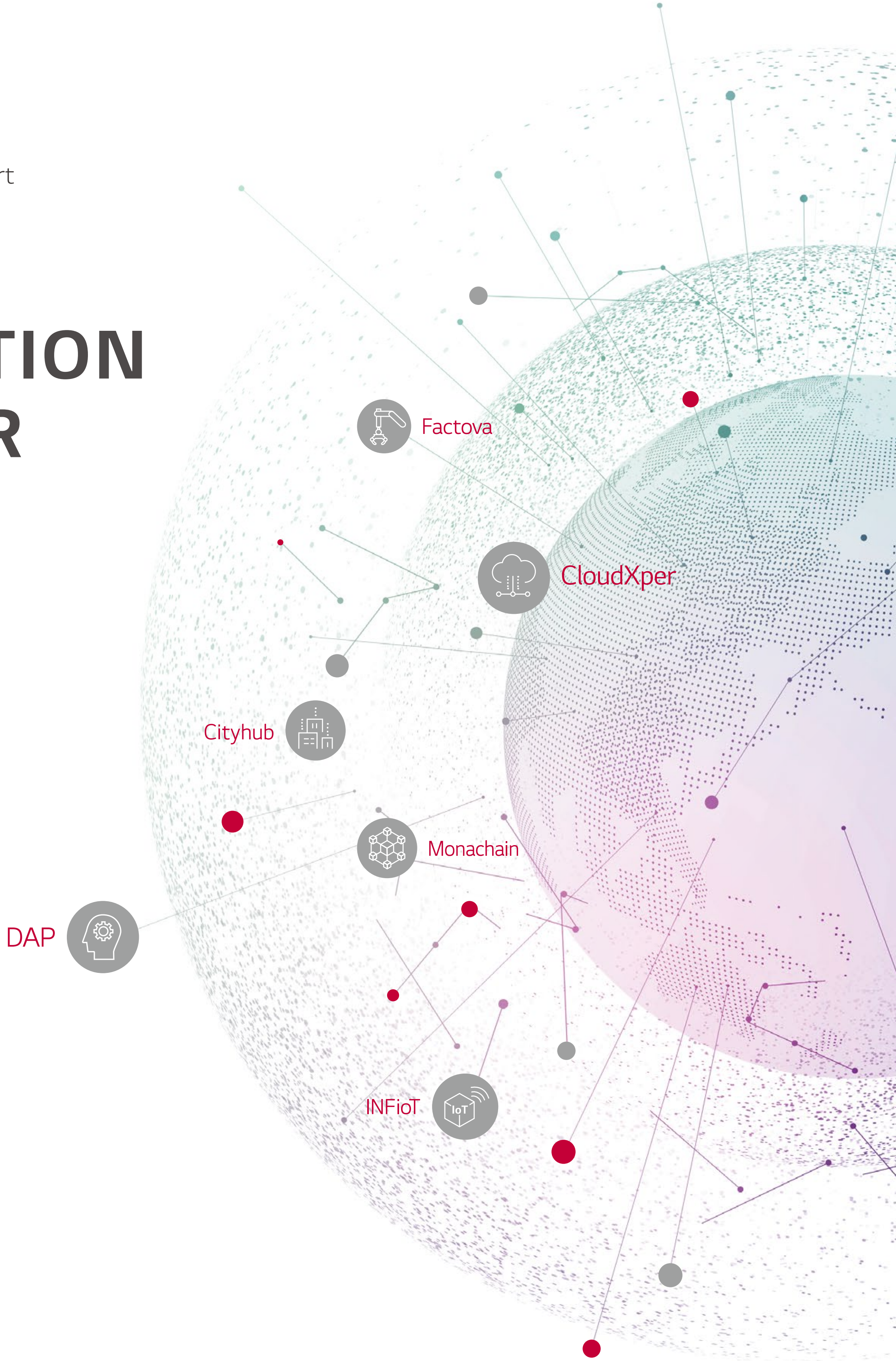
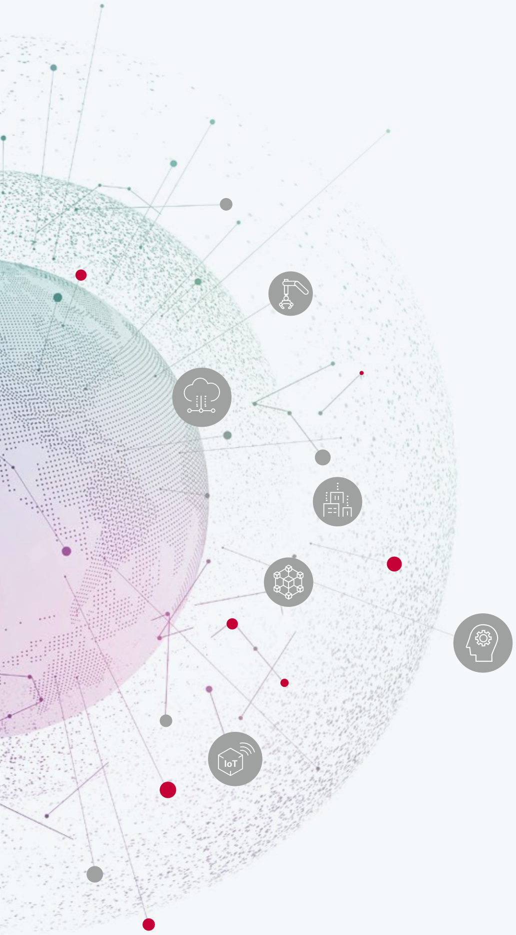
2019-2020
LG CNS Sustainability Report

DIGITAL INNOVATION ENABLER


Factova
CloudXper
Cityhub
Monachain
DAP
INFioT
IoT

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 2019-2020 LG CNS Sustainability Report is the fourth 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 business. Additionally, the materiality analysis, which have been reviewed by relevant working-level departments and 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 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 presents the economic, social and environmental values that we create.

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 between January 1, 2019 and December 31, 2019, and extends to 2020 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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2019-2020

LG CNS Sustainability Report

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A Letter from our CEO

"LG CNS is focusing all efforts on transforming into a technology company that creates customer value in a timely manner without being shaken by any changes in the business environment. While doing so, we will stay true to our Jeong-Do Management philosophy to compete fairly on the strength of our accumulated capabilities and to faithfully fulfill our corporate social responsibility."

Dear Respected Stakeholders,

The worldwide spread of novel coronavirus infections (COVID-19) is presenting many uncertainties for the global economy. Concerns are mounting across virtually all industrial sectors, including manufacturing, service, and finance among many others. Indeed, COVID-19, with its immense impact, is shaking the very foundation of global manufacturing as well as the IT service industry where LG CNS operates.

COVID-19 and its resulting challenges are serving as catalysts and is further accelerating the much needed enterprise innovations that businesses have been facing. Recently, we have witnessed a large number of companies developing 'non-contact' business models that leverage new information technology to conduct business in virtual contactless settings. These companies are taking innovation a step further and developing fundamental and practical changes in the way we work, bringing a paradigm shift to our competitive landscape.

These changes will serve as important signals for LG CNS and will be the inflection point of our growth, because as a highly specialized IT company our capabilities ensure our customer's high quality innovation.

As a leading IT service provider in Korea, LG CNS has applied and utilized original technology to meet our customer's needs for more than three decades, building a strong base of IT service abilities and expertise. In addition we continue to build our expert capabilities to deliver even greater premium value to our customers, and we are constantly taking on new and meaningful challenges to innovate all areas of management, including improving the ways we work to achieve our goals.

We are the first large scale Korean business to apply public cloud to business innovation tools, and are also leading business in the fields of intelligent facial recognition, vision inspection, and AI chatbot services.

Furthermore, by establishing a business execution system driven by our technical competency we are helping all the members our company to grow into elite technology experts, laying the foundation for consistently providing high-quality services.

In addition, through collaboration with advanced global and technology companies, we are providing new services and technologies and the increasing the speed of our innovation to stay one step ahead of our competitors.

LG CNS is focusing all efforts on transforming into a technology company that creates customer value in a timely manner without being shaken by any changes in the business environment. While doing so, we will stay true to our Jeong-Do(Right-Way) Management philosophy to compete fairly on the strength of our accumulated capabilities and to faithfully fulfill our corporate social responsibility. In addition our social responsibility as an industry-leading company will extend to thoroughly preparing for the changes that may be caused by emerging technologies.

We kindly ask for your continued interest and support.

Thank you,

김 영 섭

Young-Shub Kim
Chief Executive Officer, LG CNS

2019 CSR Key Figures

Fiance Resualt

Sales

KRW3.2833Trillion

Operating Income

KRW212.8Billion

Debt-to-equity Ratio

114%

13.5%

Percentage of Overseas Sales

Customer Issues

Customer Satisfaction Rate

74.3/100Pt.

Breach of Personal Information

0Cases

Security Management System Certification

2017~2020Years

Employee Data

Training hours per employee1)

79.1Times

Average years of employment

11.3Years2)

24.2%

Percentage of Female Employees

0.00%

Industrial Accident Rate

Environment Figures

GHG Emissions

25,636 tCO_2eq

Energy Consumption

567 TJ

Water Consumption

13 Tons

Waste Discharge

21 Tons

Community Engagement

Win-Win Growth Rating

Most Outstanding3)

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

KRW 40 Billion

Donations

KRW900Million

No. of Suppliers Participated in CSR Assessment

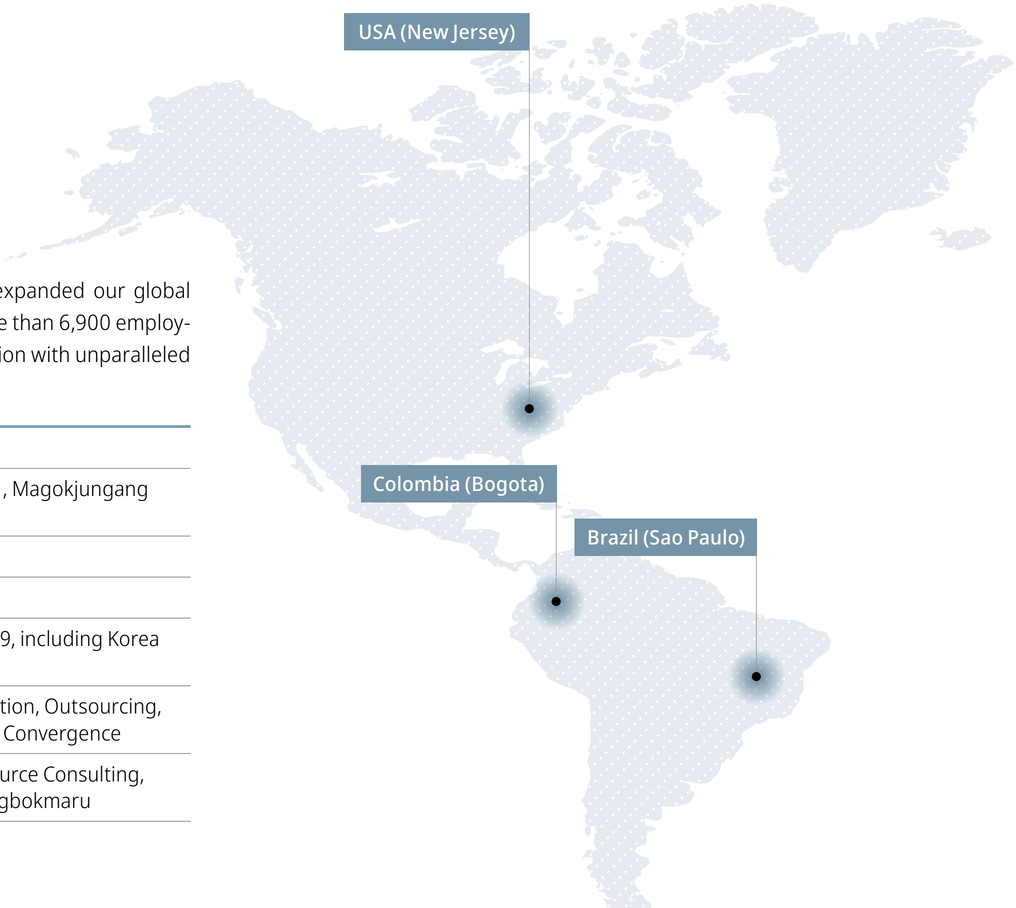
104

* 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	6,886 employees (as of 2019, 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

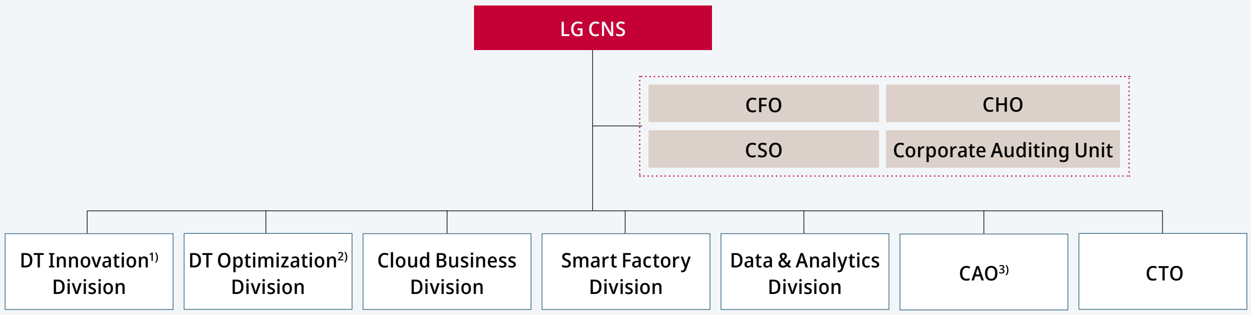
2016-2020
Digital Transformation Leadership

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

Organization Chart

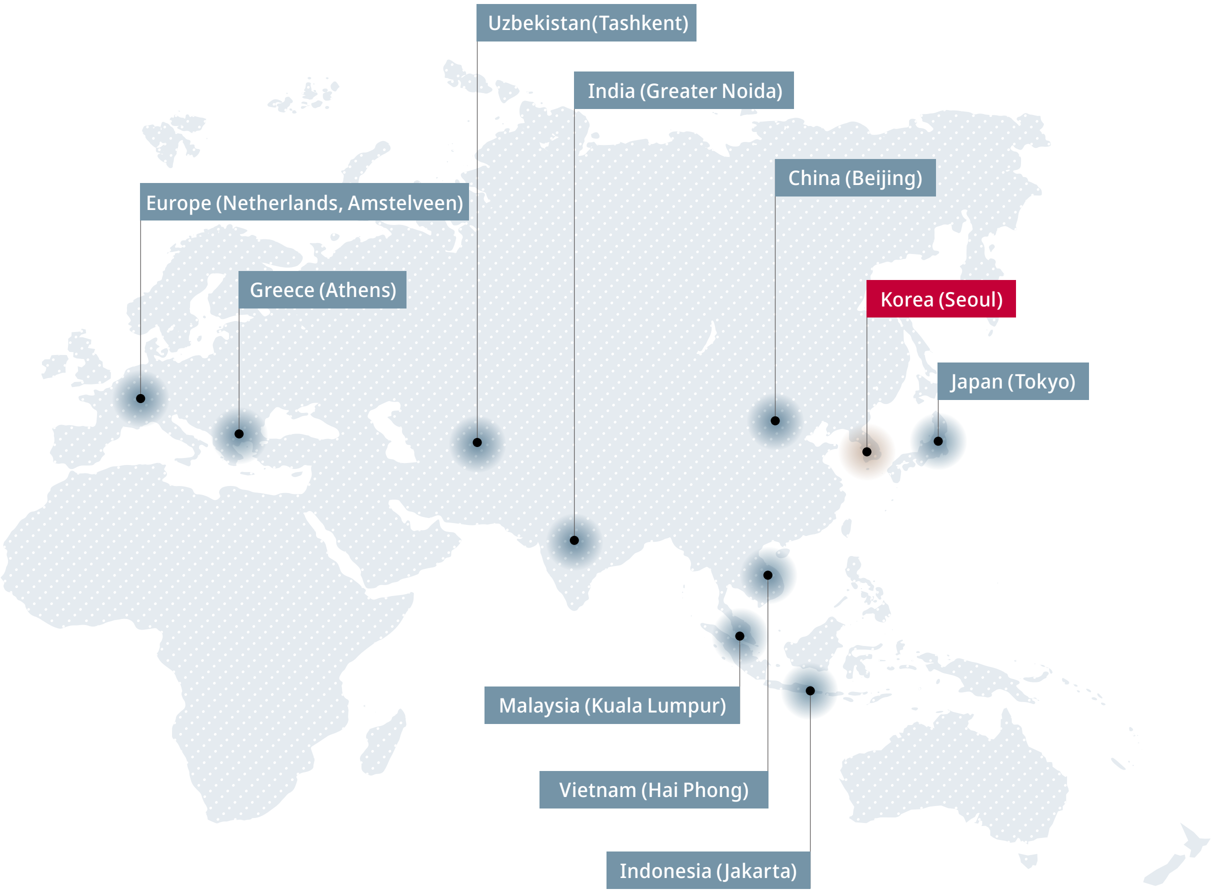


LG CNS

CFO
CHO
CSO
Corporate Auditing Unit

DT Innovation[1] Division
DT Optimization[2] Division
Cloud Business Division
Smart Factory Division
Data & Analytics Division
CAO[3]
CTO

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


Uzbekistan(Tashkent)
India (Greater Noida)
China (Beijing)
Europe (Netherlands, Amstelveen)
Greece (Athens)
Korea (Seoul)
Japan (Tokyo)
Malaysia (Kuala Lumpur)
Vietnam (Hai Phong)
Indonesia (Jakarta)

Global Network

Subsidiary	Date of Establishment
China(LG CNS China Co., Ltd.)	May 2001
Japan(LG CNS Japan Co., Ltd.)	Feb. 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

Subsidiary	Date of Establishment
Americas(LG CNS America Inc.)	Jul. 2003
Columbia(PLG 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

Financial Results

Total Assets

KRW2.6153 Trillion

Total Shareholders’ Equity

KRW1.2228 Trillion

Sales

KRW3.2833 Trillion

Operating Income

KRW212.8 Billion

Credit Rating

AA- Corporate Bond

Vision and Technology Leadership

Vision and Core Values

LG CNS leverages its extensive understanding of wide-ranging industries and expertise in information technology as an IT service provider to assist customers in Korean and abroad in strengthening their business competitive edge. We improve work processes and develop and operate optimized systems required for the business operation of our customers. Furthermore, we support customers to cope with the rapidly-shifting market and competitive landscape through digital innovation powered by new information technology. We broaden the collaborative ecosystem with promising high-tech companies in Korea and overseas and build upon such achievements to seek 'shared growth' with customers and high-tech players.

DIGITAL INNOVATION ENABLER

Innovation in Expert Capability

- ·Continue to strengthen enabling/new technology capabilities and lead the innovation of customers and markets
- ·Accumulate customer and organizational capabilities and expand integrated capabilities based on open collaboration

Innovation in Business Method

- ·Advance the competency-driven business execution system and organizational structure
- ·Shift to and accelerate technology/ IP-based service business

Innovation in Business Structure and Full-fledged Growth

- ·Continue to innovate enabling business and proactively expand new business
- ·Continue to broaden the customer/market base through the effective improvement of strategic business and the collaboration network

Highly Self-motivated Professionals & Organization

Mutual Innovation · Mutual Growth· Mutual Benefits

Technology-driven Organnization

LG CNS aims to become a top-tier expert organization capable of harnessing its technology capabilities to demonstrate IT leadership for customers and to pursue 'customer value innovation' and 'talent innovation' as its top priority.

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	Technology-driven business / implementation system	Employee performance / compensation / development system
Technological capacity management	Performance management	Technology Talent Management
·Introduce technical certification exams ·Reorganize the job system to nurture talent ·Manage the technology competency measurement level system (datafication)	·Standard quotation system based on work load ·Compensation system based on competency level and output	·Nurture technology talent ·Compensate by competency level ·Technology expert system

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

LG CNS combines its professional IT service capabilities accumulated for more than 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, Internet of Things (IoT), and robotics. In so doing, we generate exceptional R&D outcomes in securing AI technology & platforms and application development technology optimized for the cloud environment, and in developing 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/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 such 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 · Establish a developer ecosystem through the distribution of developer tools
Robotics	· Service platform for robotic integration and operational management	· Robot service platform, fleet management, indoor map/vision tracker, etc.
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

Protecting technology to lead the future market and reinforcing business competitiveness is as critical as developing technology itself. LG CNS's pool of intellectual property consists of 1,670 rights, including 376 patents and 1,294 software copyrights granted in Korea and abroad on strategic technologies and innovative business models. This will surely pave the way for us to safeguard our business and seek sustained growth.

(Unit : Cases)

Patent	Software Copyright
376	1,294

Total 1,670

(as of the end of Apr. 2020, on a cumulative basis)

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 such new digital technologies 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 INNOVATION ENABLER

LG CNS, Leveraging Innovative Technology to Drive Customers' Digital Innovation

Digital Transformation

Improve customers' industry-specific business competitiveness

- **Public & Safety**
  E-government, Smart Healthcare, Security, Environment and Others
- **City & Transportation**
  Smart City and Smart Transportation
- **Industry & Economy**
  Finance, Smart Factory, Smart Logistics, and Retail
- **Culture & Communication**
  Telecommunications, Education, Broadcasting & Media and Others

Digital Technology

Digital IT & new technology capability

- AI & big data
- Cloud
- IoT & robotics
- RPA
- Blockchain

IT service-based capability

- Consulting
- Development Framework
- Automation Tools
- Data Center

Digital Solution

Industry-specific solution

- Factova (Smart factory)
- Cityhub (Smart city)
- Smart logistics
- Digital Finance
- Retail
- Smart Transportation

New technology-specific solution

- DAP (AI & big data)
- CloudXper (Cloud)
- INFioT (IoT)
- Monachain (Blockchain)

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 delivers services in the fields of intelligent e-government, digital finance, smart city and smart transportation to assist customers to upgrade their industry-specific business competitive edge.

P.30 Smart Factory
P.32 Logistics
P.34 Finance
P.38 Teleco & Media
P.48 Intelligent e-Government
P.50 Smart City
P.52 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 pre-emptively respond to the rapidly-shifting market and gain a competitive edge in their specific industry. Accordingly, we aid in the materialization of digital innovation for customers.

P.12 AI
P.13 Big Data
P.16 Cloud
P.20 IoT
P.24 Robot
P.26 RPA
P.28 Blockchain

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.54 Consulting
P.55 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.28 Blockchain
P.30 Smart Factory
P.32 Logistics
P.34 Finance
P.36 Retail
P.50 Smart City
P.52 Smart Transportation

We reinvent everything in our world with the application
of state-of-the-art new information technology
to deliver services never before possible.

01

OUR BUSINESS

LG CNS leverages its expertise gained by successfully undertaking large-scale IT projects in Korea and abroad to provide domestic and international customers with consulting, system development & operation and total outsourcing services. 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.

Platforms

12 AI
13 Big Data
16 Cloud
20 IoT
24 Robot
26 RPA
28 Blockchain

Industries

30 Smart Factory
32 Logistics
34 Finance
36 Retail
38 Teleco & Media
40 Chatbot
42 Security
44 HR SaaS
46 Digital Marketing

Public Services

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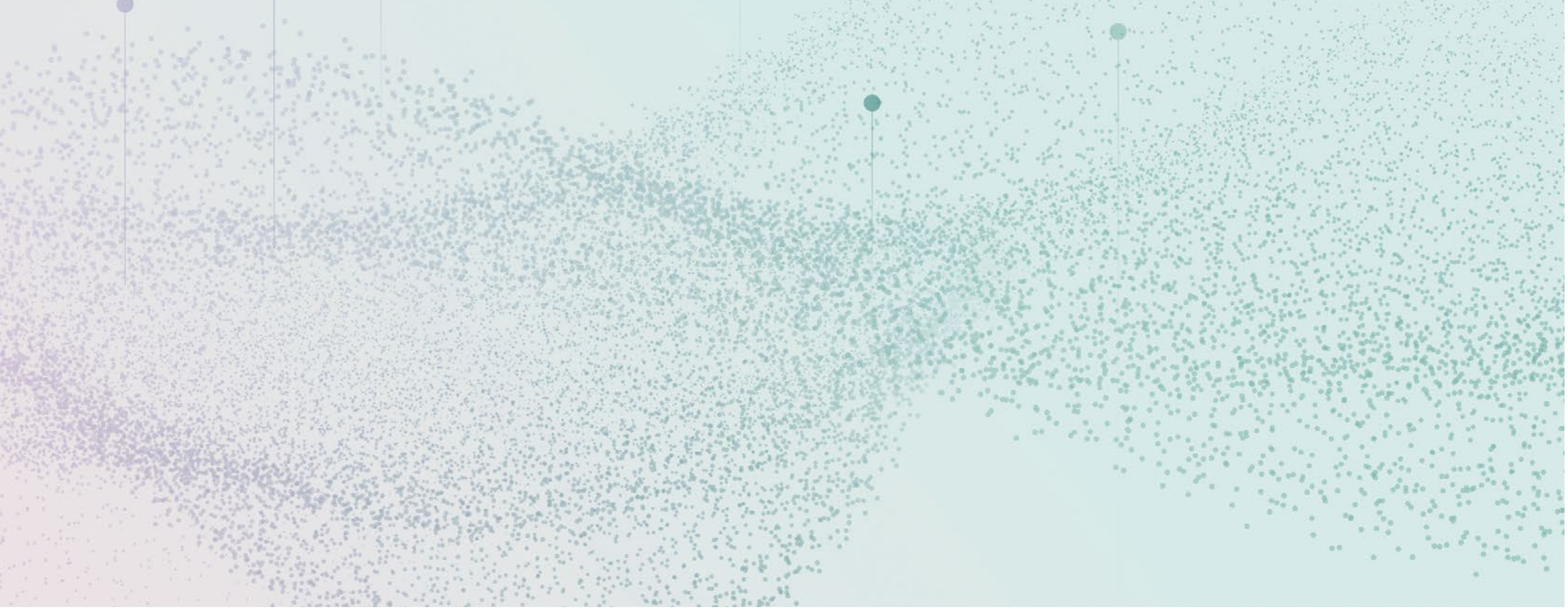


Platforms

AI

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

The global artificial neural network AI competition held in 2018

1st among the enterprises

Contributing to the acceleration of the 4th Industrial Revolution for enterprise customers

LG CNS provides AI services either in the multi-cloud or on-premise environment proven in Korea and overseas to help enterprise customers accelerate the 4th Industrial Revolution. This assists our customers in pursuing business innovation across their entire work domains, ranging from factory automation enabled by vision inspections to chatbots and linguistic & visual intelligence services.

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. We support a range of defect detection, object recognition, object detection, object classification and logistics automation services enabled by vision inspections based on image recognition. Our vast collection of references and experiences are customer counseling and call center automation services that leverage linguistic intelligence technology and chatbot solutions as well as production optimization and manufacturing equipment automation services provided through reinforcement learning and structured data analytics.

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

- AI service ideation and deployment planning
- AI deployment consulting and AI service development
- AI algorithms development and model optimization for customer's enterprise environments (on-premise or cloud)
- Prototyping for verifying the new technology (On-premise, Cloud)

Business Achievements

- Electronic & manufacturing : LG Electronics, LG Chem, LG Display, LG Housys, etc.
- Finance : KB Kookmin Bank, KB Kookmin Card, KB Insurance, Shinhan Card, Nonghyup, etc.
- Telecoms & services : LG U+, 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

Korea's largest big data organization

200

The number of in-house experts on DW/BI, big data, and AI

Offering End-to-End big data services

LG CNS serves the entire work domain including data collection, processing, storage, analysis and developing 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 experiences 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, the FDS (Fraud Detection System), information security monitoring, and HR high-performer factor analysis & resignation prediction.

Core Capabilities

- DAP(Data Analytics & AI Platform) that provides analytics environments' to deploy enterprise big data and 'analytics services' based on accumulated best practices
- Operation of analytics models, algorithm development & optimization, and 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

- 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)

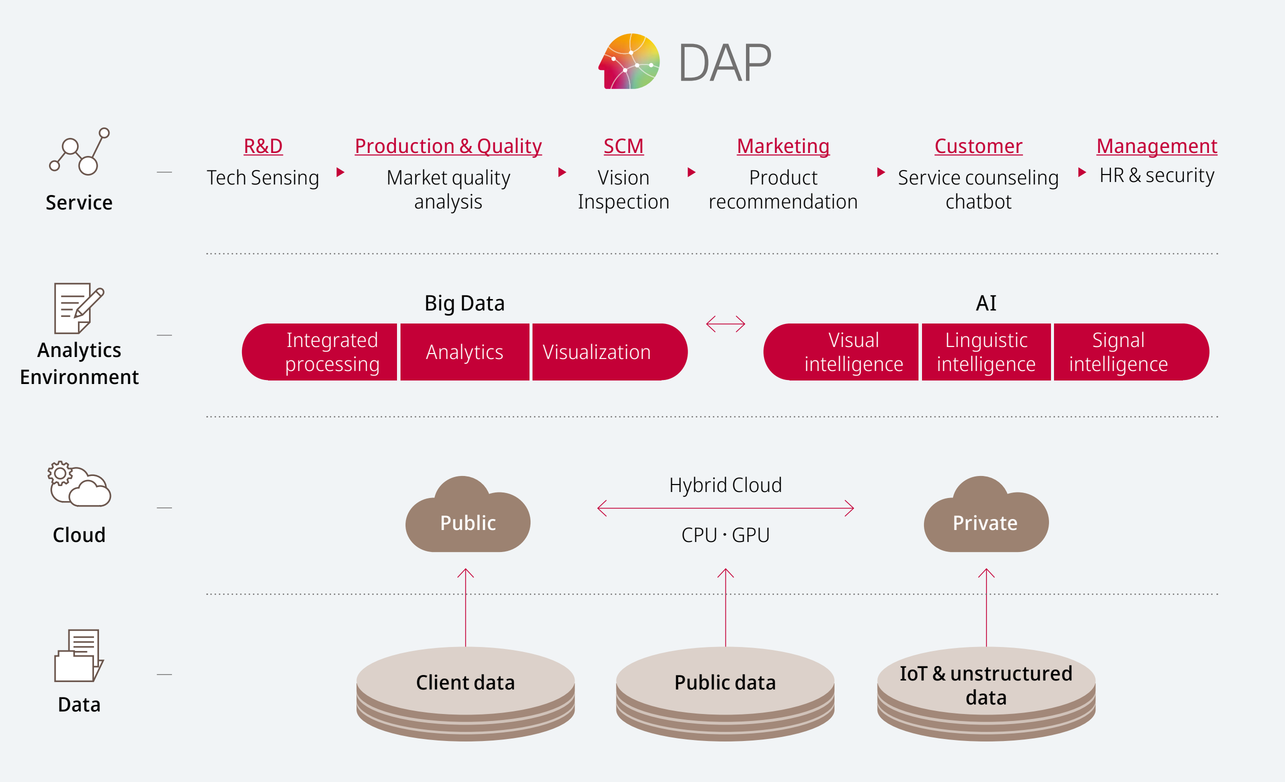
Business Achievements

- Electronics & 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.
- Telecom & services : LG U+, 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 use 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


DAP
Service
R&D
Tech Sensing
Production & Quality
Market quality analysis
SCM
Vision Inspection
Marketing
Product recommendation
Customer
Service counseling chatbot
Management
HR & security
Analytics Environment
Big Data
Integrated processing
Analytics
Visualization
AI
Visual intelligence
Linguistic intelligence
Signal intelligence
Cloud
Public
Hybrid Cloud
CPU · GPU
Private
Data
Client data
Public data
IoT & unstructured data

Exclusive Features

DAP is optimized for enterprise data analytics : it creates a user-friendly environment for wide-ranging analysts while offering the optimal reference architecture as well as analytics governance and its sharing/utilizing 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

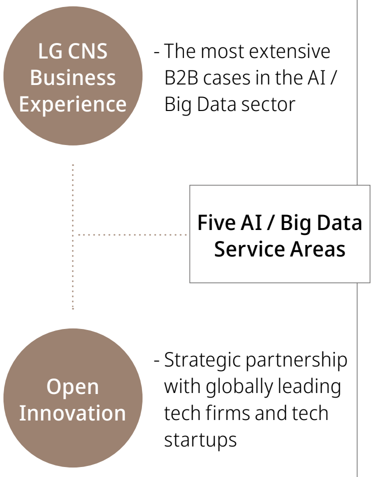
Analytics governance and its sharing /utilizing system

- 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



- The most extensive B2B cases in the AI / Big Data sector
- Strategic partnership with globally leading tech firms and tech startups

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 customer 360°
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 swiftly and easily develop and learn machine learning & deep learning models. DAP MLDL supports the successful execution of AI-powered digital transformation.

DAP Vision

This deep learning-aided vision inspection service allows the production lines detection of defects. Its high-performance GPU-based platform and learning process automation functionalities lend to 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 and operational management tools. DAP talk is 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 and 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. Corporate customers can 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 cloud consulting, migration and managed services designed to support the digital business innovation of customers

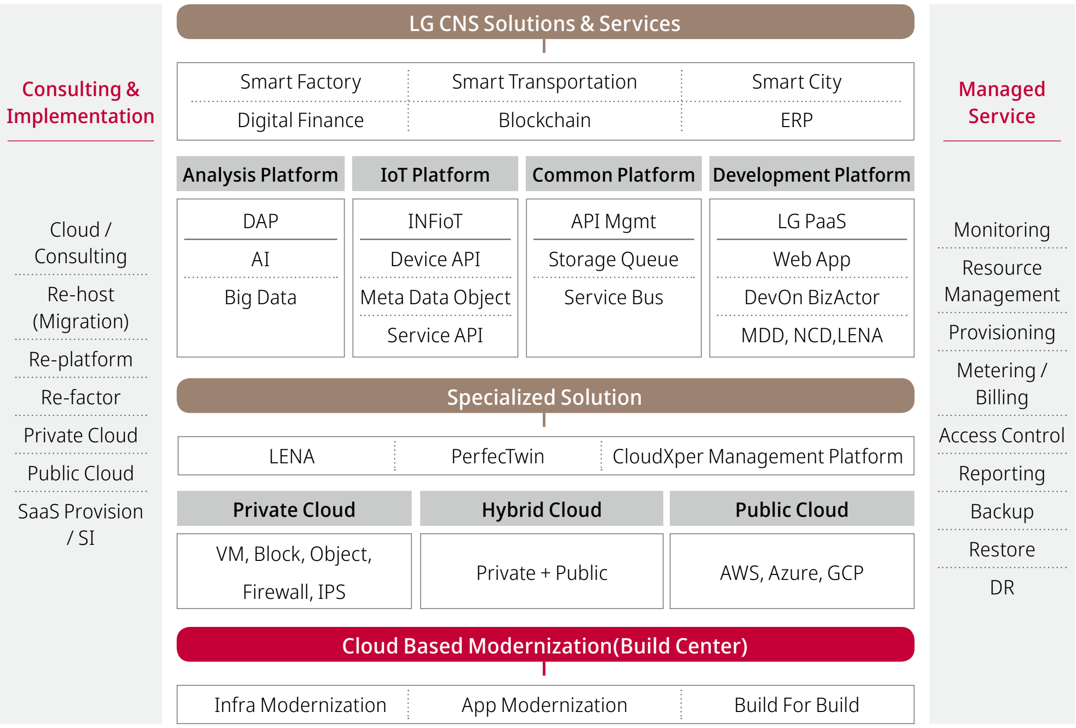
Delivering tailor-made cloud services

LG CNS delivers tailor-made cloud services optimized for customer circumstances on deep 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)* capabilities developed 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. In July 2020, an AM Task Force, consisting of more than 450 employees in the areas of business, technology and execution, was established to expand AM applications from the second half of 2020.

*AM (Application Modernization) : Dividing large programs that are intricately intertwined with one another into smaller units and reconfiguring their interconnections through API technology



Consulting & Implementation
Cloud / Consulting
Re-host (Migration)
Re-platform
Re-factor
Private Cloud
Public Cloud
SaaS Provision / SI
LG CNS Solutions & Services
Smart Factory
Smart Transportation
Smart City
Digital Finance
Blockchain
ERP
Analysis Platform
IoT Platform
Common Platform
Development Platform
DAP
AI
Big Data
INFioT
Device API
Meta Data Object
Service API
API Mgmt
Storage Queue
Service Bus
LG PaaS
Web App
DevOn BizActor
MDD, NCD,LENA
Specialized Solution
LENA
PerfecTwin
CloudXper Management Platform
Private Cloud
Hybrid Cloud
Public Cloud
VM, Block, Object, Firewall, IPS
Private + Public
AWS, Azure, GCP
Cloud Based Modernization(Build Center)
Infra Modernization
App Modernization
Build For Build
Managed Service
Monitoring
Resource Management
Provisioning
Metering / Billing
Access Control
Reporting
Backup
Restore
DR

Cloud experts

More than

800 persons

Core Capabilities

- Cloud consulting (based on cloud migration methodology), architecture design and cloud migration capability
- Open source software conversion and SDx capability
- Distributed architecture design / development technology MSA-based cloud-native application development, DevOps-based operation
- Hybrid-Cloud, Multi-cloud migration, operation and integrated management platform

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

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

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)

Business Achievements

Public Services

Cloud
- · Korea Employment Information Service
- · National Computing and Information gency
- · Busan NIPA
- · Incheon International Airport Corporation
- · National Tax Service
- · KANGWON LAND
- · Health Insurance Review & Assessment Service

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

Manufacturing

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

VDI
- · LG Electronics
- · LG Display
- · LG Chemical
- · Ericsson LG
- · LG Hausys
- · LG U+
- · LG Innotek
- · LG Household & Health Care
- · S&I

Logistics / Service

Cloud
- · Summerce Platform
- · Kantukan
- · Honda Korea
- · Cafe Bene
- · Hansol
- · SsangYong Engineering & Construction
- · Chunjae Education
- · LG International
- · S&I
- · Pantos
- · GS Home Shopping
- · GS Retail
- · OURHOME
- · Ezwelfare
- · Chunhofood
- · Korea compassion
- · KleanNara
- · Dongwha Enterprise
- · Korean Air
- · Korea Technology Assessment (under progress)

SAP HANA Cloud
- · SR (Suseo Rail)
- · Woowa Brothers
- · Memebox

VDI
- · LG U+
- · Economic Research Institute
- · LG 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

LG CNS's Cloud Management Platform : CloudXper

CloudXper* is the integrated multi/hybrid cloud management platform presented by LG CNS to assist companies that completed their cloud transition to efficiently improve on operational difficulties in the areas of complexity and cost of cloud management, governance management and cloud monitoring. CloudXper serves to accommodate the requirements of enterprise customers and cater to their diverse business environments.

*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.

Platform Composition

One Solution

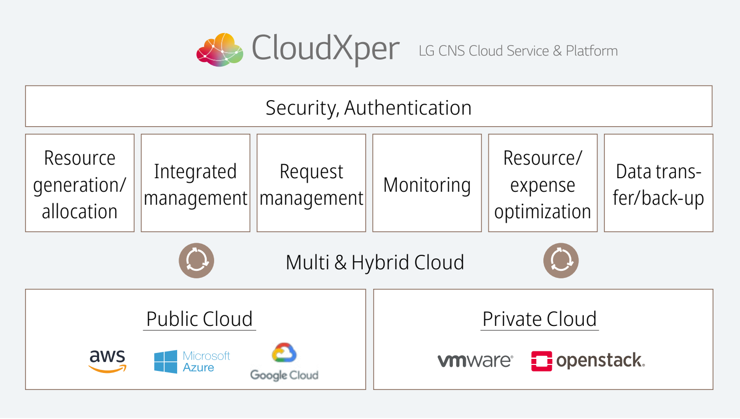
A single solution provides an integrated management platform to efficiently operate and manage both multi & hybrid cloud environments

One Click

A single click verifies the value of cloud resource provisioning automation and resource management

One View

A single sign on allows users, depending on their role, to intuitively access the general overview of the company and the group as well as necessary information


CloudXper
LG CNS Cloud Service & Platform
Security, Authentication
Resource generation/ allocation
Integrated management
Request management
Monitoring
Resource/ expense optimization
Data transfer/back-up
Multi & Hybrid Cloud
Public Cloud
aws
Microsoft Azure
Google Cloud
Private Cloud
vmware
openstack

Values Delivered by CloudXper

Control / Governance

An enterprise cloud environment consists with both public and private clouds. This allows for the efficient control and operation of resources as such clouds become increasingly diverse in the functions performed and management targets served.

Increase Speed

A powerful workflow engine automates the processing of generation, expansion and recovery requests on internal infrastructure resources to help companies swiftly complete their digital innovation

Reduce Cost

Cost-related recommendation services including the coordination of optimal resource consumption, Reserved Instance (RI) and intelligent location contribute to reducing cloud expenses for corporate customers.

Cloud Total Service Map

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

Public (Multi) / Private / Hybrid Cloud

Plan → Do → Run

Service Offering

Cloud Consulting ISP & Assessment (Plan)

Cloud Strategy
- Identify the current and target levels of cloud maturity
- Develop cloud adoption strategy

Cloud Assessment & Planning
- Assess the adequacy of cloud transition (whether to remain on-premises or choose between public or private clouds) and identify the type of transition target
- Develop architecture and analyze TCO

Cloud SI Implementation (Do)

A Cloud Migration
- Develop OS/MW/DB transition plans for cloud adoption and create a landing zone
- Perform mass migration of IaaS

B Application Modernization
- Develop cloud-native architecture through the application of agile methodology, MSA, and OSS
- Arrange CI/CD pipelines and the DevOps system

Cloud SM(MSP) Operation (Run)

Managed Service Provider
- Arrange integrated hybrid & multi cloud operation and ITSM systems
- Automate and optimize cloud operations
- Develop an integrated cloud operation support system
- Design an ITO organization

Change Management (Run)

Application of Organizational Governance Models
- Identify adequate agile organizations and redesign their IT operations and tasks
- Develop CCoE(Cloud Center of Excellence) operational plans
- Set and coach agile organizations

Infrastructure

Multi / Hybrid Cloud

Public Cloud	Private Cloud	On-Premise
aws, Microsoft Azure, Google Cloud NBP NAVER BUSINESS PLATFORM ··· IBM Cloud	SDDC: vmware, openstack. HW: HCI NUTANIX DELL, Server Storage NW	

Platforms

IoT

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

Integrated smart city platform to achieve the oneM2M certification through the TTA (Telecommunications Technology Association) (first in the SI industry in 2018)

1st

IoT and industrial standards and protocols supported

102 IoT

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 the 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.

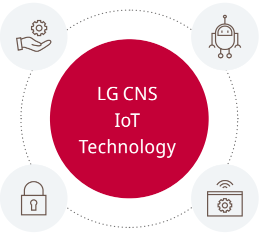
Core Capabilities

- Platform provided to support diverse industrial protocols and standard/nonstandard IoT devices
- Edge Platform deployed to offer data distribution, preprocessing and public cloudbased 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



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

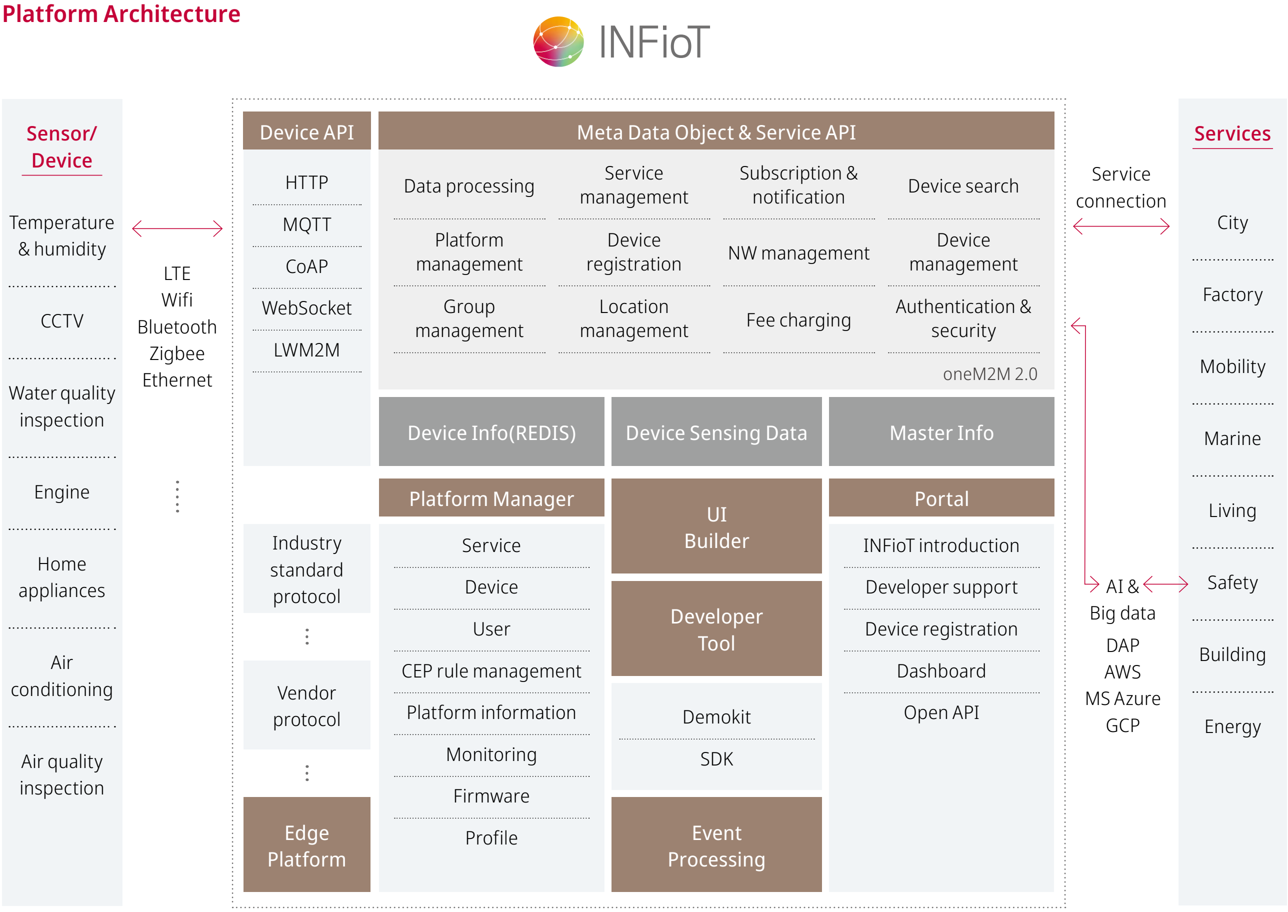
Factory
- Air environment monitoring to ensure a safe lab environment at the LG Chem Research Park in Daejeon
- Predictive maintenance system developed at a logistics center of CJ Freshway
- Predictive maintenance sensor monitoring deployed at LG Display

LG CNS IoT Platform : INFioT

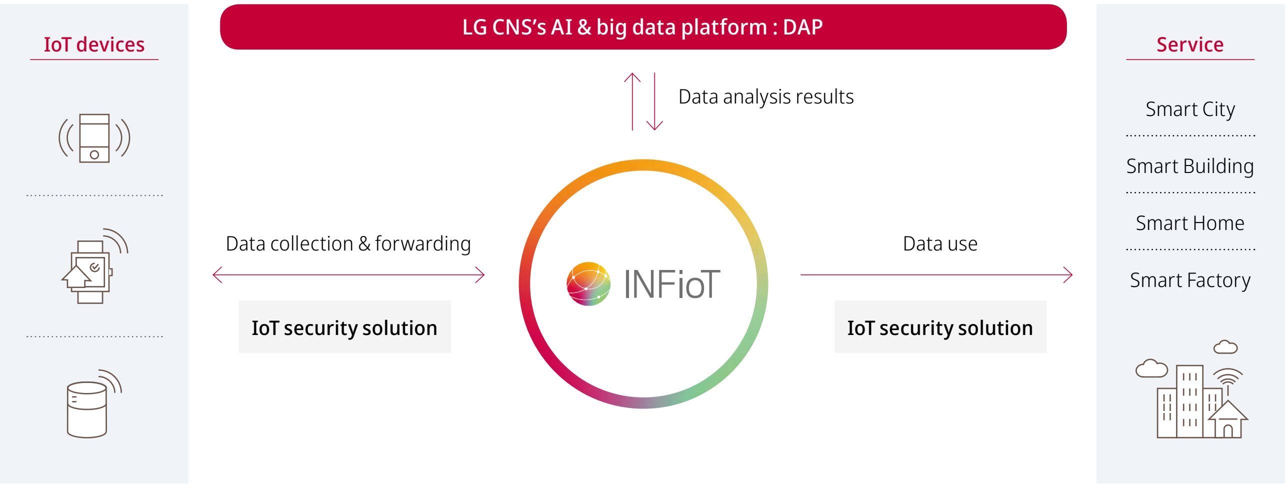
INFioT* is an IoT platform that complies with the international standard oneM2M and provides an IoT development environment that assists developers in creating IoT services in an easier and faster manner. In consideration of diverse IoT environments, INFioT gathers and forwards large volumes of sensing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

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

Platform Architecture


INFioT
Sensor/ Device
Temperature & humidity
CCTV
Water quality inspection
Engine
Home appliances
Air conditioning
Air quality inspection
LTE
Wifi
Bluetooth
Zigbee
Ethernet
Device API
HTTP
MQTT
CoAP
WebSocket
LWM2M
Meta Data Object & Service API
Data processing
Service management
Subscription & notification
Device search
Platform management
Device registration
NW management
Device management
Group management
Location management
Fee charging
Authentication & security
oneM2M 2.0
Device Info(REDIS)
Device Sensing Data
Master Info
Industry standard protocol
Vendor protocol
Edge Platform
Platform Manager
Service
Device
User
CEP rule management
Platform information
Monitoring
Firmware
Profile
UI Builder
Developer Tool
Demokit
SDK
Event Processing
Portal
INFioT introduction
Developer support
Device registration
Dashboard
Open API
Service connection
AI & Big data
DAP
AWS
MS Azure
GCP
Services
City
Factory
Mobility
Marine
Living
Safety
Building
Energy

Key Functions


IoT devices
LG CNS's AI & big data platform : DAP
Data analysis results
Data collection & forwarding
IoT security solution
INFioT
Data use
IoT security solution
Service
Smart City
Smart Building
Smart Home
Smart Factory

Features

1	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 the TTA (accredited IoT standard certification body) (Jul. 2018) - Support interoperability with other platforms
2	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
3	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 DAP big data analytics solution
4	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
5	Integrated security	- Provide device registration, cross authentication and key management functionalities to deliver security services across the entire device/network/service spectrum
6	Edge 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

Developer portals (SDKs, development guides, etc.) are provided to facilitate IoT development. The monitoring screen development tool helps build the UI layout more efficiently.

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

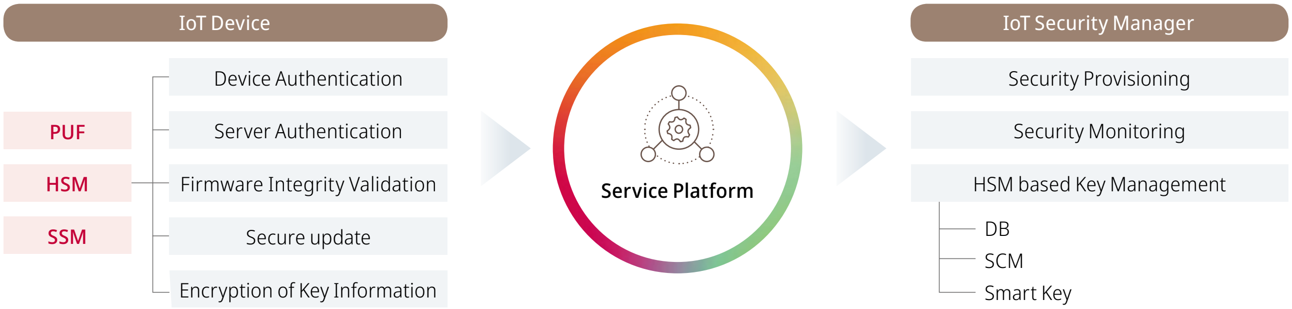
Users can choose from a wider range of devices through support for such protocols as HTTP, MQTT, CoAP, LWM2M, and Web Socket as well as industry standard protocols (19 protocols including BACnet, Modbus, and SNMP)

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



PUF	SSM(SW Security Module)	HSM(HW Security Module)	IoT Security Manager
·Device security product embedded with a Physical Unclonable Function (PUF) · Use of a light-weight security chip designed exclusively for IoT applications to lower cost security compared to HSM.	· HW security chip (Secure Element) is used for key and security calculation protection · Device authentication and firmware security key is safely secured with HW security chip · This security chip is also offered as a SIM or SMD package.	· 100% SW type device security product · High security standard for key storage with random distributed storage · Can be applied without HW change on the device (easy to apply on already distributed devices)	· Security provisioning (key for device security and authentication is remotely issued) · HSM based secured key management · IoT security monitoring that detects faulty devices · Customized service that addresses IoT-specific security issues

IoT Security Features

Low cost & high security ensured with a PUF-based device security solution

- 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

- 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

- 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

- 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 the service (symmetric key authentication / device certificate)

Platforms

Robot

Mounting corporate data and services on robots to provide integrated intelligent services in connection with AI, IoT and big data

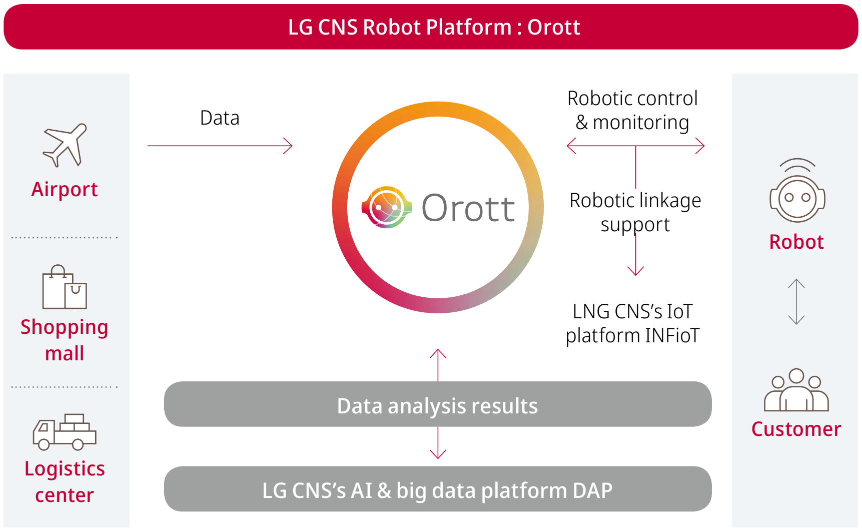
Integrated operation of service robots across diverse industries

LG CNS's robotic service platform combines robotics with IT technology and delivers integrated robot service operation and management across wide-ranging industries from public services and finance to distribution and logistics. This platform also supports robot monitoring, task assignment, and contents & robotic software distribution in the cloud environment to save cost and time while developing and operating robotic services optimized for customer needs.

Easy control over wide-ranging robots

LG CNS's robotic service platform Orott* is used to deploy a large number of robots and to provide a wide array of services. This platform provides an at-a-glance view of the status and conditions of robots to render their operation and management easier and faster.

*Orott : Combining 'orot', a pure Korean word meaning 'complete without defects' with 'technology', this strategic brand name conveys the meaning of 'complete technology devoid of any deficiency'.


LG CNS Robot Platform : Orott
Airport
Shopping mall
Logistics center
Data
Orott
Robotic control & monitoring
Robotic linkage support
LNG CNS's IoT platform INFIoT
Data analysis results
LG CNS's AI & big data platform DAP
Robot
Customer

First in the IT service industry to launch a robotic service platform (2018)

1st

Core Capabilities

- Robotic monitoring, task assignment, and contents & robotic software distribution in the cloud environment
- Intelligent robotic services provided in connection with robotic control and service contents management systems and AI platforms
- Delivery of robotic services optimized for corporate services in connection with corporate IT systems

Service Offerings

Map-based robotic control	- Control map-based robotic monitoring - Robotic group registration and management - POI (Point of Interest)-specific robotic task assignment and scheduling - Remote robotic software update
Robotic motion path and map management service	- Map creation and facility editing tools - POI registration and restricted area designation - POI-specific robotic motion path arrangement and service management
Contents management & operation statistics and analysis	- Robotic service contents development & distribution - Provision of customized operational dashboards - Provision of robotic & user statistics
Robotics developer ecosystem establishment	- Robotic SDK creation for robotic service app development - Provision of robotic service platforms for robotic management - Development of service frameworks and preload apps to be mounted on robots - Development and supply of robotic tablets and security chip modules

Differentiators

1. Selective platform arrangement	- Integrated robotic control development services selectable according to corporate IT environments - Robotic service platforms that support the integrated operation of heterogeneous robots
2. Tailor-made robotic service	- Robotic service planning based on accumulated robotics technology - Development of customized robotic services based on corporate services and data
3. Intelligent data application	- Provision of intelligent services in connection with AI, big data and IoT

Business Achievements

- Development and control of robots to operate arrival/departure halls for the Incheon International Airport Corporation
- Robots deployed at the LG Science Park to guide exhibition visitors
- Robotic contents management service (Woori Bank, LG U+, Kyobo Bookstore, and Gil Medical Center)
- Robotic contents management for investment AI at Woori Bank
- Creation and supply of robotic app development and testing environments (SDK development for SoftBank's android robot Pepper and unveiling of the Google I/O 2016)
- Robotic development for data center environment measurement

Platforms

Robotic Process Automation

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 automation itself, it is essential to formulate RPA introduction strategies to set clear purposes and goals of deploying RPA as they serve as the basis to identify the most effective tasks to automate, which 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 solutions 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 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

RPA-applied work domains

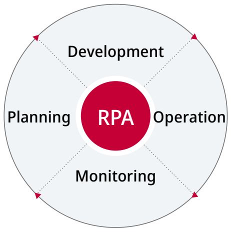
1,500+

Service Offerings

Laying the basis for RPA governance

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

RPA Governance Framework



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

Functionalities that are difficult to verify through standard solutions include 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 apply new digital technology to each stage of work automation development to render RPA even more intelligent and extend its scope of work applications.

← Past (1990s~2000s) — Present — Future (2020 ~) →

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, decisionmaking 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

- LG Electronics, LG Display, LG Households & Health Care, S&I corp., LG Chem, LG Hausys, LG U+, SERVEONE, and LG CNS
- GS Retail business (under progress)
- Incheon International Airport Corporation, Korea Asset Management Corporation and Busan Port Authority
- Automatic corporate credit reviews at KB Kookmin Bank
- Experience in executing more than 400 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

Korea's first to develop
a public-sector blockchain platform
(community currency) (2019)

1st

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 blockchain-based platform partnerships. Under the goal of supporting blockchain-powered business that caters to the needs of customers, LG CNS developed Monachain, a permissioned blockchain platform optimized for the enterprise environment. As an IT leader with core blockchain technology and practical service solutions, we continue to conduct steady research and demonstration in the blockchain ecosystem. This will surely enable us to lead the trusted tampering-proof ecosystem of sharing economy.

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 an aim to assist 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. Therefore, we deliver optimal solutions that take into account the characteristics of customers' business and IT environment across manufacturing, telecommunications, finance, and public services among others, spanning from blockchain strategy setting and deployment to operational management and platform-driven services.

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
- Open source platform technology leadership and win-win leadership that promotes blockchain-based platform partnerships

Service Offerings

- Blockchain implementation consulting and development use cases
- Deliver 'Monachain' and offer technical support
- Build and operate a blockchain-based system
- Provision of blockchain-enabled SaaS (BaaS)

Business Achievements

- Trusted platform cloud transition project for the Korea Minting, Security Printing, and ID Card Operating Corporation (KOMSCO) (operational contract in 2020)
- Expanded operation of trusted platform blockchain for the KOMSCO (5 cities in 2019, 5 more cities added in 2020)
- Blockchain based KOMSCO community currency platform implementation
- Second-phase dissemination of smart insurance claim automation among the telecom carrier LG U+, cell phone makers and insurance companies (addition of more cell phone makers)
- PoC of DVP (Delivery versus Payment) based on distributed ledger technology for the Bank of Korea
- Blockchain based remittance simulation test with the "Bank of Korea"
- Contract of blockchain technology consulting for National IT Industry Promotion Agency (NIPA)
- Development of blockchain-based eco-friendly agricultural product distribution platforms and services for South Jeolla Province
- MOU Agreement for blockchain-based food distribution platform with Say Info
- Pilot project of EV Battery 2nd Use Distribution History Management System
- Connection between the LG Magok Science Park and KB Finance Partners Chain (tentative name)
- Launch the Magok community currency platform at LG Science Park
- Blockchain consulting and PoC of LG Group's SCM/logistics for PANTOS
- PoC of issuing the Korea's first blockchain based electronic securities for unlisted companies(2015)

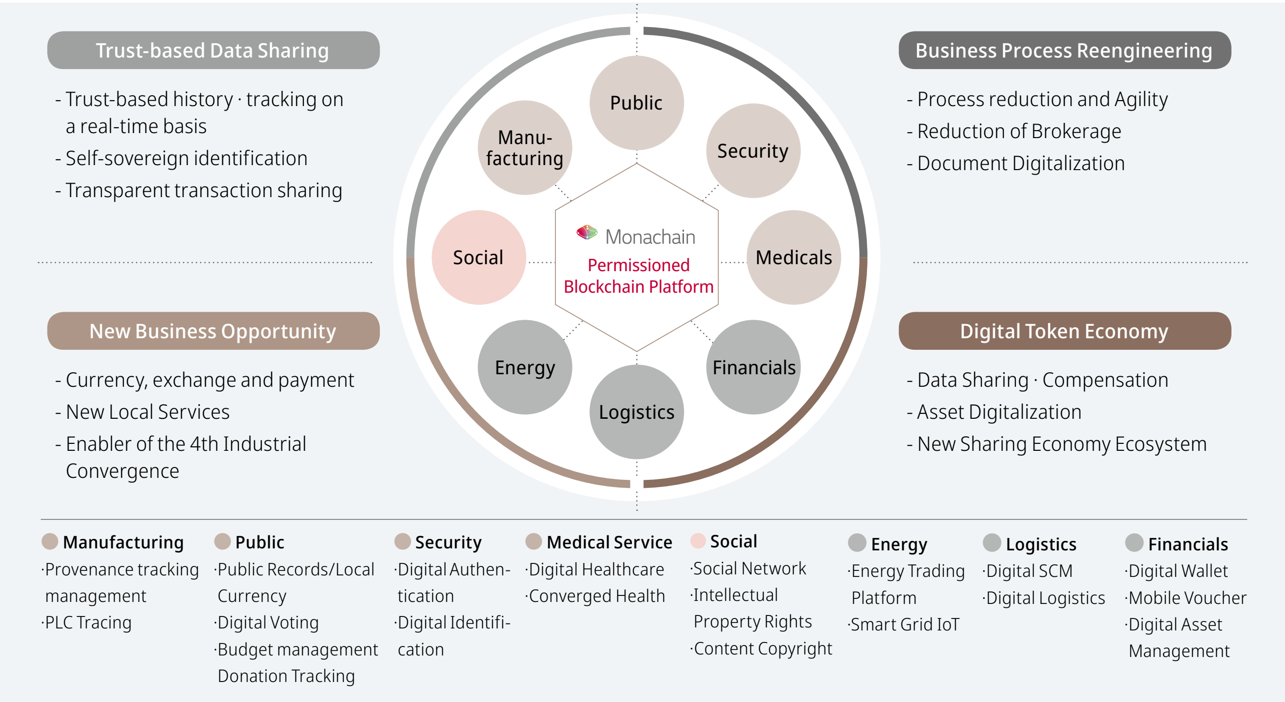
LG CNS's Blockchain Platform : Monachain

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


Public
Manu-facturing
Security
Social
Monachain
Permissioned Blockchain Platform
Medicals
Energy
Financials
Logistics

Trust-based Data Sharing
- Trust-based history · tracking on a real-time basis
- Self-sovereign identification
- Transparent transaction sharing

Business Process Reengineering
- Process reduction and Agility
- Reduction of Brokerage
- Document Digitalization

New Business Opportunity
- Currency, exchange and payment
- New Local Services
- Enabler of the 4th Industrial Convergence

Digital Token Economy
- Data Sharing · Compensation
- Asset Digitalization
- New Sharing Economy Ecosystem

Manufacturing
·Provenance tracking management
·PLC Tracing

Public
·Public Records/Local Currency
·Digital Voting
·Budget management Donation Tracking

Security
·Digital Authentication
·Digital Identification

Medical Service
·Digital Healthcare
·Converged Health

Social
·Social Network
·Intellectual Property Rights
·Content Copyright

Energy
·Energy Trading Platform
·Smart Grid IoT

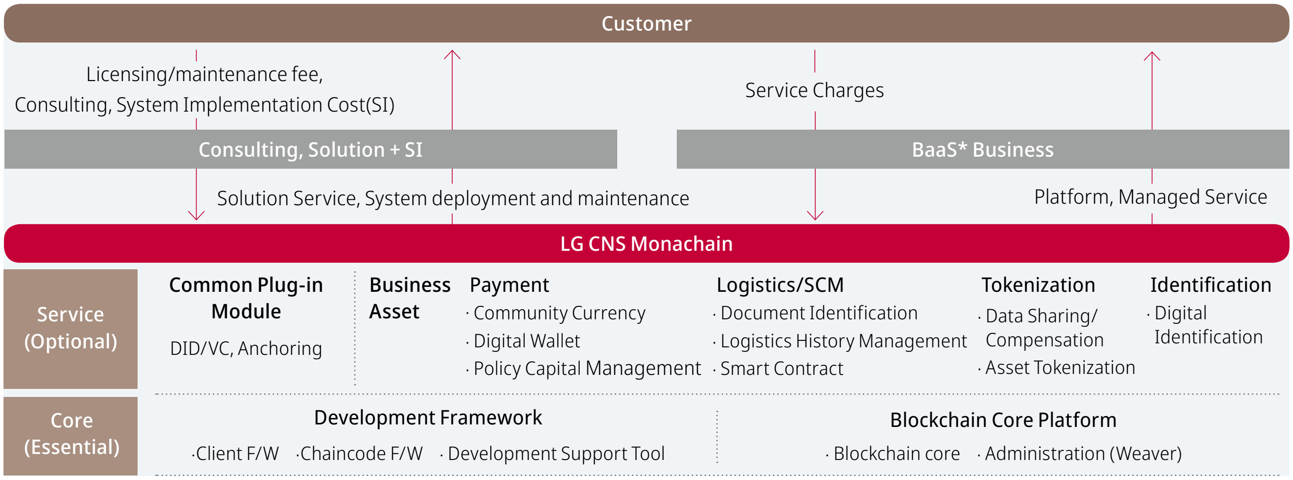
Logistics
·Digital SCM
·Digital Logistics

Financials
·Digital Wallet
·Mobile Voucher
·Digital Asset Management

Platform Consisting of the Service Area and the 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 Platform Diagram


Customer
Licensing/maintenance fee,
Consulting, System Implementation Cost(SI)
Service Charges
Consulting, Solution + SI
BaaS* Business
Solution Service, System deployment and maintenance
Platform, Managed Service
LG CNS Monachain
Service (Optional)
Common Plug-in Module
DID/VC, Anchoring
Business Asset
Payment
· Community Currency
· Digital Wallet
· Policy Capital Management
Logistics/SCM
· Document Identification
· Logistics History Management
· Smart Contract
Tokenization
· Data Sharing/ Compensation
· Asset Tokenization
Identification
· Digital Identification
Core (Essential)
Development Framework
·Client F/W
·Chaincode F/W
· Development Support Tool
Blockchain Core Platform
· Blockchain core
· Administration (Weaver)

* BaaS : Blockchain as a Service

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. In order to create an optimized smart factory environment on the shop floor, 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 and Production Engineering Research Institute, and the telecommunications infrastructure of LG U+.

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

Experience in deploying IT services at manufacturing factories

20 years

Accuracy of quality inspections achieved through deep learning-based vision inspection technology

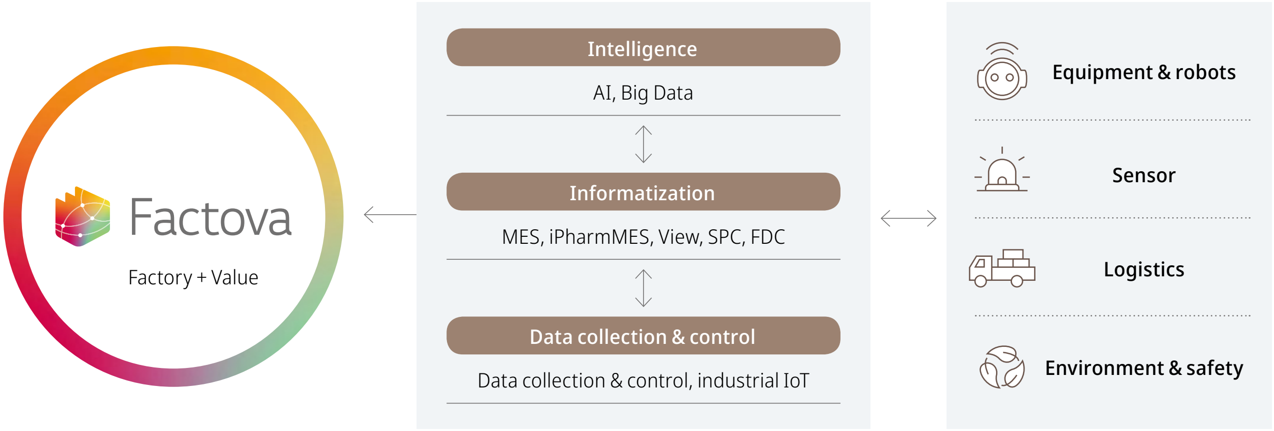
99.7 %

LG CNS's Smart Factory Platform : Factova

Factova* is an integrated ICT-powered manufacturing platform created through more than 20 years of experience that LG CNS has accumulated at manufacturing sites of LG Group affiliates. Over the years, Factova has been applied to more than 60 companies in Korea and abroad in building smart factories. 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 the three domains of data collection & control, informatization and intelligence. In the data, which are 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 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 offers industry-specific functions embedded with best practice.

Factova-iPharmMES It provides manufacturing process control, ability to go paperless, and regulatory responses required for 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 processes to ensure compliance with standard 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 controlled by identifying the amount of energy used at both the entire factory level as well as the detailed process level.

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-Lync This serves as a gateway solution to enable data connection between a range of shop floor equipment and their high level systems. Diverse equipment interfaces are supported through the provision of libraries, and constraint-free data connections are possible based on wide-ranging industry standard communication protocols.

Factova-SPC(Statistical Process Control) Each and every production process is managed and operated in their optimal condition to enhance product quality. In addition, statistical analysis methodology is provided to efficiently detect process performance and fluctuations in order to manage characteristic variations in product quality along the manufacturing process.

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

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 is developing 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

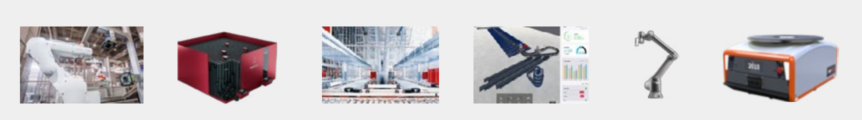
- Logistics consulting
- Strategy development for logistics centers
- Logistics center operation process and layout design, logistics cost reduction and optimization
- Logistics center automation facility deployment
- Logistics center optimization facility and solution
    - Cross-Belt Sorter
    - HSS(High Speed Shuttle)
    - AutoStore
    - Robotics
    - IoT
    - Digital Twin
    - Vision
    - Optimizing
    - Factova-Control
    - GreyOrange Butler
    - Smart Gantry
    - Wheel Sorter
    - QPS(Quick Picking System)

Serving all key logistics centers in Korea for automation
(as of the end of 2018, Korea Integrated Logistics Association)

1st

LG CNS's Smart Logistics Platform

Optimization & Simul.	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 developed for CJ Logistics
- Logistics automation equipment consulting and deployment at Logis Park Dongtan and Yangji centers for CJ Logistics
- CJ Logistics, express delivery center
- Facility design and implementation for eBay Korea's Mega Logistics Center
- CJ Olive Young, logistics automation equipment for the on/offline-integrated center
- Pantos, Sihwa MTV miniload automation center
- Auto Fresh Euiwang Center developed for LOTTE Super
- Auto Fresh Western Center in Busan developed for LOTTE Super
- CJ Freshway, Eastern RDC automation center
- Daegu Mail Center of Korea Post, package logistics automation
- Pos Malaysia International parcel Center in Malaysia
- Daiso Namsa Distribution Hub center
- Ourhome East Seoul Food Ingredient Logistics Center
- E·Land Shanghai Fashion Logistics Center in China
- E·Land Retail, logistics automation for the Cheonan distribution center
- Shinsegye Food, Logistics automation for the Pyeongtaek distribution center
- Logistics terminal in eastern Seoul under development for Hanjin
- Automatic express sorter deployed for Hanjin
- Megal hub terminal in Jincheon under development for LOTTE Global Logistics
- Bucheon 2/Yangsan center automation under development for Coupang
- Bucheon 1/Goyang/Ansan center automation under development for Coupang
- Jangseong center automation under development for Nonghyup Hanaro
- Gimpo automation under development for Market Kurly
- Cheongju automation under development for LG Household & Healthcare
- Yeosu automation under development for LG Chem

Industries

Finance

IT service for digital finance that leads the digital transformation of financial institutions on the strength of 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 in addition to 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 latest digital 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.

Main Client

Banking	Insurance	Credit Card	Securities & Capital
KB Kookmin Bank NH Bank KEB Hana Bank Kakaobank Kwangju Bank Shinhan Bank Woori Bank Bank of Korea K Bank Jeon Buk Bank	KB Insurance NH Life Insurance Meritz Fire & Marine Insurance PCA Life Insurance Korea Insurance Development Institute Kyobo Life Insurance TongYang Life Insurance Prudential Life Insurance	KB Kookmin Card BC Card Hyundai Card Shinhan Card LOTTE Card NH Card Woori Card	Shinhan Investment Corporation NH Capital KB Capital JB Woori Capital Korea Securities Depository NH Investment & Securities Aju Capital LOTTE Capital

Digital Technology & Platform

AI	Block Chain	Cloud	BigData	IoT
DAP, DAP Talk	Monachain	CloudXper	DAP	INFioT

Digital Finance Solution

Insu Tower Card Perfect Capital Perfect PG Perfect

MDD(Model Driven Developement) 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

Won all next-generation system implementation projects for credit card companies (KB Kookmin Card, NH Card, and BC Card) in 2018,
Market share in the next-generation credit care system

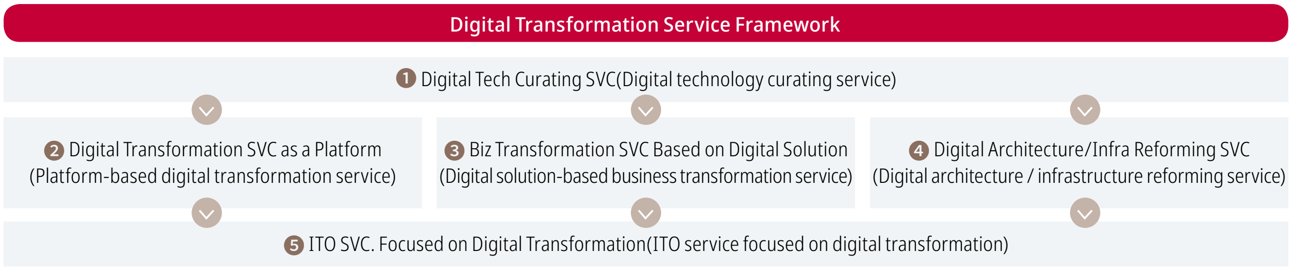
1st

Core Capabilities

- Financial solutions and IT service capabilities delivered based on our extensive experience in developing and operating in a wide range of financial IT systems over the past two decades
- Project execution capabilities demonstrated through the successful simultaneous opening of Korea's first ever mega-sized next-generation financial systems at four financial institutions (KB Kookmin Card, NH Card, Kyobo Life Insurance and Korea Securities Depository in Sep. 2019)
- Leadership in new financial digital technology represented by AI & big data, cloud and blockchain

Service Offerings

As customer needs for digital transformation vary widely depending on their unique circumstances, we provide tailor-made end-to-end services to cater to such needs.


Digital Transformation Service Framework
① Digital Tech Curating SVC(Digital technology curating service)
② Digital Transformation SVC as a Platform (Platform-based digital transformation service)
③ Biz Transformation SVC Based on Digital Solution (Digital solution-based business transformation service)
④ Digital Architecture/Infra Reforming SVC (Digital architecture / infrastructure reforming service)
⑤ ITO SVC. Focused on Digital Transformation(ITO service focused on digital transformation)

① 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 implementation plans

② 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

③ Support business innovation and improvement based on digital solutions
→ digital business hub, RPA, digital channel, AI dialogue solution

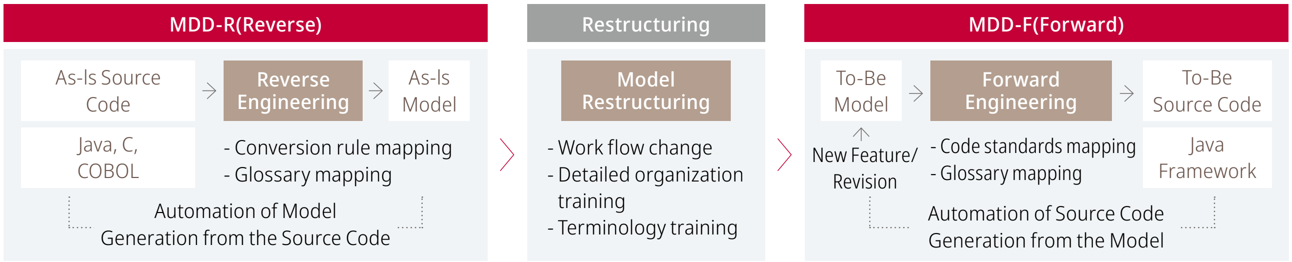
④ Replace infrastructure architecture by introducing new infrastructure to drive digital transformation
→ Reorganize the digital finance architecture and introduce cloud and high-performance computing

⑤ 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

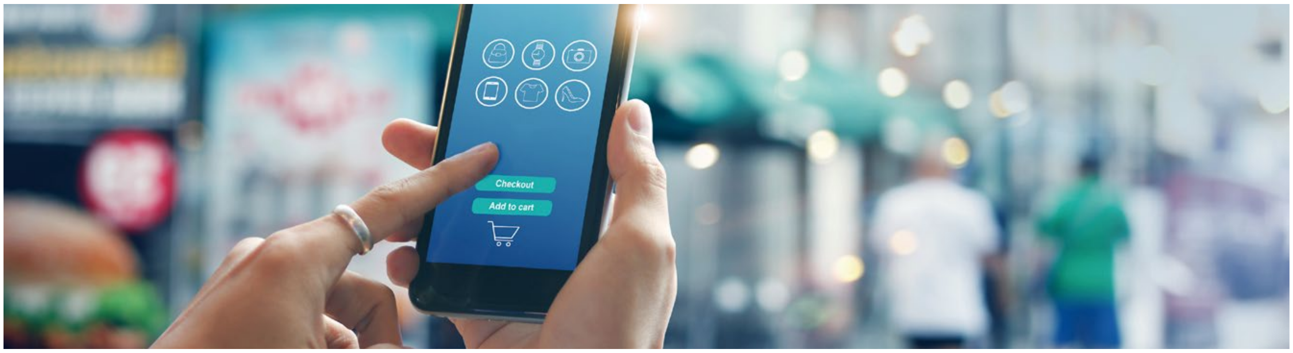
MDD(Model Driven Development)

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 one 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 occurring during software execution can be fixed by revising the design model, not the code itself. Generating and understanding design documents based on modeling and Korean is considerably simpler when compared to the source code.


MDD-R(Reverse)
As-Is Source Code
Reverse Engineering
As-Is Model
Java, C, COBOL
- Conversion rule mapping
- Glossary mapping
Automation of Model Generation from the Source Code
Restructuring
Model Restructuring
- Work flow change
- Detailed organization training
- Terminology training
MDD-F(Forward)
To-Be Model
Forward Engineering
To-Be Source Code
New Feature/ Revision
- Code standards mapping
- Glossary mapping
Java Framework
Automation of Source Code Generation from the Model

Business Achievements

- Next-generation financial IT system implementation : Kakaobank, Shinhan Bank, KEB Hana Bank, NH Bank, Jeon Buk Bank, Kwagnju Bank, Shinhan Card, KB Kookmin Card, NH Card, BC Card, KB Insurance, Kyobo Life Insurance, PCA Life Insurance, Korea Securities Depository, etc.
- New digital technology business : Chatbots, RPA, and next-generation OLAP for KB Kookmin Bank, a hyper-personalization marketing system and a face recognition-enabled unnamed payment system for Shinhan Card, a blockchain-based community currency platform, IFRS17 for the Korea Insurance Development Institute, a Mobile SFA system for Hanwha Life Insurance, etc.
- Large-size IT outsourcing : Shinhan Card, KB Kookmin Card, KB Insurance, TongYang Life Insurance, Prudential Life Insurance, etc.



Industries

Retail

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

Korea's first to supply ESL (Electronic Shelf Label) devices across GS Supermarkets nationwide (2017)

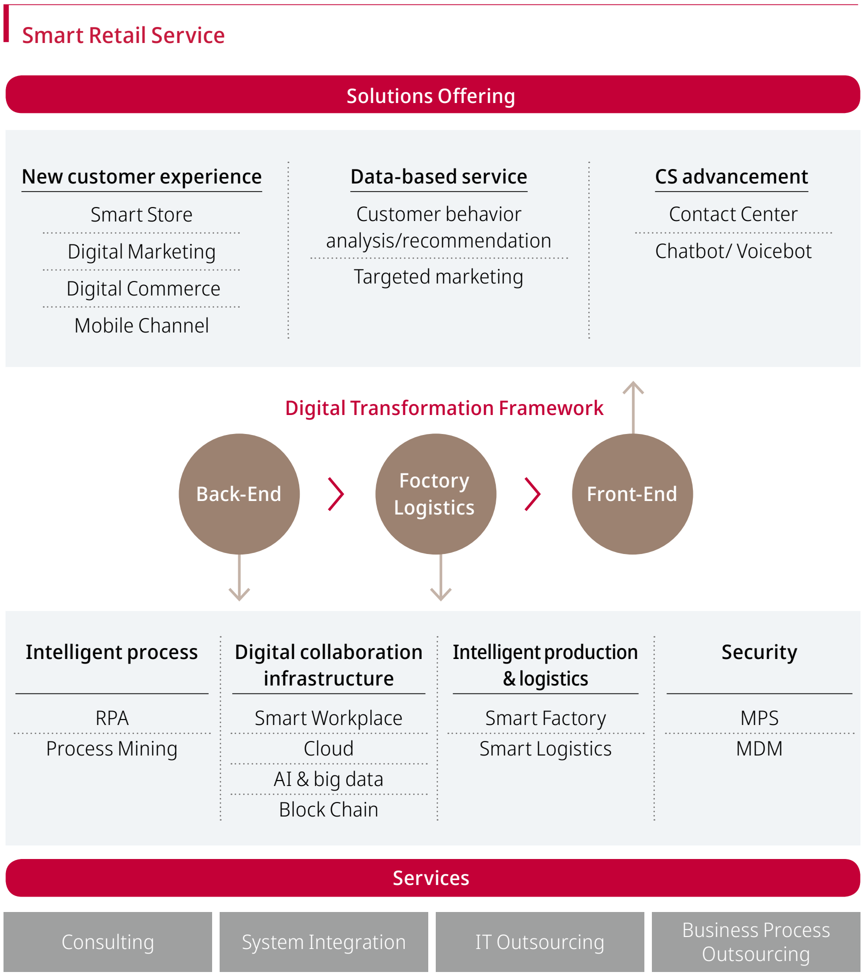
1st ESL

Smart Retail Service

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

Smart Store Service

LG CNS offers comprehensive solutions and services that enable the adaptation of new environments and work approaches. This is specifically focused at offline stores and their transformation into unmanned intelligent stores, ranging from 'Scan & Go' which allows consumers to directly scan barcodes to add items to their shopping cart to face recognition payment and store energy management.



Smart Retail Service

Solutions Offering

New customer experience
- Smart Store
- Digital Marketing
- Digital Commerce
- Mobile Channel

Data-based service
- Customer behavior analysis/recommendation
- Targeted marketing

CS advancement
- Contact Center
- Chatbot/ Voicebot

Digital Transformation Framework

Back-End > Factory Logistics > Front-End

Intelligent process
- RPA
- Process Mining

Digital collaboration infrastructure
- Smart Workplace
- Cloud
- AI & big data
- Block Chain

Intelligent production & logistics
- Smart Factory
- Smart Logistics

Security
- MPS
- MDM

Services

Consulting | System Integration | IT Outsourcing | Business Process Outsourcing

1. Consulting

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

- Conceptual design for eBay Korea's direct purchase operation system, diagnosis of Amway architecture optimization, ISP to build an integrated financial information system for Hyundai Department Store Group, PI to develop a next-generation system for Redcap Tour, etc.

2. System Integration

To keep pace with the rapidly-shifting retail and service market, we propose and reliably implement infrastructure and application building plans optimized for the increasingly complex enterprise IT system market and business conditions.

- Construction of a next-generation shopping mall for Nonghyup Market, construction of a next-generation purchase and sales system for GS Home Shopping, construction of a next-generation sales system for Watsons Korea, a next-generation sales system for Olive Young, an overseas integrated system for LOTTE Duty Free, etc.

3. IT Outsourcing

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

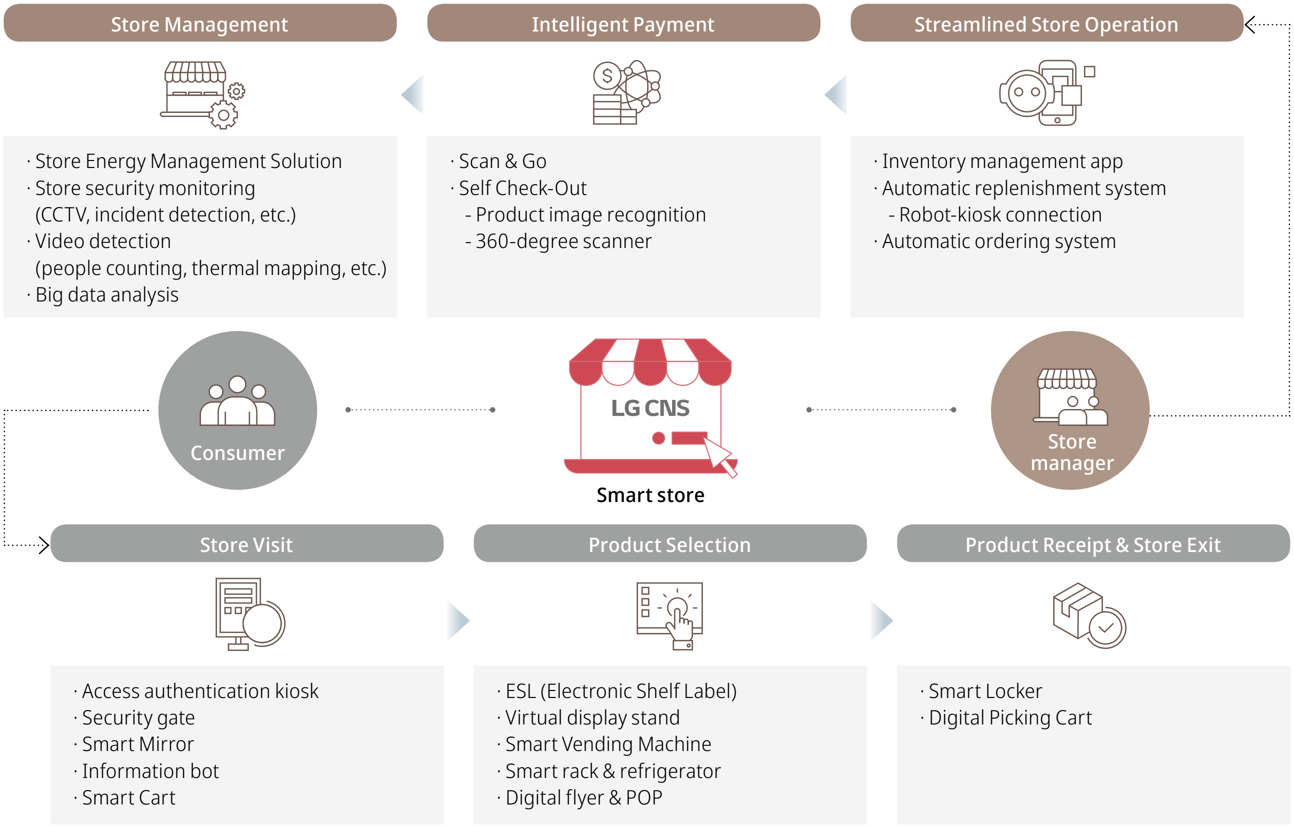
- ITO for Ericsson, ITO for Moorim Paper, ITO for the Federation of Korean Industries, ITO for KleanNara Co., etc.

4. Business Process Outsourcing

We outsource a portion of the digital domain work in the corporate process to promote its systemic and reliable operations.

- Infrastructure operation service for GS Home Shopping, KT SaaS Tech Center operation, outsourcing of the secure invoice printing system operation for KB2B, MPS (Managed Printing Service) for numerous enterprise customers, etc.

Smart Store Service



Store Management

· Store Energy Management Solution
· Store security monitoring
(CCTV, incident detection, etc.)
· Video detection
(people counting, thermal mapping, etc.)
· Big data analysis

Intelligent Payment

· Scan & Go
· Self Check-Out
  - Product image recognition
  - 360-degree scanner

Streamlined Store Operation

· Inventory management app
· Automatic replenishment system
  - Robot-kiosk connection
· Automatic ordering system

Store Visit

· Access authentication kiosk
· Security gate
· Smart Mirror
· Information bot
· Smart Cart

Product Selection

· ESL (Electronic Shelf Label)
· Virtual display stand
· Smart Vending Machine
· Smart rack & refrigerator
· Digital flyer & POP

Product Receipt & Store Exit

· Smart Locker
· Digital Picking Cart

Service Features

- Support efficient store operations using AI, big data, IoT and other digital technologies to ultimately aim for self-service operations
- Provide customers a more enjoyable and convenient in-store shopping experiences to boost corporate sales and reduce simple repetitive work for store staff which in turn contributes to cost reduction

Industries

Teleco
& Media

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

Pushing the boundaries forward through technology insights accumulated in the telecom & media market

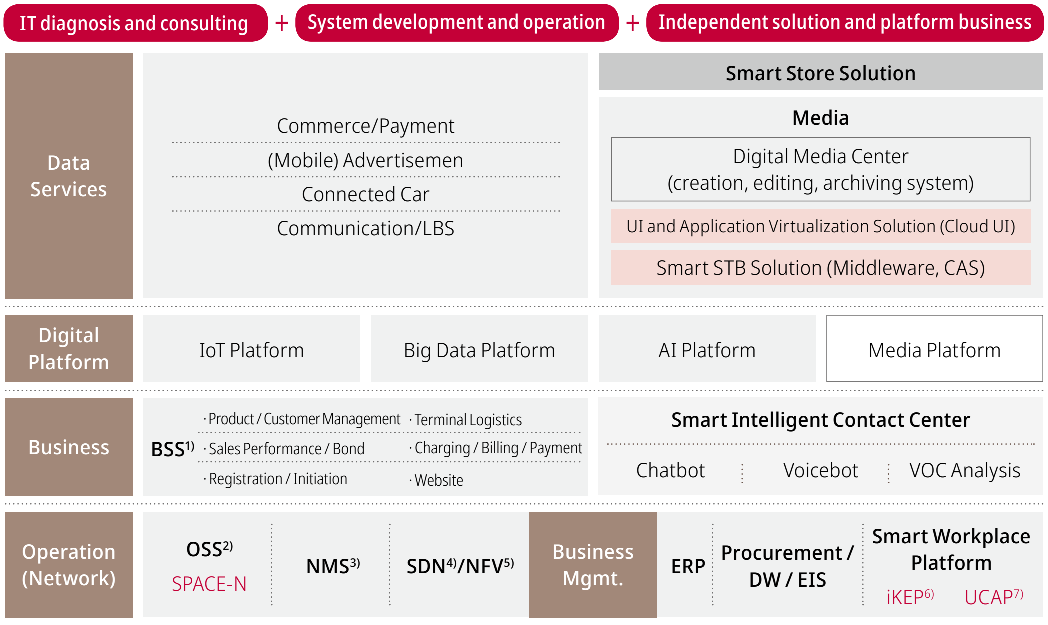
In 2011, LG CNS became the first in Korea to successfully build an integrated wired/wireless BSS (Business Support System) and OSS (Operate Support System) for a leading telecom player. On the strength of our insights and information & digital technology capabilities accumulated in the telecom & media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

Leveraging digital technology to bring innovation to clients' business model

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) Advertisemen
- 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
- Terminal Logistics
- Sales Performance / Bond
- Charging / Billing / Payment
- Registration / Initiation
- 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)

Deployed Korea's 1st hybrid-based (rules & deep learning) intelligent mobile customer center

1st

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 services. The STB receives the processed video from the server and displays it on the screen. (customer : D'LIVE, CMB, KCN)

SMUF(Smart Machine-learning Unified Framework)

This integrated solution ranges from machine learning/deep learning model development to testing, operation, and service environment configuration to shorten 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+)

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.

SPACE-N(OSS Solution)

This inventory management solution is designed to manage core assets such as network systems, facilities for telecommunication and 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)

iKEP(Smart Workplace Platform)

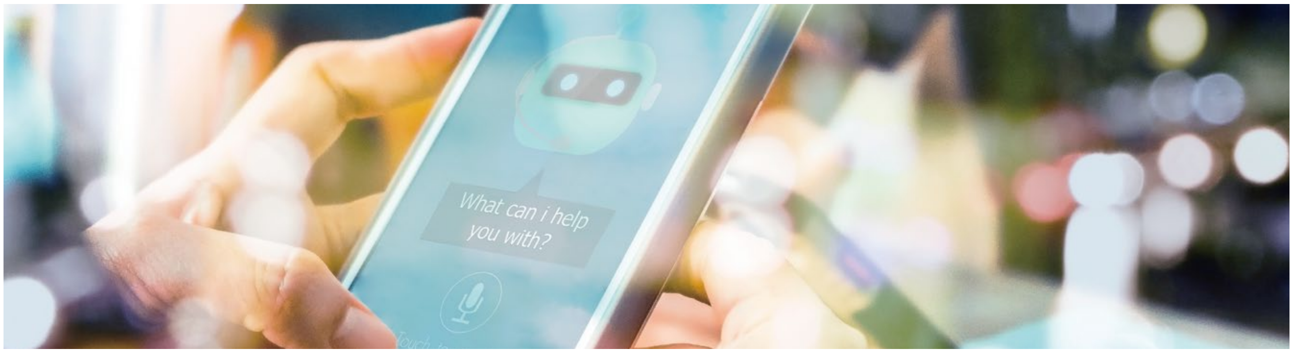
This enterprise collaboration platform solution supports single gateway access to the corporate information system and provides a smart collaboration environment where employees can efficiently perform their work beyond time or space limitations. The platform delivers a seamless environment that allows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

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+
- Providing 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
- Developing 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 is created through voice-based AI technology and conversational level evaluation algorithms. Learners acquire linguistic skills by speaking with conversational UX (User Experience)

Core Capabilities

- Language learning service platform provided through voice-based AI technology and algorithms
- Multi-business and multi-service approach rendered easier through the use of VoiceDesigner, a conversational scenario creation tool
- Learning contents developed and provided based on authorized language learning materials and teaching methods
- Quantitative evaluations performed on the sentences spoken by users (accuracy, proficiency, etc.)
- Patent 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 conversation skills under specific situational scenarios and make necessary 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 materials that are available commercially, and allows users to practice expressions by type of questions. It also offers shadowing functionality to give best answers identified on the prediction of TOEIC test results.

First to commercialize conversational AI language learning service (2019) in Korea.

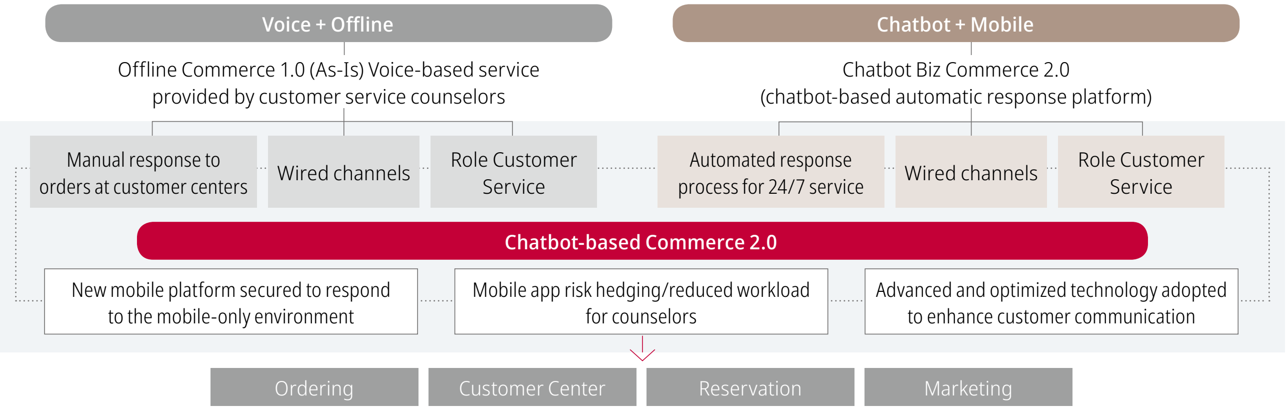
1st

Business Achievements

- Partnerships underway with numerous language learning service providers in Korea (CARROT Global, YBM, Hackers, Tutoring, Pagoda, Yoons English School, Nexus, etc.)
- AI Tutor's commercial launching underway for language learning service providers (Tutoring, YBM, Pagoda, Yoons English School, etc.)
- AI Tutor deployed by 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, Silicon Works, etc.)
- AI Tutor commercially open for language learning service providers (CARROT Global, Tutoring, YBM, Pagoda, and Yoons English School)

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. And chatbot-based ordering & reservation, customer center operation and marketing services are made available through wide-ranging channels including responsive web, Kakao, and Google Assistant.



Voice + Offline
Offline Commerce 1.0 (As-Is) Voice-based service provided by customer service counselors
Manual response to orders at customer centers
Wired channels
Role Customer Service
Chatbot + Mobile
Chatbot Biz Commerce 2.0 (chatbot-based automatic response platform)
Automated response process for 24/7 service
Wired channels
Role Customer Service
Chatbot-based Commerce 2.0
New mobile platform secured to respond to the mobile-only environment
Mobile app risk hedging/reduced workload for counselors
Advanced and optimized technology adopted to enhance customer communication
Ordering
Customer Center
Reservation
Marketing

Service Offerings

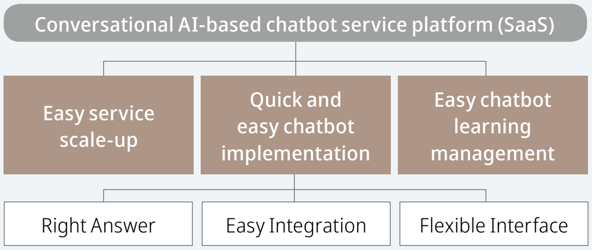
Chatbot customer center	This platform enables automatic response to customer inquiries through chats delivered on diverse channels such as mobile web, Kakao Talk Plus Friend, and Google Assistant.
Chatbot ordering/ reservation	This platform enables product ordering and payment through chatbots across wide-ranging 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 customer inquiry handling 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.



Conversational AI-based chatbot service platform (SaaS)
Easy service scale-up
Quick and easy chatbot implementation
Easy chatbot learning management
Right Answer
Easy Integration
Flexible Interface

Assistant bot

Work-related FAQ handling and simple work processing in the areas of general affairs, personnel and IT for employees

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

LG CNS's end-to-end services that span system development, solution delivery and security operation in addition to consulting that adds security, privacy and safety to the digital transformation initiative of clients

Information security leader in the digital transformation era

LG CNS is the first in Korea to complete and commercialize a smart factory security system. Currently, we are building a cloud security system in line with LG Group's cloud transition plan.

Serving a broad array of security areas

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

LG CNS's Security Service : Safezone

Security Consulting

- Information security masterplan consulting
- Personal information protection consulting
- Information security certification consulting
- Cloud security consulting
- Factory security consulting
- Physical security consulting
- Vulnerability assessment and hacking simulation

+

Security Solution

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

Safezone

Security Implementation

- Security system implementation for Smart Factory
- Security system implementation for Smart City
- Security system implementation in the public, finance and corporate sectors
- Physical security system implementation

+

Managed Security Service

- Security control service (Safezone U-sec)
- Security management shared service

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 spanning consulting, implementation and operation

Types of cyber/physical security solutions

109 solutions

Service Offerings

1. 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. On the strength of our 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

LG CNS provides vulnerability assessment and hacking simulation services to help clients better respond to system intrusion or data leaks caused by technical vulnerabilities. Based on various review checklists and scenarios developed by our dedicated vulnerability analysis and hacking simulation lab, such assessments are performed on IoT devices and industrial control equipment as well as on web operations and applications.

2. 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 supports 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.

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.

3. Security Solution

LG CNS provides tailor-made 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

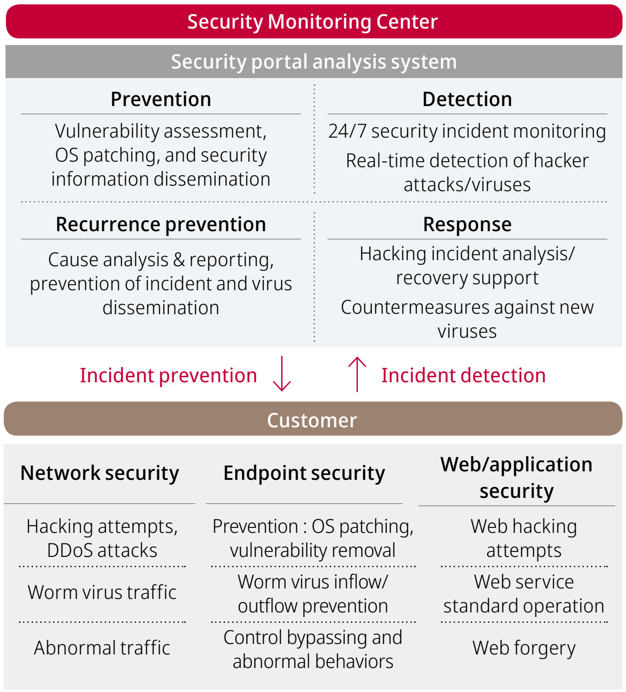
4. Security Management Service

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 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.


Security Monitoring Center
Security portal analysis system
Prevention
Vulnerability assessment, OS patching, and security information dissemination
Detection
24/7 security incident monitoring
Real-time detection of hacker attacks/viruses
Recurrence prevention
Cause analysis & reporting, prevention of incident and virus dissemination
Response
Hacking incident analysis/ recovery support
Countermeasures against new viruses
Incident prevention
Incident detection
Customer
Network security
Endpoint security
Web/application security
Hacking attempts, DDoS attacks
Prevention : OS patching, vulnerability removal
Web hacking attempts
Worm virus traffic
Worm virus inflow/ outflow prevention
Web service standard operation
Abnormal traffic
Control bypassing and abnormal behaviors
Web forgery

5. 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 clouds, and ensure safety in cloud transition, 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
- 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

Industries

HR SaaS

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

Reduced cost in infrastructure implementation and software development for enterprise HR management

30 %

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 its 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 flexibly to cater to specific business conditions

As an 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 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), and AI & big data.

Core Capabilities

- SaaS that provides optimized HR services :
  Minimize clients' burden on upfront implementation costs and operational costs
- 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, and AI & 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' 20-year expertise in implementing and operating HR systems

Service Overview

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

LG CNS Next HR

ERP

Groupware

National Tax Service

Divisions & roles	HR administration	Time & attendance
Payments & adjustments	Social insurance	Appraisal
Year-end tax adjustments	Benefits	Promotion track/ key employees

Chatbots

RPA

AI & big data

Service Areas

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

❶
- Organizational & role management
- HR information management
- Assignment management

❷
- Work hour standards management
- Work, leave and performance management
- Flexible work hour management

❸
- Social insurance
- Year-end tax adjustments

❹
- Standard information and codes
- To-dos, approvals and requests

❺
- Payroll
- Severance payment

❻
- Appraisal
- Promotion and training
- Key employees

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

Setup-based

Setup costs ⊕ Maintenance costs ⊕ Upgrade costs

↓

Private On Premise

Subscription-based

Infrastructure ✓ Platform As a Service ✓ Sofware

↓

Cloud Infrastructure

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

Next HR

Localization / Update

⊕

Organization / Job	**Person Info / Assignments**	**Performance & Competence**
Time / Attendance	**Payroll / Year Adjustment**	**Benefit**

Change in the Labor Standards Act 52-hour work week system Flexible work hours	**Tightening personal information protection** Finalization and system deletion of retired staff information Personal information access log	**Timely response to tax/ labor standards laws**

Global Standard Based

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

A.I
Iot
Next HR
Big Data

Application of rapidly-changing new technology

+

Delivery of client-specific functionalities as well as scalability on the cloud platform

1133.87
EMA5
EMA50
Transmitting

Industries

Digital Marketing

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

Search Innovation Award granted
at the Google Premier Partner Awards
(2018, 2019)

2 consecutive years

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 optimal full-package marketing services designed to reach the set goal.

Online advertising service delivered through global advertising operation expertise

Our scope of advertising execution extends 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 on the strength of our 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

- Search ads operation in 52 countries for LG Electronics' HA business division (2014-2020)
- Monitor/PC/projector search/banner ads operation for LG Electronics' BS business division (2014-2020)
- LG OLED TV NanoCell yearly search/video/social media ads operation for LG Electronics' HE business division (2015-2020)
- Xboom yearly search/video/social media ads operation for LG Electronics' HE business division (2017-2020)
- CEO support package enterprise sector online ads operation for LG U+ (2017-2018)
- Search ads operation for LG Electronics' Signature brand (2018-2020)
- Online media ads operation for Daishin Securities (2015-2016)
- Official social media account/display ads operation for KB Insurance (2018)

Performance-oriented online campaign

LG CNS' service offerings extend from online campaign strategy and promotional planning, creative contents strategy and production services, to O2O (Online to Offline) marketing. Furthermore, the scope of our service portfolio is broadening to include global marketing campaigns that feature influencers to generate digital marketing outcomes primarily through earned channels.

Core Capabilities

- Campaign planning and operation based on IT Creative and partnership with video production companies
- Influencer-driven content production/dissemination campaign operation to generate contents-driven marketing outcomes with higher efficiency compared to paid ads (150,000 contents created with 800 million in cumulative views and 60 million in social actions between 2014 and 2020)
- Independently-developed influencer dashboard to support real-time channel management of more than 2,000 influencers
- Influencer datasets developed to propose ROI-driven optimal operational plans
- Key management indicators proposed for each online touchpoint and measurement tools used based on CDJ (Customer Direction Journey)

Business Achievements

- Yearly influencer marketing operation on monitors/PCs/projectors for LG Electronics' BS business division (2014-2020)
- Yearly influencer marketing operation on NanoCell OLED TVs for LG Electronics' HE business division (2015-2020)
- Yearly influencer marketing operation on Xboom for LG Electronics' HE business division (2016-2020)
- Instagram view social media campaign operation for LG Electronics' HA business division (2019-2020)
- NPI campaign operation on UltraWide, UltraFine, and UltraGear for LG Electronics (2019)
- Integrated media campaign operation for NH Investment & Securities (2016-2018)
- Official social media account operation for NH Investment & Securities (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 on future planning.

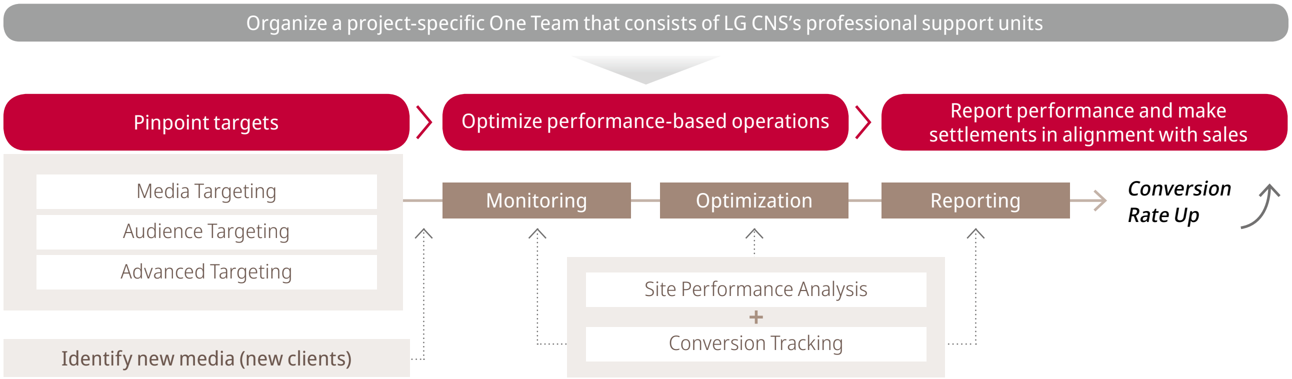
Core Capabilities

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

Business Achievements

- Marketing sensing and digital clinic for LG Electronics' HA business division (2015-2020)
- Yearly marketing analyses and strategy identification on NanoCell OLED TVs for LG Electronics' HE business division (2015-2020)

Digital Marketing Operation Process


Organize a project-specific One Team that consists of LG CNS's professional support units
Pinpoint targets
Optimize performance-based operations
Report performance and make settlements in alignment with sales
Media Targeting
Audience Targeting
Advanced Targeting
Identify new media (new clients)
Monitoring
Optimization
Reporting
Conversion Rate Up
Site Performance Analysis
+
Conversion Tracking

Public Services

Intelligent e-Government

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 leverages its capabilities built through e-government implementation to deliver transparent administrative services for the general public and serves as a key contributor to promoting e-government exports worldwide. LG CNS was inducted into the Hall of fame for its contribution to the e-Government achievement at the 50th e-Government Anniversary Ceremony in 2017.

Core Capabilities

- Ranked 1st in the UN e-Government Survey for 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 serves a wide array of public service areas, including education & culture (smart school and e-library), diplomacy (e-passport and consular service), daily living (disaster safety), judicial affairs (corporate & real estate registration and criminal justice work), legal affairs (criminal justice, immigration administration and immigration control), administration (civil complaints, administrative data sharing and archiving), finance & taxation (finance, national & local taxation and customs), and post information & high-accuracy forecasting. Our intelligent e-government services lead the super-connected digital ecosystem where the public, businesses and governments that serve as the producer and consumer of digital information resources are interlinked through wide-ranging channels to collaborate and continuously generate such resources and services.

Public ICT	Smart School / Education ICT	Electronic Library	Public Safety LTE	Smart City	e-Passport	Disaster Safety Solution
Jurisdiction / Judicial Affairs	Real-estate Registration	e-Court System	Criminal Justice	Immigration control		
Administration /Other	Mail Information	Weather Information	Customs	National Computing and Information Service	e-passport	

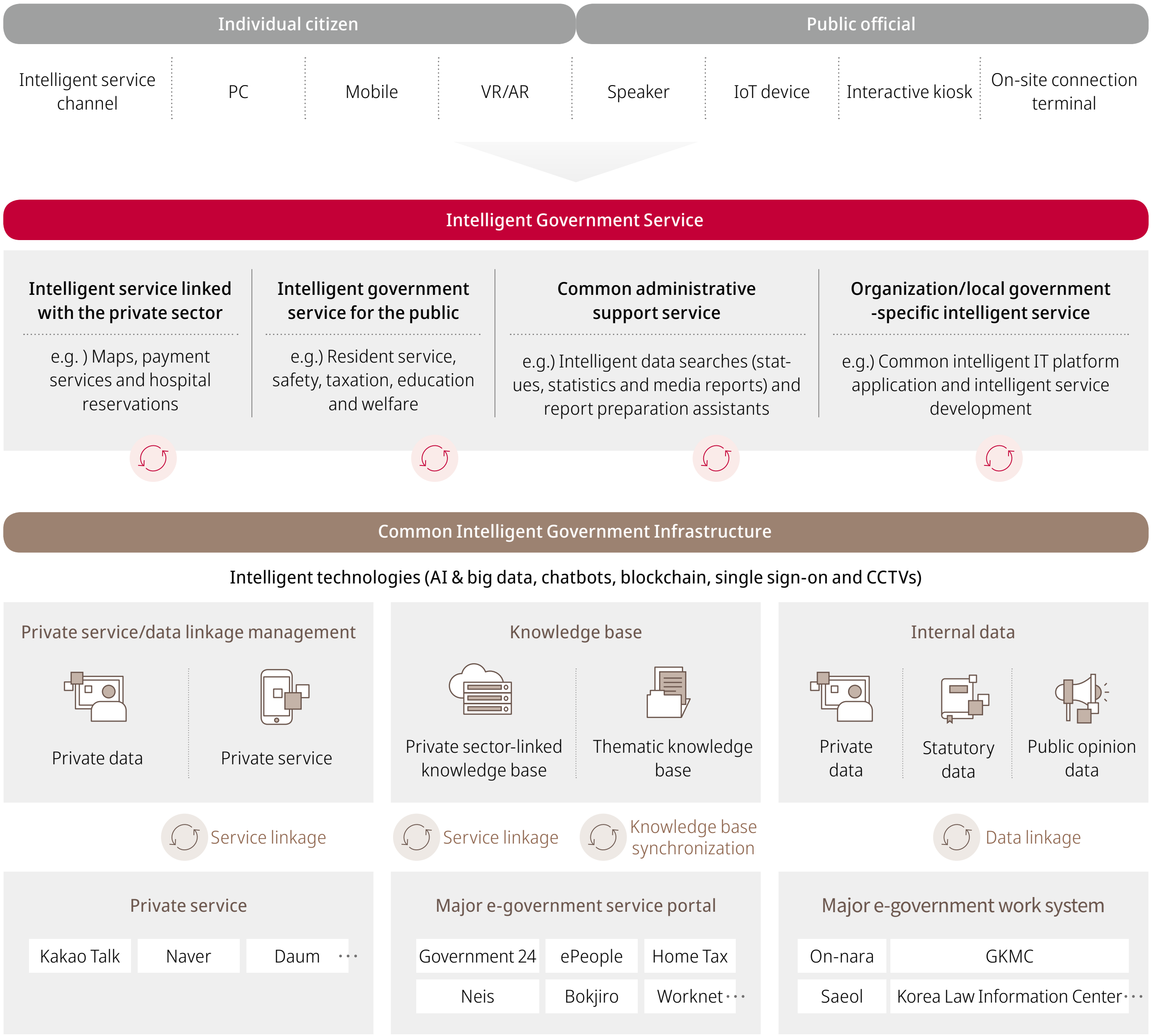
Ranked in the UN e-Government Survey for 3 times
(2010, 2012 and 2014)

1st

Cumulative e-government exports to more than 20 countries across the globe (as of Nov. 2017)

More than USD

250 million


Individual citizen
Public official
Intelligent service channel
PC
Mobile
VR/AR
Speaker
IoT device
Interactive kiosk
On-site connection terminal
Intelligent Government Service
Intelligent service linked with the private sector
e.g.) Maps, payment services and hospital reservations
Intelligent government service for the public
e.g.) Resident service, safety, taxation, education and welfare
Common administrative support service
e.g.) Intelligent data searches (statues, statistics and media reports) and report preparation assistants
Organization/local government -specific intelligent service
e.g.) Common intelligent IT platform application and intelligent service development
Common Intelligent Government Infrastructure
Intelligent technologies (AI & big data, chatbots, blockchain, single sign-on and CCTVs)
Private service/data linkage management
Private data
Private service
Knowledge base
Private sector-linked knowledge base
Thematic knowledge base
Internal data
Private data
Statutory data
Public opinion data
Service linkage
Service linkage
Knowledge base synchronization
Data linkage
Private service
Kakao Talk
Naver
Daum ···
Major e-government service portal
Government 24
ePeople
Home Tax
Neis
Bokjiro
Worknet···
Major e-government work system
On-nara
GKMC
Saeol
Korea Law Information Center···

Business Achievements

Smart School/ICT-based Education System Transformation

- · ICT Education System in Colombia
- · First Village Smart School in Sejong City
- · Operation of Hanyang Cyber University and Cyber Hankuk University of Foreign Studies

e-Passport system

- · Participated in Korea's e-Passport System project from the 1st to 7th phase
- · Next-generation immigration administration system development

e-Library

- · National Electronic Library Project in Navoiy, Uzbekistan
- · National Digital Library (NDL)

Public Registration System (Internet Registry)

- · Online corporate registration system development in Bahrain

Data base system for the judicial branch

- · Criminal justice information system development

Disaster Response & Safety System

- · 112 Control Center & 119 Situation Room in Korea
- · Emergency Response System in Mongolia / Crime Information Management System in Indonesia
- · Maritime navigation safety system development in Banglades

Finance and tax Informatization

- · Tax administration system development in Laos

Mail Information System

Integrated national customs information network system development for the Korea Customs Service

Public Services

Smart City

We provide data-driven city platforms and smart city services with the focus on providing experience for 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 on the strength of its digital technology and solution expertise gained through the implementation of urban infrastructure since the early days of U-City deployment.

Core Capabilities

Leading smart city solution provider with unparalleled know-how and technology expertise

Unparalleled know-how 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	Unmatched 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 ecosystem through platform-based city Living Labs

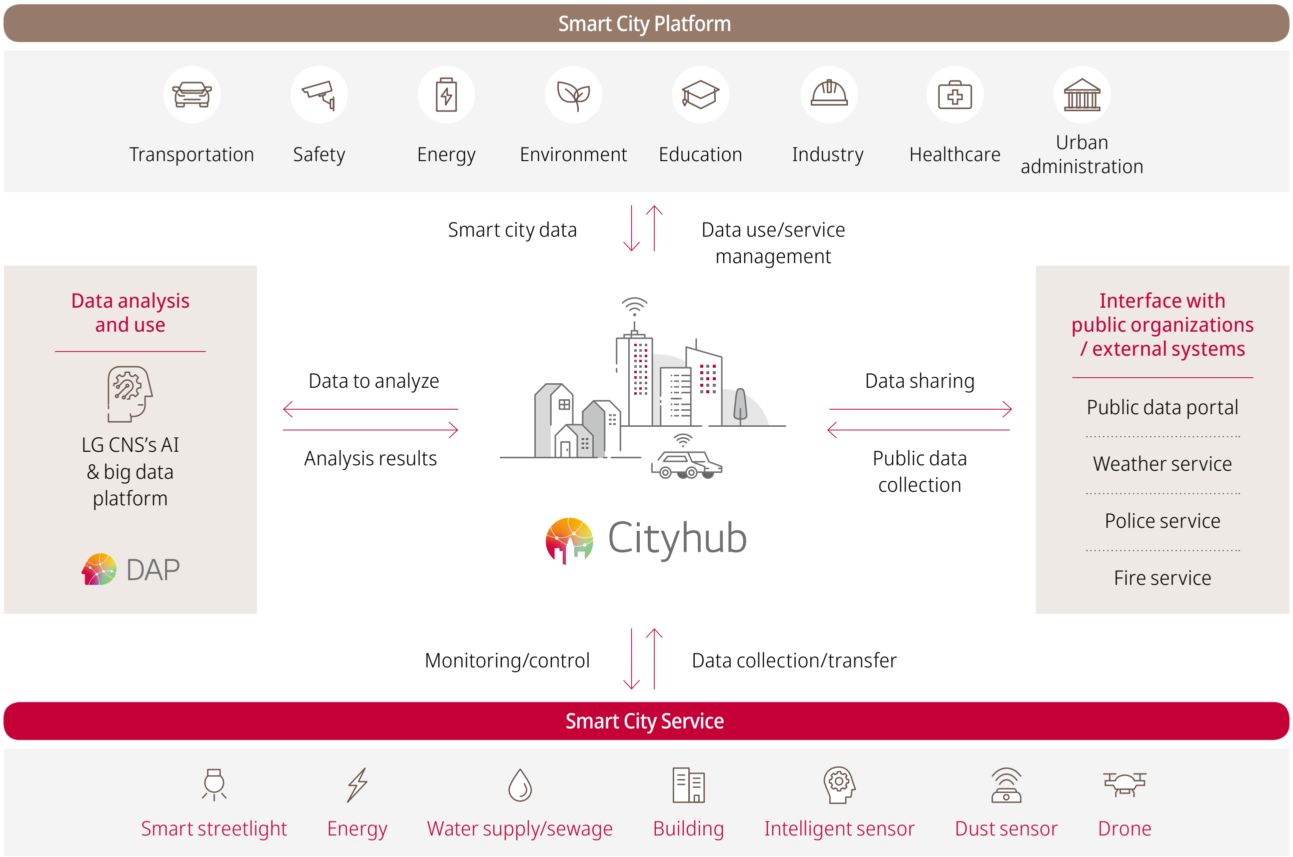
Integrated smart city platform certified by the TTA (Telecommunications Technology Association) of Korea (among domestic large businesses as of 2018)

1st

Solution

LG CNS creates new smart city services by combining digital technologies such as IoT, cloud, AI & big data, digital twin and blockchain across wide-ranging industrial sectors from transportation, safety and living to urban management and energy. Our distinctive smart city platform Cityhub* delivers tried-and-true integrated urban operation and management services. Cityhub stores, manages and analyzes 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 commitment to playing a pivotal role in smart city operations.


Smart City Platform
Transportation
Safety
Energy
Environment
Education
Industry
Healthcare
Urban administration
Smart city data
Data use/service management
Data analysis and use
LG CNS's AI & big data platform
DAP
Data to analyze
Analysis results
Cityhub
Data sharing
Public data collection
Interface with public organizations / external systems
Public data portal
Weather service
Police service
Fire service
Monitoring/control
Data collection/transfer
Smart City Service
Smart streetlight
Energy
Water supply/sewage
Building
Intelligent sensor
Dust sensor
Drone

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 on the design of AI & big data center and IoT implementation for a national demonstration city
- Smart energy and environmental innovation technology introduction planning in Sejong City 5-1
- Participation as a private sector member in the Smart City Challenge project launched by the Ministry of Land, Infrastructure and Transport in 2019 (Daejeon and Changwon)
- 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
- 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

Public Services

Smart Transportaion

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

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

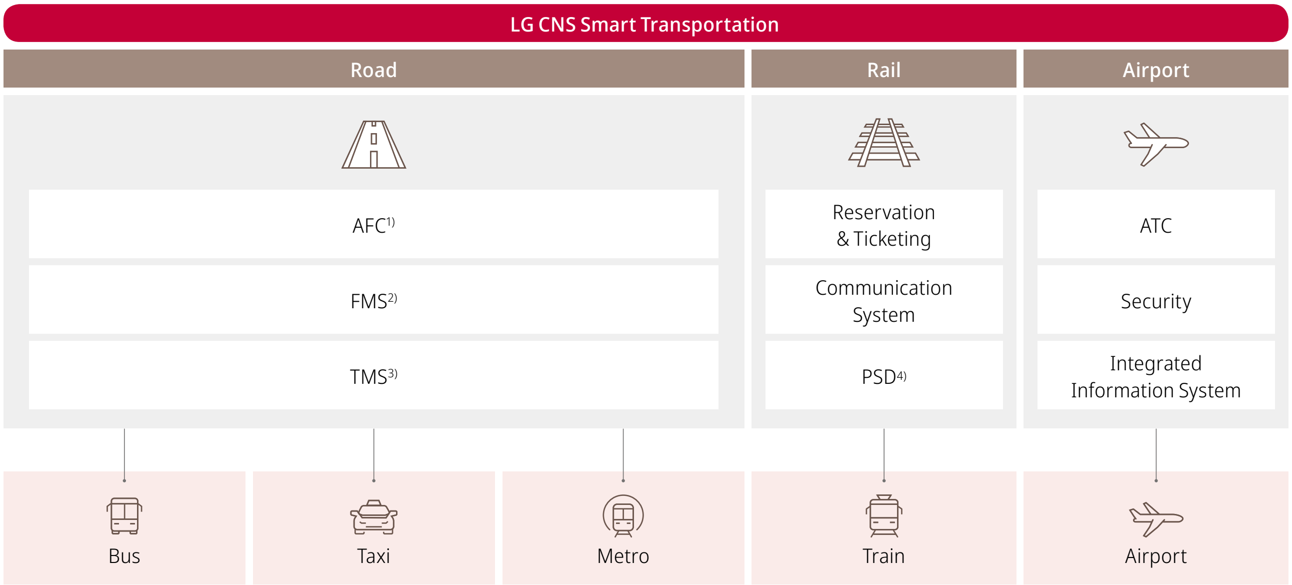
- Transportation card systems implemented and operated in Bogota of Columbia, Athens in Greece and other overseas cities following the development of Seoul City's transportation card system in 2014
- Transportation solution and system implementation across the entire domains including roads, railways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

Service Offerings

Road	Integrated transportation management services including AFC, FMS and TMS (Transport Management System)
Rail	Solutions that span 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.

Number of daily Tmoney transactions(2017)

40 Million



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 the all modes of transportation. Its excellence and stability has been proven overseas in Bogota, Columbia and Athens, Greece. Our expert knowledge and technology gained through experiences in global cities are combined with information on transport 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 to 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 makes vehicle and driver assignments according to their optimized schedules. Furthermore, effective monitoring and control is supported through the real-time collection of vehicle location information while wide-ranging 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 - Innovation leader in Digital Business delivering real value to our clients.

IT and business consulting projects undertaken for 29 years since its inception in 1991

More than
3,500 projects

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 on the strength of unparalleled professionalism built through deep knowledge and logical thinking. Entrue Consulting leads the entire customer journey in reinforcing business competitiveness, tapping into new markets, and leveraging its best-in-class expertise in the digital era.

Proposing optimal solutions through swift issue identification

The FCM Team, the CX Strategy Team, the SCM Team, the DX Tech. Team, the Smart Factory Team, the Smart Engineering Team, the Optimization Team, the Finance and Public Services Team, the Cloud Team and the Business Process Innovation Team all aid in the accurate and swift identification of client concerns to propose optimal solutions.

Mission → As a professional consulting service provider, we have built knowledge and reasoning based expertise to drive innovation and growth for our clients.

Vision → We offer differentiated and client-specific services with our unparalleled expertise, and as the industry's leading consulting service provider, we have become the company and partner of choice for exceptional talents aspiring to become consultants and for clients that want to become top global companies.

Business Achievements

- Automotive component business strategy consulting : LG Corp., LG Electronics and LG Chem
- Digital transformation technology strategy consulting for LG : AR/VR, AI, robotics, drones, healthcare, etc.
- SCM/logistics assessment and direction setting : LG Electronics, LG Display, LG Chem, LG Innotek, Pantos, GS Home Shopping and CJ Logistics
- Digital marketing, CRM and e-commerce consulting : LG Electronics, Jeju Air, financial holding companies, credit card companies and consumer product companies
- Weekly management system upgrade consulting for LG Group affiliates : Smart factory and battery industry strategy development for LG Chem
- Smart city business strategy consulting for LG Group
- Optimization strategy and algorithm development : Optimization of the battery process recipe for LG Chem, optimization of logistics center operations for eBay and Olive Young, etc.
- Cloud implementation strategy development and transition strategy consulting for LG Group : LG Electronics, Pantos, S&I, etc.
- Big data strategy development and service enhancement for LG U+.
- Mid/long term IT innovation solution plan for GS Retail.
- FACTA implementation consulting for Korea Federation of Banks and General Insurance Association.

Other Services

Data Center

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

Implementation and operation of Korea's first dedicated data center (1992)

1st

Busan Global Cloud Data Center achieving the highest 'Green Data Center' rating (2014)

A+++

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 redundant facilities and seismic base isolation designs.

Busan Global Cloud Data Center

· Data center for cloud customers only
Building (5 floors above ground + isolation floors), gross area of 32,531m², computer rooms of 12,177m², 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 43,851m², computer rooms of 13,686m², 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 74,986m², computer rooms of 12,734m², 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 14,326m², computer rooms of 4,073m², 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.

We reinvent everything in our world with the application
of state-of-the-art new information technology
to deliver services never before possible.

02

SUSTAINABILITY ISSUES

LG CNS endeavors to better execute on sustainability issues across the entire business operations, ranging from human resources, mutual growth and compliance to environmental protection and the customer-first management philosophy. We do this while building consensus with stakeholders and strengthening cooperation with them. We will faithfully fulfill our social responsibility to become a sustainable IT business.

Customer First Strategy

58 Quality Management
60 Information Security

Human Resource

63 Employee Development
66 Corporate Culture

Mutual Growth

69 Shared Growth
72 Social Contribution

Compliance Management

75 Fair Trade

Environment

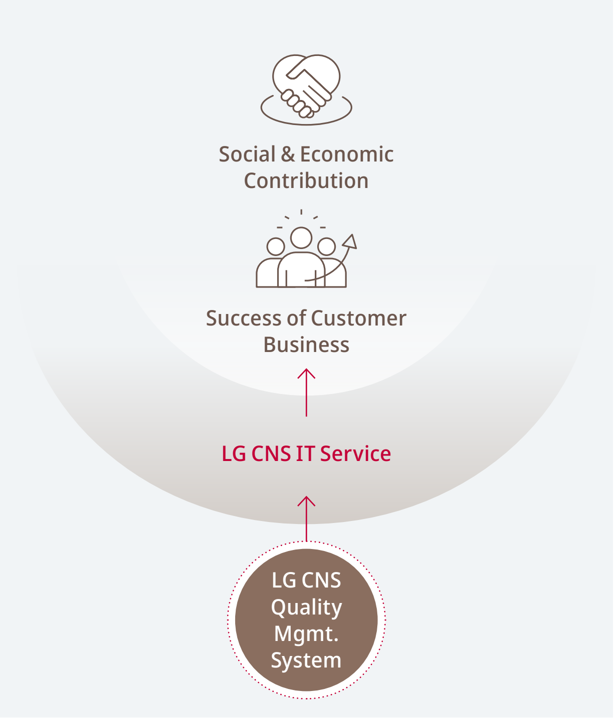
77 A Healthy and Safe Workplace
80 Climate Change Mitigation

Customer First Strategy

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.


Social & Economic Contribution
Success of Customer Business
LG CNS IT Service
LG CNS Quality Mgmt. System

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

9 Practices (Behaviors)

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

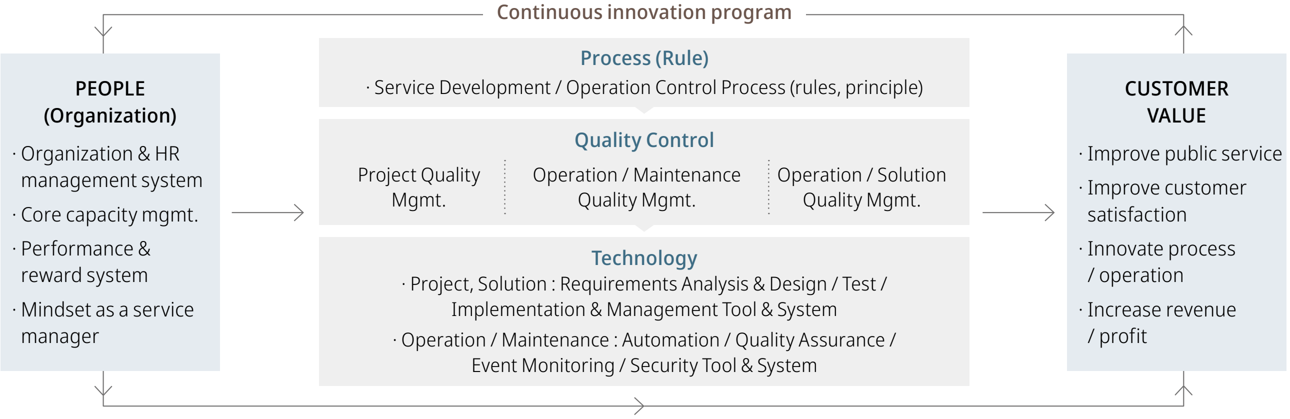
In July 1994, LG CNS became the first in the SI industry to achieve the international quality management system standard ISO 9001 across all its worksites. This was followed by the successful completion of surveillance audits as well as renewal audits as part of the three-year renewal process. Our Headquarters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


Continuous innovation program
PEOPLE (Organization)
· Organization & HR management system
· Core capacity mgmt.
· Performance & reward system
· Mindset as a service manager
Process (Rule)
· Service Development / Operation Control Process (rules, principle)
Quality Control
Project Quality Mgmt.
Operation / Maintenance Quality Mgmt.
Operation / Solution Quality Mgmt.
Technology
· Project, Solution : Requirements Analysis & Design / Test / Implementation & Management Tool & System
· Operation / Maintenance : Automation / Quality Assurance / Event Monitoring / Security Tool & System
CUSTOMER VALUE
· Improve public service
· Improve customer satisfaction
· Innovate process / operation
· Increase revenue / profit

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.

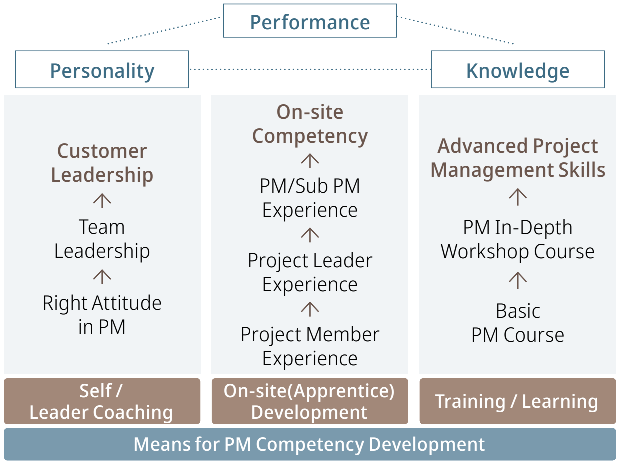
Solution Quality Management

Our solution management system cover 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 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


Performance
Personality
Knowledge
Customer Leadership
Team Leadership
Right Attitude in PM
On-site Competency
PM/Sub PM Experience
Project Leader Experience
Project Member Experience
Advanced Project Management Skills
PM In-Depth Workshop Course
Basic PM Course
Self / Leader Coaching
On-site(Apprentice) Development
Training / Learning
Means for PM Competency Development

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 business and improve their satisfaction with service quality.

Customer Satisfaction Survey Process

In 2019, we surveyed decision makers at 30 client sites and 10,285 actual users to identify their level of satisfaction with our operational and maintenance services. It was revealed that customer satisfaction among actual users amounted to 74.3 points on a 100-point scale, and positive responses of 'contract renewal', 'business expansion' and 'recommendation' were rather low. Respondents, however, were relatively highly satisfied in the survey items of 'rigorous handling of requirements', 'communication' and 'proactive cooperation'.

Items		2017	2018	2019
Customer Satisfaction		76.1points	76.2points	74.3points
Customer Loyalty (positive response)	Continuation	67.6%	70.0%	66.2%
	Expansion	74.4%	69.1%	60.3%
	Recommendation	64.1%	66.0%	59.0%

*Customer satisfaction scores were converted from the 7-point scale used in our 2019 report to the 100-point scale.

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

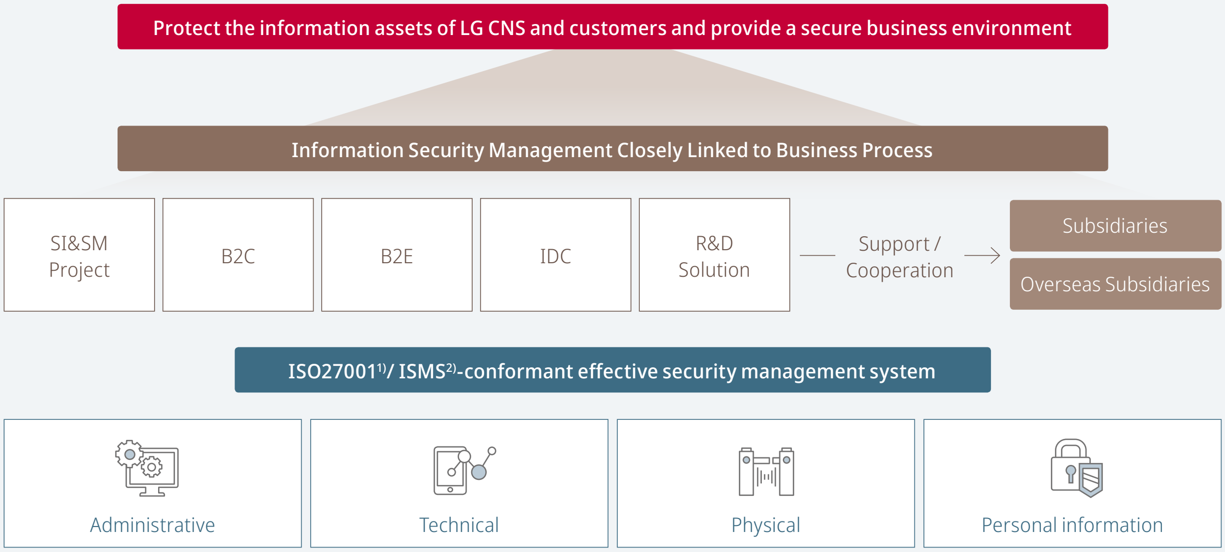
The CISO (Chief Information Security Officer) and the CPO (Chief Privacy Officer) are appointed to lead company wide information security operations, while respective departments are obligated to designate information security officers and managers. Information security managers are responsible for personnel management, 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 managed and any data breach is prevented.

To consult on major information security matters, department heads in charge of internal/external service operations meet twice a year 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.

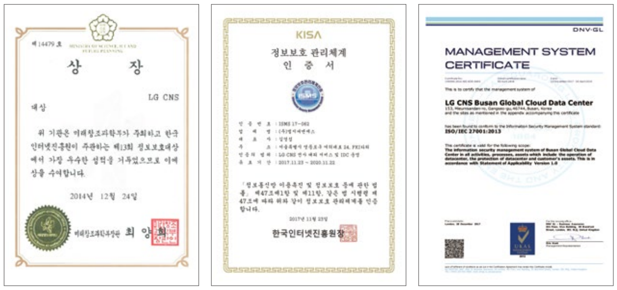

Protect the information assets of LG CNS and customers and provide a secure business environment
Information Security Management Closely Linked to Business Process
SI&SM Project
B2C
B2E
IDC
R&D Solution
Support / Cooperation
Subsidiaries
Overseas Subsidiaries
ISO27001$^{1)}$/ ISMS$^{2)}$-conformant effective security management system
Administrative
Technical
Physical
Personal information

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

LG CNS achieved ISO 27001, the international information security management system standard established by ISO, in 2013, and then the ISMS (Information Security Management System) certification in 2017 which governs the overall management system including 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.



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상 장

LG CNS

대상

위 기관은 미래창조과학부가 주최하고 한국인터넷진흥원이 주관하는 제13회 정보보호대상에서 가장 우수한 성적을 거두었으므로 이에 상을 수여합니다.

2014년 12월 24일

미래창조과학부장관 최 양 희

KISA

정보보호 관리체계
인 증 서

「정보통신망 이용촉진 및 정보보호 등에 관한 법률」 제47조제1항 및 제11항, 같은 법 시행령 제47조에 따라 위와 같이 정보보호 관리체계를 인증합니다.

2017년 11월 23일

한국인터넷진흥원장

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of

LG CNS Busan Global Cloud Data Center

has been found to conform to the Information Security Management System standard:

ISO/IEC 27001:2013

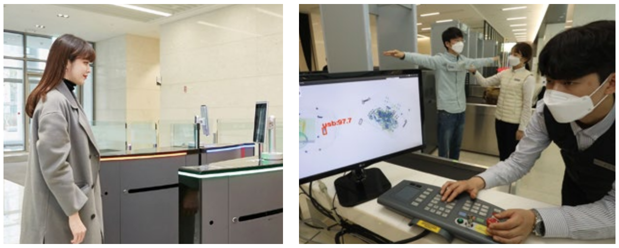
This certificate is valid for the following scope:

The information security management system of Busan Global Cloud Data Center in all activities, processes, assets which include the operation of datacenter, the protection of datacenter and customer's assets. This is in accordance with Statement of Applicability Version 1.0

Domestic and international awards and certificates

Complete Elimination of Customers' Personal Data Breach

As businesses face the increasing risk of customers' personal data breach incidents, we have assigned controlled areas within our worksites since 2015 and tightened their security policy compared to general office spaces. Stronger physical controls are implemented 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 training to employees handling personal information and perform inspections on 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 identification information such as resident registration number as well as sensitive information such as health data.

03 Use of Information within the collection purposes and do not provide the information to a third party.

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 served its purposes without delay and ensure that the information is completely destroyed and unrecoverable.

07 If personal data is breached, immediately inform the fact to the data subject.

08 Install notification that informs the operation of surveillance cameras.

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. Personal information inspections are made to delete unnecessary data while encrypting essential business data. To thoroughly protect and manage customer information, a wide array of security activities, such as Clean Desk and project security compliance, are 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's rights protection - Right to be informed - Right of access - Right of correction - Right of erasure - Right of process restriction - Right of data portability - 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 to outside of EU – international coordination, requiring supervisory agency's approval or consent of data subject · 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

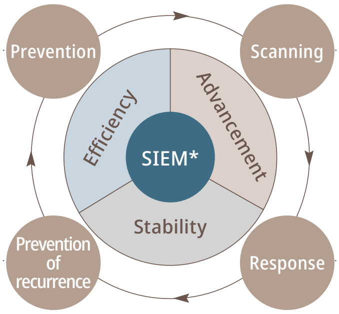
Actions to Security Act of China

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

Personal data breaches and aggravating social damages have resulted from frequent external attacks which have increased each year. As such, 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 by way of e-mails and introduce anti-ransomware solutions to create a secure work environment.

Security Control Service Profile



· 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
· Immediate action against new viruses

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

Human Resource

Employee Development

Recruitment Program

LG CNS spares no effort in recruiting talented individuals and nurturing them into topnotch software specialists who will drive the digital transformation. This is augmented by our hiring channels and training programs that are best suited for an IT business.

Differentiated IT Leadership Academy

IT Leadership Academy 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 'LG CNS ITQ 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 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 opportunity to learn programming.

SW Boot Camp

IT Specialist Development Program

We systematically nurture internal IT specialists to strengthen our technology competitive edge to lead the 4th Industrial Revolution. Our technology expertise certification and training activities have been fully expanded since 2016 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 reflect the fast-changing business requirements.

IT Specialist Development Program

Technology

Digital Technology

IoT	Blockchain	AI&Big Data
Cloud	Mobile	Smart Factory

Base Technology

Analysis & Design Specialist	Modeling	PM	Project Management	SW Architect	Framework	Infrastructure Architect	OS/System
Quality Specialist	Methodology	ERP Specialist	SAP		Middleware		DB
					Testing		Network
	Quality		Oracle		UI		Cloud
UX Specialist	UX Planning UX Design	Convergence Specialist	Engineering Energy	Security Specialist	Security	Data Scientist	DW/BI, Big Data

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 nearing their graduation. 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 tailor-made internships for masters/doctoral degree holders, IT Core Talent Academy, new digital technology internship and Entrue Consulting Academy to recruit 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 to directly 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 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 was also overhauled 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-how 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.

Leadership	
Career Design	
Leader	Leader Career New Leader
Professional III	Career Re-Vision
II	Career Build-Up
I	Career Design
Specialist	Career Vision
Associate	IT Career Start
Position / Leadership Capabilities	
LG Academy Advanced Program	

Business / Global	
Business Capabilities	
Digital Entrepreneur	
Industry Specialist	
Tech Digest	TD for BD/Sales TD for Staff
Global Capabilities	
G-CAMP	English
GBC*	One-on-one language program with native speakers
Overseas Subsidiaries	
Training programs for overseas employees	

*Global Business Communication

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 tailor-made one-on-one coaching for four months on such topics as business etiquettes, conversation 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.

How to
Introduce Yourself
Quickly

G-CAMP

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

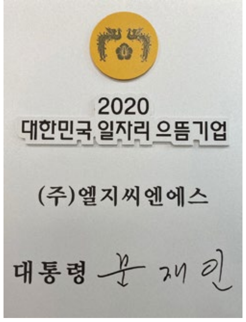
In October 2016, LG CNS established Haengbokmaru Co., Ltd. as a standard workplace for people with disabilities to provide employment to challenged individuals and improve the welfare of employees. This subsidiary operates in-house cafes at our Headquarters in the LG Science Park located in Magok, Gangseo-gu, 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 86 employees, 80 of them have disabilities and 72 of them suffer severe disabilities. A total of seven managers, including five 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 partnerships.

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. Work is underway to reduce resignation rates (7.8% in 2018 – 4.8% in 2019) and the Shared Growth Fund (nearly KRW 30 billion) is up and running to seek win-win partnerships with suppliers.



2020
대한민국 일자리 으뜸기업

(주)엘지씨엔에스

대통령 문재인

Corporate Culture

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

Smart	· Great Work Place campaign · Internal Reporting Process Improvement · Self-initiated end-to-end program
Communicating	· 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

Great Work Place Campaign

We are transforming our work methods : we endeavor to improve work efficiency while improving on unnecessary systems and practices that do not directly contribute to customer values. Furthermore, we broaden the adoption of Smart Work practices to induce behavioral changes on the part of employees and build a corporate culture befitting our status as a global IT business.

Internal Reporting Process Improvement

To promote active discussions and focus on decision-making, we ensure that relevant materials are shared among participants two days prior to meetings and that meeting outcomes are summarized in a one page reports that outlines only key issues such as 'discussion items' and 'decision-making items'. We constantly improve our internal meeting practices to minimize the burden of document preparation and ensure the timely use of data. Virtual meeting services were also introduced to create a Smart Workplace.

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 every step of the way from ideation to commercialization. This program is open to any new business ideas based on information technology and to anyone working at LG CNS. Applicants can finetune 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	Spin off or in-house commercialization
Regular and ad hoc competition →	Ideation →	6-12 months →	

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 work spaces 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.

Pitching Day
LG CNS
Pitching Day
LG CNS

Startup Monster

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.

LG CNS
2019 CODE 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 serve as the change managers to 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 February 1998 as an employee representative body to relay employees' feedback to senior management and consult on major issues. This committee consists of seven employee representatives and seven management representatives, which hosts 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

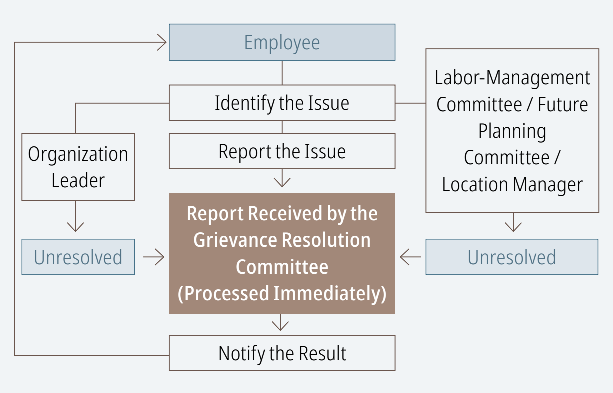
Location Manager

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.


Employee
Identify the Issue
Report the Issue
Organization Leader
Labor-Management Committee / Future Planning Committee / Location Manager
Report Received by the Grievance Resolution Committee (Processed Immediately)
Unresolved
Unresolved
Notify the Result

"Happy" LG CNS

Health Promotion Programs for Employees

To promote employees' health at work and in their personal life, we support our employees with health check-ups and the purchase of group accident insurance. Comprehensive health check-ups are provided to employees aged 35 years old or older every year (their spouses receive the same benefit every two years) and to those under the age of 35 years old every two years.

Psychological Counseling Center

The 'Maeum Counseling Center' is under operation at our Headquarters in Magok, Seoul, to help employees improve their mental health and deal with stress. This center employs two permanent psychological counselors and conducts psychological 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.

심리상담소
마음쉼터
심리 상담실
스트레스 관리실

Maeum Counseling Center

Counseling	· Offline counseling, phone/online counseling · 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

In 2018, the counseling center offered a total of 1,910 individual counseling sessions and psychological tests, and provided on-site counseling at nearly 20 locations. Among counseling topics, private matters (family, personality and mental health) accounted for 68%, which was greater than work-related matters (workplace adaptation and conflicts) which took 29% of the total. In 2019, a total of 1,890 individual counseling sessions and psychological tests were performed, and on-site counseling was offered at 18 locations. As to counseling topics, private matters and work-related matters accounted for 65% and 35% 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
2018	1,030 occasions	880 occasions	20 locations	68%	29%
2019	1,020 occasions	870 occasions	18 locations	65%	35%

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 on the occasion of 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 42 sites and 130 sessions in 2017, 45 sites and 97 sessions in 2018, and 45 sites and 92 sessions in 2019, with more than 3,700 employees participating on an annual basis. Going forward, we will offer even broader support for our on-site employees to develop their individual and team work capabilities while fully engaging in work.

SI project	· Technical training required for project · Team building for undertaking projects · Project member care program · Post-project healing 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

Mutual Growth

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 Most Outstanding for three consecutive years, joining the league of companies granted the Highest Honor in the Win-Win Growth Partnership Index published by the Korea Commission for Corporate Partnership.

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 Board, fair selection and management of suppliers, and documentation & record keeping. In doing so, we fully comply with the Fair Transactions in Subcontracting Act and doubly make sure that unjustified issues do not occur in the course of conducting business with suppliers.

01.
Action Guidelines for Fair Contracting Practices

Fair trade guidelines to be complied in contracting a supplier

02.
Action Guidelines on the Subcontract Review Board

Guidelines for ensuring compliance with the Fair Transactions in Subcontracting Act for subcontracts exceeding the reference amount & guidelines for 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 to ensure fairness in supplier selection and operation

04.
Action Guidelines for Documentation & Record Keeping

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

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 enter into.

Performance Summary

Key Management Issues	Implemented	Major Activities
① 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
② Reinforcing suppliers' competitiveness	As Required	- Support for suppliers with recruitment and training - Technology support and protection
③ Expanding financing programs for suppliers	As Required	- Financial support (direct support, Win-Win Growth Fund, and Network Loan) - Payment condition improvement and cost adjustment
④ Increasing fairness and transparency in business transactions	May to August	- Supplier CSR assessment and management

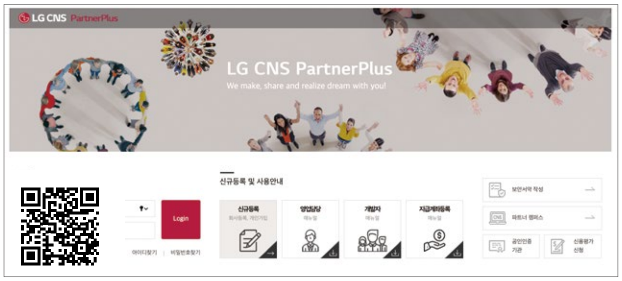
Key Performance Indicators(KPI)

Win-Win Growth Partnership Index (as of Sep. 2020)	"Most Outstanding"
Amount of Win-Win Growth Fund Raised / Administered (including direct financial support, as of 2019)	KRW23.6Billion / KRW400Billion
Number of Suppliers Completed CSR Risk Assessment (as of 2019)	104

Support for Suppliers

Year-round VoS (Voice of Supplier) Operation

LG CNS created the supplier portal Partner Plus (partnerplus.lgcns.com). The portal features an open communication section to collect the candid voice of suppliers and establish a sound culture of collaboration.



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 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, including information security and personal information protection regulations, that are required for suppliers' buisness operation.

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.

협력회사 사장단 Workshop
CEO 환영사
소통 기술역량

LG CNS Workshop & Talk Session with Supplier CEOs

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 12-week training program is offered completely free-of-charge as LG CNS shoulders all the training expenses. As of April 2020, this program has trained more than 1,000 new supplier recruits through 31 classes. A wide array of on/offline courses provided under the program help trainees improve their basic work knowledge as well as technical competence.

Suppliers On / Offline Study (2018)

(As of 2019)	Online Study	Offline Study
No. of Programs	39 courses	18 courses
No. of Persons Completed the Programs	25,730	1,683
Key Areas	Technology, policy, and work knowledge	New technology, technology-based methodology, and implementation innovation

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.

LG CNS Partner Campus
교육과정
나의학습실
학습지원센터
Learn Together, Dream Together!
로그인
ID 저장하기
아이디 비밀번호 찾기
회원가입
모르는 사항이 생기면 언제든지 저 엘비를 불러주세요 친절하게 답변드릴게요~
U-CAMP Java 전문가과정 수료영상
공지사항
FAQ
온라인 컨텐츠

- 교육이수증명서(수료증) 발급 안.. 2019.11.27
- [필독] 온라인 과정 15일 ~ 차수.. 2015.06.10
- 파트너캠퍼스 내 개인정보처리방.. 2015.04.23

[ABC-On]AI빅데이터 기본(협력사) 2020.02.13~12.31

[ABC-On]DAP 기본(협력사) 2020.02.13~12.31

Operates a supplier training portal, the Partner Campus

Industry-Academia Partnership (Large Business–SME-University)

We formed a tripartite industry-academia partnership with our suppliers and Woosong University to help our suppliers to recruit competent talent and help Woosong's exceptional students with SW majors to land a job in today's challenging job market. LG CNS offers undergraduates with practical training that meets corporate needs, and subsequently our suppliers hire these students following their graduation.

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.

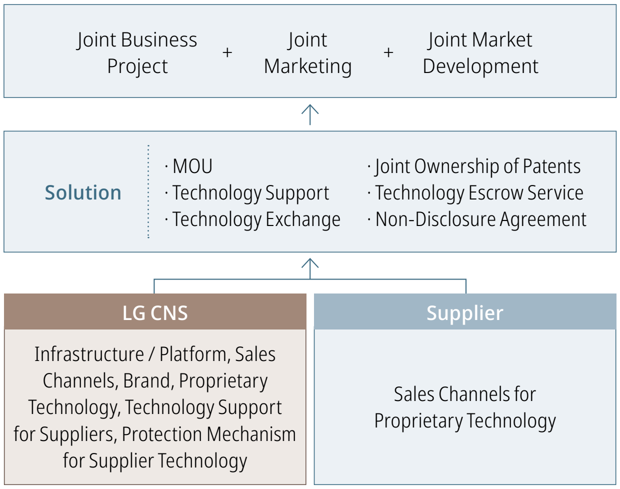
Technology Support and Protection

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 leverage 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 between two or more parties that outlines confidential material, knowledge or information that the parties wish to share with one another, but wish to restrict access to or by third parties

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.



Joint Business Project + Joint Marketing + Joint Market Development

Solution
- MOU
- Technology Support
- Technology Exchange
- Joint Ownership of Patents
- Technology Escrow Service
- Non-Disclosure Agreement

LG CNS
Infrastructure / Platform, Sales Channels, Brand, Proprietary Technology, Technology Support for Suppliers, Protection Mechanism for Supplier Technology

Supplier
Sales Channels for Proprietary Technology

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 ten days of verification). Furthermore, we exempt our suppliers from the submission of surety insurance on the payments made 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 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

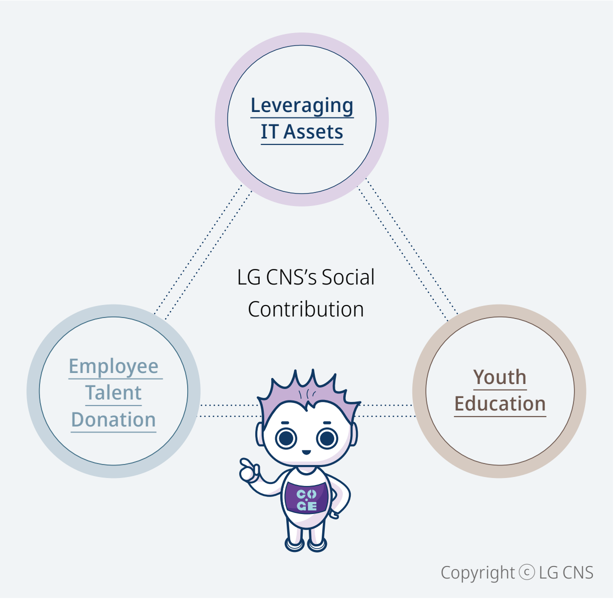
LG CNS has conducted annual supplier CSR assessments each year since 2015. Suppliers selected by the Corporate Procurement Department receive regular assessments on ethics management, working conditions, human rights, health & safety, and environmental management thr ough self-assessments, the collection 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 · CSR self-assessment / audit · CEO/management meeting	· Request for CSR guidelines · CSR self-assessment/audit
Criteria for Pledge / Assessmen	· Information Security · Labor & Human Right · Ethical Management · Industrial Safety & Health · Environment	· Information Security · Labor & Human Right · Ethical Management · Industrial Safety & Health · Environment · Compliance with technical data provision requests

Social Contribution

LG CNS's social contribution initiatives are undertaken in a way to focus on carefully-selected targets to optimize the delivery of benefits accordingly and to do so through partnerships with governments and specialist organizations in order to bring the greatest-possible impacts. Rather than making mere 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.



2019 Social Contribution Key Performance Indicators (KPI)

Coding Genius

Number of Employee Volunteers / Total Hours

80 Persons / 640 hours

Number of Beneficiaries

2,500 Persons

IT Dream Project

Number of Beneficiaries

76 Persons

Coding Genius

Our signature social contribution program, 'Coding Genius', supports adolescents who will play a pivotal role in the 4th Industrial Revolution era. We help them to 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 by acquiring software concepts and principles 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 on-site software education at schools.

Cases for Software Education

As part of their initiatives to nurture the talent of future generations, national governments around the world are actively embracing software 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, but software education programs tailored to young students as well as the necessary infrastructure for such programs are still lacking in the country. As we have recognized this as a corporate responsibility, LG CNS has stepped in to bridge the gaps with our expertise in software and software education and is leading this important initiative for our future generations.

Professional Program Design & Review

Our software education programs have been proven for their effectiveness in a review by the Computer Engineering Department of Seoul National University and the Education Engineering Department of Hanyang University. Designed to motivate students, our curriculum places an emphasis on creativity and collaboration, and utilizes interactive and hands-on learning processes to help students develop capabilities required in the IT environment of the future.

Talent Donation of Employees

LG CNS employees volunteer as lecturers and serve as mentors to help students explore future career options and plan for their future. Their talent donation is specifically appreciated for their direct contribution to students' searching for career paths while sharing hands-on experience accumulated in the IT industry.

College Student Supporters

In addition to employee lecturers, we select undergraduate supporters in a semi-annual basis to communicate with and teach students. These supporters, majoring in education, business administration and other diverse disciplines as well as computer-related ones, help middle school students understand software in an easier manner. By donating their talent, our undergraduate supporters recognize the true meaning of social contribution and share what they have to offer with sincerity.

Program Details

LG CNS visits middle schools operating under the free semester system to provide one-day basic software education. This leverages our leading solutions and consists of the three courses of programming basics, physical programming and smart data lab, which aims to help adolescents explore diverse career paths and easily learn the fundamental principles of programming even without previous basic knowledge.

Basic Programming - Coding Itself

- Understanding Information System & Software
- Practicing Logical Problem Solving through Flow Charts
- Programing Fundamentals : Learning through Java

Physical Programming - Dynamic IT

- Concept of AI
- AI robotic programming
- AI football challenge!

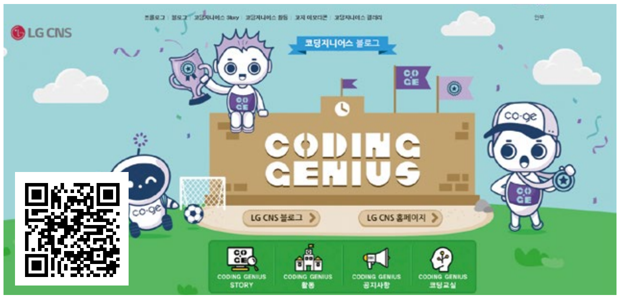
Smart Data Lab – IT Insight

- Big data and my career
- Data collection and analysis
- Build my own strategy through big data

GENIUS
Smart Data Lab

Continued Operation of Self-initiated Learning Channels

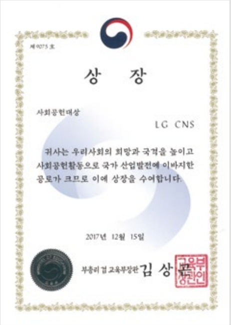
To overcome the shortcomings of offline education which is limited in the number of beneficiary students, LG CNS is operating the Coding Genius blog (blog.naver.com/codinggenius) as an online channel that provides diverse contents. Learning materials developed from the perspective of students are distributed in webtoon or card news formats while video-assisted coding education is offered. In doing so, we ensure that even more teenagers can consistently benefit from software education beyond time or space limitations.



LG CNS Coding Genius blog

Performance & Certification

Our Coding 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 Coding 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.



제9075호

상 장

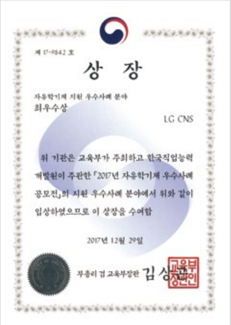
사회공헌대상

LG CNS

귀사는 우리사회의 희망과 국격을 높이고 사회공헌활동으로 국가 산업발전에 이바지한 공로가 크므로 이에 상장을 수여합니다.

2017년 12월 15일

부총리 겸 교육부장관 김 상 곤



제 17-9842 호

상 장

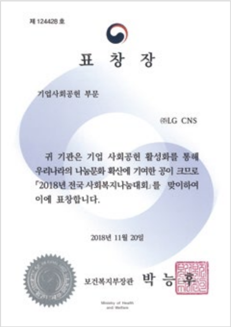
자유학기제 지원 우수사례 분야
최우수상

LG CNS

위 기관은 교육부가 주최하고 한국직업능력개발원이 주관한 「2017년 자유학기제 우수사례 공모전」의 지원 우수사례 분야에서 위와 같이 입상하였으므로 이 상장을 수여함

2017년 12월 29일

부총리 겸 교육부장관 김 상 곤



제 124428 호

표 창 장

기업사회공헌 부문

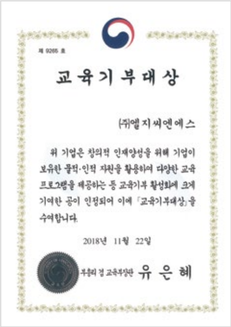
㈜LG CNS

귀 기관은 기업 사회공헌 활성화를 통해 우리나라의 나눔문화 확산에 기여한 공이 크므로 「2018년 전국 사회복지나눔대회」를 맞이하여 이에 표창합니다.

2018년 11월 20일

보건복지부장관 박 능 후

Ministry of Health and Welfare



제 9265 호

교육기부대상

㈜엘지씨엔에스

위 기업은 창의적 인재양성을 위해 기업이 보유한 물적·인적 자원을 활용하여 다양한 교육 프로그램을 제공하는 등 교육기부 활성화에 크게 기여한 공이 인정되어 이에 「교육기부대상」을 수여합니다.

2018년 11월 22일

부총리 겸 교육부장관 유 은 혜

IT Dream Project

IT Dream Project is part of our social contribution programs which is a 4-day coding camp for aspiring students who wish to develop their creativity, problem-solving skills and prepare them for the era of the Fourth Industrial Revolution.

Self-developed SW Training

'Self-developed SW Training' launches projects with a goal of engaging middle school students in creating coding-learning programs designed for elementary school students. Participating students present their own ideas, learn software through Lego Mindstorms EV3 and 3D printers, and directly develop the learning programs. They are given three days to learn and undertake projects, and bring their outcomes on the 4th day to local children's centers to teach kids of their own programs. This in turn allows them to donate their talent and create a virtuous cycle of knowledge sharing.

Career Exploration

Middle school students not only learn but also are involved in diverse extra-curricular exchanges with undergraduate IT majors during the camp period. They are also given an opportunity to engage in in-depth conversations during the career mentoring program 'IT Dream Night'. Our lab tour program as well as special lectures on the 4th Industrial Revolution given by professors also serve to offer students an opportunity to ponder upon their future career paths.

Robot Coding Camp

Robot Coding Camp is a one-day coding camp hosted by LG CNS and supervised by the Seoul Teachers' Robotics Research Association to offer education and hold competitions for middle school students highly interested in coding and robotics. The first camp was held in December 2019 with more than 100 students at our Headquarters in the LG Science Park located in Magok, Gangseo-gu, Seoul.

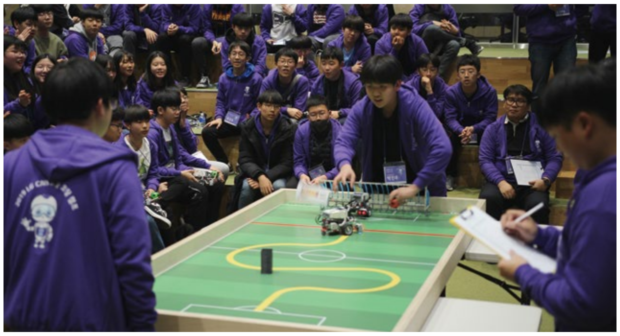
Process-driven Growth and Learning

Robot Coding Camp classifies students by level to offer different types of curriculums, and hosts preliminary and final round competitions. As the purpose of the camp is to promote process-driven growth and learning rather than grading students based on their performance, students can fully enjoy the camp as if they are attending a festival. As a result, students have fulfilling experiences, and learn from failures to grow while clearing their missions.

Future Expansion Plan

To widen the window of software learning opportunities for adolescents, LG CNS plans to host these camps in diverse formats. We will operate programs by providing special lectures by employees, joining the camp experience with children's parents, and hosting junior hackathons. We believe that these camps will harness our business expertise and ideas to nurture adolescents who will lead our society in the future.

2019 LG CNS
IT드림프로젝트



봇 코딩 캠프
2019
LG CNS
로봇 코딩 캠프

Compliance Management

Fair Trade

Fair Trade and Corporate Culture

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. To this end, we are consistently undertaking activities. To preemptively respond to fair trade risks and swiftly establish a corporate culture of fair trade, we are fully committed to performing on-site reviews, providing training and operating the fair trade portal.

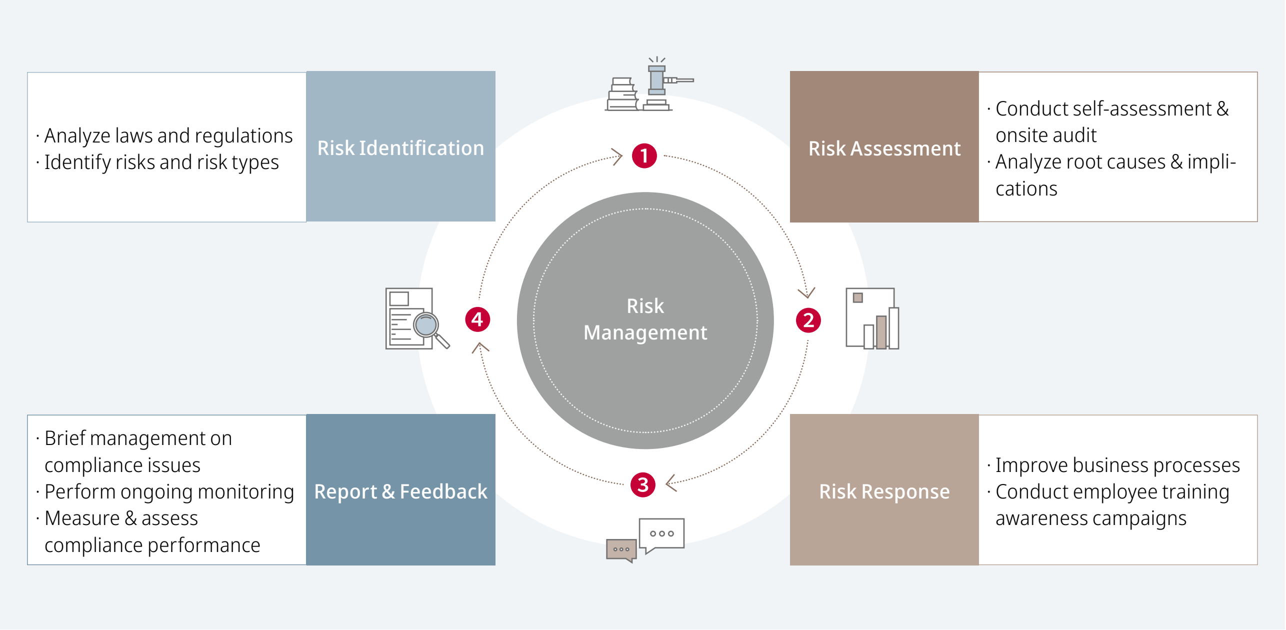
On-site Review and On/Offline Training

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, regular on-site reviews are conducted on sales, operations and business development organizations that are exposed to high fair trade risks. Review outcomes are used to identify necessary improvements and monitor their 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 offline training at the Headquarters and on-site training. Video materials have been produced since the second half of 2019 to offer online trainings as a way to provide diverse learning opportunities and increase the number of course attendees.

Work Process Improvement

In prior to any revision or enforcement of the Fair Trade Act, Subcontracting Act and related notices, and examination guidelines, 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 incognizance of statutory amendments. In addition, preliminary reviews and consultations are performed on the interpretation and possible violation of fair trade regulations.

Compliance Program



Risk Identification
- Analyze laws and regulations
- Identify risks and risk types

Risk Assessment
- Conduct self-assessment & onsite audit
- Analyze root causes & implications

Risk Response
- Improve business processes
- Conduct employee training awareness campaigns

Report & Feedback
- Brief management on compliance issues
- Perform ongoing monitoring
- Measure & assess compliance performance

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 reviews are 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 review. In particular, contracts that exceed the set amount of values are subject to closer examinations reviews to ensure that their agreements and relevant documents do not constitute regulatory violations. Procedural improvements are also identified before and after contract execution to prevent the risk of regulatory violations from ever occurring.

Subcontract Practices

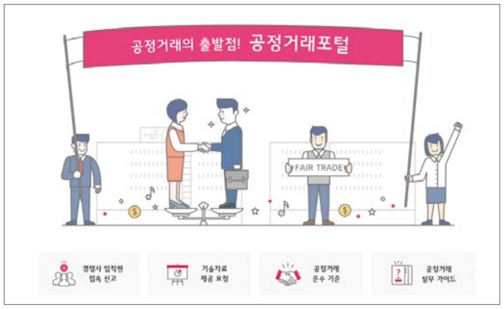
We endeavor to maintain the transparency and fairness of subcontracts that we enter into and build cooperative partnerships that pursue the mutual growth of large businesses and SMEs. Our employees are constantly provided with trainings on compliance with subcontracting regulations, and regular on-site reviews are conducted to improve our work processes. In 2018, our existing work processes went online and were monitored for their compliance with subcontracting regulations. In 2019, our in-house processes were supplemented and our systems were realigned accordingly, and all employees received video-based trainings. Since the beginning of 2020, we have regularly reviewed our compliance with subcontracting regulations and monitored the progress made as a result of review outcomes.

On/offline Training for Suppliers

Category	2018	2019	2020 (to be provided)
Fair Trade Training	23times	50times	30times
Review	6times	14times	14times
Improvement	Building Fair Trade Portal	Offering on-site fair trade training	Producing video training materials 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 basis 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. Going forward, this portal will also assist our employees in managing their compliance on their own and conducting self-directed reviews on their compliance with fair trade regulations.



Fair Trade Portal Main Page

Environment

A Healthy and Safe Workplace

EHS System across the Entire Worksites

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, we perform incident reenactments and on-site investigations to improve our executional capabilities to prevent their reoccurrence. With the CEO playing a central role, our senior management is proactively engaged in conducting on-site reviews, setting an example to prevent safety and environment incidents.

Maintaining ISO 14001 and ISO 45001 Certifications

We have achieved the ISO 14001 :2004 accreditation in 2010, and have had accreditation continued, completing the renewal to ISO 14001 :2015 in August 2020. We acquired the former health and safety management system certification (OHSAS 18001 :2007) in 2014, and have maintained this certification, transitioning to its latest version (ISO 45001 :2018), which added the organization's situational understanding of internal/external issues and highlighted the need for employee engagement, in August 2020.

ISO 14001 :2015 certificate

Safety and Environment

LG CNS clearly recognizes the importance of EHS as the foundation for sustainable management, 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.

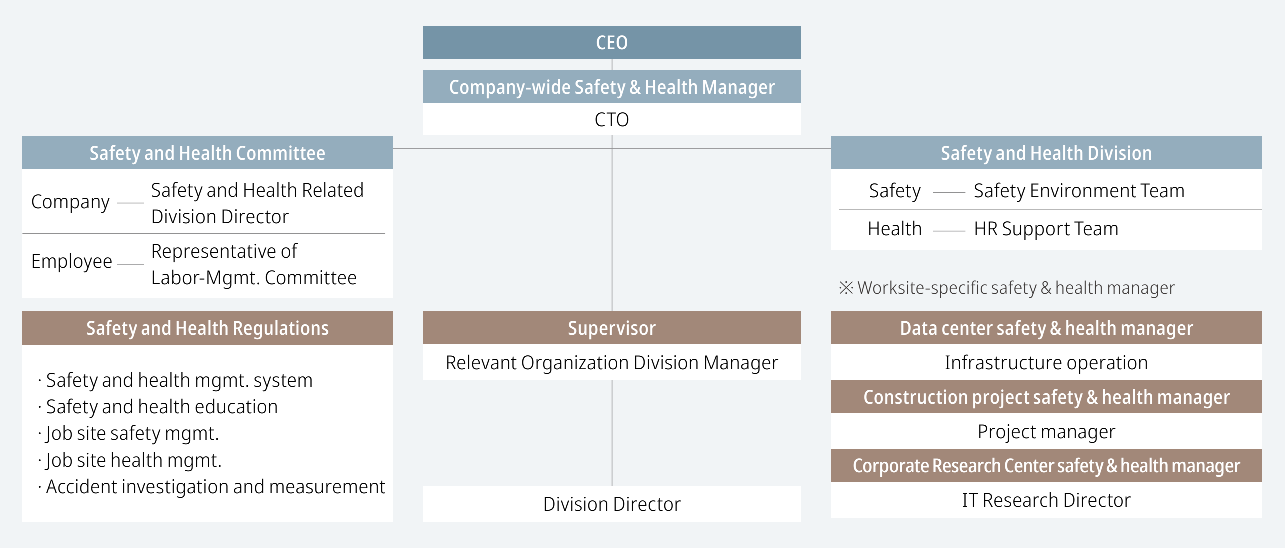
LG CNS Safety and Environment Policy

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 fundamentally 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 and Health

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



CEO

Company-wide Safety & Health Manager

CTO

Safety and Health Committee

Company — Safety and Health Related Division Director

Employee — Representative of Labor-Mgmt. Committee

Safety and Health Division

Safety — Safety Environment Team

Health — HR Support Team

※ Worksite-specific safety & health manager

Safety and Health Regulations

- Safety and health mgmt. system
- Safety and health education
- Job site safety mgmt.
- Job site health mgmt.
- Accident investigation and measurement

Supervisor

Relevant Organization Division Manager

Division Director

Data center safety & health manager

Infrastructure operation

Construction project safety & health manager

Project manager

Corporate Research Center safety & health manager

IT Research Director

Business Continuity Management System

LG CNS has introduced a BCM (Business Continuity Management) system which is widely adopted as an enterprise survival strategy. We identify and prepare for all the risks that may interrupt our business continuity, from internal fires and safety incidents to external natural disasters and infectious diseases. All members of our BCM system management organization have achieved enterprise disaster manager qualifications, and company-wide risk response manuals were defined, which demonstrates our full commitment to BCM infrastructure development.

Emergency Drill

We conduct emergency response drills in the first and second half of each year to ensure the safety of employees in the event of an emergency. Our Headquarters located in the LG Science Park, Magok, Gangseo-gu, Seoul, is building a close cooperation system with the SP Safety Environment Center, the Gangseo-gu Fire Station, the Gangseo-gu Office, the Korea Gas Safety Corporation and other relevant organizations, and has developed scenario-specific response manuals in preparation for fires, earthquakes and other disasters. Meanwhile, our data centers are taking a range of preventive activities to promote the safety of employees, protect the information assets of customers and ensure stable operations even under the emergency situations. Scenarios were developed in response to all kinds of risk factors that may interrupt center operations, including natural disasters, power outages, and infrastructure failures. Furthermore, weekly situational emergency action drills are conducted, and comprehensive emergency response drills are performed at least once each year. Emergency power supply is arranged in preparation for power outages, and our emergency power supply plan spans more than three stages.

Fire evacuation drill at the HQ in the Magok LG Science Park

Public and private joint fire drill at the Busan Global Cloud Data Center

Safety and Environment Assessment

We developed a company-wide system to conduct regular safety and environment assessments to doubly make sure that all our worksites remain injury/accident-free. These assessments allow us to preemptively identify and eliminate safety and environment risk factors and establish a preventive safety and environment management system as a result.

Category		Assessment
Workplace	Magok LG Science Park Sangam DDMC	· HES (health, environment and safety) checks (supervised by HES managers, monthly)
		· Workplace safety and environment assessment (supervised by the Safety and Environment Team, 1st/2nd half)
	Data Center	· Data center risk assessment (supervised by the Safety and Environment Team, at the beginning of each year)
		· Regular safety and environment assessment (supervised by the Safety and Environment Team, quarterly)
	Worksite (Namyang Dairy Products, Nexen Tire)	· Regular safety and environment assessment (supervised by the Safety and Environment Team, monthly)
Construction Project		· Perform safety and environment risk assessments prior to signing a contract
		· Perform assessments in the construction initiation phase on regulatory compliance, preemptive risk identification and safety measure development
		· Conduct on-site safety assessments and year-round monitoring in the construction phase
		· Perform special assessments on high-risk projects that may give rise to major occupational injuries
		· Perform on-site inspections by the CEO, the CTO and other senior management members

Reinforcing SOP-based Safety Management

In 2019, SOPs (Standard Operating Procedures) were developed on smart logistics, smart building and smart city construction projects to transform our work methods into a manual-based one. We provide trainings to workers and strengthen on-site management and supervision to ensure full compliance with these SOPs at project sites.

Hosting Safety Workshops for Construction Project Undertakings

Safety workshops are held with the participation of LG CNS's Safety Environment Team, project members and supplier employees in the construction initiation phase. Based on communication with the suppliers, these workshops serve to perform preliminary reviews on construction methods and operations as well as safety management measures, discover major high-risk processes and develop safety measures, and identify standard operating procedures. Safety measures and necessary improvements are constantly managed through regular on-site assessment and monitoring.

Improvement and Reinforcement

To protect and improve the physical and mental health of our employees, we practice health and infectious disease management while training employees on the emergency care system and publicizing its use. In particular, healthcare professionals with nursing qualifications were hired to strengthen the expertise of our healthcare management.

On-site inspections to Create a Pleasant Workplace

Regular visits are paid to 25 worksites to create a pleasant workplace. CO2 levels and other indoor air quality indicators are measured, and inspections are conducted on cleanness, temperature, humidity, illumination, noise and other healthcare-related items. This prompted us to immediately install air purifiers, which demonstrates our full commitment to enhancing both health and productivity of field workers. In addition, our work process has been improved by applying standard work environment guides when undertaking new projects.

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, and identify employees with specific medical conditions through health check-ups to offer follow-up care
Psychological counseling center	Assist employees and their family members who suffer from stress in their professional and personal life since 2006, and offer offline/online counseling, on-site counseling, and psychological testing for employees and their children
Health therapy	Provide free-of-charge massage with the help of 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, and request prenatal check-up appointment, and reduce 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

Swiftly Responding to Infectious Diseases through Risk Management Manuals

We have developed emergency response manuals to cope with novel infectious diseases such as MERS and COVID-19. These manuals stipulate phase-specific actions to take, from the moment we become aware of the situation to the full-fledged recovery, such as banning employees from coming to work and taking self-quarantine measures, and the corresponding organizational roles & responsibilities and emergency response processes. This enables us to follow the government's emergency response procedures in the event of any infectious diseases and systemically take necessary measures, such as on-site guidance and monitoring, emergency monitoring room operation, remote work of our employees and supplier employees and self-qurantine.

Safety-first Culture

Offering Personalized Health, Environment and Safety Training

To establish our health, environment and safety management system, we provide on/offline trainings, which reflects the characteristics of our employees, such as PMs (project managers), HES (health, environment and safety) managers. These trainings include basic safety and environment management training and HES manager training. In addition, basic/advanced CPR courses are offered year-round to strengthen employee's first-aid skills.

Hosting Regular Safety and Environment Culture Campaigns

Safety and environment culture campaigns are launched regularly to raise employees' safety awareness. A wide array of contents are produced on infectious disease prevention rules, emergency instructions in preparation for storms and typhoons, workplace mental health tips and other topics. They are widely distributed through our intranet board and the elevator LCD displays installed at the Headquarters.

Month	Safety and Environment Culture Campaign
Jan.	Driving safety rules
Feb.	Infectious disease prevention rules
Mar.	How to respond to accidents involving human injuries or deaths
Apr.	Tips for safe riding
May	How to lead a green life
Jun.	Tuberculosis symptoms and response instructions
Jul.	Safety rules for the monsoon season
Aug.	Emergency instructions for heat waves/typhoons
Sep.	Rules to remember for your mental health at work
Oct.	Safety rules for autumn mountain hiking
Nov.	How to self-diagnose presbyopia
Dec.	Safe and healthy year-end party

Discussions with and On-site Visits to Construction Equipment Suppliers

Each year, we host safety and environment discussions with construction equipment suppliers to prevent different type of disasters that may occur in the field. Between July and September of 2019, we visited 24 suppliers to share our safety policy and system, take actions on suggestions, and offer customized training for respective suppliers. Going forward, we will promote practical communication with suppliers on the issues of safety and environment to build mutual consensus on the importance of safety.

Climate Change Mitigation

Certifications and Awards

LG CNS has engaged in a wide array of activities, from the acquisition of green data center certificates to the introduction of eco-friendly designs, to enhance awareness on the energy efficiency improvement (consumption mitigation) of data centers that are known as heavy power consumers, and to lay 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 the 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 between 2014 and 2016, and the Incheon Data Center received the 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 reach 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 technologies and for its full preparation against earthquakes, flood damages and other natural disasters. Energy efficiency was considered as the top priority even 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 patent applicant. Furthermore, this data center is the 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 awards.

*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

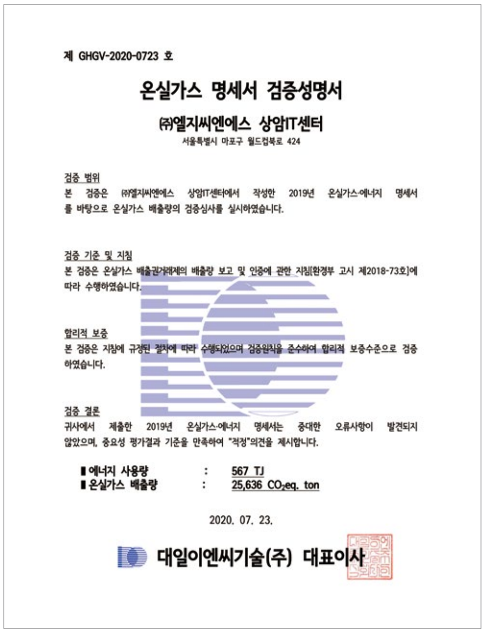
Climate Change and Corporate Growth

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.



제 GHGV-2020-0723 호

온실가스 명세서 검증성명서

㈜엘지씨엔에스 상암IT센터

서울특별시 마포구 월드컵북로 424

검증 범위

본 검증은 ㈜엘지씨엔에스 상암IT센터에서 작성한 2019년 온실가스·에너지 명세서를 바탕으로 온실가스 배출량의 검증심사를 실시하였습니다.

검증 기준 및 지침

본 검증은 온실가스 배출권거래제의 배출량 보고 및 인증에 관한 지침[환경부 고시 제2018-73호]에 따라 수행하였습니다.

합리적 보증

본 검증은 지침에 규정된 절차에 따라 수행되었으며 검증원칙을 준수하여 합리적 보증수준으로 검증하였습니다.

검증 결론

귀사에서 제출한 2019년 온실가스·에너지 명세서는 중대한 오류사항이 발견되지 않았으며, 중요성 평가결과 기준을 만족하여 "적정"의견을 제시합니다.

- 에너지 사용량 : 567 TJ
- 온실가스 배출량 : 25,636 CO_2eq. ton

2020. 07. 23.

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	Total
LED Lighting Replacement (FL : All)	223	446	446	446	446	446	2,453
Mechanical Room External AC (FL : B3-4)	150	404	404	404	404	404	2,170
Computer Room External AC (FL : 2-9)			560	1,366	1,366	1,366	4,658
High-Efficiency UPS Replacement (FL : 2-9)		69	278	278	278	278	1,181
PV installation						6	6
Total	373	919	1,688	2,494	2,494	2,500	10,468

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.

03

GOVERNANCE

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Corporate Governance

Board of Directors

Board of Directors

Category	Name	Position	Date of Appointmen	Remarks
Inside Director	Young-Shub Kim	CEO, LG CNS	2019.3.	Chairman of the BoD
Inside Director	Ji-Hwan Park	LG CNS CFO	2020.3.	
Non-executive Director	Hyeon-Ok Jeong	LG Management Innovation Team Leader	2020.3.	
Non-executive Director	Eric Kim	Representative Director, Macquarie Korea Asset Management	2020.4	
Non-executive Director	James-Jooheon Kim	Macquarie Korea Asset Management Investment Performance Senior Managing Director	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. The BOD enables directors to 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 2019, LG CNS held a total of 10 BOD meetings to address 30 agenda items, including 'approval of 2019 business plans', and the 'appointment of the CEO'. All directors attended 100% of the meetings of the board.

Shareholding Status

As of December 2019, we have issued a total of 87,197,353 shares with major shareholders holding 84.95% of the total. The employee's stock ownership association and minority shareholders represent 1.85% and 13.20% of the stock respectively. In April 2020, 35% of the shares owned by LG Corporation was sold to Crystalkorea Ltd.

Stock Ownership

(unit : No. of shares)

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		1,611,561	1.85%

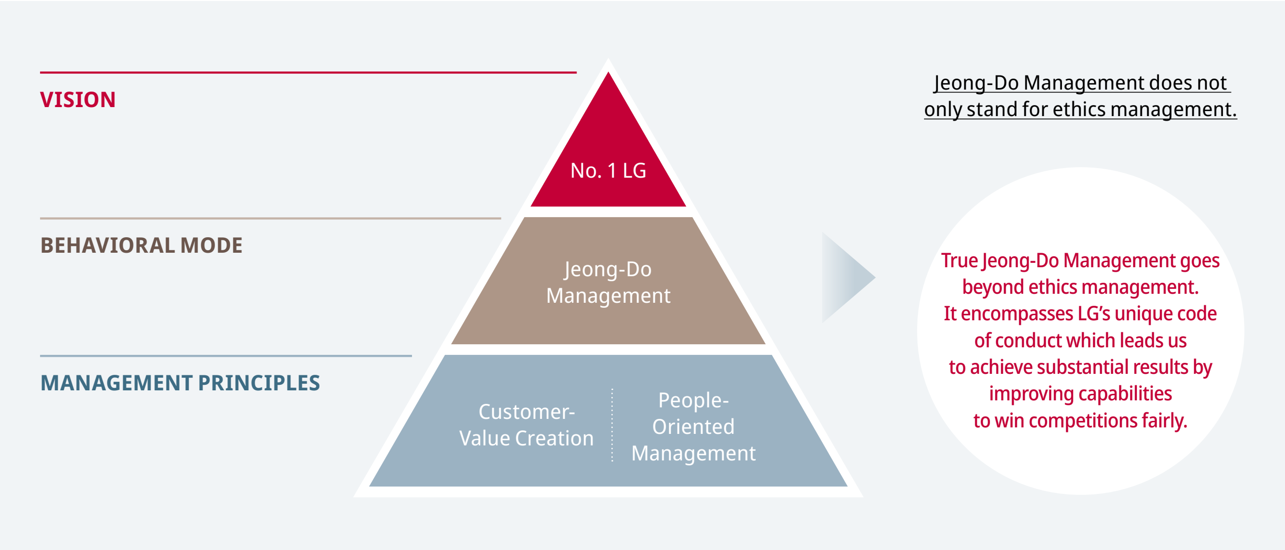
* As of Jun. 30, 2020
1) 35% shares sold (Apr. 29, 2020) 2) 35% shares acquired (Apr. 29, 2020)

Year	No. of Meetings	Attendance Rate	No. of Agenda items	Major Resolutions
2019	10	100%	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
2017	9	96.3%	30	- Approval of 2017 Business Plan - Approval of split agreement for finance automation - Approval of issuing corporate bonds

Jeong-Do(Right-Way) Management

The LG Way

Representing LG's unique corporate culture, LG Way articulates our belief in attaining the vision of becoming 'No. 1 LG' by acting on the management philosophy of customer value creation and people-oriented management. This should be based on Jeong-Do Management which guides our employees in their everyday behavior and embodies our commitment to constantly building capabilities and playing fairly on the basis of ethics management.

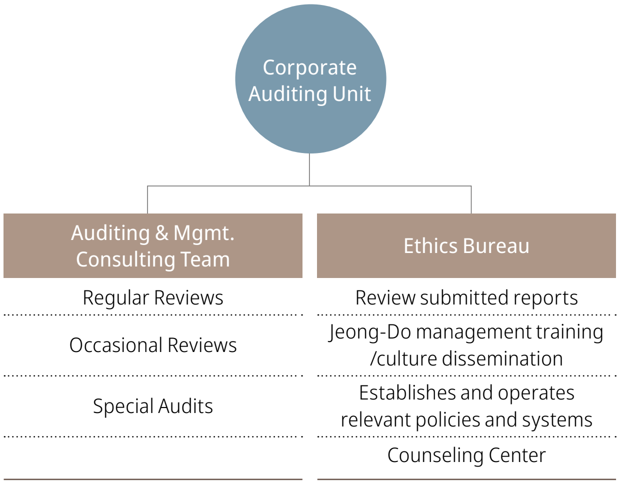

VISION
BEHAVIORAL MODE
MANAGEMENT PRINCIPLES
No. 1 LG
Jeong-Do Management
Customer-Value Creation
People-Oriented Management
Jeong-Do Management does not only stand for ethics management.
True Jeong-Do Management goes beyond ethics management.
It encompasses LG's unique code of conduct which leads us to achieve substantial results by improving capabilities to win competitions fairly.

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

LG CNS operates the Ethics Bureau within the Corporate Auditing Unit as an executive-level body under the direct leadership of the CEO to promote the systemic execution of Jeong-Do Management. The Ethics Bureau is responsible for 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.


Corporate Auditing Unit
Auditing & Mgmt. Consulting Team
Regular Reviews
Occasional Reviews
Special Audits
Ethics Bureau
Review submitted reports
Jeong-Do management training /culture dissemination
Establishes and operates relevant policies and systems
Counseling Center

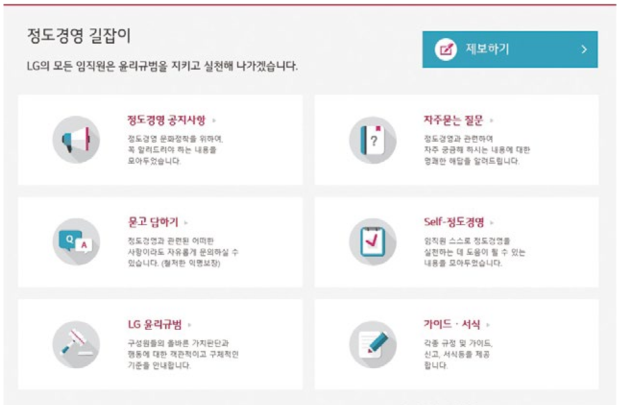
Jeong-Do Management

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 help employees better access Jeong-Do Management and systematically practice its principles. This allows us to share announcements made on Jeong-Do Management as well as LG' Code of Ethics and to fully support employees with self-initiated reviews and real-time counseling.

Jeong-Do Management Guide

Each and every LG employee vows to abide by the LG Code of Ethics.



정도경영 길잡이

LG의 모든 임직원은 윤리규범을 지키고 실천해 나가겠습니다.

정도경영 공지사항
정도경영 문화정착을 위하여, 꼭 알려드려야 하는 내용을 모아두었습니다.

자주묻는 질문
정도경영과 관련하여 자주 궁금해 하시는 내용에 대한 명쾌한 해답을 알려드립니다.

묻고 답하기
정도경영과 관련된 어떠한 사항이라도 자유롭게 문의하실 수 있습니다. (철저한 익명보장)

Self-정도경영
임직원 스스로 정도경영을 실천하는 데 도움이 될 수 있는 내용을 모아두었습니다.

LG 윤리규범
구성원들의 올바른 가치판단과 행동에 대한 객관적이고 구체적인 기준을 안내합니다.

가이드 · 서식
각종 규정 및 가이드, 신고, 서식등을 제공합니다.

Employee/Supplier Training and Cultural Dissemination

To embed LG's behavioral mode of Jeong-Do Management into the daily business routines of our employees, we consistently provide training and disseminate the culture of Jeong-Do Management. In 2019, more than 1,000 employees were trained including new hires with/without previous work experience, newly-appointed leaders, and field workers. Jeong-Do Management Letters are e-mailed regularly to alert employees to the importance of Jeong-Do Management, and violations of Jeong-Do Management are constantly posted on the intranet board. Workshops are also hosted with supplier CEOs, and LG's Jeong-Do Management was shared with CEOs and sales representatives from more than 130 suppliers.

동반성장
소통
기술역량
협력회사
사장단
Workshop
LG CNS

Jeong-Do Management Pledge

LG CNS is committed to complying with the LG Code of Conduct and practicing Jeong-Do Management to fulfill its responsibility towards customers, suppliers, shareholders, employees and society at large and become a respected market-leading player. All our employees electronically sign the 'pledge for Jeong-Do Management' each year, and suppliers also do the same by signing the Master Purchase Agreement.

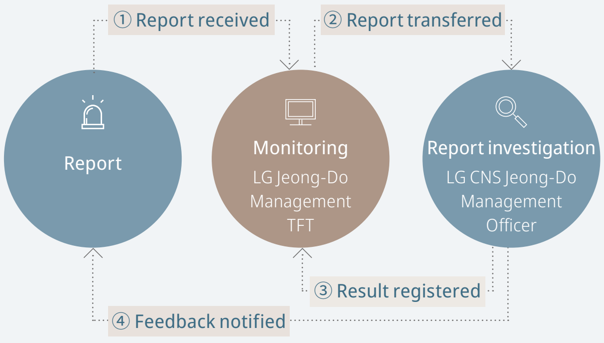
Self-reporting of Money or Valuables Received

LG CNS strictly prohibits our employees from receiving any gifts (cash and/or valuables) from interested parties. As to money or valuables received, their acceptance is respectfully refused and the items are returned. If it is difficult to return these items, however, they should be self-reported to the Ethics Bureau. These items are either directly donated to welfare facilities or auctioned off internally and their proceeds are donated.

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 such follow-up measures as Jeong-Do Management training, work process improvement and disciplinary actions. 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 further strengthen our business transparency and accountability while eliminating any corruptive practices that undermine customer values. When whistleblower reports are submitted, they are examined for eligibility and discussed at the reward review board prior to granting rewards to qualified whistleblowers.

* Jeong-Do Management on the LG CNS website

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.

Directions in CSR

01

Strengthen our sustainability

- Corporate-wide CSR risk management
- Response to regulations and clients' demands
- Supplier CSR management

02

Undertake strategic social contribution initiatives utilizing our business expertise.

- Reflect IT expertise
- Youth education
- Engage employees in talent donation

03

Reflect stakeholder feedback in business operations

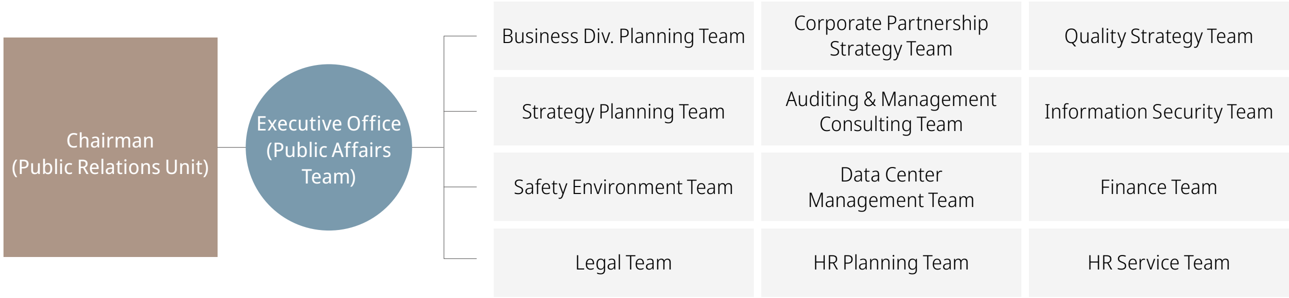
- Collect feedback from internal/ external stakeholders
- Publication of sustainability report

04

Implementing Focus on CSR change management with consistency and determination

- Compliance with international standards and principles
- Corporate-wide improvement management
- Support for decision-making and counselling bodies
- Employee training and promotion

CSR Committee Organization Chart



Chairman (Public Relations Unit)
Executive Office (Public Affairs Team)
Business Div. Planning Team
Corporate Partnership Strategy Team
Quality Strategy Team
Strategy Planning Team
Auditing & Management Consulting Team
Information Security Team
Safety Environment Team
Data Center Management Team
Finance Team
Legal Team
HR Planning Team
HR Service Team

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

1 Define key stakeholders

2 Communication with stakeholders

3 Materiality analysis

4 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)

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 relevance to our business conduct, and to focus on high-priority issues in sustainability reporting.

Materiality Analysis Process

We analyze the materiality of a wide range of sustainability management issues on the basis of stakeholder's interest and business significance and perform materiality tests to focus reporting on high-priority issues. Our materiality tests are conducted with reference to the Five-Part Test methodology of AccountAbility, a globally-renowned research institute in the sustainability management sector.

This started with the selection of 27 issues based on sustainability-related international standards and indicators – GRI Standards from 100 series to 400series, ISO 26000, and DJSI – as well as media reports, sustainability reporting topics from the previous year's LG CNS report and practices of other companies.

STEP. 01

Create Pool of Topics

International standards and index (GRI Standards, DJSI, ISO26000)

Benchmarking Similar Industries, Media research and, Internal and external information

Previous year's issues

STEP. 02

Materiality Analysis

External stakeholders
- Survey : 148 respondents

Internal stakeholders
- Survey : 1,080 respondents
- CSR Practice Council

STEP. 03

Analyze the Result

Business impact
· Corporate business strategy
· Industrial characteristics

Level of stakeholders' interest

Social issues and industrial trends

Rating the issues on a scale of 1 to 5

STEP. 04

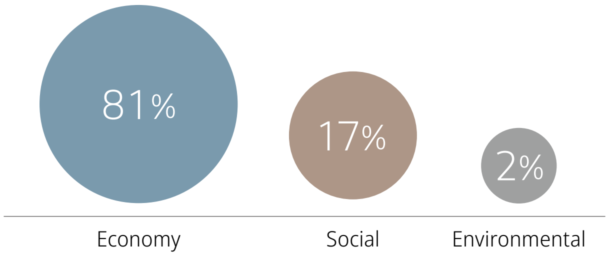
Writing Reports

Report main topics on economic, social and environmental issues
· Report core issues through prioritization of materiality
· Report sustainability issues

Media Report Analysis

We analyzed reports featuring LC CNS published by domestic newspapers, business magazines, major broadcasters, and technical journals over the course of 2019. This revealed that economic issues, including 'strengthening the portfolio with a focus on future growth' and 'innovating information technology and increasing R&D investment,' accounted for as much as 81%. Social issues, such as 'strengthening social contributions', 'ensuring quality and service management for customer satisfaction', and 'preventing unfair trade practices and ensuring compliance with relevant regulations' accounted for 17%. Environmental issues, such as 'managing energy consumption and using renewable energy,' constituted 2%.

2018 Media Exposure Analysis Results



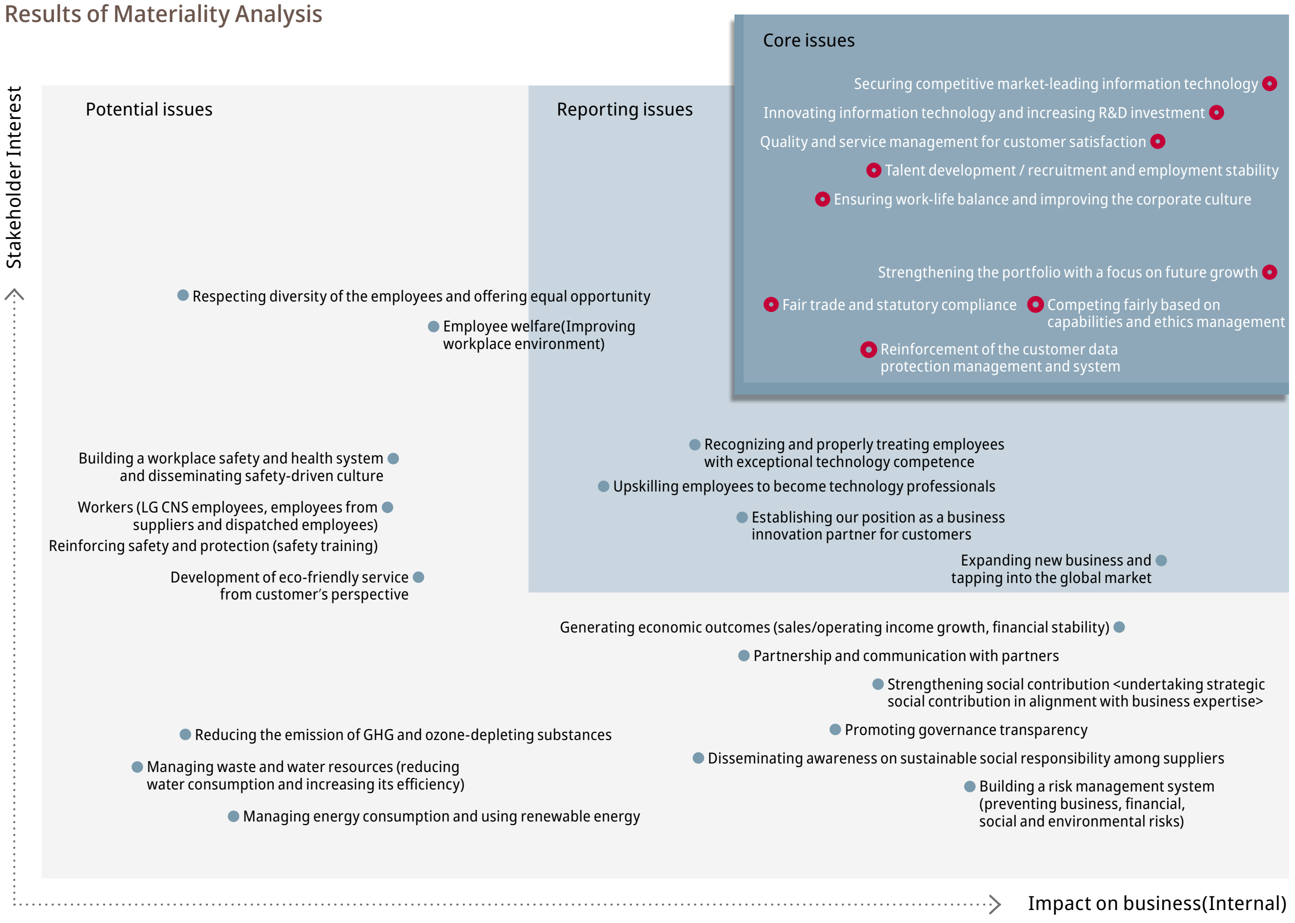
Stakeholder Survey

We conducted e-mail/paper-based surveys on internal/external stakeholders and interviews with key stakeholders. Survey respondents were 1,228 stakeholders including customers, suppliers, industry businesses, associations, organizations and employees. It was revealed that most stakeholders were interested in 'securing competitive market-leading information technology' and 'innovating information technology and increasing R&D investment'. External stakeholders specifically valued customer relationships and chose 'ensuring quality and service management for customer satisfaction' and 'reinforcing customer information protection and its management system' as material topics. On the other hand, employees as internal stakeholders were relatively more interested in work & life balance and recruitment, such topics as 'ensuring work-life balance and improving the corporate culture' and 'identifying and recruiting talent and ensuring employment security'.

	External Stakeholders
1	Securing competitive market-leading information technology
2	Innovating information technology and increasing R&D investment
3	Quality and service management for customer satisfaction
4	Reinforcement of the customer data protection management and system
5	Strengthening the portfolio with a focus on future growth
6	Partnership and communication with partners
7	Fair trade and statutory compliance
8	Competing fairly based on capabilities and ethics management
9	Respecting diversity of the employees and offering equal opportunity
10	Recognizing and properly treating employees with exceptional technology competence

	Internal Stakeholders
1	Securing competitive market-leading information technology
2	Innovating information technology and increasing R&D investment
3	Ensuring work-life balance and improving the corporate culture
4	Talent development / recruitment and employment stability
5	Quality and service management for customer satisfaction
6	Employee welfare(Improving workplace environment)
7	Respecting diversity of the employees and offering equal opportunity
8	Strengthening the portfolio with a focus on future growth
9	Fair trade and statutory compliance
10	Reinforcement of the customer data protection management and system

Results of Materiality Analysis



04 APPENDIX

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Financial Performance

Consolidated Income Statement

(Unit : KRW M)

Item	2017	2018	2019
Sales	3,003,212	3,117,656	3,283,314
Cost of Sales	2,577,928	2,703,042	2,818,591
Gross Profit	425,284	414,614	464,723
Selling & Marketing Expenses	209,635	227,555	251,875
Operating Income	215,650	187,059	212,849
Financial Income	6,494	10,090	8,904
Financial Expenses	23,670	17,124	18,309
Gain (or Loss) from Investment in associates	3,782	(441)	4,511
Other Operating Income	34,073	21,068	26,126
Other Operating Expenses	42,735	39,091	26,760
Profit before Income Tax Expense	193,594	161,562	207,321
Income Tax Expense	74,720	51,053	43,869
Profit from Continuing Operations	118,875	110,508	163,452
Profit from Discontinued Operations	(18,769)	-	-
Profit for the Year	100,106	110,508	163,452

Consolidated Balance Sheet

(Unit : KRW M)

Item	2017	2018	2019
1. Current Assets	1,466,670	1,585,859	1,670,395
Trade Receivables, net	770,349	818,015	804,274
Inventories, net	48,398	51,941	57,360
Other Current Assets	647,923	715,903	808,761
2. Non-Current Assets	893,040	889,462	944,913
Affiliate and Joint Investments	65,424	56,794	62,662
Property, Plant and Equipment, net	668,171	664,832	621,366
Intangible Assets	51,128	53,275	69,692
Other Non-Current Assets	108,316	114,561	191,192
Total Assets	2,359,710	2,475,321	2,615,308
1. Current Liabilities	999,421	815,042	1,033,222
2. Non-Current Liabilities	339,907	563,906	359,248
Total Liabilities	1,339,328	1,378,948	1,392,470
1. Controlling Company Shareholder’s Equity	1,020,290	1,099,326	1,220,703
Issued Capital	47,198	47,198	47,198
Capital Surplus	39,520	39,516	36,693
Other Reserves Accumulated Other Comprehensive Loss	(3,396)	(17,944)	(16,035)
Retained Earnings	936,968	1,030,556	1,152,846
2. Non-Controlling Interests	92	(2,953)	2,135
Total Shareholders’ Equity	1,020,382	1,096,373	1,222,838
Total Liabilities and Shareholders‘ Equity	2,359,710	2,475,321	2,615,308

Social Performance

Government Subsidy

(Unit : KRW M)

Project Name	Lead Division	Amount	Remarks
Pilot project to build a blockchain-based end-of-life battery distribution history management system	Korea Internet & Security Agency	300	

* Subject to the new government subsidy in 2019

Economic Performance Distribution(based in Korea, on a non-consolidated basis)

(Unit : KRW 100M)

Stakeholder	Item	Amount	Remarks
Employees	Salary & Bonus	5,642	
	Benefits	877	
	Severance Compensation	440	
	Training Budget	140	
Suppliers	Product Purchases	8,887	
	Outsourcing Expenses	6,910	
	Repair Expenses	2,206	
	Advertisement Expenses	56	
Government and Local Community	Corporate Taxes	219	
	Donations	9	
	Membership Dues	12	
Shareholders & Bondholders	Dividend	994	Dividend Payout Ratio 63.8%

Employees[1]

1. By Region

(Unit : Number of Employees)

Category	No. of Employees	Percentage
Korea	6,169	89.6%
China	348	5.1%
USA	113	1.6%
Brazil	52	0.8%
Colombia	44	0.6%
Europe	40	0.6%
Vietnam	29	0.4%
Greece	24	0.3%
Malaysia	22	0.3%
India	19	0.3%
Indonesia	16	0.2%
Japan	7	0.1%
Other[2]	3	0.0%
Total	6,886	100.0%

[1] As of the end of 2019, based on locations (3.~11., based in Korea)
-Korea : Locations are based in Korea, and expatriates, dispatched employees and locally-hired employees are excluded.
-Overseas : Locations are based overseas, and expatriates, dispatched employees and locally-hired employees are included

[2] Others : Qatar, Bahrain

2. By Job Position

(Unit : Number of Employees)

Category	By Job	Total (regular + irregular)
Korea	(Nonmanagerial) Employees	6,139
	Executives	30
	Total	6,169
Overseas	Employees	717
	Executives	-
	Total	717
Overall	Employees	6,856
	Executives	30
	Total	6,886

3. Female Employees

(Unit : Number of Employees)

Category	2017	2018	2019
No. of employees	1,351	1,405	1,510
Percentage(%)	25.0	24.1	24.2

4. By Age Group

(Unit : Number of Employees)

Age Group	No. of Employees	Percentage
20s and under	889	14.3%
30s	1,805	28.9%
40s	2,671	42.8%
50s or older	870	14.0%
Total	6,235*	100.0%

*Including expatriates, overseas dispatched employees, and registered executives

5. Percentage of Irregular Employees

(Unit : %)

2017	2018	2019
0.81	1.77	1.84

6. Diversity

(Unit : Number of Employees)

Category	2018	2019
Foreigners (Domestic : Full Time + Part Time)	9	13
With Disabilities	119	121

*For workplaces subject to disability employment fund report
(LG CNS : 43 employees, Haengbokmaru : 84 employees)

7. Job Creation

(Unit : Number of Employees)

Category	2017	2018	2019
Male	170	391	452
Female	62	155	178
Total	232	546	630

8. Average years of employment

(Unit : Year)

Category	2017	2018	2019
Male	12.7	11.9	11.5
Female	10.7	10.4	9.4
Total	12.2	11.5	11

9. Employee Education & Training

(Unit : Number of Employees)

Category	2017	2018	2019
Attendance at group training	19,748	17,296	20,284
Attendance at online training	34,505	51,577	44,947
Training hours per capita (hours)	64.5	68.8	79.1

10. Industrial Accident

(Unit : Case)

2017	2018	2019
1	3	0

11. Parental Leave

(Unit : Number of Employees)

2017	2018	2019
109	162	176

Memberships & Associations (58 in total)

Korea IT Service Industry Association	Korea Industrial Technology Association	The Information Communication Professional Engineers Association	Korea Photovoltaic Industry Association
Korea Software Industry Association	Korea Electrical Contractors Association	Korea Engineering & Consulting Association	Korea New & Renewable Energy Association
The Federation of Korea Information Industries	Korea Industrial Safety Association	Korea Defense Industry Association Seoul	Korea International Trade Association
Korea Chamber of Commerce and Industry	DMC Tenant Association	Korea Fintech Industry Association	Fair Competition Federation
ITS Korea	Association for Blockchain Business	Telecommunications Technology Association	Smart City Association

* As of February 2020

Management System Certifications

Certification Title	Certification (Y. M.)	Validity (Y. M.)	Certification Range	Remarks
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	2020.11	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	

Environmental Performance

Key Environmental Index

Item	Criteria	Unit	2016	2017	2018	2019
Energy	Consumption	TJ	585	444	523	567
Greenhouse Gas	Emissions	tCO_2eq	26,610	20,319	23,753	25,636
Water (water and sewage usage volume)	Consumption	Ton	13	15	12	13
Waste Water	Consumption	Ton	16	19	16	16
COD	Amount	Ton	0	0	0	0
Waste	Amount	Ton	8	10	12	21

* 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

GRI Standards Index(Core Option)

General Standards

Topic	Index	Description	Page	More Info.	Self-Assurance
Organizational Profile	102-1	Name of the organization	4		●
	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	83		●
	102-6	Markets served	8, 9		●
	102-7	Scale of the organization (employees, sales, capital)	3-5, 91-93		●
	102-8	Information on employees and other workers	92, 93		●
	102-9	Supply chain	69, 70		●
	102-10	Significant changes to the organization and its supply chain	No significant change		●
	102-11	Precautionary principle or approach	60-62, 75, 76		●
	102-12	Voluntary economic, environmental and social principles or external initiatives	77, 85, 98		●
	102-13	Membership of associations	94		●
Strategy	102-14	Statement from senior decision-maker	2		●
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	84		●
Governance	102-18	Governance structure	83		●
Stakeholder Engagement	102-40	List of stakeholder groups	87		●
	102-41	Collective bargaining agreements	67		●
	102-42	Identifying and selecting stakeholders	87		●
	102-43	Approach to stakeholder engagement	87, 88		●
	102-44	Key topics and concerns raised	89		●
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	88, 89		●
	102-47	List of material topics	89		●
	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 most recent report	July 2019		●
	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	95, 96		●
	102-55	GRI content index	95, 96		●
	102-56	External assurance	N/A	Self-assured	●

Topic-Specific Standards

Topic	Index	Description	Page	More Info.	Self-Assurance
Economic Performance	201-1	Direct economic value generated and distributed	3, 5, 91, 92		●
Indirect Economic Impacts	203-1	Infrastructure investments and services supported	72-74		●
	203-2	Significant indirect economic impacts	3, 92		●
Energy	302-1	Energy consumption within the organization	80, 81, 94	Environmental data only applies to Sangam IT Center ("Environmental Data Disclosure" Business Sites)	●
	302-2	Energy consumption outside of the organization	81		●
	302-3	Energy intensity	80, 81, 94		●
	302-4	Reduction of energy consumption	81, 94		●
Water	303-1	Water withdrawal by source	94		●
Emissions	305-4	GHG emissions intensity	94		●
	305-5	Reduction of GHG emissions	81, 94		●
Effluents and Waste	306-1	Water discharge by quality and destination	94		●
	306-2	Waste by type and disposal method	94		●
Employment	401-1	New employee hires and employee turnover	93		●
	401-2	Benefits provided to full-time employees	67, 68, 79		●
	401-3	Parental leave	93		●
Occupational Health and Safety	403-1	Workers' representation in formal joint management–worker health and safety committees and ratio represented by the health committee	77, 78		●
	403-2	Types of injury and rates of injury, occupational diseases, lost days, absenteeism, and number of work-related fatalities	93		●
	403-4	Health and safety topics covered in formal agreements with trade unions	77-79		●
Customer Health and Safety	416-1	Assessment of the health and safety impacts of product and service categories	78, 79		●

Other Standards

Topic	Index	Description	Page	More Info.	Self-Assurance
Strategy	102-15	Key impacts, risks, and opportunities	2, 6, 7		●
Ethics and Integrity	102-17	Mechanisms for advice and concerns about ethics	67		●
Governance	102-29	Identifying and managing economic, environmental, and social impacts	78		●
	102-34	Nature and total number of critical concerns and grievance handling mechanisms	67		●
	102-35	Remuneration policies	Business Report		●
	102-36	Process for determining remuneration	Business Report		●
Economic Performance	201-4	Financial assistance received from government	92		●
Procurement Practices	204-1	Proportion of spending on local suppliers		Not applicable	●
Anti-corruption	205-2	Communication and training about anti-corruption policies and procedures	75, 76		●
	205-3	Confirmed incidents of corruption and actions taken	85		●
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	70, 71		●
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, 93		●
	404-2	Programs for upgrading employee skills and transition assistance programs	63, 64		●
	404-3	Percentage of employees receiving regular performance and career development reviews	64, 93		●
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	65, 93		●
	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	Operations with local community engagement, impact assessments, and development programs	72-74		●
	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. Through these initiatives for sustainable growth, the U.N.'s new development framework aims to reduce the negative impact of business on the sustainable development agenda and encourages corporations to make positive contributions. After carefully reviewing the seventeen Sustainable Development Goals as well as its associated targets, and assessing their relevance to our own goals and businesses, LG CNS set a strategy that incorporates the SDGs with high relevance to our businesses into our sustainability management efforts, disclosing to our stakeholders our progress and performance in this area.

3 GOOD HEALTH AND WELL-BEING	▸ Ensure healthy lives and promote well-being for all at all ages	67, 68, 79
4 QUALITY EDUCATION	▸ Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	63-65, 68
5 GENDER EQUALITY	▸ Achieve gender equality and empower all women and girls	93
8 DECENT WORK AND ECONOMIC GROWTH	▸ Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	63-65
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	▸ Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	6-9
11 SUSTAINABLE CITIES AND COMMUNITIES	▸ Make cities and human settlements inclusive, safe, resilient and sustainable	77-81

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

LG CNS
DIGITAL INNOVATION LEADER

2016 - 2017

DIGITAL INNOVATION LEADER
LG CNS

2017 - 2018

DIGITAL INNOVATION ENABLER
LG CNS

2018 - 2019

DIGITAL INNOVATION ENABLER
LG CNS

2019 - 2020

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

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