and now runs four data centers. We forecast GHG emissions to continue to increase through 2030 owing to a rise in consumption of electric power, which accounts for the highest proportion from among GHG emission sources, as a result of data center business expansion and other factors. We have therefore established strategies, aimed at minimizing such climate change response risks, based on which we strive to discover eco-friendly business opportunities and reduce carbon emissions across overall business to achieve net-zero by 2040. We have also set mid- to long-term goals to manage relevant financial impact.

GHG Emissions
(BAU)

2022	2030 Mid-term Goal	2040 Net-Zero
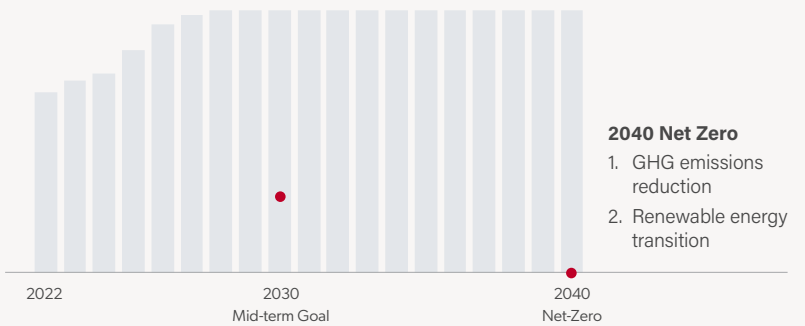
2040 Net Zero
1. GHG emissions reduction
2. Renewable energy transition

Internal activities		External activities
GHG emissions reduction	Renewable energy transition	
① Improve data center energy efficiency (PUE)	① Purchase REC certificates	① Increase investments in eco-friendly businesses and clean technologies
② Reduce office energy consumption	② PPA contracts	② Participate in climate change response initiatives
③ Reduce environmental impact of internal means of transportation (EV-charging stations and EVs)	③ Build in-house power generation facilities	③ Review and implement external reduction programs

Governance

a) The Board's oversight of climate-related risks and opportunities

b) Management's role in assessing and managing climate-related risks and opportunities

We established the ESG Committee in the BOD as a control tower of ESG management in 2021 to systematically manage/operate ESG management activities. The ESG Committee perceives climate change and environmental pollution-related risks, reviews countermeasures to minimize the risks, and conducts reviews regarding the setting of the 2040 net-zero goal, our climate change response goal, and makes decisions to increase investments in relation to eco-friendly business. The Committee plans to make decisions on ESG management and strategies, and also manage and supervise plans of major projects and the outcomes of project execution.

LOTTE Data Communication complies with LOTTE Group's 2040 Net-Zero declaration, and seeks to continually improve the environmental management system by promoting eco-friendly, clean technology businesses. The CEO establishes strategies on ESG management, executes investments to implement the strategies, and takes the lead for smooth execution of ESG activities, including raising capital. The CEO also establishes a mid- to long-term response direction to manage and minimize major non-financial risks and takes the lead in discussing the expansion of businesses that are related to eco-friendliness and discovery of relevant business items to seize opportunities. Our management communicates with stakeholders, facilitates the spread of departments' sustainable management activities, and strives to have ESG management smoothly integrate into each sector's management system.

Strategy

a) Climate-related risks and opportunities the organization has identified over the short, medium, and long terms

b) Impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning

c) Resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

Category		Details	Financial impact
Transition risk	Short term	A rise in carbon emissions as a result of business expansion	Rise in carbon credit purchase costs and GHG emission liabilities
		Changes in data center consumer requirements (energy efficiency and RE100)	Reduction of business revenue if requirements are not met
	Mid- to long-term	Strengthened environment-related regulations	Rise in regulation compliance costs
		Replacement by eco-friendly businesses	Increase in eco-friendly business R&D costs and devaluation of existing assets
		Transition to renewable energy	Increase in costs to purchase renewable energy for energy transition
Physical risk	Short term	-	-
	Mid- to long-term	Replacement by low-carbon technologies	Increase in investment costs for low-carbon facility and infrastructure expansion
		Rise in average temperature	Reduction of data center HVAC Facility efficiency and a rise in costs, including damages
Opportunity		Rise in data center operational efficiency	Improvement of resource energy efficiency and reduction of energy consumption
		Replacement by low-carbon technologies and low-carbon facilities	Reduction of GHG credit purchase costs
		Meet consumer requirements and replace with eco-friendly businesses	Increase in business revenue and service sales

LOTTE Data Communication is subject to emission trading system. We therefore identify the status of excess or shortage of annually-allocated emission rights and make purchases in the emission trading market. Accordingly, emission right liabilities for carbon emissions are recognized to set/manage reserves. After the establishment of the 4th center (construction completed in 2021), we expect GHG emissions to rise with an increase in the rate of operation. Due to carbon credit price uncertainty and risks related to emission rights allocation, there will likely be an increase in credit purchase costs and credit provision costs. To respond to this financial risk, we are considering various implementation measures to establish and achieve a mid- to long-term carbon neutral plan.

Various requirements are emerging in Korea and abroad to respond to climate change. These include demands to use renewable energy, stricter environmental regulations, and demands for low-carbon technologies. In response, we are carrying out energy-saving activities and moving forward with the transition to renewable energy through REC certificates and PPA contracts.

LOTTE Data Communication strives to identify these risks and respond to climate change by discovering opportunities. Based on expected carbon emissions through 2040, we will establish and implement a response strategy in consideration of IPCC's lower than 2℃ and 1.5℃ scenario, the RCP scenario, and the SSP scenario.

Category	Goal	Response strategy
IPCC[1] 1.5℃ scenario	Limit the Earth's rise in temperature to 1.5℃	In consideration of various climate change scenarios, we set the 2040 Carbon Neutral goal and are making efforts to achieve the goal. We established and implement a GHG reduction plan to achieve net-zero by 2040
RCP[2] scenario	Immediately reduce GHG starting now (RCP 2.6)	
SSP[3] scenario	Minimize fossil fuels and achieve eco-friendly, sustainable growth (SSP 1-2.6)	

[1] IPCC: Intergovernmental Panel on Climate Change
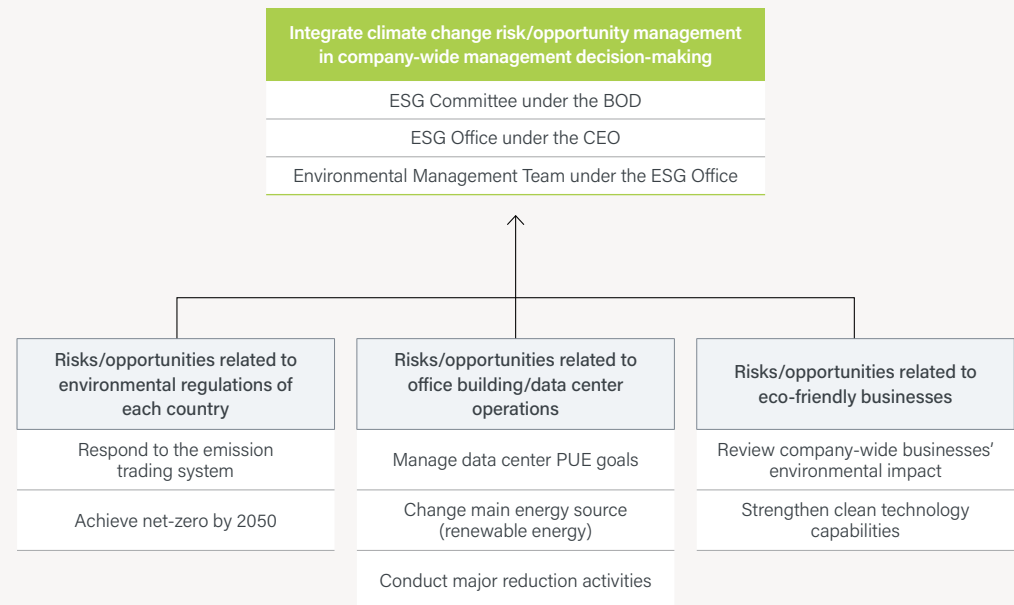[2] RCP: Representative Concentration Pathways
[3] SSP: Shared Socioeconomic Pathways

Risk Management

a) Organization's processes for identifying climate-related risks
b) Organization's processes for managing climate-related risks
c) How processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management

The ESG Office under the CEO conducts regular monitoring of each workplace sector's environmental risks according to an internal management system and performs reviews. It also establishes and manages mid- to long-term response strategies for climate change risks. Risks that are identified at the workplace level are integrated at the company-wide level for management, and relevant response strategies are established by the ESG Office. The CEO considers financial/non-financial factors of the response strategies for identified risks to review measures to secure financial resources for investments. The ESG Committee makes decisions on the direction for managing financial/non-financial risks and making investments. To respond to climate change, LOTTE Data Communication systematically collaborates with LOTTE Group. We identify, evaluate, and manage climate change risks at the company-wide level, and strive to secure an effective process through continued improvement activities.

Integrate climate change risk/opportunity management in company-wide management decision-making
ESG Committee under the BOD
ESG Office under the CEO
Environmental Management Team under the ESG Office

Risks/opportunities related to environmental regulations of each country	Risks/opportunities related to office building/data center operations	Risks/opportunities related to eco-friendly businesses
Respond to the emission trading system	Manage data center PUE goals	Review company-wide businesses' environmental impact
Achieve net-zero by 2050	Change main energy source (renewable energy)	Strengthen clean technology capabilities
	Conduct major reduction activities	

CO$_2$

Metrics & Targets

a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process

b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks

c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets

To manage climate change-related risks and opportunities, LOTTE Data Communication manages GHG emissions, energy consumption, and data center PUE. Our carbon emissions rose by around 46% in 2021 compared to the 2018 level. The Seoul Data Center reduced energy consumption through HVAC system improvement in 2020, but business expansion of the 2nd center and 3rd center led to a rise in energy consumption. In particular, operation of the 4th center, constructed in 2021, is expected to lead to a continued increase in energy consumption through 2030, which may become a serious risk to LOTTE Data Communication. We will therefore actively carry out energy-saving activities to minimize such risk and thus to respond to climate change.

Category			2018	2019	2020	2021
Total GHG emissions (tCO$_2$-eq)		Total	64,158	72,300	80,618	93,362
		1st center	16,581	16,594	16,851	14,871
		2nd center	2,045	2,112	2,735	3,085
		3rd and 4th centers	45,532	53,594	61,032	75,406
GHG emissions (tCO$_2$-eq)	Scope 1	Total	393	449	430	521
		1st center	335	368	353	348
		2nd center	1	2	5	4
		3rd and 4th centers	57	79	72	169
	Scope 2	Total	63,765	71,851	80,188	92,843
		1st center	16,246	16,226	16,498	14,524
		2nd center	2,044	2,110	2,730	3,082
		3rd and 4th centers	45,475	53,515	60,960	75,238
	Scope 3	Total	-	-	5,219	6,238
GHG intensity (tCO$_2$-eq / KRW billion)		Total	92.82	93.62	96.45	102.30

Category			2018	2019	2020	2021
Total energy consumption (TJ)		Total[1]	1,320	1,487	1,658	1,947
		1st center	341	341	346	309
		2nd center	42	43	56	64
		3rd and 4th centers	937	1,103	1,256	1,574
Energy consumption (TJ)	Scope 1	Total	7	7	7	9
		LNG	4	4	3	4
		Gasoline	2	3	3	2
		Disel	1	1	1	3
	Scope 2	Total	1,313	1,479	1,651	1,940
		Electricity	1,313	1,479	1,651	1,940
		Steam	-	-	-	-
Energy intensity (TJ/KRW billion)		Total	1.91	1.93	1.98	2.13

[1] The total energy consumption values per business site/fuel are mutually inconsistent because the criteria for handling decimals are different according to the GHG emissions statement calculation criteria (Criteria for aggregation by business site: Aggregate at the business site level and truncate after the decimal point, Criteria for aggregation by fuel: Aggregate at the fuel level and round off the decimal places)

Category		2018	2019	2020	2021
Power usage effectiveness (PUE)	Average	1.70	1.72	1.71	1.60
	1st center	1.76	1.74	1.73	1.57
	2nd center	1.65	1.72	1.71	1.55
	3rd and 4th centers	1.70	1.70	1.70	1.69

LOTTE Data Communication makes continued efforts to reduce its energy consumption. We establish an energy policy by using the energy management system (ISO 50001) and annually set and manage an energy reduction goal. We have been steadily expanding energy-saving activities since 2018, and achieved a reduction performance that is 286% greater than 2018. In 2022, we will carry out data center PUE improvement activities and energy-saving activities by further reducing data centers' HVAC Facility power consumption, while building in-house electric vehicle-charging facilities and adopting eco-friendly vehicles to reduce mobile combustion emissions, and also reviewing the establishment of in-house power generation facilities (photovoltaic power generation) as part of our efforts to plan and execute continuous reduction activities. In addition, we are making preparations to realize our goal to achieve net-zero by 2040 by transitioning energy from fossil fuel power generation to renewable energy through REC certificates and PPA contracts.

(Unit: MWh)

Category		2018	2019	2020	2021
Office Building	Replacement with LED lights	69	133	210	185
Data Center	Replacement of EC-FAN of thermo-hygrostats	1,617	3,080	3,032	1,899
	Operation of outdoor air cooling	69	69	108	-
	Increased operational efficiency of thermo-hygrostats	-	643	608	-
	Operation of free cooling	-	-	-	2,938
Total		1,756	3,926	3,958	5,021

SOCIAL

LOTTE Data Communication considers social values throughout its business activities. We realize the wishes of our stakeholders including employees, partners, customers, and local communities by turning them into new values. To lead our society in a more positive direction, we will gather their collective capabilities and do our utmost to implement the value of shared-growth for all.

Human Rights Management

Respect for Human Rights

LOTTE Data Communication respects human dignity, values, and the right to seek happiness while pursuing the values of major global human rights regulations such as the Declaration of Human Rights and the UN Global Compact. To this end, we operate our business based on the principle of respecting the human rights of our stakeholders directly or indirectly related to our business activities, such as our employees, partners, and local residents while operating a company-wide policy to prevent human rights risks that may occur throughout our business activities and promote our stakeholders' human rights.

Human Rights Management System

To implement respect for human rights, LOTTE Data Communication has specified its human rights management practices in the employee code of conduct while operating an effective human rights management monitoring system. In addition, we are promoting human rights in various ways including the operation of multiple communication channels to prevent human rights violations by our employees and to prevent potential human rights issues in advance.

Target	Means of implementation	Business
Customers, employees, shareholders, investors, partners, local communities	Employee education, anonymous reporting system, Whistleblowing Channel via website, education for partner companies, local community service activities, university-industry cooperation, etc.	Web accessibility certification, production, and delivery of SOC products for the disabled, etc.

CASE

Establishment of LOTTE Group Statement on Human Rights

To reinforce our position as a future-oriented company that adds value to human life based on its accumulated capabilities and experience, LOTTE Group enacted the Statement on Human Rights, the standard for correct behavior and value judgment, in June 2022, and requires all its employees to follow in the course of their management activities and business operations. The Statement is based on the established principles and norms of international human rights, including the Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, the OECD Guidelines for Multinational Enterprises, and the UN Convention on the Rights of the Child. All LOTTE people faithfully observe and practice the Statement on Human Rights by doing their best to establish and spread human rights management at the Group level.

LOTTE Group Statement on Human Rights

LOTTE Group Statement on Human Rights

We pursue "human rights management" which can have a positive impact on not only our customers but also our society as a whole, and aims to contribute to the enrichment of individuals and communities. In this regard, we set forth this "LOTTE Group Statement on Human Rights" as standards of conduct, performance, and ethics all of our officers and employees must comply with in the course of business operation and management in order for LOTTE Group to become a corporation advancing human wellbeing.

This Statement is based on international human rights principles and standards, including the UN Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, the OECD Guidelines for Multinational Enterprises, and the UN Convention on the Rights of the Child.

We commit to comply with this Charter and to put our commitments into actions.

1. We respect all human dignity and value, and prioritize human rights management in managing our business.

2. We respect international human rights principles and covenants, including the UN Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, the OECD Guidelines for Multinational Enterprises, and the UN Convention on the Rights of the Child.

3. We establish and implement systems and policies, including human rights management system, to embed a respect for human dignity and value across our corporate culture and across the spectrum of business management activities.

4. We strive to protect and advance human rights of marginalized communities, and respect human rights of everyone whose lives we touch, including our employees, customers, government authorities, partners, and local communities.

5. We do not discriminate based on race, gender, education, age, disability, religion, place of birth, political stance, or any other grounds when hiring or in the workplace, and pursue an organizational culture of mutual respect and understanding.

6. We do not condone forced labor or child labor in any shape or form, and comply with the minimum working age established by international standards and local laws of the jurisdictions in which we conduct business.

7. We comply with the working-hour and minimum wage regulations of the jurisdictions in which we conduct business.

8. We foster working conditions which put the health and safety of our officers and employees first.

9. We uphold the constitutional right to freedom of assembly and association and the right to collective bargaining to protect and advance the human rights of our officers and employees.

10. We endeavor to prevent human rights violations in the workplace, such as workplace harassment or sexual harassment, and to provide remedial measures.

11. We aim to nurture strong partnerships with our business partners on an equal footing for mutual growth and development, and support, and cooperate with, their implementation of human rights management.

12. We do not use raw materials, products, etc. produced in an illegal and unethical manner or in a manner involving possible human rights violations.

13. We protect personal information acquired in the course of business.

14. We comply with domestic and international environmental regulations, and strive to achieve net-zero carbon emissions, environmental preservation, biological diversity, resource circulation, and other environmental goals.

15. We prevent human rights violations in the course of business, and timely provide adequate remedial measures.

We pledge to do our utmost in implementing and advancing human rights management as set forth above.
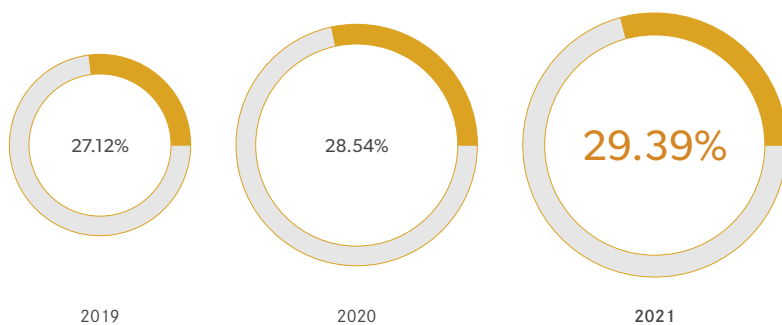
All officers and employees of LOTTE Group

Monitoring of Human Rights Management

LOTTE Data Communication has set in place various communication channels to actively respond to potential human rights issues faced by stakeholders, including employees, partners, and customers. We gather human rights-related grievances from employees and provide professional and personal counseling through the in-house grievance counseling channel "Maum Talk Talk". When a human rights issue occurs, our employees report it through the grievance center "Sinmungo" on our official website so that appropriate measures can be taken. In addition, we collect partners' grievances and reports on unfair practices that occurred during their transaction with us through the "GominPeggi (meaning remove concerns)" channel on our website. The issues collected through such communication channels are handled according to standardized procedures. We ensure that the information of those involved in receiving and processing the grievances is not disclosed or their human rights are not violated.

Respect for Diversity

At LOTTE Data Communication, employees are not discriminated against based on gender, race, nationality, age, disability or political orientation. We foster a culture that respects the diversity of employees while striving to improve our work environment with a focus on diversity by eliminating gender gaps and increasing the employment rate of people with disabilities. Most notably, we are implementing various policies to prevent discrimination based on gender in all areas including employment, promotion, evaluation, and welfare while pursuing equal wage levels for men and women. As a result of these active efforts to expand the recruitment of female talent, the ratio of new male and female full-time employees in 2021 stood at 61:39.

To fulfill our corporate social responsibility, we also make continuous efforts to create jobs for the socially disadvantaged, improve work environment, provide educational support and special recruitment for the disabled, and form business partnerships with standard workplaces for those with disabilities. Since 2021, we have participated in SIAT[1], an IT education-recruitment program for the disabled, and implemented special recruitment for the disabled. We strive to increase the employment of the disabled through active business alliances with standard workplaces for the disabled as part of our efforts to eliminate blind spots in employment of the disadvantaged.

In recognition of its efforts to improve the job environment for the vulnerable, LOTTE Data Communication was designated as the "Best Job Creation Company in Korea" for three consecutive years from 2019 to 2021. Best Job Creation Company in Korea is selected based on a comprehensive review of various indicators related to the work environment, such as work-life balance, job creation for youth, employment of women, the disabled and seniors, win-win between labor and management and shared growth. We received top-tier ratings in the areas of work-life balance, employment of the underprivileged, and shared growth, in particular. Going forward, we will continue to make efforts to expand job opportunities for socially disadvantaged groups.

[1] SIAT: Smart IT Advance Training, A program that helps young people with disabilities find jobs in IT companies by providing IT competency improvement education and various employment supports

Percentage of Female Employees

27.12% 2019

28.54% 2020

29.39% 2021

* Based on full-time employees

Talent Development

Talent Recruitment

Concept of Talent and Recruitment Process

It is crucial for corporate development in the ever-changing business environment to secure talent who will lead corporate changes and innovations, create a sustainable work environment, and increase employees' competence. LOTTE Data Communication secures talent who will lead the creative future based on new technologies and knowhow while operating various talent management programs systematically and seeking to develop and nurture the capabilities of its employees.

The People We Seek

Challenge
Do not fear failure
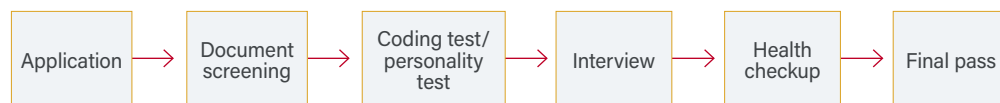
Passion
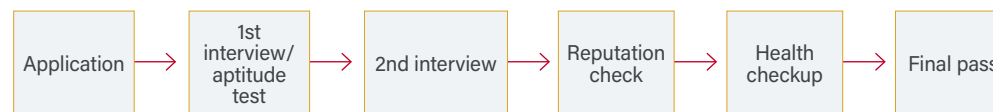Make endless efforts for self-development

Partnership
Know how to cooperate and coexist

LOTTE Data Communication has introduced various interview methods to perform in-depth evaluation of not only basic capabilities but also the development potential of the applicants. We promote fair and transparent recruitment to prevent discrimination based on factors that are unrelated to our business. For newly hired employees, we have converted the Group-wide open recruitment, which had been divided into the first and second half of the year, to the hiring at any time method to hire talented people from more diverse fields. In addition to an open recruitment, we secure talent through various other channels such as conversion-type internships and industry-academic cooperation internships. In hiring experienced people, we hire them through open recruitment or in-house recommendation depending on the needs of each relevant job or organization. In 2021, we mainly conducted recruitment through video interviews. Amid the COVID-19 crisis, we hired more than 500 people during the year.

Recruitment Process for Newly Hired Employees

Application → Document screening → Coding test/ personality test → Interview → Health checkup → Final pass

Recruitment Process for Experienced Employees

Application → 1st interview/ aptitude test → 2nd interview → Reputation check → Health checkup → Final pass

Recruitment of New Employees

(Unit: Persons)

Category	2019	2020	2021	Total
Male	208	122	316	646
Female	154	100	202	456
Total	362	222	518	1,102

* Based on full-time employees

Recruitment Channel

Hiring Customized Talent – Year-round Recruitment   In 2021, LOTTE Data Communication introduced the year-round recruitment system to adopt a flexible recruitment system and hire talents as needed. We focus on identifying highly qualified candidates who are fit for our jobs by specifying R&R in job postings and deploying coding tests, job assignments, and portfolio assessments.

Securing Future-oriented Talent – Recruitment-linked Internship   LOTTE Data Communication runs a recruitment-linked internship program to secure talented people who will lead the future IT industry. In 2021, we provided practical experience in UX planning and management support to 20 people through an industry-academia cooperation internship in conjunction with a domestic university as well as our own internship recruitment process. Those with outstanding competence were hired as full-time employees. In 2022, we will implement recruitment-linked industry-academic cooperation internships for consulting jobs to secure people with more diverse competencies.

Securing Job Competency-oriented Talent – SSAFY Special Recruitment   LOTTE Data Communication secures talents with outstanding IT job competencies through "SSAFY Special Recruitment". In 2021, we provided employment opportunities to 17 finalists through the recruitment process. For 2022, we have reviewed the SAP Job Intern Recruitment Plan in conjunction with the SAP Academy to further expand the recruitment of working-level talents.

Support for Employee Growth

Talent Development Program

LOTTE Data Communication has developed and regularly upgraded various programs to strengthen its employees' capabilities in a sustainable manner.

Training by Position and Task   We provide training programs defined by the competency level required for each job. Employees can partake in offline, webinar or online training (LDCC-MOOC, EZ learning, etc.) to improve capabilities required for performing their jobs. The training programs are upgraded every year to meet new business strategies and technology changes.

Illustration of Curriculum by Job

Target	Name of course	Period
All employees	EZ Learning	January to December
All employees	LDCC-MOOC[1]	January to December
All employees	Compulsory education	July to December
Person in charge of related works	Participation, consultation, and communication on occupational health and safety	Quarterly
Prospective retireesover the age of 50	Outplacement education	Constantly

[1]   MOOC: Massive Open Online Course (Online open class)

On-boarding program   LOTTE Data Communication subdivides and details the contents of its on-boarding programs for new hires so they can seamlessly integrate into the corporate culture and organization. The program covers regulations about information security, compliance of ethics, safety and ESG as well as CEO Messages. We also provide introduction of the visions and current status of each division to help new hires acquire insight of the company and its management status. The program intended to help new hires adapt to a changing environment and make network within the organization.

Core Technology Course   LOTTE Data Communication offers a Core Technology Course to nurture new technology experts. The course includes various lectures and practical programs delivered by internal and external experts focusing on the core technologies of the Industry 4.0 such as AI, cloud, data analytics, and security. A total of 6,900 employees completed the course from 2019 to 2021.

Certification Support System   LOTTE Data Communication has a system to support employees' certification exam fee and maintenance costs. As of 2021, we are subsidizing the exam fee of 50 IT-related certifications while upgrading the certification support system every year in consideration of new technology demand and our strategic direction.

Outplacement Support Program

LOTTE Data Communication provides training and consulting on career planning, job placement and startup for those over age 50 nearing their retirement. The program offered through a specialized institution to help them confidently open a new chapter in their life, avoid any negative effects related to retirement, and manage their career systematically.

Career design	**Basic Education on Life Design** - Self-diagnosis, vocational career design, self-development design, social service design, etc.
	Career Design - Life career goal setting, career design practice/strategy
Job placement	**Lifelong Job Design** - Change management/self-exploration, career goal setting, competency analysis, job search strategy/job search activity
	Job Placement - Application document, employment information
Job and start-up education	**Employment Education** - Middle-aged and elderly career design, recruitment market trends and job search strategies, resume preparation skill, interview clinics
	Start-up Education - Middle-aged and elderly start-up market analysis, and start-up case analysis

Fair Evaluation and Compensation

Performance Evaluation and Compensation System

LOTTE Data Communication conducts a Competency Evaluation to measure the level of competency that its employees must have and the Performance Evaluation to measure the degree of achievement of their task goals so that employees can be rewarded according to their abilities. We strive for fair and objective evaluations based on performance and competency, while operating a transparent compensation payment system such as wage increases and performance bonuses based on the evaluation results.

Performance-oriented Evaluation   We conduct employee Performance Evaluation twice a year through an absolute evaluation method intended for talent development to promote innovation rather than internal competition. Appropriate Key Performance Indicators (KPIs) are determined between evaluators and evaluatees through prior consultation at the beginning of the year. The mid-term KPI review is implemented in June, and then the absolute evaluation scores are given in November according to the degree of achievement throughout the year.

Job-oriented Competency Evaluation   LOTTE Data Communication conducts job competency evaluation for our employees once a year. We evaluate employees in terms of job behavioral competencies and job expertise. Leaders are evaluated in terms of job behavioral competencies and leadership capabilities. We regularly update individuals' job positions classified into five job groups, 11 series of class and 42 job functions while verifying their job competencies systematically through a consultative group.

Evaluation Item and Description

Item		Description
Evaluation of achievement		Attainment of the target set for the year
Evaluation of competency	Leadership	Leading change, Developing subordinates, Inclination of performance-oriented, executive ability
	Job expertise	Competency defined by job
	Job behavior	Behavioral competency defined by job group

Building a Healthy Organizational Culture

Building a Value Creation Culture

LOTTE Group places the corporate culture orientation on the sharing of minds and thoughts among all its members to create greater value, and is building a Value Creation Culture unique to LOTTE that enhances employee happiness through respecting for different lifestyles, corporate value through the convergence and innovation of diverse ideas, and social value through win-win relationship with various stakeholders. To promote this Value Creation Culture, LOTTE Data Communication conducted external advisory consulting and did company-wide organizational culture diagnosis evaluation in 2021. Based on the results, we derived tasks to improve our organizational culture, so we will continue to implement tasks to improve our organizational health, such as Executive Workshops, town hall meetings, and on-site leadership training for managers in 2022.

Innovating Organizational Culture

Organizational Culture Innovation Policies   LOTTE Data Communication has established three organizational culture innovation policies.

· **Realization of a horizontal organization culture**   We have reorganized our position system from the five-level to a three-level to promote rapid decision-making and execution. The competency level required of each position has been defined to create a culture in which employees can be recognized by organization based on their work ability and competency rather than hierarchical relationship determined by position or age.

· **Facilitation of internal communication**   We are continuously providing opportunities for communication between the CEO, executives, and employees such as the CEO meeting, "Ou-seo-o CEO" (Welcome to CEO). In March 2022, we launched a new "Technology and Knowledge Sharing" platform to share technical knowledge, exchange opinions across the company, and create a more agile organizational culture.

· **Enhancement of flexibility in working time and place of work**   A flextime system has been introduced to help employees maintain their work-life balance and increase their work efficiency. It allows employees to freely set commuting times, except the core time (10 am to 4 pm). It also features a telecommuting system that allows them to work at home or in a smart office located in Jamsil depending on the characteristic of their tasks.

GWP Activities LOTTE Data Communication promotes GWP (Great Work Place) activities to build a flexible and creative organizational culture. Since the launch of GWP Promotion TFT in 2017, we have made various efforts to strengthen company-wide communication and establish an advanced organizational culture unique to LOTTE Data Communication by operating the Communication Committee "Wannabe", holding regular meetings, handling grievances through site visits, and improving internal system in consideration of the diversity of our employees.

GWP Organization Role

Enhancement of organizational culture	Communication channels	Improving work environment
Specify necessary changes to create a more flexible and enjoyable organizational culture and carry out change management activities	Promote internal communication by offline channels such as communication council, Wannabe, CEO meetings, and online channels such as "Maum Talk-Talk (formal grievance counseling channel)", SNS LIVE and Culture-Rise	Listen to grievances raised in the field and collaborate with relevant departments to create a good working environment

Activities to Improve Organizational Culture

"Culture-Rise" – Communication Channel for Changing Organizational Culture Culture-Rise is one of the communication channels for sharing improved contents of the corporate culture, and relevant notices are regularly distributed on the company's website. Meaning "Let's have our organizational culture rise", Culture-Rise addresses not only improving the organizational culture, but also changing the way of working.

"Wannabe" – Communication Council Led by Employees LOTTE Data Communication operates "Wannabe", an employee-led communication council, to create an organizational culture that employees can be satisfied with. Wannabe means "a company where everyone 'want to be gone and worked'". Composed of boards by position, the council serves for a year to encourage all the employees to engage in the improvement of the organizational culture. In 2021, we designated the Wannabe members as the "GWP Promotion TFT Wannabe Managers" as well to strengthen their representation of employees. Wannabe has been in operation for four years. The 5th year Wannabe launched in 2022 will promote various activities to further improve the organizational culture. Most notably, the 5th Wannabe council will focus on expanding its communication functions in efforts to innovate organizational culture.

Changes Made by Wannabe

Category	Program	Content
Health and Welfare	Expansion of health checkup	Expanded health checkup period; and support for health checkup leave
	Support for psychological counseling and health management	Establish the Health Administration Office; and support psychological counseling and health management
	Employee counseling channels	Set formal grievance counseling channel "Maum Talk-Talk"; and promote and facilitate the in-house Whistleblowing Channel "Sinmungo"
Work Environment	Flextime system	Introduce selective working hours; and designate core hours
	Actual use of annual leave	Eliminate the "reason for vacation" column; expand mandatory annual leave; and introduce the family leave system
	Implementation of the work management system	Input actual working hours after monthly work plan; and introduce a compensation leave system
	Expansion of Casual Day	Introduce casual clothing system; and expand lunch break
	Introduction of 5LL-Leave Friday	Arrange for all employees to leave work at 5pm on 2nd Friday of every month
Marriage, Pregnancy, Childbirth	Introduction of infertility support program	Support subfertility; and introduced the new subfertility leave system
	Expansion of spouse's maternity leave	One day of congratulatory leave, 10 days of maternity leave
	Expansion of marriage support	Implement the system of wedding gifts; and expand money support for family events
Communication and Sharing	Reinforcing leaders' communication capabilities	Implement regular leadership training; and conduct evaluator training
	Facilitation of on-site communication	Implement regular visits to sites and regular company-wide meetings
	Diversification of communication channels	Implement real-time live meeting (CEO LIVE Talk) and Culture-Rise regularly
	Company-wide sharing channel	Share in-house issues and public notices; and launched a technology knowledge sharing platform
	Wannabe campaign	Produce web dramas; share exemplary departmental culture cases; and select Fearless Leaders
	Character production	Produce company characters, promotional materials, and visual materials

Certified as Family-friendly Company In line with LOTTE Group's family-friendly management, LOTTE Data Communication has continued to promote activities for work-life balance such as supporting childbirth and child rearing, flexible working hours, creating a family-friendly organizational culture, and increasing the annual leave utilization rate. As a result, we have maintained the Family-friendly Company Certification since 2013. The Certification is provided by the Ministry of Gender Equality and Family to companies operating exemplary family-friendly systems, including childbirth and nurturing support, flexible time system, and promoting a family-friendly workplace culture in accordance with Article 15 of the Act on the Promotion of Creation of a Family-Friendly Social Environment.

Family-friendly Company Certification

Feb. 2013 - Dec. 2016
Acquired Family-friendly Company Certification (3 years)

Dec. 2016 - Dec. 2018
Extended Family-friendly Company Certification (2 years)

Dec. 2018 - Nov. 2021
Recertified as Family-friendly Company (3 years)

Dec. 2021 - Nov. 2024
Recertified as Family-friendly Company (3 years)

Employee Communication Channels

"L-Listen" – Coaching App   LOTTE Data Communication operates "L-Listen" – a coaching platform that encourages leaders and team members to communicate their work performance regularly. Team members frequently register individual performance, both large and small, and leaders can provide feedback and coach on the performance at any time. In doing so, team members can immediately communicate with leaders and improve their performance while leaders can conduct performance management in a more systematic manner. In 2021, 2,579 employees used L-Listen for a total of 71,351 coaching cases. We are now preparing to launch the next-generation version of L-Listen in the third quarter of 2022.

"Maum Talk-Talk" – Formal Grievance Counseling Channel   Since the 4th quarter of 2017, we have been operating an in-house grievance counseling channel called "Maum Talk-Talk" where employees can freely share issues they face at work or at home. Employees can apply for counseling on various topics such as department/job transfer, workplace harassment, and human relations. For more relaxed counseling, employees can designate counselors, time, and locations they prefer through the online HR system.

"Ou-seo-o CEO (Welcome to CEO)"   In 2021, we launched "Ou-seo-o CEO", a collective term for meetings where employees communicate freely with the CEO on equal footing, feeling, based on the CEO's will to actively communicate with employees. Unlike other meetings, it only being operated for communication, not for business-related purposes. Most notably, it focused on staff who cannot frequently meet the CEO. In 2021, the meeting was shared via live streaming to make an opportunity for communicating with all employees. In 2022, we plan to hold it quarterly.

Junior Board   In addition to "Wannabe", a communication channel where field staff present ideas to improve the organizational culture, LOTTE Data Communication selected 5 members from the Wannabe Council, in their 20s and 30s with flexible ideas to launch the "Junior Board" in 2021. Over the past year, the Board has brought about major changes, such as the introduction of "5LL-Leave Friday", where employees finish work at 5 o'clock on Friday once a month, loosening the summer vacation period, and granting a full day leave for health check-up. In 2022, we plan to launch a "Middle Board" and "Leader Board" to promote intensive communication with more diverse groups of employees.

Use of "Maum Talk-Talk" and Key Counseling Topics

Chief	Senior manager	Assistant manager and below
6%	24%	69%

* Cumulative figure as of the end of April 2022 since the lunch of "Maum Talk-Talk"

Key Counseling Topics

Job rotation by department	Conflicts within the organization	Leave of absence/Retirement
Career Development Program (CDP)	Evaluation and remuneration	Others

Meeting with the CEO, as part of new hire training programs, held in the 4th quarter of 2021

Meeting with the CEO and the Junior Board held in July 2021

CEO Talk Concert, broadcasted live in March 2021

Employee Welfare and Benefits

Employee Benefits Programs

LOTTE Data Communication has set in various welfare systems so that its employees can balance work and family while continuously improving them through communication with its employees to identify their needs.

Insurance and Pension Systems

LOTTE Data Communication offers group accident insurance for employees' health and safety. We also run pension funds in accordance with the Enforcement Decree of the Employee Retirement Benefit Security Act, while accumulating and managing financial resources for severance pay in external financial institutions to ensure stable retirement pension payments.

Programs to Implement Employee Benefits

Area	Program	Content
Health/Life Support	Support for family events	Expenditure for congratulations and condolences including marriage, childbirth and death
	Group accident insurance	Accident insurance for employees and spouses
	Regular health check-ups	Support for health check-ups
	Family care leave and vacation program	Leave/vacation for child-rearing and family care
	Student loan interest support	Full support for interest on student loan availed by employees
Leisure and Self-Development Support	Condo support	Use of affiliated condos
	Club Support	Cost Support for in-house Club Activities
	Language and certification support	Job-related certification application fee and maintenance fee support and tuition support for offline language schools
	Selective working hours	Flexible working hours except core time
	Refresh vacation	Annual leave for 3 consecutive days (2 times for first- and second-half of the year, each)
	Sabbatical leave	5-day sabbatical leave for those who have worked for the company for more than 3 years
	Selective benefits	Welfare points as part of selective benefits
Pregnancy and Childbirth Support	Reduced working hours during pregnancy	Reduction of working hours by up to 2 hours a day
	Pregnancy and childbirth gift	Gifts for marriage, pregnancy, and childbirth
	Spouse maternity leave	Spouse maternity leave for childbirth
	Parental leave	Parental leave for up to 2 years (1 mandatory month for a male)
	Infertility support	Infertility treatment and therapy and leave of absence
	Happy working mom	Training program for women scheduled to return to work from parental leave
	Mom's healing	Psychological counseling for working moms planning to return to work
	Daddy School	Childcare program for fathers with their first children
Parenting Support	Congratulatory gifts for employees' children entering schools	Congratulatory gifts for employees' children entering schools
	Tuition for employees' children	Tuition support for employees' children
	Workplace nursery	Support for workplace/local nurseries
	Reduced working hours during children's infancy	Reduction of working hours by 1-5 hours per day
	Child care leave for school enrollment	Leave for female employees with children scheduled to enter elementary school

Insurance and Pension Programs

Item		Description
Insurance System	Death	Disease death, death by injuries, injury-related disorder
	Diagnosis fee	Cancer, cerebrovascular disease, and diseases with bloody discharge
	Medical expenses	Inpatient treatment expenses, outpatient medical expenses, prescription expenses
	Other	Death from overwork, hospitalization bill
Pension Program	Retirement Pension	Defined benefits (DB), Defined contribution (DC)

Safety and Health

Safety and Health Management System

LOTTE Data Communication puts the life and safety of its employees and related workers as the top priority in management and aims to achieve the industry's highest level of safety management based on continuous risk prevention efforts and establishment of an autonomous safety and health system. Under the management goal of "creating a safe and happy workplace for both employees and customers", we continuously carry out various activities to strengthen our preventive capabilities in safety and health and secure robust on-site safety management capacity. In 2021, we added safety and health regulations related to "employee health management" and "measures on contractor safety and health and hazardous/dangerous machines", reflecting changes in the internal and external environment.

Management Policy	We put the life and safety of our employees and other workers as the top priority in management and establish an autonomous safety management system to prevent and respond to accidents.
Safety Rules	1. All employees shall take **ownership of safety and health** and have a sense of responsibility for the safety of themselves and their colleagues.
	2. All employees shall strive to **eliminate risk factors, harmful environments, and unsafe behaviors in the workplace** while building a safe work environment.
	3. All employees shall carry out **continuous preventive activities** to protect the lives and safety of not only employees, but also **stakeholders including partners in business facilities subject to safety management**.
	4. All employees shall **comply with safety and health laws**, collect opinions on safety and health from experts, and reflect them in their work performance.

Safety and Health Action Plan

2021	2022	2023
Establishment of the safety and health system	**Enhancement of the safety and health management system**	**Prediction and response to safety and health**
• Establish safety and health management policy	• Improve the efficiency of safety and health operations	• Establish a safety and health management system and secure certification
• Launch an organization dedicated to safety	– Bring safety and health documents online and strengthen on-site inspections and training activities	– Safety and health certification: KOSHA-MS, ISO 45001
– Organize professional manpower, secure a safety management budget, and establish an emergency response system	• Bolster employee health management	• Establish an integrated monitoring system for projects
– Conduct risk assessment, establish on-site inspection system, and operate the Health Administration Office	– Expand the target of health checkups and launch health counseling	– Central control using intelligent CCTV and smart IoT equipment
		– Risk and prediction analysis based on tasks planned

Main Activities for Safety and Health

Measures concerning establishment and implementation of the safety and health management system

01 Declaration of the management policy by the manager
02 Checking whether the education is completed
03 Organization dedicated to safety management office
04 Composition of workplace professionals (safety/health managers)
05 Inspection/improvement of hazardous factors within the workplace
06 Listening to workers' opinions (2 times/year)
07 Procedures in response to crisis (once semi-annually)
08 Reasonable cost and period standards for subcontractors

Management measures necessary for implementation

09 Appropriate budgeting/execution and management of the Safety Management Office
10 Verification of reported results
11 Necessary measures such as manpower, budget, etc.

Safety and Health Governance

Launched the Safety Management Office   In July 2021, LOTTE Data Communication established the Safety Management Office, in charge of safety and health, directly under the CEO to ensure that its customers, partners, and employees can work in a safe and healthy environment. Through the Industrial Safety and Health Committee, we also carry out various activities such as on-site safety inspections, safety and health education, health management, and gathering improvement requests.

Industrial Safety and Health Committee   Every quarter, LOTTE Data Communication holds meetings of the Industrial Safety and Health Committee composed of the representatives of labor and management along with site managers and safety/health officers. The committee establishes industrial accident prevention plans, reviews safety and health management regulations, organizes safety and health education, inspects/improves the work environment, investigates the cause of industrial accidents, and prevents recurrence of accidents.

Composition of the Safety and Health Organization and Key Roles

Safety and Health Operation Process
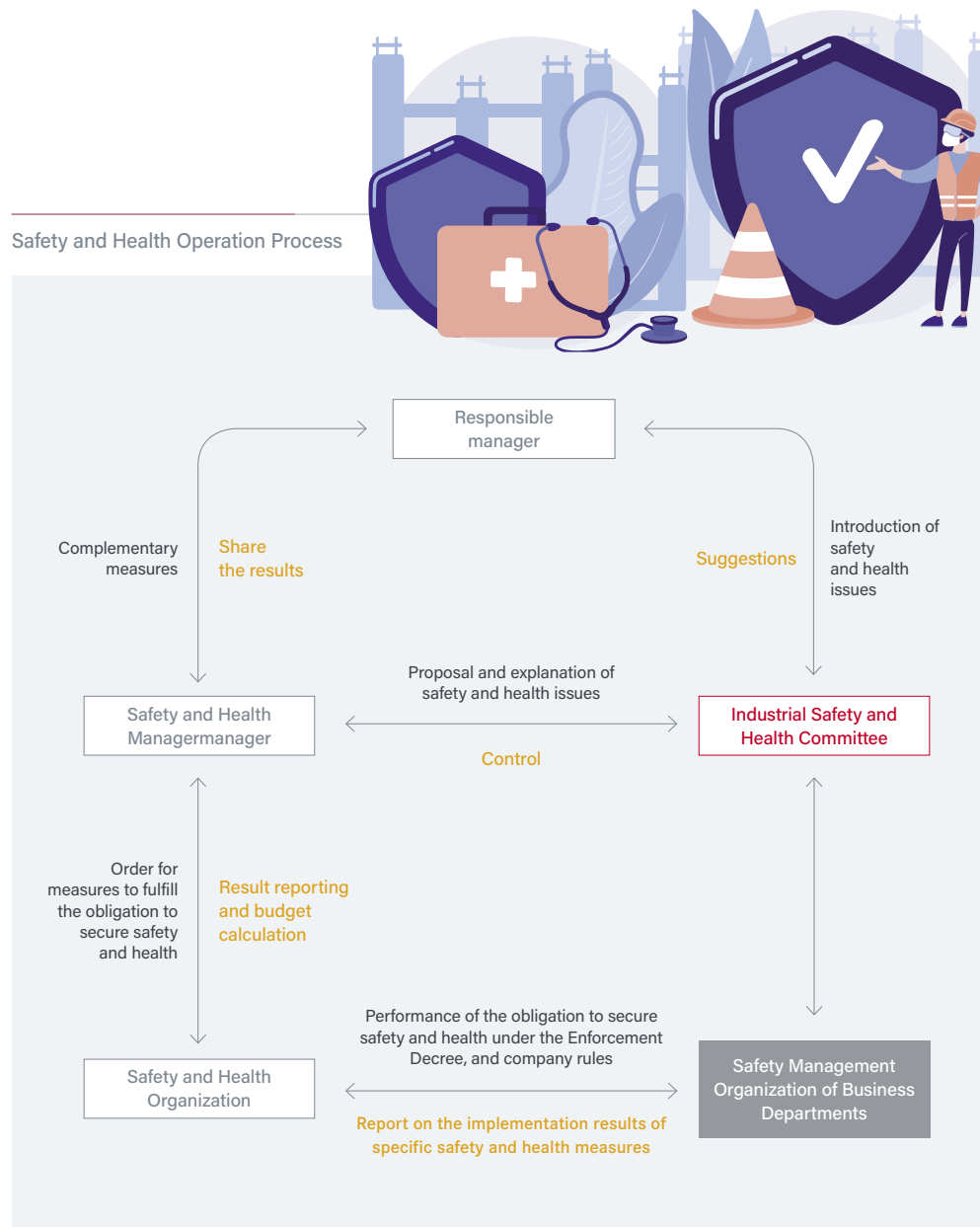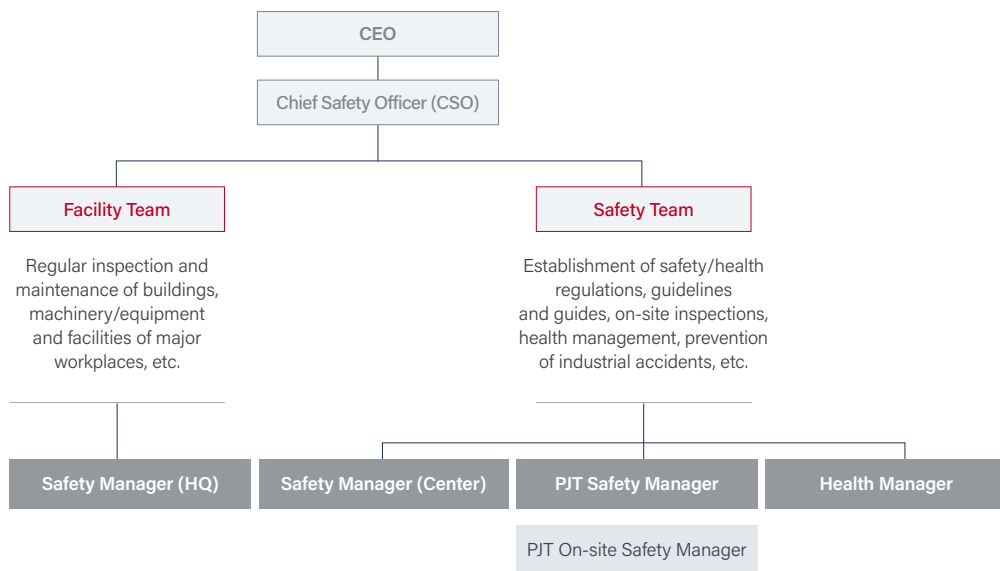
Workplace Safety and Health Management

Regular Safety Inspections

All workplaces of LOTTE Data Communication conduct regular safety inspections at least once a quarter while striving to prevent occupational accidents. Regular safety inspections focus on whether inspections are made within the statutory inspection deadlines for construction facilities, firefighting equipment, machinery, and harmful materials as well as impact on the environment, whether safety inspections are made for workplace facilities regularly, and whether improvements are made on deficiencies. In 2021, we conducted 16 mandatory inspections and 15 regular safety inspections on facilities at each workplace in addition to the comprehensive inspection of firefighting facilities. A total of 121 nonconformities were found and improvement measures were taken on all of them.

Construction Site Safety Inspections

To prevent accidents through practical risk management at construction sites, LOTTE Data Communication conducts on-site inspections on a regular basis, reports the inspection results to the Industrial Safety and Health Committee, and checks improvement measures. For on-site inspections, the person in charge of the site safety management department establishes a monthly inspection plan in consideration of the inspection cycle by construction amount and focuses on the inspection of the status of safety management according to site risk factors and whether the site has established a site safety and health system. From July to December 2021, we conducted 16 regular inspections and 9 special inspections (in winter) for 15 construction sites. A total of 72 nonconformities were identified and improvement measures were taken on all of them. We guarantee independence in safety management by placing safety managers for both workplaces and construction sites in the Safety Management Office. Going forward, we plan to continuously invest in workplace safety and health by introducing a safety and health management system and an online occupational accident management system.

Safety Inspection Cycle by Construction Amount

Description	Cycle
KRW 8 billion or more	Initial inspection, monthly inspection during construction, final inspection
KRW 2 billion – 8 billion	Initial/interim/final inspections
KRW 100 million – 2 billion	More than once during construction
KRW 100 million or less	As needed
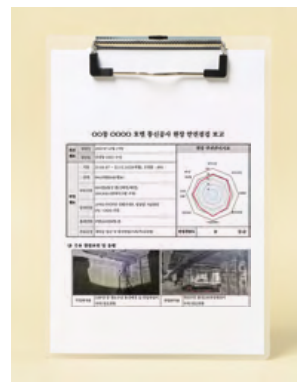
Inspection report

Improvements Made after the 2H 2021 On-site Inspection and Analysis of On-site Risks

Safety and Health Management System				On-site Risk Analysis						
Organization & Roles 60.5%	Safety Management Document 25.6%	Regular Training 11.6%	Council Operations 2.3%	Fall/ Tumble 44.8%	Fire/ Explosion 17.2%	Electric Shock 13.8%	Caught-in/ Collision 10.3%	Clutter 6.9%	Safety Hazards Management 3.4%	Cut/ Prick 3.4%
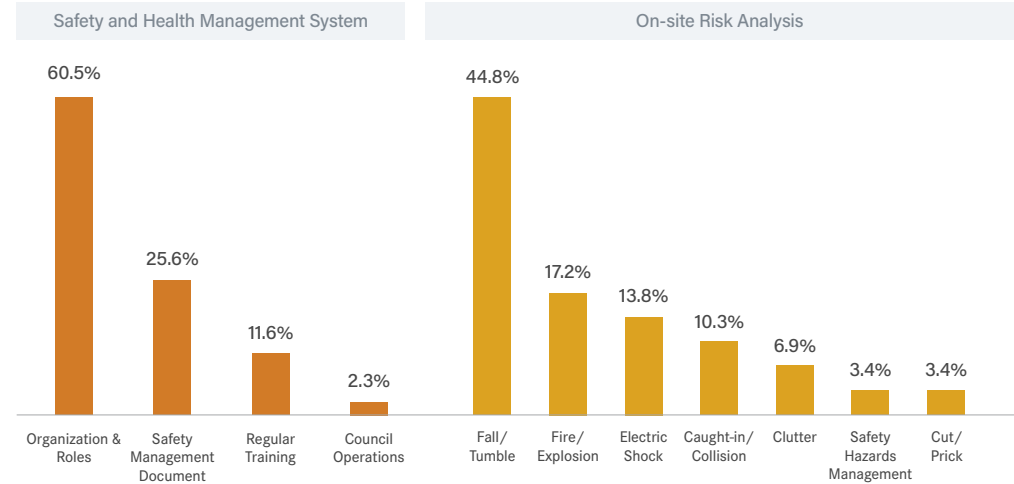
Strengthening Safety and Health Capabilities

Safety Education

To improve employee safety and health awareness, we conduct quarterly safety and health education for each target group (field workers, office workers, and new hires) for a total of over 500 people. In addition to statutory mandatory training, we disseminate safety management measures and accident cases through two internal training sessions (65 project managers) every year. We also conduct regular emergency drills to prepare for fire, earthquake, and power outage. In 2022, we plan to introduce experiential training programs while focusing on on-site education backed up by diverse content we develop on our own.

Efforts to Spread Safety Culture

To spread a safety culture where employees strive to protect themselves, LOTTE Data Communication has launched the volunteer fire department and conducts fire drills. We also have our employees make earnest efforts to prevent accidents by identifying risk factors in advance and establishing countermeasures through risk assessments conducted for all our workplaces. This is our iconic participatory safety promotion activity in which site managers, partners, and on-site staff all participate to identify necessary safety/health improvement measures for each workplace. Going forward, we will further solidify our commitment to safety and health through the CEO's declaration of commitment to safety and health, employee safety compliance pledges, and safety and health campaigns.

Support for Partners' Safety and Health Management

In 2022, we will launch a partner qualification evaluation program to improve not only our safety/health management capabilities but also those of our partners. We will allow only pre-qualified partners to participate in bids, and through our current annual safety and health level evaluations, we will continue to examine the adequacy of their safety/health systems. If necessary to raise their level of safety management, we will dispatch safety experts to their sites for training in an effort to build a safe work environment for both LOTTE Data Communication and our partners.

Safety and health note book for partners
(including 80-page safety guide for field workers)

Employee Health Management

In-house Healthcare Office

To promote in-house safety and employee health, LOTTE Data Communication operates Healthcare Office consisting of a measurement room to check the overall body condition such as a body composition, blood pressure, and a stress level; a refresh room for employees to recover from fatigue; and a treatment room for emergency treatment. The Healthcare Office is staffed by at least a health manager with a nursing license to provide employees with first aid about health abnormalities and counseling on health checkup items and examination results. Employees who work in business sites other than headquarters can access consultation at any time through video conferencing.

The measurement room of the Healthcare Office has "HI-U Healthcare Zone" equipped with health measurement instruments, such as InBody scans, stress meters, blood pressure and glucose monitors. In 2021, a daily average of 37 employees used the room. Employees can store their health-related figures in their mobile devices by linking them with LOTTE Data Communication's web/mobile-based health management platform "HI-U App" to manage their personal health history. Going forward, we will offer employees personalized health counseling based on their personal health and checkup data while striving to upgrade our services to enable our employees to manage their health most effectively.

Healthcare Support System

We regularly conduct health checkups for our employees, and in 2021, a total of 2,951 employees received the checkup. Starting in 2022, we will have all our employees receive a comprehensive examination every year while adding a brain and cardiovascular system test as part of our workplace health promotion program. To secure enough time for the annual checkups, we will start the checkups in March instead of May in 2022. We are planning to offer special health counseling to employees with the possibilities of more than moderate severity while introducing "Visiting Health Counseling" and "Health Protection Program" for those in need of general health counseling. LOTTE Data Communication will introduce various support systems for the health management of our employees, the company's greatest asset, and continuously improve them.

COVID-19 Quarantine Activities

To prevent the spread of COVID-19, LOTTE Data Communication is operating a rotating telecommuting system for all employees, including supervisors. To ensure that our employees can work in a safer environment, we have supplied 6,000 masks, 5,422 screens, and 8,000 screening kits to our workplaces and conducted disinfection 524 times. Even in the post-COVID-19 era, we will have the Healthcare Office take the lead in launching a seasonal infectious disease prevention system to combat infectious diseases and minimize damage inflicted by them.

Configuration of HI-U Healthcare Zone

Body composition or weight	Stress level	Blood pressure	Blood glucose	Body temperature	Smart stethoscope
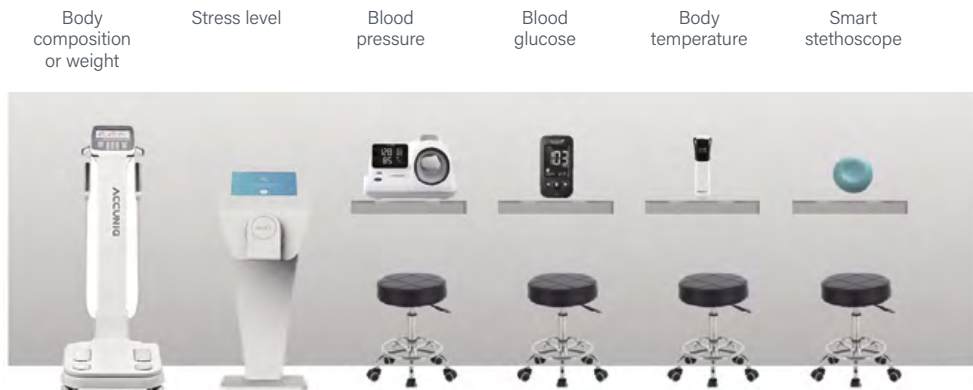
Quality Management

Quality Management Policy

All employees of LOTTE Data Communication are participating in quality management activities to satisfy customers as the company intends to contribute to the sustainable development of the environment and society by creating innovative values through customer satisfaction and continuous quality improvement.

Quality Management Implementation Policy

LOTTE Data Communication strives to improve quality in accordance with the four principles under the motto as "a platform service company that leads customer's business transformation", all our employees actively participate in quality management activities for customer satisfaction and establishment of a quality culture."

- The Company shall conduct its business while upholding the fundamental values of society, the requirements of the law and all relevant regulations, and the principles stipulated by the Company.

- The Company shall meet the requirements of customers and the quality management system (ISO 9001:2015), and take the lead in creating customer value through professionalism.

- To ensure the stable supply of products and services, the Company shall establish clear quality objectives along with feasible annual execution plans, and introduce sustained improvements to the quality management system.

- The Company shall preemptively identify and resolve any issues that have the potential to threaten the quality of the products and services furnished to customers, based on an understanding of the internal and external circumstances.

Quality Management Governance

To strengthen company-wide quality competitiveness through internalization of quality management and continuous management of quality goals, we have established and operated a company-wide quality activity process led by an organization devoted to quality management.

Quality Meeting

Category	Host	Participants	Frequency	Content
Company-wide Quality Meeting	Director, Platform Division Headquarters	Executives, PMs and business department managers	Once a month	· Quality check for sales and other business operations · Early management of major risks

Quality Activity Process

	Sales, Order				Execution					Operation
Biz	Opportunity search (Pre-sales) →	Sales →	Proposal →	Contract →	Initiation →	Analysis design →	Development →	Test →	Closing →	Operation stabilization, business opportunity
Review	SRB[1]	Order VRB[2]	Suggestion VRB	PRB[3]	QRB[4]					CRB[6]
					RM[5]					
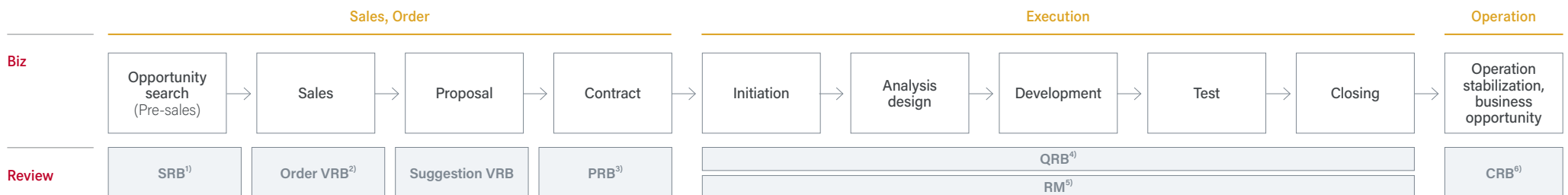
[1] SRB: Sales Review Board
[2] VRB: Value Review Board
[3] PRB: Project Review Board
[4] QRB: Quality Review Board
[5] RM: Risk Management
[6] CRB: Closed Review Board

Quality Management Manual

LOTTE Data Communication has put in place a comprehensive quality management manual to respond preemptively and systematically to the quality requirements and demands of various stakeholders in its service value chain. We subdivide work into stages, manage the quality management manual, and continually improve our quality management system according to stakeholder needs.

Composition of Quality Management Manual

Project Management Methodology V2.0   We support project management systematically by establishing a project management methodology based on Project Management Body of Knowledge and Capability Maturity Model Integration based on our unique experience and know-how. We also strive to improve the technological competitiveness of partners by sharing our methodologies and processes with them.

LOTTE Data Communication's Project Management Methodology V2.0
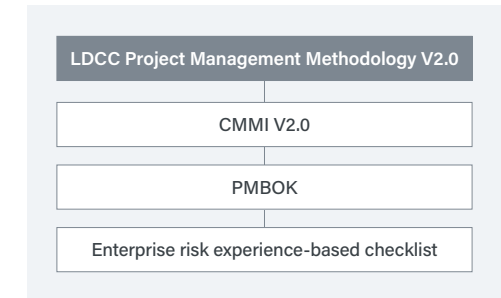
Project Management System   LOTTE Data Communication implements project and quality management through project management system (PMS). Every week, we use PMS to identify the progress of each project and related risk levels for effective risk management and site management.

Quality Management System

LOTTE Data Communication has established a quality management system that not only complies with ISO 9001, a global standard, but also surpasses the needs of the market and customers.

Quality Mind Education

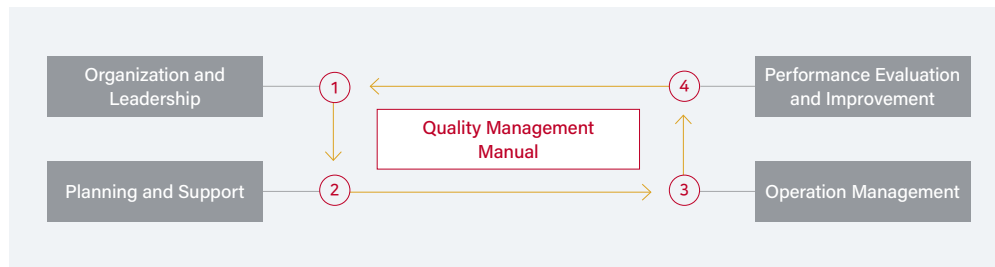LOTTE Data Communication operates various education and training programs to help all its employees recognize the importance of quality management and customer satisfaction and internalize quality management activities.

Status of Quality-related Certification

ISO 9001
(quality management system)

Certifying body: BSI Korea
Date: Dec. 2, 2013
Expiration: May 6, 2025

CMMI Level 3
(software development capability and organizational maturity)

Certifying body: SEI
Date: Dec. 2, 2015
Expiration: Nov. 12, 2024

ISO 20000
(IT service management system)

Certifying body: BSI Korea
Date: Aug. 2, 2006
Expiration: May 6, 2025

Education to Raise Employees' Quality Awareness

Quality Mind Education	Improve our service level based on quality management standards and establish a company-wide quality culture through quality education at department-level
Professional Manpower Education	Improve business performance ability and foster professional manpower through regular quality education (insight into projects, quality assurance by stage)
Change Management Education	Raise quality awareness and promote One Team Building at project sites
Periodic On-site Quality Management Surveys and Sharing Improvements	Share quality assurance and improvements through surveys on requirements, etc.
Project Methodology Education	Strengthen our basic organizational capabilities and SI business capabilities by disseminating our methodologies

Enhancing Customer Satisfaction

Customer Service Channel

Operating AI CRM[1] Center as a customer communication channel, LOTTE Data Communication applies its own technologies, using speech to text (STT) and text analysis (TA), to its customer consultation services, thereby improving the accuracy of its resolutions and the quality of customer consultation. In 2021, we introduced the voice message service (VMS) system so that customers can apply for consultations by voice even after customer center operation hours while implementing telecommuting for our counselors to prevent the spread of COVID-19. In 2022, we have adopted STT and TA to 12 customer centers, and will add voice bot and guide bot services to the centers.

CRM Center Using AI

STT
Translate the voice into text

Customers/Counselor → Recording data → Sound/language model → Speech recognition → Converted data

TA
Extract and analyze meaning from text data

Converted data → Morpheme analysis → Keyword index → Text mining → Data analysis

Natural language processing

① AI response (1st)   ② Counselor response (2nd)   ③ Enhanced consultation quality and support

Self-Service
Virtual Agent (AI voice robot, chatbot)

Agent (Counseling support robot)

KMS[2]
VOC[3]

[1] AI CRM: AI Customer Relationship Management
[2] KMS: Knowledge Management Service
[3] VOC: Voice of Customer

Customer Communication

Having launched various communication channels such as website and a YouTube channel, we disclose information transparently and conduct communication with our stakeholders actively to increase their trust in us. To increase access to devices such as laptops and mobile phones, we have applied optimization technologies to our website. We comply with accessibility standard guidelines so that all users, including the visually and hearing impaired and the elderly, can use it conveniently, for which we have obtained the information and communication accessibility certification. On our website, visitors can check various information related to the company, such as business trends, IR status, management status, and business changes while watching videos introducing LDCC's IT services, solutions, and platforms on the YouTube channel. (https://www.youtube.com/channel/UCn41TnmQX9Ccswo89wDBiyg).

Regular Customer Satisfaction Survey

LOTTE Data Communication has established a management system to listen to customer opinions and analyze their feedback through annual VOC surveys and thus reflect them in its business activities. The 2021 survey enabled us to identify areas of improvement, including KPIs for our call centers and some service ideas, on which improvement activities are underway.

Procedure for Customer Satisfaction Survey

Survey planning	Selection of survey target	Conducting survey	Results analysis	Follow-up measures
· Collecting customers' opinions and preparing a survey plan · Utilizing methods such as surveys, customer feedback on products and services, and analysis of market share and rates of on-time delivery	· Creating a customer list in consideration of the purpose and scope of the survey · Determination of sampling criteria and selection of survey targets	· Conducting surveys by email, mail or in person · Direct feedback such as commendation and praise or complaints from customers · Customer satisfaction management through the system, in the case of projects	· Detailed classification and group analysis by business category, customer company, and respondent characteristics by position · Objective data calculation that closely analyzes customers' needs and satisfaction/dissatisfaction factors · Preparation of a survey result report including survey analysis and corrective action, if necessary	· Request for action to the person in charge of the corrective action in accordance with the Quality Improvement Regulations · Portfolio analysis of the survey results report and reference for VOC · Establishment of action plan and implementation of improvement activities to improve customer satisfaction

Handling of VOCs

Category	Unit	2019	2020	2021
Target customer companies	Companies	18	17	15
Satisfaction level (100-point scale)	Points	74.2	85.0	81.9

Information Protection
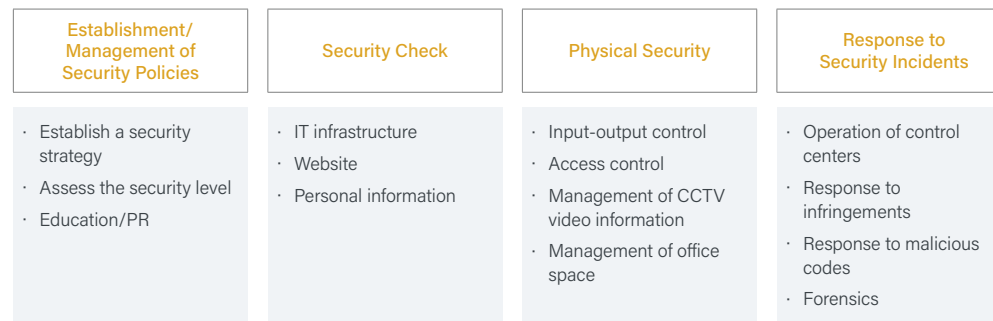
Information Protection System

With the rapid development of ICT in line with the Fourth Industrial Revolution, the importance of information security and privacy protection is growing. LOTTE Data Communication has established an information protection system and safeguarded the information of the company and its customers. We are also providing customers with professional information protection consulting and security solutions based on the information security management system know-how that we have accumulated since the company's establishment in 1996. We apply our information protection management system to our subsidiaries and partners in an effort to protect customer information.

Information Protection Activities

Strengthening Information Security   LOTTE Data Communication not only remains prepared for cyber threats 24/7, but also provides security control services to its customers through a dedicated organization and operational guidelines to respond to breaches of security information. Considering the diversity of industries, we are strengthening the IT technology and data information protection management system by source. We protect data by using various methods such as inspection solutions to strengthen PC security, document encryption, media access control, use of secure USBs, blocking harmful sites, and server and database access control. In addition, we carry out complex preventive activities including the operation of security systems such as network protection firewall, IPS[1], and anti-DDoS[2] as well as the APT[3] response system and 24/7 control of responding to real-time attacks on top of the configuration of DR[4] for disaster preparedness. To respond preemptively to changing corporate and social demands, we are strengthening the endpoint detection and response (EDR) that is suitable for the growing non-face-to-face communication environment.

In 2021, we established a personal information handler management process to improve our personal information management processes while conducting inspections for our personal information partners. To reduce security risks that may arise from telecommuting, we also introduced a solution that can check PC security at all times. Going forward, as external threats such as DDoS attacks have increased recently, we plan to conduct an in-depth inspection of the Internet Data Center to identify improvements and strengthen security in order to enhance the stability of our customers' business, the reliability of our IT services, and the response to breaches.

Information Security Management Process

Establishment/ Management of Security Policies	Security Check	Physical Security	Response to Security Incidents
· Establish a security strategy · Assess the security level · Education/PR	· IT infrastructure · Website · Personal information	· Input-output control · Access control · Management of CCTV video information · Management of office space	· Operation of control centers · Response to infringements · Response to malicious codes · Forensics

Personnel (organizations), business sites, terminals, networks, servers, and applications

Managing Customers' Personal Information   LOTTE Data Communication operates a meticulous management system for each stage of the information life cycle, including collection, creation, storage, utilization, and destruction of customers' personal information. We also comply with the standards for encryption and access control and review all IT infrastructure condition data every month. When entrusting personal information, we regularly monitor the processing status of the consignees and conduct management activities such as recommending pseudonymization for safe use of information. Our customers have the right to be provided with information on the processing of personal information, the right to select and decide whether to consent to the processing of personal information and the scope of consent for personal information, and the right to view, correct, suspend, or delete personal information as is specified in the privacy policy on the website.

[1] IPS: Intrusion Prevention System
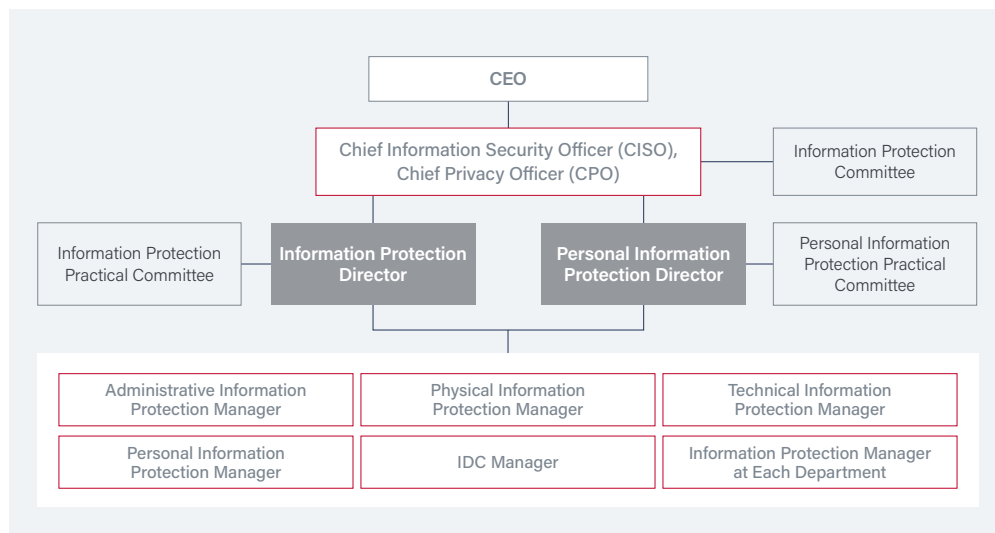[2] DDoS: Distributed Denial of Service
[3] APT: Advanced Persistent Threat
[4] DR: Disaster Recovery

Information Security Governance

To efficiently manage and protect important corporate information and assets, LOTTE Data Communication has appointed a Chief Information Security Officer (CISO) and Chief Privacy Officer (CPO) who take the lead in establishing and operating an administrative/physical/technical information protection management system. At the same time, we regularly hold meetings of the Information Protection Committee and the Information Protection Practical Committee composed of key executives and staff to discuss and make decisions on major issues related to company-wide information protection.

Information Protection Organization

Organization chart:
- CEO
  - Chief Information Security Officer (CISO), Chief Privacy Officer (CPO)
    - Information Protection Committee
    - Information Protection Practical Committee
    - Personal Information Protection Practical Committee
    - **Information Protection Director**
    - **Personal Information Protection Director**
      - Administrative Information Protection Manager
      - Physical Information Protection Manager
      - Technical Information Protection Manager
      - Personal Information Protection Manager
      - IDC Manager
      - Information Protection Manager at Each Department

Information Protection Committees

Committee	Meting Frequency	Resolution
Information Protection Committee	Semi-annually	• Consultation and decision-making on major issues related to information protection • Sharing information security inspection results and improvement tasks • Sharing amendments to information protection laws and information security issues • Sharing progress in information protection tasks
Personal Information Protection Practical Committee	Quarterly	• Sharing decisions made by the Information Protection Committee • Practical review of information protection-related activities and establishment of action plans • Dissemination of information protection compliance • Encouraging information protection activities and implementing compliance programs

Information Protection Certification

To secure the reliability/competitiveness of its information security management system, LOTTE Data Communication acquired relevant certifications such as ISMS, an information security management system standard in Korea as well as the international standard ISO 27001, and has continued renewing them. For information systems outside the scope of the certifications, we check our performance at least once a year and make necessary improvements based on our own checklists and inspection processes as part of our efforts to continuously upgrade our overall information protection management system. To ensure that we provide high-quality security services to our customers, we have obtained a license for a specialized information security service company and a license for a security control company from the Ministry of Science and ICT.

Information Security Management System

Certifying body: KISA
Date: Sep. 4, 2008
Renewed: Dec. 26, 2019

ISO 27001 (Information Security Management System)

Certifying body: BSI Korea
Date: Feb. 28, 2002
Renewed: May 13, 2022

Designation as a professional information security service company[1]

Certifying body: Ministry of Science and ICT
Date: Apr. 25, 2018

Designation as a specialized security control company[1]

Certifying body: Ministry of Science and ICT
Date: July 13, 2018

[1] Reacquired the designation as a professional information security service company and a specialized security control company after the establishment of new entity "LOTTE Data Communication" on November 1, 2017

Raising Information Security Awareness

Diagnosing Information Protection Level

Each year, LOTTE Data Communication reviews its level of information protection and takes necessary measures for identified areas of improvement, in order to evaluate its information protection level and prevent security incidents, by using a checklist with a total of 168 items in four such areas as management, physical, technology, and personal information.

Configuration of the Information Security Diagnosis

Area	Check Items	Key Items
Management	32	· Enactment/amendment of information protection regulations · Inspection of information security management system and CISO approval · Wheatear information security training is conducted
Physical	44	· Management status of restricted access to protected areas · Periodic inspection and maintenance of protective equipment · Compliance with legal requirements for image information processing devices
Technology	47	· Applying security requirements and policies during development/operation · Regular patch management procedures for operating systems · Regular review of system logs
Personal Information	45	· Data subjects' consent upon collecting and using personal information · Posting and activating the privacy policy · Management/review of access records of the personal information processing system

Security checks for 168 items according to information protection laws and ISMS-P[1]

[1] ISMS-P: Personal Information & Information Security Management System

Information Protection Training

Employee Training　To raise the level of company-wide security awareness, LOTTE Data Communication conducts information protection training for employees every year on the prevention of personal information leakage and the introduction of actual cases of corporate information leakage. Every month, on "Information Protection Day", we share key security issues and trends such as information breach cases, news and security vulnerabilities company-wide. In 2021, we conducted online training for all employees on the definition of personal information, how to prevent leakage of personal information, cases of company information leakage, and safety rules for personal information protection.

Partner Training　LOTTE Data Communication conducts personal information and management/supervision training at least once a year for personal information handlers of the company and its partners, while encouraging its partners to take online courses for their convenience. We are raising awareness and competency of our partners' employees on security management through these educational support activities.

Information Security Training

Category	Target	Unit	2019	2020	2021
Information Protection	Employees	Persons	2,822	2,950	2,762
Personal Information Protection	Personal information handlers	Persons	175	171	207
	Personal information trustees	Companies	28	36	40

Simulation Training for Malicious Email

To prevent intrusions caused by malicious emails and raise employee security awareness, we conduct simulation virus training on a quarterly basis. We are also taking various security measures such as on/offline training and case investigation of intrusion accidents for infected cases to prevent recurrence.

Convergence Security

LOTTE Data Communication offers various services such as security consulting, security solutions, security SI, and security control for on-premise[1] and cloud environments.

Configuration of Convergence Security Services

On-Promise   Cloud

Security Consulting	Security Solutions	Security SI	Security Control
· Security certification consulting · Vulnerability diagnosis and mock hacking · Comprehensive information security consulting · Convergence security consulting (IoT, Data, Mobility, etc.)	· Personal information consignment management · Visitor management · Anti-ransomware · Whitelist-based vaccines · Endpoint security solutions	· Advancement of financial/public/medical security · Designing and building secure IT infrastructure · Establishment of an integrated information leakage prevention system · Physical security consulting, design, construction, and operation	· Integrated security control · Building a control platform · Cloud security control · APT[2] response control

[1] On-premise: Direct installation/operation in the computer server that the company owns
[2] APT: Advanced Persistent Threat

Mutual Growth Management

Expanding Shared Growth

Direction for Shared Growth

LOTTE Data Communication collaborates with partners based on LOTTE's corporate philosophy that considers true win-win the best value. We aim to become a global IT company that can share a clear vision of win-win with our stakeholders by laying the foundation for shared growth. We pursue shared growth through fair trade and win-win support systems empathizing with its partners. We operate a cooperative network to stabilize the management of our partners and expand our support in the areas of finance, R&D, and education. In recognition of these activities, we received an Excellent grade in the "2021 Win-Win Growth Index Assessment".

Direction of Shared Growth
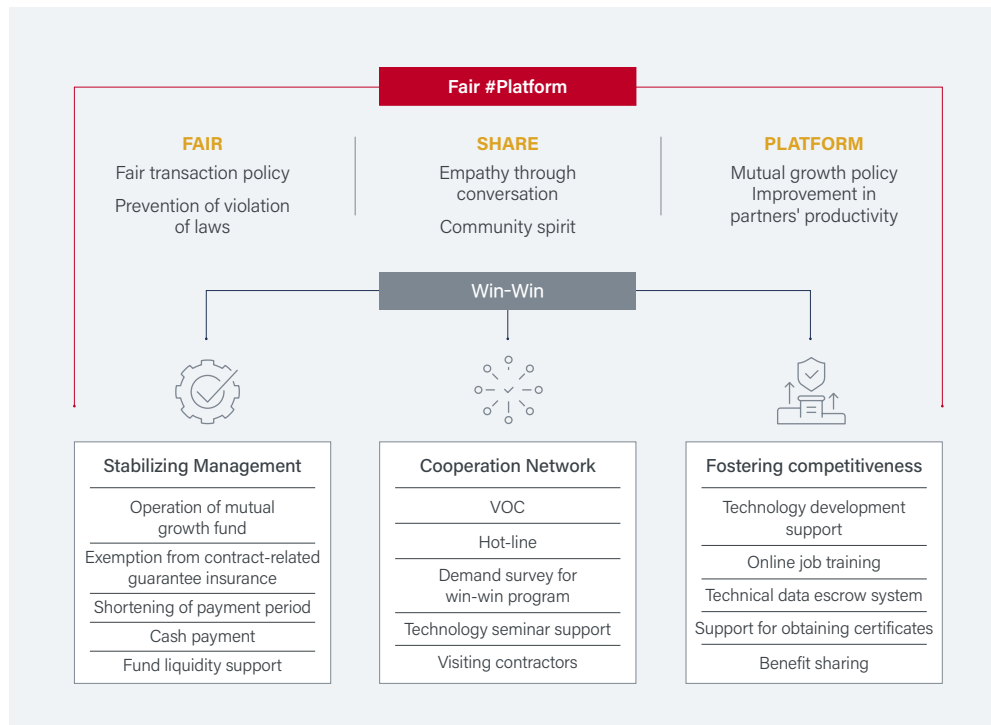
Shared Growth Governance

To establish a company-wide collaboration system for shared growth with its partners, LOTTE Data Communication has launched a win-win management team under the ESG Office and assigned a person in charge of shared growth while kicking off the Win-Win Growth Secretariat to advise on subcontract transactions and shared growth system operations and upgrades.

Shared Growth Programs

Financial Support   Our financial support programs include fund management, early payment, and cash settlement. To support our partners' liquidity, we have been operating the Shared Growth Fund worth KRW 12 billion since 2018. In 2021, we expanded the fund to KRW 15 billion to enhance our partners' mid- to long-term competitiveness through operating fund support, R&D and investment in new businesses. We decided to increase the fund size to provide practical help to small and medium-sized partners in securing business operating funds by preemptively reflecting the difficulties of their business environment as their liquidity is expected to contract due to the COVID-19 crisis and the rising base rate.

Technical Support   Our technical support programs include R&D support and technology protection. To help strengthen our partners' technological competitiveness, we encourage them to engage in various R&D activities including new technology development, product localization, and joint research. To protect our partners' technologies, we strongly recommend that they use the "Technical Data Bailment System[1]" to store their core technologies in the Large and Small Business, Agriculture, and Fisheries Cooperation Foundation. To this end, we help them with the deposit cost, and we plan to gradually expand the amount of our support.

[1] Technical data bailment system: A system that proves the fact of a company's technology development by keeping its core technical data and trade secrets in the Technical Data Bailment Center. It aims to protect SMEs' technologies in the event of technology leakage and disputes based on the technical data, and helps create a fair trading environment by enabling commissioned companies (SMEs) to prevent leakage of core technologies in advance while commissioning companies (large companies, public institutions, etc.) use technologies reliably through the bailment system.

Support for Training and Recruitment   LOTTE Data Communication has introduced and is operating various programs to help its partners recruit and train employees. We reduce their burden for talent recruitment through support for online recruitment and participation in job fairs while operating on/offline trainings and certification support programs to help their new employees grow into talents. In 2021, we ran 540 training courses attended by 566 employees of our partners. In 2022, we increased the number of courses to 650 as of April. Going forward, we will broaden the horizon of the training to nurture not only IT talent but also business administration talent.

Partner Communication

In the midst of the COVID-19 crisis, LOTTE Data Communication has been collecting grievances and unfair practices that occurred during transactions between the company and its partners through various non-face-to-face channels such as hotlines, surveys, emails, and websites. In 2022, we will resume face-to-face communication with our partners while further promoting exchanges by opening additional communication channels. Based on such reinforcement of face-to-face communication and diversification of communication channels, we will be more active in gathering their grievances and accusations about unfair practices.

Online Training Support for Partners' Employees   (Unit: Persons)

Year	Persons
2019	216
2020	416
2021	**566**

Partner Communication Channels

Meetings
- Sign fair transaction agreements with partners
- Hold purchase meetings regularly for partners' market entry
- Hold technical seminars with partners frequently, so that partners can present their solutions to our purchase/sales staff

Social Media
- Q/A on major inquiries through chatbot
- Push notification about progress in price quotations, placing orders, payment, etc.
- Promotion of partners' key solutions

Strengthening Fair Trade

Fair Trade Principles

In order to foster fair transaction with its partners, LOTTE Data Communication discloses the four Fair Trade Guidelines of the Fair Trade Commission on its website while frequently checking and improving procedures related to subcontract transactions. In 2020, we reorganized the purchase management regulations to clarify fair transaction procedures, bidding guidelines, and private contract standards based on the Subcontracting Act, and enacted and announced evaluation guidelines for evaluators to ensure fair evaluation of partner proposals. In 2021, we upgraded bidding-related standards in the purchase management regulations and revised the requirements for partners' registration/cancellation. In March 2022, we revised the advance payment procedure to reduce partner burden to issue advance payment bonds while establishing a procedure for checking whether technical data is involved upon receipt of a proposal to strengthen the protection of technical data.

Four Fair Transaction Practices

01
Guidelines for Partners
· Enhance transparency and fairness in the selection/management of partners
· Establish guidelines for preventing violations of the Fair Transactions in Subcontracting Act (Subcontracting Act)

02
Guidelines for the Internal Deliberation Committee
· Self-deliberation on the fairness and legality of subcontracting transactions
· Detailed instructions for prevention of violations of the Subcontracting Act

03
Guidelines for the Issuance and Preservation of Documents
· Specific standards related to the issuance and retention of documents in subcontract transactions
· Promotion of advanced practices for issuance of documents and establishment of a fair subcontract transaction order

04
Guidelines for Best Practices in Contract Execution
· Specific criteria for signing contracts between large companies and SMEs
· Detailed instructions for rational and fair transaction practices

Fair Partners Selection and Contract Execution

Standard Subcontract Agreement LOTTE Data Communication signs subcontracts in conformance with the standard subcontract agreement (eight types) recommended by the Fair Trade Commission to prevent unfair transactions. The subcontracts stipulate special agreements to protect the rights and interests of subcontractors. Furthermore, we have adopted an electronic contract system through the partner collaboration portal "ePartner" and electronic contract site "ECS" to prevent verbal award of orders, unreasonable order cancellations, and other unfair transaction practices.

Pledge to Business Ethics We promise a fair and transparent transaction through the Ethical Management Declaration signed by our partners to eradicate unethical behaviors such as corruption and irregularities. In addition, we have adopted a fair transaction pledge system for partners participating in bids so that they can recognize risks of unfair corporate actions such as collusion between bidders. We prohibit partners who violate these rules from doing business with us for two years.

Evaluation of Partners' Sustainability We plan to adopt a policy to consider partners' sustainability management level in their evaluation and selection process. Upon signing contracts with partners, we will include provisions on ESG management requirements such as the guarantee of human rights protection and the prevention of environmental pollution and occupational accidents while establishing a system that will encourage our partners to improve their ESG management systems.

Early Payment We have been operating an early payment system since 2018 to help our partners ease their financial burden ahead of the Lunar New Year and Chuseok holidays during which they may need additional funds temporarily. We also operate a separate early payment system to help our partners with their urgent payment needs.

Amount of Early Payment   (Unit: KRW billion)

2019	2020	2021
49.4	64.5	51.8
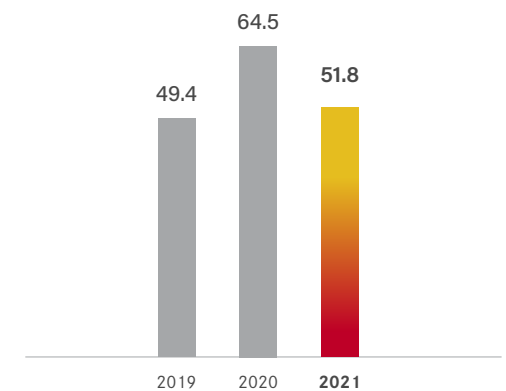
Fair Transaction Program

LOTTE Data Communication carries out various activities to promote fair transaction and the Compliance Program.

Compliance Program   We adopted the compliance program (CP) to run our business transparently and legitimately. The core of CP is to establish a system to prevent violations of laws and promote the compliance with the Code of Conduct. In July 2014, the CEO as well as all the other directors and employees of LOTTE Data Communication joined forces to declare the CP. In 2021, we reinforced our internal fair trade system by revising the CP manual based on the latest laws, distributing contract checklists, and training and monitoring employees.

Core Elements of CP

COMPLIANCE PROGRAM			
CP Standard and procedure	Designating compliance manager	Education program	Effectiveness evaluation and feedback
CEO commitment and support	CP Guideline	Internal monitoring system	Punishment of employees who violated fair transaction

CASE

Code of Conduct for LOTTE Group Partner Companies
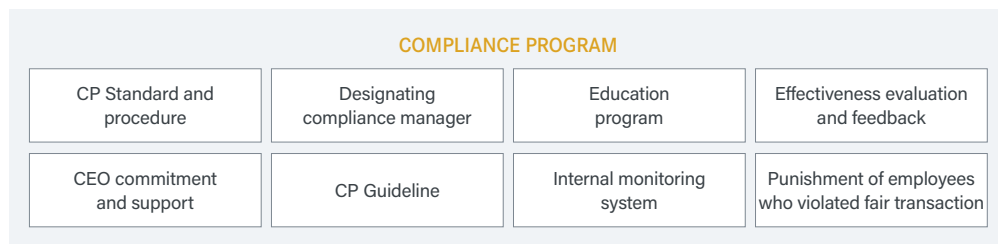
Recognizing that combating climate change and building a sustainable ecosystem are common human tasks, LOTTE Group is promoting ESG management to become a company that adds value to human life. In June 2022, we established the Code of Conduct for LOTTE Group Partner Companies with the hope that our partner companies will join us on the journey toward a sustainable future for humanity. The Code of Conduct includes six aspects of LOTTE Group's requirements for its partners such as "environmental protection, respect for human rights, safety management, quality assurance, compliance/ethical management, and management systems" based on the UN Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, the OECD Guidelines for Multinational Enterprises, the UN Convention on the Rights of the Child, the ILO's Fundamental Conventions, and the RBA Code of Conduct. We hope that all our partners comply with the Code of Conduct and participate in our ESG management.

Code of Conduct for LOTTE Group Partner Companies

Appointment of Compliance Manager   We appoint a Compliance Manager through the BOD approval, to better manage CP. The Compliance Manager establishes the process for execution of CP, oversees the enforcement process, and reports the fair transaction performance and plans to the BOD on a semi-annual basis.

Compliance Inspections   LOTTE Data Communication carries out company-wide compliance inspections. We prevent violations in advance through preliminary reviews by the compliance department to identify any risk of violations. To promote a systematic culture of compliance, we require that a checklist to be prepared and attached to a contract upon signing it. In addition, we provide fair transaction education to strengthen the capabilities of the relevant personnel.

Fair Transaction by Partners   Every year, we conduct various fair transaction and mutual cooperation activities for partners, including supporting management stabilization, fostering competitiveness, strengthening employee capabilities, and building cooperative networks. We continue to improve the transparency of our fair transaction system by standardizing the provisions on the protection of partner rights and interests in transaction contracts and sending messages on contract progress to partners. The Subcontract Deliberation Committee reviews progress in contract execution and compliance with related laws every month to ensure that our partners will not suffer contractual disadvantages.

Fair Transaction and Anti-corruption   We run an employee counseling center 24/7 through our in-house help desk to encourage voluntary compliance with the laws regarding fair transaction, anti-corruption, and economic sanctions while arranging external counseling when needed. We also operate a whistleblowing system against unfair transactions and unethical behaviors while the Fair Trade Compliance Manager within the ESG Office responds to any unfair trade and unethical behavior.

Unfair Transactions and Unethical Conduct

Unfair corporate actions, unfair transactions, and other violations of the Fair Trade Act and Subcontracting Act	Acts involving the receipt of money/ valuables or the demanding of money/ values using one's position or rank	Unauthorized release of trade secrets or personal information, etc.	Other illegal acts related to labor, knowledge assets, environment, and safety, etc.
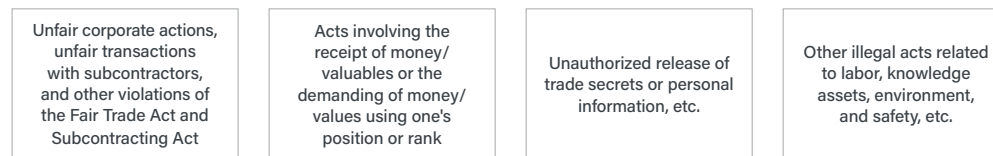
Fair Transaction Education for Employees   To bolster fair trade practices, LOTTE Data Communication provides regular training to its employees on various regulations such as the Fair Transaction Act and the Subcontract Act as well as compliance issues and the latest trends. In 2021, we conducted training for all the departments related to subcontracting. In 2022, we will expand the content and target of the education to include "Education on Revised Fair Trade Act" for fair trade-related departments in addition to the programs intended for subcontract-related departments.

Social Contribution

Social Contribution Implementation System

Social Contribution Implementation Strategy

Under the slogan "Small Gestures Change the World", LOTTE Data Communication strives to build a better society by promoting CSR activities intended to create social value based on its IT capabilities.

CSR Implementation Strategy

Slogan

Small Gestures Change the World

Mission

Sharing experiences to create a world where everyone smiles together

Activities

IT Talent Donation	Activating Employee Participation	Enhancing Value through Collaboration
Specialized ICT social contribution activities utilizing the IT capabilities of employees	Establishment of a sound corporate culture through a system of granting credits for volunteer activities, etc.	Improving social contnbution values and quality through collaboration with various

Objective

Social Contribution Governance

Promoting social contributing activities led by employees' volunteer organizations, LOTTE Data Communication will continue to encourage more of its employees to participate in CSR efforts while increasing its financial contributions to the activities.

IT Supporters   A volunteer group composed of LOTTE Data Communication employees who have completed the company's professional IT training, IT Supporters conduct various CSR activities utilizing their IT capabilities so that everyone can enjoy equal benefits of education and information regardless of their social status.

Key Activities of IT Supporters

Children/youth from underprivileged families	Persons with visual impairments	Other NGOs	Local childcare centers
Coding education/IT related career counseling for the underprivileged	Making books for the blind Making and distributing books for the blind, an initiative started in 2020	PC support activities for vulnerable groups in a connection with various NGOs	Electronic equipment support and coding education at children's centers

CharLOTTE Volunteer Group   The CharLOTTE Volunteer Group conducts social contribution activities under various themes every month, including people, environment, and regional development. CharLOTTE Volunteer Group focuses its activities on local communities in Geumcheon-gu where headquarters is located. The number of people who have received support from us or the last five years is approximately 1,583.

CSR Activities

LOTTE Data Communication has implemented social contribution programs based on its employees' participation, such as talent donation and volunteer activities, in collaboration with relevant institutions. In 2022, we will resume a host of our traditional CSR activities, restricted due to COVID-19, such as digital education for the underprivileged, operation of a blood donation bus of love, knitting scarves for single-parent families through the Mind Heat 37°C Campaign, and augmentative and alternative communication.

Major CSR Programs for 2022

Category	Program
IT education	· Coding education for the underprivileged · IT-related career counseling for youth
Resolution of social problems	· Blood donation on the wheel · Volunteering at the Seoul National Cemetery
Services for the vulnerable and underprivileged	· Knitting scarves for single-parent families through the Mind Heat 37°C Campaign · Stuffed animals of love · Taking "happy photos" for low-income local seniors
Services for the disabled	· Augmentative and alternative communication (AAC) · Producing Braille books for visually impaired people · Participating in the Super Blue Marathon

CSR Programs of LOTTE Data Communication

Category	Program
IT education	· Coding education for the underprivileged · IT-related career counseling for youth
Resolution of social problems	· Removal of harmful plants with forest commentators · Blood donation on the wheel · Volunteering at the Seoul National Cemetery
Services for the vulnerable and underprivileged	· Kimchi making with Geumcheon-gu Office · Donation/delivery of briquettes to low-income families in winter · Bead craft of love · Leather craft of love · Knitting scarves for single-parent families through the Mind Heat 37°C Campaign · T-shirt decoration of love · Making eco-bags of love · LOTTE Group's kimchi sharing event · Donation of air purifying plants to children's centers · Taking "happy photos" for low-income local seniors · Tile murals for local children's centers · Making Hickman pouches for those with Hickman catheters
Services for the disabled	· Picnic with the disabled · Producing Braille books for visually impaired people · Participating in the Super Blue Marathon (an event for employees and the disabled)

Blood donation on the wheel

Super Blue Marathon

Producing Braille books for visually impaired people

MOU signing ceremony to support a para table tennis team

Making Ongoing Donations

Paying keen attention to the underprivileged,
we deliver donations to various institutions:

· Community Chest of Korea
· The LOTTE Foundation for Arts
  (for the development of the cultural industry)
· Hope Bridge Korea Disaster Relief Association
  (for disaster relief in Korea)
· Korea Ski Association
  (for the development of the unpopular sports industry in Korea)
· Bobath Memorial Hospital
  (for medical support for the underprivileged)
· Total donations in 2021: KRW 770 million

Volunteering at the Seoul National Cemetery

Every year, our employees visit the Seoul National Cemetery
in June, the Month of Patriots and Veterans, to pay tribute to
those who made the ultimate sacrifice and clean up graveyard.

· Time: June, the month of patriots and veterans
· Place: The Seoul National Cemetery
· Activities in 2021: Pay tribute, clean up the cemetery,
  tour the cemetery, etc.

Taking "Happy Photos" for Local Seniors

Members of the CharLOTTE Volunteer Group and other
employees volunteer to take "happy photos" for local seniors.

· Time: July
· Place: Welfare centers in Geumcheon-gu
· Activities in 2021: Delivery of photos taken
  and edited by our employees
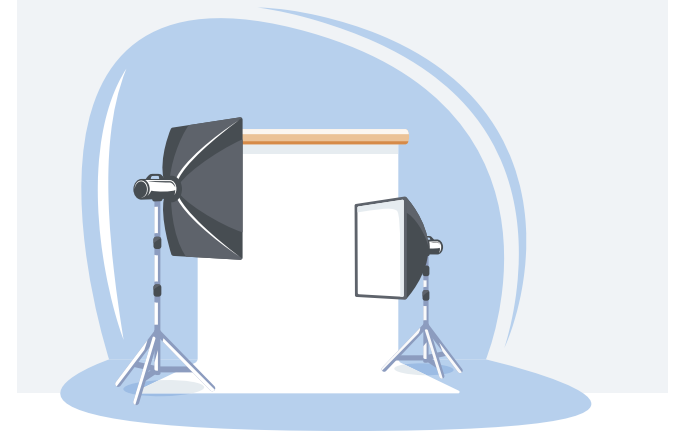
Installing the Tile Murals of Love

CharLOTTE Volunteer Group members and their families make tiles and create "tile murals of love" on the walls of children's centers, turning desolate alleyways into a space full of warmth, to root for children's dreams and deliver messages of hope to residents.

· Time: August
· Place: Oh Yes Local Children's Center, Geumcheon-gu
· Activities in 2021: Made 256 tiles (including drawing and coloring)

Participating in the "Super Blue Marathon"

We participate in the "Super Blue Marathon" hosted by LOTTE Group to reflect on disability and community spirit while both persons with and without disabilities walk and run together.

· Time: November
· Place: Geumcheon-gu Office
· Activities in 2021: Ran a 5-kilometer course starting from Cheolsan Bridge

Sharing Warmth through the "Mind Heat 37°C Campaign"

Every year, to help with heating costs of underprivileged children, LDCC joins forces with the Salvation Army to present scarf kits to those who make Christmas kettle donations and deliver completed scarves to children in need at home and abroad.

· Time: December – January
· Place: Salvation Army
· Activities in 2021: Donation of scarves made by approximately 200 employees

CASE

Cheers to your dreams and challenges

LOTTE Data Communication's Para Table Tennis Team

Treasuring the value of "Growing Together", LOTTE Data Communication makes a wide range of efforts to bring dreams and hopes to its neighbors. As part of such efforts, we launched a para table tennis team in 2021, and help team members unlock their full potential in a more stable environment. In doing so, we spread the true value of hard work and stand by the athletes who meet challenges and chase dreams against all odds, thereby making positive change in our society.

8 athletes challenging and breaking their limits with passion

Our para table tennis team is composed of eight athletes of various age groups, from 20s to 50s, and they receive full support from the company so that they can concentrate on the sport. Most notably, we have partnered with Galaxia SM, a sports marketing company, to enable the athletes to receive professional training and management in order to help them keep improving their skills and grow into outstanding athletes.

Our support combined with the athletes' hard work has already generated happy outcomes. In October 2021, at the 41st National Paralympic Games held for the first time in two years due to the COVID-19 pandemic, Dong-hyuk Kim won the silver medal in the men's table tennis team event, proving his infinite potential. Going forward, LOTTE Data Communication will continue supporting the team through its welfare systems and other means to help them keep challenging for their dream, thereby realizing the value of "Growing Together".

I am delighted to cheer on the dreams of athletes who do not see their physical disabilities as a limitation and move on to new challenges. I hope the combined efforts of LOTTE Data Communication's support and Galaxia SM's expertise on top of athletes' will to bring a calm but great resonance to our society."

Yeon-ji Kim, *HR Team of LOTTE Data Communication*
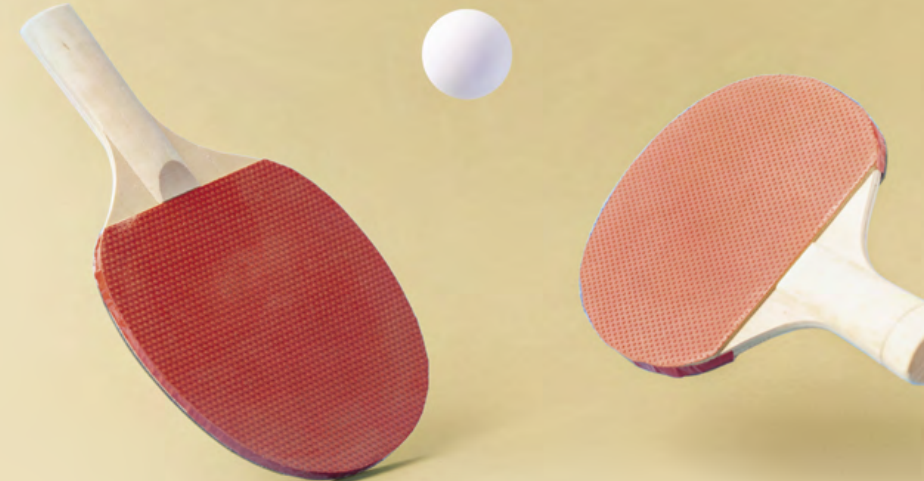
I had hard time concentrating on training, but with the support of LOTTE Data Communication, I am now happy to be able to devote myself exclusively to table tennis. What's more, I could receive professional coaching and win a silver medal in the national championship. Thank you so much for your heartfelt support!

Dong-hyuk Kim, *Member of Para Table Tennis Team*

Dong-hyuk has become very bright since he was able to concentrate on table tennis. I am so grateful that through the attention and support of LOTTE Data Communication, a child with a disability can have a better hope and see a broader world to work even harder.

Ji-yeon Lim, *Dong-hyuk Kim's Mother*

GOVERNANCE

LOTTE Data Communication has established advanced governance structure, based on which it is enhancing corporate value from stakeholder's perspective by adding ESG value to its business operations. We are also striving to ensure that the increased corporate value is leading to the value enhancement of all stakeholders. In addition, we pursue a healthy and solid corporate growth based on our competitive edges rooted in firm business ethics and thorough risk management.
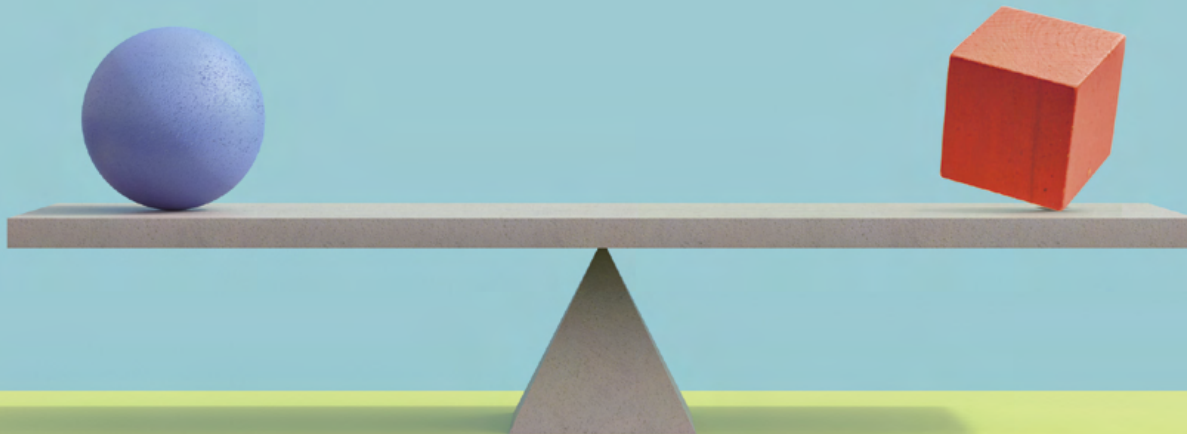
Corporate Governance

Board Operation

BOD Composition

LOTTE Data Communication's BOD is composed and operated as prescribed by the relevant laws and the Articles of Association. The BOD deliberates and makes decisions on key management matters stipulated in the Commercial Act and the Articles of Association, delegated by the general shareholder meeting (GSM) or considered critical for the basic policy of corporate management and business execution while supervising the performance of duties of directors and management. We guarantee the independence of directors so that the BOD can supervise the company's business execution in an objective manner. As of the end of April 2022, the BOD consisting of four executive directors and three non-executive directors satisfies the requirement of the Commercial Act that non-executive directors must constitute at least 1/4 of the total number of directors. To increase the efficiency of operation and decision-making of the BOD, we have appointed Jun-hyung Rho, Chief Executive Officer (CEO) of LOTTE Data Communication, as the chairman of the BOD.

Composition of the BOD

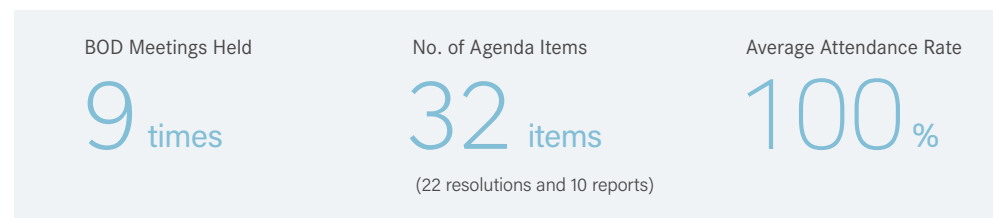| Category	Name	Position	Major Career	Tenure
Executive Directors	Jun-hyung Rho	CEO Chairman of the BOD	Director, DT Business Headquarters at LOTTE Data Communication Director, Management Strategic Headquarters at LOTTE Data Communication	11/02/2017-03/19/2024 (reappointed)
	Doo-young Ko	Director, DT Business Headquarters	Director, Smart System Division at LOTTE Data Communication Executive, DT Business Headquarters at LOTTE Data Communication	03/19/2021 – 03/19/2023
	Kyung-yub Kim	Director, Management Strategy Headquarters	Head of Business Solution Division at LOTTE Data Communication Head of Management Support Division at LOTTE Data Communication	03/19/2021 – 03/19/2024
	Jong-pyo Park	Director, SM Business Headquarters	Director, Platform Business Division at LOTTE Data Communication Director, Convergence Security Division at LOTTE Data Communication	03/18/2022 – 03/18/2024
Non-executive Directors	Cheol-kyu Hong	Chairman of the Audit Committee Chairman of the Remuneration Committee	(Present) Dean of College of Business & Economics, Chung Ang University Ph. D of Accounting from London College of Economics	03/27/2020 – 03/18/2024 (reappointed)
	Hong-suk Yang	Chairman of the Transparent Management Committee Chairman of the ESG Committee	(Present) Professor at College of Business Administration, Seoul National University Ph. D of Business Administration from University of Chicago	03/27/2020 – 03/18/2024 (reappointed)
	Sang-gyun Kim	Chairman of the Outside Director Candidate Nomination Committee	Present) Professor at Kyung Hee University Graduate School of Business Ph.D. in Cognitive Science, Yonsei University	03/18/2022 – 03/18/2024

* As of the end of April 2022

BOD Operation Policy and Status

LOTTE Data Communication's BOD meetings include regular and ad hoc meetings which are convened by the chairman of the Board. Individual directors may also request a convocation according to the Commercial Act and company regulations. Regular BOD meetings are held once a quarter and ad hoc board meetings are held whenever BOD resolutions are required about urgent matters. BOD resolutions are made with a majority of votes, but some decisions are made with the approval of two-thirds or more of the total number of directors.

BOD Meetings in 2021

BOD Meetings Held	No. of Agenda Items	Average Attendance Rate
9 times	32 items	100 %
	(22 resolutions and 10 reports)	

Independence of the BOD

After selecting candidates who meet the requirements for transparent corporate management, LOTTE Data Communication appoints its directors at an AGM. Candidates for executive directors are recommended by the BOD whereas non-executive directors are recommended by the Outside Director Nomination Committee. The Outside Director Nomination Committee verifies that a candidate has no disqualifying reason, meets the requirements prescribed by laws and regulations and the BOD regulations, and promotes the interests of the company and its shareholders.

We guarantee the engagement of our non-executive directors. The Audit Committee is composed of three non-executive directors to ensure independence and autonomy of its auditing process. The Committee strengthens its control function of the corporate management to induce responsible management and enhance the objectivity and reliability of audits. All other committees consist of a majority of non-executive directors in accordance with company rules and related laws. We restrict transactions between directors and the company in accordance with relevant laws and operating regulations of the BOD to minimize the risk of conflicting interests in the decision-making of the BOD. If a director's interest in a particular matter is confirmed, that director cannot exercise his or her voting rights regarding the particular matter. The major transactions between a director and the company and the relationship between the director and the largest shareholder are disclosed in the company's business report.

Expertise and Diversity of the BOD

LOTTE Data Communication appoints directors with diverse backgrounds and expertise to respond to the rapidly changing business environment and support the BOD in making timely and effective decisions. Recognized as a top expert in the IT service domain, our CEO promotes responsible management as the chairman of the BOD. The Outside Director Nomination Committee recommends those with expertise and experience in various areas such as management, accounting, and law as candidates for non-executive directors, who are appointed at an GSM to ensure that the directors have the necessary skills and abilities to supervise and advise the management.

LOTTE Data Communication is committed to ensuring that the BOD can make important decisions based on a broad perspective by considering the interests of stakeholders including shareholders and customers. To this end, we do our utmost to compose the BOD with directors from diverse backgrounds in terms of gender, age, educational background, religion, and political orientation. Most notalby, in 2022, we further strengthened the BOD's expertise by appointing Professor Sang-kyun Kim, an expert in the metaverse and NFTs, as a new member of the Board.

BOD Committees

Under its BOD, LOTTE Data Communication operates five committees such as the Audit Committee, Transparent Management Committee, Remuneration Committee, Outside Director Nomination Committee, and ESG Committee. The Audit Committee complies with the requirements of Article 542-11 Paragraph 2 and Article 415-2 Paragraph 2 of the Commercial Act while the other committees comply with the requirements of Article 393 Paragraph 2 of the Commercial Act. Assured of their independence from management, the committees are composed of members with expertise tailored to the characteristics of each committee.

Composition of BOD Committees

Committee	Chairman	Directors
Audit Committee	Cheol-kyu Hong, non-executive director	Hong-suk Yang and Sang-kyun Kim, non-executive directors
Transparent Management Committee	Hong-suk Yang, non-executive director	Cheol-kyu Hong, non-executive director, and Jong-pyo Park, executive director
Remuneration Committee	Cheol-kyu Hong, non-executive director	Sang- kyun Kim, non-executive director, and Kyung-yub Kim, executive director
Outside Director Nomination Committee	Sang-kyun Kim, non-executive director	Hong-suk Yang, non-executive director, and Doo-young Ko, executive director
ESG Committee	Hong-suk Yang, non-executive director	Cheol-kyu Hong, non-executive director, and Jun-hyung Rho, executive director

* As of the end of April 2022

BOD Committee Meetings in 2021

Committee	No. of Meetings	No. of Agenda Items
Audit Committee	5	13 (6 resolutions and 7 reports)
Transparent Management Committee	4	7 (3 resolutions and 4 reports)
Remuneration Committee	3	4 (4 resolutions)
Outside Director Nomination Committee*	-	-
ESG Committee	1	2 (1 resolution and 1 report)

* In 2021, the Outside Director Nomination Committee did not have a meeting because the company had no plan to hire a non-executive director during the year.

Strengthening Social Responsibility of the BOD   In July 2021, LOTTE Data Communication launched the ESG Committee to set the direction of its ESG management and make relevant decisions effectively. The Committee reviews the internal and external ESG management environment and polices and suggests directions for the company's ESG management and makes necessary decisions. To support the Committee's strategies and decision-making, we operate a support organization "ESG Office".

BOD Evaluation and Remuneration

The remuneration limit for directors is determined at a GSM based on the resolution of the Remuneration Committee in accordance with the Commercial Act and the Articles of Association, with the actual basic salary and performance pay paid within the limit. Performance pay is calculated based on the company's management performance including sales and operating profit, leadership performance, ethical management, ESG management results, and other contributions to the company. However, for non-executive directors and members of the Audit Committee, their evaluation and compensation are not linked and they are excluded from the performance-based payment so that they can maintain their independence.

Director's Remuneration in 2021

Category	No. of Persons	Total Amount of Remuneration[1]	Average Remuneration per Person[2]
Executive Directors	3	KRW 1,546 million	KRW 515 million
Non-executive Directors	3	KRW 216 million	KRW 72 million

* As of the end of December 2021 (One executive director resinged on December 1, 2021)

[1] Total remuneration: Including remuneration paid to the resigned executive director

[2] Average remuneration per person: Total remuneration for directors divided by the number of directors as of the end of December 2021

Increasing Shareholder Value

Stocks and Shareholders

As of December 31, 2021, the number of LOTTE Data Communication's shares issued was 15,396,331. No class shares are issued except for common shares, and the par value is KRW 5,000 at present.

Shareholder Composition and Ownership

	LOTTE Corporation	General shareholder	Employee stock ownership association	Treasury shares
	64.95%	30.79%	2.53%	1.73%
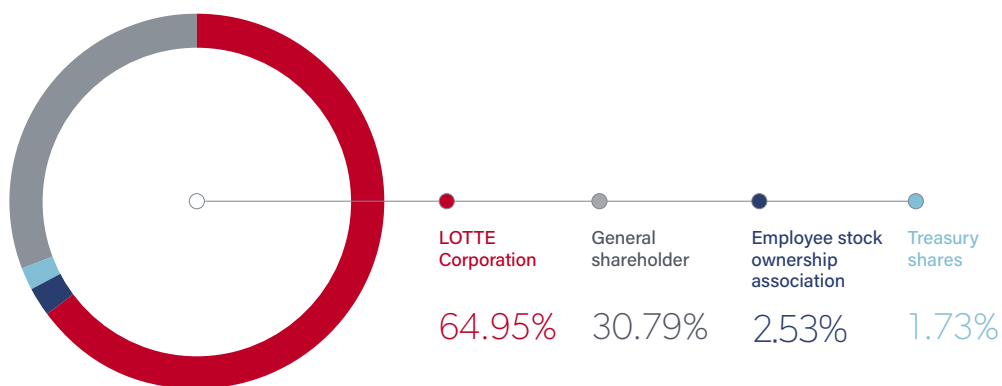
Category	Type	No. of Shares	Ownership
LOTTE Corporation	Ordinary shares	10,000,000	64.95%
Employee stock ownership association	Ordinary shares	389,314	2.53%
Treasury shares	Ordinary shares	266,964	1.73%
General shareholder	Ordinary shares	4,740,053	30.79%
Total		15,396,331	100%

* As of the end of December 2021

Shareholder-friendly Management

Protection of Shareholder Rights   According to the Articles of Association, LOTTE Data Communication holds a regular GSM within three months after the end of the business year, and announces the date, place, and agenda items of the meeting 14 days in advance to ensure that shareholders can review the agenda and exercise their voting rights appropriately. In March 2021, we adopted an e-voting system at the fourth GSM so that shareholders could exercise their voting rights electronically without attending the meeting as part of our efforts to improve our shareholders' convenience.

Shareholder Return Policy   LOTTE Data Communication actively implements a dividend policy for shareholder return while striving to improve shareholder value by maintaining stable cash dividends and dividend payout ratios. Since its listing in 2018, the company has made final dividends for four consecutive years to enhance its shareholder value. Going forward, we will continue to implement a shareholder-friendly dividend policy within the scope of available dividends in consideration of various factors such as our financial positions, business environment, and investment.

Dividend Payout Ratio

Category	Unit	2019	2020	2021
Cash dividends per share	KRW	700	700	700
Total cash dividends	KRW billion	10.6	10.6	10.6
Dividend ratio	%	20.0	35.5	30.6

* All dividend paied in cash; and based on the consolidated financial statetement

Expanding Shareholder Communication   LOTTE Data Communication transparently discloses its management-related information on a regular basis through its website, sustainability reports, the DART (Data Analysis, Retrieval and Transfer System) and the Korea Exchange's listing disclosure system. We also hold IR events frequently to enhance shareholder value and expand communication with the market.

Compliance and Ethical Management

Implementing Ethical Management

Ethical Management System

LOTTE Data Communication operates Ethics Charter, Code of Conduct, and practice guidelines while continually consolidating its ethical management system by reviewing compliance and identifying improvement tasks.

Ethical Management System (3C)   Based on the code of conduct containing specific regulations and behavioral guidelines for corporate ethics, we have enhanced our ethical management system by launching a dedicated compliance check organzation and providing education to build consensus among employees.

Overview of Ethical Management System (3C)

Ethical Management System (3C)

Code of Conduct
We have established specific and explicit guidelines and regulations for corporate ethics compliance.

Consensus by Ethical Education
We regularly and systematically conduct ethical education programs to improve awareness among all employees.

Compliance Check Organization
We operate a committee solely dedicated to the task of monitoring compliance and operating our internal compliance reporting system.

LOTTE Personnel Code of Conduct   LOTTE Data Communication strives to secure the trust of its various stakeholders by operating its business fairly and transparently in compliance with related laws and company regulations as well as the LOTTE Personnel Code of Conduct which contains the principles of conduct that LOTTE employees must abide by in order for the company to secure the trust of customers, employees, partners, shareholders and society.

Key Content of the Code of Conduct

Trust with Our Customers	Trust with Our Employees	Trust with Our Partners	Trust with Our Stockholders	Trust with Society
Providing the best products and services; Be the first brand in customers' hearts; Honest marketing; Protecting customer information protection; and protecting our brand	Equal opportunity and fair treatment; Mutual respect among our members; Gender equality; Safe working environment; Protecting our assets; Protecting our intellectual property rights; and Preventing information leakage	Compliance with the Fair Trade Act; Respect for our partners; Fair competition; Lawful information collection; and Prohibition of corruption and improper solicitation	Improving stockholder value; Preventing conflicts of interest; Improvement of accounting transparency; and Prohibition of in-house trading	Environmental protection; Creation of social values and social contribution; Respect for human rights; Respect for cultural diversity; Compliance with the laws of each country; and Separation of politics and economy

Anti-Corruption Internal Regulations   LOTTE Data Communication has laid down the Ethics Charter, the Code of Conduct, Integrity Practice Rules, and the Code of Practice for Ethical Management to encourage employees to adopt proper value and behavior based on its management principles, while operating compliance control standards and operational regulations that reflect the requirements of relevant laws according to a BOD resolution. In July 2021, we established the Integrity Practice Rules to comply with anti-corruption laws and regulations regarding illegal solicitation and bribery in a bid to continuously strengthen the level of its fraud risk management.

Internalization of Ethical Management

Ethical Management Charter and Pledge   At the Ethical Management Proclamation Ceremony held on November 8, 2019, LOTTE Data Communication announced the Ethical Management Charter with the goal of "creating customer value based on a new technology and service paradigm and leaping into a digital platform leader" while all its employees signed the Ethical Management Pledge. Since then, we have required new hires to sign it through the HR system every year.
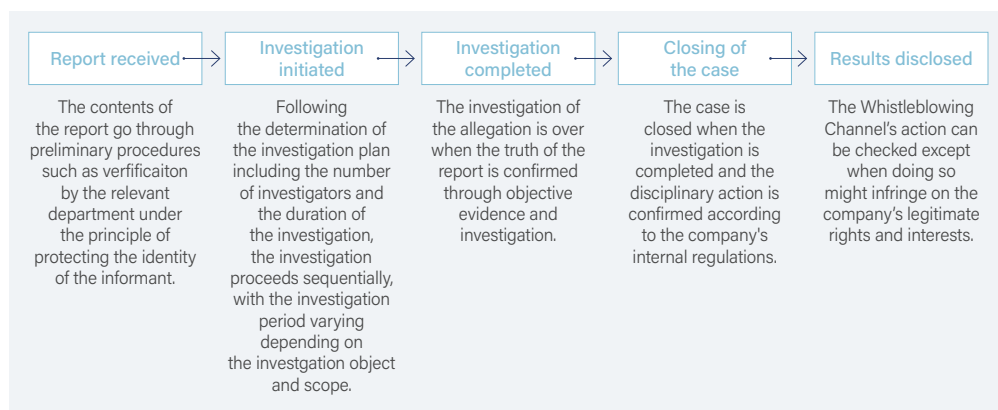
Ethical Management Education   In order to enhance the level of awareness of our employees about the practice of ethical management, we continuously carry out education and publicity activities related to ethical management. We provide them with online education every year while having new hires complete mandatory compliance education, such as proper management of company assets, prevention of unfair transactions, and guarantee of information protection. In 2021, all our employees, including non-regular workers, participated in various educational programs about fair trade, sexual harassment prevention, ethical management, and human rights education.

Corruption Reporting Channel

Whistleblowing Channel   LOTTE Data Communication operates the Whistleblowing Channel to strengthen its business transparency and accountability by eradicating corruption that undermines customer value. We provide our employees with ethical management education on where and how to report corruption, how to report to the Whistleblowing Channel on the bulletin board of our in-house portal, and reports on irregularities and corrupt practices by our employees from our both internal and external stakeholders such as employees, partners, purchasers, customers, and shareholders.

Reporting and Handling Procedures   We review and manage reports received through various channels such as e-mail, telephone, postal mail, and the online Whistleblowing Channel in accordance with our internal regulations while disclosing our progress and results transparently.

Report Reception and Handling Process

Report received	Investigation initiated	Investigation completed	Closing of the case	Results disclosed
The contents of the report go through preliminary procedures such as verificaiton by the relevant department under the principle of protecting the identity of the informant.	Following the determination of the investigation plan including the number of investigators and the duration of the investigation, the investigation proceeds sequentially, with the investigation period varying depending on the investgation object and scope.	The investigation of the allegation is over when the truth of the report is confirmed through objective evidence and investigation.	The case is closed when the investigation is completed and the disciplinary action is confirmed according to the company's internal regulations.	The Whistleblowing Channel's action can be checked except when doing so might infringe on the company's legitimate rights and interests.

Number of Reports Reported to the Whistleblowing Channel

Category		Unit	2019	2020	2021
Report	Corruption	Cases	5	4	0
	Complaints	Cases	1	4	6
	Others	Cases	0	3	5

Whistleblower Protection   LOTTE Data Communication operates a whistleblower protection system, and strictly guarantees the confidentiality of whistleblowers' identity lest they are subjected to any disadvantages due to their reporting actions.

Whistleblower Protection System

Items subject to protection

An informant is subject to protection when the informant submits accurate evidence with his or her rea name. Information on reporter's stakeholders are protected

- Informant's identity
- Evidence or information presented by the informant
- Matters that may imply the person to be consulted
- Follow-up measures after reporting

Protection policy

- Information on the informant and reports are kept strictly confidential, and the reporting system is protected by a safe security system. A report is handled by a limited number of persons who have pledged to strictly adhere to the confidentiality of the contents of the report.
- Informant's identity and the contents of reports are protected by means of a series of reporting process, including review, handling, and implementation. We strictly manage the rights, roles, and responsibilities of those with access to the information. In addition, we manage the process strictly to prevent any disadvantages or punishment against informants after the process.

Creating a Culture of Compliance

Compliance Management System

At LOTTE Data Communication, all employees are aware of the importance of compliance management, and thus the company has established and operates systems, standards, and organizations necessary to practice compliance management in relation to all its stakeholders. In addition, we report major compliance management plans and performance to the BOD.

Roles of Compliance Management Organization

BOD and CEO	Mutual Growth Management Team	Compliance Manager
• Determination of the compliance management plan and promotion direction as well as the deliberation and resolution on agenda items	• Preliminary risk review and education on compliance system and legislation • Monitoring of subcontract transactions and reviewing partners' policies	• Integrated operation of the compliance management systems and enactment/revision of compliance management standards and criteria • Implementation of compliance education and training programs, inspection of compliance control, and general management of governance

Establishment of Major Compliance Management Systems by Year

2020	• Established company-wide compliance systems for each sector, such as fair transaction and subcontracting, anti-corruption, employment and labor (including temporary agency workers), protection of personal information and trade secrets, etc. • Improved processes such as distributing guidelines to comply with the Fair Transaction Act and revising company rules
2021	• Distributed a contract review checklist and a fair transaction compliance manual based on amendments to the Fair Transaction laws • Enacted Integrity Practice Rules to establish a transparent and fair corporate culture
2022	• Announced the Corporate Governance Charter to publicize the will to establish a sound corporate governance and amended the Compliance Control Standards to strengthen the compliance support system (March) • Planning to enact the Compliance Management Charter (second half)

Establishment of Compliance Management Culture

LOTTE Data Communication makes various efforts to internalize compliance management as its own corporate culture.

Activities to Build a Culture of Compliance

Improving Compliance	• Regular evaluation and improvement of compliance control standard processes • Establishing a compliance system based on the organization and computer system • Seeking and disseminating best practices for compliance management
Establishing an Organizational Culture of Compliance	• Revising and disseminating the fair transaction compliance manual • Distributing letters containing major legal amendments and dispute cases • Conducting a DLT (Daily Legal Test) about related laws and in-house regulations • Assigning expert employees for the Compliance Management Q&A Service

Compliance Education   To effectively practice compliance management and prevent legal risks in advance, LOTTE Data Communication requires that employees write a compliance pledge upon joining the company while providing education to them every year on regulatory and compliance issues and the latest trends relevant to their duties. The education is classified into regular and ad hoc programs, which are subdivided into three types based on their education targets such as legal education for all employees; special education for employees related to compliance (fair transaction and subcontracting, anticorruption, personal information protection); and introductory education for new and experienced hires.

We conduct the DLT (Daily Legal Test) about the company-related laws and in-house regulations. We announce and award top performers in the DLT on our bulletin boards every month. Questions with a high percentage of incorrect answers are asked in the test repeatedly to ensure that all employees are aware of the correct answers. The Mutual Growth Management Team, an organization in charge of compliance management, is staffed by a compliance manager with lawyer qualifications and those who help the manager to be able to respond to the employees' inquiries about compliance management around the clock.

Risk Management

Integrated Risk Management

Risk Management System

The uncertainty of the business environment is increasing while the economic, social and environmental factors affecting companies are becoming more diverse. Based on an integrated risk management system, LOTTE Data Communication comprehensively analyzes its financial and non-financial risks and internalizes them throughout its corporate management and decision-making processes. To strengthen the company's risk management and improve its financial soundness, we held the Finance Committee in May and December 2021 to analyze the financial statements of our competitors, review plans to use ESG from a company-wide and financial perspective, address the current status of our internal accounting management system, and discuss domestic and international economic prospects.

Risk Management Organization
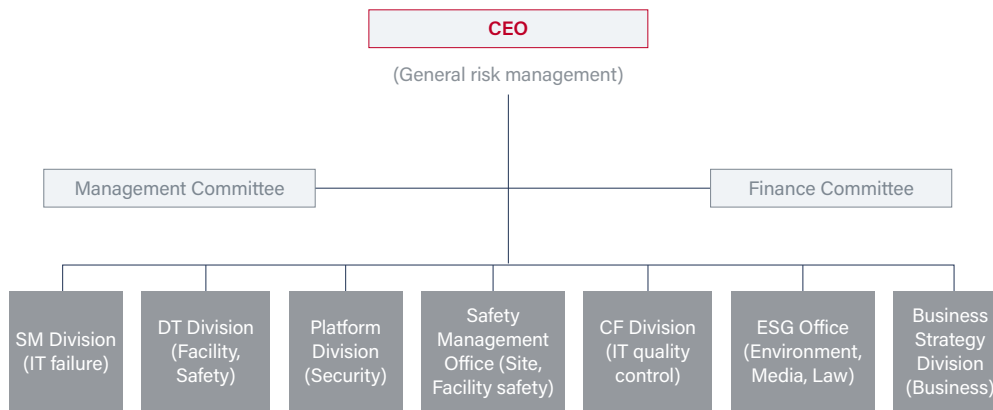
Response Measures by Risk Type LOTTE Data Communication undertakes various activities to identify potential risks affecting its financial performance and avoid/manage them at an acceptable level. Our major financial risks include market risks (foreign exchange risk, interest rate risk, price risk), credit risks, and liquidity risks. In order to suppress the occurrence of market risks, we evaluate and report the risks on a monthly basis while responding to exchange positions according to our internal procedures. Credit risk management consists of periodic financial credit ratings in consideration of past data on customers and counterparties and setting and managing customer credit limits. In order to manage liquidity, we establish and report short-term and mid- to long-term fund balance plans and analyze and review the budget and actual cash flow to match the maturity structure of our financial assets and liabilities. To manage our capital risks, we analyze and monitor interest rate trends and debt ratios. The Finance Committee is held semiannually to examine corporate financial risks regularly while the Management Committee plays a key role in responding to risks that have occurred.

Non-financial risks are classified into IT failure, quality, safety, and the environment, for which relevant departments carry out preventive and monitoring activities. For non-financial risks, the relevant departments also organize and operate a Total Situation Room and a TFT while the Management Committee plays a central role in responding to the risks. For IT failure, the level of failure is determined according to the standardized manual and, if necessary, the Total Situation Room takes measures for a company-wide response.

Risk Response Process
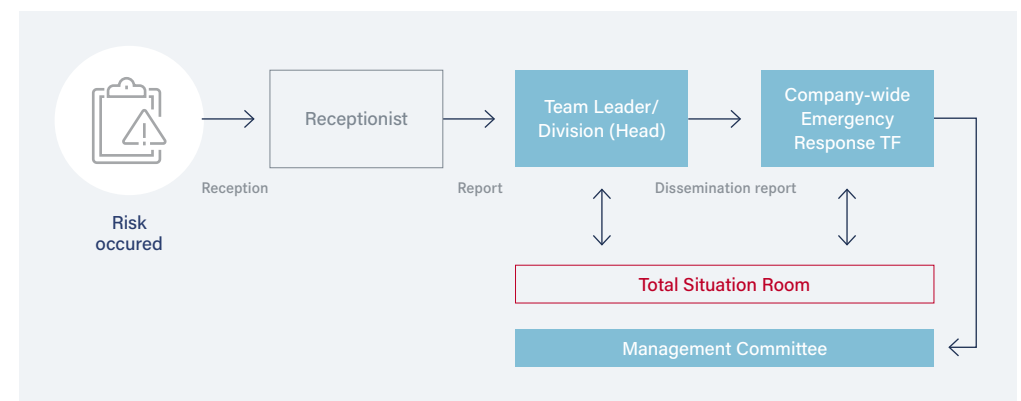
Internal Control System

Internal Audit and Monitoring   The Audit Department of LOTTE Data Communication conducts major risk-based audits as well as follow-up monitoring and inspection audit activities. It systematically monitors issues related to unethical or illegal transactions and behaviors through a survey on violations of internal regulations such as negligence, sexual harassment, workplace bullying, etc. while submitting annual audit plans and results to the Audit Committee to obtain approval.

Internal Accounting Management   LOTTE Data Communication establishes its internal accounting management regulations while designing and operating an internal accounting management system. In accordance with relevant laws, we report the operating status of the internal accounting management system to a General Meeting of Shareholders, the BOD, and the Audit Committee every business year. In addition, members of the Audit Committee evaluate operation of the internal accounting management system every business year and report the results to the BOD and continue to develop the internal accounting management system through external audits.

Subcontract Compliance Management   In accordance with the "Practices for Establishment and Operation of the Subcontract Deliberation Committee", LOTTE Data Communication holds meetings for Subcontract Deliberation Committee once a month to check whether its employees comply with the subcontract law. The Subcontract Deliberation Committee prevents compliance risks through prior deliberation on subcontracts, takes action on risks through payment and post-contract deliberations, and reviews the implementation and operation of the company's win-win policies. In 2021, the Committee held a total of 12 meetings to make improvements about suggestions and improve supplementary items during the year. The Committee's actions are posted on the company website so that its partners can check them with ease.

APPENDIX

KEY PERFORMANCE DATA

Key Financial Performance

Category		Unit	2019	2020	2021
Consolidated Financial Statements	Sales	KRW million	845,659	849,546	929,999
	Operating profit		41,114	38,751	39,966
	Net income		53,000	29,873	34,659
	Total assets		696,683	649,501	750,131
	Total liabilities		306,273	236,152	316,886
	Debt ratio (Debt/Equity)	%	78.45%	57.13%	73.14%
Separate Financial Statements	Sales	KRW million	772,283	835,877	912,600
	Operating profit		43,051	38,836	40,842
	Net income		36,888	30,047	35,078
	Total assets		692,199	645,473	743,993
	Total liabilities		303,281	233,229	311,603
Credit Rating	Korea Investors Service		-	A1	A1
	Korea Ratings		A2+	-	-
	NICE Investors Service		A2+	A1	A1

Distribution of Economic Values

Category		Unit	2019	2020	2021
Customers	Sales	KRW million	845,659	849,546	929,999
Employees	Salaries and employee benefits expense		229,609	246,852	256,757
Partners	Purchase expenses		463,440	470,491	536,268
Shareholders & Investors	Cash dividends and interest expenses		12,073	10,796	11,228
Government	Income tax expenses		-7,240	8,201	9,661
Local Communities	Donations		465	83	770

* Based on the consolidated financial statements

ENVIRONMENT

GHG Reduction Performance

Category	Unit	2019	2020	2021
GHG reduction		1,830.3	1,818.6	2,306.9
Seoul	tCO_2eq	331.9	333.6	1,349.5
Yongin		1,498.4	1,485.0	957.4
Power usage reduction		3,925.7	3,958.6	5,021.5
Seoul	MWh	711.9	726.1	2,937.5
Yongin		3,213.8	3,232.5	2,083.9

GHG Emissions

Category	Unit	2019	2020	2021
Total GHG emissions (Scope 1, 2)		72,300	80,618	93,362
Scope1 (Direct emissions)		449	430	521
Seoul		355	341	347
Daejeon		2	5	4
Yongin		79	72	169
Former office building		13	12	1
Scope 2 (Indirect emissions)	tCO_2eq	71,851	80,188	92,843
Seoul		15,614	15,894	13,940
Daejeon		2,110	2,730	3,082
Yongin		53,515	60,960	75,238
Former office building		612	604	584
Scope 3 (Other indirect emissions)		0	5,219	6,238
By total floor area (GHG intensity)		1.05	1.17	1.09
Seoul		0.65	0.67	0.59
Daejeon	tCO_2eq/m^2	0.52	0.68	0.76
Yongin		2.00	2.28	1.74
Former office building		0.04	0.04	0.04
By sales (GHG intensity)	$tCO_2eq/$ KRW billion	93.62	96.45	102.30

Energy Usage and ReductionGHG Emissions

Category	Unit	2019	2020	2021
Total energy consumption[1]		1,487	1,658	1,947
Seoul		328	333	297
Daejeon	TJ	43	56	64
Yongin		1,103	1,256	1,574
Former office building		13	13	12
Energy consumption intensity	TJ/KRW billion	1.93	1.98	2.13
Scope 1 (Direct emission, energy consumption)		7.49	7.17	8.51
Seoul		6.07	5.81	5.99
LNG		3.30	3.08	3.46
Gasoline		2.48	2.48	2.24
Diesel		0.29	0.25	0.29
Daejeon	TJ	0.03	0.08	0.06
Diesel		0.03	0.08	0.06
Yongin		1.13	1.04	2.44
Gasoline		0.09	0.10	0.07
Diesel		1.05	0.94	2.37
Former office building		0.26	0.25	0.01
LNG		0.26	0.25	0.01
Scope 2 (Indirect emission, energy consumption)		1,479	1,651	1,940
Electricity		1,479	1,651	1,940
Seoul	TJ	321.49	327.25	291.29
Daejeon		43.45	56.21	64.39
Yongin		1,101.85	1,255.16	1,572.19
Former office building		12.60	12.43	12.21

[1] The total energy consumption values per business site/fuel are mutually inconsistent because the criteria for handling decimals are different according to the GHG emissions statement calculation criteria (Criteria for aggregation by business site: Aggregate at the business site level and truncate after the decimal point, Criteria for aggregation by fuel: Aggregate at the fuel level and round off the decimal places)

Category	Unit	2019	2020	2021
Energy savings		37.69	38.00	48.20
Replacement with LED lights		1.28	2.05	1.78
Replacement of EC-FAN of thermo-hygrostats		29.57	28.98	18.23
Operation of outdoor air cooling	TJ	0.66	1.05	0.00
Operation of free cooling		6.17	5.92	0.00
Increased operational efficiency of thermo-hygrostats		0.00	0.00	28.20

Waste and Recycling

Category	Unit	2019	2020	2021
Waste generated		157.90	166.27	174.06
Seoul		113.87	128.45	132.97
Daejeon		4.38	5.70	5.04
Yongin		39.65	32.12	36.05
Waste disposal (General)		-	-	-
General		-	-	-
Waste disposal (Incineration)		124.56	120.54	126.33
Seoul	Tons	80.53	82.72	85.24
Daejeon		4.38	5.70	5.04
Yongin		39.65	32.12	36.05
Waste recycling amount		33.34	45.73	47.73
Seoul		33.34	45.73	47.73
Daejeon		-	-	-
Yongin		-	-	-
Waste recycling rate	%	21.1	27.5	27.4
Waste disposal cost	KRW hundred million	0.32	0.35	0.39
Total amount of discharged waste (Intensity)	Tons/KRW billion	0.20	0.20	0.19

Water Consumption

Category	Unit	2019	2020	2021
Total water consumption		93,511	95,482	109,394
Seoul		25,186	24,270	35,199
Daejeon	Tons	395	457	2,593
Yongin		53,524	51,569	55,728
Former office building		14,406	19,186	15,874
Water supply consumption		89,839	91,810	105,722
Seoul		21,514	20,598	31,527
Daejeon	Tons	395	457	2,593
Yongin		53,524	51,569	55,728
Former office building		14,406	19,186	15,874
Groundwater consumption		3,672	3,672	3,672
Seoul		3,672	3,672	3,672
Daejeon	Tons	0	0	0
Yongin		0	0	0
Former office building		0	0	0
Total water consumption (Intensity)	Tons/KRW billion	121.08	114.23	119.87
Reuse/Recycling water consumption		36,170	32,107	55,228
Seoul		-	-	14,157
Daejeon	TJ	-	-	1,582
Yongin		36,170	32,107	39,489
Water recycling rate	%	39	34	50

Exhaust Gas Emissions

Category	Unit	2019	2020	2021
NOx emissions[1]		0.110	0.095	0.081
SOx emissions[2]	Tons			0.00032
Dust emissions[2]				0.00041
NOx emissions (Intensity)		0.00014	0.00011	0.00009
SOx emissions (Intensity)	Tons/KRW billion			0.00001
Dust emissions (Intensity)				0.00001

[1] NOx emissions are reduced following the installation of low NOx burners at the 1st center in the second half of 2020

[2] SOx emissions began to be included for the measurement in 2021

Green Purchasing Performance

Category	Unit	2019	2020	2021
Green Purchasing	KRW million	182	151	3

Violations of Environmental Laws

Category		Unit	2019	2020	2021
Violations of environmental laws	Total fine	KRW	-	-	-
	No. of lawsuits filed	Cases	-	-	-
	No. of non-monetary sanctions	Cases	-	-	-

SOCIAL

Employment

Category		Unit	2019	2020	2021
Total number of employees	Including expatriates	Persons	2,784	2,803	2,885
	Regular employees + Contractual employees in Korea		2,779	2,798	2,881
By contract type	Regular employees	Persons	2,686	2,728	2,778
	Contractual employees		98	75	107
By age	Under 30	Persons	730	709	481
	30-50		1,862	1,871	1,987
	Over 50		192	223	417
By gender	Male	Persons	2,029	2,003	2,037
	Female		755	800	848
Nationality	Korean	Persons	2,775	2,793	2,858
	Foreigner		9	10	27

New Employee Hires

Category		Unit	2019	2020	2021
Total number of newly employed	Total	Persons	362	222	518
By gender	Male	Persons	208	122	316
	Female		154	100	202
By age	Under 30	Persons	105	113	293
	30-50		256	106	224
	Over 50		1	3	1

Employee Diversity

Category	Unit	2019	2020	2021
Female leadership				
No. of female managers (above manager level)	Persons	200	217	223
Ratio of female manager	%	16.6	17.3	17.7
No. of female executives	Persons	2	2	4
Ratio of female executives	%	6.7	7.4	14.8
Employees with disabilities	Persons	41	43	48
Ratio of employees with disabilities	%	1.5	1.5	1.7
Veterans	Persons	50	54	55
Ratio of veterans	%	1.8	1.9	1.9

Years of Service

Category	Unit	2019	2020	2021
Average years of service		7.8	8.3	8.1
Male	Years	8.6	9.3	9.1
Female		5.5	5.8	5.6

Maternity Leave and Parental Leave[1]

Category	Unit	2019	2020	2021
No. of employees taking maternity leave		92	99	105
Male	Persons	59	71	70
Female		33	28	35
Return-to-work rate after childbirth (within 12 months)[2]		85	84	96
Male	%	95	87	97
Female		71	80	94
No. of employees taking parental leave		136	125	114
Male	Persons	70	62	54
Female		66	63	60
No. of employees subject to return-to-work after parental leave		117	114	93
Male	Persons	65	63	59
Female		52	51	34
No. of employees who have returned from parental leave		99	96	89
Male	Persons	62	55	57
Female		37	41	32
Return-to-work rate after parental leave		85	84	96
Male	%	95	87	97
Female		71	80	94
No. of employees who have worked 12 months after returning from parental leave		95	109	90
Male	Persons	56	59	47
Female		39	50	43
Employee turnover rate within 12 months after returning from leave	%	1	10	15

[1] Including those who resigned as of the end of the year
[2] The return-to-work rate recorded 0% because employees on maternity leave take parental leave consecutively. Thus, the figure above is the retun-to-work rate of employees who returned from parental leave.

Fair HR System

Category	Unit	2019	2020	2021
Ratio of female to male basic wages	%	100	100	100
Ratio of employees who receive non-pay benefits (welfare benefits)	%	100	100	100

Education and Training

Category	Unit	2019	2020	2021
Total training expenses	KRW million	3,700	2,375	3,258
Total number of trainees	Persons	28,080	30,846	34,811
Training expenses per person	KRW 1,000/Person	1,329	847	1,129
Total training hours	Hours	160,043	84,661	85,729
Training hours per person			30.2	29.7

Performance Evaluation

Category	Unit	2019	2020	2021
Number of employees subject to performance evaluation	Persons	2,387	2,567	2,389
Percentage of employees who have received performance evaluation	%	100	100	100

Employee Satisfaction

Category	Unit	2019	2020	2021
Employee satisfaction level[3]	Points		68.2	69.3

[3] The employee satisfaction survey was renewed to value creation culture diagnosis in 2020.

Retirement Pension Support

Category	Unit	2019	2020	2021
Defined Benefit plans (Consolidated)	KRW million	114,867	121,743	133,394
Defined Contribution plans (Consolidated)		180	232	508

Research & Development

Category	Unit	2019	2020	2021
R&D investment cost	KRW million	12,254	14,630	16,088
R&D investment ratio to sales	%	1.4	1.7	1.7

Transaction with Partners

Category	Unit	2019	2020	2021
Number of partners	Companies	1,204	1,257	1,246

Shared Growth and Mutual Cooperation

Category		Unit	2019	2020	2021
Financial support – Shared growth fund	Total amount raised	KRW million	12,000	12,000	15,000
	Investment from financial institutions	KRW million	6,000	6,000	7,500
	Funds spent		7,679	11,715	10,167
Training support	Number of programs	Sessions	6	540	540
	Number of trainings	Times	10	12	11
	Number of completed trainees	Persons	216	416	566
Technical support	Technology data escrow	Cases	3	5	12
Employment support[1]	Support for online recruitment advertising	Companies			9

[1] Newly implemented in 2021

Society Contribution Activities

Category	Unit	2019	2020	2021
Employee participation rate	%	30.3	11.5	13.0
Volunteer hours	Hours	3,398	1,304	1,550
Number of employees who have participated in volunteer activities	Persons	843	321	376
Volunteer hours per employee	Hours/Person	1.2	0.5	0.5
Donations for social contribution	KRW million	465	83	770

Social Contribution Programs

Category		Unit	2019	2020	2021
Contribute to solving social problems	No. of beneficiaries	Persons	0	50	0
	Expenditures	KRW million	0	0.69	3.21
Support living services for people with disabilities	No. of beneficiaries	Persons	0	0	11
	Expenditures	KRW million	0	0.23	5.18
Support for the vulnerable/ underprivileged groups	No. of participants	Persons	370	210	190
	Expenditures	KRW million	30.67	2.10	13.80
IT education (for the underprivileged)	No. of participants	Persons	105	0	0
	Expenditures	KRW million	13.90	0	0
Support living services for women	No. of participants	Persons	220	0	200
	Expenditures	KRW million	7.00	0	0.26
Others	No. of participants	Persons	10	0	0
	Expenditures	KRW million	1.97	0	0

Workplace Safety and Health

Category		Unit	2019	2020	2021
Number of work-related injuries	Employees	Persons	0	0	0
	Partners		0	0	0
Number of work-related fatalities	Employees	Cases	0	0	0
	Partners		0	0	0
Lost-Time Injuries Frequency Rate (LTIFR)[2]	Employees	%	0	0	0
	Partners		0	0	0

[2] LTIFR (Lost-Time Injuries Frequency Rate) = Number of Injuries/Annual working hours×100%

GOVERNANCE

Information Security

Category	Unit	2019	2020	2021
Number of violations of product and service safety regulations		0	0	0
Number of information security violations or cyber security incidents		0	0	0
Number of violation and accident of information security related to customer privacy	Cases	0	0	0
Number of customers affected by data leakage		0	0	0
Total fine or penalty paid due to information security violations or cyber security incidents	KRW	0	0	0
Total monetary loss incurred during legal proceedings related to user privacy protection	KRW	0	0	0

Human Resources Management at Overseas Business Sites

Category	Unit	2019	2020	2021
Total number of overseas expatriates		8	9	10
Total number of employees at overseas business sites		253	258	264
Total number of managers at overseas business sites	Persons	35	54	38
Number of local managers		27	45	28
Percentage of local managers	%	77	83	74
Number of local managers	Persons	245	249	254

Customer Satisfaction

Category	Unit	2019	2020	2021
Customer satisfaction level	Points	74.2	85.0	81.9

Operation and Composition of the BOD

Category	Unit	2019	2020	2021
Composition of the BOD		7	6	6
Number of executive directors		3	2	3
Number of non-executive directors	Persons	3	3	3
Number of other non-executive directors		1	1	-
Operation of the BOD				
Ratio of non-executive directors in the BOD		43	50	50
Annual attendance rate of the BOD	%	96	95	100
Ratio of female directors in the BOD		-	-	-
No. of non-executive directors with low attendance rate (less than 75%)	Persons	-	-	-
Number of BOD meetings held		10	8	9
Number of Outside Director Nomination Committee meetings held		-	2	-
Number of Remuneration Committee meetings held	No. of meetings	-	2	3
Number of Audit Committee meetings held		4	7	5
Ratio of the non-audit service remuneration to the audit service remuneration paid to external auditors	%	2.7	2.5	2.2
Volume of transactions with affiliated companies	KRW million	693,821	561,118	644,345
Deadline for the convocation notice of BOD meetings	Days	7	7	7

Executives Remuneration

Category	Unit	2019	2020	2021
Registered directors (excluding non-executive directors, members of the Audit Committee)		1,179	2,410[1]	1,546[2]
Non-executive directors (excluding members of the Audit Committee)	KRW million	-	-	-
Members of the Audit Committee		197	232	216

[1] 2020 figure includes severance pay of KRW 1,318 million for executive directors.

[2] 2021 figure includes severance pay of KRW 427 million for executive directors.

Shareholders

Category	Number of shares held (Share)	Ownership (%)
LOTTE Corporation	10,000,000	65.0%
National Pension Service	1,356,840	8.8%
Employee stock ownership association	389,314	2.5%
Treasury shares	266,964	1.7%
Others	3,383,213	22.0%
Total	**15,396,331**	**100%**

Employee Stock Ownership Plan (ESOP)

Category	Unit	2019	2020	2021
Number of shares held by the ESOP Association	Shares	577,686	483,994	389,314
Percentage of offering ESOP or employee stock purchase plan (ESPP) to employees	%	3.75	3.14	2.53

Dividend Payout Ratio

Category		Unit	2019	2020	2021
Stock	Number of shares issued	Shares	15,396,331	15,396,331	15,396,331
	Outstanding shares	Shares	15,129,367	15,129,367	15,129,367
Dividend	Total cash dividends	KRW million	10,591	10,591	10,591
	Cash dividend payout ratio	%	20.0	35.5	30.6
	Dividends per share	KRW	700	700	700

Ownership and Equity Structure

Category	Unit	2019	2020	2021
Total share of the largest shareholder and affiliated person	%	64.95	64.95	64.95
Total share of registered executives excluding the largest shareholder and affiliated person	%	0.04	0.02	0.01
Total stake in affiliates	%	64.95	64.95	64.95
Total investment in affiliates compared to equity capital	%	-	-	-
Total amount of credit extended to affiliates compared to equity capital – loan of money, guarantee of performance of debts, purchase of securities with a financial support nature, provision of collateral, endorsement of bills, etc.	%	-	-	-

IR

Category	Unit	2019	2020	2021
Number of IR activities (corporate day)	Cases	-	-	4

Business Ethics and Compliance Education

Category	Unit	2019	2020	2021
Number of programs	Sessions	14	14	13
Number of times	Times	26	22	23
Number of trainees	Persons	7,532	8,735	8,669
Percentage of trainees who have completed the course	%	100	100	93

Violations of Laws and Regulations

Category		Unit	2019	2020	2021
Violations of anti-corruption regulations	Total fine	KRW	-	-	-
	No. of lawsuits filed	Cases	-	-	-
	No. of non-monetary sanctions	Cases	-	-	-
	Ratio to sales	%	-	-	-
	Total cases of corruption and bribery	Cases	-	-	-
Ethics/compliance check activities	No. of times to check the status of ethics, compliance, anti-corruption	Times	11	13	10

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UN SDGs

In 2015, the UN and its member states announced Sustainable Development Goals (SDGs), a common goal for mankind, consisting of 17 goals and 169 targets for the international community to solve environmental, social and economic problems by 2030. The SDGs pursue "No One Left Behind" as its common principle, which recognizes the importance of the role corporate entities are required to play in order to achieve the ultimate goal of a healthier and better life for mankind. Aiming to create sustainable value through business, LOTTE Data Communication promotes various activities by aligning its direction of sustainable management with that of the SDGs.

LOTTE Data Communication's UN SDGs Activities

Environment	LOTTE Data Communication creates a sustainable business model that responds to climate change.	
SDG 6. Ensure availability and sustainable management of water and sanitation for all	6.4. Improve water quality by reducing pollution, eliminating dumping, and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	Most of the water consumed at LOTTE Data Communication is used for its data centers' heat management facilities. To respond to the water shortage caused by climate change, we promote the efficient use of water by creating an optimal operating environment for our data center facilities.
SDG 7. Ensure access to affordable, reliable, sustainable and modern energy for all	7.3 Double the improvement in energy efficiency	LOTTE Data Communication manages company-wide energy consumption and GHG emissions based on the LOTTE Environmental & Energy Total Solution (LETS), an integrated energy environment solution developed through its own technology. We also have established, operate and manage a real-time data center infrastructure management (DCIM) system to manage the energy consumption by our data center infrastructure.
SDG 9. Innovation and infrastructure	9.4. Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes	LOTTE Data Communication aims to build and operate green data centers. To this end, we strive to increase energy efficiency by building a real-time energy monitoring system, managing the energy consumption of major facilities and PUE, and introducing energy-efficient facilities such as free cooling.
SDG 12. Ensure sustainable consumption and production patterns	12.5. Substantially reduce waste generation through prevention, reduction, recycling and reuse	LOTTE Data Communication monitors and manages all of the processes involved in waste discharge, transportation, treatment and disposal through legitimate waste companies. As the consumption of single-use products increases due to the prolonged COVID-19 pandemic, we are working to improve the recycling rate by strengthening our own separate collection and increasing the number of sorting operations during waste treatment to reduce waste generation.
SDG 13. Take urgent action to combat climate change and its impacts	13.3 Improve education about early warning, awareness-raising human and institutional capacity climate change mitigation, adaptation, impact reduction	LOTTE Data Communication is joining the international and national collaborative efforts to respond to climate change and strives to contribute to realizing the Group-wide goal of achieving net-zero by 2040. To this end, we have established climate change response strategies while seeking for eco-friendly business opportunities, thereby reducing carbon emissions throughout business operations.

Social		LOTTE Data Communication strives for mutual growth.	

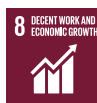| **SDG 1.** Ending all types of poverty in all countries | | 1.4. Ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including micro-finance. | LOTTE Data Communication creates social value by promoting various social contribution activities based on its employees' engagement. Notably, IT Supporters (an employee volunteer group) provide coding education, IT employment and career counseling to prevent children from vulnerable groups from being excluded from IT services while the company promotes social contribution activities utilizing its characteristic IT capabilities. |
SDG 3. Good health and well-being		3.3. By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.	LOTTE Data Communication implements the company-wide activities to prevent the spread of COVID-19, such as operating a rotating telecommuting system for all employees and providing quarantine items. We also operate the Healthcare Office for in-house safety and health management and employee health management.
SDG 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all		4.4. By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	LOTTE Data Communication continues to improve its work environment by providing various education based on the talent management program so that employees can keep on enhancing their competencies. We also help employees with their life cycle design through the certification support system and a support program for prospective retirees.
		4.7. Ensure that all learners acquire the knowledge and skills needed to promote sustainable development	LOTTE Data Communication respects human rights by including the practices for human rights management in the Code of Conduct for Employees while providing anti-workplace bullying and anti-sexual harassment education for all its employees. Through these efforts, we are internalizing respect for the human rights of stakeholders as a basic principle of our corporate management.
SDG 5. Achieve gender equality and empower all women and girls		5.5. Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making	LOTTE Data Communication is implementing various policies to prevent gender discrimination in all areas including employment, promotion, evaluation, and welfare. Furthermore, as a result of its active efforts to expand the recruitment of female talent, the ratio of new female hires (based on regular workers) reached 39% in 2021.
SDG 8. Foster sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all		8.2. Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	While preemptively responding to the rapidly changing IT environment, LOTTE Data Communication is building a sustainable business model based on cutting-edge technologies such as the metaverse, mobility, cloud, AI, and big data.

Governance	LOTTE Data Communication aims for a sound governance and fair and ethical management system.	

| **SDG 16.** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels | | 16.5. Substantially reduce corruption and bribery in all their forms | LOTTE Data Communication supports its employees' value judgment and proper behavior by enacting the Code of Conduct, the Ethical Management Charter & Practice Guidelines, and Integrity Practice Rules. To eradicate corruption and irregularities, we operate the online Whistleblowing Channel, an internal corruption reporting channel, and a stakeholder reporting system to report any conflicts of interest. |
| | | 16.6. Develop effective, accountable and transparent institutions at all levels | To comply with the Fair Trade Act and foster a fair trade culture, LOTTE Data Communication runs a voluntary fair trade compliance program and internalizes compliance management. We also operate the Subcontract Transaction Review Committee to manage compliance risks related to subcontracting and promote win-win policies with partners. |

INDEPENDENT ASSURANCE STATEMENT

To readers of LOTTE Data Communication Sustainability Report 2021

Introduction

Korea Management Registrar (KMR) was commissioned by LOTTE Data Communication to conduct an independent assurance of its Sustainability Report 2021 (the "Report"). The data and its presentation in the Report is the sole responsibility of the management of LOTTE Data Communication. KMR's responsibility is to perform an assurance engagement as agreed upon in our agreement with LOTTE Data Communication and issue an assurance statement.

Scope and Standards

LOTTE Data Communication described its sustainability performance and activities in the Report. Our Assurance Team carried out an assurance engagement in accordance with the AA1000AS v3 and KMR's assurance standard SRV1000. We are providing a Type 2, moderate level assurance. We evaluated the adherence to the AA1000AP (2018) principles of inclusivity, materiality, responsiveness and impact, and the reliability of the information and data provided using the Global Reporting Initiative (GRI) Index provided below. The opinion expressed in the Assurance Statement has been formed at the materiality of the professional judgment of our Assurance Team.

Confirmation that the Report was prepared in accordance with the Core Options of the GRI standards was included in the scope of the assurance. We have reviewed the topic-specific disclosures of standards which were identified in the materiality assessment process.
- GRI Sustainability Reporting Standards
- Universal standards
- Topic specific standards
  - Management approach of Topic Specific Standards
  - GRI 201: Economic Performance
  - GRI 205: Anti-Corruption
  - GRI 206: Anti-Competitive Behavior
  - GRI 302: Energy
  - GRI 303: Water and Effluents
  - GRI 305: Emissions
  - GRI 306: Effluents and Waste
  - GRI 401: Employment
  - GRI 403: Occupational Health and Safety
  - GRI 404: Training and Education
  - GRI 405: Diversity and Equal Opportunity
  - GRI 413: Local Communities
  - GRI 418: Customer Privacy

As for the reporting boundary, the engagement excludes the data and information of LOTTE Data Communication's partners, suppliers and any third parties.

KMR's Approach

To perform an assurance engagement within an agreed scope of assessment using the standards outlined above, our Assurance Team undertook the following activities as part of the engagement:
- reviewed the overall Report;
- reviewed materiality assessment methodology and the assessment report;
- evaluated sustainability strategies, performance data management system, and processes;
- interviewed people in charge of preparing the Report;
- reviewed the reliability of the Report's performance data and conducted data sampling;
- assessed the reliability of information using independent external sources such as Financial Supervisory Service's DART and public databases.

Limitations and Recommendations

KMR's assurance engagement is based on the assumption that the data and information provided by LOTTE Data Communication to us as part of our review are provided in good faith. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied. To address this, we referred to independent external sources such as DART and National Greenhouse Gas Management System (NGMS) and public databases to challenge the quality and reliability of the information provided.

Conclusion and Opinion

Based on the document reviews and interviews, we had several discussions with LOTTE Data Communication on the revision of the Report. We reviewed the Report's final version in order to make sure that our recommendations for improvement and revision have been reflected. Based on the work performed, it is our opinion that the Report applied the Core Option of the GRI Standards. Nothing comes to our attention to suggest that the Report was not prepared in accordance with the AA1000AP (2018) principles.

Inclusivity

LOTTE Data Communication has developed and maintained different stakeholder communication channels at all levels to announce and fulfill its responsibilities to the stakeholders. Nothing comes to our attention to suggest that there is a key stakeholder group left out in the process. The organization makes efforts to properly reflect opinions and expectations into its strategies.

Materiality

LOTTE Data Communication has a unique materiality assessment process to decide the impact of issues identified on its sustainability performance. We have not found any material topics left out in the process.

Responsiveness

LOTTE Data Communication prioritized material issues to provide a comprehensive, balanced report of performance, responses, and future plans regarding them. We did not find anything to suggest that data and information disclosed in the Report do not give a fair representation of LOTTE Data Communication's actions.

Impact

LOTTE Data Communication identifies and monitors the direct and indirect impacts of material topics found through the materiality assessment, and quantifies such impacts as much as possible.

Reliability of Specific Sustainability Performance Information

In addition to the adherence to AA1000AP (2018) principles, we have assessed the reliability of economic, environmental, and social performance data related to sustainability performance. We interviewed the in-charge persons and reviewed information on a sampling basis and supporting documents as well as external sources and public databases to confirm that the disclosed data is reliable. Any intentional error or misstatement is not noted from the data and information disclosed in the Report.

Competence and Independence

KMR maintains a comprehensive system of quality control including documented policies and procedures in accordance with ISO/IEC 17021·2015 - Requirements for bodies providing audit and certification of management systems. This engagement was carried out by an independent team of sustainability assurance professionals. KMR has no other contract with LOTTE Data Communication and did not provide any services to LOTTE Data Communication that could compromise the independence of our work.

July 2022 Seoul, Korea

CEO

E. J Hwang

AWARDS & MEMBERSHIP

Awards

- Won the Excellence Award at the 2021 Annual Evaluation of the Service Level Agreement (SLA) (Integrated Information System Maintenance Consignment Service Project, Yun-ho Hwang, PM) from Airport Railroad on July 5, 2021

- Won a meritorious service award (Soo-yong Kim, manager of SI2 Team) from Airport Railroad at the "Railway Day Commemoration" held on July 5, 2021

- Won the Outstanding Chief Information Officer of the Year Award in the Platinum category (CEO Jun-hyung Rho) from Cisco Systems, Inc. on July 20, 2021

- Won the Excellence Award at the Algorithm Development Challenge for Safe Autonomous Driving (Jae-hyun Park, I-eon Kim and Soo-bin Lee, assistant managers in charge of Vision AI in AI Technology Team of the R&D Center) from the Ministry of Land, Infrastructure and Transport and the Traffic Safety Authority on December 28, 2021

Membership

Korea Electrical Constructors Association, Korea Information and Communication Constructors Association,
Korea Information Technology Service Industry Association, Korea Software Industry Association,
Korea Fire Safety Association, Korea Electric Engineers Association,
Korea Society of Management Information Systems, Korea Railway Signal Engineering Association,
Korea Railway Association, Korean Society of Transportation, Korea Institute of Intelligent Transport Systems,
Korea Institute of Information and Communication Engineering, Korea Contents Association,
Association for Research of Financial Information System, ITS Korea,
Open Blockchain & Decentralized Identifier Association, Korea Fair Competition Federation,
Federation of Korean Industries, Korea Economic Research Institute, Korea CPO Forum,
Korea Council of Chief Information Security Officers (CISO), CONsortium of CERT

* As of the end of December 2021

LOTTE DATA COMMUNICATION