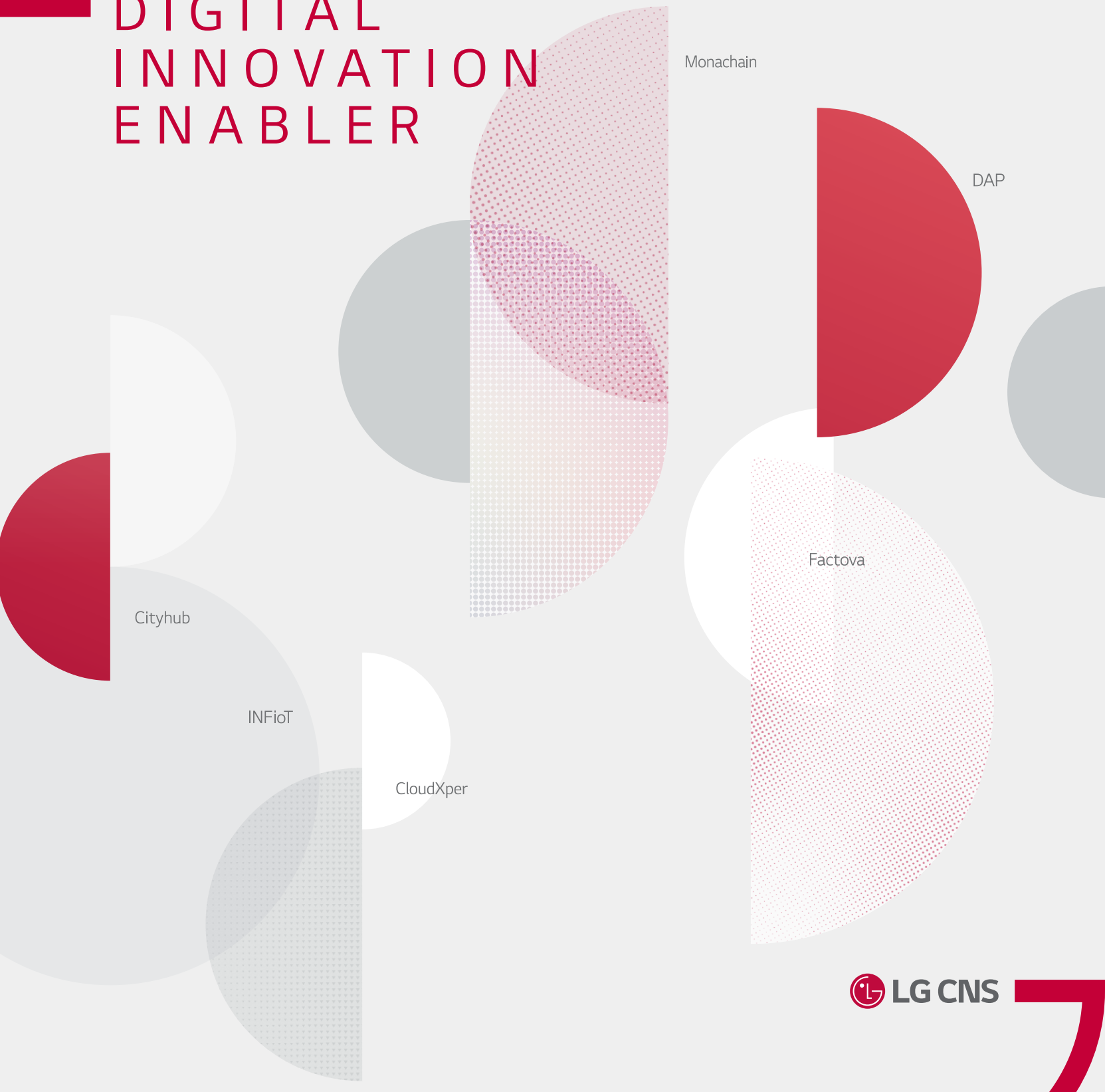
2020-2021 LG CNS Sustainability Report

DIGITAL INNOVATION ENABLER



LG CNS

DIGITAL INNOVATION ENABLER

About This Report

LG CNS has published the Sustainability Reports annually since 2017 to appropriately communicate with our stakeholders. The 2020-2021 LG CNS Sustainability Report is the fifth edition of such reports. This Report illustrates our sustainability management strategy, our on-going activities, our achievements and how our strategy has been implemented in all areas of our business. Additionally, the materiality analysis, which have been reviewed by relevant working-level departments as well as executive members, has been conducted to report on information considered material to the Company and stakeholders. This Report also outlines our vision of being a Digital Innovation Enabler and our commitment to improving the business competitiveness of our customers. This is accomplished through the delivery of digital transformation platforms, services as well as pioneering innovation to make the world a better place and prepare for the upcoming future. Lastly, this Report pro - vides a balanced presentation of our sustainability issues in the ESG (Environmental, Social and Governance) area and looks at economic, social and environmental issues.

Reporting Guidelines

This Report was prepared in accordance with the international sustainability reporting guidelines of the GRI Standards and in reflection of UN SDG indicators. Financial data of this Report follows the Korean International Financial Reporting Standards (K-IFRS).

The scope of this Report includes the activities and achievements made in the areas of economy, society and environment across all domestic worksites operated by LG CNS. The reporting period spans the fiscal period between January 1, 2020 and December 31, 2020, and extends to 2021 for major business activities with the concerned dates marked separately. In addition, data of the recent three years is presented for a portion of the quantitative data to help readers identify the yearly trajectory.

This Report was self-declared without additional assurance performed by third-party assurance providers. LG CNS plans to receive independent assurance in the years ahead to ensure that the objectivity and accuracy of reporting standards are met.

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2020-2021

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A Letter from our CEO

" LG CNS will exercise practical and genuine leadership and push the boundary further to ensure that technology serves as an enabler for a more convenient and flourishing life for all. As we continue our innovative and pioneering journey to create a better world through digital technology, we look forward to your unwavering interest and encouragement."

Dear Esteemed Stakeholders of LG CNS,

The protracted COVID-19 pandemic has shaken the global economy to its core and left a great deal of uncertainty in its wake. In the face of this unprecedented challenge, most companies regardless of industry are migrating to a virtual contactless business model. Amid this transition, preparedness for digitalization, including digital transformation enabled by information technology, plays a critical role in ensuring that a company's edge remains current and applicable.

While a number of companies are pursuing digital transformation for their survival and growth, there can be understandable hesitancy in adopting and operating an IT system that is different from their legacy one. This, coupled with the fear of possible failure during the migration process, can stop all good intentions for such transition. It is no wonder, as unlike previous IT system projects whose digital transformation was clearly defined, this digital transformation lacks the history to provide sufficient evidence of its expected benefits. To complicate matters further, companies must contend with the challenges that arise from having so many technologies and solutions to choose from.

LG CNS not only helps customers resolve their pressing pain points, but also presents a way forward to embrace digital transformation and generate successful outcomes with its customers. By assisting our customers in modernizing their system to make the most of the advantages provided by the cloud system, we sharpen their overall edge as a business and as a result, we go beyond a mere migration of the legacy system into the cloud environment. Our Innovation Studio leverages data, Artificial Intelligence and other emerging technologies to search for solutions that will ultimately speed up the pace of innovation for customers.

We wholeheartedly adhere to the belief that it is on the strength of our 'elite specialists' that we bring true and lasting value to those we serve. This is precisely why we value the continual development of expertise for all LG CNS employees. We are also innovating both our business model and practices to create new customer value while collaborating with other IT industry peers in a horizontal and open-minded way to respond to the rapidly evolving technology landscape. The sum of such endeavors has allowed us to become a more trusted and reliable partner to our customers and has helped instill a sense of pride among our employees in both seeking their self-directed growth and aiding our valued customers to thrive.

The secret to our sustained growth at LG CNS relies on the trust our customers place in us and the pride our employees have come to possess in assimilating our specialized capabilities. While we stay the course for continuous growth, we will be also committed to the partnership that we forge with small/mid-sized companies and new tech startups to generate meaningful outcomes. To ensure that technology serves as an enabler for a more convenient and flourishing life for all, we vow to lead with both a practical and genuine approach as we strive ever further towards bigger and broader aims. Throughout this journey, we will advance Jeong-Do Management to make sure that we play fair based on our competency and faithfully fulfill our social responsibility.

As we continue our innovative and pioneering journey to create a better world through digital technology, we look forward to your unwavering interest and encouragement.

Thank you.

August 2021

Young-Shub Kim, Chief Executive Officer, LG CNS

2020 CSR Key Figures

Economy

Sales

KRW 3.4 trillion

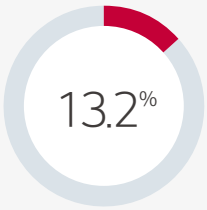
Operating Income

KRW 246.1 Billion

Debt-to-equity Ratio

124 %

Percentage of Overseas Sales



Customer

Customer Satisfaction Rate[1)]

74.7 points / 100 points

Breach of Personal Information

0 Cases

Security Management System Certification

2017-2020 Years

Employee

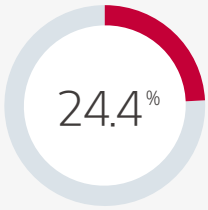
Training hours per employee[1)]

52.5 Times

Average years of employment

11.6 Years[2)]

Percentage of Female Employees



Environment

GHG Emissions

27,534 tCO_2eq

Energy Consumption

612 TJ

Water Consumption

13 Tons

Waste Discharge

13 Tons

Community

Win-Win Growth Rating

Most Outstanding[3)]

Amount Raised for Shared Growth Fund (Win-Win Growth Fund, Direct Financial Support)

KRW 40 Billion

Donations

KRW 1.5 Billion

No. of CSR program beneficiaries

2,500 persons

* The economic data is presented based on our consolidated financial statements (excluding total dividends paid out to shareholders), while the customer, employee, environment and local community data is shown based on separate standards formulated by LG CNS.
* Environmental data applicable to the Sangam IT Center only (pursuant to the "Environmental Information Disclosure Policy" from the Enforcement Decree for the Support for Environmental Technology and Environmental Industry Act).

1) Independent survey conducted on customers who are actual users 2) Local standards;
3) Based on the announcement made in Sep. 2020, ranked Most Outstanding for 3 consecutive years

About LG CNS

Since our foundation in Seoul in 1987, we have expanded our global presence in China, Europe, America and India. More than 6,900 employees are committed to lead clients' business innovation with unparalleled expertise in the IT industry.

Company Name	LG CNS
Address	LG Sciencepark E13, E14, 71, Magokjungang 8-ro, Gangseo-gu, Seoul
Date of Establishment	Jan. 1987
CEO	Young-Shub Kim
Number of Employees	6,909 employees (as of 2020, including Korea & overseas)
Business Areas	Consulting, System Integration, Outsourcing, ERP/BI, IT Infra Solution, IT Convergence
Subsidiary	BIZTech Partners, Open Source Consulting, Sejong Green Power, Haengbokmaru

History

1987-2001

Foundation and Growth

1987 - Founded STM jointly with EDS of the US
1995 - Changed company name to 'LG-EDS Systems'
1997 - Ranked first among Korea's SI companies (survey by Gartner, a US market research firm)

2002-2015

Progress and Development

2002 - Changed company name to 'LG CNS'
2007 - Opened the Sangam IT Center
2013 - Opened the Busan Global Cloud Data Center

2016-2021

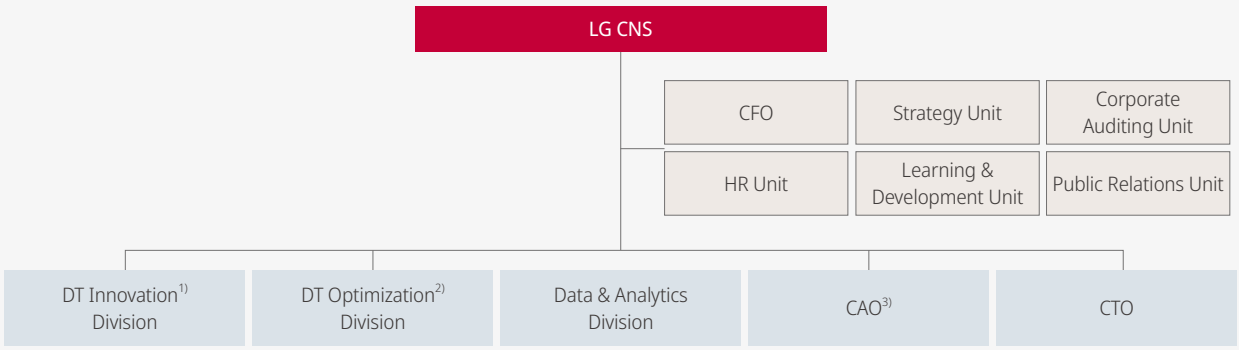
Digital Transformation Leadership

2017 - Surpassed the USD 250 million mark in e-government export
2018 - Relocated the Headquarters to the Magok LG Science Park
2018 - Launched strategic brands in seven new information technology areas

Global Network

Subsidiary	Date of Establishment
China (LG CNS China Co., Ltd.)	May 2001
Japan (LG CNS Japan Co., Ltd.)	Dec. 2013
India (LG CNS India Pvt. Ltd.)	Jul. 2004
Vietnam (LG CNS Vietnam Co., Ltd.)	Jan. 2017
Malaysia (LG CNS Malaysia SDN BHD)	Feb. 2013
Indonesia (PT. LG CNS Indonesia)	Jan. 2006
Americas (LG CNS America Inc.)	Jul. 2003
Columbia (LG CNS Colombia SAS)	Dec. 2011
Brazil (LG CNS Brasil Ltda.)	Jan. 2006
Europe (LG CNS Europe B.V)	Jan. 2003
Greece (LG CNS Greek Branch)	Jan. 2015
Uzbekistan (JV LG CNS Uzbekistan LLC)	Apr. 2015

Organization Chart



1) DT Innovation: Digital Technology Innovation 2) DT Optimization: Digital Technology Optimization 3) CAO: Chief Account Officer

Financial Results

Total Assets	Total Shareholders' Equity	Sales	Operating Income	Credit Rating
KRW 2.9 trillion	KRW 1.3 trillion	KRW 3.4 trillion	KRW 246.1 billion	AA- in corporate bond rating

Vision and Technology Leadership

Vision and Management Guidelines for 2021

LG CNS has been accumulating expert capabilities required for digital transformation – cloud, AI, big data, and among others – on the strength of its technology and industry expertise built for more than three decades. We are broadening our ecosystem with professional tech businesses to preemptively respond to the fast-paced technology evolution. Looking ahead, we will pursue the sustained innovation of our expertise, the fundamental innovation of our work practices, and the full-fledged innovation of our business model in order to remain agile in responding to customer needs and shifting market conditions. We will also take the customers' perspective and take heed of their requirements to assist our customers in swiftly embracing digital transformation.

DIGITAL INNOVATION ENABLER

Sustained innovation of our expertise

- Advance basic new technology and industry work competencies
- Expand the open ecosystem to proactively respond to the shifting business landscape
- Test the limit ceaselessly and pursue genuine collaboration

Fundamental innovation of our work practices

- Nurture elite specialists who focus on the core
- Establish work practices with a focus on outputs (quality, value)
- Embed remote/virtual means into daily routines and pursue autonomy

Full-fledged innovation of our business model

- Move beyond price competition to lead value-driven competition
- Expand service-oriented business based on experiences and assets
- Expand the main business and push the boundary to create new markets

Mutual Innovation · Mutual Growth · Mutual Benefits

Technology-driven Organization

LG CNS aspires to become an organization of top-notch elite specialists armed with exceptional technology competency and IT leadership, who place the 'innovation of customer value' and 'talent innovation' before all else.

Bringing Innovation to customers

- Shift from seniority or job levels to technology competency in calculating service compensation
- Offer reasonable IT services through standard quotes
- Establish our status as an innovation partner for customers through IT leadership

Talent Innovation

- Top-tier experts recognized for their technological capabilities
- Talent respected for their technological performance and competency
- Become a great work place that attracts outstanding technology talent

Virtuous Cycle Established through Technology-Oriented Business Execution

Nurture professional top-tier talent with a focus on technology competency

Technological capacity management

- Introduce technical certification exams
- Reorganize the job system to nurture talent
- Manage the technology competency measurement level system (datafication)

Technology-driven business / implementation system

Performance management

- Standard quotation system based on work load
- Compensation system based on competency level and output

Employee performance / compensation / development system

Technology Talent Management

- Nurture technology talent
- Compensate by competency level
- Technology expert system

Pioneering the digital innovation of customers with professional top-tier experts

Technology Strategy

LG CNS combines its professional IT service capabilities accumulated over three decades in software development, architecture and infrastructure with emerging technologies recognized for their potential in Korea and abroad to take the lead in customers' digital innovation journey.

Strengthen the fundamentals for technological competitiveness		Acquire technologies that differentiate our businesses	
System Innovation Driven by Capability	**Ecosystem-based growth**	**Pervasive Intelligence**	**Digital platform-based industry-specific solution**
Make agile and flexible responses to changes in software development, architecture, infrastructure and solutions	Engage in the global digital platform ecosystem – Cloud, AI, and IoT – to develop advanced IT utilization strategies and ensure its customized execution	Create intelligent services by combining the customer's business expertise with our algorithms	Offer industry-specific solutions based on the global digital platform as a Digital Transformation partner for customers

R&D

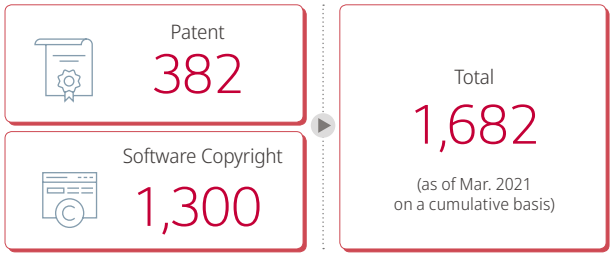
LG CNS is constantly conducting R&D on new digital technologies that lead the 4th Industrial Revolution, including but not limited to artificial intelligence (AI), cloud, blockchain, digital twin and Internet of Things (IoT) among others. In doing so, we generate exceptional R&D outcomes in securing AI technology & platforms, cloud-native application development technology, and develop blockchain platforms and industrial solutions enabled by information technology.

Category	R&D Area	R&D Activities
AI and Big Data	· Algorithms on image/video/language/sound/vibration recognition · AI and big data platform	- Secure enabling AI technology commonly required to develop AI Services (Deep learning, STT, NLU, image recognition, etc.) - Create big data/AI management and analytical environments (Machine learning/deep learning-based analytical environment, AI engine, analytical library, etc.) - Secure standardized subject-based service platforms through the use of enabling AI technology (Conversation/object recognition/behavioral recognition/vision inspection/predictive maintenance/manufacturing quality, etc.)
Cloud	· Cloud-Native Application · DevOps · Cloud Management Platform	- Secure cloud-optimized application development technology through micro service, packaging and dynamic scheduling - Offer standardized environments for cloud-based application testing, security inspection, integration, distribution and operation - Ensure the integrated operation and management of hybrid/multi-cloud environments
Blockchain	· Blockchain core platform · Blockchain service platform	- Develop HYPERLEDGER-based commercial Blockchain platforms - Develop Blockchain service platforms – local currency, document authentication, gift certificates/vouchers
Digital Twin	· 3D visualization, Real-time monitoring, simulation	- Secure technology on 3D visualization engines, object recognition, and indoor mapping - Combine technologies with smart logistics and autonomous vehicle monitoring
IoT	· IoT device/IoT service common platform	- Obtain global standard certifications and secure technology on high-capacity processing, real-time event processing, and edge computing
Industry-IT Convergence	· Industrial solutions that apply latest information technology to manufacturing, logistics, finance and other industries	- Conduct R&D on professional industrial solutions that combine the company's project execution experiences in diverse industries with AI, big data, cloud, Blockchain and other information technologies - Smart factory/smart logistics management solutions/digital financing/autonomous driving solutions, etc.

Intellectual Property

As part of our Intellectual Property (IP) management efforts, we have created a pool of 1,682 IP cases on strategic technologies and innovative business models, including 382 patents and 1,300 software copyrights granted in Korea and abroad. As technology protection is equally important as technology development in conducting tech-based business, we immediately monetize the technology that we have come to possess through IP management to ensure our stable business operations and support customers' digital innovation.

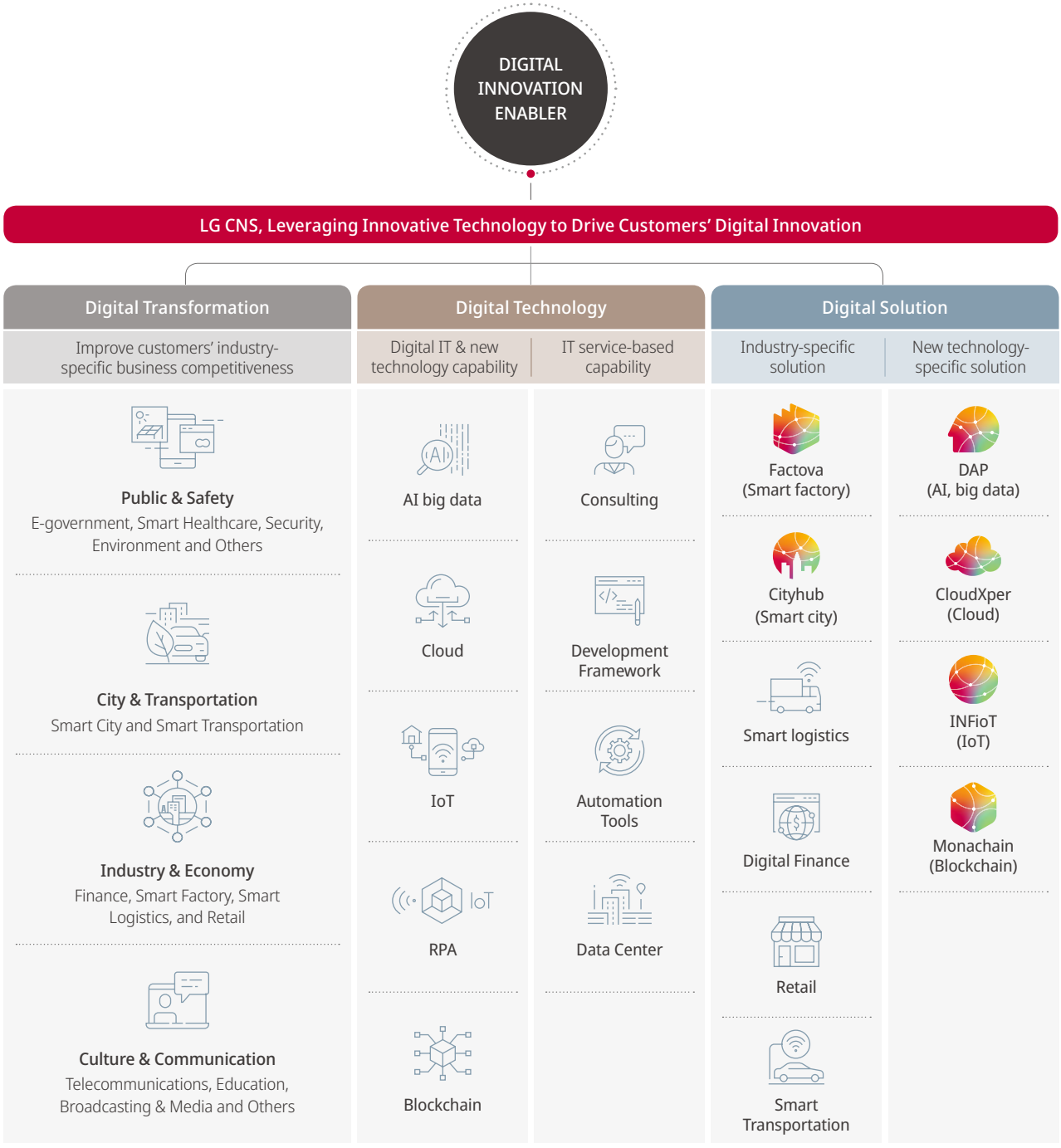
(Unit: Cases)



Services & Solutions

Leading Innovation with Digital Transformation and Digital Technology & Solutions

Serving as an enabler for the next-generation information system adopted in the financial sector and the optimized operation of logistics centers in the logistics industry, LG CNS is pioneering digital transformation across virtually all industries including manufacturing and public services. We also actively promote new digital technologies such as cloud, AI, big data, IoT, and blockchain. Collaborating with major high-tech companies in Korea and abroad to create an open ecosystem, we are broadening the foundation to deliver new customer values. Furthermore, we are solidifying our position as an innovator that raises the bar in the IT service industry through industry-specific smart factory, smart logistics and smart city solutions developed through the aggregation of deep industry knowledge and new technology capabilities as well as solutions specialized in AI, big data, cloud and other emerging technologies.



Digital Transformation

Improving customers' industry-specific business competitiveness

Information and communications technology plays an essential role across all business areas in line with the accelerating pace of intellectualization occurring in today's society. LG CNS has created market-leading business cases by deploying next-generation financial systems and optimized logistics centers. Furthermore, LG CNS is now supporting customers to improve their business competitiveness through digital transformation across diverse industries, by way of cloud transition, cloud-native system deployment and smart factory development.

P.28 Smart Factory
P.30 Smart Logistics
P.32 Digital Finance
P.36 Teleco & Media
P.46 Intelligent e-Government
P.48 Smart City
P.50 Smart Transportation

Digital Technology

Digital IT and new technology capability

LG CNS provides differentiated services enabled by new digital technology such as cloud, AI, big data, IoT and blockchain to support customers to preemptively respond to the rapidly-shifting market and gain a competitive edge in their specific industry.

P.12 AI
P.13 Big Data
P.16 Cloud
P.20 IoT
P.24 RPA
P.26 Blockchain
P.38 Chatbot

IT Service Expertise

Over the past three decades, LG CNS has accumulated robust and time-tested enabling capabilities in the IT service sector spanning from IT consulting and software development to architecture and infrastructure. Building on such proven track records, we assist corporate customers in improving their competitiveness and delivering new business values in the fast-changing market.

P.52 Consulting
P.53 Data Center

Digital Solution

Industry & new technology-specific solution

LG CNS leverages its extensive experience accumulated in undertaking projects in wide-ranging industries and latest new information technology to deliver tailor-made customer services. Offering industry-specific solutions in the fields of smart factory, smart city and smart logistics as well as solutions customized for new digital technologies such as big data and cloud. As a result, we assist customers in creating new growth drivers in their own business domains.

P.12 AI
P.13 Big Data
P.16 Cloud
P.20 IoT
P.26 Blockchain
P.28 Smart Factory
P.30 Smart Logistics
P.32 Digital Finance
P.34 Retail
P.48 Smart City
P.50 Smart Transportation

DIGITAL INNOVATION ENABLER

LG CNS leverages its expertise gained by successfully undertaking large-scale IT projects in Korea and abroad to provide domestic and international customers with total outsourcing services which include consulting, system development & operation. We pioneer digital innovation in the 4th Industrial Revolution era on the strength of our new information technology in AI, big data, cloud, IoT and blockchain.

OTHER SERVICES

PUBLIC SERVICES

Platforms

AI

Consulting and deployment of AI solutions and services optimized for distinctive needs of enterprise customers based on industry-specific expertise

Contributing to accelerating customers' digital transformation

We provide AI services proven for their excellence in Korea and abroad in the multi cloud or on-premise environments to help customers accelerate their digital transformation. Leveraging the services we provide in deep learning-enabled language AI, visual AI, and data AI technologies, our customers bring business innovation to all areas of their work.

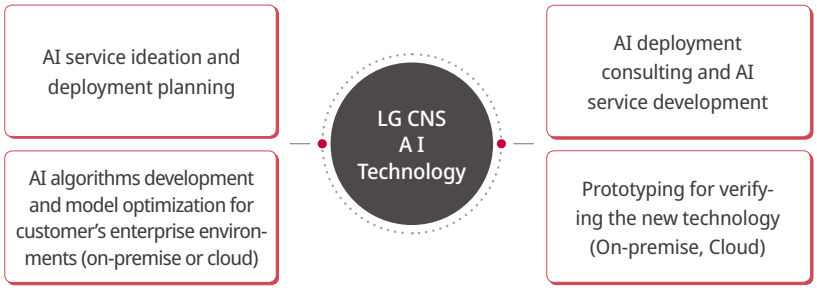
Successful track records in offering wide-ranging AI services

LG CNS boasts a massive pool of AI service references and offers optimized AI solutions and services in consideration of customers' business and IT environment features. Prime examples include defect detection and object recognition services enabled by vision inspections based on image recognition, work automation services for logistics centers delivered through AI-based object detection and classification, real-time customer counseling provided by linguistic intelligence technology, chatbot solutions and AI contact centers for call center service automation, fraud detection and manufacturing equipment automation services based on reinforcement learning and structured data analysis.

Core Capabilities

- Application of public cloud platforms that provide environments to deploy enterprise AI services based on accumulated best practices
- Application and optimization of AI algorithms on the strength of industry-specific expertise
- Track records in developing and implementing best-in-class AI and deploying numerous AI services
- E2E (End-to-End) services spanning from AI consulting to AI platform provision, development and operation

Service Offerings



Business Achievements

Electronic & manufacturing	LG Electronics, LG Chem, LG Display, LG Energy Solution, etc.
Finance	KB Kookmin Bank, KB Kookmin Card, KB Insurance, Shinhan Card, Woori Bank, Nonghyup, etc.
Telecoms & services	LG U+, LX Pantos, Lotte Global Logistics, Hanjin Express, Coupang, etc.
Public services	Ministry of Health and Welfare, Ministry of Personnel Management, Incheon International Airport Corporation, Korea Asset Management Corporation, Korea Minting, Security Printing, and ID Card Operating Corporation, etc.

Platforms

Big Data

Consulting, Analytics, development and solution services based on Big Data technological leardership and sector-specific domain expertise

Offering End-to-End big data services

LG CNS serves the entire big data domain which includes data collection, processing, storage, analysis and development of use cases. We deliver end-to-end big data services on the strength of our advanced analytics capabilities powered by machine learning and deep learning.

Extensive business cases accumulated in big data analytics

Building upon its enormous pool of analytics use cases, LG CNS delivers optimal solutions taking account of customers' business and IT environment characteristics. These solutions include manufacturing quality prediction & Critical-to-Quality factor analytics, image recognition-based vision inspection, demand forecast, and real-time customer marketing service. Furthermore, we have accumulated Korea's largest B2B references in the big data area, including R&D technology sensing based on social data analytics, VOC (Voice of Customer) analysis & quality improvement, FDS (Fraud Detection System), information security monitoring, and HR high-performer factor analysis & resignation prediction.

Core Capabilities

- DAP (Data Analytics & AI Platform) leveraged as a cloud-based AI/big data platform that provides 'analytics environments' for enterprise big data analytics and 'analytics services' based on accumulated best practices
- Operation of analytics models, algorithm development & optimization, and big data analytics lab services based on industry-specific expertise
- Most extensive DW/BI implementation capability and most extensive big data system development experience in Korea
- Open source platform technology in the big data and analytics areas and technology leadership on cloud-native services
- End-to-End service from big data platform, implementation and analysis solution

Service Offerings

LG CNS Big Data Technology

- Big Data analysis Items ideation and Implementation planning
- Enterprise Big Data analysis consulting and Platform development
- Enterprise Data Platform (On-premise, Cloud) consulting and development for combining
- DB/BI and Big Data Architecture
- Big data architecture consulting
- Analytics modeling and optimization algorithm development (On-premise, Cloud)
- POC (Proof of Concept) /POV (Proof of Value) of the new technology (On-premise, Cloud)

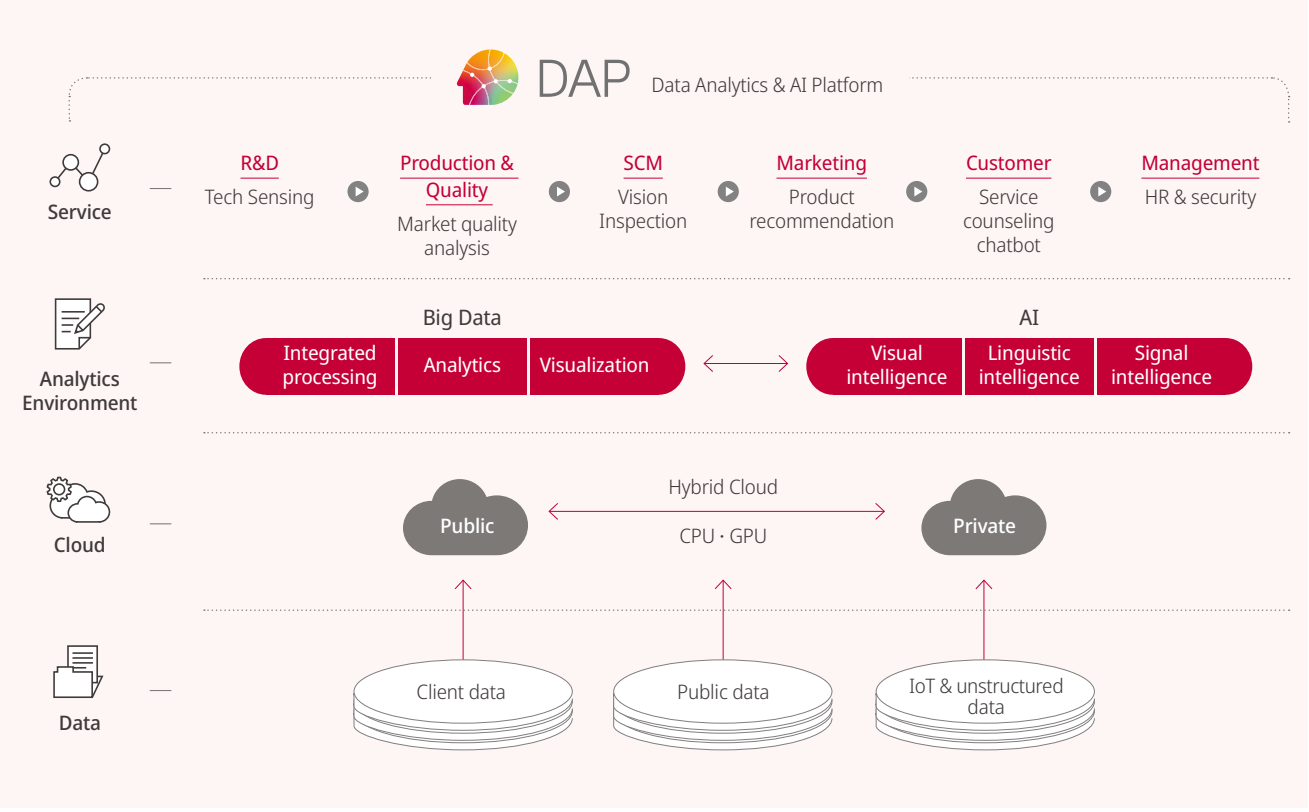
Business Achievements

Electronic & manufacturing	LG Electronics, LG Chem, LG Display, LG Innotek, etc.
Finance	KB Kookmin Bank, KB Kookmin Card, KB Insurance, Woori Bank, Hyundai Card, JB Financial Group, Shinhan Life Insurance, etc.
Telecoms & services	LG U+, LX Pantos, Kakao, Coupang, Tmoney, etc.
Public services	National Tax Service, National Computing & Information Service, Korea Land & Housing Corporation, Incheon International Airport Corporation, etc.

LG CNS's AI, Big Data Platform: DAP

DAP (Data Analytics & AI Platform)* serves as an enterprise AI, big data Platform that harnesses cloud-native services and OSS (open Source Software) to support the full life cycle** of big data & analytics from data lake development to operation. LG Group affiliates use the cloud-native DAP, and financial institutions or governmental agencies outside the group are also on the cloud/OSS-based DAP.

*DAP: LG CNS's strategic brand that represents a multi cloud-based, AI-powered big data analytics platform
**Full Life Cycle: A process that spans from project proposal and data exploration to model development, distribution & operation and management



Exclusive Features

DAP supports optimized enterprise data analytics by providing an analyst-friendly user environment, an optimal reference architecture, and an analytics governance sharing/application system.

Ease of use

- Offer Auto ML, UI-based analytics, and data preprocessing tools
- Provide analytics environment for the senior data analytics' laptop and the citizen data scientist's workflow

Optimal reference architecture

- Offer cloud-native services that cater to enterprise customers' requirements as well as OSS-optimized architecture
- Deliver optimal services and functionalities in their pre-combined format based on accumulated know-how

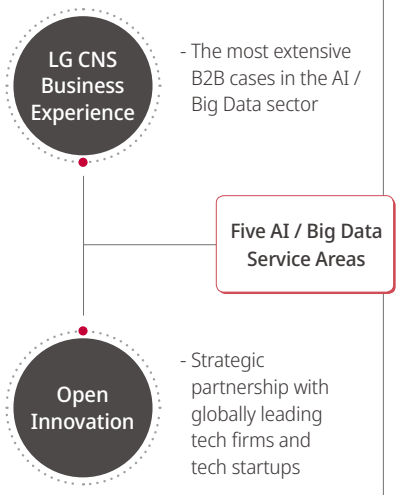
Analytics governance and its sharing /utilizing system

- Manage the full life cycle from the initiation of analytics to its operation
- Provide model sharing and utilizing system to support continuous improvement

Service Offerings

LG CNS provides the following five major services across the entire value chain of AI and Big Data on the strength of wide-ranging use cases, big data solutions and AI engines acquired through years of business execution and open innovation.

Five AI / Big Data Service Areas



1	Smart Factory Analytics	- Product quality assessment, cause analysis, environment optimization, facilities predictive maintenance, etc	Big Data analysis as a basis for automation and intelligent operation
2	Customer Analytics	- Customer segmentation, precision targeting, personalization, marketing performance analysis, resource optimization, customer retention, store location optimization, etc.	Communication intelligence based on the 360-degree customer view
3	SCM Analytics	- Demand forecast for production, accurate inventory output, production planning optimization, advancement of logistics quality analysis, logistics flow optimization, etc.	Optimization in line with production, sales / marketing from integrated logistics perspective
4	Operation Analytics	- Corporate financial risk, operating capital risk, project risk, recruitment optimization, employee retention, etc.	More efficient and optimized business operation
5	AI Equipment	- AI engine-based API e.g. object / facial / voice / sound recognition, NLP(Natural Language Processing)	AI engine-based services e.g. deeplearning vision assessment, image-based recommendation, consultation chatbot / voicebot

Solution

DAP MLDL (Machine Learning·Deep Learning)

This enterprise data platform supports the full life cycle from the Data Lake to AI analytics through the use of cloud-native services and OSS. DAP MLDL delivers E2E services ranging from analytics environment configuration to model distribution in order to enable analysts to easily develop and learn machine learning & deep learning models for successful AI-powered digital transformation.

DAP Vision

This deep learning-aided vision inspection service allows the production lines to easily detect defects. Its high-performance GPU-based platform and learning process automation functionalities lend to an efficient and convenient learning services. DAP Vision also provides detection service systems that support the prompt application of deep learning detection models to the shop floor operations. This results in continuous performance management through the distribution, application and relearning of detection models.

DAP Talk

This AI-enabled chatbot service allows anyone to create chatbots in an easy and speedy manner. DAP Talk consists of NLU (Natural Language Understanding), STT & TTS (Speech-to-Text & Text-to-Speech), conversational flow engines, and linguistic resources as well as operational management tools. DAP talk is a highly scalable SaaS (Software as a Service) platform that supports on-premise configuration. Hybrid-based NLU aids in the accurate understanding of customers' intention. The codeless workflow renders the creation of conversational flows simple and fast, which expedites the provision of AI conversational service systems that satisfy customer needs without initial-stage infrastructure development.

Smart SMA (Social Media Analytics)

This analytics platform leverages social big data on markets served by customers, active companies, and products & services. Harnessing advanced analytics techniques based on best-in-class non-structured text analysis technology, Smart SMA also delivers crossover analysis, correlational analysis and AI-enabled predictive analysis related to customers' target markets, competitors and products.

SBP (Smart Big Data Platform)

This Hadoop-based big data platform is optimized to serve the needs of domestic businesses as it supports the entire process of big data collection, storage, processing & analysis. It also improves stability and accessibility through enterprise functional innovation. Fully embracing open source technology, SBP provides innovative services from strengthened governance and security alignment to the minimization of service downtimes. This allows corporate customers to efficiently deploy the platform. Furthermore, GUI-driven interface provides convenient business execution and maintenance, which adds to its stronger price competitiveness.

Platforms

Cloud

Top-tier E2E services spanning through cloud consulting, migration and managed services designed to support the digital business innovation of customers

Delivering tailor-made cloud services

LG CNS delivers tailor-made cloud services optimized for customer circumstances based on advanced understanding of customers' business and expertise on a range of cloud technologies. From cloud consulting to migration and managed services, we provide exceptional E2E (End-to- End) services that truly serve the needs of our customers.

Applying top-tier AM technology and operating the AM Task Force

In conducting cloud transition business, LG CNS is fully utilizing its distinctive AM (Application Modernization)* technology developed using over 30 years of IT service experience combined with state-of-the-art digital technology. To this end, Build Center was launched in early 2020 as a dedicated technology organization to apply top-tier AM technologies, including 'MSA (Microservice Architecture)' that divides mega-scale IT systems into small service units and 'CICD (Continuous Integration & Continuous Deployment)' which serve as a tool to support service development, testing and operation. Since July 2020, we have operated an AM Task Force, consisting of more than 450 employees in the areas of business, technology and execution to expand AM applications.

*AM (Application Modernization): Dramatically improve a company's existing business applications to fulfill technical functions and create value for internal/external stakeholders

Service Offerings

Strategy
Discover
Assess
Design
Transition
Operation
Optimization

Cloud Consulting
- Identifying the areas in need of Digital Transformation from a business perspective and presenting the values delivered by introducing the need for cloud services
- Possessing knowledge of the customers' industry, technology and business as well as consulting capabilities

Cloud Implementation
- Perform preparation, PoC (Proop of Concept), migration and operational transfer required to shift to the cloud environment
- Possess the Cloud Native-based service modernization capabilities (Re-Architect) that can maximize cloud benefits, including simple Re-hosting (Re-Architect)

Cloud Management
- Present models to improve monitoring, evaluation and other services to increase the efficiency of IT expenses and optimize IT operation
- Possess operational automation tools as well as the right platforms to identify and manage service status

Independently developing 'vmCube' as a virtual desktop cloud management solution

Based on its extensive experience in VDI deployment and operation, LG CNS has independently developed 'vmCube' as an integrated VDI (Virtual Desktop Infrastructure) management solution that brings greater user convenience and management efficiency.

Features

- Vendor-neutral
- Single console management
- Korea's No.1 VDI implementation experience and know-how
- Responsive web-based dashboard
- Largest number of users in Korea

References

- LG Electronics, LG U+, LG Display, LG Chemical
- KB Kookmin Card, KB Kookmin Bank
- Mirae Asset Daewoo, Woori Card (implemented for over 150,000 users)

LG CNS Build Center

To deliver business agility, we need to swiftly reflect business requirements and rapidly converge AI, big data and other emerging technologies while seeking change in IT application structure, architecture and development methodology accordingly. The LG CNS Build Center is securing advanced technology by interacting with companies known for their world-class cloud native technology, and is equipped with a role system and an organizational structure that are well-organized for cloud native deployment. The center is leading the innovation initiative for customers' successful digital transformation on the strength of Agile, DevOps, MSA (Micro Service Architecture) and other latest deployment technologies as well as proven cloud native methodologies.

Cloud native technology should be closely aligned with appropriate tools/work culture and automation in order to generate synergy. As such, we aim to embed the work methods of our Build Center into those of customers and use them in developing our customers' native services.

Full Stack Capability	
Solution Owner	- Identify and organize business requirements with customers - Scrum leading
Cloud DevOps & Security	- Cloud technology expert - Design architectures and deploy CI/CD pipelines
Solution Engineer	- Modern Application expert - Possess full stack development competency
Solution Quality Engineer	- Possess testing competency in addition to SE competency
Experience Designer	- Modern UX expert - Deliver optimal usability and design visuals

Service Domain	
Modern App Development & App Modernization	- Develop modern webs through the maximal use of services and open source SW provided in the cloud environment - Apply MSA on the basis of Agile and DevOps implementation methods
Cloud-based Modern Infrastructure Deployment	- Build a stable and scalable cloud-based environment - Create reproducible development/test/operating environments by building infrastructure based on cloud architecture designs and codes optimized for services
Software Delivery System Development	- Visualize and automate the entire process from development to distribution - Secure quality early on by applying test automation in the build/distribution phases

Business Achievements

- **Finance** — SFA (Sales Force Automation) and GEP (Global Expansion Program) deployment at Hanwha Life
  Agile deployment at Standard Chartered Bank of Korea
- **Telecom/Service** — Online subscription support system, LG U+

LG CNS's Cloud Management Platform: CloudXper

CloudXper represents our cloud service brand that spans from assessment/consulting to migration and managed services as an End-to-End (E2E) professional cloud services package. This is the integrated multi/hybrid cloud management platform designed to assist companies that completed their cloud transition which in turn will efficiently improve on operational difficulties in the areas of complexity and cost of cloud management, governance management and cloud monitoring. CloudXper serves as an integrated cloud management platform to accommodate the requirements of enterprise customers and cater to their diverse business environments.

CloudXper ProOps performs updates and optimization in line with dynamically-changing cloud environments on the basis of our enterprise expertise, and delivers integrated offerings from cloud application management to security solution management and operation. Professional cloud management capabilities are critical in efficiently leveraging enterprise clouds. CloudXper ProOps was created as our managed service offering that helps clients troubleshoot the varying problems they encounter in their cloud operation.

*CloudXper: The strategic brand name of CloudXper was created by combining 'Cloud' and 'Expert', and embodies LG CNS's commitment to harnessing its cloud technology capabilities to transform the business fundamentals of customers and pioneer the innovation of their business.

Cloud + Expert

Operation/Monitoring
Enterprise-specific operation/monitoring

Operation	Monitoring
- Provide an operation/management system optimized to meet enterprise client needs on the basis of hybrid/multi clouds	- Perform integrated monitoring and provide tunings from next-generation infrastructure and applications to DBs

Cloud Advisory
Advisory tailor-made to respective clients

Technical Account Manager	Well Architected Review
- Provide cloud-dedicated TAM for preemptive response based on client needs identification Well Architected Review	- Optimize operations and keep the architecture up to date through regular Review Board operation

Optimization
Cloud optimization

System optimization	Cost optimization
- Provide technical support for app development in the DB and middleware domains - Improve service functionalities and deliver scalable services in the cloud native domain	- Enable customized billing through alignment with recommended services provided by CSP to optimize cloud costs

Security Enhancements
Specialized security services

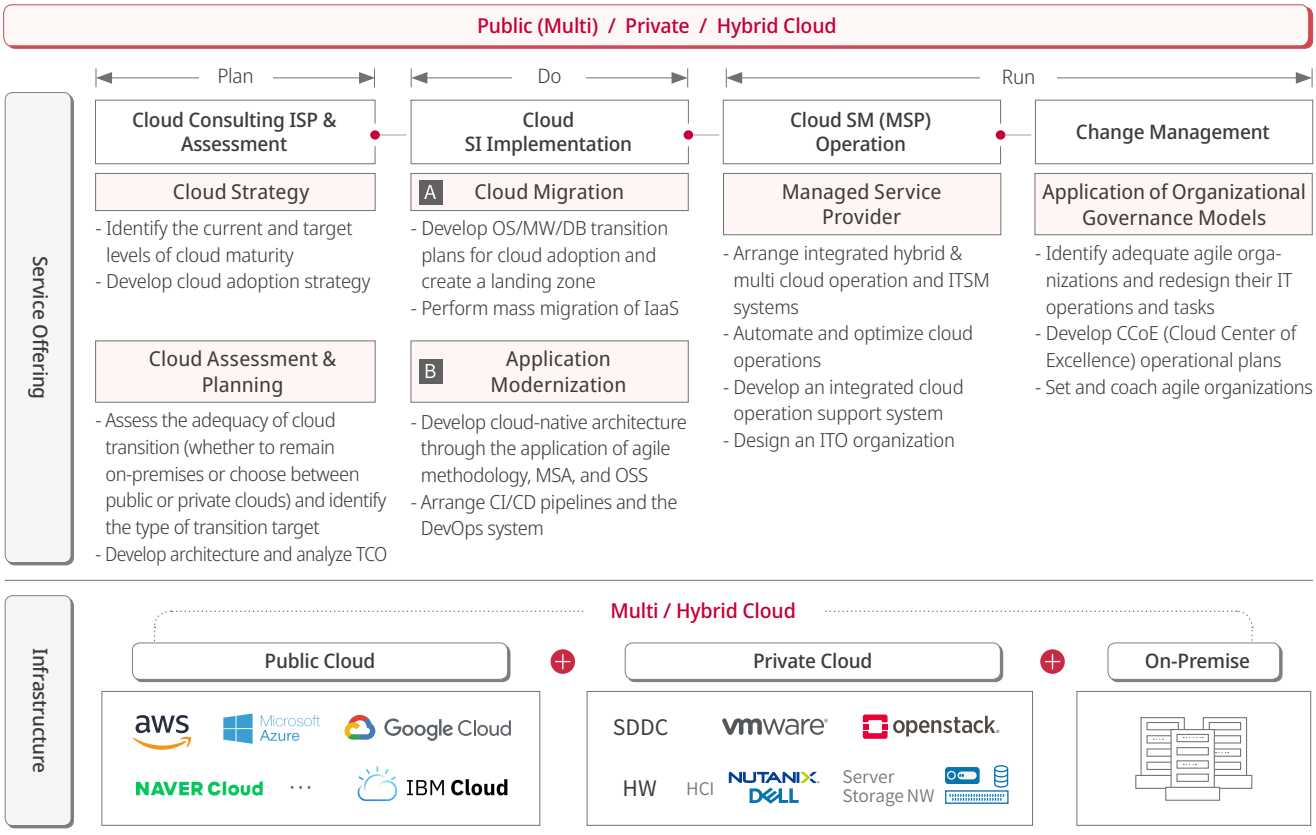
Security operation	Security monitoring
- Operate cloud native security services and third-party security solutions	- Monitor and respond to anomalies concerning users and resources that occur in the cloud environment

Core Capabilities

- Cloud consulting (based on cloud migration methodology), architecture design and cloud migration capability
- Open source software conversion and SDx capability
- MSA-based distributed structure design and deployment technology, Agile-based cloud native application development, advanced integration of DevOps-based development and operation
- Hybrid-Cloud, Multi-cloud migration, operation and integrated management platform

Cloud Total Service Map

To support customers adopt public, private, or hybrid clouds, LG CNS delivers end-to-end services spanning from consulting, deployment and operation to change management.



Business Achievements

Logistics / Service

Cloud

- GS Home Shopping
- GS Retail
- LX International
- LX Pantos
- S&I
- OURHOME
- Summerce Platform
- Kantukan
- Honda Korea
- Cafe Bene
- Hansol
- SsangYong Engineering & Construction
- Chunjae Education
- Ezwelfare
- ChunhoNcare
- Korea compassion
- KleanNara
- Dongwha Enterprise
- Korea Technology Assessment

SAP HANA Cloud

- SR
- Woowa Brothers
- Memebox

VDI (Virtual Desktop Infra)

- LG U+
- Economic Research Institute
- LX International
- LG Corporation
- NS Home Shopping
- GS Home Shopping
- GS Retail

Finance

VDI

- KB Kookmin Card
- KB Kookmin Bank
- KB Insurance
- KB Capital
- Mirae Asset Daewoo
- KEB Hana Bank
- LINA Life Insurance
- Woori Card

Aviation

- Korean Air

Construction

- Bosung Corporation

Manufacturing

Cloud

- LG Electronics
- LG Chemical
- LG Display
- LG Innotek
- LG Household & Health Care
- Ericsson LG
- LS Group
- LSIS
- S&I
- LX Pantos
- LGCC

VDI

- LG Electronics
- LG Display
- LG Chemical
- Ericsson LG
- LX Hausys
- LG Innotek
- LG Household & Health Care
- S&I

Public Services

Cloud

- National Tax Service
- National Computing & Information Service
- Incheon International Airport Corporation
- Health Insurance Review & Assessment Service
- Korea Employment Information Service
- Busan NIPA
- Kangwon Land

VDI

- Korean Intellectual Property Office
- Ministry of National Defense
- KRX
- National Agency for Administrative City Construction
- Korea Institute for Curriculum and Evaluation
- Korea Employment Information Service

Platforms

IoT

Providing an integrated IoT Platform that supports device·network·service·security software technology, enabling IoT service development

IoT platform that facilitates service and app development

While we are witnessing the global explosion of various sensors that enable communication functionality, IoT platforms equipped with a wide array of communication protocols are capable of accommodating these sensors even in the face of their dramatic growth. Furthermore, IoT platforms support the standardization of data that exist in different formats across respective sensors at the platform level. This eventually lends to a simpler and easier development of services and applications that use such data regardless of data formats.

Customer value delivered by INFioT

LG CNS's IoT platform dubbed INFioT* collects, forwards and manages large volumes of sensing data in real time in consideration of devices and diverse IoT environments. Leveraging tools that facilitate the development of IoT services, this platform can also be connected with intelligent services to deliver new customer values.

* INFioT: Combining 'Infinite' and 'Internet of Things', this new strategic brand name embodies LG CNS's IoT platform that advances the future value of industries through infinite potential and technology.

Core Capabilities

- Platform provided to support diverse industrial protocols and standard/nonstandard IoT devices
- Edge Platform deployed to offer data distribution, preprocessing and public cloud-based services
- Device registration, mutual authentication and key management based on IoT device security
- Offers service robots and platforms tailored to the customer's business
- Quality-based planning / development of hardware / embedded software and production management

Service Offerings

IoT Platform
- Device/sensor data collection/transmission
- IoT development environment setup

IoT Security
- IoT Security consulting
- IoT Security solutions

LG CNS IoT Technology

Robot Service Platform
- Robot solutions
- Robot Eco implementation

Embedded Software
- Embedded SW development
- Development environment setup & consulting

Business Achievements

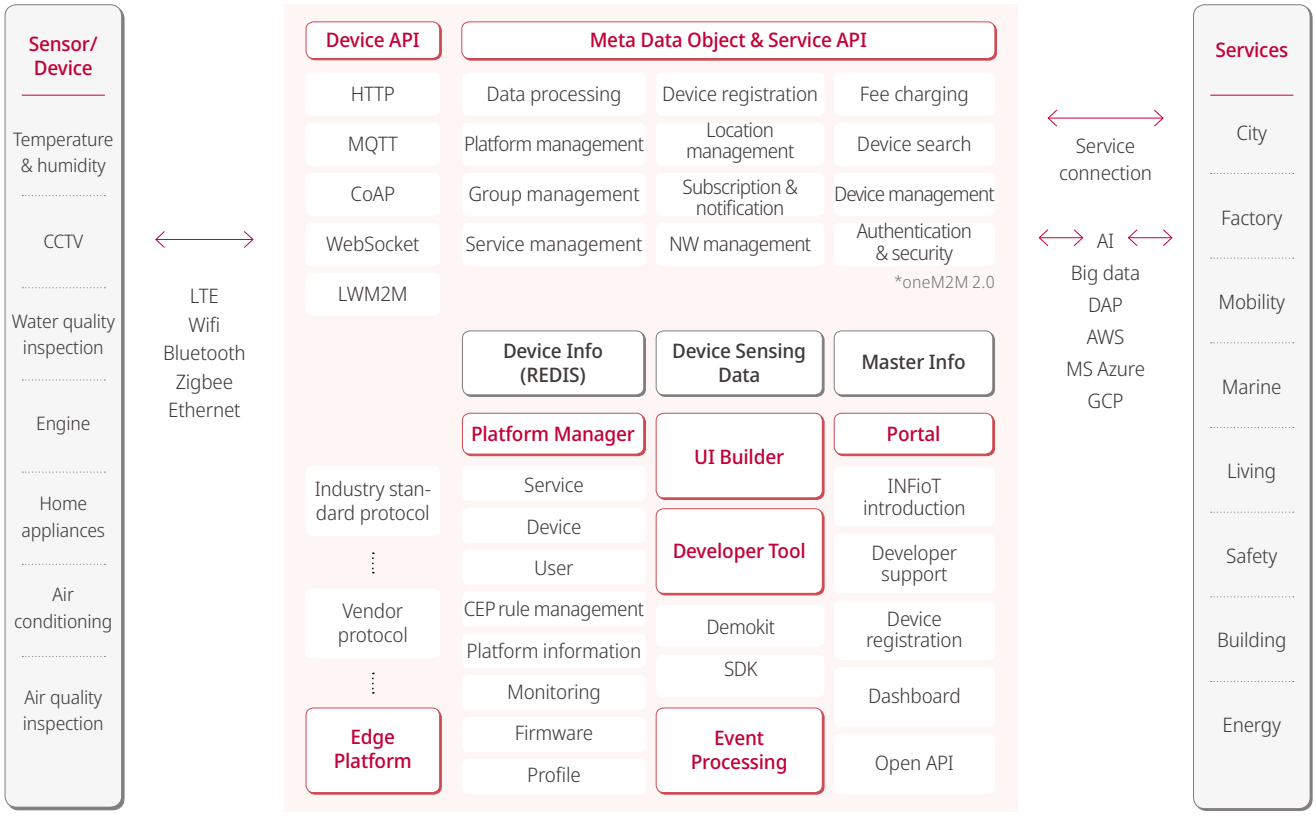
CITY	· Adoption for Cityhub, LG CNS's smart city platform · Adoption for the integrated security system of the LG Science Park
FACTORY	· Air environment monitoring to ensure a safe lab environment at the LG Chem Research Park in Daejeon · Predictive maintenance system developed at a logistics center of CJ Freshway · Predictive maintenance sensor monitoring deployed at LG Display

LG CNS IoT Platform: INFioT

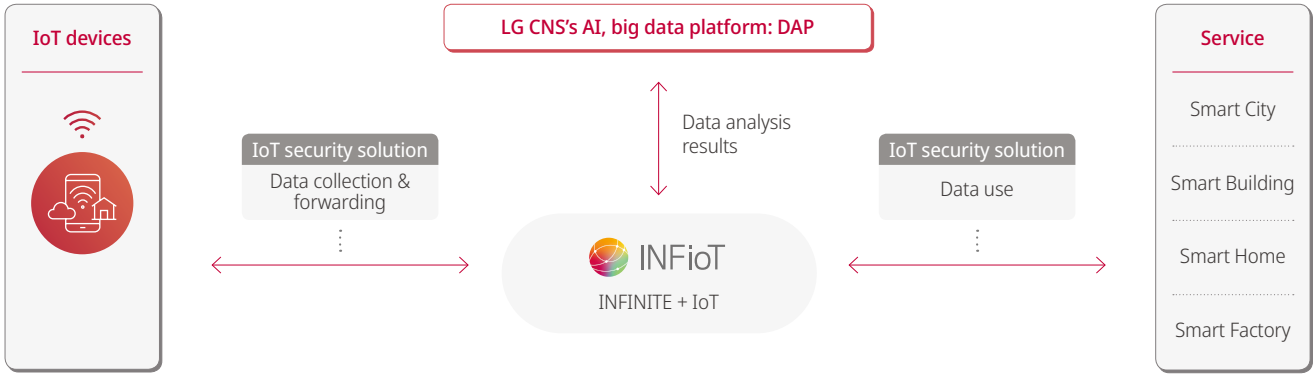
INFioT* is an IoT platform that complies with the international standard oneM2M and provides an IoT development environment that assists developers in creating IoT services in an easier and much faster manner. In consideration of diverse IoT environments, INFioT gathers and forwards large volumes of sensing data in real time.

*INFioT: LG CNS's strategic brand that embodies an infinitely scalable IoT platform.

Platform Architecture



Key Functions



Features

Integrated IoT platform in compliance with domestic and international standards	· Became the first in the IT service industry to achieve the oneM2M international standard through TTA (an accredited IoT standard certification body) (Jul. 2018) · Support interoperability with other platforms
Open connectivity	· Provide 24 communication protocols including standard ones in the IoT as well as other industrial sectors and support their scalability · Support standard/non-standard IoT devices
Tailor-made platform to meet customer needs	· Provide functionalities in line with IoT project conditions, scale and service requirements · Ensure flexible deployment by connecting the IoT platform with the legacy system or a new IoT system · Connect with the IoT services of customers, including LG CNS's AI, big data analytics solution
Integrated management and service development tools	· Provide device management portals and APIs to improve managerial convenience · Provide sensor developers with SDKs (Software Development Kit) and visualization tools for real-time data monitoring
Integrated security	· Provide device registration, cross authentication and key management functionalities to deliver security services across the entire device/ network/service spectrum
Edge Gateway platform	· Support wired/wireless connections and connections with non-IP devices · Support automatic device registration and analogue data/preprocessing translation - Support the storage and forwarding of collected data and device control

Benefits

EASY

To develop

Monitoring screen development tools are provided to enable the easy and fast connection of data to the UI monitoring screen to build the desired layout.

SIMPLE

To manage devices

Administrator portal's device management (e.g. meta data, device registration) enables easy registration and management of various types of devices / sensors. IoT devices can be added through simple settings.

VARIOUS

Conforming to MULTIPLE protocols

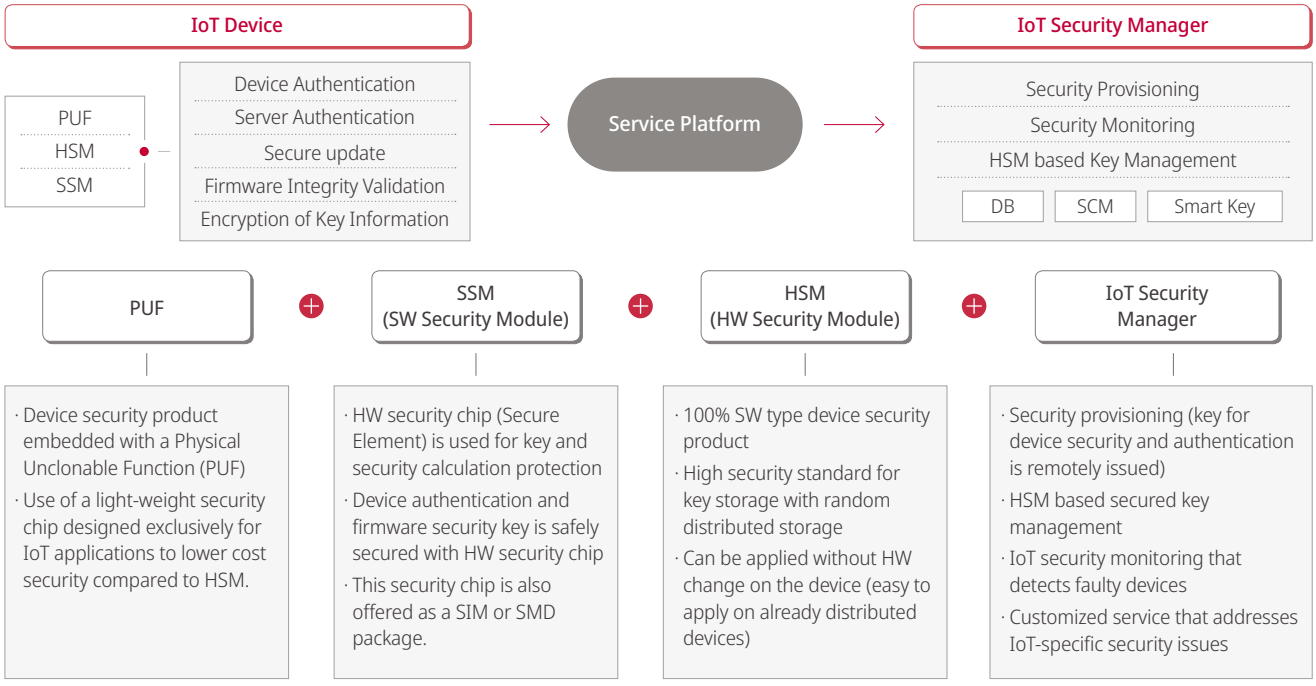
Users can choose from a wider range of devices through support for a total of 24 protocols as HTTP, MQTT, CoAP, LWM2M, and Web Socket as well as industry standard protocols (19 total protocols including BACnet, Modbus, and SNMP)

IoT Security Solution

LG CNS offers device-server cross authentication and firmware protection services for IoT device security. Our IoT security solutions consist of device security modules such as PUF* (Physically Unclonable Function), HSM (Hardware Secure Module), and SSM (Software Security Module) as well as the 'IoT Security Manager' that functions as a security management server.

*PUF (Physical Unclonable Function): Anti-theft technology that applies to data that exists in individual semiconductor chips by protecting encryption keys through the use of inherent 'digital fingerprints' embodied in semiconductor devices

IoT Security Suite



IoT Security Features

Low cost & high security ensured with a PUF-based device security solution	1	· Use of a light-weight security chip designed exclusively for IoT applications · Delivers lower cost security with the use of the HW security chip
Partnerships for integrated security solutions	2	· Partnership with HW security chip manufacturers · Partnership with vendors specializing in device security · Compatibility with diverse HW security chips (ICTK, NXP, INFINEON, STM, Security Platform, Micro Chip)
High compatibility with diverse devices	3	· A low-spec, light-weight module for devices (operates at 8bit CPU, below 10kb memory) · Does not have a need for device change; applicable to already distributed devices · Support for a wide range of OSs (Window, Linux, RTOS, OSless environment)
Customized security service	4	· Customization of security solutions based on the customer's business needs · Diverse service formats (On-Premise / SaaS) · Offered as a SaaS, allowing immediate and low-cost implementation · Supports diverse authentication methods that correspond to service characteristics (symmetric key authentication / device certificate)

Platforms

RPA

Automation Solution that Enables Businesses to Reduce Simple and Repetitive Work and to Focus on Core Operations to Ultimately Build a Stronger Competitive Edge on Automation Solution

Rationale behind the development of RPA introduction strategy

Establishing RPA governance goes beyond mere solution development to span the entire life cycle of RPA introduction, deployment and operation. While the development of RPA solutions is often mistaken as the execution of work automation, it is essential that a rigorous strategy is developed to set clear purposes and goals of deploying RPA as they serve as the basis to identify the most effective tasks to automate. This is in turn determines the most appropriate task discovery methodology and task selection criteria. All this comes in tandem with the development of RPA security policies and robotic monitoring plans as part of the efforts to define corporate policies, R&Rs and KPIs along the life cycle of RPA planning, development, operation and monitoring. This eventually creates an environment for robot workers to perform tasks in a stable and sustainable manner.

Choosing globally recognized solutions to evolve into intelligent RPA

LG CNS has been chosen as the standard UiPath solution recognized as the global No.1 in the RPA market and applied them at LG Group affiliates. This allowed us to accumulate capabilities in solution development and trouble shooting as well as improving our productivity and stability as a developer. Furthermore, we are leveraging our platforms that support chatbot and image recognition technologies to shift the focus of automation from structured, simple and repetitive work to a evolving intelligent RPA which involves images, natural languages and other non-structured data, evolving into intelligent RPA.

Concept of RPA (Robotic* Process Automation)

Robots perform the simple and repetitive computer work that has been conducted by humans

*Robots in the above definition refer to the computer processes tasked with performing cognitive jobs that has been conducted by humans in the past

Types of Work, Appropriate for the Application of RPA

- A massive amount of manual work
- Multiple workers performing the same work
- Work based on simple rules and logic
- Work with minimum exceptions
- Processing of standardized and structured data
- Workload concentrated during specific time periods
- Work with long lead times

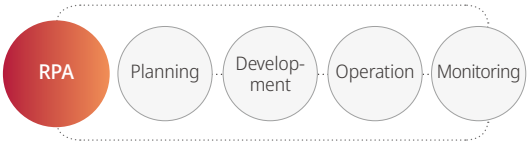
Core Capabilities

- RPA task development and operation capabilities accumulated by undertaking projects for LG Group affiliates on the basis of standard solutions
- RPA governance consulting service (policy development, task discovery workshop, change management support, etc.)
- Public cloud-based robot monitoring platform service
- Chatbot, AI, and big data capabilities deployed to establish Intelligent RPA

Service Offerings

RPA Governance Framework

Systemic RPA deployment and dissemination following the PoC (Proof of Concept) phase requires the establishment of governance on RPA planning, development, operation and monitoring.



Business Foundation	Vision/goal	Dissemination strategy	Task discovery /management	Performance management
Technical Foundation	Development environment creation/development	Security policy	Operation/ maintenance	Robot asset management

Provisioning of a Public Cloud-based Robotic Monitoring Platform

Standard solutions are not always the best choice when it comes to the following areas, robotic execution outcome monitoring, task-specific credential management, common library management, chatbot-assisted robotic execution, notification of robotic execution outcomes through Kakao Talk Notification, and reporting through Elastic Search or Kibana. LG CNS has independently developed robotic monitoring platforms to enable even general users to access such functionalities, and is currently offering these platforms through AWS.

Intelligent RPA

LG CNS supports chatbot-assisted and platform-based communication with robots, and delivers deep learning OCR (Optical Character Reader) technology validation and service. In addition, we extend its scope of work application and apply new digital technology to each stage of work automation development to provide an even more intelligent RPA.

Past (1990s-2000s) — Present — Future (2020s-)

Rule-based action taking | Data-based decision making

Basic Automation	RPA	IPA (Intelligent Process Automation)	Cognitive Automation
Macro-based partial process automation	Emulation of user activities based on structured rules	Decision-making support through non-structured data recognition, processing, and learning	Process analysis and improvement, decision-making automation
· Perform the given work within the pre-defined application	· Alignment possible with multiple external systems/websites	· Processing of non-structured data · Decision-making support through data learning	· Self-improvement of process decision rules · Automated identification and generation of automatable tasks
Applications	**Applications**	**Applications**	**Applications**
· DB access and data extraction · Work performed through a single app or a macro app	· Data collection (crawling) · Structured data query · Data input and verification · Inter-system input/output of structured data	· Text extraction/input from image data · Natural language query · Rule generation from past data	· Improvement of complicated processes · Predictive decision-making
Component Technology	**Component Technology**	**Component Technology**	**Component Technology**
· Macro and Script	· Screen Scraping · Rule-Engine · Workflow	· Machine Vision/ OCR · NLU, NLP, MRC → Chatbot · Big Data Analytics · Machine Learning/Deep Learning · AI	· Process Mining · NLG/TTS: Conversation generation, speech generation · Predictive Analytics · Machine Learning/Deep Learning · AI

Business Achievements

- Incheon International Airport Corporation, Korea Asset Management Corporation, Ministry of Health and Welfare, Tmoney
- Automatic corporate credit reviews at KB Kookmin Bank
- LG Electronics, LG Display, LG Households & Health Care, S&I corp., LG Chem, LX Hausys, LG U+, SERVEONE, LG CNS and other LG Group affiliates
- GS Retail, GS Home Shopping, GS Global, and GS Network
- Experience in executing more than 2,000 tasks along the entire value chain of manufacturing/service/retail/telecommunications businesses

Platforms

Blockchain

Delivering the optimal value to customers through core blockchain technology and practical solutions

Conducting steady research and demonstration as an IT leader in the blockchain ecosystem

As digital technology evolves rapidly, it also expands swiftly into new territories through open innovation. This enables customers and IT service providers to forge powered business that caters to the needs of customers, LG CNS developed Monachain, a permissioned blockchain platform optimized for the enterprise environment. In response to the issuance of digital currencies (CBDC) under review at major central banks as well as the introduction of Non-Fungible Tokens or NFTs. We are also creating an unique differentiated platforms to pre-emptively create a business ecosystems which allows for wide-ranging technology options. As an IT leader with core blockchain technology and practical service solutions, we continue to conduct steady research and demonstration in the blockchain ecosystem.

Delivering optimal solutions through blockchain consulting methodology

LG CNS established its own blockchain consulting methodology on the strength of understanding the insight of the latest blockchain technology with a focus on assisting customers in innovating their business operations and identifying new business models. This methodology is based on blockchain use cases and the design thinking principle to outline appropriate blockchain applications in the enterprise environment. Leveraging this technology, we deliver optimal solutions, spanning from blockchain strategy setting and deployment to operational management and platform-driven services, taking into account the characteristics of customers' business and IT environments across public service, finance, telecommunications, manufacturing and other diverse industries.

Core Capabilities

- Core blockchain technology and practical service solutions powered by permissioned enterprise blockchain platforms
- Blockchain assets and industry-specific consulting competency accumulated through differentiated experiences and capabilities in offering public services
- Most extensive experience in deploying blockchain services in Korea
- Pursuit of platform partnerships with blockchain-based clients on the basis of open source platform technology

Service Offerings

Blockchain implementation consulting and development use cases – Deliver 'Monachain' and offer technical support – Build and operate a blockchain-based system

Business Achievements

2021
- P2P distributed transaction platform development, Ministry of Trade, Industry and Energy
- DID-based mobile identification platform development, Ministry of Public Administration and Security

2020
- Blockchain-based autonomous driving trusted platform development, Sejong City
- Imported food safety data platform development
- Blockchain-based smart digital waybill platform development
- Trust-based history management-EV battery life cycle management system
- PoC for CBDC, Shinhan Bank
- Local currency platform development Shinhan Bank
- Trusted platform development, Korea Minting, Security Printing, and ID Card Operating Corporation (KOMSCO)
- Second-phase dissemination of smart insurance claim automation among the telecom carriers, cell phone makers and insurance companies
- PoC of DVP (Delivery versus Payment) based on distributed ledger technology, Bank of Korea

2019
- Pilot project of the EV Battery 2nd Use Distribution History Management System
- PoC of blockchain-based digital asset trading platform development
- Connection between the LG Magok Science Park and KB Finance Partners Chain (tentative name)
- Blockchain consulting and PoC of logistics blockchain, LX PANTOS and LG Group
- Trusted platform blockchain operation, KOMSCO
- Insurance claim automation between telecom carriers and insurance companies, LG U+
- Blockchain-based eco-friendly agricultural product distribution platform development, South Jeolla Province

2018
- Community currency pilot project launching, LG Science Park
- Blockchain-based local gift certificate platform development, KOMSCO

2017
- Blockchain-based remittance simulation test, Bank of Korea

2015
- Issuance of Korea's first blockchain-based electronic securities for unlisted companies

LG CNS's Blockchain Platform: Monachain

Enterprise blockchain platform with service scalability and flexibility

Our enterprise blockchain platform Monachain* embraced the advancement of enterprise blockchain technology and chose Hyperledger Fabric of the Linux Foundation as its core. Multiple layers of frameworks, common interface components, and application services lend to flexibility in adding and scaling up services.

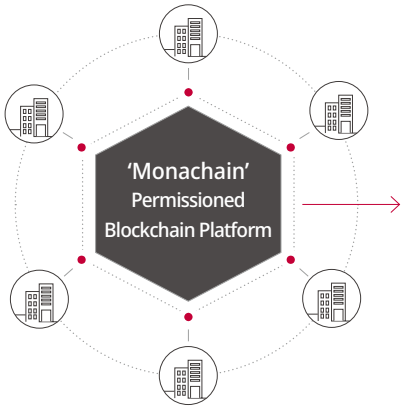
*Monachain: Combining 'Mona' from Mona Lisa, the masterpiece of Leonardo da Vinci, and 'Chain' from blockchain, this strategic brand name symbolically represents the 'queen of blockchain' as the word 'Mona' also means 'queen' in Greek.

LG CNS's Blockchain Business Model

Blockchain Value	Main Business Area	Blockchain Reference
Trust-based data sharing (anti-forgery)	Payment	· Blockchain-based local gift certificate platform development, KOMSCO · Connection between the LG Magok Science Park and KB Finance Partners · Community currency, LG Science Park in Magok
Visibility and transparency, innovation in work process (real-time history tracking and cost reduction)	Track & Traceability	· Imported food safety data platform development, KFDA · Blockchain-based smart digital waybill platform development · EV battery life cycle management system development, Jeju Island · EV battery distribution history management, Jeju Island · Smart compensation service development for mobile phone loss/ damage, LG U+ · Eco-friendly agricultural product distribution platform development, South Jeolla Province · Logistics blockchain consulting and development, LX PANTOS-LG Group
New business opportunity created based on self-governing identification	Decentralized ID	· Blockchain-based mobile public servant identification service development, Ministry of Public Administration and Security · Blockchain-based autonomous driving trusted platform, Sejong City
Digital sharing economy (data sharing and compensation)	Tokenization	· PoC for CBDC issuance, Shinhan Bank · PoC for blockchain-based asset trading and simultaneous payment on heterogeneous platforms, Bank of Korea · Blockchain-based digital asset trading platform development, KB Bank

Platform Consisting of the Service and Core Area

While assets of the concerned business are selectively applied for swift deployment in the service area, efficiency and speed is delivered in developing open source-based blockchain platforms in the core area.



Monachain Service Platform

Biz. Service Asset

Service Area

Payment	Track & Trace	Identification	Tokenization

Tech. Asset (Framework / Middleware)

Development Productivity		Service Scalability	
Application development framework	Enterprise connection module	Interoperability module	Token model

Core Asset (Plat form)

Fabric Management Tool (Weaver)				Blockchain Protocol
Blockchain distribution	Participant consensus management	Blockchain setting management	Inquiry/verification monitoring	Permissioned blockchain (hyperledger fabric)

Industries

Smart Factory

IT solution-based intelligent production and operation system to establish dominance in manufacturing competitiveness

Delivering optimized IT services to resolve challenges on the manufacturing shop floor

Today's manufacturing companies face numerous challenges. These challenges include but are not limited to declining quality, rising production cost that occur as a result of production inefficiencies caused by defects in the initial factory design phase and operational systems that are not in sync with shop floor conditions. LG CNS pinpoints these challenges and delivers IT services optimized for factory environments.

Applying digital technology to proven knowledge through 20-years of experience

LG CNS finalized its own smart factory solution by applying AI, big data, IoT and other up to date digital technology based on its know-how and tried & tested wide-ranging products. This includes materials, parts and finished products as well as industries served by LG Group affiliates. This solution combines the ICBMA (IoT, Cloud, Big Data, Mobile and AI) technology of LG CNS, the equipment and process design capabilities of the LG Electronics Materials, Production Engineering Research Institute, and the telecommunications infrastructure of LG U+ to create an optimized smart factory environment on the shop floor.

Core Capabilities

- Experience in integrating IT-based manufacturing systems across diverse industrial fields including materials, parts and finished products
- Best practices accumulated by implementing and operating IT systems at factories with top-notch global manufacturing competitive edge
- End-to-end services for smart factory implementation ranging from the development of shop floor equipment control and production operation systems to analytics services using manufacturing big data
- Solutions delivered by applying IoT, cloud, mobile, big data, AI and other new digital technologies

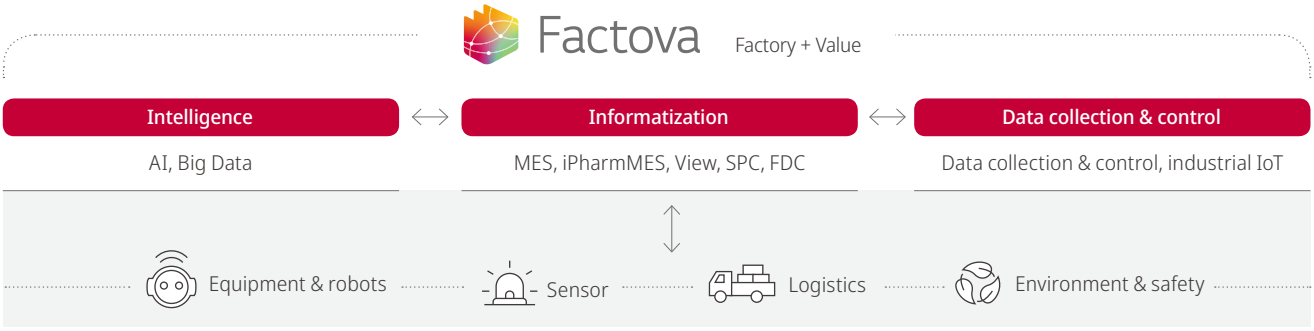
Business Achievements

Factova Design Navigator	· Product design guide system for LG Display
Factova MES	· Global MES for LG Electronics, Global MES implemented at LG Chem
Factova iPharmMES	· Hanmi Pharm, Daewoong Pharmaceutical
Factova View	· Ochang Energy Management System Development for LG Chem
Factova SPC^{Plus}	· LG Energy Solution's SPC development

LG CNS's Smart Factory Platform: Factova

Factova* is an integrated ICT-powered manufacturing platform created by LG CNS that incorporates more than 20 years of experience that has been accumulated at manufacturing sites of LG Group affiliates. Over the years, Factova has contributed to building many smart factories by applying it to more than 60 companies in Korea and abroad. One of the most distinctive features of Factova lies in its application of the latest digital technology represented by ICBMA (IoT, Cloud, Big Data, Mobile and AI) across the entire manufacturing process to enable the evolutionary transition from factory automation to factory intellectualization. This allows for the standardization of business processes within the industry by their swift and systemic dissemination to maximize manufacturers' competitive edge.
Factova consists of informatization, intelligence and the three domains of data collection & control. Within the collection & control sector, data is collected from equipment and sensors to enable control functionality while real data is put to use to execute production through communication with equipment. In the intelligence sector, collected data is used to make optimization decisions through AI and big data.

*Factova: Combining 'Factory' and 'Value', Factova represents LG CNS's strategic brand that embodies its commitment to delivering differentiated customer value in order to create freedom to act independently based on real-time data.



Solution

Factova MES[Plus]

By managing performance in line with production plans and sharing production status in real time, it improves productivity and efficiency of work process. In addition to standard MES solutions, it supports the prompt integration of industry-specific functions embedded with best practice.

Factova SPC[Plus]

Each and every production process is managed and operated in their optimal condition to enhance product quality. In addition, statistical analysis methodologies are provided to efficiently detect process performance and fluctuations in order to manage characteristic variations in product quality along the manufacturing process.

Factova RMS[Plus]

Variations in equipment process conditions are managed so that the entire production process is operated in its optimal conditions.

Factova iPharmMES

It provides manufacturing process control, ability to go paperless, and regulatory responses required for the application of PAT (Process Analytical Technology) at pharmaceutical manufacturing sites. In addition to various regulatory requirements in the pharmaceutical industry, it provides the standard work processes and functions in compliance with MES international standards while controlling and optimizing the work processes to ensure compliance with standard operating procedures.

Factova View

Real-time monitoring and control is performed to ensure that all environmental and utility facilities operate in their optimal condition to improve production quality. Energy consumption is identified and controlled at the entire factory and individual process levels.

Factova Connector

The international standard protocol SECS-II/HSMS, which is adopted for TCP/IP-based message communications interfaces, is rendered easier to be used in the key areas of manufacturing and other diverse systems.

Factova Control

It is a PC-based control platform that precisely controls all the production, logistics, and utility facilities in real-time according to the various global standards. Using the FACTOVA- Control, clients can build complex equipment lines with different models in a flexible manner.

Factova Design Navigator

Developed based on the design of know-how experts, the solution provides guidance on design process for new employees and helps them to improve their productivity. In addition, it assures production quality through validation of mass-production in advance.

Industries

Smart Logistics

IT-based Smart Logistics Service for Maximum Productivity and Efficiency

Understanding the logistics process of each and every client

To ensure agility in responding to the rapidly-shifting market conditions, LG CNS acquires in-depth knowledge of each and every client with regards to their equipment composition and optimal logistics process.

Total Engineering Logistics Solution

We deliver end-to-end engineering solutions and services in the logistics automation equipment sector, ranging from consulting, detailed design, deployment to solution offering and maintenance.

Core Capabilities

- A rich experience in logistics consulting, optimization, and capabilities in total engineering
- Successful completion of multiple large-scale projects

Service Offerings

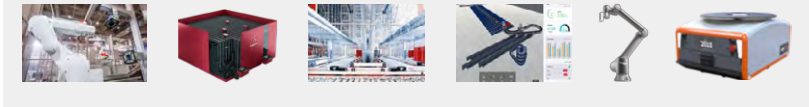
LG CNS Smart Logistics

- Logistics consulting
- Strategy development for logistics centers
- Logistics center operation process and layout design, logistics cost reduction and optimization
- Logistics center automation facility deployment
- Logistics center optimization facility and solution

·Cross-Belt Sorter	·Digital Twin	·Smart Sorter
·HSS (High Speed Shuttle)	·AI/Vision	·QPS (Quick Picking System)
·AutoStore	·Optimizing	·Smart Singulator
·Robotics	·Factova-Control	·MLS (Multi-Level Shuttle)
·IoT	·GreyOrange Butler	
	·Smart Gantry	

LG CNS's Smart Logistics Platform

Optimization & Simulation	Digital Twin	INFioT	DAP	Robot Control System
Optimization & simulation	Center control & monitoring	IoT predictive maintenance	AI Big Data	Robotic operation platform



Total Logistics Solution Provider

Logistics consulting	· Top Industrial experts · Consulting experience · Systematic methodology	· Over 20 logistics / SCM consultants and over 430 IT and facilities engineers · Mid/long-term logistics strategy setting, logistics cost & center operation optimization · Experience in executing 200+ logistics center projects, in Korea and global markets, establishing development methodology
Logistics center design and deployment	· Basic and detailed design · Center development · Logistics equipment and solution	· Definition of the role and size of logistics centers, center layout design, operational and equipment design, etc. · Experience in deployment of multiple logistics centers – distribution, courier and fashion industries · C/B Sorter and shuttle localization, miniload/ QPS/pick sort development, global strategic collaboration system for facilities such as Auto Store, Trans robots.
Facility control and IT solution	· Facility control · Logistics IT solution · Project quality management	· Proven integrated facility control solution (Factova Control) · IT-enabled logistics solutions including WES, WCS, ECS and Digital Twin · Dedicated project management tool, used in over 500 projects per year

Total Service offering for Logistics Center Deployment

Consulting ▸ Layout / Facilities ▸ Simulation ▸ Design Drawing ▸ Center Implementation ▸ Information System ▸ Support for Stabilization

Business Achievements

- Mega hub terminal in the Seoul Metropolitan area, and logistics automation equipment and express delivery centers at Logis Park Dongtan and Yangji centers, CJ Logistics
- Eastern RDC automation center, CJ Freshway
- Facility design for the Mega Logistics Center, eBay Korea
- Logistics automation equipment for the on/offline-integrated center, CJ Olive Young
- Sihwa MTV miniload automation center, LX PANTOS
- Auto Fresh Euiwang Center and Auto Fresh Western Center in Busan, LOTTE Super
- Automation for mega hub terminals in Jincheon and subterminals in East Daegu and Yongin, LOTTE Global Logistics
- Junggyoe, Gwanggyo, Gangbyeon, Gwangju Suwan, Jamsil, Guri, Euiwang and nine other locations, LOTTE Mart
- Namsa Distribution Hub center in Yongin, Daiso
- East Seoul Food Ingredient Logistics Center, Ourhome
- Shanghai Fashion Logistics Center in China, E-Land
- Logistics automation for the Cheonan distribution center, E-Land Retail
- Logistics automation for the Pyeongtaek distribution center, Shinsegye Food
- Automatic express waybill sorter deployed at the logistics terminal in eastern Seoul, Hanjin
- Automation for Bucheon 2, Yangsan, Bucheon 1, Ansan, Goyang 2 centers, Coupang
- Jangseong center automation, Nonghyup Hanaro
- Gimpo location automation, Market Kurly
- Cheongju location automation, LG Household & Health
- Yeosu location automation and cathode materials automation in Daesan and Cheongju, LG Chem
- Parcel logistics automation at locations with heavy post workloads in Daegu, automation in Gwangju
- Vault automation, Bank of Korea
- Logistics automation in Cheongna, Big Heat
- International delivery center in PosLaju, Malaysia

Industries

Digital Finance

IT service for digital finance leading the digital transformation of financial institutions with expertise on financial IT systems and new digital technology

Tailor-made digital strategy and new technology application

LG CNS develops digital strategies that cater to the distinctive characteristics of financial institutions and offers insights to help them discover new growth drivers. We support the swift application of latest digital technology while connecting a range of internal/external channels along with legacy systems operated by large-sized financial institutions.

Specialized solutions for core financial operations

Our digital financial service offerings include not only digital technology-based solutions that include AI, big data, cloud, blockchain, and MDD (Model Driven Development), but also specialized solutions for core financial operations such as banking, credit card, capital, insurance, securities, and PG (Payment Gateway). Furthermore, we continue to apply the latest AM (Application Modernization) technology to enable financial institutions to flexibly respond to changing business conditions while assisting them to set the course of action for future evolution through digital transformation.

Core Capabilities

- Financial solutions and IT service capabilities based on our extensive experience in developing and operating in a wide range of financial IT systems over the past two decades
- Leadership in new financial digital technology represented by AI, big data, cloud and blockchain
- Competency to develop MyData platforms customized to customer requirements

Main Client

Banking	KB Kookmin Bank, NH Bank, KEB Hana Bank, Kakaobank, Kwangju Bank, Shinhan Bank, Woori Bank, Bank of Korea, K Bank, Jeon Buk Bank
Insurance	Kyobo Life Insurance, KB Insurance, Prudential Life Insurance, Seoul Guarantee Insurance, Shinhan Life, Hanwha Life, Hana Insurance, TongYang Life Insurance, Korea Securities Depository
Credit Card	KB Kookmin Card, BC Card, Hyundai Card, Shinhan Card, LOTTE Card, NH Card, Woori Card
Securities & Capital	Shinhan Investment Corporation, NH Capital, KB Capital, JB Woori Capital, Korea Securities Depository, NH Investment & Securities, Aju Capital, LOTTE Capital

Digital Technology & Platform

Future Contact Center	Block Chain	Cloud	AI, BigData	IoT
DAP Talk AI Connect	Monachain	CloudXper	DAP	INFioT

Digital Finance Solution

Insu Tower	Card Perfect	Capital Perfect	PG Perfect
MDD (Model Driven Development)		RPA ····· UiPath, CHECKMATE	

IT Service

Consulting	System Integration	IT Outsourcing	
Digital technology curating PI, ISP, and cloud transition consulting	IT system implementation Cloud system transition	Application & infrastructure operation Cloud managed service	Data center & security control

Service Offerings

We provide customized end-to-end services that cater to the various changing needs of customers.

Digital Transformation Service Framework

- ❶ Digital Tech Curating SVC
- ❷ Digital Transformation SVC as a Platform
- ❸ Biz Transformation SVC Based on Digital Solution
- ❹ Digital Architecture /Infra Reforming SVC
- ❺ ITO SVC Focused on Digital Transformation

❶ Leverage new digital technology to resolve business issues and identify new growth drivers to create added value through digital technology
: Present digital application tasks, target operation and service models, application of technology and methodology, and presentation of plans implemented

❷ Enable service and data connections across internal corporate boundaries and various industries based on AI, big data platforms as well as blockchain platforms
: DAP platform service, blockchain platform

❸ Support business innovation and improvement through digital solutions
: digital business hub, RPA, digital channel, AI dialogue solution

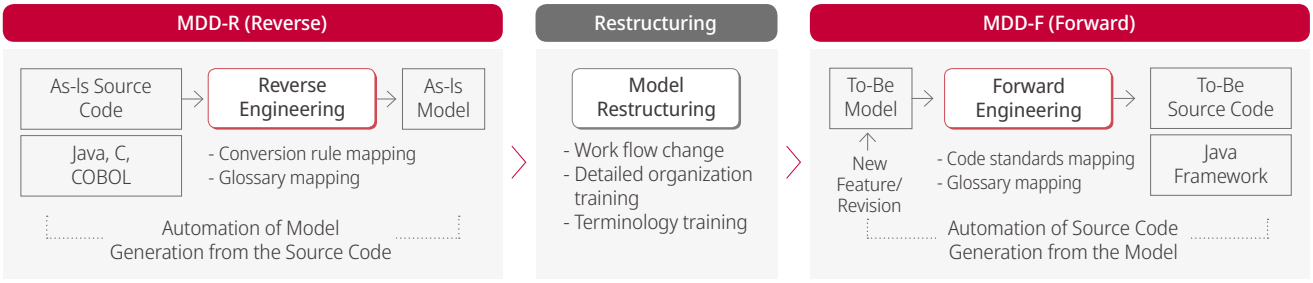
❹ Replace infrastructure architecture by introducing new infrastructure to drive digital transformation
: Reorganize the digital finance architecture and introduce cloud and high-performance computation

❺ Provide digital governance-driven IT maintenance and repair services to ensure the sustained execution of digital transformation
: Infrastructure operation, process, and change in governance in the digital era

Solution

MDD (Model Driven Development)

MDD adopts modeling tools instead of programming languages for coding. Models are used in place of design documents and detailed logic is written in Korean. Once a model is complete, its Java source code is 100% automatically generated with a single click. Just as one would insert a design drawing into a three-dimensional printer to create a fully-rendered stereoscopic product, MDD enables the generation of the complete source code solely from the software development design document. Errors that occur during software execution can be fixed by revising the design model, not the code itself. Generating and understanding design documents in Korean based on modeling is more simple compared to the actual source code.



Business Achievements

- **Next-generation financial IT system implementation**
  Toss Bank, Jeju Bank, Kyobo Life Insurance, Shinhan Life, Hana Insurance, etc.
- **Large-size IT outsourcing**
  Shinhan Card, KB Kookmin Card, KB Insurance, TongYang Life Insurance, Prudential Life Insurance, etc.
- **MyData**
  Woori Bank, Hana Bank, KB Kookmin Bank, BC Card, Shinhan Card API, KB Kookmin Card API development
- **Application Modernization business (MSA, Agile, etc.)**
  Corporate banking system for Standard Chartered Bank of Korea, mobile SFA system for Hanwha Life
- **DCX (Digital Customer Experience innovation)**
  New Star Banking for KB Kookmin Bank, Liiv Reboot for KB Kookmin Bank, website renewal for KB Kookmin Card
- **Future Contact Center**
  Chatbot/voicebot for Woori Bank, customer/employee chatbots for KB Kookmin Bank, AI contact center for Shinhan Card, incomplete sales prevention system for Shinhan Bank
- **AI**
  AI-based voice phishing monitoring system for KB Kookmin Bank

Industries

Retail

Services and solutions that support digital transformation delivered across the entire spectrum of the retail industry, from customer to back office operations

Smart Retail Service

LG CNS provides a wide array of solutions and services both on the front-end side (web coding) delivering new customer experience as well as on the back-end side, further upgrading the level of business operations.

Solutions Offering

New customer experience	Data-based service	CS advancement
Smart Store	Customer behavior analysis/ recommendation	Contact Center
Digital Marketing	Targeted marketing	Chatbot/Voicebot
Digital Commerce		
Mobile Channel		

Digital Transformation Framework

Back-End → Factory Logistics → Front-End

Intelligent process	Digital collaboration infrastructure	Intelligent production & logistics	Security
RPA	Smart Workplace	Smart Factory	MPS
Process Mining	Cloud	Smart Logistics	MDM
	AI, big data		
	Block Chain		

Services

Consulting | System Integration | IT Outsourcing | Business Process Outsourcing

Consulting

In partnership with Entrue Consulting, a professional consulting organization within LG CNS, we discuss and develop strategies to innovate processes and implement plans to drive digital transformation.

ISP for Home & Shopping, conceptual design for eBay Korea's direct purchase operation system, detailed MSR design for Starbucks Korea, ISP to build an integrated financial information system for Hyundai Department Store Group, PI to develop a next-generation system for Redcap Tour, etc.

System Integration

To keep up with the rapid advancement of the retail and service markets, we reliably deploy infrastructure and applications optimized for the shifting IT systems market and the enterprise environment.

Operational system renewal for CJ O Shopping, integrated settlement system deployment for Korea Seven, digital commerce system development for GS Retail, logistics automation facility connection development for WMS, direct buying operation system for e-Bay Korea, BI/DW for Twosome Place

IT Outsourcing

We work with our clients to identify ways to optimize their specific business conditions and ensure stable, effective operations within the increasingly complicated system environment.

Infrastructure operation for GS Home Shopping, ITO for LX PANTOS, ITO for Redcap Tour, Infrastructure operation for Summerce Platform (private cloud), infrastructure operation for Korean Air (AWS)

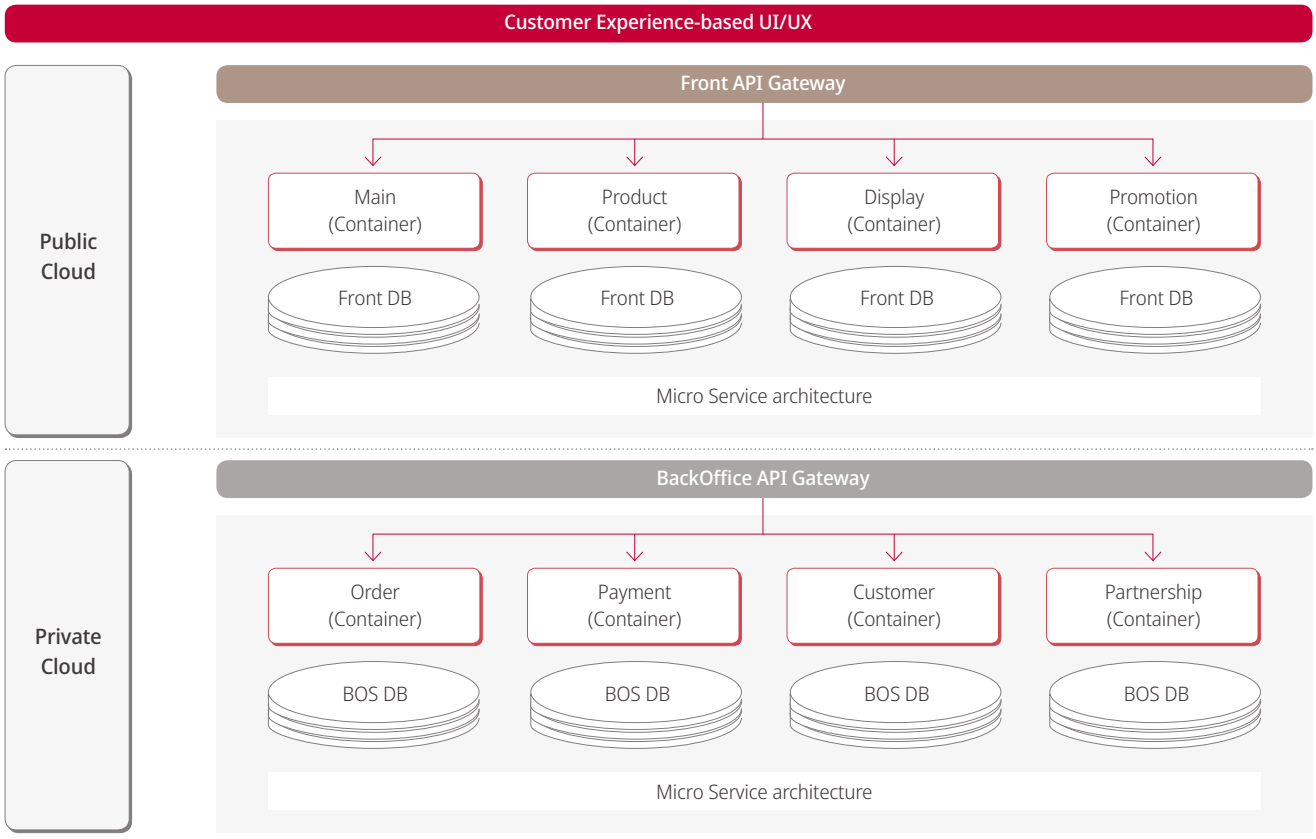
IT optimization assessment

We deliver optimal solutions to identify and solve pending issues through the optimization assessments performed on infrastructure architectures that are the backbone for efficient corporate operations.

IT optimization assessment consulting for Home & Shopping, integrated infrastructure assessment consulting for GS Retail, optimization assessment for Twosome Place, architecture assessment for Amway

Digital Commerce Business

We provide our cutting-edge new technology on the basis of UIs that maximize customer experience, and deliver reliable services to clients' commerce businesses by leveraging clouds that accelerate corporate digitalization, MSA (Microservices Architecture), Agile, and DevOps.



Service Features

- Provide reliable customer service by securing flexible infrastructure to respond to non-structured customer traffic in the cloud environment
- Eliminate connection failures and create a large-scale distributed environment through segregation at the microservice level

Industries

Teleco & Media

Telecommunications & media solutions and services that always put customer value first and lead innovation on the strength of digital technology

Going beyond the boundaries through technological insights accumulated in the telecom & media market

In 2011, LG CNS became the first in Korea to successfully build an integrated wired/wireless BSS (Business Support System) and OSS (Operate Support System), becoming a leading telecom player. Through the strength of our insight and information & digital technology capabilities accumulated in the telecom & media market, we broaden our territories into emerging industries and service sectors that converge with the telecom & media market, assisting our customers to strengthen their business competitive edge.

Leading innovation to serve the domestic media market and deliver customer values

LG CNS has served as an innovation leader in the domestic media market, unveiling DCAS (Downloadable CAS), android STBs (Set Top Box), and cloud TVs. Our relentless commitment to innovation continues to create customer values as demonstrated in our messenger-based talk ordering, unmanned smart stores enabled by AI and big data, and smart contact centers operated by virtual customer counselors.

Service Offerings

■ Areas where LG CNS owns independent platforms and solutions

IT diagnosis and consulting	+	System development and operation	+	Independent solution and platform business

Data Services	Commerce/Payment (Mobile) Advertisement Connected Car Communication/LBS	Smart Store Solution Media Digital Media Center (creation, editing, archiving system) UI and Application Virtualization Solution (Cloud UI) Smart STB Solution (Middleware, CAS)
Digital Platform	IoT Platform Big Data Platform AI Platform Media Platform	
Business	BSS[1] ·Product/Customer Management ·Registration/Initiation ·Charging/Billing/Payment ·Sales Performance/Bond ·Terminal Logistics ·Website	Smart Intelligent Contact Center Chatbot / Voicebot / VOC Analysis
Operation (Network)	OSS[2] SPACE-N NMS[3] SDN[4]/NFV[5]	Business Mgmt.: ERP, Procurement/DW/EIS; Smart Workplace Platform; iKEP[6] UCAP[7]

1) BSS: Business Support System
2) OSS: Operation Support System
3) NMS: Network Management System
4) SDN: Software Defined Network
5) NFV: Network Function Virtualization
6) iKEP: Enterprise Portal Solution (Mobile, PC)
7) UCAP: Unified Communication Solution (Mobile, PC)

Core Capabilities

- IT consulting in all fields of telecommunications, broadcasting, and media industries, industry specialization and IT system developments/operation capability
- First to successfully build an integrated wired/wireless BSS and OSS (2011) in Korea.
- First to develop android STBs for pay-per-view TV broadcasting (2011) in Korea.
- First to develop a hybrid (rule & deep learning) intelligent mobile customer center (2017) in Korea.
- Experience in building and operating independent platforms powered by digital technology (IoT, cloud, big data, mobile and AI)
- Plan, develop and operate data service as well as ICT convergence service
- Experience in building MSA (Microservice Architecture) infrastructure and its executional capability
- Capabilities in developing systems, terminals, and terminal software spanning from media contents generation to their distribution

Solution

Cloud UI (Media Platform)

As a virtualization-based solution, the server performs all operations on the UI and its services. The STB receives the processed video from the server and displays it on the screen. (customer: D'LIVE, CMB, KCN)

SPACE-N (OSS Solution)

This inventory management solution is designed to manage core assets such as network systems, facilities for telecommunication, cable service providers, and utility companies. As a core component of the telecommunication OSS, it supports logical and physical (GIS) inventory management across its full network in the end-to-end perspective. It is also applicable in managing key assets of various utilities. (customer: Daegu Metropolitan City Hall)

SMUF (Smart Machine-learning Unified Framework)

This integrated solution ranges from machine learning/deep learning model development to testing, operation, and service environment configuration and shortens the lead times taken to create machine learning services. Working level users are allowed to develop machine learning/deep learning services solely based on their own data without assistance from model developers or machine learning platform operators. (supplied to LG U+)

iKEP (Smart Workplace Platform)

This enterprise collaboration platform solution supports a single gateway access to the corporate information system and provides a smart collaboration environment where employees can efficiently perform their work beyond time or space limitations. The platform delivers a seamless environment that allows for collaboration and integrates business conversations, materials and tasks as well as a framework that aligns internal and external services.

AI Contact Center

AI contact centers deploy voiceBots as AI-enabled virtual counselors to respond to customer inquiries and automatically receive their requests. These centers are operated on the AI platform built on the combination of machine learning technology with STT (Speech to Text), TTS (Text to Speech), NLU (Natural Language Understanding), and Dialogue Flow.

Smart Store

This next-generation store operation solution includes the SEMS (Smart Equipment Management System) that supports efficient energy management through in-store electronics and equipment control. Unmanned store operations are supported through access controls, in-store security, and customer shopping path analyses while AI-based product image recognition technology is deployed to run self checkouts.

Business Achievements

- Implemented and operated four digital platforms (IoT, Big Data, Media, AI) for LG U+
- Provided total IT services for LG U+ that ranges from infrastructure to application (entire IT system data service, ICT service)
- Developed next-generation OSS and NMS for LG U+ network
- Developed a next-generation BSS (Business Support system) for LG U+ in response to the 5G market (U Cube) (2019-2022)
- Implemented and operated KT bizmeca EZ (SaaS)
- Delivered numerous projects; DW, CMS, PRM, BSS, etc.
- Developed next-generation BSS architecture for KT
- Provided Cloud UI service to cable TV operators; DLIVE, CMB, and KCN
- Implemented digital media centers (production, editing, broadcasting) for SBS and KBS
- Developed SDK and supplied tablets for Softbank's robot, 'Pepper', in Japan

Industries

Chatbot

AI Tutor and Commerce & VPA chatbot services delivered through mobile channels on the basis of voice-activated AI technology and conversational evaluation algorithms

AI Tutoring Service Platform

AI Tutor, created through voice-based AI technology and conversational level evaluation algorithms, engages in conversations with students through conversational UX (User Experience) assisting them in acquiring foreign language skills through practice and repetitive training on the AI-enabled tutoring service platform.

Core Capabilities

- Language learning service platform provided through voice-based AI technology and algorithms
- Multi-business and multi-service approach made easier through the use of VoiceDesigner, a conversational scenario creation tool
- Learning content developed and provided based on authorized language learning material and teaching methods
- Quantitative evaluations performed on the sentences spoken by users (accuracy, proficiency, etc.)
- Patented application made on 'methodology to provide foreign language learning devices and foreign language learning services using such devices' (Oct. 2019)
- Language conversion to support multi-lingual learning
- Score prediction algorithm on official English conversation proficiency tests (TOEIC speaking and OPIc)
- Korea's first commercial conversational AI language learning service (2019)
- Excellence Award granted at the Mobile Awards Korea 2019
- Surpassed the 10,000 mark of cumulative users in just two months following commercialization (Feb. 2020)
- Korea's first to be invited to the Google Assistant Top Partner Advisory Board to host the AI Tutor presentation (2019)

Service Offerings

AI Tutor for English conversation learning | Users engage in natural conversations with AI Tutor to practice English conversational skills under specific situational scenarios and make improvements.

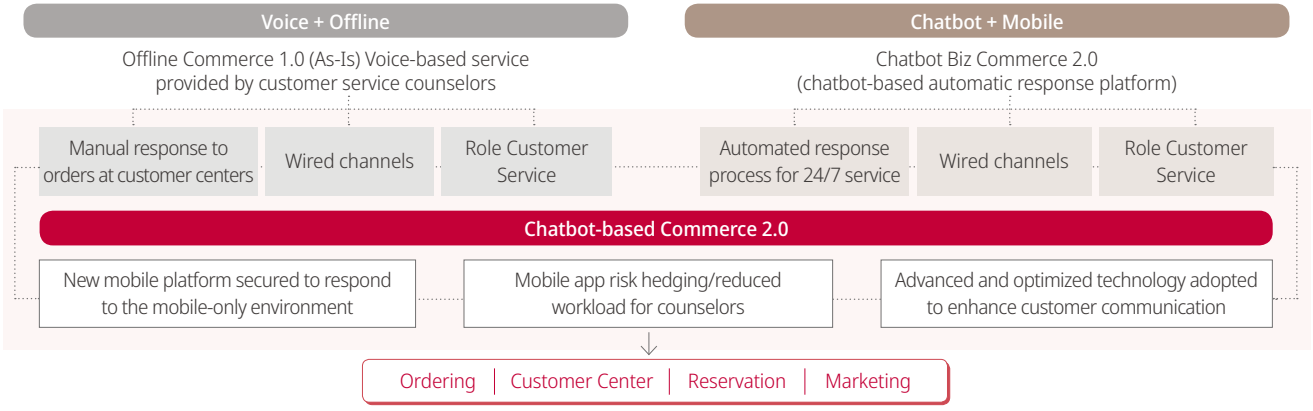
AI Tutor for TOEIC speaking | Intensive speech training is provided to improve scores on TOEIC speaking tests. This service is structured in a way to fully use learning material that is available commercially and allows users to practice expressions by the type of questions. It also offers foreshadowing of the best answers identified through the prediction of TOEIC test results.

Business Achievements

- AI Tutor deployment at LG Group affiliates and other domestic companies for official in-house conversational language training (LG Electronics, LG Chem, LG HelloVision, NONGSHIM, KEPCO, KCC, KB Kookmin Card, Yuhan-Kimberly, CJ CHEILJEDANG, LOTTE Home Shopping, LX Semicon)
- AI Tutor commercially open for language learning service providers (CARROT Global, Tutoring, YBM, Pagoda, and Yoons English School)
- AI TOEIC SPEAKING commercial release, YBM (Nov. 2020)
- AI Tutoring supply contract signed with companies and higher education institutions (Hunet, megaNEXT, INKIUM, TTC EDU)
- AI Tutor introduction for credit course at the International English Education Center, Hallym University (Feb. 2021)
- AI Tutor commercial release for conversational English education at AEON, Japan's No. 1 language learning service provider (Apr. 2021)
- Speaking Class' commercial release as an universally-accessible tool for AI Tutor service creation (Apr. 2021)

Commerce Chatbot Service Platform (B2C)

We deliver B2C (Business to Consumer) commerce chatbot services that can be deployed for ordering, customer center operation, and marketing. Chatbots are created based on diverse chatbot builders provided by LG CNS, Google, Kakao and others. Chatbot-based ordering & reservation and customer center operation and marketing services are made available through a wide range of channels including responsive web, Kakao, and Google Assistant.



Service Offerings

Chatbot customer center	This platform enables automatic response to customer inquiries through chats delivered on diverse channels such as mobile web, Kakao Talk Plus Friend, and Google Assistant.
Chatbot ordering /reservation	This platform enables product ordering and payment through chatbots across a wide range of channels including mobile web, Kakao Plus Friend, and Google Assistant.
Messenger marketing service	Through varying channels such as mobile web and Kakao Plus Friends that are linked with text messaging and notification talk services, this platform provides marketing services to easily launch a range of events, including surveys, receipt of applications, and new product promotion.

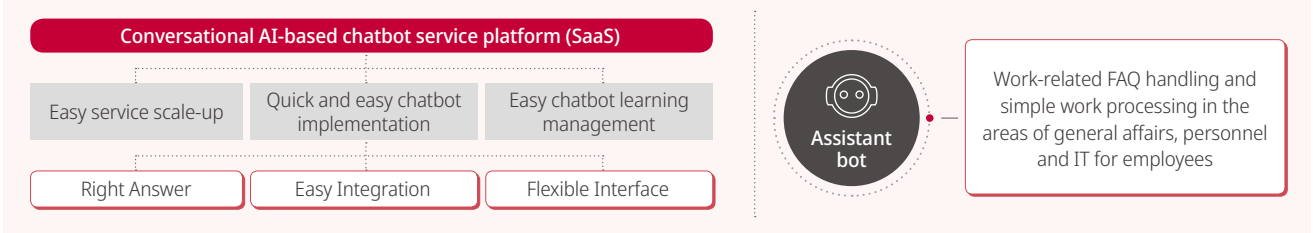
Business Achievements

· Web-based chatbot customer center for NU SKIN Korea

· Kakao-based real-time TV home shopping ordering service for Hyundai Home Shopping

VPA Chatbot Service Platform (B2E)

LG CNS provides a B2E (Business to Employee) chatbot service platform that supports internal work processing capabilities and handling of customer inquiries in alignment with the enterprise system. Chatbots accurately identify the intention of the questions raised by customers and offer appropriate answers based on the pre-determined Q&A scenarios.



Service Offerings

- Virtual Personal Assistants (VPA) provided to improve the work efficiency of individual employees
- Partners, agencies and sales reps provided with self-directed work guides and work processing support

Business Achievements

- Assistant bot: LG CNS, LG Electronics, LG Display, LG Chem, LG U+, and GS E&C
- Year-end tax adjustment bot: LG CNS
- Partner company bot: LG CNS
- Specialized agency task bot: Hiplaza

Industries

Security

We provide end-to-end services optimized for the enterprise environment, from security consulting and security system development to security solutions and security monitoring and support our clients to pursue digital transformation while maintaining security.

Information security leader in the digital transformation era

LG CNS is the first in Korea to complete and commercialize a smart factory security system. We have also established a cloud security system to provide a secure cloud environment for cloud transition at the LG Group level.

Serving a broad array of security areas

Years of experience in security consulting, implementation and operation across a wide range of industries, including large-scale finance and public services, has resulted in the establishment of today's comprehensive business portfolio that spans across 109 types of security solutions in seven domains, including cyber/physical security consulting, security SI, and security operation & control.

LG CNS's Security Service: Safezone

Security Consulting	Security Solution
Information security masterplan consulting	Cloud security check solution
Personal information protection consulting	Information security portal (Safezone SRP)
Information security certification consulting	IoT security solution (Safezone IoT)
Cloud security consulting	Access control (Safezone IDP)
Factory security consulting	Video surveillance (Intelli-VMS)
Physical security consulting	Physical security integrated monitoring (Safezone PSIM)
Vulnerability assessment and hacking simulation	

Safezone

Security Implementation	Managed Security Service
Security system implementation for Smart Factory	Security control service (Safezone U-sec)
Security system implementation for Smart City	Security management shared service
Security system implementation in the public, finance and corporate sectors	
Physical security system implementation	

Core Capabilities

- Capabilities and solutions on convergence-driven security implementation that integrates cyber and physical security
- Security framework implementation to leverage new technology (AI, Big Data, IoT, and Cloud) or to protect new technology services such as smart factories
- Extensive pool of security experts with more than 10 years of work experience in the entire security spectrum including consulting, implementation and operation

Business Achievements

- Cyber security center established in Morocco (2011)
- CCTV control center built in Eunpyeong-gu Office, Seoul, Korea
- Financial security monitoring system developed at the Financial Security Institute
- Security monitoring center implemented and operated at LG Group
- Physical security systems implemented at domestic/overseas factories of LG Group
- Information security architecture developed and implemented for public cloud transition at LG Group

Service Offerings

Security Consulting Service

Area-specific security consulting

LG CNS security consulting service proposes integrated information security models optimized for client companies to help build an advanced information protection system. With strong security consulting experience and expertise accumulated over the past two decades, we identify the root causes of security vulnerabilities and present actionable improvement plans.

Vulnerability assessment and hacking simulation

RED Team, our security organization composed of white hackers, provides weakness assessments and hacking simulation services to respond to system intrusion or data leaks caused by technical vulnerabilities. Based on various checklists and scenarios developed by our dedicated vulnerability analysis lab, wide-ranging assessments are performed on cloud environment security configuration, IoT device security and industrial control equipment (PLC) security as well as web operations, applications and technical personal data impact.

Security System Implementation

Security system implementation for Smart Factory

LG CNS security system protects critical facilities and prevents information breaches with the help of ICS (Industrial Control System)/SCADA (Supervisory Control and Data Acquisition) experts experienced in factory security consulting and security system implementation for LG Group affiliates as well as the Factory Security Solution Suite that support the integrated and vendor-neutral resolution of security threats.

Security system implementation in the public, finance and corporate sectors

LG CNS provides security systems that take into account future operational efficiency on the basis of time-tested design experiences and implementation procedures applicable to varying industries and business sizes.

Cloud security system development

We make the best use of AWS, Azure, GCP and other cloud native security services offered by cloud service providers to design and deploy a system that fully delivers agility and scalability that are the strengths of cloud offerings all while improving security.

Security system implementation for Smart City

LG CNS proposes integrated security measures for IT security, IoT security and physical security to ensure the comprehensive protection of Smart City components while harnessing AI technology to deliver an intelligent security monitoring system capable of detecting abnormalities based on the information collected from respective devices.

Security Solution

LG CNS provides customized security solutions specific to client business requirements.

- Cloud security management solution
- Information security portal Safezone SRP
- Physical security integrated monitoring solution Safezone PSIM
- Video surveillance solution Intelli-VMS
- IoT security solution Safezone IoT
- Access control solution Safezone IDP

Security Management Service

Security monitoring

A 24/7 security monitoring service provided in both on-premises and cloud environments ensures the business stability of clients by offering guidance on the latest security trends and prevention activities. Additionally, it assists in detecting and addressing real time security threats that occur internally and externally.

Security management sharing service

LG CNS's security specialists perform essential security management operations for companies facing difficulties in security management due to the lack of professional security workforce. This service is divided into 13 sub-services designed to improve clients' information protection performance. Furthermore, a wide array of services are delivered for the entire security management operations from the PDCA (Plan-Do-Check-Act) perspective, and our top-tier security experts, including hacking simulation specialists, provide highly-customized support.

Cloud Security Service

LG CNS delivers end-to-end cloud security services that include security consulting, system implementation, solution delivery and security monitoring. These services help resolve one of the greatest challenges of public cloud, and ensure safety in cloud transition, implementation and operation.

Cloud Security Architecture in the AWS Environment

<table>
<tr><th>Function
Layer</th><th>Hacking/ Malicious Code</th><th>Access Control</th><th>Authentication/ Authority Management</th><th>Encryption</th><th>Logging & Monitoring</th><th>Vulnerability Management</th><th colspan="2">Compliance</th></tr>
<tr><td>Application</td><td>WAF</td><td colspan="2">SSO/IAM</td><td>AWS encryption SDK</td><td>WAS monitoring
Cloud Watch</td><td>Source code assessment
Hacking simulation</td><td colspan="2" rowspan="2">Personal data impact assessment</td></tr>
<tr><td>Network</td><td>UTM (FW/IPS)</td><td>Security Group
NACL</td><td rowspan="4">AWS AIM</td><td>SSL</td><td>Integrated security monitoring</td><td>Vulnerability assessment (manual work)</td></tr>
<tr><td>DBMS</td><td rowspan="3">Vaccine</td><td>DB access control</td><td rowspan="3">AWS KMS</td><td rowspan="3">Cloud Trail
Cloud Watch
Cloud Config</td><td>Infrastructure vulnerability assessment tool</td><td rowspan="3">Group security standards</td><td rowspan="3">Domestic/ international regulations (Personal Information Protection Act, Information and Communications Network Act, location data, GDRP, NW safety)</td></tr>
<tr><td>Server OS</td><td>Server access control</td><td>Cloud vulnerability assessment tool</td></tr>
<tr><td>Cloud Environment/ Configuration</td><td>CWPP/ CSPM</td><td>AWS web console (MFA) CLI (access key)</td></tr>
</table>

3rd party solution · AWS service/function · Security technology · LG CNS service/assessment tool · Regulation/compliance

Industries

HR SaaS

Created on the strong foundation of more than 20 years of implementing and operating HR systems, Next HR is LG CNS's cloud-based HR management solution optimized for Korean Business conditions.

HR management solution optimized for Korean business conditions based on accumulated expertise

Next HR (Human Resource) represents LG CNS's SaaS (Software as a Service) HR management solution. Our clients will surely benefit from this effortless application across the entire HR operations, from organization, HR administration and time/attendance to payroll and year-end tax adjustment, without having to develop additional infrastructure. Next HR, created based on more than 20 years of experience in implementing and operating HR systems at LG CNS, delivers essential core functionalities for enterprise clients. Notably, this solution reflects Korea's unique HR work characteristics, which include applicable laws and regulations – the Labor Standards Act, tax laws, and the Personal Information Protection Act – that are not considered in imported solutions.

New digital information technology applied to flexibly cater to specific business conditions

As a SaaS solution that leverages LG CNS's cloud technology, Next HR helps clients minimize upfront implementation costs and follow-up operational costs. This solution also enables enterprise users to choose processes and functionalities required for specific business conditions and to swiftly apply them to HR operations. Furthermore, Next HR supports the rapid application of LG CNS's new digital and information technologies, such as chatbots, RPA (Robotic Process Automation), AI and big data.

Core Capabilities

- **SaaS that provides optimized HR services:**
  Minimize clients' burden of implementation costs and operational costs paid upfront
- **Services optimized for Korea's unique HR operations:**
  Enable timely response to Korea's Labor Standards Act, tax laws and Personal Information Protection Act, which is rarely delivered by imported solutions
- **Application of new digital technology to HR operations and its guaranteed scalability:**
  Support scalability to new services in alignment with new digital technologies such as chatbots, RPA, AI, and big data
- **Rapid implementation and deployment of HR services:**
  Introduce optimal HR systems following service subscription without purchasing or installing infrastructure
- **Service configuration that improves ease of use for both HR managers and users:**
  Provide essential core business functionalities and easy-to-use flexible services
- **Implementation of highly-mature HR systems and their stable operational services:**
  Provide stable operational services based on LG CNS's 20-year expertise in implementing and operating HR systems

Service Overview

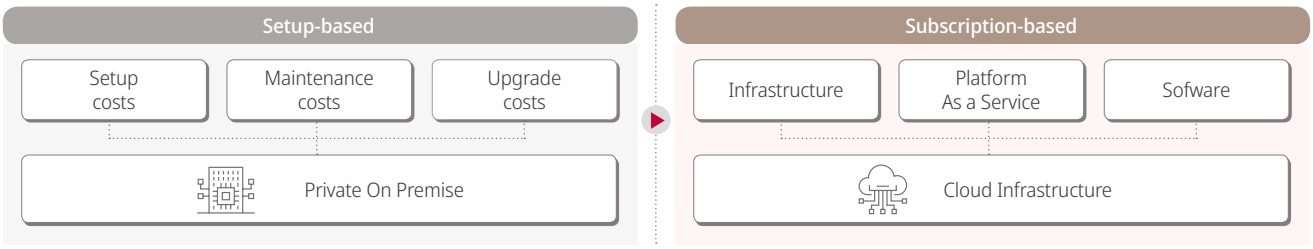
Cloud-based services are made available across the entire HR operations, spanning from organization, work assignment, time/attendance, payroll, appraisal to year-end tax adjustment. Furthermore, HR operations are digitalized at the request of clients by application of new technologies such as mobile, chatbots, AI, big data, and RPA.

Service Offerings

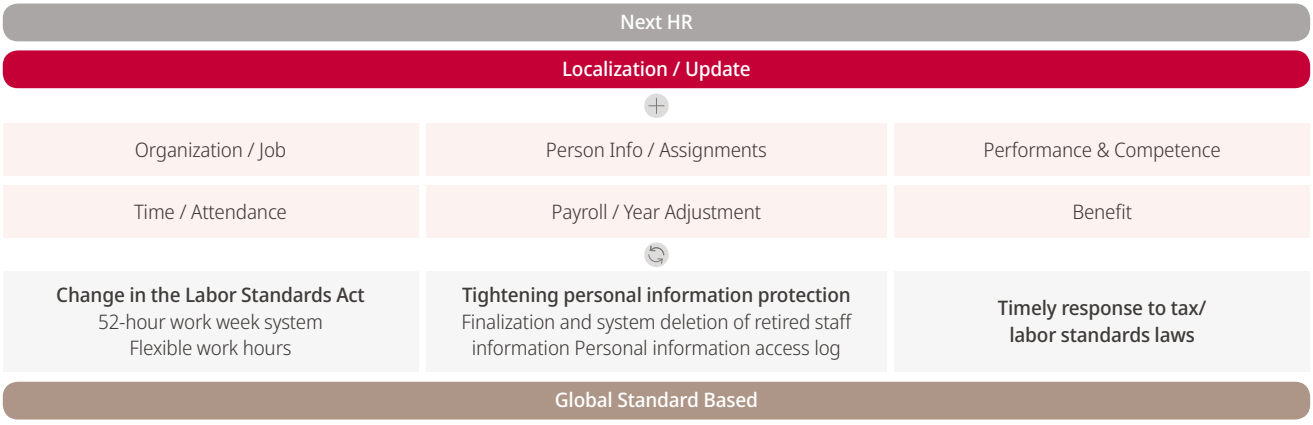
Next HR provides standard processes that have been verified and optimized through its application at domestic businesses.

01	02	03	04	05	06
- Organizational & role management - HR information management - Assignment management	- Work hour standards management - Work, leave and performance management - Flexible work hour management	- Social insurance - Year-end tax adjustments	- Standard information and codes - To-dos, approvals and requests	- Payroll - Severance payment	- Appraisal - Promotion and training - Key employees

Next HR is a subscription-based service that helps reduce costs of setup and maintenance paid upfront.



Next HR swiftly responds to regulatory changes in labor standards/tax/personal information protection laws and performs upgrades accordingly.



In addition to standard services, Next HR is capable of delivering client-specific functionalities and applying LG CNS's new technology.

Industries

Digital Marketing

Optimized end-to-end optimal digital marketing solutions ranging from marketing strategy development to contents planning & production and advertising effect analysis

Data-driven digital marketing service

LG CNS delivers professional services ranging from marketing strategy development and contents planning & production to advertising effect analysis. This is accomplished through the combination of its leading technology-based platform service and the expertise of domestic/overseas marketing & data analytics specialists. Furthermore, we create data-driven digital marketing structures to provide an optimal full-package of marketing services designed to reach the set goal.

Our scope of advertising execution spans from major domestic/international online media to country-specific key local media. We provide end-to-end services that enhance the brand value and ROI of clients with our strong expertise in simultaneously operating advertisement campaigns in 52 countries across the globe and the performance advancement achieved based on our independently-developed 'Advertisement Management Optimization Platform'.

Core Capabilities

- AD tech-enabled media strategy optimized for new media required in the advertising sector based on IT capabilities
- New performance indicators identified for specific clients based on AD indicators
- Sustainable performance management methodology applied across the entire cycle of data classification & analytics, data-driven strategy development and real-time implementation optimization
- Search Innovation Award granted at the Google Premier Partner Awards for two consecutive years (2018 & 2019)

Business Achievements

LG Electronics
- Search ads operation in 52 countries for the HA business division (2014-2021)
- Monitor/PC/projector search/banner ads operation for the BS business division (2014-2021)
- LG OLED TV, NanoCell yearly search/video/social media ads operation for the HE business division (2015-2021)
- Xboom yearly search/video/social media ads operation for the HE business division (2017-2021)
- Search ads operation for the Signature brand (2018-2021)

LG U+
- CEO support package enterprise sector online ads operation (2017-2018)

Daishin Securities
- Online media ads operation (2015-2016)

KB Insurance
- Official social media account/display ads operation (2018)

Performance-oriented online campaign

LG CNS provides total campaign services from campaign strategy setting and operation to data analytics with a focus on digital content and platforms. In addition, our offerings are specialized for earned media activities led by influencer marketing as well as campaigns enabled by emerging technologies such as AI, AR and VR.

Core Capabilities

- Campaign planning, operation and production partners operating based on new IT-powered creative competency
- Research on new IT-base campaigns and R&D on deployment technology
- Influencer datasets developed to propose ROI-driven optimal operational plans
- Real-time performance measurement of influencer content through LG CNS's independently-developed IRM dashboard
- Influencer marketing techniques to produce highly efficient marketing outcomes compared to paid media

Business Achievements

LG Electronics

- BS business division
· Yearly influencer marketing operation on monitors/PCs/projectors (2014-2021)
- HE business division
· Yearly influencer marketing operation on LG OLED TV, Nanocell (2015-2020)
· Yearly influencer marketing operation on Xboom (2016-2020)
- NPI campaign operation on UltraWide, UltraFine, and UltraGear (2019)
- HA business division
· Instagram view social media campaign operation (2019-2020)
· Clothing Care social media campaign operation (2021)
- Signature IRM campaign operation (2020-2021)

NH Investment & Securities

- Integrated media campaign operation (2016-2018)
- Official social media account operation (2017)

Marketing data analysis and strategy development

LG CNS leverages its independently-developed global platform to collect and analyze online data and quantify digital marketing outcomes. This enables us to optimize the strategic revision and operation of on-going digital marketing campaigns and allows us to apply the expertise earned to future planning.

Core Capabilities

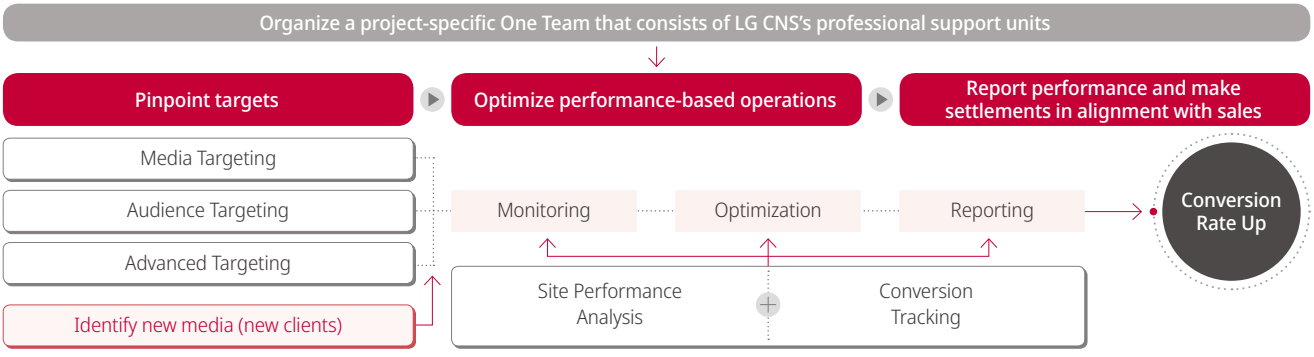
- Organic datafication and visualization of video/search ads and promotional activities operated in mixed mode for online campaigns
- Collection of highly reliable data through the use of top-tier global analytics platforms
- Dashboards that deliver marketing KPI attainment rates, website inflow analyses, competitor searches, and social media shares
- Brand awareness/interest/preference analyses through big data analytics on social media data

Business Achievements

LG Electronics

- Marketing sensing and digital clinic for the HA business division (2015-2021)
- Yearly marketing analyses and strategy identification on LG OLED TV, NanoCell for the HE business division (2015-2021)

Digital Marketing Operation Process



Public Services

Intelligent e-Govern-ment

Unrivaled capabilities in public sector system implementation to deliver efficient administrative services and convenient public services that contribute to reinforcing national competitiveness

Strengthening Korea's e-Government Competitiveness

LG CNS assists in the delivery of transparent public administrative services through e-government deployment and is serving as a key contributor to exporting e-government solutions. We were inducted into the Hall of Fame for our contribution to propagating the excellence of the Korean e-government initiative at the 50th e-Government Anniversary Ceremony in 2017. We are currently ranked #1 in e-government business performance in the domestic market.

Core Capabilities

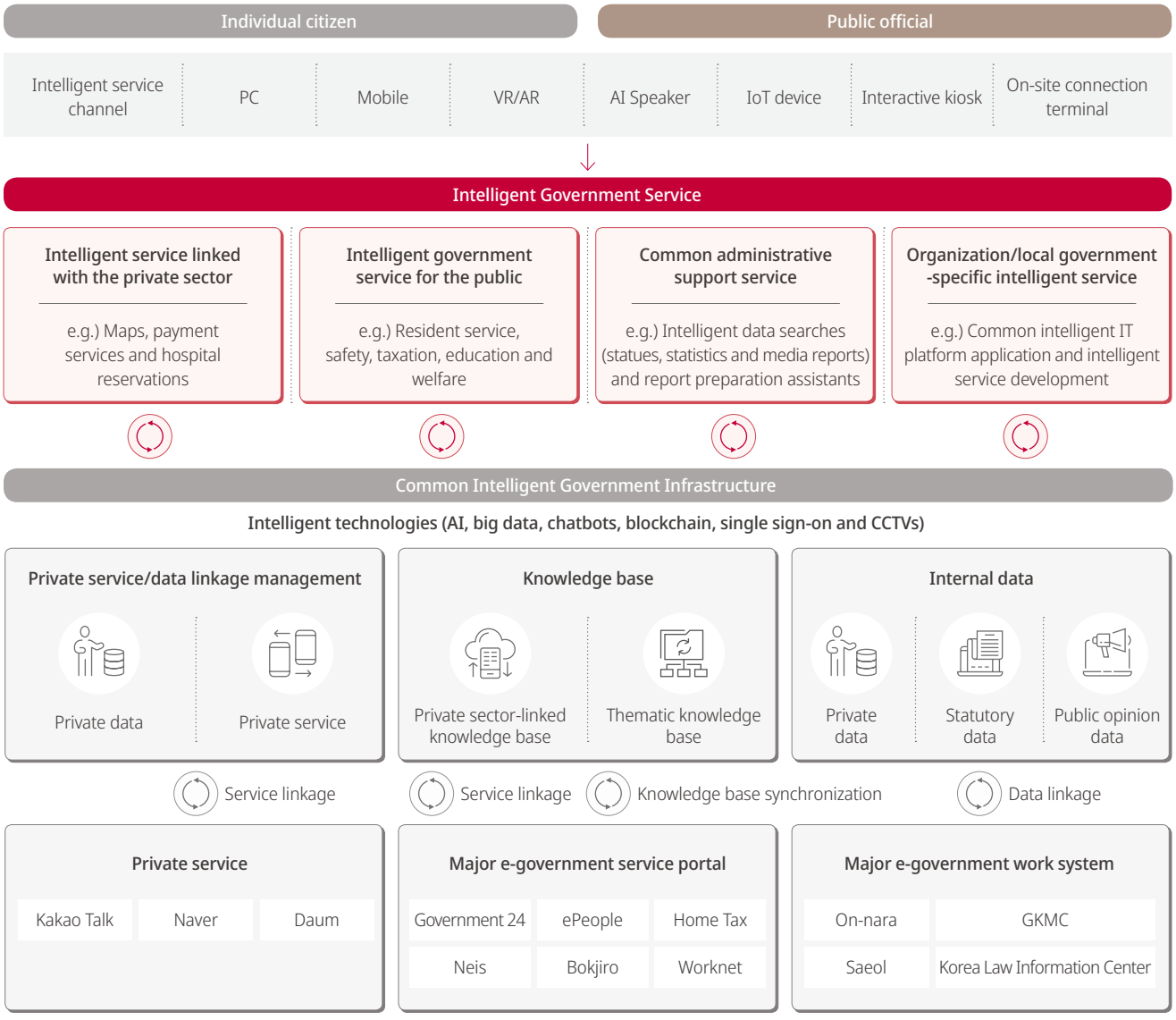
- Ranked 1st in the UN e-Government Survey three times (2010, 2012, and 2014) and implemented more than 60% of Korea's e-government system, which is recognized as best-in-class
- Provide e-government consulting / design / implementation services based on extensive experience
- Extensive experience in overseas public projects, implementing more than 40 e-government systems in over 20 countries worldwide

Service Offerings

LG CNS provides a wide array of services for governmental operations and public services in the areas of the intelligent e-government Government24, national finance and tax administration (national budget, national/local tax, and educational finance), national property, health & welfare, customs procurement, AI cloud data center, judicial affairs (e-court, e-litigation, registration of property corporations, criminal justice, immigrations control, correction data, patent), and public and other affairs (post logistics, e-passport, weather information, e-learning, digital library, Lotto).

Our intelligent e-government offerings lead the interconnected digital ecosystem. Within this ecosystem, the public, businesses, and governments, that serve as producer and consumer of digital information resources and are interlinked through wide-ranging channels, collaborate with one another and continuously generate information resources and services.

Administration	Jurisdiction / Judicial Affairs	Public and Other Affairs
Government24	e-court and e-litigation	Post logistics
National finance/tax	Property corporation registration	e-passport
National property	Criminal justice	Weather information
National disaster safety	Immigration control	Intelligent e-learning
Health & welfare	Correction data	Digital library
Customs procurement	Patent	Lotto
AI cloud data center		



Business Achievements

- **Public/administration:** Government24 (minwon24), next-generation social security system development, next-generation national e-procurement system development, national talent development intelligent open platform development, national customs information network system development
- **Finance/tax informatization:** Next-generation local finance system development, next-generation national property management system development, national tax system development in Indonesia, tax administration system development in Laos
- **Educational informatization:** First Village Smart School development in Sejong City, Hanyang Cyber University operation, Cyber Hankuk University of Foreign Studies operation, ICT education system development in Colombia, e-library development in Uzbekistan
- **e-Passport:** Korea's e-Passport System project Phase 1-7, next-generation immigration administration system development
- **e-Library:** e-library development for the National Library of Korea, national electronic library project in Uzbekistan
- **Public registration:** Next-generation registration system development, registration data system operation, online corporate registration system development in Bahrain
- **Judicial affair:** Criminal justice information system development, e-litigation system development, internet registry office system development, next-generation immigrations administration system development
- **National disaster and safety:** 112 Control Center & 119 Situation Room development, integrated disaster management resource management system development, emergency response system development in Mongolia, crime information management system in Indonesia, maritime navigation safety system development in Bangladesh
- **Post logistics:** Intelligent post information system development, post information system operation, and post operation modernization in Vietnam

Public Services

Smart City

We provide data-driven city platforms and smart city services that meet the real-life needs of citizens by incorporating digital technology into extensive city data.

Korea's Top Smart City IT/Service Integrator

LG CNS is leading the nation's smart city development through its strong digital technology and solution expertise gained through the implementation of urban infrastructure since the early days of U-City deployment.

First large business to be certified under the national integrated platform program

In 2018, LG CNS became the first large business to obtain integrated smart city platform certification led by the Ministry of Land, Infrastructure and Transport and supervised by the Telecommunications Technology Association. Applicants certified under this program are able to deliver basic platform requirements to collect and process urban data and demonstrate reliable connections with the five major safety net systems deployed by the government to protect the life and property of the public (112 emergency video, 112 emergency dispatch, 119 emergency dispatch, emergency disaster identification, support for the socially vulnerable). Certified companies are allowed to deploy their independently-developed platforms in the smart cities of central and local governments to provide sophisticated services. This certification enables us at LG CNS to develop a 'Korean smart city model' optimized for Korean geographical/cultural/demographic characteristics through public-private-government cooperation, and to pave the way for Korea to lead the global competition among smart city standard setters.

Core Capabilities

Exceptional techniques and expertise of a leading smart city IT/Service Integrator

	U-City	Smart City
R&D	R&D for U-Eco city platform (Based on integrated operation technology of smart city infra)	R&D for national smart city strategy (Planning open data hub platform)
Service Planning	U-City service standards (228 unit services in 11 areas)	Smart city PoC/Test-bed/Openlabs (Pilot City-Sejong/Busan, JDC, Haenam SolaSeaDo)
Project	One of a kind project experience across the entire smart city life-cycle (Strategy planning/consulting, design, implementation, operation and transfer/ 18 projects worth KRW 120 billions in Incheon Cheogna, Seoul Magok, Sejong City)	

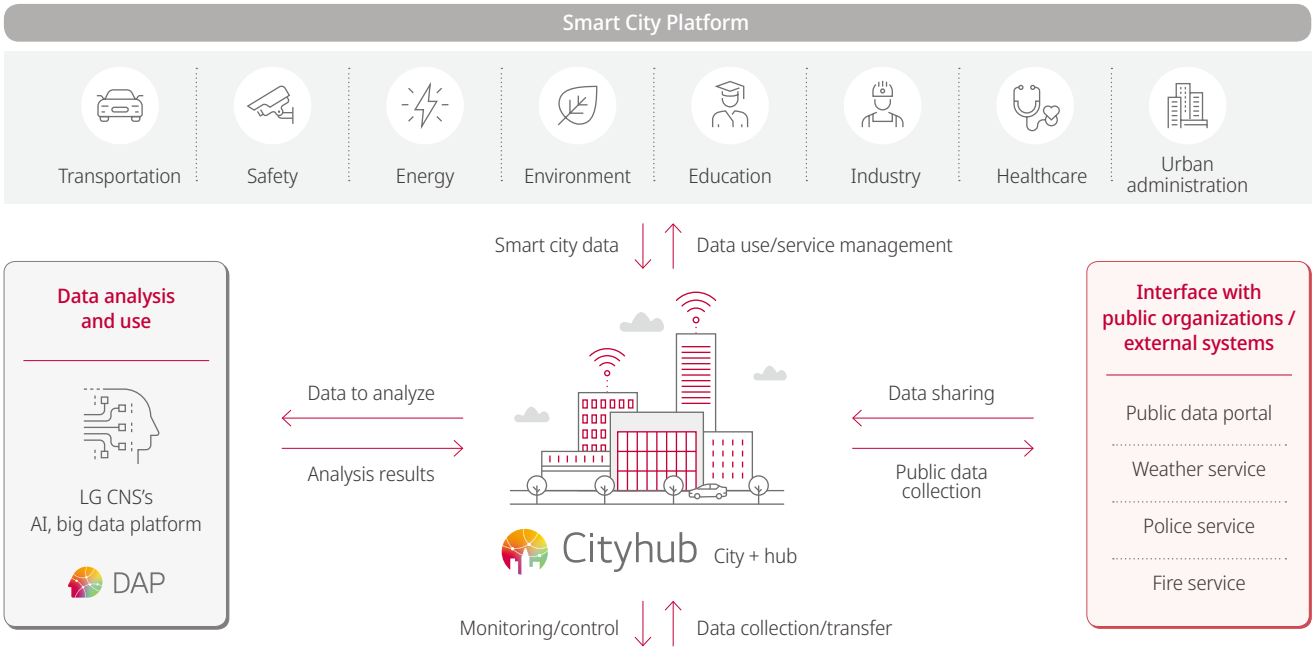
Service Offerings

Consulting	Design / Implementation	Operation / Management
- Smart city concept design - Development of Platform & private investment-based biz. models	- Data-driven city platform design - Platform-based Smart city services planning & implementation	- Urban service control and operation - Supporting service eco-system through platform-based city Living Labs

Solution

LG CNS creates new smart city services by combining digital technologies such as IoT, cloud, AI, big data, digital twin and blockchain across a wide range of industrial sectors from transportation, safety and living to urban management and energy. Our distinctive smart city platform Cityhub* delivers reliable integrated urban operation and management services. Cityhub stores manage and analyze diverse urban data collected from interlinked urban facilities & systems and external organizations to provide multi-sectoral services that improve the quality of life for urban dwellers.

*Cityhub: Combining City and Hub, this strategic brand name embodies LG CNS's commitment to playing a pivotal role in smart city operations.



Business Achievements

Smart City strategy planning and master plan

- Service support for the establishment of the Busan Eco Delta Smart City SPC (Special Purpose Company)
- Integrated consulting for the design of AI and big data centers and IoT implementation for a national demonstration city
- Smart energy and environmental innovation technology introduction planning in Sejong City 5-1
- Goyang Smart City development strategy
- SolaSeaDo smart energy city masterplan in Haenam County, Korea
- Smart city demonstration complex specialization strategy in Jeju Island
- National smart city strategy project (R&D)
- Concept design for Smart City Innovation Test-Bed
- U-City planning and design for Songsan in Hwaseong City, Samsong in Goyang City, Yeongjong and Cheongna in Incheon City, Wonju City in Gangwon Province, North Chungcheong Province, Jeju Island and many others

Smart City working design and implementation

- Urban renewal project in Seun-4-district in Seoul
- Design and implementation of U-City in Seoul Magok District
- Working design and implementation of MTV Smart City in Siwha
- U-City implementation in Sejong City, Cheongna in Incheon City, Homaesil in Suwon City, Future-X in Daejeon, Pangyo, New Town in Eunpyeong-gu, Seoul, Songdo in Incheon City and many others

Smart City creation and operation

- SPC national program for private businesses in Smart City national pilot city Sejong 5-1 zone

Public Services

Smart Transpor-taion

Convenient and safe transportation systems enabled by information technology and transportation services recognized globally for their excellence

Leveraging IT to support a wide array of transportation modes

We are creating successful business cases of smart transportation by leveraging information technology to provide convenient and safe mobility services at any given time and space. The paradigm of transportation is rapidly shifting from ownership to on-demand service that meets varying needs according to cost, time and convenience. Smart transportation, on the basis of information technology deployment and operation, improves the convenience and safety of a variety of transportation modes that play an essential role in our daily lives, from bicycles, passenger cars, and buses to subways, railways, and airplanes.

Solutions that maximize the operational efficiency of multiple transportation modes

To create a more convenient and safer transportation system, LG CNS provides a smart transportation solution that maximizes the operational efficiency of diverse transportation modes, ranging from passenger cars, taxis and buses to subways, railways and airports. Our AFC (Automatic Fare Collection) system that accommodates multiple public transportation modes and the FMS (Fleet Management System) delivers solutions that meet the essential needs of both users and operators.

Technology prowess recognized in Korea and abroad

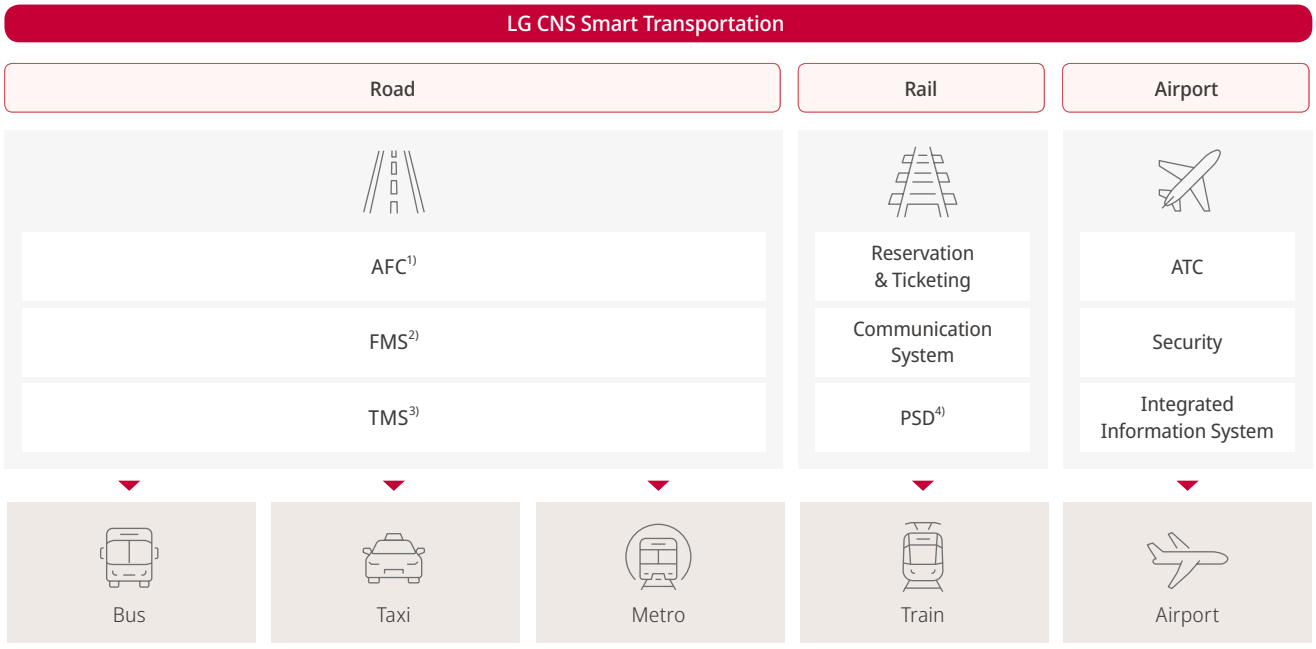
Building on success stories such as the transportation card system of Seoul City and the integrated high-speed train system, our exceptional technology is gaining recognition overseas, from Bogota in Columbia and Athens in Greece to Kuala Lumpur in Malaysia.

Core Capabilities

- Transportation card systems implemented and operated in Bogota of Columbia, Athens in Greece and other overseas cities following the development of Seoul City's transportation card system in 2014
- Transportation solution and system implementation across entire domains including roads, railways and airports

Service Offerings

Road	Integrated transportation management services including AFC, FMS and TMS (Transport Management System)
Rail	Solutions that span across the entire railway operations, from integrated information and communication systems to railway AFS and PSD (Platform Screen Door)
Airport	ICBMS-based airport Security System and Integrated Airport Information System has been provided to Incheon International Airport. The Air Traffic Control (ATC) solution has been adopted for use by the Korean Air Traffic Control System.



1) AFC: Automatic Fare Collection 2) FMS: Fleet Management System 3) TMS: Traffic Management System 4) PSD: Platform Screen Door

Solution

AFC (Automatic Fare Collection)

This solution enables a convenient e-payment option for citizens to easily pay fares across all modes of transportation. Its excellence and stability has been proven overseas in Bogota, Columbia and Athens, Greece. Our knowledge and technology gained through experiences in global cities are combined with information on transportation fares, modes and routes to deliver smart E2E (End-to-End) fare collection solutions and services.

Autonomous Driving Shuttle Platform

Our platforms enable automatic monitoring as well as control and passenger interfaces that are required for autonomous driving shuttles that serve passengers in the driverless environment.

FMS (Fleet Management System)

This integrated vehicle control solution is based on operation plans that are differentiated from the conventional BMS (Bus Management System) and make vehicle and driver assignments according to their optimized schedules. Furthermore, effective monitoring and control is supported through real-time collection of vehicle location information while various information is provided for the convenience of citizens. Presently, our FMS is under operation in Columbia, Malaysia and other global regions.

Business Achievements

Domestic

- New public transportation card system in Seoul
- Bus operation management system in Seoul and Incheon
- TOPIS (Transport Operation & Information System) in Seoul
- Smart tolling information system for the Korea Expressway Corporation
- Communication systems and others for the KTX high-speed train and the metro
- Air traffic control system for Incheon and Daegu
- Airport security guard system in Incheon
- Integrated airport information system in Incheon

Overseas

- Transportation card system and bus management system in Bogota, Columbia
- e-ticketing system in Athens, Greece
- Transportation card system and bus management system in Kuala Lumpur, Malaysia
- MRT Line 1 communication system and monorail PSD in Kuala Lumpur, Malaysia
- LRT PSD in Lusail, Qatar

Other Services

Consulting

Entrue Consulting - leader in digital innovation delivering real value to our clients.

Serving at the forefront to boost clients' momentum for innovation and growth

Entrue Consulting, LG CNS' dedicated consulting organization, serves at the forefront of boosting clients' momentum for innovation and growth with strong expert knowledge and logical thinking. Entrue Consulting leads the entire customer journey in reinforcing business competitiveness and entering new markets, leveraging its best-in-class expertise in the digital era.

Proposing optimal solutions through swift issue identification

Public Services/Engineering Team, Electronics/Chemical Team, Telecommunication/Service Team, Finance Services Team, Optimization/AI Team, Data Strategy Team, Digital Transformation Team, CX Strategy Team, SCM/Logistics Team, Cloud Strategy Team all aid in the accurate and swift identification of client concerns to propose optimal solutions. Since the launch of our consulting business in 1991, we have engaged in more than 3,500 consulting projects for the past three decades.

Mission	A professional consulting service provider that proposes effective digital business solutions and business growth opportunities for the client
Vision	A consultancy that pursues mutual growth with top-tier clients and gains recognition as the best workplace for exceptional talent willing to grow alongside the client

Business Achievements

- **Smart Factory strategy development and process/system advancement**
  LG Electronics, LG Chem, LG Energy Solution, LG Innotek
- **Digital business strategy development for telecom/media and service industries**
  Mid/long-term IT innovation planning GS Retail
- **Smart City/building/energy business development and strategy development**
  Smart City business strategy consulting, LG Group (national pilot city Sejong 5-1)
- **Digital curating for financial institutions**
  NH Nonghyup Bank, Export-Import Bank of Korea, National Agricultural Cooperative Federation, Shinhan Bank, Seoul Guarantee Insurance, KB Insurance
- **Mathematical optimization/AI-based algorithm development**
  Network operation strategy for LG Household & Health Care, capacity allocation for LG Innotek, intelligent search ads operation for LG U+
- **Data platform approach and governance development consulting**
  LG Electronics, LG Chem
- **LG process mining and digital transformation planning**
  LG Electronics, LG Chem, LG U+, S&I
- **B2B digital platform strategy and marketing system dissemination strategy development**
  LG Electronics, LG Chem
- **SCM/logistics assessment and process innovation**
  LG Electronics, LG Chem, LG Energy Solution, LG Innotek, LX Pantos, LX semicon, CJ Logistics
- **Cloud implementation strategy development and IT governance advancement following cloud adoption**
  LG Chem

Other Services

Data Center

Data center services that ensure network neutrality for global & internet businesses as well as financial institutions

Data center operation across global key locations in 4 countries

Since we opened the Incheon Center as Korea's first dedicated data center back in 1992, we have operated the Sangam IT Center, the Busan Global Cloud Data Center, the Gasan Center as well as data centers in key global locations across the US (New Jersey), Europe (Amsterdam), and China (Beijing and Nanjing).

Recognized as excellent green data centers

Our data centers are widely recognized in Korea and abroad for their excellence as green data centers through standardized and automated operational conditions and processes as well as duplicated facilities and seismic based isolation designs.

Busan Global Cloud Data Center

- Data center for cloud customers only
  Building (5 floors above ground + isolation floors), gross area of 32,531m^2, computer rooms of 12,177m^2, seismic base isolation design for magnitude-8.0 earthquakes and 40,000kVA

Sangam IT Center

- Premium data center specialized for finance business
  Building (12 floors above ground + 4 floors underground), gross area of 43,851m^2, computer rooms of 13,686m^2, seismic design for magnitude-8.0 earthquakes and 18,000kVA

Gasan Data Center

- Modular data center tailor-made for customer needs
  Building (13 floors above ground + 1 floor underground), gross area of 74,986m^2, computer rooms of 12,734m^2, seismic design for magnitude-7.0 earthquakes and 20,000kVA

Incheon Data Center

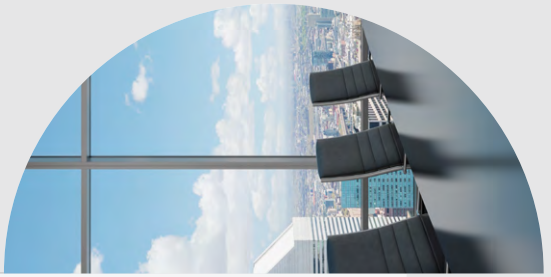
- Backup data center
  Building (3 floors above ground + 1 floor underground), gross area of 14,326m^2, computer rooms of 4,073m^2, seismic design for magnitude-7.0 earthquakes and 7,000kVA

Core Capabilities

- Guarantees end-to-end network neutrality from the center entry to the client's white space.
- Responds to client demands through groups of professionals from architecture, electricity, fire safety, security and network.
- Provides stable infrastructure environment based on 30 years of experience in error-free data center management.
- Has client references across local and international industries from cloud, internet, mobile, finance, communication and distribution to manufacturing.

SUSTAINABILITY ISSUES

LG CNS is strengthening its execution on sustainability issues across the entire ESG (Environmental, Social, and Governance) area in alignment with its customer-first management philosophy. We build consensus and reinforce cooperation with customers, suppliers, shareholders, employees and other stakeholders to pursue balanced growth.
We will commit ourselves to becoming a sustainable IT business by establishing an ESG-driven management system and proactively fulfilling our social responsibility in addition to establishing successful economic performance.



GOVERNANCE

SOCIAL

ENVIRONMENT

Climate Response Activity

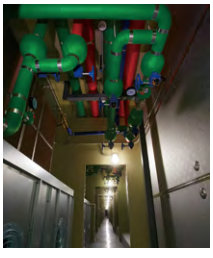
Certifications and Awards

LG CNS has engaged in a variety of activities, from the acquisition of green data center certificates to the introduction of eco-friendly designs, to the enhancement of the awareness on the energy efficiency improvement (consumption mitigation) of data centers that are known as heavy power consumers, all the way to the basis for the development of the data center industry.

Achievement of Green Data Center Certification

Our data centers in Sangam, Busan and Incheon achieved the Green Data Center Certification granted by the Korea Information Technology Service Industry Association. This annual certification system has been introduced by the association since 2012 to evaluate and certify data centers for their eco-friendliness. The certification system aims to improve the energy efficiency of the data centers which contributes to mitigating carbon emissions while paving the way to promote the development of the data center industry. Data centers earn one of four ratings (A, A+, A++, A+++) based on their PUE (Power Usage Effectiveness) levels and energy-saving activities.

Our Sangam IT Data Center was rated A consecutively between 2013 and 2015. The Busan Global Cloud Data Center earned the highest rating of A+++ consecutively from 2014 to 2016, and the Incheon Data Center received an A+ rating in 2016. All of these achievements surely demonstrate their strength as eco-friendly data centers. In particular, the Busan Global Cloud Center measures an annual average PUE of 1.39 and reaches the world's highest performance of 1.15 during the winter season when cooling devices are not in operation.



Busan Global Cloud Center: seismic base isolation facility (left) and built-up air conditioning facility

Busan Data Center Honored in Brill Awards

The Busan Global Cloud Data Center has positioned itself as Korea's leading data center for its green infrastructure powered by all applicable green information technology and for its preparation against earthquakes, flood damages and other natural disasters. Energy efficiency was considered as top priority beginning from the design phase, which resulted in the installation of a 'wind path', the world's only data center chimney and the installation of the built-up outdoor air conditioning system for which the Company became the world's first. Furthermore, this data center is Korea's first data center to adopt seismic base isolation designs to guarantee uninterrupted services even under magnitude 8.0 earthquakes on the Richter scale, which demonstrates preparedness for natural disasters. Included in its best-in-class safety features are uninterrupted power supply enabled by the redundant power system and smart security. In May 2014, the Busan Global Cloud Data Center won the Brill Awards* in the design category for the first time in Korea, which is the most prestigious global data center award.

*Brill Awards: Granted each year by the Uptime Institute, the sole international data center certification organization, and recognized as the industry's most prestigious awards

Sangam IT Center: exterior (left) and server room

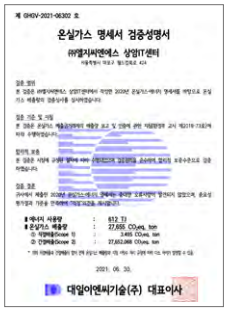
Recognizing climate change as an opportunity for corporate growth

LG CNS considers climate change as an opportunity to promote its corporate growth, and contributes to creating green workplaces through its green data center business. We also harness our strong information technology capabilities in conducting energy business. Our proven competence in improving the efficiency of energy consumption can be applied to power plants, hospitals, hotels, resorts and high-rises to help mitigate carbon emissions across multiple dimensions. Going forward, we will generate synergy in energy business through collaboration at the LG Group-wide level.

Response to Environmental Regulations

The Sangam IT Center was designated as a target worksite under the Korean ETS* in 2015. Since then, the data center has automatically measured its power consumption to effectively respond to energy-related regulations. In addition, an GHG inventory system is up and running to calculate GHG emissions in real time. We will join the CDP (Carbon Disclosure Project), an international environmental management certification program, to emerge as a green business leader.

*ETS (Emissions Trading Scheme): The Korean government, subject to the Framework Act on Low Carbon, Green Growth, implements the ETS: the government allocates GHG emission allowances to businesses, and businesses meet their given GHG emission reduction target either by reducing GHG emissions internally or by trading allowances.



온실가스 명세서 검증성명서

대일이엔씨기술(주) 대표이사

Green IT System to Mitigate GHG Emissions

As part of our efforts to reduce the power consumption of our data centers, which are one of the most power-intensive facilities in all of the industry, LG CNS continuously develops energy efficient solutions and implements them in our data center operations. We are also constantly improving our building energy efficiency by introducing renewable energy sources and retrofitting our facilities with energy efficient equipment. Solutions to mitigate GHG emissions are developed and applied to green data center operation. Furthermore, green IT systems are developed for the integrated operation of data center infrastructure facilities (electricity, machinery, temperature & humidity, lighting, etc.) to efficiently manage the energy consumption of server rooms through failure detection, analysis and control.

Energy Saving Performance from the Environment-Friendly IT System (Sangam IT Center)

(Reduction/ Unit: tCO_2eq)

Detail	2014	2015	2016	2017	2018	2019	2020	Total
LED Lighting Replacement (FL: All)	223	446	446	446	446	446	446	2,899
Mechanical Room External AC (FL: B3-4)	150	404	404	404	404	404	404	2,574
Computer Room External AC (FL: 2-9)	-	-	560	1,366	1,366	1,366	1,366	6,024
High-Efficiency UPS Replacement (FL: 2-9)	-	69	278	278	278	278	278	1,461
PV installation	-	-	-	-	-	6	6	12
Switch to high-efficiency air conditioning equipment at computer rooms (FL: 2-9)	-	-	-	-	-	49	256	305
Total	373	919	1,688	2,494	2,494	2,550	2,757	13,276

Climate Change Mitigation Activities

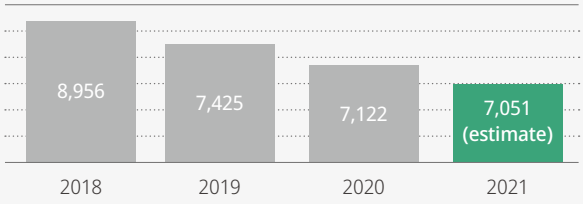
LG CNS applies information technology to all energy sectors and delivers numerous solutions ranging from renewable energy generation to electricity storage and consumption. We developed weather/demand/generation prediction technology and a variety of optimization algorithms through energy business. This enables economic operations that respond to different operational environments and site situations through the multi-purpose EMS (Energy Management System). Our services include EMS for peak and demand management, BEMS (Building Energy Management System), FEMS (Factory Energy Management System), monitoring and management of photovoltaic and wind power generation and micro EMS for the efficient management of distributed energy sources. Our solutions are proven for their reliability through large-scale site demonstrations, and are accumulating green references on respective power generation sites through CO_2 emission mitigation.

Development and Implementation of Environmental Targets

To mitigate our GHG emissions, we plan to reduce our power consumption at our Headquarters at the LG Science Park in Magok, Seoul, by more than 1% each year. Detailed implementation plans include launching company-wide energy saving campaigns, providing energy conservation training, and establishing an energy consumption management system at the Headquarters in Magok and other major worksites.

Annual Power Consumption at the Headquarters in Magok

(Unit: MWh)



Headquarters in Magok: The scope of data collection includes E13 and E14 buildings at the LG Science Park, Gangseo-gu, Seoul, Korea

Environmental Training

We regularly provide environmental training to raise employees' awareness on such major environmental issues as dust contamination, noise & vibration, water pollution and waste generation and to prevent such issues from occurring. We plan to expand diverse training for ecological preservation and energy conservation in response to climate change.

SOCIAL

Employee Development

Recruitment Program

LG CNS works hard to recruit talented individuals and nurtures them into topnotch software specialists who will drive digital transformation. This is supported by our hiring channels and training programs that are best suited for an IT business.

Differentiated IT Intensive Course

IT Intensive Course is LG CNS's differentiated recruitment program intended for talented individuals who wish to 'grow into IT specialists'. This program adopts our distinctive recruitment methodology independently developed to secure IT engineers with exceptional SW programming skills and potential competency. In the written screening process, the internally developed 'Online Coding Test' is conducted along with LG Group's common personality and aptitude tests to evaluate applicants for their capabilities and potentials. The interview process is led by our top-notch technology specialists, leaders and executives who assess applicants for their knowledge and qualifications in accordance with LG Way and LG CNS's definition of an ideal employee. These candidates are also examined based on their aptitude and career vision to verify their career fit as an IT engineer. Specifically, our in-house training program 'SW Boot Camp' allows us to objectively evaluate the level of applicants while providing them with an opportunity to learn programming.

SW Boot Camp

IT Specialist Development Program

We systematically nurture internal IT specialists to strengthen our technology competition to lead the 4th Industrial Revolution. Our technology expertise certification and training activities have been fully expanded since 2016 in order to accelerate our innovation to become an organization led by technology specialists. From 2019 and onwards, we are advancing the development of specialists in AI, big data, cloud and other emerging technologies, and are focused on nurturing AM (Application Modernization) specialists to swiftly respond to the fast-changing business requirements.

IT Specialist Development Program

Technology							
Digital Technology							
Application Modernization (AM)		AI		Big Data			
Cloud		Smart Factory		New Technology Platform/Solution			
Base Technology							
Analysis & Design Specialist	- Modeling	PM	- Project Management	Security Specialist	- Security	Infrastructure Architect	- OS·System - DB - Network - Cloud
Quality Specialist	- Methodology - Quality	ERP Specialist	- SAP - Oracle	Application Architect	- Framework - Middleware - Testing - UI		
UX Specialist	- UX Planning - UX Design	Convergence Specialist	- Smart City - Smart Logistics			Data Scientist	- Data Engineering - Big Data Analytics
Development (Programming) Language							
Technology Training for New Recruits							

Summer & Winter Internship and Other Varying Recruitment Programs

Our Summer & Winter Internship Program targets undergraduates and master's/doctoral degree holders expected to graduate. In alignment with recruitment, this program intends to verify the technological competence of top-notch talent during the internship period and employ them following graduation. A variety of programs are also operated by degree level and major, including a tailored internship program for masters/doctoral degree holders. IT Core Talent Academy, new digital technology internship and Entrue Consulting Academy recruits brilliant minds through the rigorous screening process.

Recruitment of Top-notch Master's/Doctoral Degree Holders in Korea and abroad

Each year, we launch campus recruiting events and visit universities in Korea and abroad. For the year 2020, however, we switched to video interviews and other virtual means of recruitment due to COVID-19. These events allow us to recruit top-tier master's/doctoral degree holders specialized in the areas of AI, big data, cloud and consulting to lead digital transformation. They are nurtured into core talent who will take the lead in digital transformation at LG CNS and across LG Group.

University-Business Cooperation

LG CNS cooperates with universities to develop and secure exceptional talent and conduct joint research with academia as a way to fulfill its corporate social responsibility.

'SW Application' Course Operated with Seoul National University

We teamed up with the Computer Engineering Department of Seoul National University to develop the 'Software Application' course based on SW engineering designed for juniors and seniors. This course is taught by LG CNS's top-tier IT specialists and addresses real-life issues that occur during IT project undertakings and their solutions. Students learn the software development cycle through demonstration-driven research that strikes the right balance between theory and practice, and they have the opportunity to land a job at LG CNS through this industry-academia cooperation program to develop their career as IT specialists.

'Industry Hands-On Project' Course with Chung-Ang University

The 'Industry Hands-On Project' course opened as part of the regular curriculum at the School of Computer Science and Engineering of Chung-Ang University to enable LG CNS's top-tier IT specialists to share their hands-on experience and project know-how with juniors and seniors. Students are engaged in agile projects based on their understanding of basic software engineering during the course of one semester. Our experts offer feedback on these projects to support the development of high-quality software and provide special lectures on emerging technology as a way to transfer their technical know-how and nurture talented individuals.

Training and Development

We operate an exam-based technical certification system to help employees develop relevant technical competence. Our internal technical training system is for employees to selectively receive mandatory training according to their skills and levels based on the new skills map. Furthermore, our internal and external top-notch technical experts are engaged to transfer their real-life know-hows and knowledge, building a virtuous cycle of training and development. Our technical certification training and testing has been under operation since 2016 for employees in tech-related positions. This also laid the foundation to establish a technical expert development track that starts from Tech. Expert (TE) to Tech. Meister (TM) and to Research Fellow/Expert. This technical certification program extended its scope from tech-related positions to non-tech positions in 2017, and has been aligned with our job competency and personnel assessments since 2018. In 2021, we restructured our job and assessment system in consideration of changes in the technology landscape and our type of business as well as our strategic directions.

Leadership		Business / Global	
Career Design		Business Capabilities	
Leader	· Leader Career · Leader one-on-one coaching · New Leader	Digital Entrepreneur	
		Industry Specialist	
Professional	III Career Re-Vision	Tech Digest	TD for BD/Sales TD for Staff
	II Career Build-Up		
	I Career Design		
Organizational Capabilities		Global Capabilities	
Team building/team improvement		G-CAMP	English
		GBC*	One-on-one language program with native speakers
		*Global Business Communication	
Position / Leadership Capabilities		Overseas Subsidiaries	
LG Academy Advanced Program		Training programs for overseas employees	

Expert Day

Diversity and Inclusion

LG CNS provides training programs to help employees build and strengthen their global competence while operating a standard workplace for people with disabilities.

Global Competence Reinforcement

As our business presence broadens into the global market, we ensure that our employees fully understand the diverse cultures and customs of countries where we operate and cater to the needs of overseas customers. To reinforce our global competence, we provide manager and job training while managing employees' performance at overseas subsidiaries.

Global Language Programs

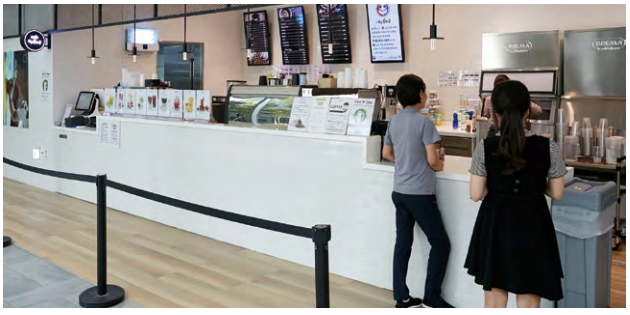
Our language learning program 'G-CAMP' has been operating since 2016 to nurture elite global talent who will take the lead in our overseas business. This program was designed to help employees learn the business language used in the IT field from landing overseas project orders to implementing these projects. G-CAMP is based on LG CNS's distinctive global business cases that are differentiated from those of competitors, and in-house specialists are directly engaged in curriculum development and lecturing. Our 'Global Business Communication' program targets employees who are or will be undertaking overseas projects : native speakers provide personalized one-on-one coaching for four months on topics such as business etiquette, conversational skills and overseas partner meetings so that trainees can strengthen basic competence in global business execution and immediately put to use what they have learned.

G-CAMP

Operating 'Haengbokmaru' as a Standard Workplace for People with Disabilities

In October 2016, LG CNS established Haengbokmaru Co., Ltd. as a standard workplace for people with disabilities to provide employment to challenged individuals and improve the welfare of employees. This subsidiary operates in-house cafes at our Headquarters in the LG Science Park located in Magok, Gangseo-gu, Seoul and at the DDMC and the Sangam IT Data Center in Mapo-gu, Seoul. They offer environmental clean-up and health keeper services among others. Out of 88 employees, 81 of them have disabilities and 72 of them suffer severe disabilities. A total of seven managers, including four with disabilities, assist these challenged individuals with work instruction and career development.

These employees with disabilities are provided with amenities exclusively designed for them, dedicated rest areas and group insurance. Furthermore, we sponsor the exhibitions held by artists with disabilities to broaden the base of arts and culture for people with disabilities while undertaking social contribution activities with the Korea Employment Agency for Persons with Disabilities. Our contribution to promoting inclusive employment and improving working conditions for people with disabilities was recognized as we were honored with the Citation of the Minister of Employment and Labor at the Employment Promotion Awards in April 2018. Haengbokmaru will jointly identify diverse job categories aligned with LG CNS's business to develop a win-win partnership.

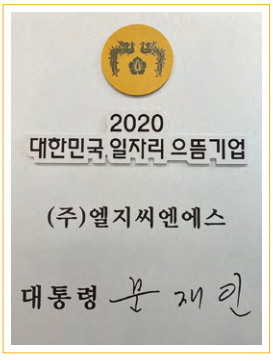


In-house cafe 'Haengbokmaru'

Recognized as a Great Employer

In July 2020, LG CNS made it onto the list of 'Korea's Great Employers 2020'. Published by the Ministry of Employment and Labor, Korea's Great Employers selects and rewards 100 companies for their achievements in creating more jobs and improving the quality of such jobs. LG CNS specifically gained high scores in the categories of creating employment for women, people with disabilities and seniors who pursue shared growth with suppliers.

Our percentage of employees with disabilities amounts to 3.34%, which is even higher than the statutory employment rate. We established Haengbokmaru as a standard workplace for people with disabilities, and have increased the age limit from 55 to 58 years old under the income peak program since April 2019. This also contributed to reducing our resignation rate from 7.8% in 2018 to 4.8% in 2019.



SOCIAL

Corporate Culture

LG CNS promotes a corporate culture enriched with creativity and autonomy with a wide range of communication activities with employees.

Smart	- Work INnovation - Substance-driven culture - Self-initiated end-to-end program
Communi-cating	- Future Planning Committee - Labor-Management Committee - Location Manager - Grievance resolution process
Dependable	- Employee health promotion program - Psychological Counseling Center - Family Value Program
Learning	- On-site 'customized' training

"Innovative" LG CNS

Innovative Work Practices

We pursue WIN - Work INnovation – to bring innovation to our work practices by focusing on output beyond time or space limitations. Our employees reduce non-essential part of their work while focusing on their core work to improve their individual core competencies and skills and evolve into elite specialists in doing so.

Substance-driven Culture

We minimize the preparation of reports through 'One Page' reporting practices, and expand the use of collaboration tools to expedite our work and communication process. Remote work and other virtual/contactless work arrangements have become part of our daily business routines to improve employees' work autonomy and build a corporate culture that values substance over formality.

Self-initiated End-to-End Programs

In-house Venture Program 'Idea Monster'

Idea Monster is an in-house venture program operated under the leadership of employees from ideation to commercialization. This program welcomes any new business idea based on information technology and to anyone working at LG CNS. Applicants can fine-tune their ideas through idea pitching and monitoring, and winners are eligible for company-wide support. Idea Monster is operated under the 24/7 dedicated support unit and receives applications throughout the year while hosting regular competitions in the first and second half respectively.

Idea collection	Idea Pitching	Incubation	
Regular and ad hoc competition	Ideation	6-12 months	Spin off or in-house com-mercialization

External Venture Program 'Startup Monster'

Startup Monster has been under operation since 2018 to nurture independent external high-tech startups in their initial development phase. This program aims to identify competent startups and provide opportunity to cooperate and pursue shared growth, serving as a venue for open innovation to leverage ideas generated outside the Company. In the 1st Class of 2018, a total of 363 startups attended the competition and three of them were chosen as the finalists through the pitching session. LG CNS provides the finalists with full support, ranging from financial assistance and workspaces for a six month period to opportunities to receive R&D mentoring and undertake PoC (Proof of Concept) for pilot projects with LG Group affiliates.

In-house Programming Competition 'Code Monster'

Code Monster has been hosted as an annual in-house programming competition since 2017 to nurture exceptional software talent with technical expertise. The name 'Monster' embodies our commitment to identify and develop powerful monsters who will be game changers in the IT industry. This enables our employees to verify their individual competency while contributing to creating a collaboration-driven corporate culture through pair programming with co-workers. Winners are granted prize money and an opportunity to grow into specialists in diverse fields at LG CNS.

Startup Monster

Code Monster

"Connected" LG CNS

We reach out to employees through a wide array of channels across positions and regions to address pending issues both at the individual and organizational level.

Future Planning Committee

The 'Future Planning Committee' is our internal junior board that serves as the changers who create a great workplace as well as the drivers to pursue the innovation of our corporate culture. Its primary mandate is to 'facilitate communication between senior management and employees' and 'propose ideas for the growth of the Company and its employees'.

Labor-Management Committee

The Labor-Management Committee was established in Febru- ary 1998 as an employee representative body to relay employees' feedback to senior management and consult major issues. This committee consists of seven employee representatives and seven management representatives (as of 2020), hosting quarterly meetings on a regular basis to discuss a range of issues that include employee grievances, working conditions and management strategies. Promoting constructive cooperation between labor and management through salary adjustments, mutual aid operations, and the introduction of pregnant employee care programs, the Committee endeavors to deliver employee satisfaction.

Labor-Management Committee

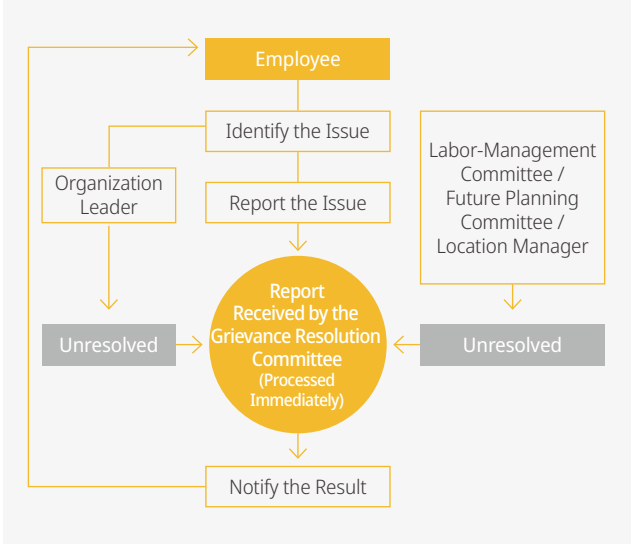
Location Manager

Our Location Manager (LM) program aims to resolve difficulties that arise at major worksites as well as project sites across the nation in cooperation with local employees. This regional leader program facilitates communication between the Headquarters and local employees while taking care of their grievances to elevate their sense of belonging and loyalty.

LM Workshop

Employee Grievance Resolution Process

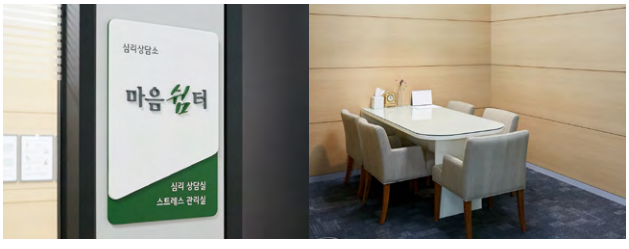
We collect employee grievances and handle them through reasonable solutions to protect employees' human rights, improve their work satisfaction and create a sound working environment. Wide-ranging grievance resolution programs are available both online and offline. Specifically, the grievance reporting template is uploaded on our intranet site for employees working at offsite locations to freely submit their grievances beyond time and space limitations.



"Happy" LG CNS

Psychological Counseling Center

The 'Maeum Counseling Center' is under operation at our Headquarters in Magok, Seoul, to help employees improve their men- tal health and deal with stress. This center employs two perma- nent psychological counselors and conducts psychological counseling and tests to aid employees in better understanding themselves and developing job competence. The center also endeavors to respond to organizational psychological crises, consult on leadership and employee management, and facilitate communication. On-site counseling is provided at major worksites while counseling and psychological testing is offered to employee families to care for the mental well-being of local employees and employee families. The center enables our employees to resolve diverse difficulties experienced in their professional and private life and significantly aids them in increasing their work engagement.



Maeum Counseling Center

Counseling	- In-person counseling, virtual counseling (phone/video/messenger) - Confidentiality (anonymous counseling) - Offered at major business locations as a visiting service - Group counseling on understanding the personality of team members and on communication - Employee family counseling service
Psychological Test	- Personality test, aptitude test, strength finder test, relationship test, mental health test, job stress test, temperament test, intelligent test, etc. - Team-level and individual mental health check-up - Psychological test for employees' children
Stress Mgmt. Clinic	- Relaxing lounge with meditation music - Blood pressure/glucose and body composition measurement
Mental well-being e-mail letters	- Monthly 'mental well-being' e-letters sent to employees - E-mails sent to newly hired employees - Mental well-being letters sent to help cope with COVID-19

In 2019, the counseling center offered a total of 1,890 individual counseling sessions and psychological tests, and provided on-site counseling at nearly 18 locations. Among counseling topics, private matters (family, personality and mental health) accounted for 65%, which was greater than work-related matters, (workplace adaptation and conflicts) 35% of the total. In 2020, a total of 1,438 individual counseling sessions and psychological tests were performed, and on-site counseling was offered at 4 locations. As for counseling topics, private matters and work-related matters accounted for 68% and 32% respectively. All counseling sessions remain highly confidential and are provided in full accordance with personal information management regulations.

	By Type		By Topic		
	Individual counseling	Psychological testing	On-site counseling	Private	Work-related
2019	1,020 occasions	870 occasions	18 locations	65%	35%
2020	903 occasions	535 occasions	4 locations	68%	32%

Family Value Program

To promote employees' work / life balance, we implemented a wide array of programs for employee families. The LG CNS Childcare Center is under operation at our Headquarters in the LG Science Park located in Magok, Seoul, and meaningful gifts are sent to employee's children to celebrate their birthday, entrance into elementary school and college admission testing.

"Challenging" LG CNS

Customized On-site Training

We provide 'customized on-site' training at SI (System Integration) and SM (System Management) project sites. Such training is diverse in its contents and formats, which includes work and skill training that meets on-site needs, customer engagement seminars, workshops for specific SI project phases, project member care programs, and support for minority workers. This training started at 13 sites for nearly 1,400 employees in 2016, and has expanded to 40 sites in 2017, with attendance amounting to more than 5,000 employees to date. Since 2019, specific sites were selected to receive intensive support in developing annual training plans in line with employee development directions and providing systemic training to help employees' competency development. Going forward, we will offer even broader support for our on-site employees to develop their individual and teamwork capabilities while fully engaging in work.

SI project	- Technical training required for project - Team building for undertaking projects - Project member care program
SM site	- Technical training required for on-site work - New technology seminar with clients - Member care program - Work competence improvement support program - Regular reading group support - Support for sites with less than 5 employees

'On-site customized training' offered at an SI project site

SOCIAL

Safety Health Environment Management

Safety and Environment Management System

LG CNS defined strategic tasks and targets based on international standards, such as ISO 14001 (environmental management system) and ISO 45001 (health and safety management system), and is developing and operating EHS (environment, health and safety) management system across the entire domestic worksites. We declared our firm commitment to EHS management internally and externally, and established our safety and environment policy to ensure the consistency of our EHS policy directions. This, in turn, laid the basis to create company-wide safety and environment regulations and worksite-specific management systems. In the event of safety and environment incidents occur, we engage in incident reenactments and on-site investigations to improve our executive capabilities in preventing such incidents from ever occurring.

Maintaining Safety and Health Management/Environmental Management Certifications

We achieved ISO 14001 in 2010 and then OHSAS 18001 in 2014 to establish and operate a systemic health, safety and environmental management system. In 2018, we successfully transitioned into ISO 45001, an extended latest version of OHSAS 18001. Each year, we receive ISO 14001 and ISO 45001 audits through external professional organizations to comply with the procedures and regulations of such health, safety and environmental management system standards.

ISO 14001: 2015 certificate

Safety and Environmental Policy Implementation

LG CNS clearly recognizes safety, health and the environment as the 'No. 1 value that can't be compromised under any circumstances', and faithfully implements its safety and environment policy with clear goals and strong executive capabilities. This enables us to make steady improvements on EHS performance.

LG CNS Safety and Environment Policy

Under the philosophy of "Management with Respect for Human Life and Dignity", LG CNS pursues EHS (environment, health and safety) as its top priority within the entire life cycle of business operations.

To improve workplace health, LG CNS eliminates the risk factors to create a safe, pleasant work environment.

LG CNS dutifully fulfills its responsibilities for environmental protection and operates a globally competitive Health and Safety, Environment management system through continuous improvement activities.

LG CNS faithfully carries out the requirements of both domestic and overseas laws and regulations as well as requests from its stakeholders and pursues continuous improvement.

LG CNS establishes opportunity and risk management system to secure business continuity, considering external risk factors such as environmental changes.

LG CNS regularly evaluates its Safety & Environment management performance, shares the information in a transparent manner, and sincerely communicates with the stakeholders.

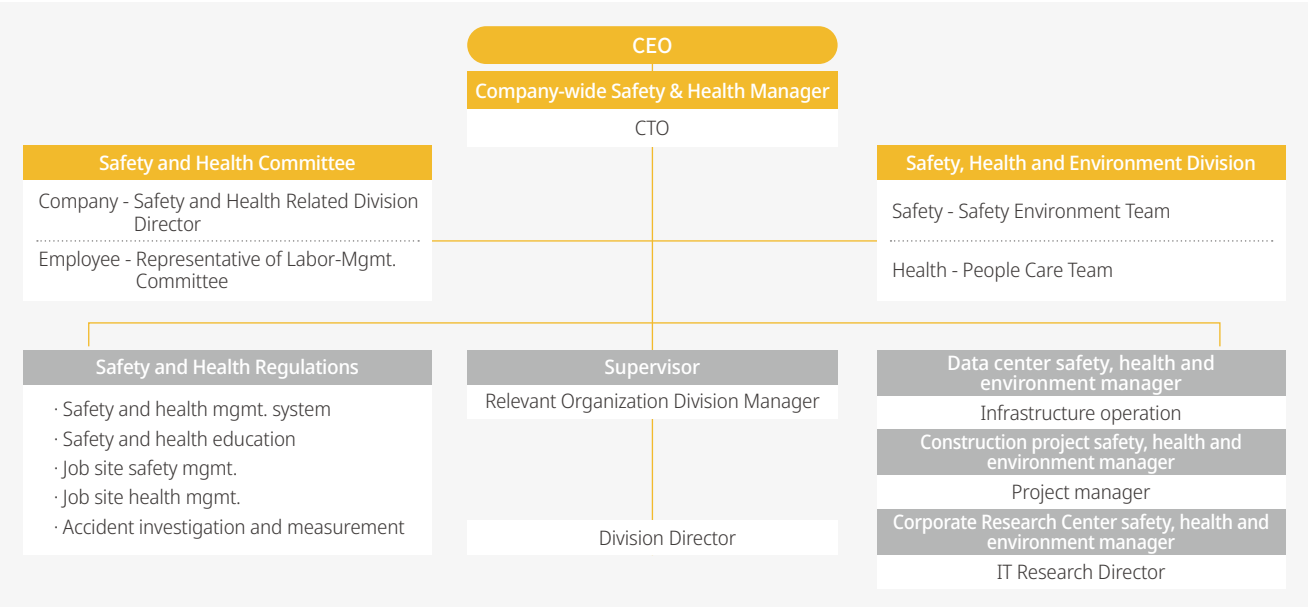
All employees actively participate in building a culture of safety together with the business partners and local communities.

Safety, Health and Environmental Management System

LG CNS operates a company-wide safety, health, and environmental management organization with the CEO playing a pivotal role to promote the growth of the Company and the health, safety, and environment of the employees. Our CTO (Chief Technology Officer) also serves as the Safety, Health and Environmental Manager responsible for developing occupational injury prevention plans, preparing and revising health & safety management regulations, operating and improving the safety, health and environmental system, offering health, safety and environmental trainings, reviewing and continu- ously improving the work environment, investigating the causes of occupational injuries and preventing their reoccurrence, minimizing environmental impact, and responding to GHG changes. Further- more, division managers are appointed as the supervisor, and safety & health managers are appointed at respective worksites. The Indus- trial Safety and Health Committee that consists of senior manage- ment and employee representatives, meets quarterly to consult on major decisions made to promote workplace health and safety.

Occupational Safety Activity

To remain injury/accident-free across our all worksites, we have established a company-wide safety and environment assessment system and are performing safety and environment assessments regularly. This enables us to identify and eliminate safety and environment risks and take a preventive approach to safety and environmental management.



SOP Application

In 2019, SOPs (Standard Operating Procedures) were developed on smart logistics, smart building and smart city construction projects to standardize work methods. In 2020, we were honored with the Technology Award in the special award category at the Safety Management Awards hosted by the Ministry of Employment and Labor.

Employee Health Promotion

To provide a pleasant office work environment, we have installed indoor air quality measurement devices at the workplace to operate a year-round monitoring system. To promote both the physical and mental health of our employees, we also operate a range of healthcare programs, and hired licensed nurses as healthcare professionals to ensure thorough management and strengthen the expertise of our healthcare management.

Health Care Programs Operated for Employees

Follow-up on health check-ups	Practice intensive management on the four major diseases (hypertension, diabetes, dyslipidemia, and liver disorders) that give rise to brain cardiovascular diseases
Psychological counseling center	Operate the psychological counseling center since 2006 to help employees and their families suffering stress from their work and personal life
Health therapy	Provide free-of-charge massage from professional massage therapists to help employees relieve fatigue and prevent musculoskeletal diseases
Expectant mother care program	Operate maternity protection rooms and yoga classes for the health of expectant mothers, prenatal check-up appointment request, and reduced work hours
Health counseling with nurses, health care training and information provision	Provide virtual/on-site counseling with the help of nurses employed by LG CNS, regularly send e-mails containing healthcare information for specific diseases (workouts, dietary habits, and healthcare tips, etc.), offer on/offline training on the prevention and management of brain & cardiovascular diseases

Infectious Disease/Disaster Management

Prevention of COVID-19

In 2019, we prepared working-level manuals to respond to infectious diseases to define organizational roles and responsibilities according to measures taken – prohibition on going to work and/or self-quarantine - for respective phases from the occurrence of the situation to operational normalization, and to establish an emergency response process. This enabled us to systematically respond to COVID-19 that broke out in 2020 by offering on-site guidance and monitoring according to the emergency response procedures adopted by the government, operating an emergency situation room, and implementing work-at-home and self-quarantine policies for employees and supplier employees.

Temperature checks and controls were performed on those accessing our worksites, regular disinfections were conducted, and mask mandates were imposed both indoors and outdoors. Furthermore, we applied phase-specific response guidelines that are more stringent than government's social distancing guidelines to provide a safe workplace.

Health and Safety Training and Awareness Improvement

CPR Training for Employees

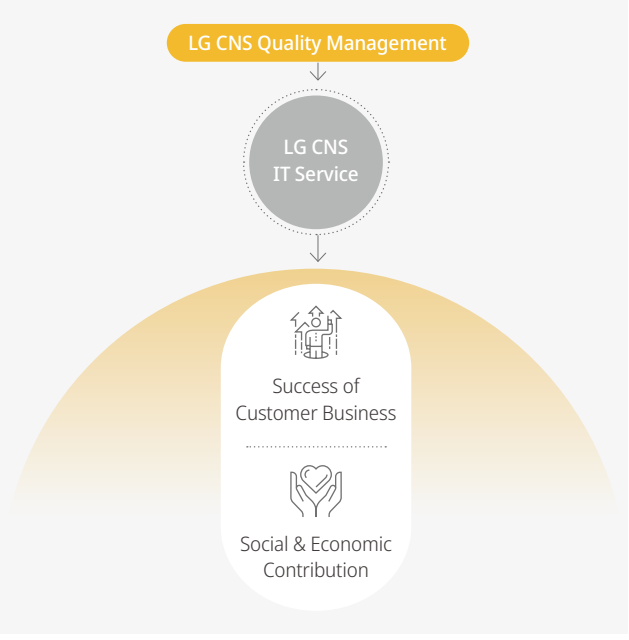
To raise employees' health and safety awareness, we provide on/offline health and safety training tailored to their needs. Since 2020, we have established and operated a CPR hands-on exercise center: virtual reality CPR training solutions powered by self-directed learning AI were introduced to conduct CPR training for employees so that they can better respond in the event of an emergency.

SOCIAL

Quality Management

Quality Management System

As large-scale public and financial projects have massive social and economic impacts, preemptive risk management and quality assurance measures are critical in undertaking such projects. LG CNS has established its own quality policy to practice quality management and is operating a quality management system to assist all employees in developing proper quality awareness and generating the greatest possible outcomes in business conduct.



To proactively respond to the rapidly-shifting market environment, LG CNS is implementing a new innovation framework driven by customer value and technology. We also realigned our quality policy with global standards, customer values, LG Way and LG CNS strategic directions.

DIGITAL INNOVATION ENABLER

3 Values (Quality Values)

Customer	Shared growth with customers for their business success
Innovation	Relentless challenge and hard work for innovation
Trust	Trust from and accountability to stakeholders in the course of business conduct

9 Practices (Behaviors)

Propose customer value based on understanding of their business	Exert quality leadership based on technology competence	Speak customers' language for communication
Practice purpose-driven thinking and continue with self-development	Plan properly and offer swift feedback	Respect and cooperate with co-workers
Keep promises to stakeholders	Respect and cooperate with co-workers	Give back to society with a strong sense of responsibility

In July 1994, LG CNS became the first in the SI industry to attain the international quality management system standard ISO 9001 across all its worksites. This was followed by the successful completion of surveillance audits as well as renewal audits as part of the three-year renewal process. Our Headquarters in the LG Science Park in Magok, Seoul, and our subsidiary in Greece remain certified against ISO 9001: 2015, which is the latest version of this international standard.

ISO 901: 2015 certificate

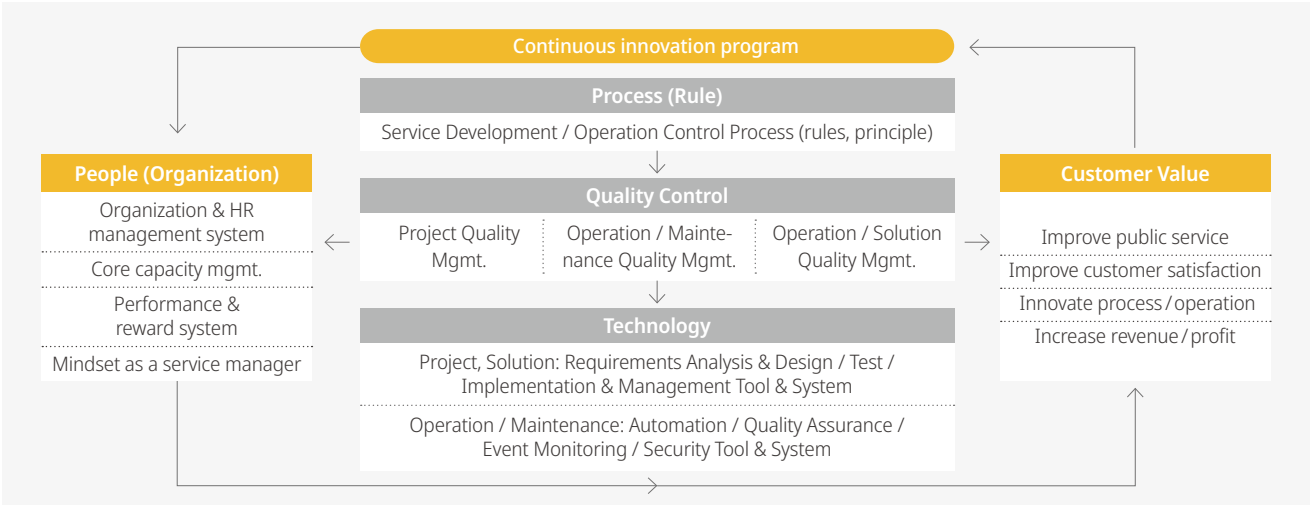
LG CNS operates an integrated quality management system that integrates people, process and technology to comprehensively manage project quality, operation / maintenance service quality and solution quality from the IT service perspective.

Project Quality Management

At LG CNS, a systemic process is under operation to preemptively identify and resolve project risks. Project implementation regulations were defined and are observed at project sites, while their compliance is monitored constantly. As such, improvements are made consistently to ensure the process-driven maintenance of internal quality.

Operation / Maintenance Service Quality Management

Mandatory implementation requirements were defined for operational and maintenance services to ensure its stability and reliability based on integrity-guaranteed uninterrupted IT services. Furthermore, an E2E (End-to-End) quality system is operated through the combination of 1) real-time event monitoring that is performed prior to detection or immediately following breakdowns and 2) an instant response system.



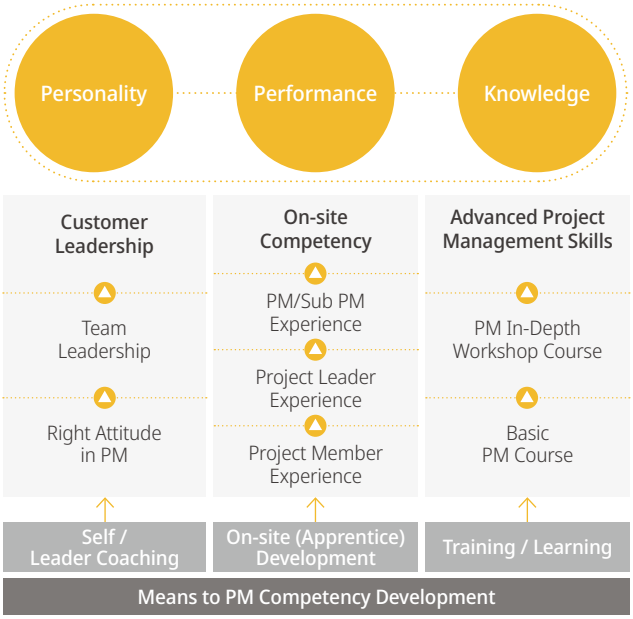
Solution Quality Management

Our solution management system covers the entire cycle from solution planning to development, operation and maintenance. We constantly manage the quality of our solutions and products available in the market to deliver the highest quality to customers.

Employee Development Plan

LG CNS is keenly aware of the importance of competent Project Managers (PM) responsible for the project execution. Our PMs learn how to manage projects through experience-based case studies to accompany customers in their journey towards business innovation, while assisting customers in preventively responding to business risks. We operate PM professional certification, PM development and training, and PM performance assessment programs to help them build capabilities that maximize customer value.

Competency Development Model for PMs



PM Development System & Training

Category	Certified PM	PM	
		Large-scale, non-LG Group affiliates	Small-scale, LG Group affiliates
After Certification	PM In-Depth Workshop		
Certification Test/Review	Preliminary Written Test (Basis / Engineering)		
	Group Debate Review (with 2-3 applicants)		
Before Certification		Basic Project Management (for large-scale non-LG Group affiliate projects)	Basic Project Management (for small-scale LG Group affiliate projects)
		Case studies to help you quickly learn profit management	IT Contract / Legal Affairs

Customer Satisfaction

LG CNS communicates with customers through wide-ranging channels to lead the innovation of customer businesses and improve their satisfaction with service quality.

Customer Satisfaction Survey Process

In 2020, we surveyed decision makers at 32 client sites and 12,073 actual users to identify their level of satisfaction with our operational and maintenance services. It was revealed that customer satisfaction remained almost unchanged from the previous year, amounting to 74.7 points on a 100-point scale, and customer satisfaction among 18 customers rose by 6.1 points on average out of 28 participating customers, just as last year. Among service survey items, satisfaction with operational stability remained high while satisfaction with service resources was relatively low.

Items		2018	2019	2020
Customer Satisfaction		76.2 points	74.3 points	74.7 points
Customer Loyalty (positive response)	Contract Renewal	70.0%	66.2%	65.5%
	Expansion	69.1%	60.3%	60.8%
	Recommendation	66.0%	59.0%	59.1%

SOCIAL

Information Security

Information Security System

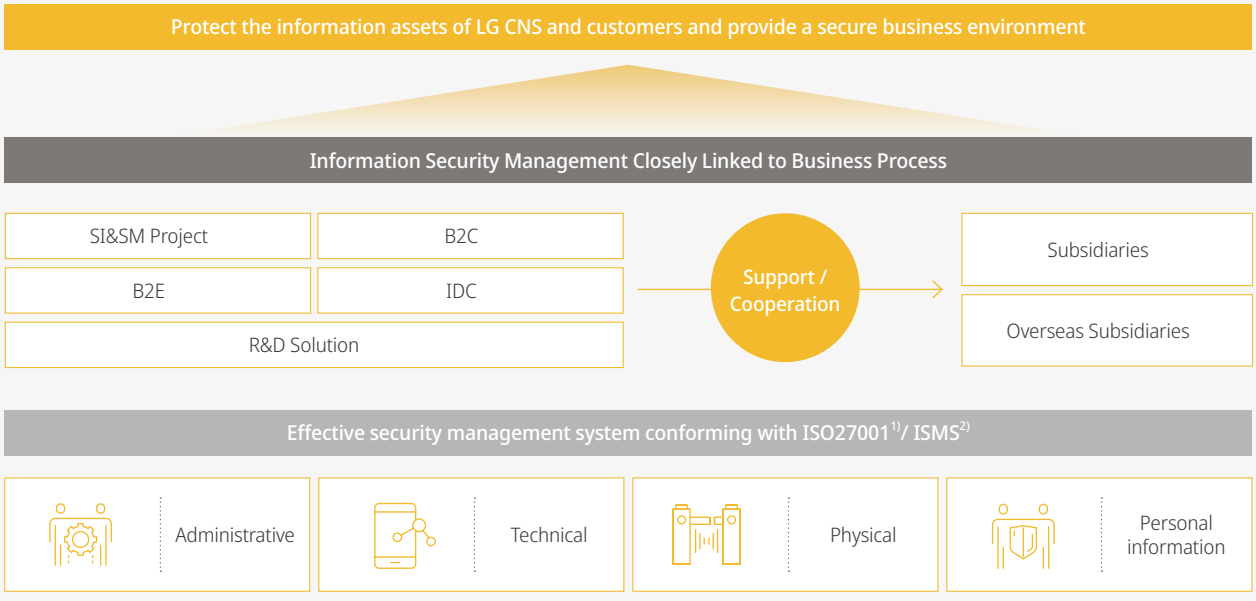
LG CNS has established an information security response system to safeguard customers' personal data and information assets in accordance with Korea's three major data laws – Personal Information Protection Act, Act on Promotion of Information and Communications Network Utilization, and Credit Information Act – as well as overseas information security regulations and systems.

Internal Information Security Organization and Operation

The CISO (Chief Information Security Officer) and the CPO (Chief Privacy Officer) are appointed to lead company wide information security operations, while respective departments are obligated to designate information security officers and managers. Infor- mation security managers are responsible for personnel manage- ment, core asset management and security issue sharing for their respective departments. Notably, departments handling personal information assign personal information protection officers and managers to make sure that such sensitive data is properly man- aged and any data breach is prevented. To consult on major information security matters, department heads in charge of internal/external service operations meet regularly to discuss security policies, security measures and work plans.

Employee Training & Awareness on Information Security

A variety of activities are undertaken to raise employees' security awareness. All employees are required to sign a pledge of information security each year and receive mandatory training on information security and personal information protection. Major SI and SM project sites are provided with on-site security training. Information security letters are also communicated via e-mail to employees to constantly to elevate employees' security awareness.



1) ISO 27001: International standard and certification on information security management system from the International Organization for Standardization
2) ISMS (Information Security Management System): Information Security Management System in Korea

Global Standard

In 2013, LG CNS achieved ISO 27001, the international information security management system standard established by ISO, and then the ISMS (Information Security Management System) certification in 2017, which governs the overall management system encompassing technical and physical protection measures. Furthermore, we were honored with the Best Protection Award at the 13th Information Protection Awards in 2014 in recognition of our best-in-class performance in infrastructure protection. As such, our security operation is based on the information security systems that comply with domestic and international standards to safeguard customers' assets and information.

ISO 14001: 2015 certificate

Complete Elimination of Customers' Personal Data Breach

As businesses face the increasing risk of customers' personal data breach incidents, we have assigned secret areas within our worksites since 2015 and tightened their security policy compared to general office spaces. Stronger physical controls are imple- mented including but not limited to speed gates, metal detectors, X-rays, and document inspections.

Physical Security Control

Strengthening our Personal Information Management System

As part of our commitment to personal information management, we provide trainings to employees handling personal information and perform inspections on the contractors who process such critical information on an annual basis. Automated self-directed and on-site reviews are conducted with the help of a system specialized in personal information operation to gain an at-a-glance view of our personal information management. This in turn leads to practical improvements made on personal information management. Furthermore, regular mock drills are performed to alert employees to personal information breach incidents.

Privacy Policy

01	Collect only a minimum amount of personal information that is just absolutely needed in providing the service.
02	Do not collect any personally identifiable information, such as a resident registration number, as well as sensitive information, such as medical records.
03	Use of Information within the collection purposes and do not provide the information to a third party without obtaining consent.
04	In personal information, disclose the privacy policy if personal information is used.
05	Implement all necessary security measures such as internal management plan, access control, firewall & vaccine, etc.
06	Destroy the personal information that has served its original purpose without delay and ensure that the information is completely destroyed and unrecoverable.
07	In case of personal data breach, immediately inform the fact to the data subject.
08	Notify employees in writing when surveillance cameras are in operation.

Information Security Assessment

Each of our organizations are systematically managed for their information security performance to prevent security risks. Organizational-level security scores are reflected in conducting performance appraisals on all department heads, who also check on the status of security ratings to prevent their employees from engaging in any security breach. Furthermore, quarterly PC security checks are performed for all employees to delete unnecessary personal data while encrypting essential business data for storage. To thoroughly protect and manage customer information, a wide array of security controls and auditings, such as Clean Desk and project security compliance, are implemented. These measures are also aligned with security ratings.

Global Compliance

Personal information protection regulations are tightening across the globe as evidenced in the adoption of the GDPR (General Data Protection Regulation) in EU and the Network Security Act in China. In conjunction with overseas subsidiaries, LG CNS is fully responding to this emerging regulatory trend to ensure the security of its global business operations. Compliance items were also identified and stringent reviews are performed accordingly to minimize compliance risks.

Response to the EU GDPR

Main Criteria	Measures
- Data subject rights protection · Right to be informed · Right of access · Right of correction · Right of erasure · Right of process restriction · Right of data portability · Right to object · Right related to automatic decision and profiling - Actions against breach	- Establish management system based upon the life cycle of personal information - Ensure access, correction, erasure and move of personal information - Minimize disclosure of personal data, implement security measures, and ensure anonymity. - Restrict transfer of personal information outside of EU – international coordination, supervisory agency's approval or consent of data subject required for data transfers - Identify applicable rights per business type and establish appropriate procedure and system - Establish measures for personal information breach incidents (i.e, notification process) - Safety measures for personal information devices

Actions to Security Act of China

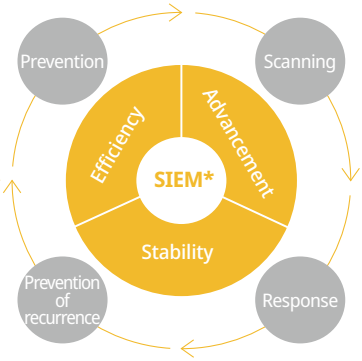
Main Criteria	Measures
- Network Security Breach Prevention - Management - Technology - Privacy protection management system	- Establish feasible security policies and ensure strict compliance - Implement data classification - Monitor security breach and setup appropriate measures - Strengthen access control and account management - Malware vaccination - Regular inspection and setup response system - Establish management system based upon the life cycle of personal information - Classify personal information handler and provide training - Establish personal information access / correction / destruction procedures

Security and Protection

Social damages are increasing each year resulting from the frequent external cyberattacks used for personal data breaches. LG CNS is steadily committed to the prevention of such external attacks caused by hackers and malicious codes. This comes in tandem with end-to-end security services to enable real-time detection and countermeasures to prevent the spread of damages in the event of security incidents. We prevent the intrusion of malicious codes via e-mails and introduce anti-ransomware solutions to create a secure work environment.

· Vulnerability analysis
· OS patch application
· Dissemination of security information

· Cause analysis and report
· Dissemination of breach report
· Prevention of virus outbreak



· 24 / 7 security monitoring
· Real-time monitoring against hacking / worm virus

· Hacking analysis and recovery support
· Preventive action against new viruses

*SIEM (Security Information and Event Management):
a security system designed to detect threats through integrated security event

SOCIAL

Shared Growth

LG CNS upholds fairness and transparency in doing business with suppliers on the basis of trust. In particular, we identify and support suppliers with innovation competence to assist their growth into competitive business partners and promote sustainable shared growth.

In September 2020, LG CNS was rated 'Outstanding' for three consecutive years, in the Win-Win Growth Partnership Index published by the Korea Commission for Corporate Partnership and was granted the 'most honorable company' in Shared Growth.

Fair Trade Guidelines

LG CNS is implementing the following four action guidelines suggested by the Korean Fair Trade Commission (KFTC): fair contracting practices, installation and operation of the Subcontract Review Committee, fair selection and management of the suppliers, and documentation & record keeping. In doing so, we fully comply with the Fair Transactions in Subcontracting Act and make sure that unfair issues do not occur in the course of conducting business with the suppliers.

01. Action Guidelines for Fair Contracting Practices

Fair trade guidelines to be complied with when entering into a contract with a supplier

02. Action Guidelines on the Subcontract Review Committee

Guidelines for ensuring compliance with the Fair Transactions in Subcontracting Act for subcontracts exceeding the reference amount & guidelines and when reviewing the selection and operation of suppliers

03. Action guidelines on the fair selection and registration of suppliers

Guidelines on procedures and standards to be complied with to ensure fairness in supplier selection and operation

04. Action Guidelines f or Documentation & Record Keeping

Guidelines on the documents to be issued and maintained in transactions with suppliers

Subcontract Review Committee
• Reflect Fair Trade Guidelines in internal regulations and post them on the website of the suppliers
• Operate Subcontract Review Committee to deliberate on transactions worth KRW 1 billion or more prior to signing a contract
• Review the legality of the transactions, including prior delivery of written documents and payment conditions, and the selection and operation of suppliers
• Reviewed 79 occasions in 2020

Adoption of the Standard Subcontracting Agreement

We have adopted the standard subcontracting agreement recommended by the KFTC since the early days of its implementation. This agreement has been introduced not only for software business (4 categories) but also for construction business (4 categories) and consignment manufacturing business (3 categories), which effectively extends its application to our entire business operations. In 2012, we officially participated in the public-private taskforce led by the KFTC to improve subcontract regulations in the software industry. We were also one of the first companies to revise and adopt the standard subcontracting agreement for software business, taking the lead in establishing fair contract practices between large software businesses and their SME partners.

Pledge for Jeong-Do Management

To eliminate unfair trade practices and corruption that may occur in doing business with suppliers, we ensure that the pledge of Jeong-Do Management is signed for each and every subcontract transaction that we have enter into.

Performance Summary

Key Management Issues	Implemented	Major Activities
❶ Strengthening communication with suppliers	Year-round	- Workshops for CEOs from the supplier side - Operation of Prime Partners for strategic suppliers - Workshops for on-site representatives from outsourcing suppliers
❷ Reinforcing suppliers' competitiveness	As Required	- Support suppliers with recruitment and training - Technology support and protection
❸ Expanding financing programs for suppliers	As Required	- Financial support (direct support, Win-Win Growth Fund, and Network Loan) - Payment condition improvement and cost adjustment
❹ Increasing fairness and transparency in business transactions	May to August	- Supplier CSR assessment and management

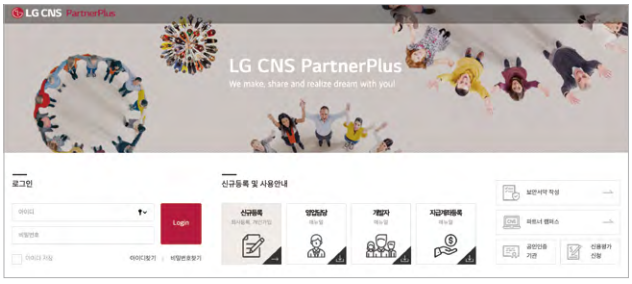
Key Performance Indicators (KPI)

Win-Win Growth Partnership Index (as of Sep. 2020)	"Outstanding"
Amount of Win-Win Growth Fund Raised / Administered (including direct financial support, as of 2020)	KRW 26.8 Billion / KRW 40 Billion
Number of Suppliers that have Completed CSR Risk Assessment (as of 2019)	104

Strengthened Communication with Suppliers

Year-round VoS (Voice of Supplier) Operation

LG CNS has created the supplier portal 'Partner Plus' (partnerplus.lgcns.com) which features an open communication section to collect the candid voice of the suppliers. LG CNS makes every effort to establish a sound culture of collaboration with the suppliers.



Collaboration Proposal	Suppliers can make a business proposal that leverages their products or solutions at any time.
Grievance Resolution	Suppliers can make inquiries and receive counseling on difficulties they experience in their collaboration with LG CNS.
Improvement Request	This portal is also used by our suppliers to request improvement on any unreasonable practices or inconvenience they have experienced in doing business with LG CNS.

Supplier CEO Workshops and SME Cooperation Meetings

We host regular workshops and talk sessions with suppliers to promote mutual understanding and strengthen the basis for substantial mutual growth. Such events serve to share LG CNS' business status, future directions and overall regulations that are required for suppliers' business operations, including information security and personal information protection regulations. We also hold consultation meetings with SMEs wishing to collaborate with us. In addition to our collaboration policy, suppliers' technology portfolio and business strengths are shared to forge cooperative relationships that generate synergy.

To comply with COVID-19 prevention guidelines, we have switched from large-scale offline workshops to small group discussions or one-to-one in-person/virtual communications since 2020 to share policies and difficulties on an ongoing basis.

Reinforcement of Supplier Competitiveness

Recruitment and Training

One of the greatest challenges faced by our SME suppliers is the recruitment of top-notch talent. To help our suppliers resolve this issue, we have operated U-CAMP SW Developer Training since 2006 to assist suppliers in recruiting and training new hires. This semi-annual 10-week training program is offered completely free of-charge as LG CNS shoulders all the training expenses. As of April 2021, this program has trained more than 1,000 new supplier recruits through 32 classes. A wide array of on/offline courses provided under the program help trainees improve their basic work knowledge as well as technical competence. In 2020, we switched from offline training to virtual training amid COVID-19.

Suppliers On / Offline Study

As of 2020	Online Study	Offline Study
No. of Programs	30 courses	2 courses
No. of People Who Completed the Programs	19,129	162
Key Areas	Technology, policy, and work knowledge	Technology and recruitment support training

In addition to our dedicated shared growth department, we have launched a new department in charge of supplier employee training and are operating a training center exclusively for suppliers within the LG CNS Sangam DDMC.

Operates a supplier training portal, the Partner Campus

Management Support

As our SME suppliers often suffer from relatively vulnerable conditions in their business administration, we support their improvement through anti-sexual harassment training, practical training for on-site representatives, and consulting on labor and financial management.

In 2021, we specifically assisted suppliers that are less than 300 employees in fully introducing the 52-hour workweek system by sharing our know-how and supporting their system development. We also provide them with employee guides and disinfectant supplies to help them cope with COVID-19.

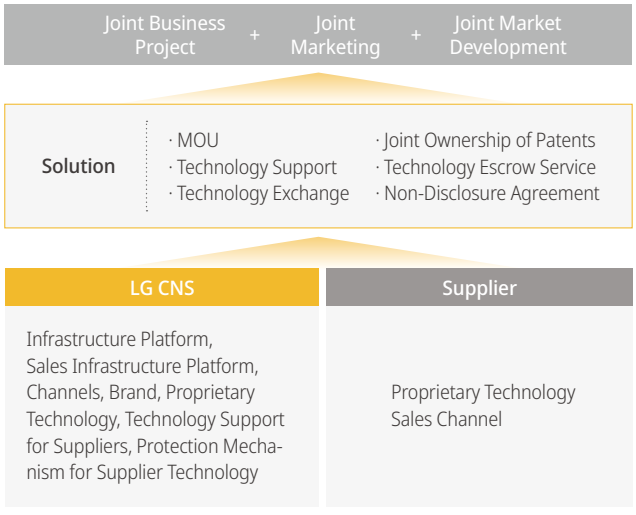
Technology Support and Protection

LG CNS conducts R&D with suppliers to facilitate technology support and exchange. We also make joint patent applications on the R&D outcomes generated with suppliers and utilize the Technology Escrow Service, the Original Certificate Service for Trade Secrets, and the NDA (Non-Disclosure Agreement) to protect suppliers' technology.

Technology Escrow Service	A technology protection service under which professional organizations take stewardship of suppliers' technology to safeguard the supplier's rights as well as ensure large corporation's stable access to the technology
Original Certificate Service for the Trade Secret	A protection mechanism for the proprietary information of suppliers, under which the information is registered to the Korea Institute of Patent Information for protection
NDA (Non-Disclosure Agreement)	A legal agreement that by which the parties agree not to disclose confidential material, knowledge or information that they have shared with each other

Joint R&D, Marketing and Business Projects

LG CNS shares its corporate vision with suppliers and joins hands with suppliers that have technology competence in the areas of R&D, marketing and business operation. Specifically, we advance into emerging technology and core industry sectors such as cloud, AI, big data and smart factory in conjunction with suppliers to promote sustainable shared growth.



Financing Programs for Suppliers

Financial Support

LG CNS launched the Win-Win Growth Fund in 2010 and has since assisted suppliers in strengthening their mid/long-term competitive edge through the provision of operational funds, R&D support and new business investments.

Direct Financing	Zero-interest loans offered from the fund raised independently by LG CNS
Win-Win Growth Fund	Lower interest rates offered from the joint fund raised in conjunction with a financial institution (IBK Bank) with the deposit by LG CNS as the seed capital
Network Loan	Low-interest loans offered by financial institutions based on suppliers' track record in their business deals with LG CNS

Payment Condition Improvement and Cost Adjustment

To help improve the financial soundness of suppliers, we make subcontract payments in accordance with the date of delivery verifications made for each contract without placing any limit on the number of monthly payouts (cash payment is made within 15 days from the inspection date). Furthermore, we exempt our suppliers from the submission of contract bond for the services and products that have been already delivered or when major suppliers or clients do not make specific requests. When cost-affecting factors occur in doing business with suppliers, we apply cost adjustment standards that are more favorable for the supplier than those stipulated in the standard subcontracting agreement of the KFTC, and make adjustments in full consideration of costs or contract amounts.

Fairness and Transparency

Supplier CSR Risk Assessment & Management

LG CNS has conducted annual supplier CSR assessments each year since 2015. Suppliers selected by the Corporate Procurement Department receive regular assessments on ethics management, working conditions, human rights, health & safety, and environmental management thr ough self-assessments, the collection of the CSR compliance pledges, and CSR audits. Assessment outcomes are consecutively reflected in regular procurement evaluations. Furthermore, we established a system to support the individual projects undertaken by suppliers to improve their CSR performance, including working-level CSR templates. To raise suppliers' CSR awareness, we offer CSR lectures to supplier CEOs while providing CSR training to supplier employees as part of CSR audits. CSR newsletters are also e-mailed on a continuous basis.

Supplier CSR Management Performance

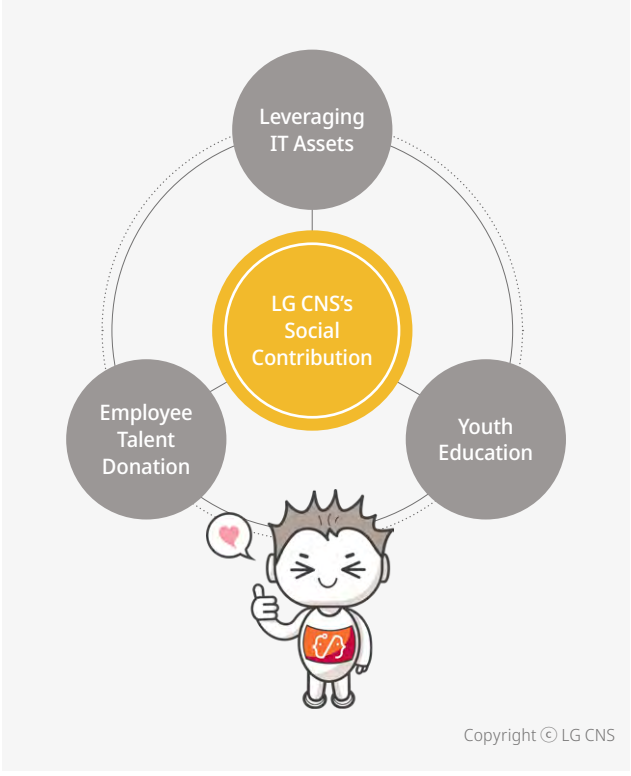
Year	2018	2019
Number of Suppliers Participated	157 (Regular Assessment)	104 (Regular Assessment)
Major Activities	· Request for CSR guidelines compliance · CSR self-assessment / audits · CEO/management meetings	· Request for CSR guidelines compliance · CSR self-assessment / audits
Criteria for Pledge / Assessmens	· Information Security · Labor & Human Rights · Ethical Management · Industrial Safety & Health · Environment	· Information Security · Labor & Human Rights · Ethical Management · Industrial Safety & Health · Environment · Compliance with technical data provision requests

*Not provided in 2020 due to COVID-19.

SOCIAL

Social Contribution

LG CNS's social contribution initiatives are undertaken in a way to focus on carefully-selected targets in order to bring the greatest possible impacts through partnerships with governments and specialist organizations. Rather than making one-off financial donations, we follow the three principles of leveraging our IT expertise, directly engaging our employees, and educating adolescents in implementing our social contribution programs from the long-term perspective. In that way, we harness our professional business capabilities to present fundamental solutions to social issues while contributing to the development of tomorrow's IT workforce to fulfill our corporate social responsibility.



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2020 Social Contribution Key Performance Indicators (KPI)

Number of Beneficiaries

2,500 Persons

AI Genius

Our signature social contribution program, 'AI Genius', supports adolescents who will play a pivotal role in the 4th Industrial Revolution era. We help them learn about coding and explore their dreams and talents through wide-ranging inspiring experiences. This program takes a creative, original and convergence- driven approach to help students nurture computational thinking through software concepts and principles learning even without basic IT knowledge. We also help them to develop problem- solving skills that are applicable to complicated real-life issues. We signed an MOU with the Seoul Metropolitan Office of Education to facilitate the city's free semester system through this program, and are providing SW/AI education to teens.

Necessity for SW/AI Education

As part of their initiatives to nurture the talent of future generations, national governments around the world are actively embracing software and AI education, with advanced nations like the United States and the United Kingdom having completed their implementation of software education as a core component in their formal education curriculum. Korea also implemented software education as mandatory courses in the primary and secondary curriculums from 2018. When it comes to AI technology, countries around the world have defined AI as essential competency for future society and are developing educational policies for students to this end. Unfortunately, software education programs tailored to young students as well as the necessary infrastructure for such programs are still lacking. As we have recognized this as a corporate responsibility, LG CNS has stepped in to improve the status quo SW/AI education with our expertise in software and is leading this important initiative for our future generations.

Online Live Class

In line with the prolonged COVID-19 pandemic, we have moved the AI Genius program to a fully virtual real-time format since 2020. Rather than providing one-way online education through which students simply watch pre-recorded videos, we arrange a venue for lecturers and students to meet through virtual means and engage in real-time interactive communication by posting replies and talking to each other. Capitalizing on the advantages of such virtual learning that is not restrained by any distance limitations, we are extending the scope of this program from the metropolitan region to remote island areas.

Program Details

AI Genius is provided as part of the regular education curriculum of middle schools adopting the free semester system to help students learn essential AI technology for six periods per day. The program is designed in a way to guide teenagers, even without basic knowledge on AI, to experience AI from its concept, possible career options, and AI ethics discussion all the way to chatbot making.

What is AI?	AI, Encountering Art
- Definition and types of AI - AI in our daily lives - Imagine your own AI service	- Experience of AI-enabled arts/ music - Auto draw/quick draw exercise - Bach Doodle exercise
Career Development in the AI Era	**Smart Use of AI**
- Change in the future career world - AI research/application career options - Becoming an GI robot engineer	- AI and ethical concerns - Thinking about AI - Sharing ideas on AI ethics
Challenge! Make Your Own Chatbot Part 1	**Challenge! Make Your Own Chatbot Part 2**
- What is a chatbot? - A glimpse into Machine Learning for Kids	- Plan your own AI chatbot - Make your own chatbot

AI Genius program

Former LG CNS Employees Serving as Experienced Lecturers

For those women who formerly worked as IT engineers at LG CNS but discontinued their economic activities for reasons of childbirth or childcare, we help them become professional SW/AI education instructors and serve as experienced lecturers for the AI Genius program. They are recognized as optimally equipped to provide SW/AI education to students for their outstanding SW competency and experience in taking care of children after their resignation.

Continued Operation of Self-initiated Learning Channels

LG CNS is operating the AI Genius blog (blog.naver.com/codinggenius) as an online channel that provides diverse contents. Learning materials developed from the perspective of students are distributed in webtoon or card news formats while video-assisted coding education is offered. In doing so, we encourage more teenagers to consistently benefit from software education beyond time or space limitations. AI contents have been updated since 2020 to ensure that everyone can easily understand the basic principles of AI without time and space restriction.

SW/AI learning videos

SW/AI learning webtoons

Performance & Certification

Our AI Genius program was honored with the Minister of Education Award in the social volunteer sector at the 12th Korea Social Contribution Awards in 2017 and was recognized as the 'Free Semester Best Practice Contest' for its achievements in offering IT educational programs that delivered practical benefits. Additionally, we were selected as the Educational Partner for Career Exploration by the Ministry of Education in 2018, and AI Genius was granted the Minister of Education Citation at the Education Donation Awards along with the Minister of Health and Welfare Citation at the Social Contributor Awards, gaining recognition as Korea's leading IT social contribution program.

GOVERNANCE

Corporate Governance

Board of Directors

Board of Directors

Category	Name	Position	Date of Appointment	Remarks
Inside Director	Young-Shub Kim	CEO, LG CNS	2019.3.	Chairman of the BoD
Inside Director	Ji-Hwan Park	CFO, LG CNS	2021.3.	
Non-executive Director	Hyeon-Ok Jeong	Team Leader, LG Management Innovation Team	2020.3.	
Non-executive Director	Eric Kim	Representative Director, Macquarie Korea Asset Management	2020.4.	
Non-executive Director	James-Jooheon Kim	Senior Managing Director, Macquarie Korea Asset Management Investment Performance Group	2020.8.	

Roles of the Board

LG CNS's Board of Directors (BOD) serves as a decision-making body to decide on important business issues and operational execution and to supervise directors for their fulfillment of professional responsibilities. Directors actively present their opinions while objectively performing evaluation and supervision.

Operation and Activities

Operation of the Board

Regularly scheduled BOD meetings are held to faithfully make deliberations and decisions on the critical issues related to business operations and on the cases stipulated in the regulations, governing business execution and supervision, and in the Articles of Incorporation. Ad-hoc meetings are held if the need arises to make decisions on urgent issues. Our BOD is operated in accordance with transparent standards and procedures, and the BOD can approve decisions with the majority of the directors present at the meeting and the majority vote of directors present.

Activities of the Board

In 2020, LG CNS held a total of seven BOD meetings to address 26 agenda items, including 'approval of 2020 business plans', and 'issuance of corporate bonds'. The attendance rate of directors amounted to 94.3%.

Shareholding Status

As of December 2020, we have issued a total of 87,197,353 shares. The largest shareholder is LG Corporation which holds 49.95% of the total. Crystalkorea Ltd. owns 35.00%, and the employees' stock ownership association and minority shareholders represent 1.78% and 13.27% respectively.

Shareholder	Name of Shareholder	Stock Ownership	Ratio of Ownership
5% or higher Shareholder	LG Corporation[1)]	43,557,218	49.95%
	Crystalkorea Ltd.[2)]	30,519,074	35.00%
Employee stockholders association		1,549,896	1.78%

* As of May 2021
1) 35% shares sold (Apr. 29, 2020) 2) 35% shares acquired (Apr. 29, 2020)

Year	No. of Meetings	Attendance Rate	No. of Agenda items	Major Resolutions
2020	7	94.3%	26	- Approval of 2020 Business Plan - Approval of issuance of corporate bonds
2019	10	100.0%	30	- Approval of 2019 Business Plan - Appointment of the CEO
2018	10	96.7%	31	- Approval of 2018 Business Plan - Approval of issuing corporate bonds

GOVERNANCE

Fair Trade

Establishing and Disseminating a Corporate Culture of Fair Trade

Establishing a culture of fair trade by strengthening awareness on fair trade compliance is the key to ensuring LG CNS's sustained growth and fulfilling social responsibility. This also contributes to practicing 'LG Way' that guides our employees in their thinking and action. We are keenly aware that it is essential to prevent fair trade risks and manage such issues, and we are consistently undertaking activities to this end. To preemptively respond to fair trade risks and disseminate a corporate culture of fair trade, we do our utmost in providing continuous training, monitoring, and improving our Fair Trade Portal. In 2021, we are publishing regular newsletters to raise employees' fair trade awareness.

On/offline Training and Monitoring

As a result of reviewing fair trade regulations and provisions that are relevant to our business areas, we have selected cartel conduct which is one of the risks of fair trade, subcontracting regulations and inter-affiliate transactions. Furthermore, on-site monitoring is conducted on sales, operations and business development organizations that are exposed to high fair trade risks. Monitoring outcomes are used to identify necessary improvements and manage the progress to prevent fair trade risks. Meanwhile, legal proceedings on fair trade were organized into processes to incorporate fair trade requirements into our internal work standards and procedures. As a way to embed fair trade practices into our daily business routines, we also provide on/offline training to employees. In the first half of 2021, we produced training videos on subcontract risks in reflection of latest information to conduct online training, and are increasing the number of course attendees by providing diverse learning opportunities.

Work Process Improvement

Prior to any revision or enforcement of the Fair Trade Act, Subcontracting Act and related notices, and examination guide- lines, we notify such major changes to our employees. These are also promptly integrated into our work processes and systems to ensure that our employees are not involved in any regulatory violations due to their lack of knowledge on statutory amendments. In addition, preliminary reviews and consultations are performed on the interpretation and possible violation of fair trade regulations.

Compliance Program

Progress by Area

Cartel

We share the strong commitment of senior management to eliminate cartels across the board and take preventive activities for employees working in job categories that are at a higher risk of cartels than others. Since 2018, online training has been provided in parallel with offline training to raise employees' awareness. Regular monitoring is also conducted to thoroughly prevent cartel risks. In particular, coming in contact with competitor employees is fundamentally prohibited as this could be considered a cartel behavior. If it is inevitable, however, to contact competitor employees due to the inherent characteristics of the business concerned, we ensure that such contacts are reported before and after they are made. This surely prevents both the Company and employees from being suspected of committing any illegal activities.

Transactions between Affiliates

We analyze behavioral causes of possible regulatory violations that may occur in inter-affiliate transactions and review precedents of such violations. To ensure that our employees are not engaged in any regulatory violations in the course of performing their work, concerned organizations receive training and monitoring. In particular, contracts that exceed the set amount of values are subject to closer examinations reviews to ensure that their agreements and rele- vant documents do not constitute regulatory violations. Procedural improvements are also identified before and after contract execu- tion to prevent the risk of regulatory violations from ever occurring.

Subcontract Practices

We endeavor to maintain the transparency and fairness of subcontracts that we enter into and build cooperative partnerships that pursue the mutual growth of large businesses and SMEs. Our employees are constantly provided with trainings on compliance with subcontracting regulations, and regular on-site reviews are conducted to improve our work processes.

In 2019, we supplemented our internal process and reflected this in our system, and provided video training to all employees. We have also regularly monitored our compliance with subcontract regulations to manage our implementation performance based on monitoring results since 2020. In 2021, we produced new subcontract training videos in reflection of latest information and provided training accordingly.

Category	2019	2020	2021 (to be conducted)
Fair Trade Training	50 times	30 times	50 times
Improvement	Offering on-site fair trade training	Producing training videos and expanding online training	Improving the Fair Trade Portal and expanding online training

Fair Trade Portal

Our Fair Trade Portal is under operation to establish a company-wide culture of fair trade and lay the foundation for employees in complying with fair trade principles. A variety of contents are made available including 'introduction of fair trade', 'contact with competitor employees' and 'technical data provision request' to ensure that fair trade compliance is embedded into the daily business routines of our employees. To help employees develop proper awareness on fair trade, we constantly inform them of changes in fair trade policies, regulations and systems as well as compliance guides.

In 2021, we are improving the Portal to make it more readily usable, and will establish a system so that the portal assists employees in managing their compliance on their own and conducting self-directed monitoring on their compliance with fair trade regulations.

Fair Trade Portal Main Page

GOVERNANCE

Jeong-Do (Right-Way) Management

The LG Way

LG Way represents LG's unique corporate culture, and guides us to act on the management philosophy of customer value creation and people-oriented management by way of Jeong-Do Management to ultimately become No. 1 LG. Jeong-Do Management articulates the principles for our employees to follow in their everyday behavior, and embodies our commitment to constantly building capabilities and playing fairly on the basis of ethics management.

Internal Dissemination of the Code of Ethics

LG ensures compliance with the Code of Ethics that was set forth for all employees to follow in taking proper action and making value judgement. The Code of Ethics Handbook is published in Korean, English and Chinese and is distributed to employees as such. This is also posted on the Jeong-Do Management board of our intranet and on the Jeong-Do Management section of LG CNS's corporate website for all internal/external stakeholders to refer to.

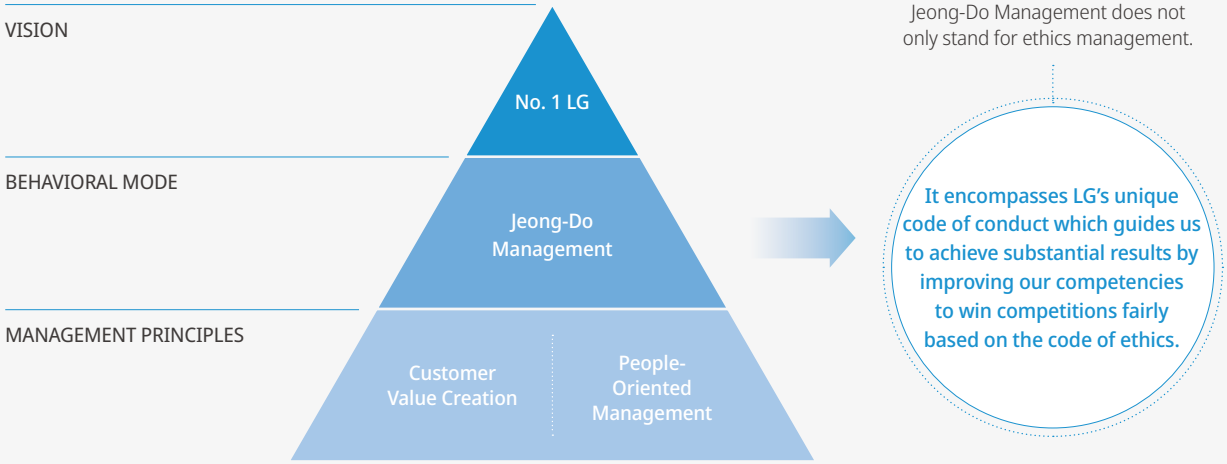
Jeong-Do Management Organization

At LG CNS, Jeong-Do Management is performed under the direct leadership of the CEO to ensure its systemic management, and regular, year-round, and special audits are conducted. Under the Corporate Auditing Unit is the Ethics Bureau reviewing whistle-blowing reports, offering Jeong-Do Management training and disseminating the culture of Jeong-Do Management, establishing relevant programs and systems, and operating the counseling center.

Jeong-Do Management

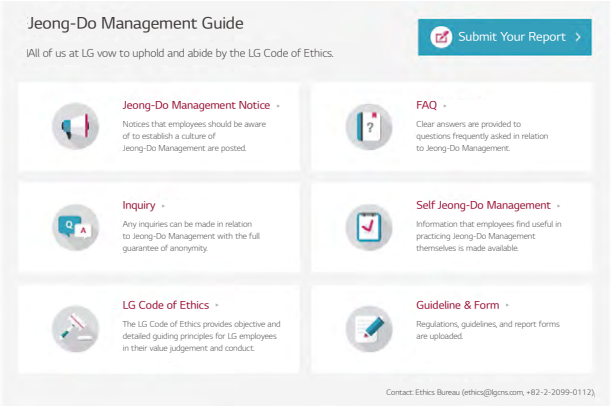
Integrated Operation of Jeong-Do Management

LG CNS operates the 'Jeong-Do Management Guide' on the intranet as an integrated internal Jeong-Do Management system to support employees to better access Jeong-Do Management and systematically practice its principles. This allows us to share announcements and non-compliance cases with Jeong-Do Management and provide year-round access to LG's Code of Ethics while fully supporting employees with self-reviews and real-time counseling.



Jeong-Do Management Guide

Each and every employee at LG is consistently committed to complying with and practicing the LG Code of Ethics.



Employee/Supplier Training and Cultural Dissemination

We continue to provide Jeong-Do Management training and disseminate its culture to embed Jeong-Do Management into the daily routines of our employees. In 2020, on/offline training was provided to nearly 250 employees at the Headquarters, including new hires with/without previous work experience, newly-appointed leaders, and field workers as well as nearly 650 employees from overseas subsidiaries. Furthermore, Jeong-Do Management Letters were regularly published as part of our cultural dissemination activities, and cases of non-compliance with Jeong-Do Management are posted on the bulletin board of our intranet to raise employees's awareness on Jeong-Do Management.

Jeong-Do Management Pledge

LG CNS regularly pledges to comply with the LG Code of Conduct and practice Jeong-Do Management to fulfill its responsibility towards customers, suppliers, shareholders, employees and society at large and to become a respected market-leading player. Our employees sign the pledge for Jeong-Do Management prior to initiating their work each year, and we also request suppliers to sign the pledge as part of the contract signing process.

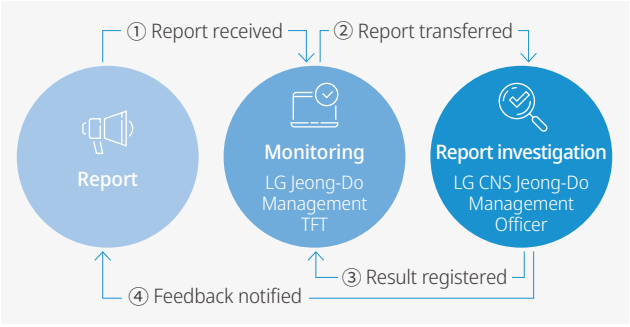
Self-reporting of Money or Valuables Received

LG CNS strictly prohibits our employees from receiving any gifts (cash and/or valuables) from interested parties. When money or valuables are received, their acceptance is respectfully refused and the items are returned, and such occurrences are reported to the Ethics Bureau. In case it is difficult to return these items, they are delivered to the Ethics Bureau. These items are either directly donated to welfare facilities or auctioned off internally to donate the proceeds.

Whistleblower System and Other Various Communication Channels

Our whistleblower system enables whistleblowers to report on any business practices that violate Jeong-Do Management principles, including but not limited to employees' exploitation of their dominant position leading to unfair business handling or their receipt of money or valuables. Submitted reports are investigated to establish their facts, and if confirmed to constitute violations, they are addressed through follow-up measures as disciplinary actions and HR decisions, Jeong-Do Management training, and work process improvement. In addition to the whistleblower system, other diverse channels are available - phone calls, faxes, mails, or visits - to receive reports. Whistleblowers are thoroughly protected so that they are not disadvantaged due to their reports.

Whistleblower Protection and Confidentiality



Whistleblower Reward Program

We operate a whistleblower reward program to eliminate any corruptive practices that undermine our customer value and brand reputation. When whistleblower reports are submitted, reviews are made on whether to grant rewards depending on their factual grounds and impacts, and rewards are given to whistleblowers through the reward review board.

Anti-corruption Program

Compliance with Anti-Corruption Law

LG CNS employees comply with anti-corruption regulations in business conduct in accordance with the Jeong-Do Management philosophy across all countries and regions. We do not tolerate any form of unjustified requests or bribery as prohibited by law.

Anti-corruption Pledge

Each year, our employees sign the anti-corruption pledge on their very first business day to reaffirm their commitment to regulatory compliance as a responsible member of LG and initiate their work for the year. By signing the pledge, our employees vow to understand and follow LG CNS's policy that aims to abide by any and all anti-corruption regulations in Korea and abroad in relation to the prohibition of improper solicitation, bribery or corruptive practices committed through agents or other third-parties.

Anti-corruption Training

We provide anti-corruption training to our employees. In 2020, such training was provided to essential training targets - six business divisions and nearly 70 employees from the staff planning department – in consideration of the on-going COVID-19 pandemic. In Q2 of 2021, we will initiate a new global anti-corruption training program to effectively communicate our policy to comply with the Foreign Corrupt Practices Act (FCPA) and other overseas anti-corruption regulations.

APPENDIX

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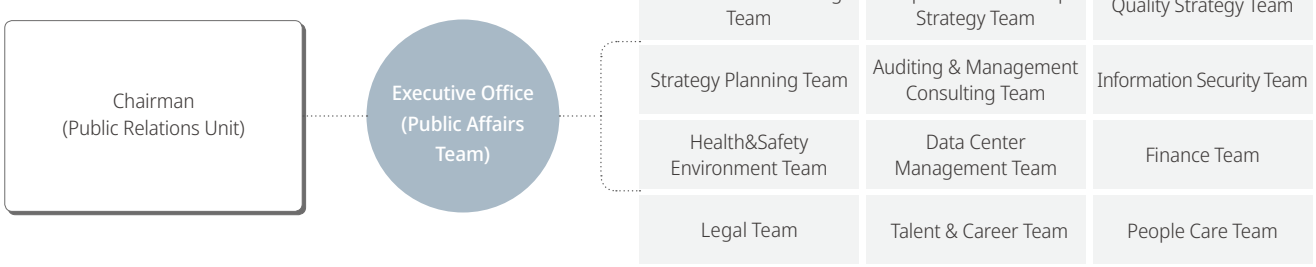
Approach to CSR

LG CNS takes a proactive approach to fulfill its social responsibility in order to become a 'sustainable IT service company'. To this end, we are strengthening the execution of our CSR (Corporate Social Responsibility) activities across the entire business on the basis of corporate sustainability, strategic social contribution, broader stakeholder engagement, and CSR change management. In addition, LG CNS build consensus with stakeholders and reinforces cooperation with them.

CSR Committee Organization Chart



Stakeholder Engagement

LG CNS classified stakeholder groups to practice sustainability management, and operates multiple communication channels to collect their varied feedback.

Stakeholder Group Classification

We classified individuals or organizations that have interest in LG CNS into six groups of 'customers', 'employees', 'shareholders & investors', 'suppliers', 'communities' and 'industries'. We identify their major areas of interest by stakeholder group and reflect them in setting our corporate strategies to fully respond to them.

Stakeholder Engagement Process

01	02	03	04
Define key stakeholders	Communication with stakeholders	Materiality analysis	Improvement activities and application in practice

Diverse Communication Channels

At LG CNS, interactive communication channels with the stakeholders are up and running all year-round. We also survey internal/external stakeholders to assess the materiality of sustainability management issues. Their varying feedback is integrated in our business operations to pursue mutual benefits with stakeholders.

Category	Key Activities	Communication Channels
Customers	Collect feedback on our service	- Homepage / solution websites (frequently) - CS portal, VoC, call center (frequently) - Customer complaints and feedbacks (frequently) - Customer satisfaction survey (SM annually, upon completion of projects) - Customer CSR survey (upon completion of CSR)
Employees	Conduct surveys on business strategies and implementation	- Intranet and Grievance Handling Program (frequently) - Whistleblower Center (frequently) - Online company newsletter (twice per month) - Labor-Management Council meeting (quarterly) - EntrueFDC meeting (frequently) - Occupational Safety & Health Committee meeting (quarterly) - Employee satisfaction survey (annually) - Employee CSR survey (annually)
Communities (Environment / Safety / NGO)	Engage in decision- making for community development	- GHG emission reduction society activities (monthly) - Korea Industrial Safety Association (quarterly)
Shareholders & Investors	Engage in strategic decision-making process	- General Meeting of Shareholders (annually) - Business Report (quarterly) - Board Meeting (monthly)
Suppliers	Pursue mutual growth with suppliers	- Integrated Procurement Portal (frequently) - Whistleblower Center (frequently) - CSR survey for suppliers (annually) - Workshop for suppliers' executive officers (annually) - Training support for suppliers (frequently) - Technical support for suppliers (frequently)
Industries (National Assembly /Government /Association /Company)	Engage in decision-making process in the IT industry	- Public and organization-related works (frequently) - ITSA Board of Directors - KOSA Board of Directors - The Federation of Korean Information Industries Board of Directors - Government tasks and conference (irregularly)

Interview with LG CNS Stakeholders

Customer

Tae-young Jang, Manager
(Korean Air)

Q. Can you tell us about the digital transformation innovation of Korean Air's Data Center Outsourcing (DCO) project currently undertaken by LG CNS as a project member?

A. This DCO project aims to migrate our existing datacenter accommodating 560 servers for flight, freight, passenger and ERP operations into Amazon's cloud environment. Our working-level departments that demand digital innovation already benefit from more prompt IT support available. We are swiftly embracing diverse native services provided by cloud operators, and rapidly deploying them once their effectiveness is demonstrated.

Q. What do you think LG CNS could do to pursue digital innovation at Korean Air?

A. We have successfully laid the basis for digital innovation through full-fledged cloud transition and stable datacenter operations. We hope that LG CNS would serve as a reliable companion in the IT sector in the evolution of Korean Air to become a leader in the global air transport industry through digital innovation.

Supplier

Yong-Gi Jung, CEO
(INS)

Q. What are the shared growth programs that you joined to promote win-win management with LG CNS?

A. LG CNS is taking the initiative in operating varying shared growth programs that meet the needs of its suppliers. We attended the U-Camp training course operated by LG CNS which helps suppliers recruit and develop new hires' skills, and were able to recruit exceptional talent. We also collect cash payments from LG CNS within one to two days following tax invoicing, and such shared growth programs greatly benefit us to the extent that we don't even need to receive financial assistance through the Win-Win Growth Fund. Other shared growth programs that we participate in include the exemption from insurance policy purchases, on/offline trainings provided to supplier employees, and workshops and discussion meetings.

Q. What are your expectations for LG CNS in creating a healthy ecosystem in the IT industry?

A. The IT industry is advancing at such an accelerating pace that SMEs find it extremely challenging just to catch up. It's difficult to see where this change is headed, and to collate and analyze relevant information. If LG CNS looks into the difficulties many SMEs experience and set the joint course of action, this would be greatly appreciated.

Evaluation Institution

Tae-Joon Lee, Professional
(Korea Data Center Council)

Q. Why are improving the energy efficiency of green datacenters through carbon neutrality and responding to climate change important to LG CNS?

A. Major global IT companies have made their commitment to the RE100 (Renewable Energy 100) initiative and are already working in various ways to achieve carbon neutrality. As major datacenters in Korea are serving global IT companies, they need to brace for increasing demand for carbon neutrality. Datacenters are heavy power consumers and carbon issues in the datacenter industry will eventually demand the use of renewable energy and energy efficiency improvement. In the end, the global competitiveness of datacenters will be assessed by how much progress they attain in making such efforts. It is our hope that LG CNS work to improve energy efficiency to deliver green datacenters as a way to respond to global requirements and policy initiatives.

Q. What are the areas of possible reinforcement or supplementation for LG CNS to operate green datacenters?

A. While PUE or Power Usage Effectiveness has been the yardstick to use in improving the efficiency of electricity consumed at datacenters, a time will come when we need to fully engage in discussions on the impact of datacenters in their surrounding environment as well. Furthermore, Korean media outlets often perceive datacenters as an environmentally obnoxious facility based on groundless allegations concerning the generation of electromagnetic waves, the emission of air pollutants and the occurrence of heat island effects. If public awareness campaigns are launched on LG CNS's technology to operate green datacenters and the environmentally harmless nature of datacenters, this will help LG CNS gain a comparative advantage in building datacenters.

Employee

Eun-Young Lim, Professional Leader
(AI-RPA Business Team)

Q. As a working mom raising multiple kids, how do you evaluate LG CNS's work environment from the work-life balance perspective?

A. LG CNS is setting an example in operating programs for expectant mothers and employees experiencing childbirth or having childcare needs. Such programs truly assisted me in assuming a leader role while raising four kids. When my kids moved to a virtual learning environment amid COVID-19, I was able to smoothly handle my work in the cloud work environment that LG CNS had already deployed. The virtual communication system also allowed me to successfully hold internal and customer meetings while working from home.

Q. What are your expectations for LG CNS in relation to nurturing elite specialists?

A. I would like to see more training opportunities for such emerging technologies as cloud, big data, AI and blockchain. As an IT company, most of the work we perform at LG CNS is project-based. If LG CNS provides an abundant source of online training contents that we can access at any given time and space, this will benefit a large number of employees in their learning journey.

Jin-Soo Ryu, Tech Meister
(Big Data Engineering 2 Team)

Q. Tell us about the process of selecting Tech Meisters, a group of elite specialists at LG CNS, and what do these meisters do to develop their expertise?

A. Applicants should first pass the Technical Competency Test (TCT) and achieve the required Level Competency Placement (LCP). They then receive in-depth written and core skills assessments, and should gain approval by the Skills Review Board (SRB) to finally become a Tech Meister. To develop our expertise, we create an internal learning group and study together mainly on new technology and research data in addition to performing our work. We do not merely learn theoretical knowledge but ensure that such knowledge is applied to real-life situations including project undertakings.

Q. What are your expectations from LG CNS in your effort to become an elite specialist?

A. We would benefit significantly in an environment where both learning and work go hand-in-hand through diverse capacity-building opportunities that are made widely available recently, including webinars and open innovation collaborations. A virtuous cycle established through a more proactive compensation approach will also motivate employees to further develop their competency as elite specialists.

Materiality Assessment

LG CNS conducts materiality analyses to identify the materiality of diverse sustainability management issues, based on the level of stakeholder's interest and their impact on our business, and to focus on high-priority issues in sustainability reporting.

Materiality Analysis Process

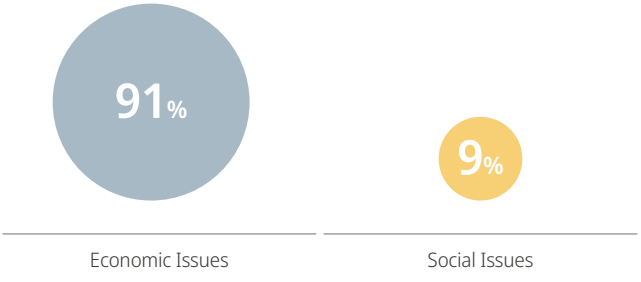
At LG CNS, we referred to the Five-Part Test methodology of AccountAbility, a globally-renowned research institute in the sustainability management area in conducting the materiality assessment. A total of 23 issues were identified by reviewing the GRI Standards 100 – 400, ISO 26000, the DJSI and other sustainability-related international standards and indices as well as media reports, topics reported in our most recent sustainability report, and practices of other companies.

STEP. 01	STEP. 02	STEP. 03	STEP. 04
Create Pool of Topics	Materiality Analysis	Analyze the Result	Writing Reports
International standards and index (GRI Standards, DJSI, ISO26000)	**External stakeholders** · Survey: 148 respondents	**Business impact** · Corporate business strategy · Industrial characteristics	**Report main topics on economic, social and environmental issues** · Report core issues through prioritization of materiality · Report sustainability issues
Benchmarking Similar Industries, Media research and, Internal and external information	**Internal stakeholders** · Survey: 676 respondents · CSR Practice Council	**Level of stakeholders' interest**	
Previous year's issues		**Social issues and industrial trends**	
		Rating the issues on a scale of 1 to 5	

Media Report Analysis

We analyzed reports featuring LC CNS published by domestic newspapers, business magazines, major broadcasters, and technical journals over the course of 2020. This revealed that economic issues were highly prominent in the order of 'leading Digital Transformation (DX)', 'economic performance', 'strengthening open innovation' and 'information technology innovation', accounting for 91% of total. The remaining 9% was related to social issues such as 'fair trade', 'CSR', and 'recruitment of top talent'.

2020 Media Exposure Analysis Results



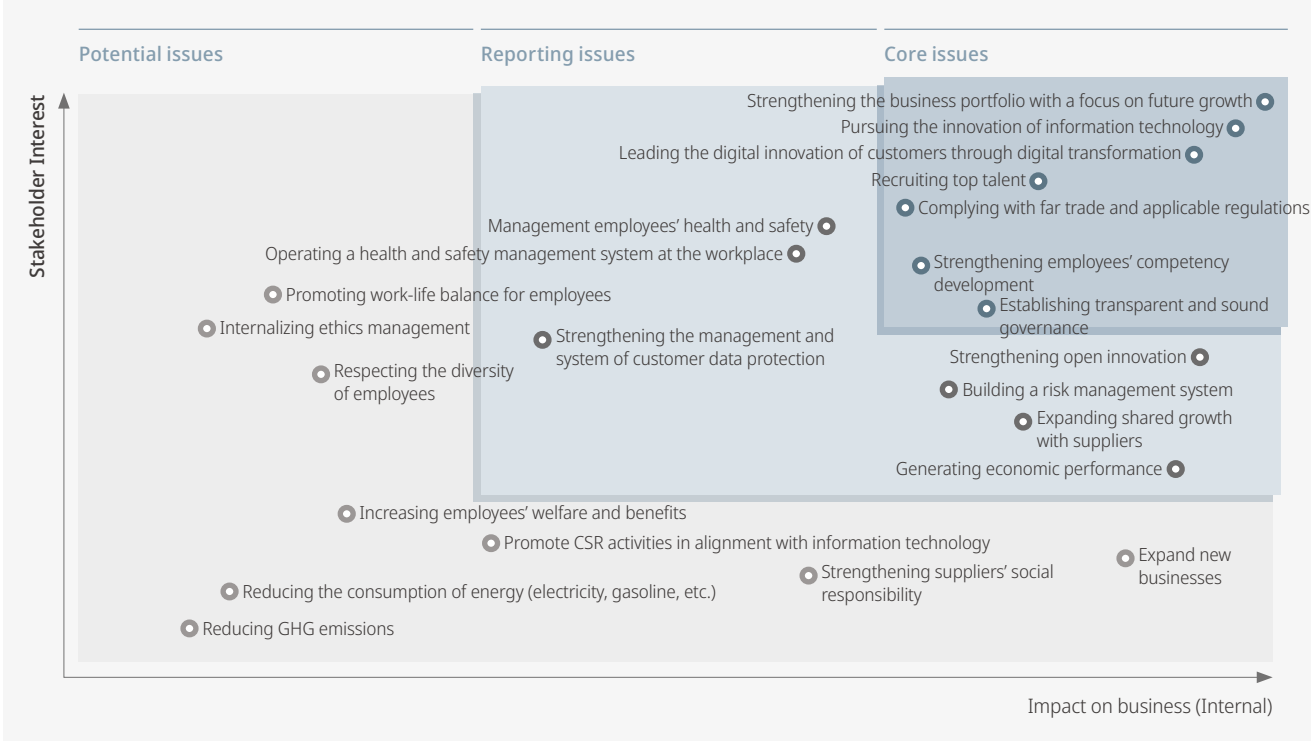
Stakeholder Survey

We conducted e-mail/paper-based surveys on internal/external stakeholders and interviews with key stakeholders. Survey respondents were 824 stakeholders including customers, suppliers, industry businesses, associations, organizations and employees. Issues of interest among stakeholders in general were identified in the following order of 'strengthening the business portfolio with a focus on future growth', 'pursuing the innovation of information technology' 'recruiting top talent', and 'leading the digital innovation of customers through digital transformation'. Specifically, external stakeholders ranked issues in the order of 'strengthening the business portfolio with a focus on future growth', 'recruiting top talent', and 'pursuing the innovation of information technology', while employees who are internal stakeholders chose as the top priority issue 'pursuing the innovation of information technology' followed by 'recruiting top talent', and 'leading the digital innovation of customers through digital transformation'.

Ranking	External Stakeholder
1	Strengthening the business portfolio with a focus on future growth
2	Recruiting top talent
3	Pursuing the innovation of information technology
4	Complying with fair trade and applicable regulations
5	Strengthening the management and system of customer data protection
6	Strengthening employees' competency development
7	Establishing transparent and sound governance
8	Operating a health and safety management system at the workplace
9	Internalizing ethics management
10	Building a risk management system (preventing business, financial social and environmental risks)

Ranking	Internal Stakeholder
1	Pursuing the innovation of information technology
2	Recruiting top talent
3	Leading the digital innovation of customers through digital transformation
4	Managing employees' health and safety
5	Expanding new businesses and advancing into the global market
6	Promoting work-life balance for employees
7	Complying with fair trade and applicable regulations
8	Operating a health and safety management system at the workplace
9	Strengthening employees' competency development
10	Strengthening open innovation (open ecosystem)

Results of Materiality Analysis



Financial Performance

Consolidated Income Statement

(Unit: KRW M)

Item	2018	2019	2020
Sales	3,117,656	3,283,314	3,360,486
Cost of Sales	2,703,042	2,818,591	2,845,553
Gross Profit	414,614	464,723	514,933
Selling & Marketing Expenses	227,555	251,875	268,812
Operating Income	187,059	212,849	246,121
Financial Income	10,090	8,904	9,899
Financial Expenses	17,124	18,309	18,359
Gains or losses on investments using equity method	(441)	4,511	(2,710)
Other Operating Income	21,068	26,126	51,020
Other Operating Expenses	39,091	26,760	54,260
Profit before Income Tax Expense	161,562	207,321	231,711
Income Tax Expense	51,053	43,869	65,217
Profit for the Year	110,508	163,452	166,494

Consolidated Balance Sheet

(Unit: KRW M)

Item	2018	2019	2020
1. Current Assets	1,585,859	1,670,395	1,973,939
Trade Receivables, net	818,015	804,274	816,734
Inventories, net	51,941	57,360	34,764
Other Current Assets	715,903	808,761	1,122,440
2. Non-Current Assets	889,462	944,913	909,476
Affiliate and joint company investments	56,794	62,662	74,051
Property, Plant and Equipment, net	664,832	621,366	583,892
Intangible Assets	53,275	69,692	75,801
Other Non-Current Assets	114,561	191,192	175,732
Total Assets	2,475,321	2,615,308	2,883,415
1. Current Liabilities	815,042	1,033,222	1,033,043
2. Non-Current Liabilities	563,906	359,248	563,050
Total Liabilities	1,378,948	1,392,470	1,596,092
1. Controlling Company Shareholder's Equity	1,099,326	1,220,703	1,285,760
Issued Capital	47,198	47,198	47,198
Capital Surplus	39,516	36,693	36,693
Other Reserves Accumulated Other Comprehensive Loss	(17,944)	(16,035)	(19,058)
Retained Earnings	1,030,556	1,152,846	1,220,927
2. Non-Controlling Interests	(2,953)	2,135	1,562
Total Shareholders' Equity	1,096,373	1,222,838	1,287,323
Total Liabilities and Shareholders' Equity	2,475,321	2,615,308	2,883,415

* For further details, please see our annual report (http://dart.fss.or.kr)

Government Subsidy (as of 2020, in Korea, on a non-consolidated basis)

(Unit: KRW M)

Project Name	Lead Division	Amount	Remarks
Pilot project to build a blockchain-based food safety data platform	Korea Internet & Security Agency	240	
Pilot project to build a blockchain-based autonomous vehicle trusted platform	Korea Internet & Security Agency	300	
Pilot project for a blockchain-based smart digital freight waybill platform	Korea Internet & Security Agency	300	
Development of a blockchain-based EV battery life cycle management system	Korea Internet & Security Agency	240	

Economic Performance Distribution (as of 2020)

Category	Stakeholder	Item	Amount (KRW 100M)	Remarks
Domestic	Employees	Salary & Bonus	5,843	
		Benefits	905	
		Severance Compensation	502	
		Training Budget	82	
	Suppliers	Product Purchases	8,856	
		Outsourcing Expenses	6,751	
		Repair Expenses	2,264	
		Advertisement Expenses	44	
	Government and Local Community	Corporate taxes paid	357	
		Other taxes and public utility charges	47	
		Donations	15	
		Membership Dues	14	
	Shareholders & Bondholders	Dividends	746	Dividend Payout Ratio 48.6%

Environmental Performance

Item	Criteria	Unit	2016	2017	2018	2019	2020
Energy	Consumption	TJ	585	444	523	567	612
Greenhouse Gas	Emissions	tCO_2eq	26,610	20,319	23,732	25,636	27,534
Water (water and sewage usage volume)	Consumption	Ton	13	15	12	13	13
Waste Water	Consumption	Ton	16	19	16	16	18
COD	Amount	Ton	0	0	0	0	0
Waste	Amount	Ton	8	10	12	21	13

* The data presented here is based solely on the environmental performance of the Sangam IT Center (pursuant to the "Environmental Information Disclosure Policy" from the "Enforcement Decree of the Support for Environmental Technology and Environmental Industry Act").
* Included in the emissions calculation for the Greenhouse Gas Emission Trade Scheme are: electricity, cold / hot water, diesel fuel (power generator) usage volume
* Not included in the emissions calculation for the Greenhouse Gas Emission Trade Scheme are: water consumption and waste discharge volume

Social Performance

Employees

By Region

(Unit: Number of Employees)

Category	No. of Employees	Percentage
Korea	6,174	89.4%
China	337	4.9%
USA	129	1.9%
Brazil	54	0.8%
Colombia	50	0.7%
Europe	53	0.8%
Vietnam	30	0.4%
Greece	27	0.4%
Malaysia	6	0.1%
Indonesia	17	0.2%
India	18	0.3%
Japan	10	0.1%
Uzbekistan	3	0.0%
Other*	1	0.0%
Total	6,909	100.0%

*One person in Bahrain

By Job Position

(Unit: Number of Employees)

Category	By Job	Total (regular + irregular)
Korea	(Nonmanagerial) Employees	6,142
	Executives	32
	Total	6,174
Overseas	Employees	735
	Executives	-
	Total	735
Overall	Employees	6,877
	Executives	32
	Total	6,909

Employee data (as of the end of 2020, based on work locations)
-Korea: Excluding expatriates whose work location is in Korea (FSEs), dispatched workers and locally-hired employees
-Overseas: Including FSEs, dispatched workers and locally-hired employees, work locations based outside Korea

Female Employees

(Unit: Number of Employees)

Category	2018	2019	2020
Korea	1,405	1,510	1,519
Percentage (%)	24.1%	24.2%	24.4%

Diversity

(Unit: Number of Employees)

Category	2019	2020
Foreigners (Domestic: Full Time + Part Time)	13	13
With Disabilities	121	131

*For workplaces subject to disability employment fund report (LG CNS: 43 employees, Haengbokmaru: 88 employees)

By Age Group

(Unit: Number of Employees)

Age Group	Korea	Percentage
20s and under	890	14.4%
30s	1,710	27.7%
40s	2,513	40.7%
50s or older	1,061	17.2%
Total	6,174	100%

Employee Education & Training

(Unit: Number of Employees, No. of hours)

Category	2018	2019	2020
Attendance at group training	17,296	20,284	26,593
Attendance at online training	51,577	44,947	60,317
Training hours per capita (hours)	68.8	79.1	52.5

*In 2020, attendance in online training increased and self-learning courses were expanded amid the COVID-19 pandemic, which was not reflected in the calculation of training hours.

Percentage of Irregular Employees

(unit: %, in Korea)

2018	2019	2020
1.77	1.84	1.69

Job Creation

(unit: No. of persons, in Korea)

Category	2018	2019	2020
Male	391	452	217
Female	155	178	88
Total	546	630	305

Average years of employment

(Unit: Year, in Korea)

Category	2018	2019	2020
Male	11.9	11.5	12.1
Female	10.4	9.4	9.9
Total	11.5	11.0	11.6

Parental Leave

(Unit: Number of Employees)

2018	2019	2020
162	176	126

Industrial Accident

(Unit: Case)

Category	2018	2019	2020
No. of occurrences	3	0	2

Memberships & Associations (39 in total)

* As of July 2021

CONCERT	Kore Mechanical Construction Contractors Association	Maekyung SEL Club (Safety & Environment Leaders Club)
Seoul Chamber of Commerce and Industry	Korea Electrical Contractors Association	Korea Transportation Card Industry Association
Korea Industrial Technology Association	Korea Specialty Contractors Association	Korea Digital Cable Laboratories
Korea Engineering & Consulting Association	International Contractors Association of Korea	Korean Institute of Industrial Engineers
Korea International Trade Association	Korea Software Cooperative	Korea CIO Forum
Korea Fair Competition Federation	Korea Project Management Office Association	ToIP (Trust Over IP Foundation)
Federation of Korea Information Industries	Korea Defense Industry Association	Open Blockchain & Decentralized Identifier Association
Korea Software Industry Association	Seoul Regional Security Council	Association for Blockchain Business
Korea Information Technology Service Industry Association	Korea Fintech Industry Association	MEC (Multi-Access Edge Computing) Forum
LG Patent Council	Hyperledger Membership	Financial IT Forum
Construction Association of Korea	LG Technology Council	Korea Council of Chief Information Security Officers
Korea Information & Communication Construction Association	LG Science Park Convergence Council	DMC Tenant Association
Korea Fire Facility Association	Korea Industrial Safety Association	KAMP (Korea AL Manufacturing Platform). AI

Management System Certifications

Certification Title	Certification Date	Expiration Date	Certification Range
ISO14001	2020.08.	2022.09.	**HQ:** IT and maintenance services, including software and system integration consulting, analytics, design and development in the areas of energy, transportation, manufacturing, healthcare, logistics, finance, public services, national defense, telecommunications & media, retail, ICBMA (IoT, Cloud, Big Data, Mobile and AI), business commerce and convergence **Greece Branch Office:** Trainings for users of OASA's Automatic Fare Collection System (A.F.C.S) project, preventive management of equipment and software, technical support, and maintenance service
ISO45001	2020.08.	2022.07.	**HQ:** IT and maintenance services, including software and system integration consulting, analytics, design and development in the areas of energy, transportation, manufacturing, healthcare, logistics, finance, public services, national defense, telecommunications & media, retail, ICBMA (IoT, Cloud, Big Data, Mobile and AI), business commerce and convergence
ISO27001	2016.04.	2022.04.	Busan Data Center, Sangam IT Center, Gasan Center, and Incheon Center
ISMS	2017.11.	2023.11.	Corporate-wide external service and IDC operation
ISO9001	1994.07.	2023.07.	**HQ:** IT service and maintenance service including software and system integration consulting, analytics, design and development in the areas of public services, transportation, finance, manufacturing, logistics, telecommunications & media, retail, ICBMA (IoT, Cloud, Big Data, Mobile and AI), business commerce and convergence **Greece Branch Office:** trainings for users of OASA's Automatic Fare Collection System (A.F.C.S) project, preventive management of equipment and software, technical support, and maintenance service

GRI Standards Index (Core Option)

General Standards

Topic	Index	Description	Page	More Info.	Self Assessment
Organizational Profile	102-1	Name of the organization	5		•
	102-2	Activities, brands, products, and services	8-9		•
	102-3	Location of headquarters	4		•
	102-4	Location of operations	4-5		•
	102-5	Ownership and legal form	76		•
	102-6	Markets served	8-9		•
	102-7	Scale of the organization (employees, sales, capital)	3-5, 88-91		•
	102-8	Information on employees and other workers	90-91		•
	102-9	Supply chain	71-72		•
	102-10	Significant changes to the organization and its supply chain	No significant change		•
	102-11	Precautionary principle or approach	68-70, 77-78		•
	102-12	Voluntary economic, environmental and social principles or external initiatives	64, 80, 95		•
	102-13	Membership of associations	91		•
Strategy	102-14	Statement from senior decision-maker on sustainability	2		•
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	79		•
Governance	102-18	Governance structure	76		•
Stakeholder Engagement	102-40	List of stakeholder groups	83		•
	102-41	Workers covered by Collective bargaining agreements	62		•
	102-42	Identifying and selecting stakeholders	83		•
	102-43	Approach to stakeholder engagement	83, 86		•
	102-44	Key topics and concerns raised	84-85, 87		•
Reporting Practice	102-45	Entities (subsidiaries, joint venture companies) included in the consolidated financial statements	Business Report		•
	102-46	Defining report content and topic boundaries	86-87		•
	102-47	List of material topics	87		•
	102-48	Restatements of information	About this Report		•
	102-49	Changes in reporting	N/A		•
	102-50	Reporting period	About this Report		•
	102-51	Date of the most recent report	September 2020		•
	102-52	Reporting cycle	1Year		•
	102-53	Contact point for questions regarding the report	About this Report		•
	102-54	Claims of reporting in accordance with the GRI Standards	92-93		•
	102-55	GRI content index	92-93		•
	102-56	External assurance	N/A	Self-assured	•

Topic-Specific Standards

Topic	Index	Description	Page	More Info.	Self-verification
Economic Performance	201-1	Direct economic value generated and distributed	3, 5, 88		●
Indirect Economic Impacts	203-1	Infrastructure investments and services supported	74-75		●
	203-2	Significant indirect economic impacts	3, 89		●
Energy	302-1	Energy consumption within the organization	56-57, 89	Environmental data only applies to Sangam IT Center ("Environmental Data Disclosure" Business Sites)	●
	302-2	Energy consumption outside of the organization	57		●
	302-3	Energy intensity	56-57, 89		●
	302-4	Reduction of energy consumption	57, 89		●
Water	303-1	Water withdrawal by sources	89		●
Emissions	305-4	GHG emissions intensity	89		●
	305-5	Reduction of GHG emissions	57, 89		●
Effluents and Waste	306-1	Water discharge by quality and destination	89		●
	306-2	Waste by type and disposal method	89		●
Employment	401-1	New employee hires and employee turnover	90-91		●
	401-2	Benefits provided to full-time employees	62-63, 65		●
	401-3	Parental leave	91		●
Occupational Health and Safety	403-1	Workers' representation in formal joint management–worker health and safety committees and ratio represented by the health committee	64-65		●
	403-2	Types of injury and rates of injury, occupational diseases, lost days, absenteeism, and number of work-related fatalities	91		●
	403-4	Health and safety topics covered in formal agreements with trade unions	64-65		●
Customer Health and Safety	416-1	Assessment of the health and safety impacts of product and service categories	64-65		●

Other Standards

Topic	Index	Description	Page	More Info.	Self-verification
Strategy	102-15	Key impacts, risks, and opportunities	2, 6, 7		●
Ethics and Integrity	102-17	Mechanisms for advice and concerns about ethics	62		●
Governance	102-29	Identifying and managing economic, environmental, and social impacts	65		●
	102-34	Nature, frequency and total number of critical concerns and grievance handling mechanisms	62		●
	102-35	Remuneration policies	Business Report		●
	102-36	Process for determining remuneration	Business Report		●
Economic Performance	201-4	Financial assistance received from government	89		●
Procurement Practice	204-1	Proportion of spending on local suppliers		Not applicable	●
Anti-corruption	205-2	Communication and training about anti-corruption policies and procedures	80		●
	205-3	Confirmed incidents of corruption and actions taken	80		●
Effluents and Waste	306-3	Significant spills		No significant spills	●
Environmental Compliance	307-1	Non-compliance with environmental laws and regulations		No significant violations	●
Supplier Environmental Assessment	308-2	Negative environmental impacts in the supply chain and actions taken	72-73		●
Labor / Management Relations	402-1	Minimum notice periods regarding operational changes		Not applicable	●
Training and Education	404-1	Average hours of training per year per employee	3, 90		●
	404-2	Programs for upgrading employee skills and transition assistance programs	58-60		●
	404-3	Percentage of employees receiving regular performance and career development reviews	59, 90		●
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	60, 90		●
	405-2	Ratio of basic salary and remuneration of women to men		No difference in base salary	●
Non-discrimination	406-1	Incidents of discrimination and corrective actions taken		No such incidents	●
Local Communities	413-1	Local community engagement, impact assessments, and proportion of community development programs	74-75		●
	413-2	Operations with significant actual and potential negative impacts on local communities		Not applicable	●
Customer Health and Safety	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services		No significant violations	●
Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data		No significant violations	●

UN SDGs (Sustainable Development Goals)

In September 2015, at the United Nations, 193 world leaders officially adopted the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) as a new global commitment for sustainable development. Expected to serve as a roadmap for sustainable development from 2016 through 2030, this future development framework is comprised of seventeen goals and 169 targets covering a broad range of economic, social and environmental issues. Additionally, it places a particular emphasis on the role of civil society by highlighting the importance of the investments, solution development and business activities carried out by private corporations across the world. After carefully reviewing the seventeen Sustainable Development Goals as well as its associated targets, LG CNS plans to pursue 6 sustainable development goals that are relevant to our businesses and that are of high priority.

	Ensure healthy lives and promote well-being for all at all ages	61, 63, 65
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	58-60, 63
	Achieve gender equality and empower all women and girls	90-91
	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	58-60
	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	6-9
	Make cities and human settlements inclusive, safe, resilient and sustainable	56-57, 64-65

Human Rights

At LG CNS, employees are fully respected for their human dignity and values. They are entitled to pursue their happiness in relation to the provision of their labor, and their rights are duly protected in accordance with LG's management philosophy of 'Respecting Human Dignity'. We at LG CNS are in full compliance with the standards and regulations of international organizations and associations working in the fields of labor and human rights, including but not limited to the UN Universal Declaration of Human Rights, ILO (International Labor Organization)'s Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy, and the OECD Guidelines for Multinational Enterprises.

LG CNS Global Labor Policy

As part of our commitment to our management principle, "Human-oriented Management," LG CNS established and implemented the Global Labor Policy to ensure that all of our stakeholders—our employees, customers and suppliers— are respected as human beings and have their dignity valued. LG CNS fully complies with the labor laws and regulations of the countries where we operate, and strives to ensure employment stability by providing our employees with prevailing wages to fulfill our social and economic responsibility. As a responsible corporate citizen, LG CNS strongly supports the principles prescribed by the United Nations Universal Declaration of Human Rights and the United Nations Commission on Human Rights Guiding Principles on Business and Human Rights.

Article 1. (Respect for Human Dignity)

All employees shall be treated with respect, and they shall never be treated in any severe or inhumane way including sexual harassment and abuse, corporal punishment, mental and physical coercion, verbal abuse, and irrational restriction at work.

Article 2. (Prohibition of Discrimination)

The operation of our human resource practices which includes employment, promotion, compensation, and training opportunities, as well as the provision of products and services, all stakeholders shall not be discriminated upon on the grounds of nationality, race, age, gender, sexual orientation, disability, pregnancy, religion, political affiliations and/or labor union, and marital status.

Article 3. (Avoidance of Forced Labor)

All employees shall not be forced to work against their free will with their mental and/or physical freedom restricted by means of assault, threat, and confinement. All labor shall be based on free will, and all employees shall not be required to hand over their identification card, passport, and/or work permission card issued by the government on condition of employment.

Article 4. (Women and Child Labor)

Children shall not be employed for any kind of job position. "Children" signifies those aged under a certain minimum age standard. The minimum age for work is determined by the regulations of each country and region. Additionally, underage and/or pregnant employees are excluded from dangerous tasks, in accordance with ILO agreements ratified by each country and working conditions including age regulations shall be observed.

Article 5. (Working Hours)

Working hours and days shall be determined in accordance with the regulations of each country and region concerning regular and overtime working hours and holidays.

Article 6. (Wage and Welfare)

All employees shall be paid in accordance with the labor-related regulations of each country and region concerning minimum wage, overtime working hours, and legal welfare.

Article 7. (Freedom of Association)

In accordance with the labor-related regulations of each country and region, the freedom of association and the right to bargain collectively shall be secured. All employees should be guaranteed an environment where they can communicate with the management with no fear for discrimination, retaliation, threat, and harassment.

Article 8. (Protection of Personal Information)

The personal information of all stakeholders shall be strictly protected, and shall not be leaked or utilized for any other use without prior approval of the relevant stakeholder. The company shall deliver only true information, avoid any false information, and shall fulfill this promise.

Publication of LG CNS Sustainability Reports

2016 - 2017

2017 - 2018

2018 - 2019

2019 - 2020

2020 - 2021

LG CNS's sustainability reports are downloadable at the corporate website (www.lgcns.com).

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