2017 - 2018
LG CNS Sustainability Report

DIGITAL INNOVATION LEADER

LG CNS

About This Report

In this second edition of the Sustainability Report, we highlight our sustainability strategies and activities in each sector as well as the progress we made over the year.

Based on materiality assessment, we focused on information that we considered important to our stakeholders and the result of the assessment was reviewed by relevant teams and executive management for approval.

We ensure that the report covers how we create values for our clients and drive sustainable growth in the future through the most advanced technology and innovative platform service under our vision of Digital Innovation Leader. We also tried to balance social, environmental and economic considerations in this report with corporate-wide sustainability visions and a clear direction.

DIGITAL INNOVATION LEADER

Guidelines

This report was prepared in accordance with the GRI Standards (and UN SDGs) as well as K-IFRS (Korean International Financial Reporting Standards) for our financial performance.

Scope and Boundaries

This report highlights our commitment to economic, social and environmental sustainability and the progress we made in our domestic business sites.

Reporting Period

This report covers data from Fiscal Year 2017 (January 1 – December 31, 2017) and includes important business activities in the first half of 2018. It also contains our quantitative performance for the past three years for a transition analysis of its year-on-year changes.

Assurance

This report underwent a self-declaration process and is not assured by a third party. Third-party assurance will be obtained for independent external verification in the future.

Contact Information

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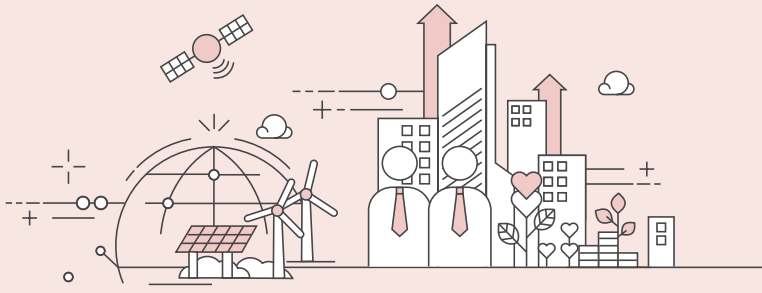

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CEO Message

Leading business innovation and sustainable growth with unparalleled IT service expertise

Dear stakeholders,
We would like to thank you for your interest and support for LG CNS.

We are pleased to publish our second sustainability report, following its first publication in 2017.

In this year's report, we highlight information that we consider important to our company and stakeholders, as well as share our plans for how we will drive sustainable growth for the future.

Nowadays, our business environment is changing at an unprecedented rate. These changes are led by the Fourth Industrial Revolution and the ultra-connected nature of IT across industries. AI, Robotics, Big Data, and Blockchain technologies are accelerating our transition into an information society.

For us, this transition presents important opportunities for growth. Our clients need our service now more than ever. To deliver the value that our clients want and achieve sustainable growth for LG CNS, we must lead our clients through these changes in the IT industry and contribute to their innovation and success.

We plan to lead the innovation for our clients' business, achieve sustainable growth based on our unparalleled IT service expertise, and lead technological change.

Human resources and their expertise are what drive innovation, and we are confident that we have the right people and technology for our company to succeed and grow.

At LG CNS, we lead the changes in the industry based on our unparalleled expertise in software technology and strengthen our competitiveness with smart technology-based platforms and solutions. In doing so, we will create new values for our clients.

Our mission is not only to create value, but also to fulfill our social responsibility. As we adapt to the upcoming changes brought by the advent of an information society, we pledge to fulfill our social responsibility and maintain the highest level of ethical standards and compliance with all regulatory requirements. By setting a clear vision for our employees, we will build our reputation as a trustworthy and ethical company.

We greatly appreciate your continued support as we create and share value with you, our stakeholders, and prepare ourselves and the world for a better future.

Thank you.

June 2018
Young-Shub Kim
CEO, LG CNS

2017 CSR Key Figures

Economy

Sales
KRW 3,003.2B

Operating Income
KRW 215.6B

Debt-to-equity Ratio
131%

Percentage of Overseas Sales
18.6%

Customer

Customer Satisfaction Rate
5.58 Pt./7 Pt.

Breach of Personal Information
0 cases

Security Management System Certification
2017~2020 Years

Employee

Training hours per employee
58.3 Times

Percentage of Female Employees
25.0%[1)]

Average years of employment
12.2 Years[1)]

Industrial Accident Rate
0.01%

Environment

GHG Emissions
20,346 tCO^2eq

Energy Consumption
444 TJ

Water Consumption
15 Tons

Waste Discharge
10 Tons

Community

Win-Win Growth Rating
Most Outstanding[2)]

Donations
KRW 2.9B

Amount Raised for Shared Growth Fund (Win-Win Growth Fund, Direct Financial Support)
KRW 40B

No. of Suppliers Participated in CSR Assessment
147

*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 expressed based on separate standards formulated by LG CNS.

*The environmental data is only applicable to the Sangam IT Center (pursuant to the "Environmental Information Disclosure Policy" from the Enforcement Decree for the Support for Environmental Technology and Environmental Industry Act).

1) Local standards; 2) As of June 2018

Overview

Company Overview

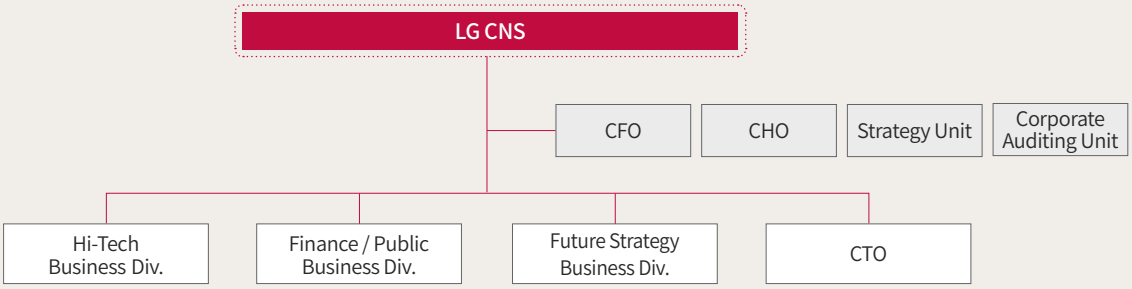
Since our foundation in Seoul in 1987, we have expanded our global presence in China, Europe, America and India. More than 6,000 employees are committed to leading innovation for our clients' business based on unparalleled expertise in the IT industry.

Company Name	LG CNS
Address	LG Sciencepark E13, 71, Magokjungang 8-ro, Gangseo-gu, Seoul
Date of Establishment	Jan. 1987
CEO	Young Shub Kim
Number of Employees	6,063 employees (as of 2017, including Korea & overseas)
Business Areas	Consulting, System Integration, Outsourcing, ERP/BI, IT Infra Solution, IT Convergence

Domestic & International Subsidiaries

HQ / Subsidiary	BIZTech Partners, Korea Elecom, Haengbokmaru
Overseas Subsidiaries	China, Europe, Americas, India, Indonesia, Japan, Brazil, Colombia, Malaysia, Vietnam, Greece

Organization Chart



Financial Status

KRW 2,359.7B
Total Assets

KRW 1,020.3B
Total Shareholders' Equity

KRW 3,003.2B
Sales

KRW 215.6B
Operating Income

AA- Corporate Bond
Credit Rating

HQ / Subsidiary Overseas Subsidiaries

Corporate Governance

Composition and Roles of the Board of Directors

Board of Directors

Category	Name	Position	Date of Appointment	Remarks
Non-executive Director	Hyun Hwoi Ha	Vice Chairman	March 2018	Chairman of the BoD
Inside Director	Young Shub Kim	CEO / President	March 2016	
Inside Director	Dong Un Lee	CFO	March 2017	

Roles of the Board

Our Board of Directors plays a key role in decision-making and management oversight as a top-level management body. The directors oversee and guide our business and affairs providing input for the execution of management tasks and processes.

Operation & Activities of the Board of Directors

Operation of the Board

The Board of Directors meeting is held on a regular basis and whenever necessary to review and resolve important business matters in accordance with the Articles of Incorporation and legal and regulatory requirements for business operation and oversight. Board resolutions are passed by a majority vote of attending directors.

Activities of the Board

In 2017, we held nine board meetings and resolved 30 agenda items including approval of the 2017 Business Plan, split agreement for finance automation business, and issuing corporate bonds with an attendance rate of 96.3%.

Year	No. of Meetings	Attendance Rate	No. of Agenda items	Major Resolutions
2017	9	96.3%	30	· Approval of 2017 Business Plan · Approval of split agreement for finance automation · Approval of issuing corporate bonds
2016	15	97.8%	52	· Approval of 2016 Business Plan · Approval of split of Ucess Partners · Appointment of CEO
2015	16	89.6%	31	· Approval of 2015 Business Plan · Approval of issuing corporate bonds

Shareholding Status

As of December 2017, 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 2.06% and 12.90% of the stock respectively.

Directions in CSR

LG CNS takes a proactive approach in our CSR programs to achieve sustainable growth in the IT industry. To this end, we are strengthening our CSR initiatives with a focus on sustainability, strategic social contribution, stakeholder engagement and CSR change management while forming a consensus with our stakeholders and building collaborative relationships.

01 Strengthen our sustainability

- Corporate-wide CSR risk management
- Response to regulatory and clients' demand
- CSR management in supply chain

02 Engage in social contribution activities in line with our business expertise

- Align CSR with our business
- Employee participation and talent donation
- Youth education

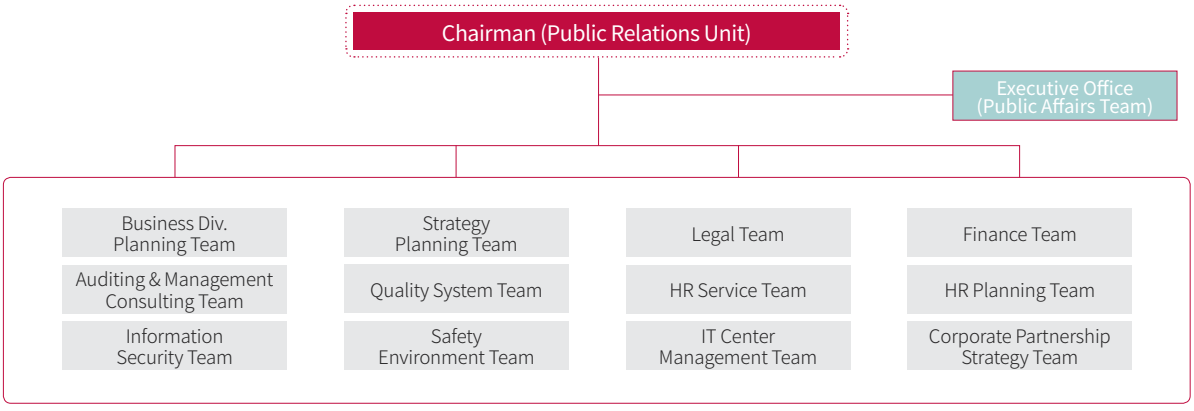
03 Incorporate stakeholders' input into our business practice

- Communication with stakeholders
- Publication of sustainability report

04 Focus on CSR change management

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

CSR Committee



Stakeholder Communication

LG CNS values input from our stakeholders and engages with them in decisions on our business operation.

Definition of Stakeholder

We categorized our stakeholders into six main groups: customers, employees, shareholders / investors, suppliers, communities, and industries. We identify the areas of their interest and reflect their input in our business strategies.

Stakeholder Engagement Process

1 Define key stakeholders → 2 Communication with stakeholders → 3 Materiality analysis → 4 Improvement activities and application in practice

Stakeholder Communication Channels

LG CNS maintains close communications with our stakeholders through two-way channels. As part of materiality assessment process, we collect input from our stakeholders through various communication channels including external and internal surveys and apply it in our practice for mutual growth and development.

Customers

Key Activities
Collect feedback on our service

Communication Channels
- 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

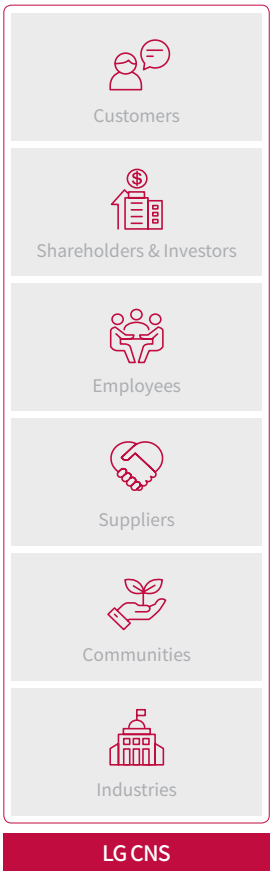
Key Activities
Conduct surveys on business strategies and implementation

Communication Channels
- Intranet and Grievance Handling Program (frequently)
- Whistleblower Center (frequently)
- Newsletter (bi-monthly)
- 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)

Key Activities
Engage in decision-making for community development

Communication Channels
- GHG emission reduction society activities (monthly)
- Korea Industrial Safety Association (quarterly)



Shareholders & Investors

Key Activities
Engage in strategic decision-making process

Communication Channels
- General Meeting of Shareholders (annually)
- Business Report (quarterly)
- Board Meeting (monthly)

Suppliers

Key Activities
Pursue mutual growth with suppliers

Communication Channels
- 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)

Key Activities
Engage in decision-making process in the IT industry

Communication Channels
- 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 Analysis

LG CNS conducts materiality analyses and assessments of sustainability issues in terms of their alignment with our business and impacts on our stakeholders to make sure we report them using the proper level of attention.

Materiality Analysis Process

Our materiality analysis is conducted in accordance with the Five-Part Test methodology established by AccountAbility, a global sustainability research organization. First, we selected 24 issues based on the previous year's report topics, case studies, and international sustainability standards, index and media including GRI Standards (series 100 – 400), ISO26000, and DJSI. Then, we conduct online surveys and interviews with our internal organization and key stakeholders to gather their feedback.

Based on the data we collect through this process, we define both internal and external factors and identify material issues. Finally, interviews are arranged with our executives, business departments and stakeholders to review the validity of these issues for selection.

To reflect our stakeholders' interest and effectively outline our business approach and performance on the selected issues, we categorize them into Digital Innovation Issues, which are at the center of our future growth, and Sustainability Issues that we need to manage continuously.

Step 01	Step 02	Step 03	Step 04
Create Issue Pool	**Materiality Analysis**	**Analyze the Result**	**Identify Reporting Issues**
International standards and index (GRI Standards, DJSI, ISO26000) Benchmarking Similar Industries, Media research and, Internal and external information Previous year's issues	Internal stakeholders · Survey: 186 respondents · Interviews conducted with 12 leaders · CSR Practice Council External stakeholders · Survey: 206 respondents	Business impact · Corporate business strategy · Industrial characteristics Level of stakeholders' interest · Social issues and industrial trend Rate the issues on a scale of 1 to 5	Focus on issues with strong economic, social and environmental impact · Prioritize core issues · Report sustainability issues

Media Analysis

The analysis of our media exposure from January 1 to December 31, 2017 shows that economic issues such as strengthening business areas with a focus on future growth engine represent 81.5% of media exposure. This is followed by social issues such as partnerships with suppliers and quality assurance for customer satisfaction accounting for 16.8%, and a number of positive issues such as social contribution and leadership in energy saving for data center.

Stakeholder Survey

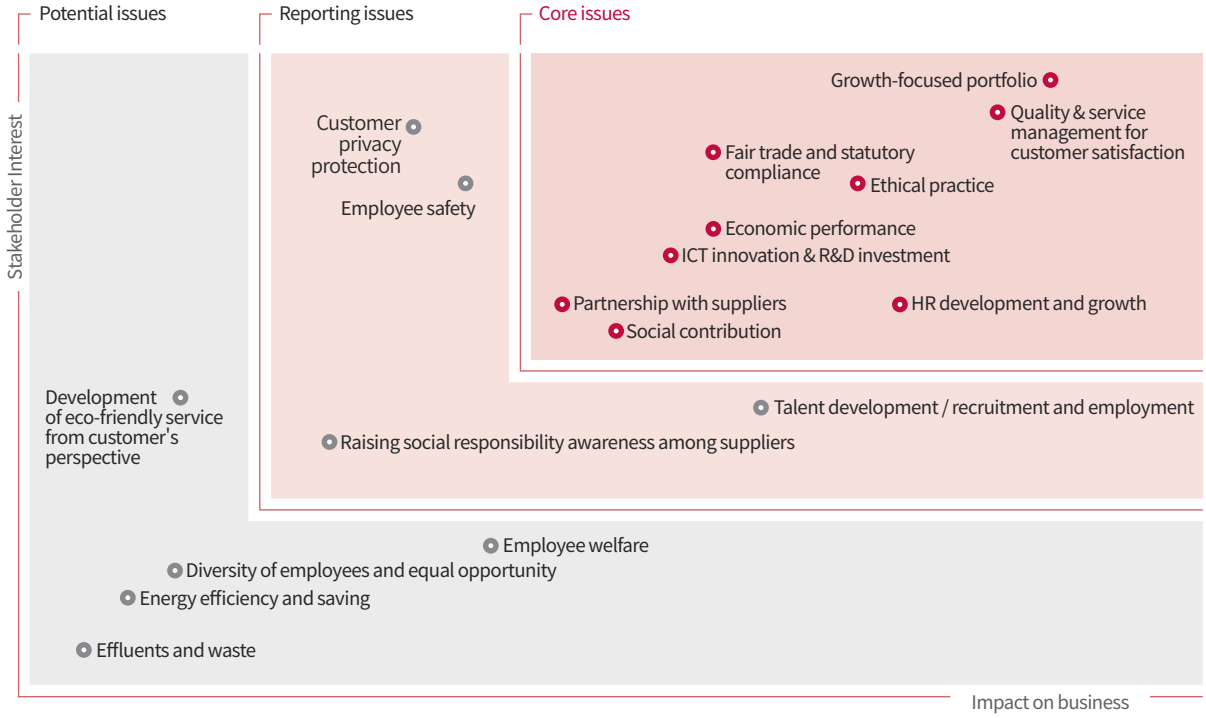
We conducted stakeholder surveys with 1,455 Employees, Customers, Suppliers, and Associations. “Growth-focused portfolio development” is at the top of the list as in last year while “quality and service management for customer satisfaction” is ranked high on the list this year.

Material Issues

External Stakeholders	Internal Stakeholders
- Quality and service management for customer satisfaction	- Growth-focused portfolio development
- Customer privacy protection	- HR development and growth (employee performance development support)
- Growth-focused portfolio development	- Employee welfare (work-life balance, workplace environment)
- Fair trade and statutory compliance (prevention of corruption / monopoly / collusion)	- Talent development / recruitment and employment stability
- Employee (employees of LG CNS and suppliers, dispatched employees) safety enhancement (safety training)	- Quality and service management for customer satisfaction
- Ethical practice (strengthening ethics management)	- Ethical practice (strengthening ethics management)
- Economic performance (sales, operating profit, financial stability)	- Fair trade and statutory compliance (prevention of corruption / monopoly / collusion)
- ICT innovation and R&D investment	- Employee (employees of LG CNS and suppliers, dispatched employees) safety enhancement (safety training)
- Partnership and communication with partners	- Economic performance (sales, increase operating profit, financial stability)
- Talent development / recruitment and employment stability	- Diversity of employees and equal opportunities (no discrimination based on age, gender or region)

Purpose of survey
Identify the areas of interest and expectations of stakeholders
Period April 6 – 13, 2017 (8 days)
Method email and written survey form

Results of Materiality Analysis



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DIGITAL INNOVATION LEADER

IT Service Expertise

16 Consulting
17 EAP
18 Data Center

Innovative Platforms and Services

19 AI / Big Data
22 Cloud
24 IoT
27 Blockchain

Clients' Business Competitiveness Enhancement

28 Smart Factory
30 Smart Logistics
31 Telecommunication & Media
33 Transaction Platform

Leading Changes for a Better Life

35 Digital Finance
37 Energy
40 e-Government
41 Smart Transportation
43 Smart City

WHAT WE DO

Our Vision

LG CNS provides a one-stop IT service encompassing consulting, system implementation / operation, and outsourcing based on our industry-wide insight and IT expertise. By leveraging cutting-edge technology-based convergence solutions in response to fast-changing market conditions and creating new business models and opportunities, we create new values for our clients.

Driving the business innovation of our customers with the highest level of IT service capabilities

DIGITAL INNOVATION LEADER

Drive growth through innovation

Leadership development based on technology and expertise

Technology-oriented system improvement

Core Value

Innovation | Growth | Technology | People

Technology Strategy

LG CNS is always standing by to acquire new, differentiated technologies for our businesses that can drive the digital transformation of our customers, supported by our exceptional systems and our powerful software development, system architecture and IT infrastructure capabilities.

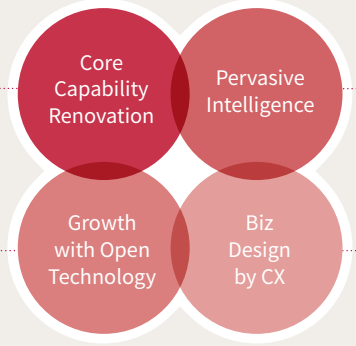
Strengthen the fundamentals for technological competitiveness

System Innovation Driven by Capability

Make agile and flexible response to changes in software development, architecture, infrastructure and solutions.

Growth with Open Technology

Strive for fast and global growth within the ecosystem of OSS, cloud and service platforms.



Acquire technologies that differentiate our businesses

Pervasive Intelligence

Create intelligent services by combining the customer's business expertise with our algorithms.

Biz Design by CX

Identify creativity-driven businesses with behavior-and situation-sensitive technologies.

Major Research Area

DIGITAL TRANSFORMATION

We carry out R&D projects leveraging our extensive project know-how, global on-site experience and advanced IT technologies such as IoT, Cloud, Big Data, Blockchain, AI, Predictive Maintenance, and Optimization Algorithm to drive digital transformation.

Cloud & Architecture

LG CNS carries out research and development on advanced technologies and platforms to create optimal services, such as cloud platforms, cloud services / data distribution technologies, and frameworks, tools and system middleware for enhancing the IT lifecycle, i.e. analytics, design, development and performance monitoring.

Artificial Intelligence

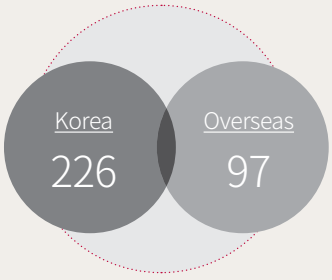
LG CNS perform research and development on technologies for deep learning algorithm optimization (i.e. convolutional neural networks), data processing, AI applications and related systems, and GPGPU infrastructure.

Big Data Analytics

LG CNS carries out research and development on technologies for collecting, storing and managing structured / unstructured big data, and real-time high-performance analytics technologies for extracting meaningful information.

Patent Management

LG CNS recognizes that protecting valuable technology that will drive the future market and strengthen our competitiveness is as equally important as developing the technology itself. In alignment with our patent management strategy, LG CNS has acquired a total of 323 (As of April 2018) local and international patents in order to fully protect our valuable business assets and lay the foundation for sustainable growth.



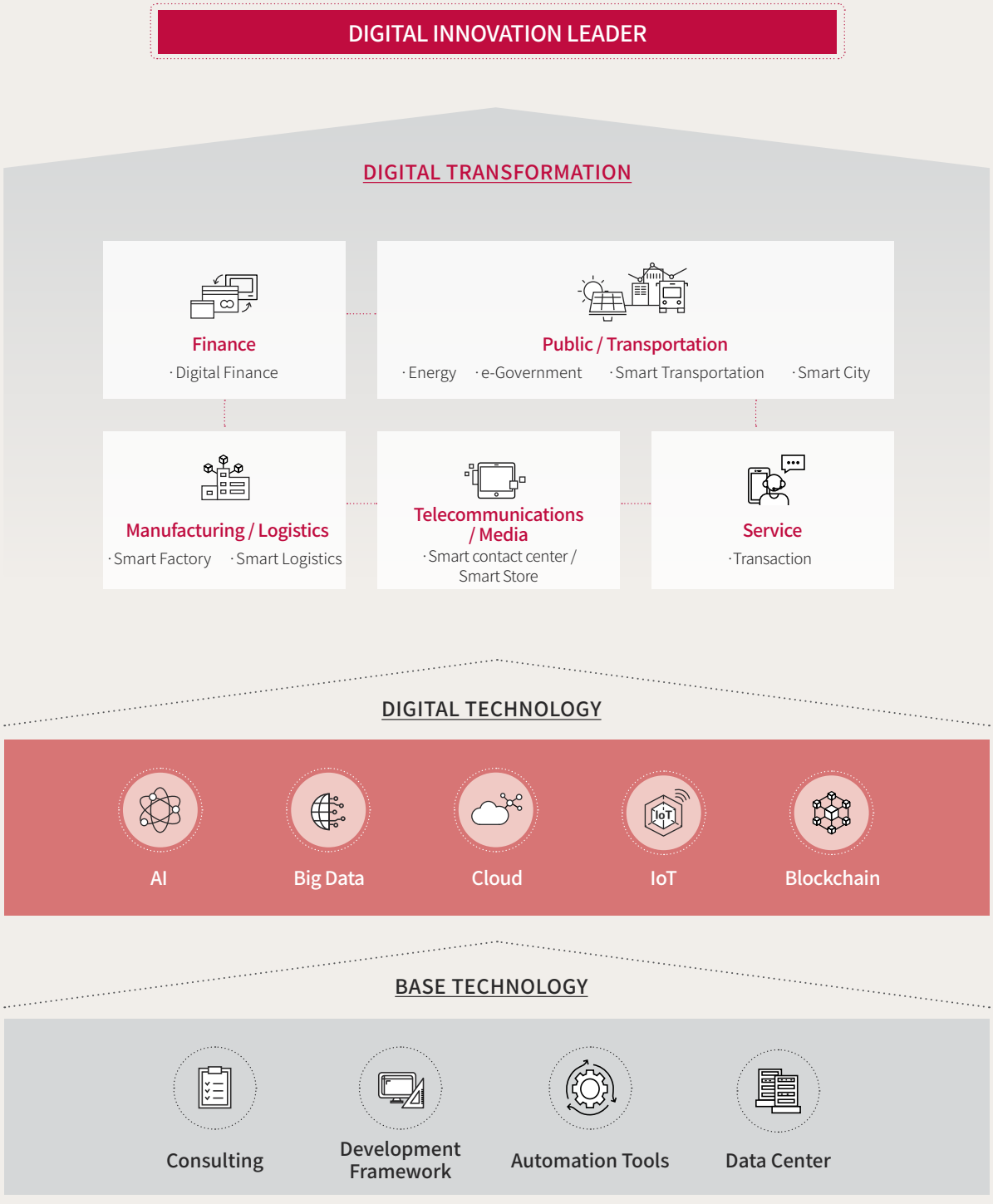
Patent Ownership

Total

323

SERVICES & SOLUTIONS

Core Services & Solutions



Through innovative platforms and services, LG CNS enhances the competitiveness of our clients' businesses and leads change for a better life.

In response to the growing need for 'Digital Transformation' a growth driver enabled through applying advanced IT technologies such as AI, Big Data, Cloud, and IoT in the digital era of industry 4.0, LG CNS is paving the way for digital innovation with technologies and solutions we have pre-developed based on the industrial expertise we have accumulated over the years.

4 Leading Changes for a Better Life

We provide services in business sectors ranging from Digital Finance, Energy, e-Government, and Smart Transportation to Smart City, for the purpose of improving qualities of people's lives.

Across all industries, ICT is accelerating the transformation into an intelligent society. By applying ICT, we lead the improvement in user friendliness and changes for a better life.

P.35 Digital Finance P.37 Energy P.40 e-Government
P.41 Smart Transportation P.43 Smart City

3 Clients' Business Competitiveness Enhancement

We provide services in Smart Factory, Smart Logistics, Telecommunications & Media, and Transaction simplification to drive business competitiveness in each sector.

Based on our project experiences and cutting-edge IT technologies we have accumulated across industries, we provide opportunities to drive digital transformation and create new growth engines through tailored services and solutions.

P.28 Smart Factory P.30 Smart Logistics P.31 Telecommunications & Media
P.33 Transaction

2 Innovative Platforms and Services

We provide AI / Big Data, Cloud, IoT, and Blockchain platforms through advanced digital-technologies.

We help our clients expedite digital transformation to gain competitive advantage and respond to changes proactively by providing unparalleled platforms and services with technology-oriented digital innovations.

P.19 AI / Big Data P.22 Cloud P.24 IoT P.27 Blockchain

1 IT Service Expertise

We provide services in the 'Base Technology' sector to deliver real values, which include Consulting, EAP, and Data Center.

Based on over 30 years of experience in IT consulting, software development, architecture, and infrastructure, we strengthen our clients' business competitiveness and create values.

P.16 Consulting P.17 EAP P.18 Data Center

IT Service Expertise

01 — Consulting

Entrue Consulting - Innovation leader in Digital Business delivering real value to our clients.

Global Top Firms' No. 1 Consulting Partner We help our clients to strengthen momentum for innovation and growth by leveraging our unparalleled consulting services.

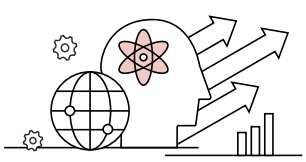
Specialized Consulting Firm in Digital Business Through our unrivaled expertise, we help our clients strengthen their competitiveness and lead the entire process of new market development in the digital era. In Entrue Consulting, thought leaders from each service sector - High Tech, FCM/Financial Services, Smart Engineering, Digital Strategy, and SCM/Logistics - engage in projects cross-functionally and navigate through clients' business problems to provide optimized solutions.

Over
3,000
The number of IT / business consulting projects completed

27 Years
Since its establishment in 1991, LG CNS has led the IT / business consulting sector for 27 years

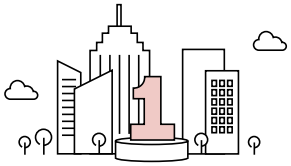
Business Achievements

- Strategy consultation in vehicle components business
  LG Corp., LG Electronics, LG Chem
- Strategic development consultation for LG Group in energy business sector
- Business opportunity evaluation consulting for LG Group in Smart City business sector
- Convergence strategy consulting for LG in digital technology sector AR/VR, robots, drones, healthcare, etc.
- SCM/logistics diagnosis and strategic roadmap development: LG Electronics, LG Display, LG Chemical, LG Innotek, Pantos, GS Home Shopping, CJ Korea Express
- Digital Marketing / CRM / e-Commerce consulting
  LG Electronics, Jeju Air, financial holding companies, credit car companies, consumer product manufacturers
- Management system enhancement for LG subsidiaries
- Strategic development in battery industry for LG Chem.'s Smart Factory
- Big data strategy development and service enhancement for LG U+
- Established mid/long-term IT innovation solution for GS Retail
- Microgrid planning for GUAM Power Authority
- FATCA implementation consulting for Korea Federation of Banks and General Insurance Association



Mission

Our mission is to lead LG Group and our clients in innovation and growth by leveraging our distinguished expertise and exceptional logical thinking skills, while driving our own business growth.



Vision

Consulting firm that provides differentiated services, while attracting the best talents in the industry and top-class global firms.

IT Service Expertise

02

EAP

Enterprise Application Platform

Enterprise Application Platform integrating essential functions for enterprise management and digital technology

Optimized ERP Platform We were ranked No.1 in the PI/ERP consulting sector from 2008 to 2012 based on more than 20 years of experience in implementing ERP systems in both the domestic and overseas markets. Using the accumulated experience of implementing more than 100 ERP platforms over the past 10 years, we designed the platform implementing ERP systems optimized for the specific corporate environment for each client.

Core ERP Functions The platform was designed to provide key functions with the built-in best practice across key areas of the value chain including sales, procurement, finance and production based on our expertise in implementing ERP systems.

Customized system implementation / architecture We ensure quality and productivity at the highest level using the development framework when it comes to system implementation such as legacy system re-implementation or MDM / HR / Finance / Sales module implementations.

Core Capabilities

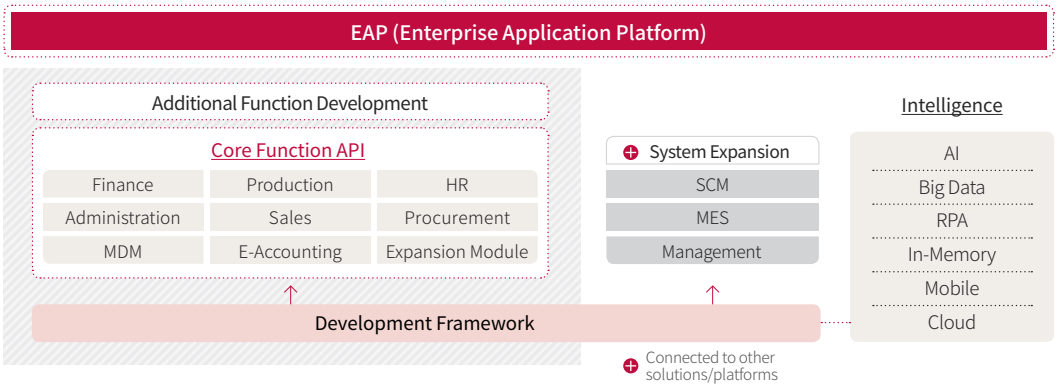
- Experience in ERP system PI / consulting / architecture / operation in various sectors
- MDD/NCD-based development framework and the most applied reference in Korea
- Top experts in ERP PI / consulting / architecture / operation

Service Offerings

- PI / ERP consulting
- EAP system implementation / maintenance
- MDD/NCD-based development framework

Business Achievements

- ERP for LG Electronics Hiplaza
- Next-Generation ERP for LG CNS
- ERP for Silicon Works
- ERP for LG U+ (subsidiary)
- ERP for Heesung Metal
- Production ERP for Tai Guk Pharm
- HR system for LG Hausys overseas subsidiary
- HR system for LG Innotek



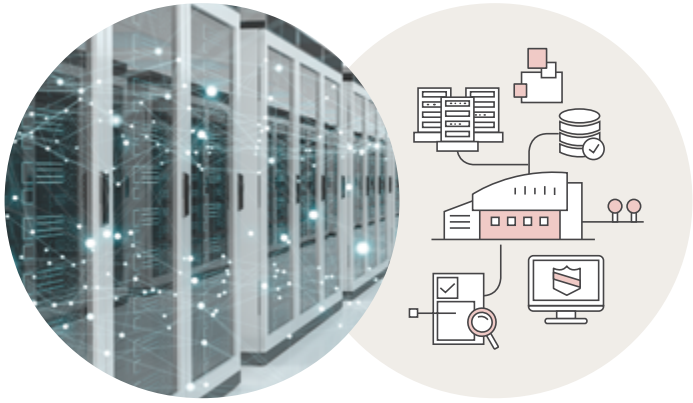
No.1

No.1 ERP Implementation Performer in the market

IT Service Expertise

03 — Data Center

We provide data center services with net neutrality for global companies, internet companies and financial companies.



Following the establishment of Korea's first dedicated data center in Incheon, LG CNS current operates data centers in Sangam, Busan and Gasan as well as in four global key locations in the United States, Europe and China. Our data centers are acknowledged for excellence throughout the world as green data centers, and feature infrastructure redundancy and seismic isolation designs, the highest level of power efficiency, and standardized and automated operational environment and processes.

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.

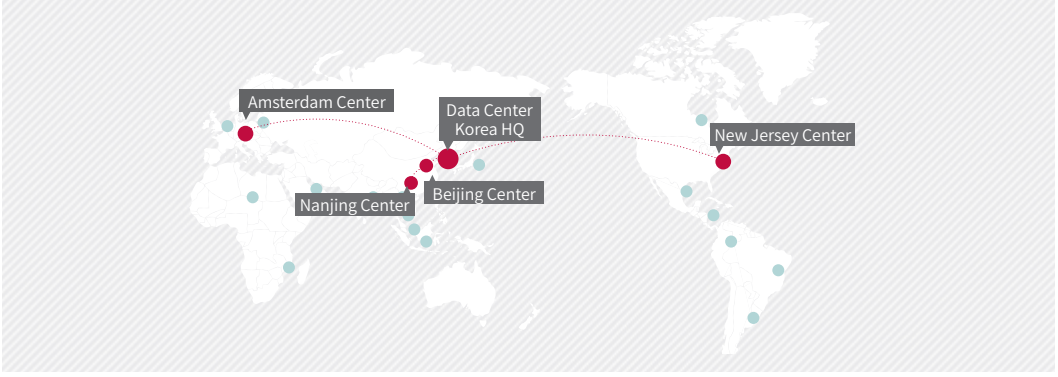
Service Offerings

- Offers white space services supported by stable infrastructure.
- Provides network cables for all local and international mobile carriers.
- Operates infrastructure based on the top domestic SI/ITO business: network/security/server/DB/middleware management.
- Offers stable and efficient IT infrastructure based on more than 30 years of data center management experience, four local centers and four overseas centers.

Busan Global Cloud Data Center	Sangam IT Center	Gasan Data Center	Incheon Data Center
· Dedicated Data Center (5 aboveground floors, seismic isolation floors) · Total Area: 32,321 ㎡ / Data Room: 12,177 ㎡ · Richter scale 8.0 seismic isolation design, 40,000 KVA	· Dedicated Data Center (12 aboveground floors, 4 underground floors) · Total Area: 43,808 ㎡ / Data Room: 13,686 ㎡ · Richter scale 8.0 quake-proof design, 18,000 KVA	· Dedicated Data Center (13 aboveground floors, 1 underground floor) · Total Area: 75,041 ㎡ / Data Room: 12,734 ㎡ · Richter scale 7.0 quake-proof design, 18,000 KVA	· Dedicated Data Center (3 aboveground floors, 1 underground floor) · Total Area: 14,326 ㎡ / Data Room: 4,073 ㎡ · Richter scale 6.0 quake-proof design, 7,000 KVA

No.1
Constructed and operated Korea's first dedicated data center in 1992

A+++
Busan Data Center acquired the highest Green DC rating



Innovative Platforms and Services

04

AI / Big Data

Consulting, implementation and solution services based on sector-specific domain expertise, advanced analytics capabilities and AI / Big Data technological leadership

Total service package for AI data analytics LG CNS provides the entire range of data-based business services including data collection, processing, storage, analysis and utilization, offering total big data management service packages to our customers in all industries including electronics, manufacturing, finance, telecom, government and services by utilizing our advanced analytic capabilities based on machine learning and deep learning

Extensive AI / Big Data analytics solutions LG CNS owns an extensive range of analytic solutions including manufacturing quality analysis, image recognition-based vision inspection, real-time customer marketing service, social data-based R&D technology sensing, VOC(Voice of customers) analysis and quality enhancement, financial fraud detection system, and information security monitoring.

Korea's largest Big Data firm LG CNS boasts the largest number of big data references in Korea. As the nation's leading big data operator with extensive project experience, we can provide the optimal solution that is tailored for any client business and IT environment.

Core Capabilities

- Cloud-based DAP (Data Analytics & AI Platform) provides the analysis environment for AI / Big Data application and analysis service based on best practices.
- Data analytics and modelling based on domain expertise in industries, development and optimization of algorithms, and management of analysis life cycle
- Highest DW/BI implementation capability and most extensive big data system development experience in Korea
- Technological leadership in open source platform
  Internal development of a proprietary platform
  open source contribution and troubleshooting
- End-to-end service from platform, development to analysis

Clients and Domains

- Electronics / manufacturing (LG Electronics, LG Chemical, LG Display, LG Innotek, etc.)
- Financial / government (KB Card, KB Insurance, Hyundai Card, Woori Card, KB Bank, Government's Integrated Data Center, Korea Land & Housing Corporation, etc.
- Communication / Service
  (LG U+, Pantos, Kakao, Coupang)
- Big data analysis, AI algorithm development, DW/BI

No.1

The most extensive domestic reference in big data

BIG DATA

250

The number of in-house experts on DW/BI and big data, making LG CNS Kora's largest big data organization

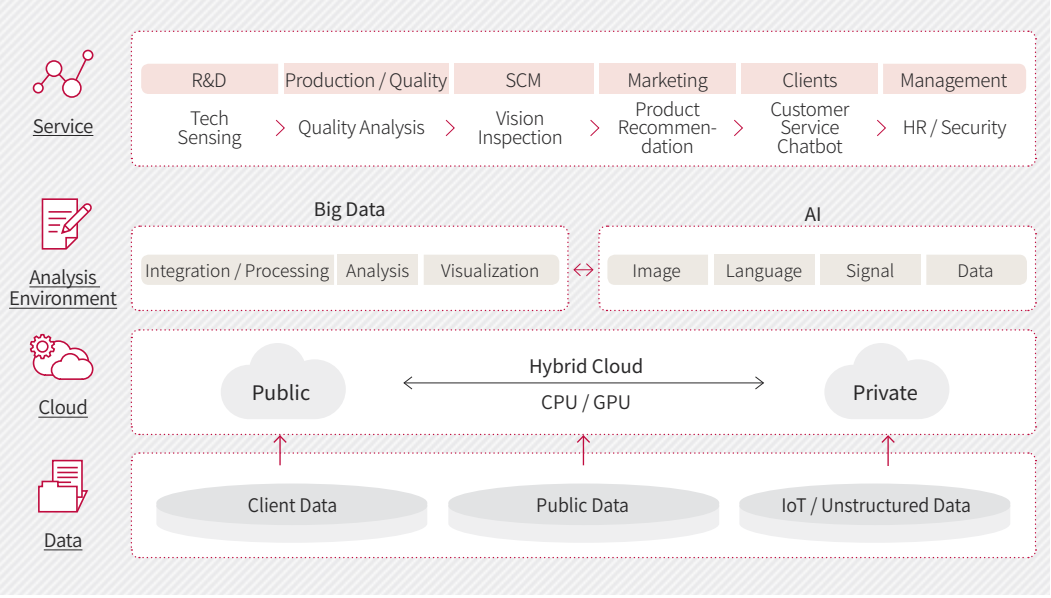
Service Offerings

- Identification of big data analysis targets and development of implementation plan
- Consulting on big data analysis and building platforms
- Consulting on implementation of hybrid information architecture combining DW/BI and big data architecture
- Lab services for consulting on and execution of big data architecture and developing a model and algorithm for optimization analysis (On-premise, Cloud)
- Prototyping and lab services for the verification of new technology (On-premise, Cloud)
- Smart R Analytics (SRA): R-based big data analysis tool

DAP (Data Analytics & AI Platform)

DAP is a cloud-based platform that integrates a series of Big Data value creation process and advanced AI service development environment, from structured / unstructured data collection to advanced analytics and visualization, in order to present unparalleled solutions tailored to the needs for digital innovation across the entire value-chain.

As a cloud-based platform consisting of 4 layers for easy utilization of best practices around the world, DAP enables collection and storage of big data from various sources and provides integration of advanced analytics and AI.



Exclusive Features

DAP drives digital innovation and creates unparalleled values by enabling analysis and AI technology at the highest level without the need for complex technical reviews based on best practices and technical support from our dedicated team of experts.

Customized Analysis Environment

End-to-end service from Big Data collection to advanced analysis, visualization and AI

Creation of advanced AI analysis environment in an hour with just a few clicks

Big Data-based Industry-Specific AI Service

Industry / work-specific AI application service for languages, visuals and signals

Stable deep learning environment and business value creation through integration of Big Data and AI environment

Real Time Support System from Expert Group

Quality improvement and continuous advancement through real time support from expert group

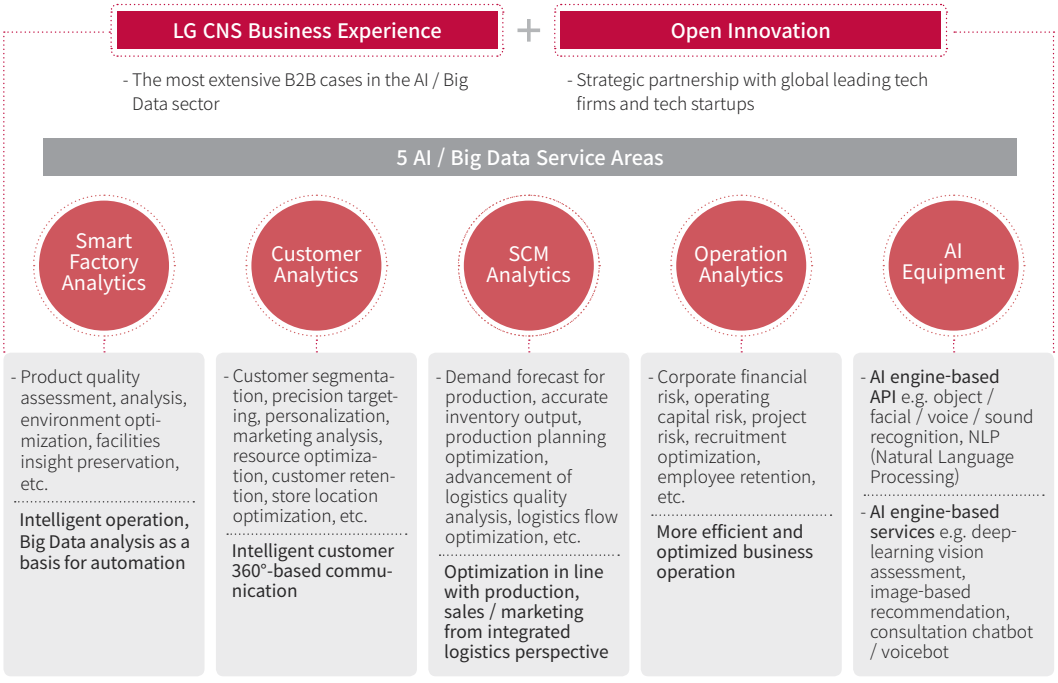
Analysis result and insight report based on data input within 2-4 weeks

Continuous Update on Best Practice

Productivity improvement through advanced reusable pre-built models based on extensive industry experience

Service Offerings

Leveraging various use cases, Big Data solutions and AI engines we secured based on our extensive experience and open innovation, we offer AI / Big Data services in five key areas across the entire value chain.



Solution

SBP (Smart Big Data Platform)
Hadoop big data platform providing optimized support for the entire cycle of big data collection, storage, processing and analysis

SBP is a distributed architecture multi-purpose expandable platform that provides integrated real-time, batch, interactive analytics and streaming. The platform provides convenience in execution and maintenance / repair via a GUI-driven interface and constant implementation of the latest open source technologies while maintaining competitive prices compared to other providers. In addition, we provide data collection and enterprise workflow and scheduler (EWS) tools that enable even corporate clients without previous big data development experience to focus on business logic development and enable high productivity and quality levels.

SRA (Smart R Analytics)
R language-based big data analytics solution

Handling massive amount of data	Provides multi-server, multi-session functionality and parallel analysis algorithm and distributed analysis for large-volume data via big data platform link.
Handling both structure and unstructured data	Enables extensive data analysis by providing a wide range of data and text analysis algorithms, from traditional statistical analysis to machine learning.
Stronger interfacing with external systems	Separate API for interface with external solutions and applications provides greater utility for analytic model and results.
Workflow analysis tools	Intuitive and easy-to-learn workflow analysis tool enhances analysis and development productivity while reducing the learning curve.

Innovative Platforms and Services

05 — Cloud

Cloud transformation and Managed Service for corporations and public organizations

Korea's leading Enterprise Cloud Transformation specialist

We provide end-to-end cloud professional services for consulting, migration and all managed services, providing back-bone functional for building services and solutions based on industrial expertise and digital technology.

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
- Hybrid-Cloud, Multi-cloud migration, operation and integrated management platform
- Container-based GPU service

30%

Reduction in the total cost of ownership after a migration to the cloud service

30,000

Number of servers / storage serviced through the cloud

Consulting & Implementation

- Cloud / Consulting
- Re-host (Migration)
- Re-platform
- Re-factor
- Private Cloud
- Public Cloud
- SaaS Provision / SI

LG CNS Solutions & Services

MPay	MPost	Health Care	AFC	BIS
Smart Factory (ezMES)	iPharmMES	Smart Green Solution	ERP	iKEP

Analysis Platform	IoT Platform	Common Platform	Development Platform
DAP	INFioT	API Mgmt.	LG PaaS
AI	Device API	Storage Queue	Web App
Big Data	Meta Data Object	Service Bus	DevOn BizActor
	Service API		MDD, NCD,LENA

LG Private Cloud	Public Cloud
VM, Block, Object, Firewall, IPS	Amazon Web Services, Microsoft Azure

Managed Service

- Monitoring
- ResourceMgmt.
- Provisioning
- Metering / Billing
- Access Control
- Reporting
- Backup
- Restore
- DR

Business Achievements

Public Services

Cloud
- Korea Employment Information Service
- National Computing and Information Agency
- Busan NIPA
- KANGWON LAND
- Health Insurance Review & Assessment Service

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

Manufacturing

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

VDI
- LG Electronics
- LG Display
- LG Chemical
- Ericsson LG
- LG Hausys

Logistics / Service

Cloud
- Summerce Platform
- Kantukan
- Honda Korea
- Cafe Bene
- Hansol
- SsangYong Engineering & Construction
- Chunjae Education
- LG International
- SERVEONE
- Pantos
- GS Home Shopping
- GS Retail
- OURHOME
- Ezwelfare
- Chunhofood
- Korea compassion
- KLEANNARA
- Dongwha Enterprise

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

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

Finance

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

Service Offerings

Consulting & Migration Service

We provide analysis consulting and transition to cloud based on our insight into the On-premise system and cloud consultancy. From Lift & Shift transition to application re-factoring in line with cloud attributes, we offer specialized services tailored to our clients' needs.

Hybrid Cloud Service

We provide the ideal cloud service customized to each client and business environment including AWS, Azure, Oracle Cloud, Google GCP, SFDC and SAP HEC via LG CNS' private cloud as well as partnerships with global cloud service providers who can bring their technological capabilities to the table.

Managed Service

LG CNS offers stable integrated managed services for multi-cloud environments. With optimization during the initial operational phase after adopting a cloud system being a critical factor for ensuring stable future operation, we provide a continued stream of architecture optimization and cost rationalization solutions based on usage statistics.

Portal & Mgmt. Solution

We provide an integrated management platform for multi-cloud environments, together with operational management solutions such as TunA (APM tool), UXM (service-oriented E2E monitoring tool) as per client needs.

Desktop Cloud: vmCube (automated VDI total management solution)

Proprietary solution that boosts user convenience and operational efficiency through VN life cycle automation, self-repair, integrated dashboard and configuration-based portal.

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

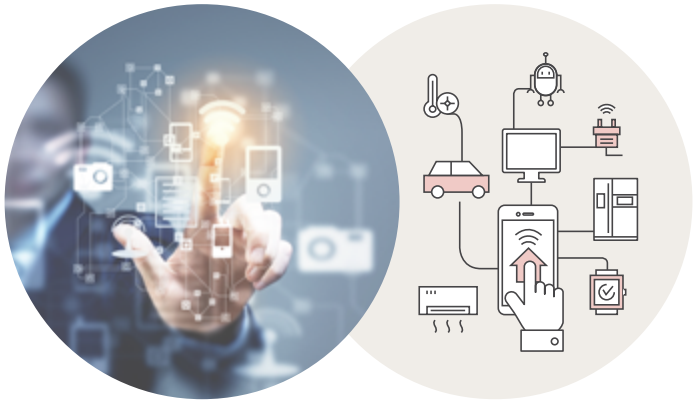
References

- 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)

Innovative Platforms and Services

06 — IoT

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



Collecting different types of sensing data We provide planning, design and development engineering services for collecting meaningful sensor information in a wide range of devices in factories, buildings, automobiles and more.

Stable transmission of data Gateway solutions ensure stable transmission of a wide variety of data and the planning and design of IoT-dedicated networks that best reflect the operational environment and technical characteristics.

Safe and secure operation We provide an integrated security suite across devices, networks and services to protect the entire mass of data linked to the IoT from hacking, duplicating, counterfeiting and other threats.

Core Capabilities

- Various industrial protocols and platforms that support standard / non-standard IoT devices
- 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

1st
To acquire the TAA Certification in the SI industry

24
IoT and industrial standards and protocols supported

Service Offerings

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

IoT Security
· IoT Security consulting
· IoT Security solutions

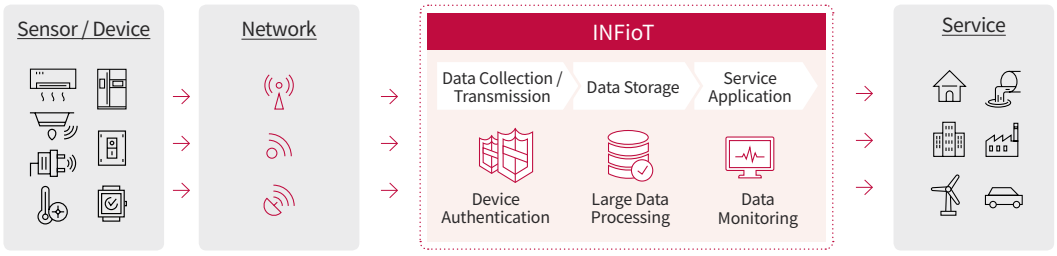
LG CNS IoT Technology

Robot Service Platform
· Robot solutions
· Robot Eco implementation

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

IoT Platform, INFioT

INFioT is an IoT platform based on oneM2M, which is a global IoT standard. With INFioT, users can access to various development tools for different IoT environments, data collected and transmitted in real time from a massive number of sensing devices. INFioT makes IoT service development fast and easy.



INFioT Layout

Device	Data Collection / Transmission	Data Storage	Service Application	Portal		Service
Home Device	**IoT Standards**	**oneM2M**	**Function**	**Administrator Portal**	D	Smart City
Detection Sensor	HTTP	Device Registration Data	Device Data Processing	Service Management	A	Smart Building
Energy Sensor	MQTT	Group Data	Device Search	Terminal Management	P	Smart Factory
Environ-ment Sensor	CoAP	Data Security Policy	Group Data Processing	Platform Monitoring		Smart Home
Factory Device	TCP	N/W Connection Data	Service Data Processing	Log Monitoring		Smart Mobility
Device Switch	Web Socket	Message Transmission Data	Platform Data Processing	Firmware Management		Energy
Robot	**Industrial Standards**	Data Subscription Data	N/W Connection Processing	Log Monitoring		Safe
	BACNet	Device Location Data	Message Parsing / Transmission	**Developer Portal**		
	MODBUS	Payment Policy Data	Data Storage / Processing	Service Management		
	⋮	⋮	Subscription / Notification	Terminal Management		
	Device SDK	**Extension**	Security Policy Application	Technical Support		
	Java	Service Data	Device Location Search	Open API Test		
	C	Platform Status Data	Payment Processing	System Management		
		Authentication Data	User / Terminal Authentication	⋮		
			Firmware Data Processing			

IoT Security	Development Tools
- Public Key Infrastructure - Key Management System - Authentication	- Monitoring Screen Development Tool - Demo Toolkit

Key Functions

- IoT standard / non-standard device authentication
- Communication protocol support (5 IoT standards, 19 industrial standards)

- Complex Event Processing for distributed data processing in real time
- Linking to LG CNS DAP (Data Analytics & AI Platform)

- Providing developers with SDK
- Providing visualization tools for real-time data monitoring

Benefits

EASY to develop

IoT development becomes easier with the developer portal (e.g. SDK, development guide). 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 / management of various types of devices / sensors. IoT devices can be added through simple settings.

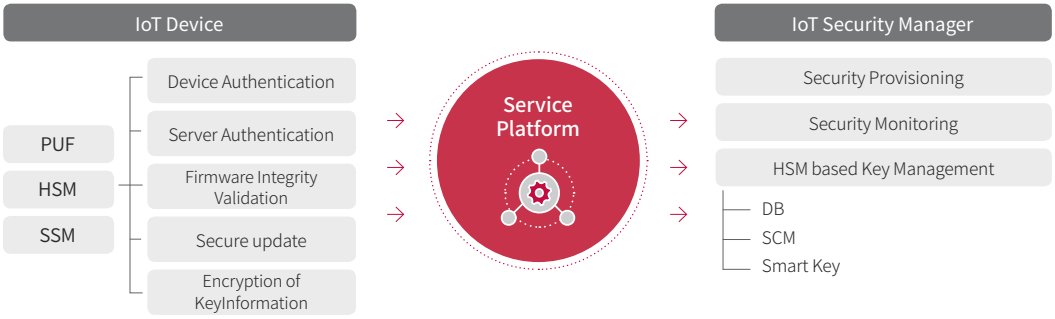
Conforming to **MULTIPLE** protocols

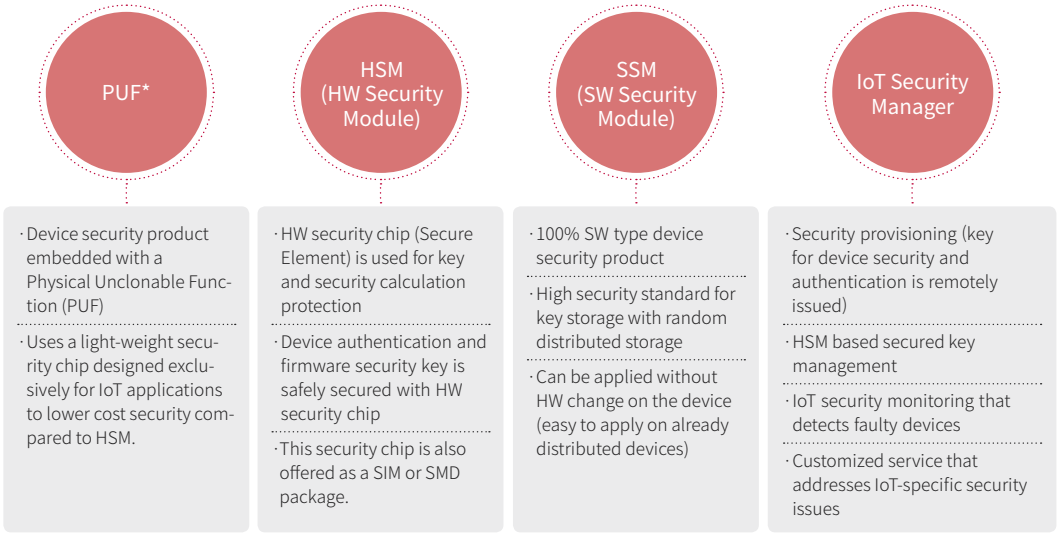
A wide range of devices are supported thanks to extensive support for protocols (HTTP, MQTT, CoAP, TCP, Web Socket) and 19 industry-specific protocols (BACnet, Modbus, SNMP).

Solution

IoT Security Suite

Our security suite provides device-server mutual authentication and firmware protection service, composed of device security modules (PUF, HSM, SSM) and server security module (IoT Security Manager).





LG CNS IoT Security Features

Low cost & high security ensured with a PUF-based device security solution	· Uses 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) · No need for device change; applicable to already distributed devices · Support for a wide range of OSs (Window, Linux, RTOS, OS-less environment)
Tailored 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)

*PUF: A security chip that cannot be cloned because it uses micro deviation that randomly generated during the manufacturing process

Innovative Platforms and Services

07 — Blockchain

Provides Use case development, implementation and service through validated blockchain core technology and industry-specific domain expertise

Enterprise Blockchain Platform The Monachain adopts the Linux Foundation's proven Hyperledger Fabric as the core to accommodate the evolution of enterprise blockchain technology. It is an enterprise blockchain platform that has a layer of Framework, Common / Interface Component and Application Service and is a flexible to add and expand service

Basic component for blockchain service Monachain is equipped with four basic services such as identification, local currency, document authentication, and supply chain management. Each function can be applied alone, and various customized services can be instantly implemented based on four functions

Development productivity and Management efficiency Monachain provides Framework function for developer's Smart Contract development productivity. It also offers various GUI-based functions (network management, channel management, service distribution, etc.) for administrator's efficient blockchain system management and monitoring.

Blockchain use case development support Based on the understanding of blockchain technology, we apply the blockchain consulting methodology to find applicable business innovation opportunities and new business models. We support optimal business solution and strategy for client by collected/analyzed use cases and design thinking.

Core Capabilities

- Validated permissioned blockchain core technology
- Basic services including identification, local currency, document authentication and SCM
- Framework and common components to improve development efficiency and quality
- GUI-based management and monitoring function to improve blockchain platform management efficiency

Business Achievements

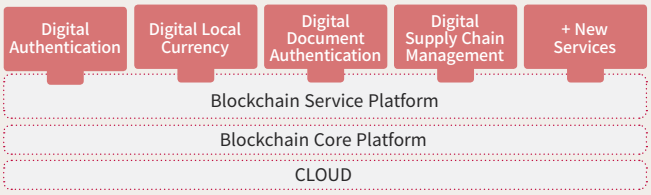
- Open blockchain platform for KOMSCO (Korea Minting and Security Printing Corporation)
- Interbank transfer for the bank of Korea (PoC)

Service Offerings

- Consulting and developing use case
- Monachain supplies and technical support
- Blockchain-based system construction and operation

Monachain

Monachain is an enterprise blockchain platform applicable in various industries including finance, public sector, telecommunication, manufacturing, etc. We currently provide two main digital services with Monachain: Digital Identification and Digital community currency.

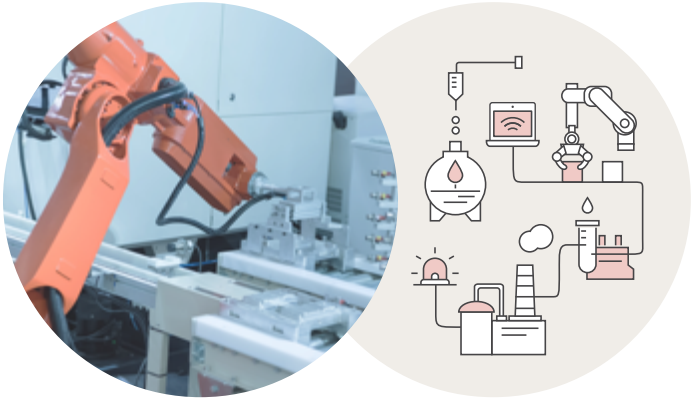


Clients' Business Competitiveness Enhancement

08

Smart Factory

IT solution-driven smart manufacturing / operation system for maximum production competitiveness



We know your top concerns

Factories struggle with production inefficiency due to initial design flaws as well as falling quality and rising production costs caused by mismatches between operating systems and the actual manufacturing environment. LG CNS provides the optimal IT services for manufacturing companies by precisely identifying these pain points.

Smart Factory with Cutting-Edge Digital Technology

The LG CNS Smart Factory Solution is the culmination and optimization of over 20 years of Digital technology knowhow accumulated in the frontlines of industry to deliver our leading solution.

Creating Synergy with LG Group Companies to Provide Smart Factory Environment

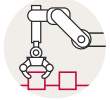
We provide smart factory environment through integration of LG CNS ICBMA technology, equipment and process design expertise of Materials & Production Engineering Research Institute, LG Electronics, and communication infrastructure of LG U+.

60

Number of businesses that adopted our Smart Factory Solution, both in Korea and overseas

20 Years

Development experience for the manufacturing industry



Core Capabilities

- Best practices acquired through our experience in system implementation, accumulated over the past two decades
- AI / Big Data platform DAP (Data Analytics & AI Platform)-based intelligent manufacturing service
- System operation based on the BizActor Platform, our proprietary and patent solution
- Quick and easy installation and usage, thanks to the streamlined PC-based structure
- A wide range of communication protocols for interfacing between systems and devices
- Cloud-based solutions

Business Achievements

- FACTOVA-Design Navigator
  Product design guide system for LG Display
- FACTOVA-MES
  Global MES for LG Electronics
  MES for Doosan Infracore
- FACTOVA-iPharmMES
  Hanmi Pharm
  Daewoong Pharmaceutical
- FACTOVA-View
  Ochang Energy Management System for LG Chem
- FACTOVA-IoT
  TVOC Monitoring, TCVD Vibration Data Collection, and Warehouse Temperature / Humidity Monitoring for LG Display

Solution

Smart Factory Solution

LG CNS Smart Factory solution is aiming for creating the intelligent factory automatically monitoring and controlling the entire site with the integrated point of view of human, IT system, and equipment.

FACTOVA-Design Navigator

Developed based on the design know-how of the 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.

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 line with different models in a flexible manner. Various modeling tools and simulation features are available in standard for easy and fast construction of a control system.

FACTOVA-BizActor

Instead of conventional coding, It is designed to develop the separate applications and processes in the form of business rule. In addition, it features various management functions to maintain performance in the system operation phase.

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-View

Through real-time monitoring and control of all the environment and utility facilities at an optimal level, it improves product quality. Furthermore, energy consumption can be controlled at the process level as well as the factory-wide level.

INFioT for Industry

This solution is designed to analyze and collect data from various types of edge devices (sensors and actuators) installed in industrial sites. It facilitates adding the equipment and sensors to the system to monitor, and the collection and analysis of a large amount of data for a data-based smart factory.

FACTOVA-iPharmMES

It provides manufacturing process control, paperless, and regulatory response 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. Furthermore, all works are documented automatically to support paperless work environment and improve productivity while meeting international audit requirements.

Smart Factory Platform, FACTOVA

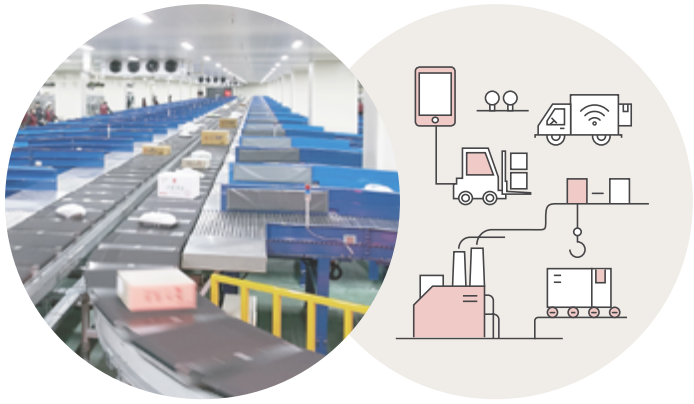
Short for a combination of “factory” and “value”, FACTOVA is a smart factory platform designed to create new values in the manufacturing industry. The platform offers services in three key areas: Data Collection / Control, Informatization for scheduling and managing whole of manufacturing processes, and intelligent services for decision making. It provides solutions tailored to the needs of clients through vertical integration by class and horizontal integration of value chain.

Clients' Business Competitiveness Enhancement

09

Smart Logistics

IT-based Smart Logistics Service for Maximum Productivity and Efficiency



We understand your unique logistics process We provide the optimal logistics processes and facilities for each client business to enable rapid response to changing market conditions.

Total Engineering Logistics Solution LG CNS provides Total Engineering services for the full range of logistics needs, from consulting and detailed design to system development, facility and solution implementation, and maintenance.

Core Capabilities

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

Business Achievements

- Implementation of automated logistics system for Dongtan and Yangji Flagship Center of CJ Logistics
- Facility design and implementation for eBay Korea's Mega Logistics Center
- CJ Korea Express Metropolitan Mega-hub Package Terminal
- Malaysia PosLaJu International Package Center
- DAISO Namso Distribution Hub center
- OURHOME East Seoul Food Ingredient Logistics Center
- E·LAND Shanghai Fashion Logistics Center

Service Offerings

- Logistics consulting
- Strategy development for logistics centers
- Logistics center operation process / layout design, logistics cost reduction / optimization
- Logistics center development
  ·Automated warehouse (AS/RS) development
  ·Auto sorter development
  ·Other specialty facility development
- Facility automation and automation solutions for logistics center
  ·VIVASORT ·HSS(High Speed Shuttle)
  ·AutoStore ·ez-Control

Core Capabilities for Business Success

Total Engineering Capability	Top experts Extensive experience Systematic methodology	• Over 30 logistics / SCM consulting, over 100 IT / facilities engineers • Reference DBs for 300+ domestic and international logistics centers / factories • Advanced logistics center and logistics automation methodology
Integration Capability (Facility+IT)	In-house facilities Integrated control solution Logistics information system	• Advanced cross-belt sorter design and development experience • Proven integrated facility control solution (ez-Control) • Extensive range of information systems including SCM, WMS, TMS, SMS
Large-scale Project Mgmt. Capability	Top-level support SWAT organization Project quality control	• Integrated management organization with business / IT / facilities experts • Rapid response team for preemptive solutions before project issues occur • Dedicated project management tool, used in over 500 projects per year

Total Service for Building Logistics Center

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

1st

Ranked first in technology and cost evaluation, outperforming European competitors

Clients' Business Competitiveness Enhancement

10

Telecommunication & Media

Solutions and services that bring customer value to the forefront and lead innovation with digital technology

Strengthen Clients' IT Leadership and Competitiveness

We successfully delivered the nation's first integrated wired and wireless BSS and OSS for a leading telecom in Korea. We help our clients strengthen their business competitiveness based on IT / digital technology and insight for market / technology not only in the telecommunication and media industry but also to the industry and service area that are converged with them.

Creating Customer Values through its Sustained Innovation and Technology-driven Thinking

After leading the innovation with downloadable CAS, Android STB, and cloud TV in the media market, now, We have sustained our innovation to realize customer values with the solutions and platforms leveraging digital technologies such as such as 'virtual agents based smart contact center', 'unmanned store' and 'talk order'.

Best Partner in the Digital Innovation Era

LG CNS supports a digital transformation that drives the innovation of products, processes and business models of our customers, leveraging our extensive experience and technology leadership in building ICBMA (IoT, Cloud, Big Data, Mobile and AI) platforms.

1st

- Successfully implemented Korea's first wired and wireless BSS and OSS (2011)
- Developed Korea's first Android set-top box for pay TV (2011)

Core Capabilities

- IT consulting in all fields of telecommunications, broadcasting, and media industries, industry specialization and IT system developments / operation capability
- Korea's first to develop an integrated (fixed and mobile) BSS and OSS
- Build and operate digital technology (IoT, AI, Big Data, Cloud) platforms (with exclusive platforms)
- Plan, develop and operate data service and ICT convergence service
- Development capability for media content generation and distribution systems, as well as for devices and their SW

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)
- Implemented and operated KT Bizmeka EZ (SaaS service)
- Delivered numerous projects; DW, CMS, PRM, BSS, etc.
- Provided Cloud TV service to cable TV operators; D.live, CMB, and KCN
- Developed SDK and supplied tablets for Softbank's robot, 'Pepper', in Japan
- Implemented digital media centers (production, editing, broadcasting) for SBS and KBS

Solution

Cloud TV(Media Platform)
All operations for UIs and services of a STB take place on the server (cloud) and video is fed from the server to the STB and other terminals in this virtualization technology-based solution. Cloud TV enables operators to offer uniform UIs and services to all STBs regardless of hardware specifications, operating systems or middleware.

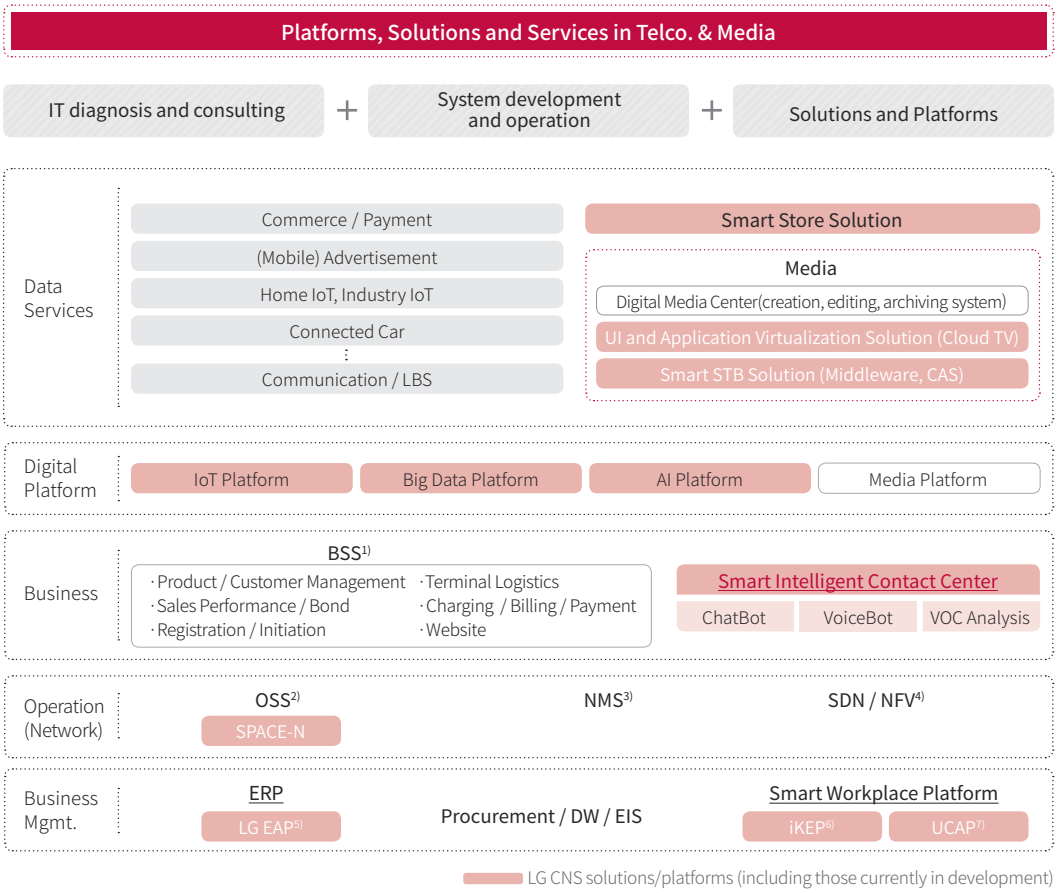
SPACE-N(OSS Solution)
This inventory management solution is designed to manage core assets such as network systems and facilities for telecommunication and cable service providers, and utility companies. As a core component of the telecommunication OSS, it supports logical and physical (GIS) inventory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

iKEP & UCAP(Smart Workplace Platform)
This is a corporate platform solution designed to support communication and collaboration by integrating the framework for the legacy-linked development. It features an enterprise portal solution for easy connection between the unified communication (messenger, videoconferencing, corporate communication) and work process and information.

Smart Intelligent Contact Center
Based on AI and Big data technology, virtual agents act as call center representatives to answer incoming inquiries and classify their consulted data. The solution consists of just a few modules such as 'ChatBot', 'VoiceBot' and 'Text Analytics'.
The VoiceBot, in particular, is an intelligent service that identifies the customers' needs through dialogue and responds to them without transferring their calls to another call agent (human).

Smart Store
Including SEMS (Smart Equipment Management System), which manages electricity effectively through temperature sensing and facility control, this is a next generation retail store solution designed to offer digital modules such as store access control, customer shopping path analysis, security analysis, self-checkout via image recognition technology, and an automated order system that utilizes analysis of product stock status, weather and various other condition data.

Service Offerings



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

Clients' Business Competitiveness Enhancement

11

Transaction Platform

Total Digital Financial Service based on Insight into Digital Technology and Finance Industry

Transaction Platform We provide client-centered seamless process relay services based on our platforms to facilitate transaction between customers and companies (inquiry, order, reservation, booking, payment, after-sale service) using an array of digital medium.

CNSPay / MPay

CNSPay / MPay is a convenient payment solution that only requires a single password to carry out e-commerce transactions.

- Supports password-only payment for credit card payments of over 300,000 won, without public key authentication.
- Reduces payment failure rate by removing the need to install additional payment apps.
- Secures personal data by segregating information between the smart phone and authentication server.
- Enhances payment success rate by supporting multiple browsers, with no ActiveX requirement.

Talk Service

Talk Order Service	We provide easy-to-use mobile messenger-based order service by incorporating our technology into messenger API such as Kakao Talk and Naver Talk Talk, which is provided by messenger service providers.
Talk Customer Center	Automated self-service for frequently asked questions in the form of dialogue.
Talk Reservation	Mobile messenger-based ticketing service with the support of dialogue.
Talk Marketing	Automated builder for survey and promotional events on mobile messenger platforms featuring built-in referral tracking algorithm for C2C marketing.

1,000

The number of vendor agreements with airlines, shopping malls, and restaurants

Within 1 min.

The time required from ordering to payment for home shopping

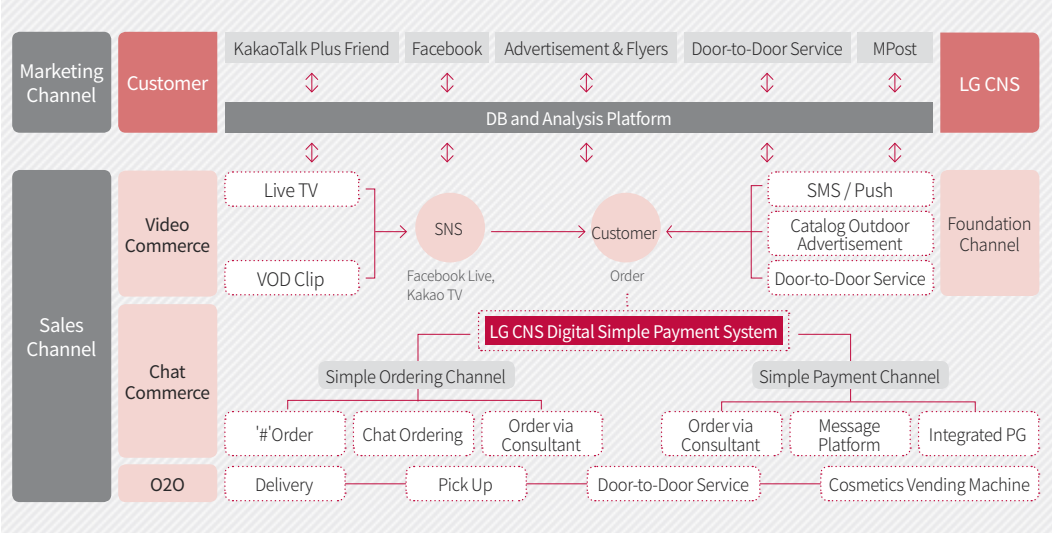
Core Capabilities

- Deep understanding of commerce business and the legacy commerce system
- Extensive experience in commercialization (Korea's first commercialization and the largest number of commercialization cases)
- Deep understanding of the chatbot technology such as KakaoTalk, NaverTalkTalk, etc., and ability to apply the technology to other areas

Business Achievements

- World's first commercialization and largest service operation for home shopping networks e.g. TV live streaming, catalogue order
- Multi-channel talk order services for NS Home Shopping, Innisfree, KakaoTalk, and NaverTalkTalk
- Tracking-based talk order and marketing service for Yuhan-Kimberly and NU SKIN Korea
- Talk-based customer center for Pulmuone and talk ticketing service for lift tickets for Konjiam Resort

Service Offerings



Smart Message

Secure messaging platform LG CNS offers messaging platforms that enable real-time / large-scale service with minimum costs via highly optimized SMS and push messaging.

Proven track record in finance, government, logistics, retail We provide payment solutions to over 160 top companies in a wide range of sectors including Shinhan Card, Samsung Card, Hyundai Card, Korea Post, eBay korea and Interpark, with our client base continuously expanding to include healthcare and retail companies.

Core Capabilities

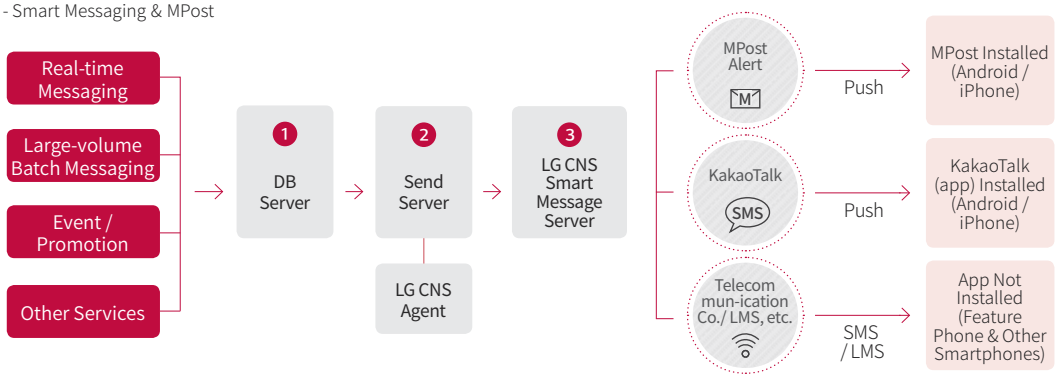
- Provides integrated messaging platforms that integrate app-based push messages / SMS / LMS such as KakaoTalk based alert and MPost
- The only proven provider of large-scale messaging service in financial and public sectors
- Stable infrastructure for large-volume message transmission
- Offers customized services for each industry by combining processing, messaging, ordering, payment, and customer services
- Our own IDC infrastructure offers flexibility, expandability, safety and security

Business Achievements

- Implementation for Korea Post and other credit card companies (Shinhan, Samsung, Hyundai)
- Korea's first implementation case (Korea Post)
- eBay korea
- MPost mobile billing 6.4 million application downloads, 3 million unique users, 8.5 million in monthly transmission, 32 corporate clients from financial, government, and communication sectors

Service Offerings

- Smart Messaging & MPost



1st
The largest number of push messages transmitted in Korea

Leading Changes for a Better Life

12

Digital Finance

LG CNS' total services for financial institutions' digital transformation, which reflect our deep insight in digital technologies and BFSI

Key requirement for changing financial services environments Financial services industry is being heavily impacted by the Fourth Industrial Revolution, embodied by “disruptive innovation” and “digital technology”. Digital transformation is an indispensable requirement for financial institutions today.

Best reference in the industry LG CNS has played a pivotal role in financial business transformation, innovation, and optimization that have been implemented in numerous Korean and international financial services companies.

Supporting business innovation through advance finance solutions We fully support the development of new business models based on advanced IT technology and methodology.

Core Capabilities

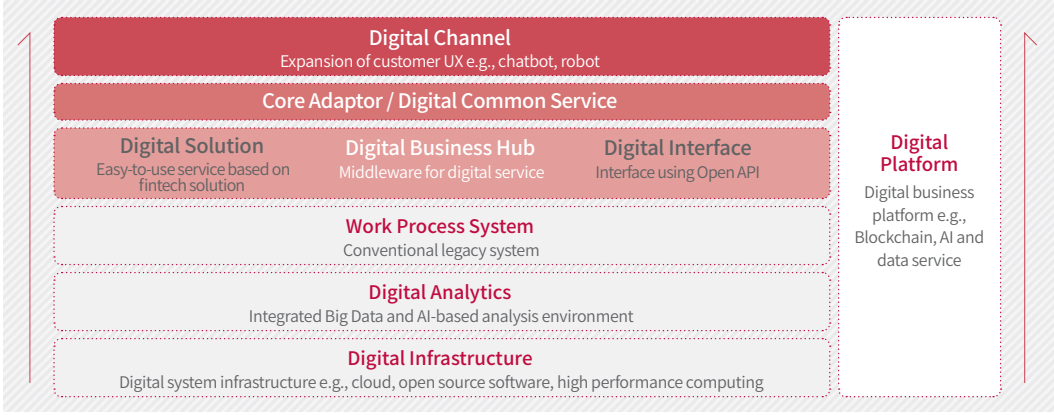
- Over 20 years of experience in developing and maintaining large-scale IT systems for financial firms
- An innovative development method MDD, Model-driven development, for post next generation systems
- A leadership in digital financial services industry with new technology, including digital banking, AI and Blockchain

Business Achievements

- Next-generation IT system implementation for Kakao Internet-only Bank, Shinhan Bank, KEB Hana Bank, NH Bank, Suhyup Bank, Jeon Buk Bank, Kwangju Bank, Kyobo, PCA Life Insurance, Shinhan Card, NH Card, and KB Card.
- IT outsourcing for Prudential Life Insurance Company of Korea, KB Insurance, Shinhan Card, Bank of Korea (new digital projects e.g. distributed ledger), and Woori Bank (Big Data platform / robot pilot project).

Digital Financial System “Blue Print”

The goal that financial firms should aim for through digital transformation

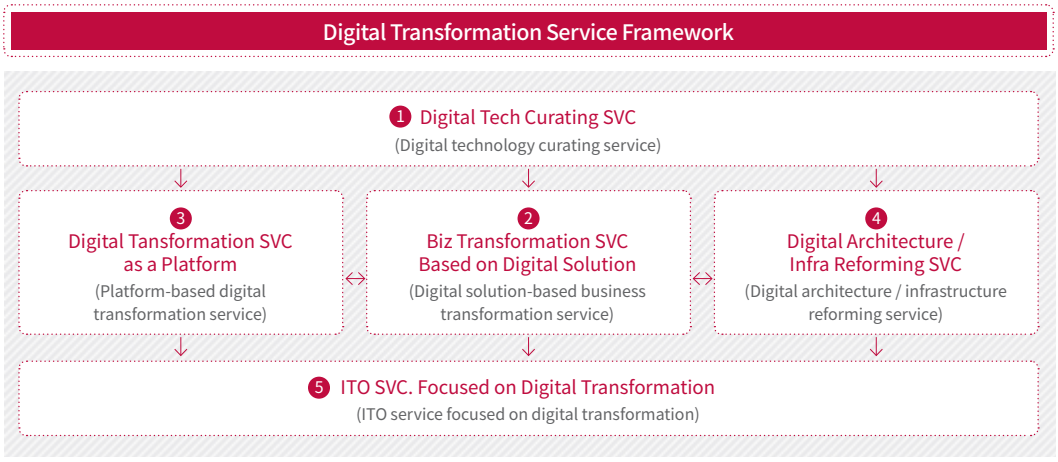


No. 1

Leader in the next-generation credit card system development market in 2017 (KB / NH / BC)

Service Offerings

We have provided comprehensive services to satisfy various financial institution's needs of digital transformation.



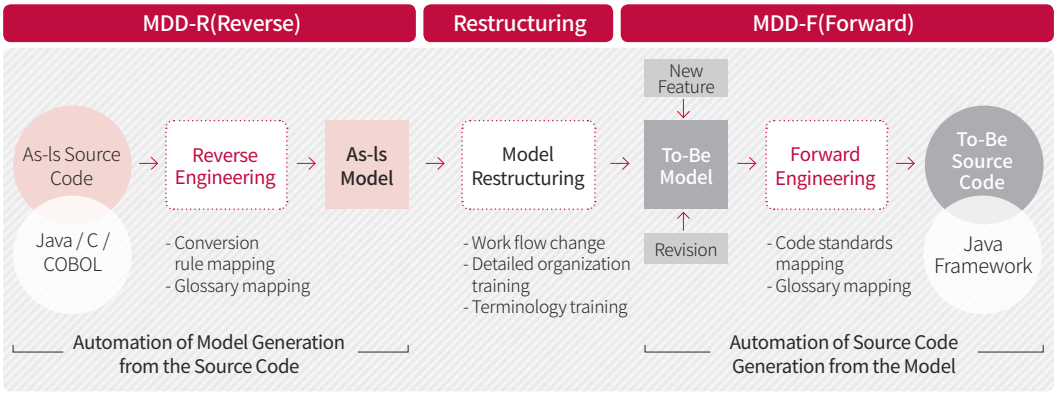
1. Add values to digital technology by creating a growth engine and solving business problems → areas of digital application, target operation / service model, technology / method application and execution plans
2. Drive business innovation / improvement based on digital solutions → digital business hub, RPA, digital channel, AI dialogue solution
3. Provide the service that links to internal-external or heterogeneous services and data based on big data / AI platform and blockchain platform → DAP platform service, blockchain platform
4. Replace infrastructure architecture and introduce new infrastructure for digital transformation → digital financial architecture restructuring, cloud / High-performance computing
5. Provide IT maintenance service based on digital governance for sustainable digital transformation initiatives → Infrastructure operation, process, and change in governance in the digital era

Solution

MDD (Model Driven Development)

Making the dream of automated software development come true, creating the complete source codewithout hard coding

Modeling tools are used to create a model for software design, and detailed logics are expressed in natural language (Korean), without the need to code in a programming language. Once the model is complete, a single click automatically creates the Java source code. In essence, a full source code is created solely from the software development design, just like inserting the design drawings into a 3D printer to create a fully-rendered three-dimensional product. Errors during software execution can be fixed by changing the design model, not the code. Generating and understanding software design documentation is considerably simpler than source code thanks to models.



Leading Changes for a Better Life

13

Energy

Leading constructor and operator of renewable energy power with excellent expertise in data analysis, IT technology, and software

As a leading constructor and operator in the renewable energy sector, we are committed to maximizing the profitability of our clients by leveraging our unparalleled data analysis, IT convergence and software expertise. By incorporating our IT solutions with Clean energy sources, We deliver stable, efficient, and smart energy services across the entire energy value chain. Covering from project development to operation and maintenance, Our experience and capability can meet the varying needs of every client.

Service Offerings

Development	Engineering / Construction	Operation / Maintenance
Project structure planning	Engineering and Design	Operational Data Analysis (by Energy Data Lab)
Site studies		
Legal / permit & license consulting	Construction	Maintenance
Financial feasibility study & Financing		

- Project structure planning
- Site studies
- Legal / permit & license consulting
- Power generation simulation
- Financial feasibility study
- Financing

- Power Infra examination
- Design development
- Maintenance and monitoring design
- Civil Engineering / building / mechanical / electrical engineering design & construction
- Grid connection
- Performance Rate Guarantee

- Operation planning
- Performance / history management
- Environment & safety management
- Facility operation / management

No. 1

No.1 ESS provider in Asia and No.5 globally <Bloomberg New Energy Finance 2018>

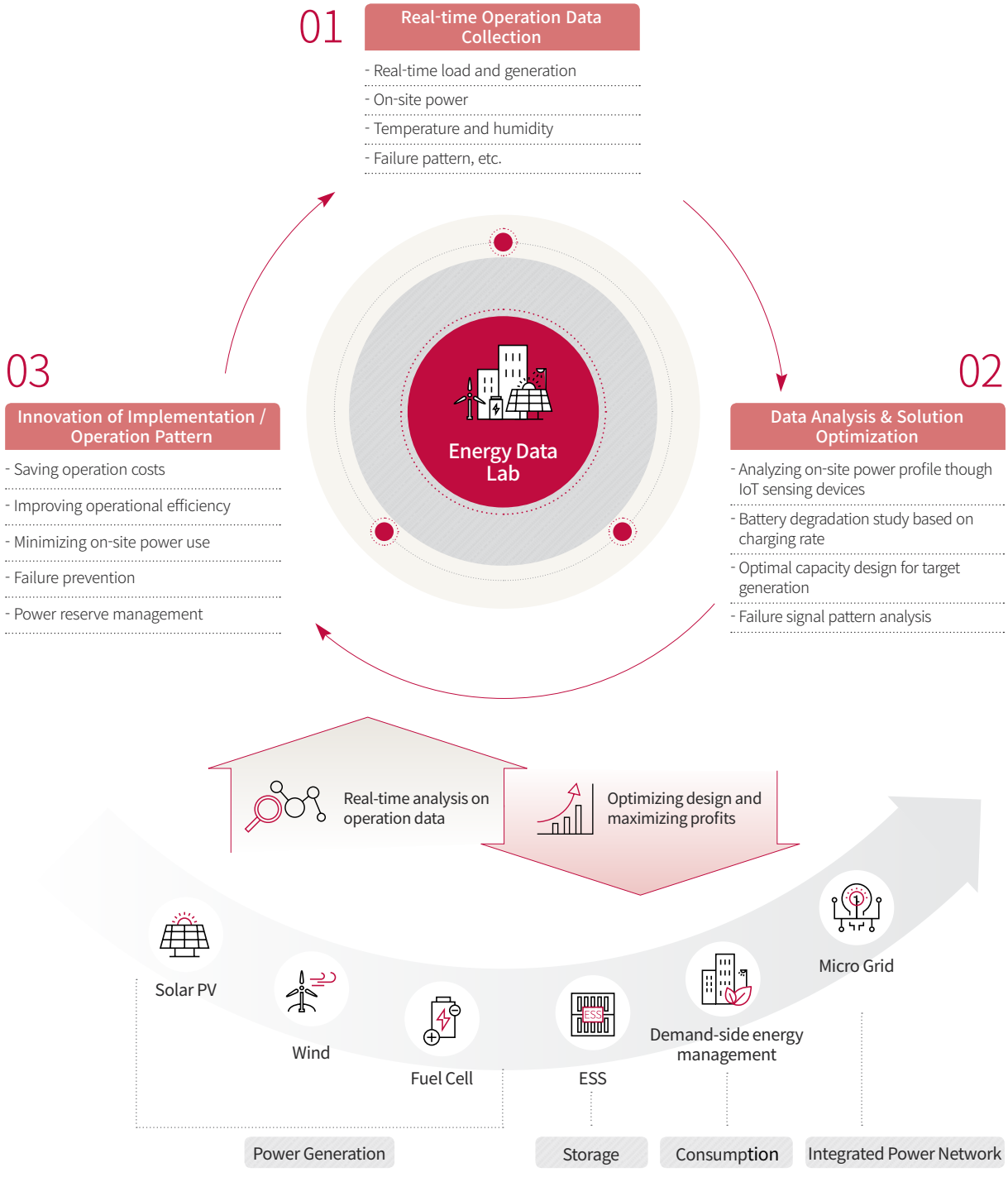
1st

Built the world's first utility-scale floating solar (Sangju Floating PV System, 6MW, 2015)

Named in top 4 floating PV companies in the world <GTM Research 2018.03>

Energy Data Lab

At the Energy Data Lab, we collect data from our energy sites and conduct data analysis in real-time. Based on the results of the analysis, We update and refine current energy solutions constantly, so as to enhance efficiency and profitability of energy sites. This loop of data collection / analysis and improved operational efficiency and implementation is a key to relentless innovation in LG CNS energy services.

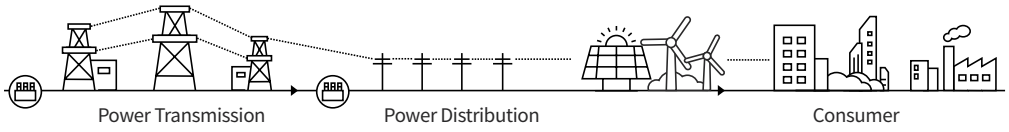


Enerdict, Our Energy Solution

Our energy solution Enerdict monitors and optimizes the entire process of power generation, transmission, distribution and consumption, leading to more efficient and smarter use of energy.

Renewable Integration
Improve the stability of renewable energy output

Emergency back-up
Supply contingency power for critical load during blackout



Frequency Regulation
Reduce the fluctuation of frequency caused by the gap between supply and demand

Demand-side energy management (for commercial / residential use)
Suggest and execute optimal pattern of energy use to save energy bill, with various factors counted in

Peak shifting (for industrial / commercial application)
Suggest and execute optimal battery charge / discharge schedule to save energy bill

Microgrid Control System(MCS) performs:

Dynamic scheduling based on output and load forecast / simulation	Ancillary Service: FR, margin, voltage management, black start	Demand analysis, market analysis, regulation cost, etc.

Key Achievements

PV

Overseas	- Tojo / Mine / Shirakawa / Shimane in Japan, 129MW - PV in Bulgaria, 21M - Awarded 60MW of PV+ESS project of Guam Power Authority
Domestic	- Sangju Floating PV, 6MW - Taean PV, 14MW - PV for Korean Western Power Bicycle Road

ESS

Overseas	- Awarded 40MW / 34MWh ESS project by Guam Power Authority - Awarded 60MW of PV+ESS project of Guam Power Authority
Domestic	- KEPCO FR ESS project (Phase I – III), 68MW / 7.8MWh - ESS for 7 KISWIRE factories - ESS for 6 LG Chem factories - ESS for Jeju Dongbok / Gashiri windfarm

Wind

- Suncheon Gaewoli Wind Power, 3MW
- Jeju Woljeong Wind Power of 3MW

Fuel Cell

- Fuel cells for the Siheung Baegot Booster pump station, 6MW

Microgrid

- Energy self-supporting island Ulleungdo / Jodo project (-2025)
- Jeju Haewon Eco-town (renewable energy town)

Leading Changes for a Better Life

14 — e-Government

Efficient and competitiveness-boosting administrative and government services built on unmatched public service technology capabilities

Strengthening Korea's e-Government Competitiveness At LG CNS, we provide transparent public administration service and play a critical role in exporting e-government. At the 50th e-Government Anniversary Ceremony in 2017, we were recognized for our contribution to the system and nominated for the Hall of Fame. In addition, we are No. 1 in e-government project performance.

Core Capabilities

- No. 1 in UN E-Government Development Index for the third consecutive year and implemented more than 60% of the world's leading Korean e-government system
- Provide e-government consulting / design / implementation service based on extensive experience
- Extensive experience in overseas public project implementing more than 40 e-government systems in over 20 countries worldwide

Business Achievements

- Smart School/ICT-based Education System Transformation
  · ICT Education System in Colombia
  · First Village Smart School in Sejong City
- e-Passport System: Participated in the Korea's e-Passport System Project from the first to sixth phase
- e-Library
  · National Electronic Library Project in Navoiy, Uzbekistan
  · National Digital Library (NDL)
- Public Registration System (Internet Registry)
- Data base system for the judicial branch
- Disaster Response & Safety System
  · 112 Control Center & 119 Situation Room in Korea
  · Emergency Response System in Mongolia / Crime Information Management System in Indonesia
- Smart City
  · Cheongna / Magok / Pankyo u-City
  · Jeddah u-City Master Plan of Saudi Arabia
- Korea Information System of Criminal Justice Service
- Mail Information System
- Implemented online company registration system in Bahrain

Service Offerings

- Education: Smart School, e-Library
- Ministry of Foreign Affairs: e-Passport
- Life: Smart City, Disaster Response & Safety
- Judicial: Corporate / real-estate registrations, legal affairs
- Legal: Criminal Justice, immigration, border control
- Administration: Government services, administrative information sharing, public records
- Tax: National finance, national tax, local tax, custom duty
- Other: Mail information, weather forecast

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 Administration		
Administration / Other	Mail Information	Weather Information	Customs	National Computing and Information Service		

1st
Ranked first in the UN e-Government Survey for three consecutive times

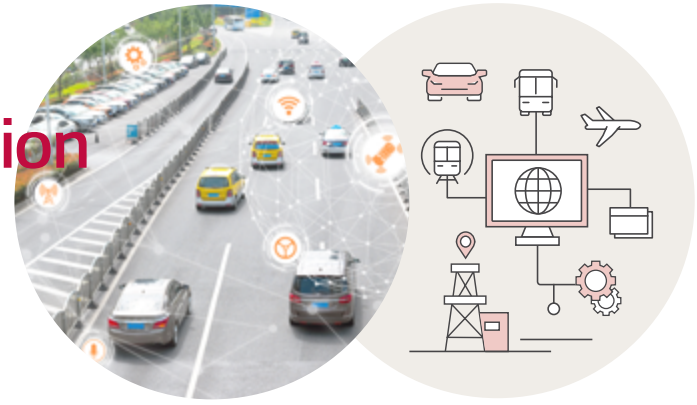
USD 250 million
e-government export to more than 20 countries worldwide

Leading Changes for a Better Life

15

Smart Transportation

Building Convenient and safe transportation systems with Information Technology



Creating an advanced transportation system

The LG CNS Smart Transportation solution aims to maximize operation efficiency, convenience and safety for multiple transportation modes such as bus, metro, taxi, rail and air travel.

Convenience for passengers, efficiency for operators

Our Automatic Fare Collection (AFC) solution supports both integrated fare payment and multi modal platforms that ensure convenience for travelers, while our Fleet Management Solution (FMS) enhances bus operation efficiency.

Global project references for Smart Transportation Solution

Our successful implementation of the Seoul T-money System, the Seoul Transport Operation & Information Service (TOPIS), the Korea High Speed Rail's Integrated Rail Information System (IRIS) and the Incheon International Airport lead to a number of other international projects in the smart transportation sector.

Core Capabilities

- LG CNS provides end-to-end services and solutions for fare collection by integrating fare information and applications across multiple transportation systems and routes
- LG CNS is fully capable of leading other Smart Transportation initiatives including the Intelligent Traffic Management System (ITMS), Fleet Management System (FMS), Smart Rail and Smart Airport.

Business Achievements

- T-money (AFC) – Seoul (Korea)
- Tullave (AFC) – Bogota (Colombia)
- Hellas Smart Ticket (AFC) – Athens (Greece)
- Bus AFC & FMS – KL, Penang (Malaysia)
- BMS[1] – Incheon, Daegu (Korea)
- TOPIS[2] – Seoul (Korea)
- Smart Tolling Information System – Korea
- Comm. & Security System – Korea High Speed Rail
- Comm. System – Seoul Metro (Korea)
- MRT Line 1 Comm. System – Kuala Lumpur (Malaysia)
- Monorail PSD[3] - Kuala Lumpur (Malaysia)
- Monorail PSD – Lusail (Qatar)
- Air Traffic Control (ATC) – Incheon, Daegu (Korea)
- Airport Security & Integrated Airport Information System – Incheon International Airport, Korea

40 Million

Number of daily T-money transactions

99%

T-money usage rate for public transportation fare transactions in Seoul

1) BMS: Bus Management System 2) TOPIS: Traffic Operation Information System 3) PSD: Platform Screen Door

Service Offerings

Road

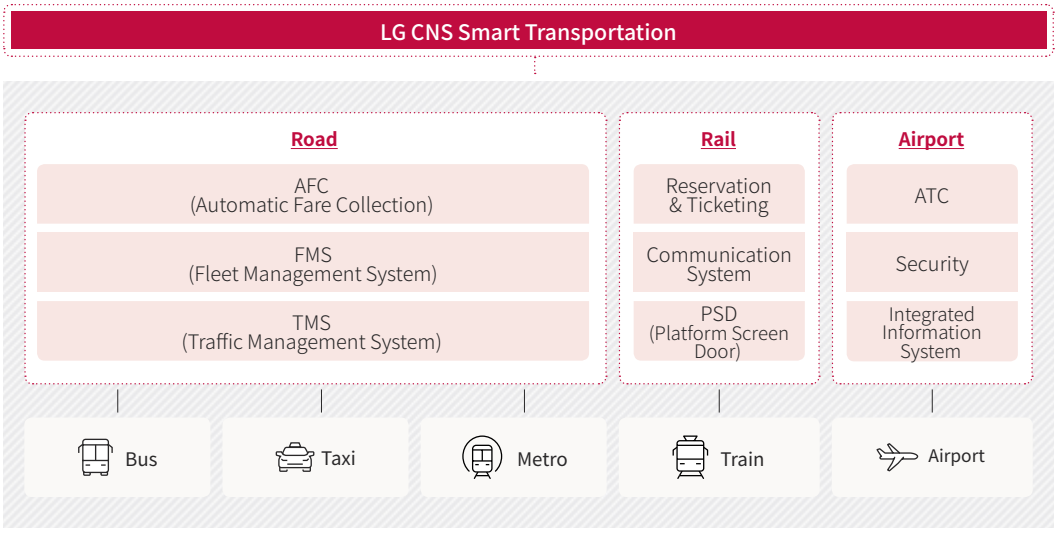
- Fare Collection solutions for city transit such as bus, metro and taxi. The Fleet Management Solution is available for enhancing the efficiency of bus operation. Road traffic and public transit operation information are provided via the Traffic Management Solution (TMS).

Rail

- Communication systems for rail and metro networks, Platform Screen Door (PSD) to ensure passenger safety at metro platforms, Reservation and Ticketing for both high speed rail and conventional rail networks.

Airport

- ICBMS-based airport security solution 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.



Solution

World's Most Convenient Transportation Smart Card System – LG CNS

AFC
(Automatic Fare Collection)

Our smart card-based fare payment solution can be expanded to all city transit such as bus, metro, tram as well as taxi. The system provides flexibility for different fare types for different transit modes as well as for integrated multi-mode ticketing. City-wide fare payment infrastructure can be expanded to multi-functional sector such as retail and public services.

FMS
(Fleet Management System)

The LG CNS FMS (Fleet Management System) provides planning & dispatching service from planning timetables to optimized allocation and assignment of vehicles and drivers. The solution also tracks the location of vehicles in real-time to enable bus drivers and companies to maintain appropriate vehicle intervals and optimize the vehicle dispatch process.

Leading Changes for a Better Life

16

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 Developer

Based on unparalleled digital technology and expertise in solutions we have gained by implementing city infrastructure since the introduction of U-City, we are leading the smart city revolution.

Core Capabilities

Unparalleled know-how and expertise of a leading smart city developer

	U-City		Smart City
R&D	R&D for U-Eco city platform (Based on integrated operation of city infrastructure)	→	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 demonstration / test service (Demo city, Sejong 5-1, JDC, solar city)
Project	Unmatched project development across the entire smart city lifecycle (USP, working design, implementation, operation / relocation > 18 projects worth KRW 120B in Incheon Cheongna, Seoul Magok and Sejong-si)		

No. 1

- Smart city development experience in Korea
- Korea's No. 1 smart city developer with full life-cycle experience and expertise

Business Achievements

Smart City strategy planning and master plan

- Specialization strategy for Jeju Smart City Demo Complex
- Smart City National Strategy Project R&D
- Concept design for Smart City Innovation Test-Bed
- U-City plans and designs for Songsan, Gangwon Wonju, Chungbuk / Jeju, Goyang Samsong, Yeongjong, Incheon Cheongna, and Wonju

Smart City working design and implementation

- Working design and implementation of U-City in Seoul Magok District
- Working design and implementation of MTV Smart City in Shihwa
- Implementation of U-City in Sejong-si, Incheon Cheongna, Suwon Homaesil, Daejeon Future-X, Pangyo, Eunpyeong Newtown and Songdo.

Service Offerings

Consulting

- Smart City urban concept / design
- Development / implementation of platform / private investment-based business models

Design / Implementation

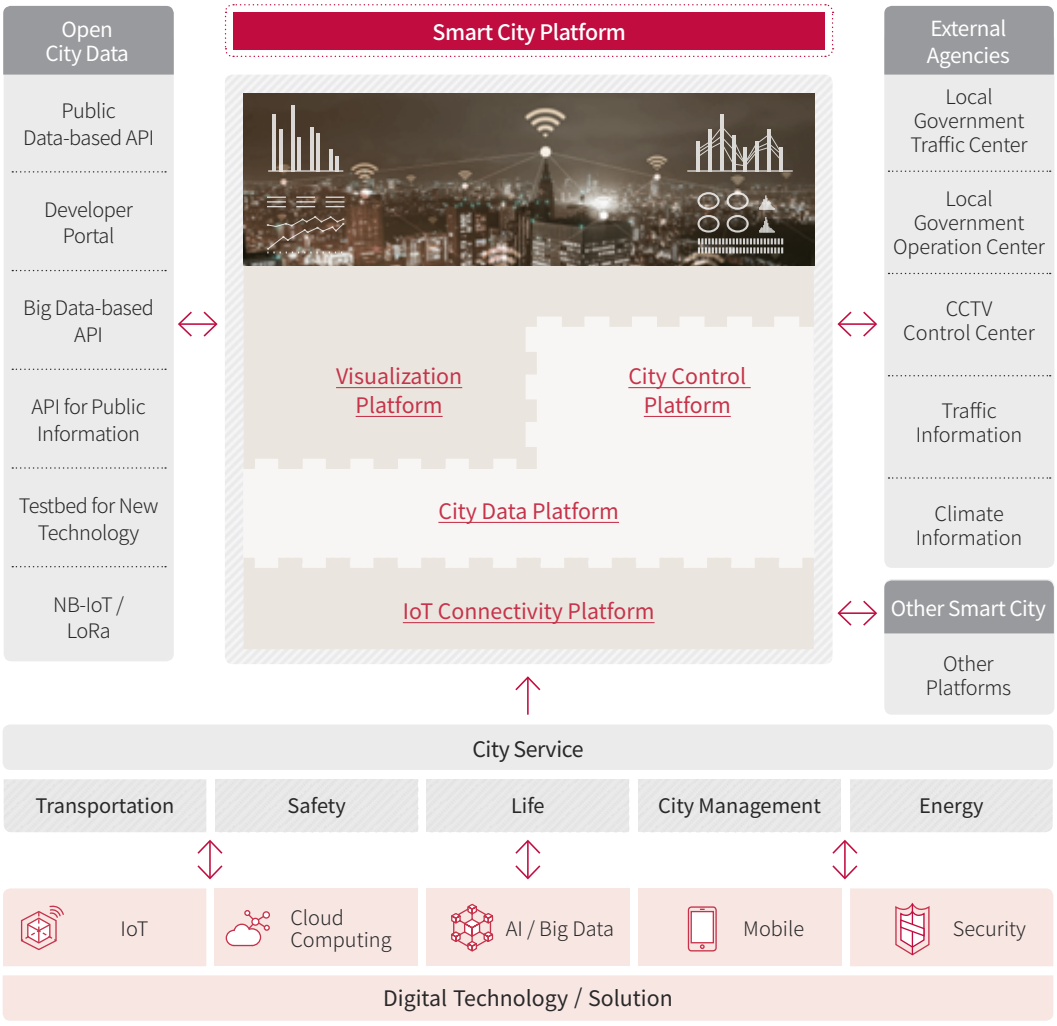
- Data-based city platform design / implementation
- Platform-based Smart City service planning / implementation

Operation / Management

- Urban service control and operation
- Supporting service ecosystem through platform-based city living map

Solution

We develop new Smart City services through convergence of digital technologies-IoT, Cloud, Big Data, and AI-across various industries including transportation, safety, living, urban management, and energy, and provide integrated urban operation and management services through open Smart City platforms.



2

SUSTAINABILITY ISSUES

CUSTOMER-FIRST

46 Quality Management
50 Information Security

MUTUAL GROWTH

53 Shared Growth
57 Social Contribution

HUMAN RESOURCE

60 HR Management
63 Corporate Culture

ETHICS

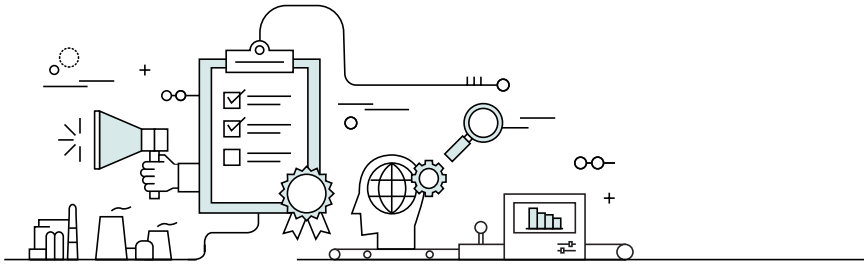
66 Jeong-Do Management
68 Fair Trade

ENVIRONMENT

70 Environment Safety & Health
73 Climate Change Response

Customer-First

Quality Management



Our Quality Management System

LG CNS believes that our business mission is to create customer value based on our technological expertise. We also fully understand that preemptive risk management and quality assurance are essential in large-scale projects, particularly those for the public and financial sectors, as they have overarching economic and social impact. In order to raise employee awareness on quality and accountability, LG CNS has in place a corporate-level quality management system as well as a quality policy to ensure that our quality standard is clearly communicated and implemented internally.

Global Standard for Quality Management System

In July 1994, LG CNS became the first SI in Korea to acquire the ISO 9001 certification, an international standard on quality management system, for all of our business locations. We also successfully completed the post-certification assessment as well as the comprehensive recertification process conducted every three years. Over the course of this intensive certification process, we made ongoing business process innovations and completed a quality management system that help our employees deliver best performance.

To facilitate the transition to the ISO 9001:2015 standards such as RBT (Risk-Based Thinking) in 2017, we conducted training (193 employees for external training, offline practice for 31 employees, and online training for 200 employees) and a gap analysis through third-party organizations in January 2017. In addition, a process and output maintenance was carried out along with internal review training for 236 organizations (team, projects), 244 employees, and cross-organizational internal reviews. As a result, we were certified for ISO 9001: 2015 through transition and renewal reviews organized by third party organizations in June 2017.

Following a request from our clients in Greece, we underwent the ISO9001:2015 review process and obtained certification in January 2018.

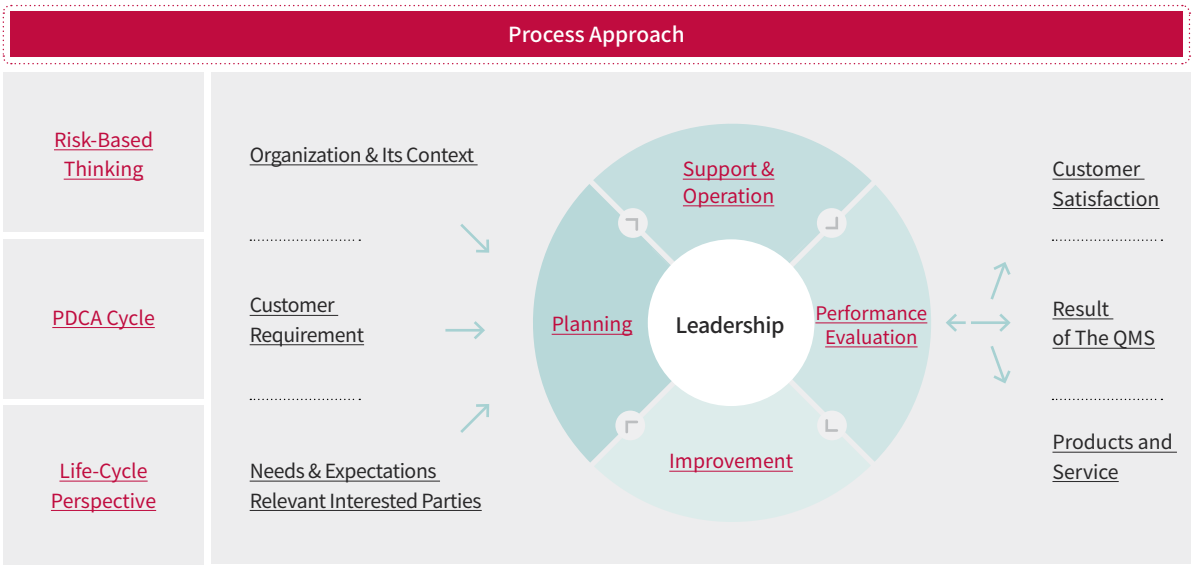
ISO 9001

Developed by the ISO (International Organization for Standardization), ISO 9001 is the international standard that specifies requirements for a quality management system (QMS). This standard is used to demonstrate the quality of a QMS (through which products and services are produced and supplied), not the quality of products or services.

Risk-Based Thinking

It refers to a cyclic process of Risk Identification → Risk Assessment → Risk Response → Monitoring → Feedback.

ISO 9001: 2015 High Level Structure and Model



CMMI (Capability Maturity Model Integration)

CMMI is a standard for software and system quality management jointly developed by the Software Engineering Institute (SEI) of Carnegie Mellon University and the industry. Business organizations use this standard to demonstrate the level of their capability in information system development. A follow-up model to the earlier CMM, a widely adopted standard for software quality appraisal, CMMI is a process-level capability improvement model for software and system technologies and is used for comprehensive assessment of the overall system, including software quality, implementation quality, maturity of operation and process and executional capability.

Implementation of Global Standard for Quality Management System

Project / service site-oriented workstyle change

- 2016-Pressent: Project performance based on implementation principles
- 2013-Pressent: Solution quality management
- 2012-Pressent: Implementation based on core task flow
- 2009-Pressent: Introduction / expansion of agile SW development
- 2008-Pressent: Introduction / expansion of MDD

Agile / MDD

CMM / CMMi, ITIL, eSCM

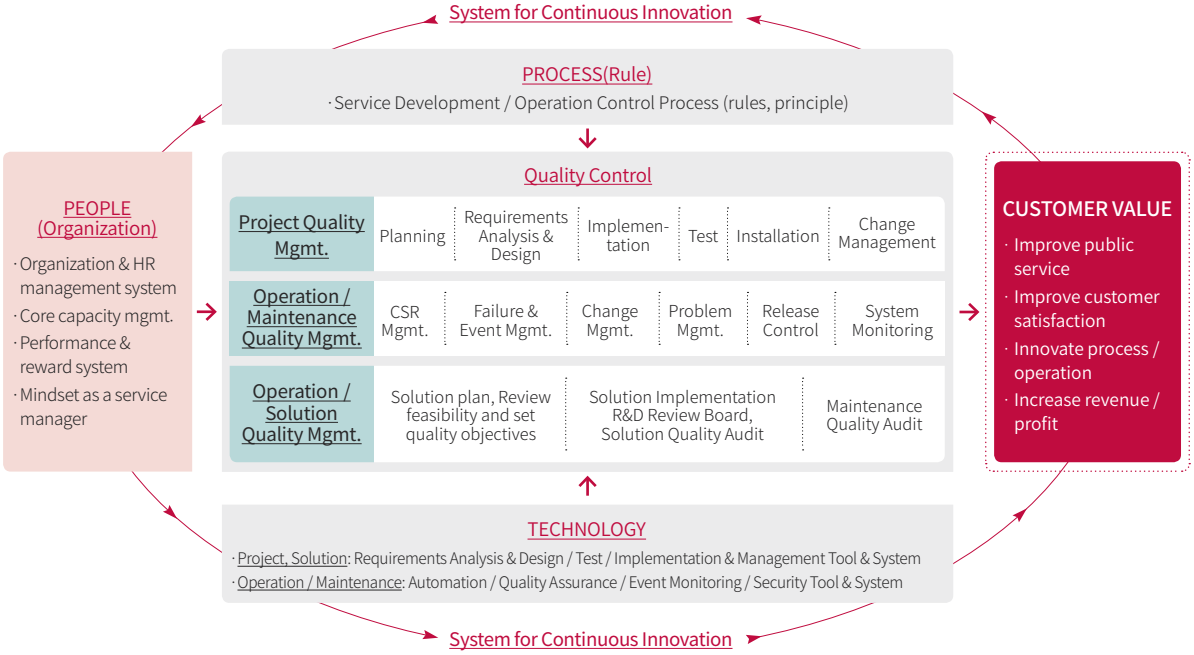
- 2010: TMMi Level 3 Certification (Asia's first in the testing field)
- 2006-Pressent: Certification activity based on the needs of each business site (Corporation, DCC, etc.)
- 2005: CMMI Level 5 Certification (First in Korea, LIG)
- 2003: CMM Level 5 Certification (First in public sector, Supreme Court)
- 1997: CMM Level 2 Certification (First in Korea, 4 projects)

Quality Management System ISO 9001

- 2010: ISO 14001 Environmental Management System
- 1994-Present: Corporate-wide ISO 9001 Certification & Recertification (First in the industry to be certified for all business locations)

LG CNS Quality Management

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

In order to break from the conventional quality management framework that primarily relies on follow-up management, LG CNS established a quality management process that allows us to preemptively identify risks and address them. As part of these process-based internal quality assurance efforts, we developed implementation rules for mandatory adherence during project performance and established an ongoing monitoring system to ensure strict employee compliance at our offsite projects.

Operation / Maintenance Service Quality Management

As part of our ongoing efforts to ensure service integrity, deliver uninterrupted IT services and make ongoing improvements, LG CNS established core action requirements that serve as a basis for employee action at our maintenance service sites and ensure the stability and reliability of our services. We also have in place an E2E (End-to-End) quality management system that combines real-time event monitoring with a rapid response system to enable detection immediately following, or prior to, an event.

Solution Quality Management

LG CNS operates a solution quality management system to facilitate our quality management efforts throughout the lifecycle of our solutions, from planning and development to maintenance. We also implement quality audit as the final step in our quality assurance process, which includes a review of the sales and maintenance system and screening against intellectual property and information security issues, in order to ensure that only the highest quality solutions are delivered to our customers.

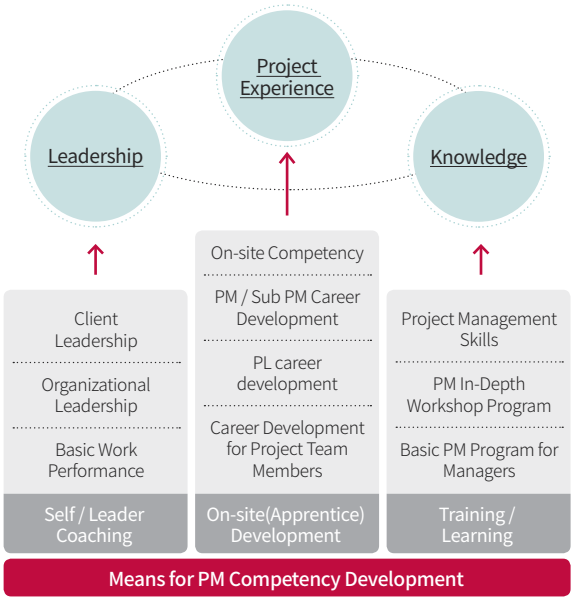
Increasing Customer Satisfaction through Development of PM

In response to global economic uncertainty and the transition to the Fourth Industrial Revolution, many companies are focusing on projects that drive business innovation and organizational change. Up until now, the success of a project depends on meeting the demands within a set time frame and budget. However, there are projects considered successful under these requirements but which failed to create values as expected.

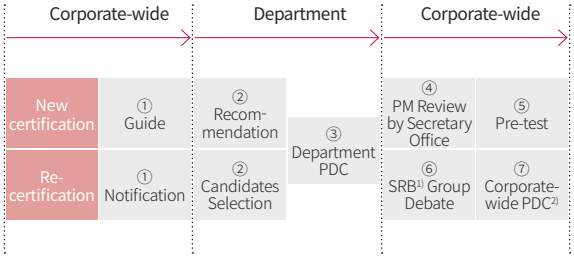
We believe that PM (Project Manager) plays a critical role as a business innovation partner in project execution.

The LG CNS PM policy is designed to ensure that our PMs stay on top of the value-focused project management process and maximize the clients' value through experience-based case studies by dealing with risks in the areas of business domain. To this end, we have implemented such systems as PM expert certification, training, community and evaluation.

Competency Development Model for PMs



PM Expert Certification Process



1) SRB: Skill Review Board 2) PDC: Personnel Development Council

The qualification of PMs is reviewed based on their experience and training background for selection on an annual basis while re-certification is required every 3 years. (23 First Class and 99 Second Class PMs in 2018)

PM Development System & Training

Category	Certified PM	PM	
		Large Scale / Open	Small Scale / Family
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 / Open Projects)	- Basic Project Management (for Small Scale / Family Projects)
		- Project Finance Management - IT Contract / Legal Affairs - Practical S/W Engineering	

Increasing Customer Satisfaction with Greater Customer Value

As part of our efforts to drive customer business innovation with best-in-class IT service capabilities, LG CNS utilizes diverse channels for customer engagement such as satisfaction surveys tailored to individual customers in improving our service quality and customer satisfaction based on close communication with our customers.

Customer Satisfaction Survey Process

LG CNS performs a broad range of analysis (index analysis, average analysis, loyal group analysis, cross analysis, gap analysis and portfolio analysis) on the quantitative data produced by our customer satisfaction surveys, and based on the results, develops customer satisfaction strategies and carries out improvement initiatives. We also included customer satisfaction and performance in improvement initiatives in the criteria for our internal project and maintenance service assessment to raise employee awareness on customer satisfaction.

Collect	Analysis	Improvement	Incorporation of the Results
· Confirm Target · Compile Customer List · Data Validation · U-CSI System Registration · Conduct Online Survey	· Data Screening · Data Analysis · Report Results	· Identify Improvement Points per Group · Establish and Register Improvement Plan · Implement Improvement Plan	· Project Evaluation · SM Excellence Evaluation

Customer Satisfaction Index System (U-CSI)

In 2009, LG CNS developed a customer satisfaction evaluation model based on consultation on customer satisfaction management system provided by the KMAC, and established the U-CSI (Customer Satisfaction Index) to conduct a systematic customer satisfaction survey. Based on the system, we developed a questionnaire tailored to each customer group and conduct a customer satisfaction survey in the second half of the year for maintenance service customers and upon completion for project customers.

Customer Satisfaction Survey Results

In 2017, LG CNS conducted the customer satisfaction survey on 63 internal teams (including five overseas subsidiaries), 30 client companies and 17,051 customers, with a total of 4,862 customers responding to the survey. A close analysis of the results shows that our customer satisfaction increased 0.2 percent from 2016 with an average satisfaction rate of 79.7 percent. The percentage of positive responses on resigning of contact with LG CNS, work expansion, and recommendation to others is increasing at a steady pace.

Items		2015	2016	2017
Customer Satisfaction		5.50 (78.6%)	5.57 (79.6%)	5.58 (79.7%)
Customer Loyalty (%)	Contract Renewal	65.0%	67.6%	68.0%
	Recommend	67.9%	70.1%	71.5%
	Contract Increase	61.2%	63.7%	64.4%

Customer-First

Information Security

Our Response System for Information Security

As part of our strong initiatives to safeguard the valuable personal data and information assets of our customers, LG CNS developed an information security management system based on relevant local and international laws and regulations, including the Act on Promotion of Information and Communications Network Utilization and Information Protection, Etc. and the Personal Information Protection Act.

'Protect the information assets of LG CNS and our customers' & **'Provide a safe and secure business environment'**
through an effective information security management system and heightened employee awareness on information security.

Information Security Management
Closely Linked to Business Process

SI & SM Project	B2C	B2E	IDC	R&D Solution	Support / Cooperation →	Subsidiaries / Overseas Subsidiaries

ISO27001 / ISMS* Security Management System

Administrative	Technical	Physical	Personal information

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

Establishing Information Security as a Requirement

In addition to the official appointment of a CISO (Chief Information Security Officer) and a CPO (Chief Privacy Officer), LG CNS requires all of our business departments to assign an information security officer and an information security manager in order to increase accountability in our information security efforts. The information security manager at each department assists the information security officer (department head) and performs various security management tasks (personnel management, core asset management, communicating security issues, etc.) in his or her organization. LG CNS also holds the Information Security Conference with the participation of business department and B2C division leaders on a semiannual basis to discuss major security policies, security measures and related business plans.

Information Security Conference

Employee Training & Awareness on Information Security

LG CNS requires all of our employees to submit a pledge for information security and to receive training on information security and protection of personal information on an annual basis. In particular, business departments that handle personal information are required to assign a personal information protection manager to further our efforts to protect personal information and prevent data breach. In an effort to raise employee awareness on information security, we also visit our major SI and SM project sites to provide employees with information security training, and send out regular information security bulletins.

On- and offline Information Security Training

Global Standard Information Security Management System

Our information security management system has acquired local and international certifications such as ISMS and ISO27001, and received the “Best Protection Award” in 2014 for our outstanding efforts in infrastructure protection. LG CNS continuously engages in information security efforts based on a management system in compliance with local and international standards to safeguard the valuable assets and information of our customers.

Local and International Certifications

Eliminating Breach of Personal Data & Core Solution Data

In response to the increasing risk of data breach incidents as well as greater accountability, LG CNS assigned controlled areas in our business locations (2015) and implements stronger security measures compared to general office spaces. In addition to security speed gates, we also utilize metal detectors, X-ray inspections and document inspections to strengthen our physical security barriers, ensuring that no attempt at data theft bypasses our security measures.

Physical Security Control

Strengthening our Personal Information Management System

As part of our efforts to effectively manage personal information, LG CNS provides annual training to employees who handle personal information and conducts annual inspection on our contractors that processes personal data to monitor their practices. We also utilize a system specifically developed to process personal information to perform automated self-assessment and conduct site inspections to monitor employee practices in handling personal information—all of which lead to tangible improvement. Additionally, we conduct regular data-breach drills with all of our employees to raise employee awareness on data breaches and enhance our information security levels.

Privacy Policy

01	Collect a minimum amount of personal information absolutely needed in providing the service.
02	Do not collect any identification information such as resident registration number and 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

LG CNS manages information security as one of the measures of our organizational performance to systematically and effectively address security risks. We included the information security performance of the organization in the performance assessment criteria for department leaders to further motivate them to monitor the information security performance of their organization and implement measures to prevent security issues. We also conduct monthly security checks on employee PCs and any personal information stored on these machines to thoroughly protect employee PCs, delete personal data not required for the employee's job performance and encrypt the personal data required for the employee's job performance. Additionally, we engage in diverse information security campaigns such as “Clean Desk” and project security compliance activities, and incorporate the results into the information security rating.

Information Security Assessment –
Security Rating for Each Organization (Illustrative)

Items	Status	Security Violations
Current Month	☀	0
Cumulative	☀	0

* LG CSN manages the results of our diverse security efforts in real-time by incorporating them into the Information Security Rating.

Global Compliance Risk Management

In response to the strengthened regulatory environment for the protection of privacy, as evidenced with adoption of EU GDPR(General Data Protection Regulation) or Network Security Act of China, we, LG CNS, minimize compliance risk through proactive and on-going measures with help of our global network. We identify every compliance criteria and set up appropriate measures to take and conduct continuous inspection for safe and sustainable global business operation.

Actions to Security Act of China

Main Criteria		Measures
Network Security Breach Prevention	Management	· Establish feasible security policies and ensure strict compliance · Implement data classification · Monitor security breach and setup appropriate measures
	Technology	· Strengthen access control and account management · Malware vaccination · Regular inspection and setup response system
Privacy protection management 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

Actions to GDPR

Main Criteria	Response 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	· 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
· Actions against breach	· Establish measures for personal information breach incidents (i.e, notification process) · Safety measures for personal information devices

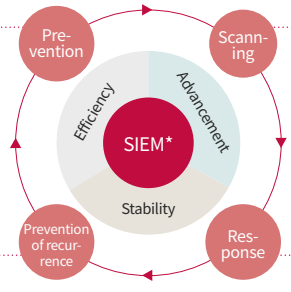
Security control service for safe business environment from Cyber attacks or malware

In recent years, we face increasing personal information breaches and cyber attacks, which impact our society seriously. We, LG CNS, make great efforts to minimize the possible security breaches through continuous prevention activities against internal and external hacking and malware attacks. Also, we built total security service such as real time monitoring, detecting security breaches and providing timely response. Furthermore, by adopting solutions to malware and ransomware, we provide secure business 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

Mutual Growth

Shared Growth

LG CNS is fully committed to creating a sustainable system for shared growth based on partnerships defined by trust and cooperation. To this end, we continually search for innovation-ready suppliers provide ongoing support to help them grow into business partners with strong business competitiveness.

Key Performance Indicators(KPI)

Win-Win Growth Partnership Index (Released in June 2018)
Rated "Most Outstanding"

Amount of Win-Win Growth Fund Raised / Administered (including direct financing)

2016 : KRW 19 billion / KRW 15.1 billion
2017 : KRW 40 billion / KRW 17.2 billion

Number of Suppliers Completed CSR Risk Assessment
147

Performance Summary

Key Management Issues	Implemented	Major Activities
Expanding communication with suppliers	Year-round	- Workshops for CEOs from the supplier side - Operation of the Supplier Cooperatives (a form of a supplier council) - Year-round operation of the VOS pro 67.6%
Strengthening support programs for promoting supplier competitiveness	As Required	- Support for the Technology Escrow Service - Support for the Original Certificate Service for the Trade Secret - Support for suppliers establishing overseas operations for LG CNS projects
Expanding financing programs for suppliers	As Required	- Financing support for suppliers (Direct financing, Win-Win Growth Fund, and Network Loan) - Fulfillment of 100 percent cash payment (100% cash payment for subcontractors)
Increasing fairness and transparency in business transactions	May to August	- CSR risk assessment on major suppliers

Promoting Fair Business Transactions

Compliance with Fair Trade Guidelines

LG CNS adopted the Four Action Guidelines for Fair Trade as part of our initiatives to ensure full compliance with the "Fair Transactions in Subcontracting Act" as well as to protect our suppliers from unfair treatment in their business transactions with LG CNS.

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 for Fair and Transparent Selection (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

LG CNS adopted the "Standard Subcontracting Agreement," developed and recommended by the Korea Fair Trade Commission (KFTC), in the early stage of its implementation. In 2012, we participated in the public-private taskforce led by the KFTC on improving subcontracting practices in the software industry, and helped the commission in developing the "Standard Subcontracting Agreement for the Software Industry". LG CNS became one of the first companies to adopt the revised standard agreement, taking leadership of the industry's effort to establish fair contracting practices among large software companies and SMEs.

In addition to our transactions with suppliers from the four major software business categories, we use the Standard Subcontracting Agreement in our business transactions with construction companies (four categories) and consignment manufacturers (three categories), in full implementation of the standard throughout our business operations.

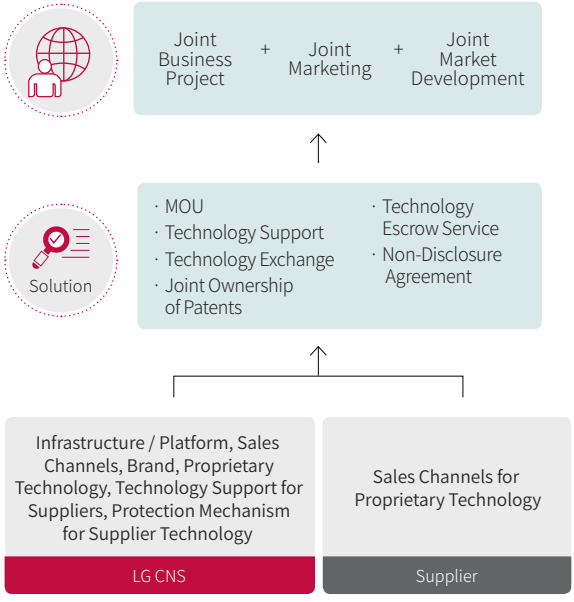
Pledge for Jeong-Do Management

As part of our initiatives to eliminate unfair practices and irregularities / corruption in our business transactions with suppliers, LG CNS requires a pledge for Jeong-Do Management to be signed and submitted on all of our subcontracting agreements.

Support Programs for Enhancing Supplier Competitiveness

Joint R&D, Marketing and Business Projects

LG CNS strives to share our vision with suppliers through joint R&D, marketing and business projects with suppliers that possess technological capabilities. In particular, we provide support to our suppliers who establish overseas operations for LG CNS projects in order to secure future growth drivers and create a sustainable system of mutual growth.



Supplier Support for Developing and Protecting Technology

As part of our initiatives to promote supplier competitiveness, LG CNS actively pursues joint R&D projects with suppliers to create an opportunity for technology support and exchange. In order to better protect supplier technology, we also seek joint ownership for patents on the products of our joint projects and utilize the Technology Escrow Service for new technologies developed through our collaboration.

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

Financial Support

In 2010, LG CNS established the Win-Win Growth Fund and has since provided financial support to our suppliers, i.e. working capital for day-to-day operations and financing for mid- to long-term initiatives for building competitiveness (R&D, investment support for new businesses, etc.).

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

Improvement of Payment Terms

As part of our initiatives to promote the financial soundness of our suppliers, LG CNS does not maintain a fixed payment cycle and makes payment to our suppliers for each contract upon the completion of the internal verification process for project delivery, placing no monthly limit on the number of payouts (made in cash within ten days of verification).

Waiver of Surety Insurance

LG CNS does not require our suppliers to submit surety insurance on all contracts payable after delivery, unless the client makes a specific request.

Cost Adjustment

In business dealings with our suppliers, LG CNS maintains an accommodating position on cost adjustment. In the occurrence of cost-impacting factors, we review and adjust the cost (or contract amount) based on the standard more favorable than the terms specified in the Korea Fair Trade Commission's Standard Subcontracting Agreement.

HR Support for Suppliers

As part of our HR support for our suppliers, LG CNS operates the U-CAMP Software Developer Training Program to address one of the major HR challenges faced by our suppliers—acquisition of quality talent. We also conduct professionalism training in addition to expertise training through various on / off-line programs.

U-CAMP SW Developer Training Program

First introduced in 2006, this recruitment and training program for entry-level employees was developed to help our SME suppliers address challenges in recruiting and training entry-level employees as well as to promote job creation in the software industry. The 10-week program offered for free has recruited and trained over 1,000 entry-level employees for our suppliers through 27 cycles, as of 2018.

Suppliers On / Offline Study (2017)

Category	Online Study	Offline Study
No. of Programs	19	9
No. of Persons Completed the Programs	2,306	374
Key Areas	Technology, Job Knowledge	Technology, Performance Innovation

Dedicated Organization & Facility for Supplier Training

In addition to a business department that oversees our corporate initiatives for shared growth, LG CNS has in place a training team and facility dedicated to training supplier employees.

Dedicated Organization for Supplier Training
· Operates a supplier training part under the Tech Capability Development Team

Dedicated Facility for Supplier Training
· Operates a training facility at the LG sciencepark

Operates a supplier training portal, the Partner Campus

Academy-Industry Cooperation (Large Company / SME / University)

We formed partnerships with universities and suppliers to provide job opportunities for talented individuals and to help our suppliers secure human resources in the software industry. The students are provided with opportunities to gain on-site job experience and work for our suppliers after graduation.

Management Support

LG CNS offers management support to our SME suppliers who are comparatively vulnerable to business management risks.

*Sexual harassment prevention training for employees, training for on-site representatives, management consulting for HR and finance

Support for Suppliers Establishing Overseas Operations for LG CNS Projects

Encouraged by our positive experience in the Korean market and close partnerships with our suppliers, LG CNS is actively developing business opportunities overseas and producing meaningful results in various business areas, most notably in smart transportation. Our endeavors for greater opportunities will serve as a strong driver for sustainable and shared growth with our suppliers.

Project in Guam

Joint Overseas Market Penetration in 2017 (Supplier Engagement)

- PV+ESS EPC and O&M project in Guam (civil / electrical engineering, construction / installation of building structure)
- E-library development project in Uzbekistan (introduction of e-library package)
- Bus information system development project in Penang, Malaysia (PCS-OBV development)

Open Communication

Year-round VoS (Voice of Supplier) Program

LG CNS operates a dedicated supplier portal, Partner Plus, which features a section for open communication to collect the real voice of suppliers year-round and incorporate their feedback into creating a powerful culture of collaboration.

* http://partnerplus.lgcns.com

Workshops & Talk Sessions with Supplier CEOs

LG CNS organizes workshops and talk sessions with suppliers on a regular basis to share our performance and business issues as well as to inform our suppliers on related laws and regulations (data security, protection of personal information, etc.) pertinent to our business transactions with suppliers. These efforts promote mutual understanding and strengthen the foundation for our shared growth.

LG CNS Workshop & Talk Session with Supplier CEOs

Participation in Large Corporation–SME Cooperation Meeting

The Large Corporation–SME Cooperation Meeting offers an opportunity for LG CNS to introduces our policy on business partnerships to SMEs interested in collaboration with LG CNS, as well as for obtaining information on the technology and business strengths of potential SME partners. LG CNS actively participates in these events as part of our ongoing efforts to discover and build business partnerships that create synergy.

Supplier CSR Risk Assessment & Management

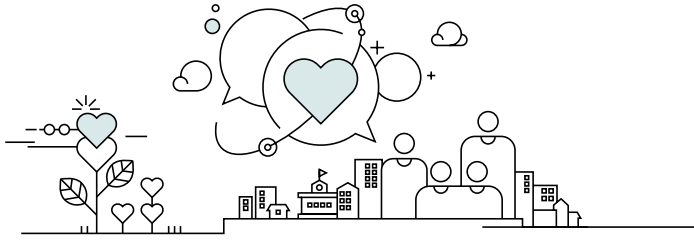
Since 2015, LG CNS has conducted supplier CSR risk assessment on an annual basis. In the assessment, our suppliers are evaluated on their CSR compliance performance in five categories: ethical management, working conditions, labor rights, industrial safety and health, and the environment; the annual review is composed of a self-assessment, request for CSR guidelines and pledge for CSR compliance, and a CSR audit. The Corporate Procurement Department selects assessment targets from suppliers who are subject to our regular supplier assessment, and the results will be incorporated by stages into our regular purchasing review. LG CNS is in the process of establishing a support system, including CSR templates, to provide assistance to our suppliers in their improvement initiatives. Additionally, we provide a comprehensive range of CSR awareness training programs such as lectures on CSR to CEOs and executives from our suppliers, employee CSR training offered as part of our CSR audit, and CSR newsletters.

Supplier CSR Management Performance

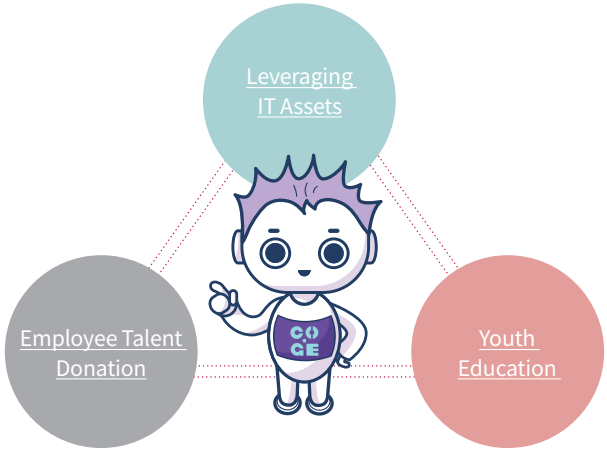
Year	2016	2017
Number of Suppliers Participated	183 (Regular Assessment)	147 (Regular Assessment)
Major Activities	· CSR awareness training - W/S for supplier CEOs - Employee CSR training offered as part of CSR audit	· Request for CSR guidelines · CSR self-assessment / audit · Provision of CSR templates
Criteria for Pledge / Assessment	· Ethical Management · Labor Rights · Industrial Safety & Health · Environment	· Ethical Management · Labor & Human Right · Information Security · Industrial Safety & Health · Environment Management

Mutual Growth

Social Contribution



In an effort to create greater impact with our social contribution initiatives, LG CNS does not rely on simple cash donations; we select the beneficiary groups based on a clear strategy and strong principles to identify the most effective means of support, while enhancing the impact of our programs through partnerships with government agencies and professional organizations. LG CNS established the followings as the governing principles for our social contribution efforts: ① leverage our IT assets, and ② with the direct participation of our employees, ③ provide youth education programs. Guided by these principles, LG CNS focuses our capabilities and resources on addressing social issues, while carrying out our corporate social responsibility by nurturing tomorrow's IT experts.



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2017 Social Contribution Key Performance Indicators (KPI)

	Coding Genius		IT Dream Project
	Number of Employee Volunteers / Total Hours	Number of Beneficiaries	Number of Beneficiaries
2016	16 / 128	253	30
2017	80 / 640	2,700	30

Coding Genius

"Coding Genius" is LG CNS' signature social contribution program that aims to offer an opportunity to learn coding skills to young students, the future leaders of the Forth Industrial Revolution, and help them explore their interests, dreams and future careers through a broad range of experiences and intellectual stimulations that can stoke their curiosity and imagination.

Espousing the highest standards of creative and original convergence education, this program is designed to help young students, regardless of their knowledge of IT, acquire computing concepts and experience and develop problem-solving ability through courses on the concepts and principles of software architecture.

We signed an MOU with the Seoul Metropolitan Office of Education to support the free semester system with Sapiens 4.0, an NGO specializing in SW education.

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 the core component in their formal education curriculum. Korea also plans to implement 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 a responsible corporate citizen, 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

Our employees volunteer to help students explore career opportunities and plan for the future by serving as instructor and mentor. The program is recognized for providing students with opportunities to gain hands-on experience in the IT industry and find their career goals.

Program Details

We provide basic SW education programs at middle schools during free semesters. Designed to offer basic programming principles and insight into job for students without background knowledge in programming, the program consists of three subjects based on the LG CNS' main solutions: Basic Programming, Physical Programming, and App Development & Career Experience.

Program Details

Coding Itself Basic Programming

1. Understanding Information System & Software
2. Practicing Logical Problem Solving through Flow Charts
3. Programing Fundamentals: Learning through Java

Dynamic IT Physical Programming

1. Introduction to Lego Mindstorms EV3
2. Making the Robot Move
3. The "Do-It-Yourself" Autonomous Bus System

My Future IT App Development & Career Experience

1. Introduction to IT Professions in the Information Age
2. Creating My Own Mobile App (Unplugged)
3. Healthy Use of Smartphones

College Student Supporters

On a biannual basis, we organize college student supporters as part of our education and communication programs. Students studying in various fields including education and business management as well as computers volunteer to help middle-school students understand software. The program provides college students with opportunities to use their talent for a good cause and understand the true meaning of social contribution.

Performance & Certification

Recognized for the achievements we made through the LG CNS Coding Genius Program, we won the Deputy Prime Minister and Minister of Education Award at the 2017 Korea Social Contribution Award and the Deputy Prime Minister and Minister of Education Award for the 2017 Free Semester Best Practice Contest. In April 2018, we were selected as the Educational Partner for Career Exploration by the Ministry of Education.

2017 Free Semester Best Practice Contest

Social Contribution Award

Educational Partner for Career Exploration
교육기부 진로체험 인증기관
교 육 부

Certification of Educational Partner for Career Exploration

Building upon the Program

We are working on bringing Coding Genius outside Seoul and providing educational opportunities for students across the country in response to the growing demand for software education. To develop talents in the IT industry, we support SW academic clubs and provide free IT systems and education for schools.

IT Dream Project

IT Dream Project is part of our social contribution programs that we organized 4-day coding camp for aspiring students to help them develop their creativity and problem-solving skills and prepare them for the era of the Fourth Industrial Revolution.

Startup Experience

The IT Dream Project is designed to provide opportunities to develop their own IT service for students using the smart mobility solution, which is an upgraded version of the autonomous bus solution from the Coding Genius. Students are grouped into bus, taxi and car teams to develop services and gain experience in creating synergy and startups through technology trading and team M&A.

Career Planning

At the camp, we provide opportunities to share information about career planning with KAIST student mentors through various extracurricular activities including the IT Dream Night career mentoring session. In addition, we help them plan their career through such programs as KAIST lab tour and special lecture on the Fourth Industrial Revolution given by professors.

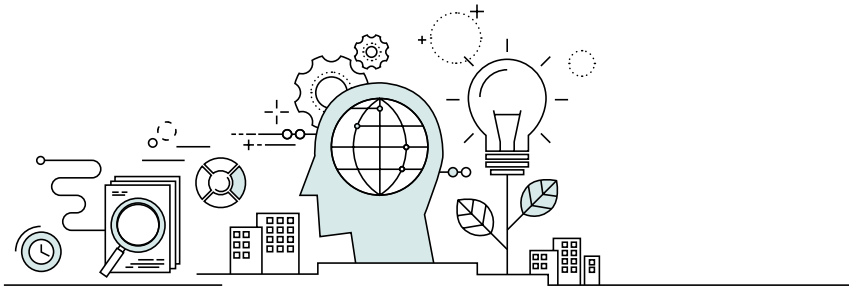
LG Young Maker Festival

As part of the IT Dream Project, we provide opportunities to join the LG Young Maker Festival for those with excellent performance. Taking place at the Gwacheon Science Museum, students can gain valuable experience and learn by running their own booth at the festival and interacting with other students.

IT Dream Project

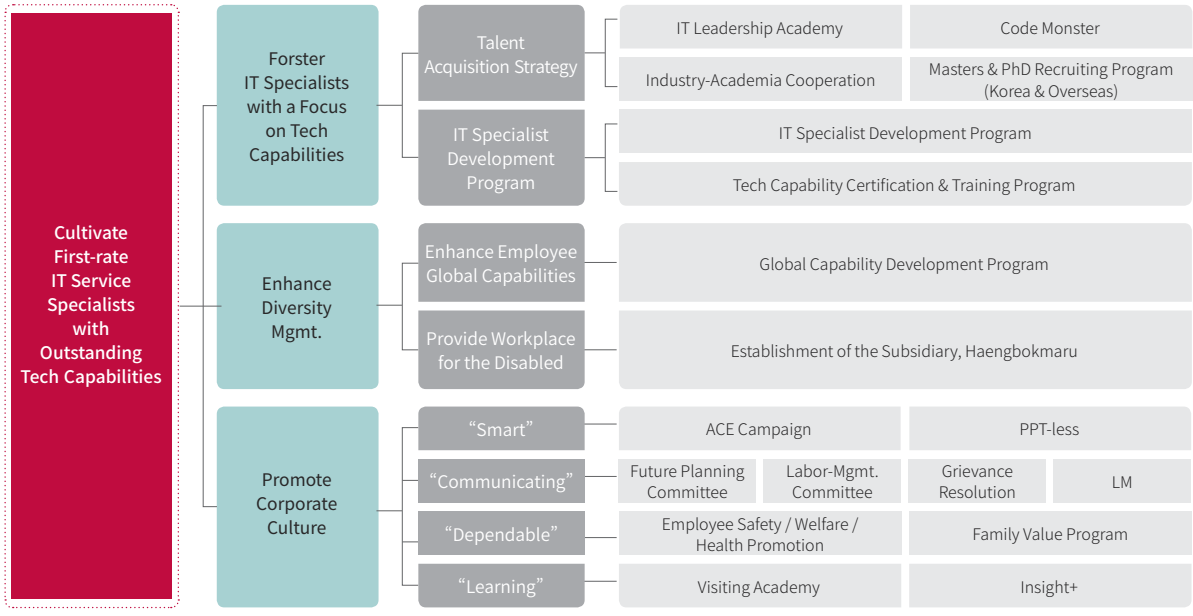
Human Resource

HR Management



Talent Acquisition & Cultivation

The vision of LG CNS is to become a digital innovation leader, and we are striving to achieve this vision with our organizational capability built on technology. We also understand that the key enabler of our vision is our people, the primary source of our competitiveness and the value we create. Based on this recognition, LG CNS has in place a comprehensive talent acquisition strategy and a broad range of capability development programs to build a "crack team" of information technology specialists, carefully nurturing talented individuals on a systematic development roadmap to thrive in the constantly changing IT business environment.



Nurturing IT Specialists with Outstanding Tech Capabilities

Our Strategy for Acquiring Top Technical Talent

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

IT Leadership Academy

An entry-level recruiting program unique to LG CNS, our IT Leadership Academy targets candidates whose career vision is to become IT specialists. We employ an internally-developed methodology to identify candidates who possess exceptional software programming capability and great potential as a software engineer. As part of our efforts to discover talented software engineers, we operate the Winter & Summer Internship Program, the Code Monster Competition and the LG CNS Mentoring Program. Our in-depth evaluation of candidates is carried out in two parts: employment test and interview. Our employment test consists of the standard LG Group personality and aptitude test and the LG CNS Software Capability Test and the LG CNS ITQ Test, internally developed assessment tools designed to scientifically measure candidates' competence and potential as an IT engineer.

A panel of field experts, business leaders and executives conduct our interviews and identify candidates who are attuned to the value promoted by the LG Way and exhibit qualities that LG CNS seeks in its people. Our interview process is also designed to assess the candidate's aptitude as an IT engineer and their career fit. In order to ensure fair and accurate assessment of candidate's software capability, we also use "Boot Camp," a training program built around our internally-developed methodology. The program not only serves as an assessment tool for LG CNS and but also extends a learning opportunity for the candidates.

Recruiting Programs for Masters and PhD Candidates

In order to recruit future digital transformation leaders, LG CNS conducts a regular campus recruiting program for masters and PhD candidates. With a particular emphasis on science and engineering talent in AI, big data, the IoT, mobile technology, smart energy and consulting, LG CNS visits major US universities known for excellent science and engineering programs twice a year and hosts campus recruiting events. We also participate in the LG Techno Conference, a global recruitment event hosted by our holding company, LG Corp. in the United States, and engage in recruiting activities and leadership interviews of candidates. Masters and PhD holders recruited through these events undergo a fast-track training and development program to take leadership positions in the R&D and new business efforts of LG CNS and the LG Group.

Code Monster

In 2017, LG CNS hosted a programming competition titled "Code Monster" at our Sangam DDMC location in Seoul, Korea. The competition was organized to identify talented individuals based entirely on programming skills, in line with our ongoing effort to create a recruitment process that places value on the individual merit of candidates over their academic performance and other credentials. The event attracted more than 1,500 college students, with the final round winners receiving a cash prize and a job opportunity at LG CNS. We plan to continue the Code Monster competition as an annual event hosted in the fall.

Industry and Academia Cooperation

LG CNS operates a broad range of industry-academia cooperation programs with major universities in Korea, as part of our effort to secure high quality talent and fulfill our corporate social responsibility by promoting joint research between industry and academic institutions. LG CNS teamed up with the Computer Engineering Department of Seoul National University to develop a software engineering course, which is offered to juniors and seniors from the undergraduate program as part of the regular curriculum. Leading IT specialists from LG CNS serves as the lecturers for the course that presents cases from actual IT projects and solutions to provide an empirical study that strikes a balance between theory and practice. Additionally, we offer the LG CNS Mentoring Program, under which college students receive career advice from their LG CNS alumni. The program also combines mentoring with training and offers students with an opportunity to learn cutting-edge information technology. The academy-industry cooperation programs offer jobs for participants.

Organization of "AI Academy"

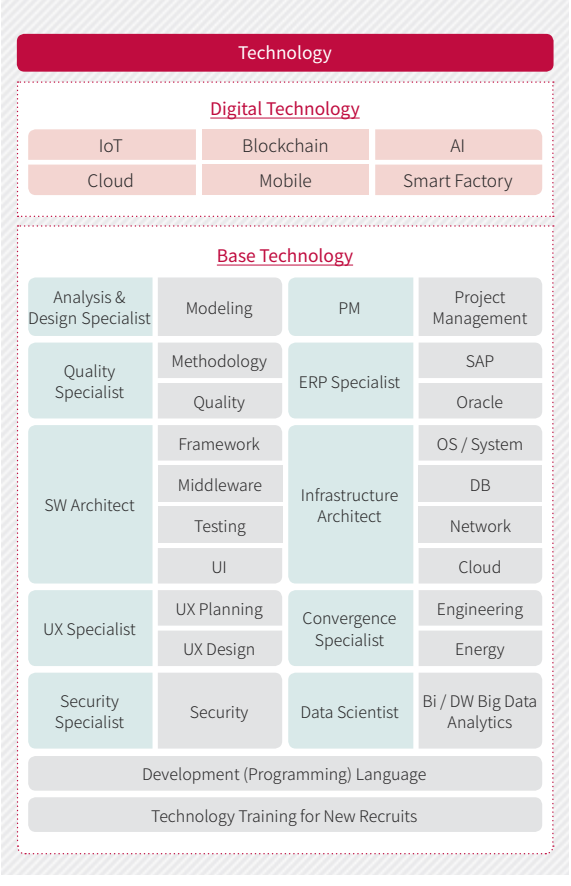
In response to growing demands for AI in the industries worldwide, we have organized "KAIST AI Academy" twice a year since 2017 to drive technological innovation and boost our business performance and expertise. Seven professors in the fields of Industrial and System Engineering (Knowledge Service Engineering) and AI Deep Learning give lectures and provide opportunities to gain hands-on experience on the latest technology. We plan to further develop the program in the future.

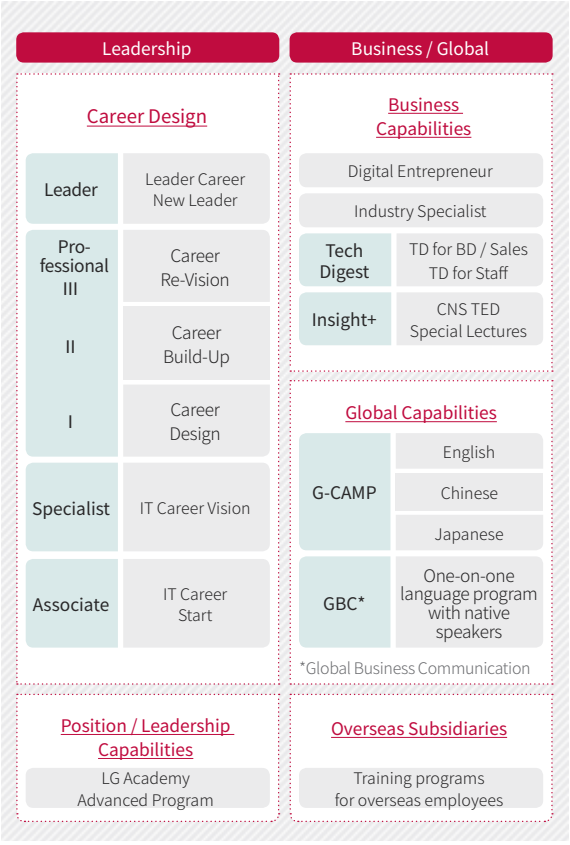
HR Development

IT Specialist Development Program

LG CNS has in place a systematic HR development program to strengthen our technological competitiveness on a fundamental level and transform ourselves into an organization of experts that delivers first-rate performance. Since 2016, LG CNS has been expanding our technology certification and training programs to enhance technological expertise across the organization, as part of our HR initiatives to produce stronger results by upgrading our tech capabilities to drive the Fourth Industrial Revolution and achieve HR innovation centered on the cultivation of IT specialists.

IT Specialist Development Program





Tech Capability Certification & Training Programs

As part of our initiatives to help our employees acquire and upgrade tech capabilities that are immediately relevant to our business and performance, LG CNS in 2016 consolidated our business functions and reorganized the required skillsets accordingly, and introduced an examination-based technology certification program. In parallel, we overhauled our technology training program based on the new skills map to organize core training courses for each skill and skill level, and implemented new channels for transferring the knowledge and knowhow of top internal and external experts to enable our employees learn how to facilitate a virtuous cycle of tech capability development. In the same year, we introduced a tech capability certification program that combines technology training and certification test for employees in technical business functions, and formulated a three-tiered expert development track from "Tech. Expert" to "Tech. Meister" and finally "Research Fellow / Expert." In 2017, we plan to expand the certification program to include employees in tech-related business functions and non-technical functions.

"Haengbokmaru" Standard Workplace for People with Disabilities

Growing Emphasis on Diversity Management

Helping Employees Develop Global Capabilities

As a global corporation, LG CNS strives to understand the different cultures and customs of the countries in which we have operations and meet the disparate needs of our multinational customers. In order to effectively support these efforts, we continually endeavor to create a work environment that promotes maximum performance through management training, business function training and performance management at overseas subsidiaries.

Global Language Program

LG CNS also has in place language programs to strengthen the global capabilities of our employees. In 2016, we introduced the language teaching program G-CAMP to foster elite global business specialists who can lead our overseas businesses. Developed based on the global business experiences of LG CNS throughout the project cycle from project acquisition to completion, this program is designed to help our employees acquire and enhance their capabilities in on-site IT business communication.

We also organized "Global Business Communication" programs where native speakers provide one-on-one language lessons to help our employees improve their language skills. The program is designed to help employees who are already working or will be working on overseas projects to learn about business etiquette, conversation practices and culture simulating meeting situations with overseas partners for 4 months so they can apply it in practice.

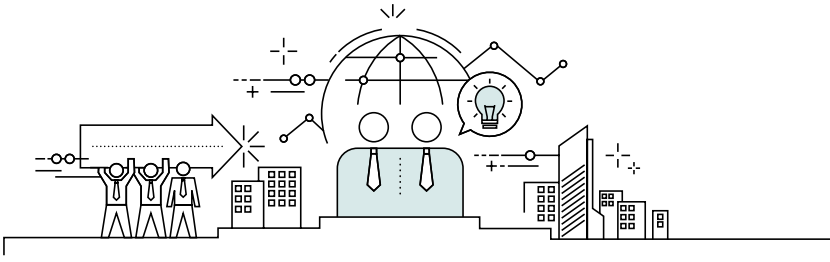
Creating Jobs for People with Disabilities

"Haengbokmaru" Standard Workplace for People with Disabilities

We established Haengbokmaru Co., Ltd., a standard workplace for people with disabilities in October 2016. As a subsidiary of LG CNS, the company provides employee welfare service for the Magok LG Science Park Head Office (B1, 3F), Sangam DDMC, Cafeteria at Sangam IT Center, improvement of workplace environment and health therapy. Of the 78 employees, 73 of them have disabilities and 66 of them have severe disabilities. There are six managers who support job instruction and career planning and four of them have disabilities. In 2017, we received a commendation from the Minister of Employment and Labor at the 2018 Employment Promotion for People with Disabilities. The company offers convenience facilities for people with disabilities, lounges and group insurance to create a healthy workplace environment. We will continue to promote diversity in job aligning CSR with our business operation and mutual growth in our organization.

Human Resource

Corporate Culture



LG CNS promotes a corporate culture that encourages employee creativity and autonomy with a wide range of internal communication programs.

Smart	· ACE Campaign · PPT-less · Stand-up Meeting
Communi-cating	· Future Planning Commitee · Labor-Management Commitee · Location Manager · Grievance Resolution Process
Learning	· Visiting Academy · Insight+ · Psychological Counseling Center
Dependable	· Employee Safety / Welfare / Health Programs · Family Value Program · Personalized Learning System

"Smart" LG CNS

Work "ACE"!

"ACE" is the acronym for our workstyle innovation slogans: "Arrange Well (clearly organize the topic before meeting / reporting)," "Communicate Briefly & Frequently (keep communication short and frequent)," and "Execute Thoroughly (Make sure to arrive at a conclusion and see it through). With "ACE" as our action guideline, LG CNS continues to create new value for customers and focus our energy on what is most pertinent to business performance.

PPT-less

LG CNS understands that accuracy and timeliness are the key elements that directly affect our performance. As part of our initiatives to promote efficiency, we are engaging the "PPT-less" campaign to free our employees from non-essential tasks and focus on substance, and to ensure that our valuable resources are not wasted on formalities. We encourage our employees to avoid the PowerPoint presentation format wherever possible in producing internal communication documents, except for instances where PowerPoint presentations are effective or required such as client presentations or training materials.

Self-Directed Program

In-house Venture

Our Self-directed In-house Venture is a company-in-company program where employees run the entire process from idea development to commercialization. Ideas are developed through idea pitching and mentoring and corporate-wide support is provided once the idea is selected. It focuses on IT-based new business ideas and is available throughout the year. A dedicated team is organized to promote the program.

Idea Gathering	Idea Pitching	Incubation	Spin off / in
Registration on the Idea Farm	Sharing and presentation	Financial support, location and mentoring	3/6/12 month-basis

Idea Farm

Since 2011, Idea Farm program has been designed to encourage our employees to share their ideas. Until now, more than 1900 ideas have been proposed (25 ideas in 2017) and 20 of them such as "Talk Order Simple Payment", "LG CNS MPost" and "IoT Safety Helmet" have been applied in business. In addition, AI-based chat platform launched in 2017, was developed and implemented based on an idea pitched through the Idea Farm.

"Communicating" LG CNS

Future Planning Committee

The Future Planning Committee is an internal junior board that serves as the change manager and innovation driver in making LG CNS a greater workplace and creating a positive corporate culture. The primary mission of the committee is to promote communication between employees and top management and present ideas for driving the growth of the company and employees.

Labor-Management Committee

First established in February 1998, the LG CNS Labor-Management Committee is composed of eight employee representatives and eight management representatives. Convened on a quarterly basis, the Labor-Management Council discusses a broad range of labor-management issues such as employee grievances, working conditions and management strategies, creating a positive model for labor-management cooperation.

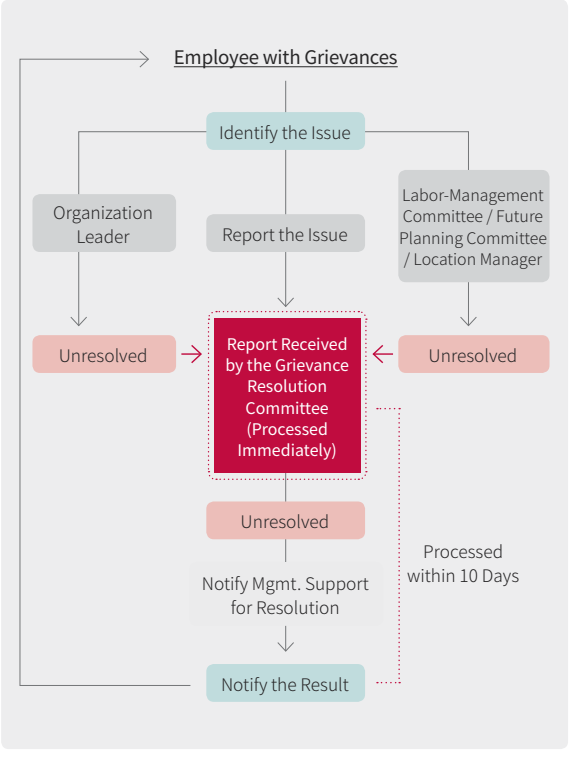
Location Manager System

As part of our efforts to address issues concerning regional business sites, LG CNS implemented the Location Manager System that assigns a regional leader for the Seoul metropolitan area, Paju, Gyeongam, Gyeongbuk, Jeolla, Chungnam and Chungbuk. These location managers oversea a wide array of activities geared towards boosting the loyalty and morale of employees working at regional locations.

Employee Grievance Resolution Process

LG CNS scrupulously collect employee grievances and spares no effort in resolving the issues fairly, as part of our efforts to protect the labor rights of employees, improve employee satisfaction and create a positive work environment. To this end, we operate diverse on- and offline grievance resolution channels. We also have an online reporting form on our intranet to accommodate our employees working at many different locations offsite, which is often the typical work arrangement for an IT business, and help them report their grievances free from the confinements of time and location.

Process for Resolving Employee Grievances



"Dependable" LG CNS

Promoting Employee Safety, Welfare and Health

As part of our efforts to promote employee health, LG CNS provides employees with an ongoing support package that includes regular medical check-ups and group personal accident insurance. For instance, LG CNS provides a comprehensive medical checkup to all of its employees to protect, maintain and promote their health (on an annual basis for employees aged 35 or older and on a biannual basis for employees aged under 35). We also offer the same package to the spouse of our employees on a biannual basis (35 or older) to help our employees and their family members lead a healthier life. LG CNS also operates a counseling center on our premises to help our employees and their family members who struggle with personal, professional and family issues with counselling sessions and psychological tests conducted by counselling psychology professionals.

"Maeum" Counseling Center Programs

Program	Details
Psychological Test	· Offers Personality Test, Aptitude Test, Job Stress Test,- Mental Health Analysis, IQ Test, Inter-personal Skills Analysis, etc. · Psychological test for employees' children
Counseling	· Offered in strict confidence and anonymity · Offered at major business locations as a visiting service · Employee family counseling service
Stress Mgmt.Clinic	· Relaxing lounge with meditation music · Offers simple health checks, i.e. blood pressure, blood sugar levels and the body mass index
Newsletter	· Monthly email message

Operation of Psychological Counseling Center

LG CNS operates a psychological counseling center with two permanent professional counselors to help our employees maintain good mental health and deal with stress. Counseling offers guidance on how to deal with difficult issues in their personal and professional life, and improve their focus on the job and productivity. It also focuses on gaining insight into their mental health and the development of skills required for the job. In addition, we organize counseling sessions to increase their loyalty to the company and help manage their mental health through proactive response to psychological crisis, consultation on leadership and employee management, and communication for cooperation, on-site psychological counseling, and counseling programs for employees' family members. In 2017, 1060 personal counseling sessions and 850 psychological tests were provided as well as more than 20 on-site counseling sessions. 67% of the sessions were about personal matters including family, personality and mental health and 23% of them were about career management and conflict in the workplace. The center maintains strict confidentiality of information shared during sessions in accordance with our privacy policy.

Family Value Program

In line with our commitment towards promoting employee work– life balance, LG CNS has in place a variety of employee family care programs. For instance, we operate the LG CNS Child-care Center at the Magok LG Science Park & Sangam DDMC and celebrates memorable moments of our employees and their family members through a family care program that sends out a small gift to employees for welcoming a new member to their family, employees' children to congratulate their matriculation to elementary school, or to wish them their best on their college entrance exam.

Learning Program

On-site Education

LG CNS organizes on-site training programs for employees working on SM and SI. Designed to offer contents as required at each business site, 130 training sessions were conducted for more than 3,000 employees at 42 sites in 2017. The programs were first organized for more than 1,400 employees at 13 business sites in 2016. It has been continually expanded and now encompasses job / technology training, client participation seminar, W/S support by SI project phase, member care program, and work support for minority employees. As of April 2018, the program is available in 22 sites. The program will be implemented in more sites to help our employees develop their expertise along with their work.

SM On-Site Training Program

- Technical training required for on-site work
- New technology seminar with clients
- Member care program
- Support for sites with less than 5 employees

SI Project Training Program

- Technical training required for project
- Team building for undertaking projects
- W/S by key project phase
- Post-project healing program

Adding Insights to LG CNSers with Insight+

"Insight+" is the umbrella brand for LG CNS knowledge sharing programs introduced in 2016, organized to offer insights to our employees. Composed of the Special Lecture Series, the CNS TED and CEO Tech Session, these knowledge-sharing sessions invite external experts to expose our employees to the latest IT and business trends and offer insights and inspirations for creating differentiated customer value. Insight+ also serves as a forum for our employees to share their experience, knowledge and knowhow on different topics and promotes a corporate culture that encourages collective professional growth. In 2016, a total of 38 Insight+ sessions were presented with the participation of 3,738 employees. These sessions are video recorded and posted online to help our employees revisit the topic anytime they want. LG CNS plans to continually expand the program to include topics and formats that meet the needs of our employees.

Insight + Knowledge Sharing Programs

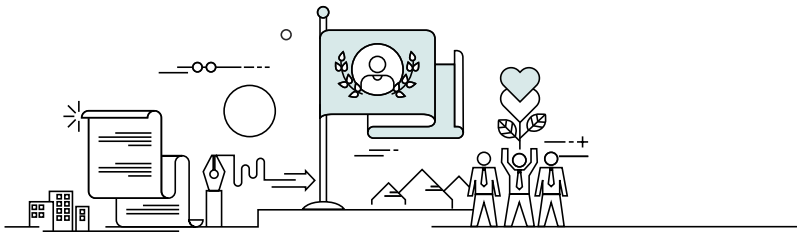
Program		Topic
Special Lecture Series: Invites external experts to seek insight relevant to LG CNS business	1,308 / 5 sessions (Bimonthly)	· Technology trends, hot business trends, humanities, etc.
CNS TED Shares employee experience, knowledge and knowhow	1,076 12 sessions (Monthly)	· Topics unlimited from liberal arts, to personal hobbies, management, etc. · Share job experience, knowledge and know-how
CEO Tech Session Internal expert groups organize sessions and introduce the latest trends in IT & other technology	2,275 / 32 sessions (Year-round)	· LG CNS Solutions · New technology trends in the IoT, cloud, big Data, mobile, and AI · IT related overseas conferences & global megatrends

Personalized Learning System

In order to help our employees understand the level of their competency and choose training programs they need, we are developing "Personalized Learning System" with the aim to open in July 2018. The system is designed to provide personalized information based on the various recommendation algorithms of our Data Analytics & AI Platform (DAP) such as clustering, attribute-based recommendation, correlation pattern analysis, user / item-based collaborative filtering and Top-N recommendation. Employees will receive this information based on the TCT result, personal interest, training data, and project / work information and gain insight into their learning style while leaders organize individual coaching session based on the recommended programs and participation record. Based on this system, we will continue to improve the algorithm to provide a more personalized learning experience.

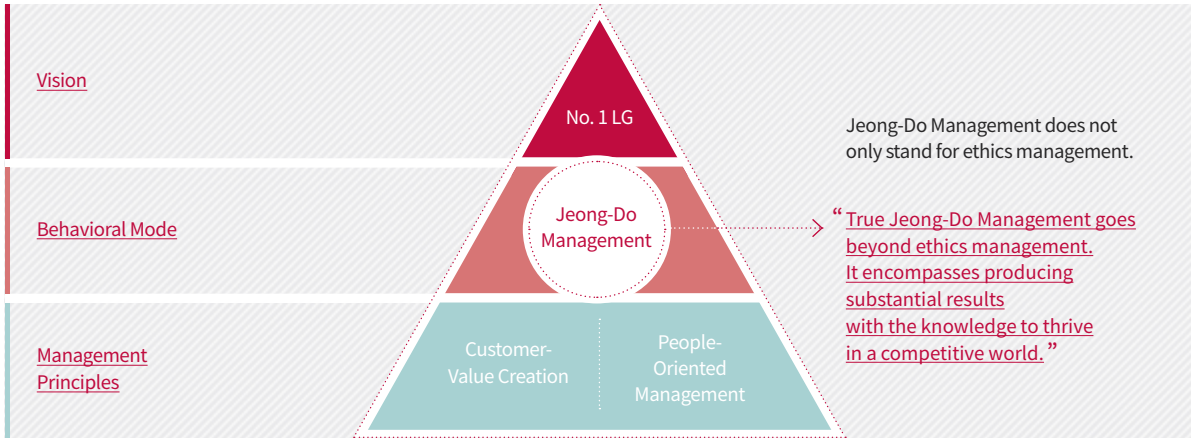
Ethics

Jeong-Do Management



LG Way & Jeong-Do Management

Representing LG's unique corporate culture, the LG Way articulates our belief in attaining the vision of becoming "No. 1 LG" through "Customer-Value Creation" and "People-Oriented Management" as we stay true to the principles of "Jeong-Do Management" in our everyday-practice. Jeong-Do Management expresses our commitment for building up fundamentals continuously and competing fairly as we base our practices on ethical management, through which we can ultimately achieve the LG Way.



Code of Ethics

LG CNS established the Code of Ethics as the guiding principle for all of our employees in their conduct and value judgement, and we apply these principles to our everyday practice. Produced in Korean, English and Chinese, the Code of Ethics Handbook was distributed to employees who speak the respective languages, and made available to all of our stakeholders on the Jeong-Do Management section of our corporate website and the Jeong-Do Management board on our intranet.

Jeong-Do Management Organization

In order to ensure systematic implementation of Jeong-Do Management, LG CNS established the Ethics Bureau within the Corporate Auditing Unit, and tasked the organization with establishing and operating the policies and systems concerning Jeong-Do Management. The Ethics Bureau also implements a broad range of activities that help our employees practice Jeong-Do management, such as handling related reports and inquiries received through internal and external channels.

Corporate Auditing Unit

Auditing & Mgmt. Consulting Team

- Regular Reviews
- Special Reviews
- Special Audits & Complaint Reviews

Ethics Bureau

- Implements initiatives to establish Jeong-Do Management as part of our corporate culture (Training Programs & Awareness Campaigns)
- Jeong-Do Management Counseling Center
- Establishes and operates relevant policies and systems

*LG Jeong-Do Management Website (http://ethics.lg.co.kr)

Jeong-Do Management Initiatives

Jeong-Do Management Training & Awareness Campaign

LG CNS conducts Jeong-Do Management training and awareness campaigns on a regular basis to underscore our belief that "Jeong-Do Management is not an option but an implicit requirement for the very survival of the company" and help our employees fully embrace the shared principles behind this philosophy. In 2017, 99% of our employees completed online training programs. LG CNS conducted twelve group training sessions on Jeong-Do Management for over 600 employees from LG CNS, subsidiaries and suppliers. We plan to strengthen our Jeong-Do Management training for everyday applications and for different business functions. We also continually develop training content tailored to the disparate needs of employees in different jobs and business departments to improve the effectiveness of Jeong-Do Management training, while engaging in campaigns to firmly establish Jeong-Do Management as part of our corporate culture. We produce and distribute Jeong-Do Management newsletters.

Jeong-Do Management Training (2017)

Category	Target	Frequency	No. of Persons
Employees	Online training for all employees (conducted biennially)	1	5,427
	Group training for all leaders	1	186
	Training for new employees	2	127
	Training for employees with job experience	1	25
	Training for expatriates	1	4
	On-site training	4	191
	Division workshop session	1	31
Subsidiaries	Biz Tech Partners Training (leader / sales / part leader)	1	32
Overseas Companies	Training for local employees in Japan	1	7

Whistleblower System Hotline for Reporting Irregularities and Unethical Conducts

LG CNS has in place a whistleblower system to receive reports concerning any conduct in violation of the Employee Code of E thics and Jeong-Do Management, such as exploiting one's position of power to impose unfair terms and accepting gifts from interested parties. We follow up on all reports of misconduct and launch an internal investigation. If our investigation produces evidence of misconduct, we implement appropriate measures such as disciplinary action, business process improvement and Jeong-Do Management training to promote transparent and accountable business practices across the organization. We also receive reports through other channels including phone, facsimile, postal mail or visit, and have strong measures in place to thoroughly protect the identity of whistleblowers.

Whistleblower System Results (Unit: case)

Status	2015	2016	2017
Processed	19	13	24
Completed & Results Notified	-	-	5
Unfounded	5	19	11
Other (Transferred)	12	5	3
Total	36	37	43

Whistleblower Reward Program

LG CNS operates a reward program for whistleblowers to promote transparency and accountability in our business practice and eliminate irregularities and corruptions that undermine customer values. The reward review board is convened if a report of misconduct has been deemed qualified for a reward, and officially approves a reward to the whistleblower.

Jeong-Do Management Pledge

LG CNS requires all of our employees to sign and submit an online pledge for "Jeong-Do Management" and renew their pledge on an annual basis. We also require our suppliers to do the same by submitting a pledge for Jeong-Do Management as part of the Master Purchase Agreement. Our pledge for Jeong-Do Management is an expression of our commitment towards our customers, suppliers, shareholders, employees and community as well as of our intention to become a market-leading company respected for its integrity.

Gift-Exchange Reporting System

LG CNS strictly prohibits our employees from receiving any gifts (cash and/or valuables) from interested parties. Employees who have received such gifts in unavoidable circumstances must report such incidents and return the items. If returning the gift is impossible, employees must report the incident and forward the item to the Ethics Bureau, which either donates the item to charity or auctions it off internally and uses the entirety of the proceedings to purchase and donate supplies needed at welfare facilities.

Jeong-Do Management Counseling Center

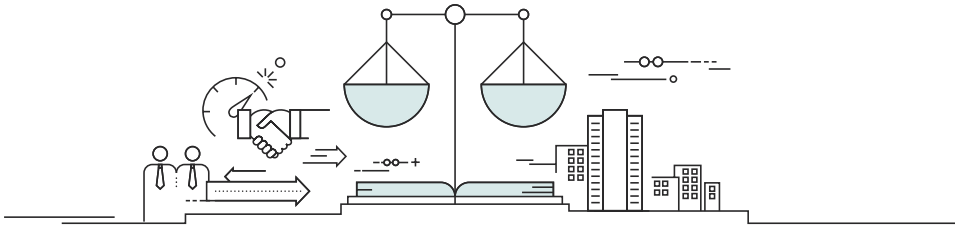
In order to respond to employee inquiries on Jeong-Do Management, LG CNS operates the Jeong-Do Management Counseling Center and offers counseling on the everyday practice of Jeong-Do Management through diverse channels including online (intranet), phone and email to ensure convenience and ready access to employees. If inquirers wish to remain anonymous, we make every effort to keep their identities and the details of their inquiries confidential. Employee inquiries generally cover topics such as the interpretations of the Code of Ethics, giving / accepting congratulatory / condolence cash gifts, appropriate procedures for handling gifts received and how to deal with business expenses. The counseling center supports our efforts to firmly establish Jeong-Do Management as part of our management practice and corporate culture through effective and accessible counseling.

Jeong-Do Management Survey

LG CNS participates in the LG Group-wide Jeong-Do Management Survey conducted on an annual basis to assess our employee compliance with the principle and their awareness levels, as well as to identify improvement points. We also conduct the survey on our suppliers to identify risks associated with unfair business practices and use the results in enhancing our partnerships with our suppliers.

Ethics

Fair Trade



Fair Trade

Promoting fair practice and raising awareness is a key part of driving sustainable growth and fulfilling our social responsibilities. LG CNS pursues fair competition and Jeong-Do Management to achieve the vision of “LG WAY” which provides a basis for our employees' conduct. Recognizing the importance of risk management of fair transactions and prevention as our action plan, we continue to engage in various activities and take a proactive approach in risk management while creating culture for fair practice at a corporate-wide level.

Key Activities

Based on our reviews on the regulatory requirements, we conduct a risk analysis of the sales, procurement and project development organization with a high level of risk with a focus on cartel, subcontract regulations and transaction between affiliates. If necessary, additional on-site inspections are conducted to identify the areas of improvement and carry out performance management as part of risk prevention. We plan to review our training system and contents to improve our overall training system and keep the information updated in response to new regulations and the latest trends. At the same time, we will simplify our business processes to ensure compliance with our fair trade policy.

Progress by Area

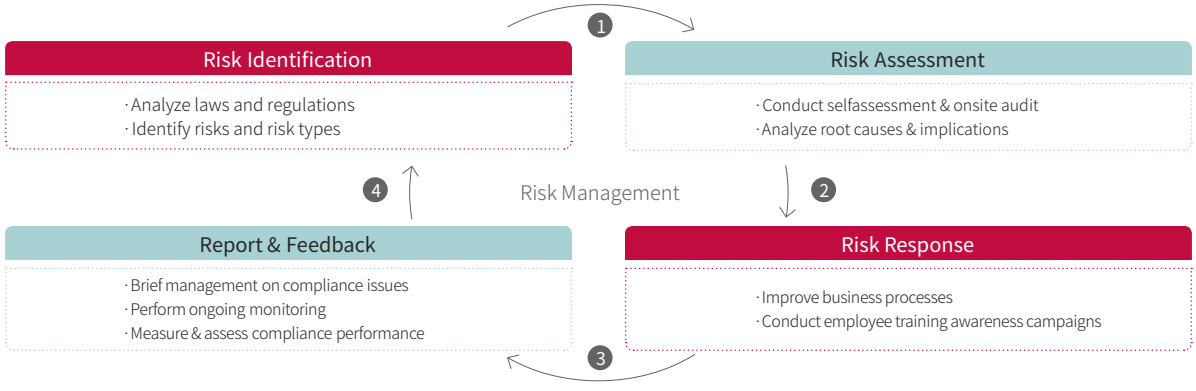
Cartel

LG CNS shares our commitment to the prevention of cartels and conducts annual special training for employees who are at high risk. In order to raise awareness of fair practice and cartel, we are planning to introduce offline and online programs while prohibiting any contact with employees of our competitors to prevent any suspected cartel activities. Any contact with employees of our competitors that is necessary for business will be reported to keep our employees and company from being exposed to risk.

Transaction between Affiliates

We analyze potential risk factors and review cases to prevent violation in the course of business while conducting training and reviews for related organizations. In addition, we carry out in-depth reviews of documents and contracts of more than certain amount to identify the areas of improvement and take initiatives to prevent violations.

Compliance Program



Subcontract Practices

LG CNS promotes fair subcontracting practices and builds a foundation for mutual growth between big and small companies. To this end, we conduct employee training on statutory compliance and organize on-site reviews and work process improvements on a regular basis. In 2017, we established a framework and improved existing guidelines on unfair concessions and technical data to ensure compliance. We will continue to promote fair practices through implementation of online work process and compliance monitoring.

Category	2016	2017	2018
Fair Trade Training	24 times	29 times	In progress
Review	6 times	8 times	Monthly basis
Improvement	-	Implementation of the Data Storage Policy	Building Fair Trade Portal

Fair Trade Portal Main Page

Fair Trade Portal

LG CNS sets guidelines on conduct for the prevention of any violations of the law and conducts necessary training and monitoring. As part of these efforts, we are building Fair Practice Portal as a basis for fair practice to raise awareness and promote culture at a corporate-wide level.

Implementation Directions

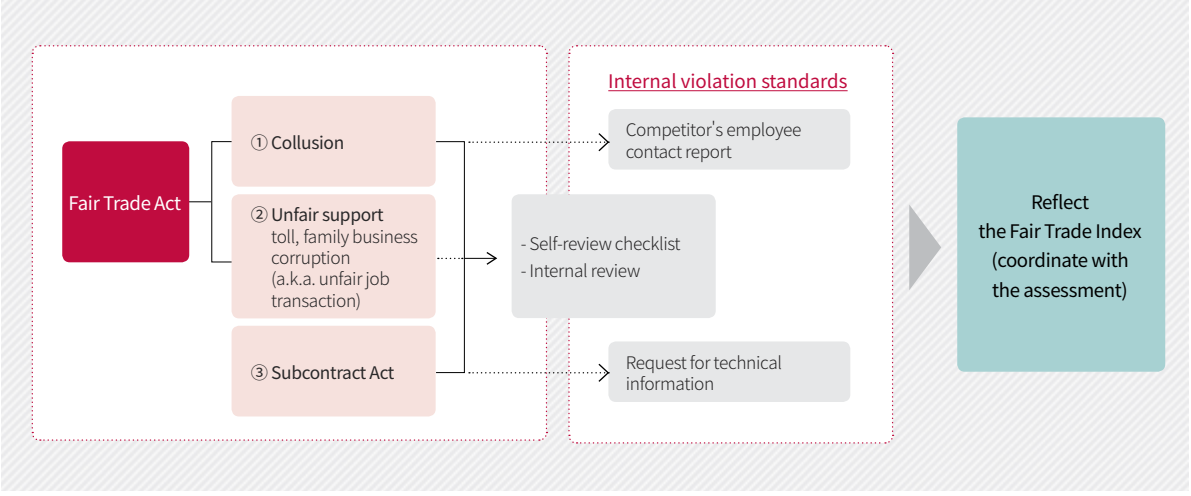
We are building a system based on the Fair Trade Act to incorporate our internal work process and standards into our business practice. In addition, we plan to develop an online employee-training program to raise awareness and establish a self-review system on legal compliance to help our employees manage risks.

Key Roles

Our work process is designed to ensure compliance with laws and regulations and we have implemented “Technical Data Request System” and “Competitive Contact Report System” to prevent any unintentional violations. In addition, we plan to establish additional monitoring systems so we can conduct assessment of fair trade based on the index of training and review results. Based on these programs, we are going to strengthen our fair trade and promote culture for compliance with the focus on our business sites.

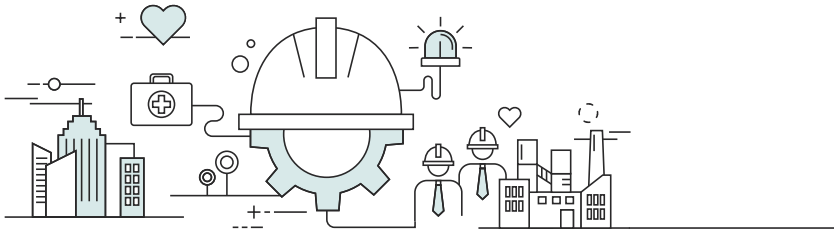
Reflection of Index and Coordination with Assessment

Based on the Fair Trade Act and our internal policy, we are going to strengthen our monitoring system against violations of laws and establish a system to coordinate with assessment to promote fair trade.



Environment

Environment Safety & Health



LG Safety & Environment Policy and Seven Principles for the Safe Working Environment

Following LG Group's Safety and Environment Policy, LG CNS developed safety and environment policies for the continued implementation of management philosophies and practical actions in response to ever-changing demands. LG CNS further established the seven major principles that all employees must adhere to.

LG Safety & Environment Policy

Based on the philosophy of "human-oriented management," we recognize that creating a safe work environment is one of the critical factors in our sustainable management and making the world a better place with our smart technologies and services. Thus, we pledge to put the following guidelines in place.

- We will comply with relevant regulations and meet stakeholder requirements as well as operate safety & environment management systems on a global scale.
- We will set goals and conduct performance reviews throughout the lifecycle of our services and products to ensure continuous innovation.
- We will establish a culture of adhering to basic principles and promoting safe and pleasant work environments.
- We will provide active support to ensure safer work environments for our business partners and communities.
- We will disclose information transparently and communicate with our stakeholders sincerely.

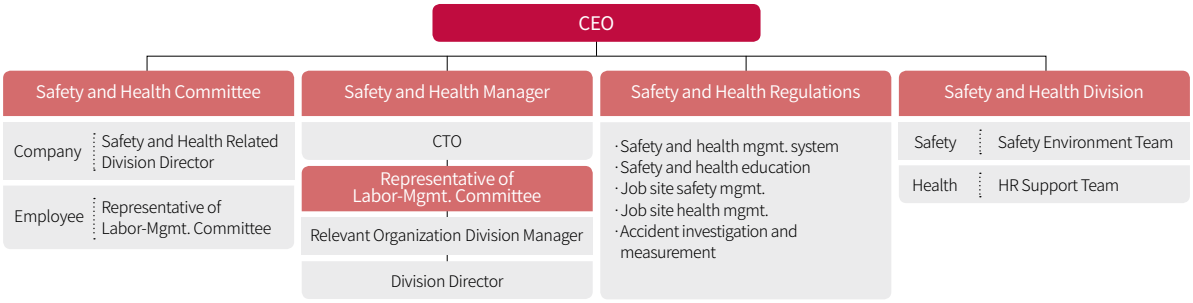
To ensure compliance with these guidelines, we place the highest priority on implementing safe work environments in all business activities.

Seven Principles for the Safe Working Environment

1. LG CNS should make efforts to prevent safety accidents.
2. LG CNS must continuously evaluate safety hazards, eliminate risk factors and conduct safety inspections.
3. All employees must comply with regulations and procedures on implementing a safe work environment to prevent accidents.
4. All employees should place the highest priority on activities to implement a safe work environment and make efforts not to expose themselves to any danger.
5. LG CNS should conduct trainings to ensure compliance, and employees should participate in these trainings whenever possible.
6. LG CNS should establish emergency response procedures, and employees should familiarize themselves with their roles and responsibilities in emergency situations through emergency response drills.
7. Any safety accidents must be reported immediately after they occur, and corrective and preventive measures must be in place through root cause analyses.

Safety and Health Management System

In order to promote corporate growth and safety and health for our employees, LG CNS has established and is currently operating the Industrial Safety and Health Committee. We also engage in a series of initiatives including the development of an accident prevention plan, establishment and revision of safety and health management regulations, safety and health training, inspection and improvement of the working environment, and investigation and recurrence prevention of industrial accidents.



Performance Summary

Improving Safety and Health Environment

Major Activities in 2017

- Raised awareness through on-site safety inspection
- Implemented and internalized on-site risk assessment
- Established a construction management system to prevent compliance issues

Plan for 2018

- Raise safety awareness through on-site safety inspection
- Implement and internalize on-site risk assessment
- Establish a construction management system to prevent compliance issues

Response to Climate Change

Major Activities in 2017

- Reduced GHG emission in response to the emission trading system for data centers
  - Replaced the temperature and humidity system at Incheon IT Center
  - Replaced UPS for one with better efficiency at Gasan IT Center

Plan for 2018

- Reduce GHG emission in response to the emission trading system for data centers
  - Relocate the outdoor units at Incheon IT Center
  - Replace UPS for one with better efficiency at Incheon / Gasan IT Center
  - Increase the capacity of Sangam Data Center

Workplace Initiatives

Industrial Safety and Health Committee

LG CNS is currently operating the Industrial Safety and Health Committee in order to improve workplace safety and employee health through active employee participation. The committee brings together management and employee representatives on a quarterly basis, discussing and making decisions on important issues concerning workplace safety and employee health.

Emergency Response Training

Head Office & Work Facilities

LG CNS conducts emergency response training on a regular basis to create a safer workplace environment for our employees. At E13-E14 of LG Science Park, we maintain a close cooperation system with the SP Safety Environment Center, Gangseo-gu Fire Station, Gangseo-gu Office and Korea Gas Safety Corporation and established manuals for each scenario in response to fire, earthquake and various types of disaster.

Data Centers

Asides from regular business offices used by management and employees, our data centers have in place additional response scenarios for all risk factors including natural disasters, power outages, and infrastructure failures that may potentially interrupt center operations. These scenarios were developed as prevention measures to ensure customer information security and stable operations. The data centers conduct weekly situational emergency action drills and comprehensive emergency response drills at least once or more per year. In case of power outage, our data centers secure emergency power and implement an emergency power supply plan of three or more stages. Additionally, we have designated a team that protects the lives and safety of the people on the premises and ensure the stable operation and recovery of the data centers in emergency and disaster situations. Our data centers are also equipped with emergency response plans to protect the safety of our employees as well as our facilities.

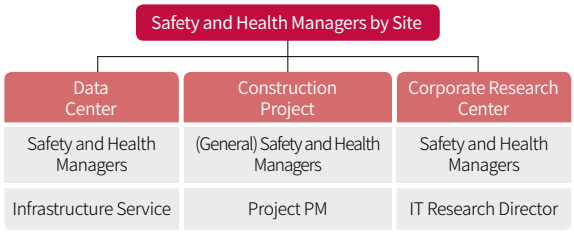
Workplace Safety Inspection

In order to ensure that no accidents or disasters occur at project sites, the Safety and Environment / Construction Management Team conducts regular safety inspections of workplaces, investigates potential hazards and risk factors, and makes improvements accordingly. We increased the number of data centers and on-site projects that are subject to inspection. Our management, led by the CEO, is actively engaged in on-site inspections to raise corporate-wide awareness of safety and set an example to our employees.

2017-2018 On-site Safety Inspection Activities

Category		Safety Inspection Activities
Workplace	· FKI Tower (2017) · Magok Science Park (2018) · Sangam DDMC	· Workplace safety inspection (H1 / H2) (FKI is subject to H1 inspection in July / December due to relocation of the head office.) · Fire response inspection in for Magok Science Park (H1) System inspection in coordination with firefighting (April) · Emergency evacuation for Magok Science Park (H1 / H2) Scheduled simulated training (June / October)
	Data Center	· System maintenance and internalization of laws · Inspection and measures based on the results of LG safety and environment analysis - Sangam IT Center: 43 out of 43 cases Improvement completed (2017), 100% completion rate - Busan Cloud Center: inspection conducted in April 2018
Construction Project		· Education on compliance with industrial safety and health regulations at the start of the project and risk assessment · Job site safety inspection and frequent monitoring during construction stage · On-site inspection conducted by the management including CEO, CTO and Quality / Safety Managers · Safety and environmental analysis and confirmation of improvement measures at nationwide sites

CEO Workplace Safety Inspection



Change Management

Environment, Safety & Health Training

LG CNS seeks to develop safety, health and environment capabilities of our employees and establish the Environment, Safety and Health Management (ESH) System. To that end, LG CNS provides employees with on- and off-line training including safety and environment seminars tailored to project managers and ESH staff.

Visiting Safety Academy (Jan 2017~)

To alleviate inconveniences of LG Group employees who may have difficulties participating in offsite training programs, LG CNS operates the visiting safety academy program. In 2017, LG CNS conducted safety training on "the importance of safety and response guidelines in case of accidents" at five different locations including LG Display (Paju, Gumi), LG Chem (Ochang, Yeosu), and LG Electronics (Gumi). In 2018, LG CNS plans to conduct training sessions on the importance of safety management, regulation compliance, risk assessment, and on-site safety management activities for LG Group employees as well as for construction workers at our construction project sites.

Safety & Health Compliance Campaign

Day of Safety Inspection in 2017

The fourth day of each month has been designated as "Day of Safety Inspection" for safety prevention and internalization of safety awareness.

- **Date:** : 4th day of each month
- **Target:** business sites (head office, Sangam DDMC, data centers) and construction projects
- Operation Policy
  - Organized by site / project head of each site, safety inspection / event are carried out
  - Organized by the Safety Environment Team, promote and support "Day of Safety Inspection"
  - "Day of Safety Inspection" is organized in consideration of the season
- Monthly Safety Areas of Focus
  - **January - June:** safety inspection on site, safety inspection in response to thawing season, protective gears, availability of MSDS, safety inspection in response to rainy season
  - **July - December:** safety and health indication labeling, safety inspection in response to storm and flood, fall, disaster prevention, prevention of muscular skeletal disease, safety inspection in response to winter season

LG Safety and Environment e-Learning (Mar 2018 - Apr 2018)

LG CNS clearly recognizes the importance of safety and environment as an important market-leading management and acts accordingly. In order to prevent accidents and establish LG's unique culture of safety and environment, LG CNS conducted an e-learning program for all of our employees, touching on the "importance of safety and environment and compliance with policies and basic principles."

Supplier Safety Environment Seminar (March 2018)

We held a safety environment seminar for 30 of our suppliers. At the seminar, we gave a presentation on the Occupational Safety and Health Act and corporate safety culture, safety rules, and reward and penalty policy, and shared ideas about cooperation and support for joint projects. LG CNS will continue to arrange opportunities to communicate and share ideas on safety and mutual growth in the future.

Environment, Safety & Health (ESH) Certifications

Environment, Safety & Health (ESH) Management System Certifications

LG CNS has in place the Environment, Safety & Health (ESH) Management System. Based on the system, we develop action plans (Plan), act and operate according to said plans (Do), and perform checks (Check). Afterwards, we share feedback on the results and act (Action) accordingly. Through this P-D-C-A cycle, we continuously make improvements. These efforts have led to the acquisition of the Environment Management System Certification (ISO14001) in 2010 and the Safety and Health Management System Certification (OHSAS 18001) in 2014, which have been maintained through post-certification and recertification processes.

ISO 14001

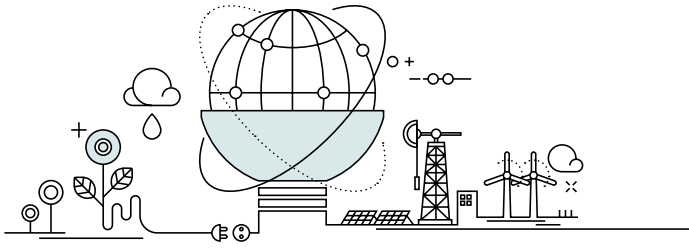
Throughout the entire process of corporate business activities, ISO (International Organization for Standardization) provide a certification system to ensure compliance with international requirements for continuous identification of environmental impact and improvement of environmental performance. We plan to obtain certification at a corporate-wide level in August 2018.

ISO 45001

The certification assesses whether safety and health practice is improved on a continuous basis through a process of declaration of safety and health policy by CEO, planning, implementation, inspection, correction, review of the results, and improvement measures. ISO 45001 was established in March 2018 in response to the needs for engagement of employees and new items on the organizational understanding of internal and external issues from OHSAS 18001. LG CNS plans to obtain certification at a corporate-wide level in August 2018.

Environment

Climate Change Response



Data Center Environment Certifications & Awards

LG CNS has sought to improve public opinion and create a foundation for the industry growth through the improvement of energy efficiency (consumption reduction) of our data centers, which have high energy consumption. Accordingly, LG CNS has been engaging the following initiatives:

Green DC Certification

LG CNS has received the Green Data Center Certification, which is presented by the Korea Information Technology Service Industry Association to environment-friendly data centers. The LG CNS Sangam IT Center has received consecutive A ratings from 2013 to 2015. The Busan data center has received the highest rating, A+++, consecutively from 2014 to 2016. Furthermore, the Incheon center has received a rating of A+ in 2016. These ratings demonstrate LG CNS's achievements in the creation and operation of eco-friendly data centers.

Brill Awards

In recognition of unique, technology-intensive innovations in 2014 (having considered energy efficiency and safety as early as the design stages), the LG CNS Busan Data Center received the Brill Award for Outstanding Data Center in Design Category—the most prestigious annual award presented by the only data center certification organization in the world, the Uptime Institute. The design of the Busan Data Center included innovations such as the world's first and only “wind path,” a data center air duct, as well as a “builtup exterior air conditioning system,” a proprietary patented technology. In particular, it is the first data center in Korea to feature a seismic isolation system, which ensures uninterrupted services even in the event of an earthquake of magnitude 8.0 on the Richter scale. Such attentive disaster and accident prevention received recognition within the industry.

*Brill Awards: The Brill Award is the most prestigious award in the data center industry, presented by the only data center certification organization in the world, the Uptime Institute. Of the 23,000 data centers around the world, 100 facilities from 19 countries are chosen in the initial phase. Following an assessment by 90 experts, a total of 18 data centers are chosen for the Brill Award for Outstanding Data Center.

Climate Change Response

Based on the recognition that climate change not only poses a threat but also presents an opportunity for business growth, LG CNS engages in a broad range of initiatives to make our business locations greener such as creating environment-friendly office spaces and green data centers. We are also developing new growth engines by integrating our capabilities in information technology with energy business models. For instance, we believe that our experience and capabilities in energy efficiency can drive multifaceted CO_2 reduction efforts in the power plant sector and the building management sector (hospitals, hotels, resorts and mega skyscrapers), and that these new and integrated business models may expand opportunities for group-wide collaboration to create greater synergy.

Response to Environmental Regulations

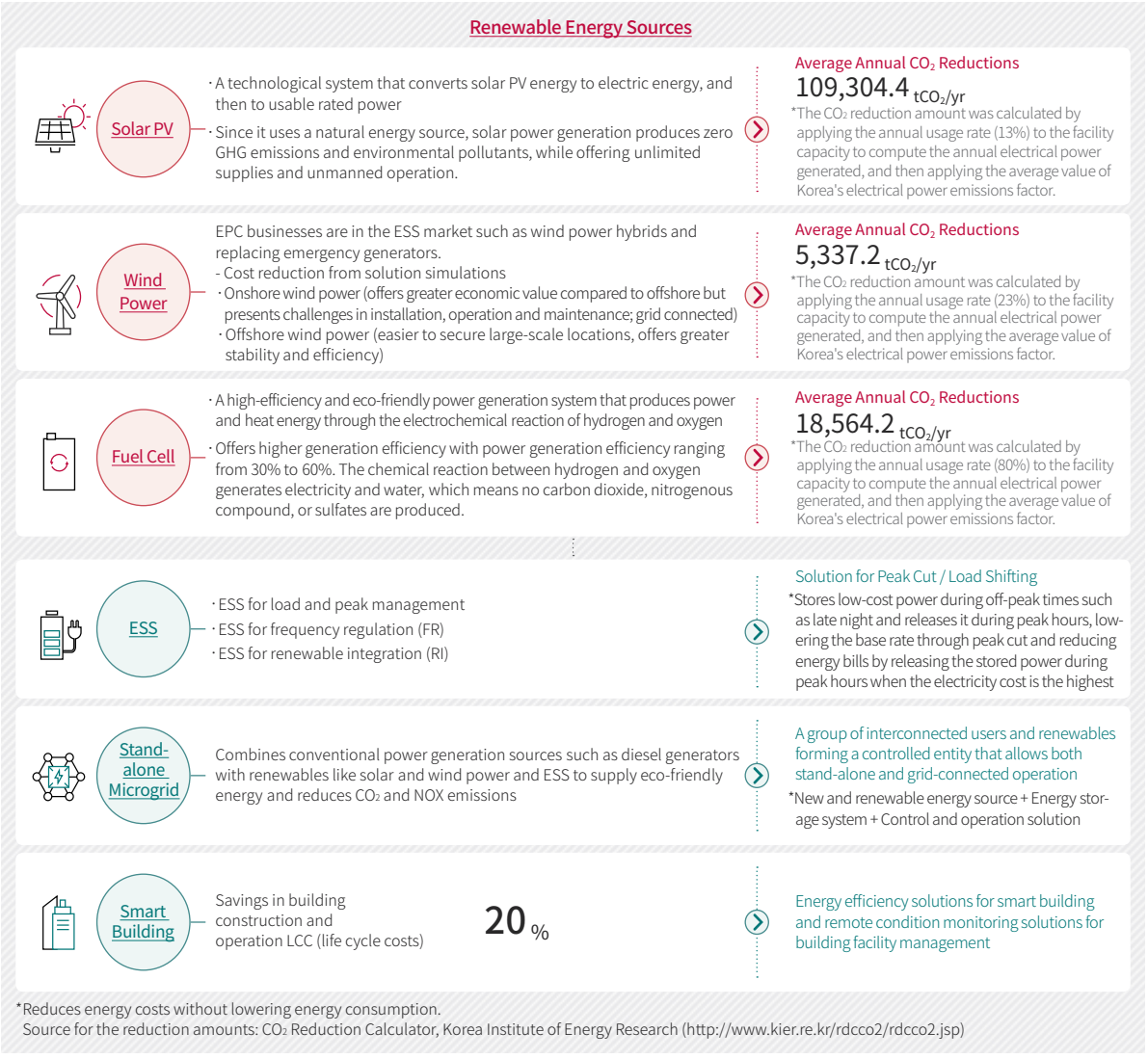
Pursuant to the Framework Act on Low Carbon, Green Growth, the Korean government introduced the GHG and Energy Target Management System (TMS), under which the government allocates GHG emissions allowance to a business and encourages businesses to achieve their reduction targets through voluntary reduction efforts and emissions trading.

Our Sangam Data Center was designated as a controlled entity for the TMS in 2015. In order to effectively respond to energy related regulations, LG CNS developed and implemented the GHG Inventory System, which automatically measures the amount of energy used at the data center and calculates the amount of GHG emissions generated in real-time. We also participate in the CDP (Carbon Disclosure Project), a global project that enables companies, cities, states and regions to measure and manage their environmental impacts, as part of our active response to external demand for environmentally-minded business management and practices.

Climate Change Mitigation Activities

IT solutions that help deploy clean energy with higher efficiency

All LG CNS energy services help our clients reduce unnecessary electricity consumption, deploy clean energy sources, and reduce carbon emissions. Our IT solutions that apply to renewable energy sites cover all segments of the energy value chain, from generation and storage to demand management. With our multi-purpose EMS (Energy-Management System), we design and implement the most efficient energy operational pattern, adopting peak shifting by battery storage, demand-side management, and real-time monitoring. Our track records prove that LG CNS is a committed player in helping our planet fight climate change.



*Reduces energy costs without lowering energy consumption.
Source for the reduction amounts: CO_2 Reduction Calculator, Korea Institute of Energy Research (http://www.kier.re.kr/rdcco2/rdcco2.jsp)

Environment-friendly, Green Data Centers

As part of our efforts to reduce the power consumption of our data centers, one of the most power-intensive facilities in all of industry, LG CNS continuously develops energy efficiency solutions and implements them in our data center operations. We are also continuously improving our building energy consumption by introducing renewable energy sources and retrofitting our facilities with energy efficiency equipment. LG CNS also continuously develops and implements GHG emissions reduction solutions to make our data centers greener. For instance, we developed the Smart Green Solution (SGS) to facilitate the integrated operation of data center infrastructure. The SGS enables the integrated monitoring of facility infrastructure (electricity, mechanical, temperature / humidity, lighting, etc.) and security facilities, which allows the effective management of server room energy efficiency based on failure detection, analysis and control and thereby contributing to the reduction of GHG emissions. In addition, LG CNS developed the world's first and eco-friendly "built-up exterior air conditioning system," a proprietary patented technology that utilizes natural exterior air, and implemented this system to all of our data centers, while developing a dedicated HVAC system for cooling the heat from data center servers and introduced high-efficiency UPS and LED lighting to all of our data centers as part of our efforts to further reduce GHG emissions.

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

Reduction (tCO_2eq)

Detail	2014	2015	2016	2017	Cumulativen
LED Lighting Replacement (FL: All)	223	446	446	466	1,562
Mechanical Room External AC (FL: B3-4)	150	404	404	404	1,362
Computer Room External AC (FL: 2-9)	-	-	560	1,366	1,926
High-Efficiency UPS Replacement (FL: 2-9)	-	69	278	278	625
Total	373	919	1,688	2,494	5,475

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APPENDIX

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Economic Performance

Consolidated Income Statement

(Unit: KRW M)

Item	2015	2016	2017
Sales	3,138,449	2,947,689	3,003,212
Cost of Sales	2,783,086	2,544,137	2,577,928
Gross Profit	355,363	403,551	425,284
Selling & Marketing Expenses	255,621	234,943	209,635
Operating Income	99,742	168,609	215,650
Financial Income	8,402	8,452	6,494
Financial Expenses	24,576	22,064	23,670
Gain (or Loss) from Investment in associates	-259	5,690	3,782
Other Operating Income	32,057	44,291	34,073
Other Operating Expenses	32,195	45,118	42,735
Profit before Income Tax Expense	83,172	159,858	193,594
Income Tax Expense	30,067	51,426	74,720
Profit from Continuing Operations	53,105	108,432	118,875
Profit from Discontinued Operations	-10,528	-19,050	-18,769
Profit for the Year	42,577	89,382	100,106

Consolidated Balance Sheet

(Unit: KRW M)

Item	2015	2016	2017
1. Current Assets	1,556,376	1,495,346	1,466,670
Trade Receivables, net	961,886	764,892	770,349
Inventories, net	117,038	63,643	48,398
Other Current Assets	477,452	666,811	647,923
2. Non-Current Assets	803,261	859,618	893,040
Affiliate and Joint Investments	54,331	64,959	65,424
Property, Plant and Equipment, net	588,294	615,463	668,171
Intangible Assets	3,633	3,473	5,316
Other Non-Current Assets	157,004	175,723	154,129
Total Assets	2,359,637	2,354,963	2,359,710
1. Current Liabilities	976,648	1,036,389	999,421
2. Non-Current Liabilities	530,871	380,290	339,907
Total Liabilities	1,507,520	1,416,679	1,339,328
1. Controlling Company Shareholder's Equity	847,662	936,381	1,020,290
Issued Capital	47,188	47,198	47,198
Capital Surplus	40,117	39,329	39,520
Other Reserves	-6	-	-
Accumulated Other Comprehensive Loss	-2,953	-1,467	-3,396
Retained Earnings	763,316	851,321	936,968
2. Non-Controlling Interests	4,456	1,903	92
Total Shareholders' Equity	852,117	938,284	1,020,382
Total Liabilities and Shareholders' Equity	2,359,637	2,354,963	2,359,710

* For more detailed information, please refer to our Business Report (http://dart.fss.or.kr)

Social Performance

Government Subsidy

(Unit: KRW M)

Project Name	Lead Division	Amount	Remarks
Application of PUF security solution to Home IoT devices	KISA (Korea Internet & Security Agency)	17	

* Subject to the new government subsidy in 2017

Economic Performance Distribution

(Unit: KRW 100M)

Item	Stakeholder	Item	Amount	Remarks
Korea	Employee	Salary & Bonus	3,835	
		Benefits	641	
		Severance Compensation	294	
		Training Budget	76	
	Supplier	Product Purchases	6,854	
		Outsourcing Expenses	5,219	
		Repair Expenses	2,009	
		Advertisement Expenses	38	
	Central and Local	Corporate Taxes	499	
		Donations	29	
		Membership Dues	3	
	Shareholders & Bondholders	Dividend	183	Dividend Payout Ratio 20.1%

Employee

1. By Region

(Unit: Number of Employees)

Category	No. of Employees	Percentage
Korea	5,336	88.0%
China	328	5.4%
USA	96	1.6%
Brazil	61	1.0%
Colombia	51	0.8%
Greece	35	0.6%
Europe	31	0.5%
Malaysia	29	0.5%
Indonesia	24	0.4%
Japan	21	0.4%
Vietnam	19	0.3%
India	14	0.2%
Other*	18	0.3%
Total	6,063	100%

*Other: Thailand, Laos, Uzbekistan, Qatar, Bahrain

2. By Job

(Unit: Number of Employees)

Category	By Job	Total
Korea	Office Staff	5,309
	Production Staff	27
	Executives	5,336
Overseas	Office Staff	727
	Production Staff	-
	Executives	727
Overall	Office Staff	6,036
	Production Staff	27
	Executives	6,063

3. Female Employees

(Unit: No. of Employees)

Category	2015	2016	2017
Korea	1,582	1,428	1,351
Percentage (%)	24.2	24.2	25.0

4. By Age Group

(Unit: No. of Employees)

Age Group	Korea	Percentage
20s and under	430	8.1%
30s	1,866	35.0%
40s	2,579	48.3%
50 or older	461	8.6%
Total	5,336	100%

* Domestic Data

5. Percentage of Irregular Employees

(Unit: %)

2015	2016	2017
1.62	0.42	0.81

* Domestic Data

6. Employees with Disabilities

(Unit: No. of Employees)

Category	2017
Foreigners (Domestic: Full Time + Part Time)	3
With Disabilities	101

* For workplaces subject to disability employment fund report
(LG CNS: 29 employees, Haengbokmaru: 72 employees)

7. Job Creation

(Unit: No. of Employees)

Category	2015	2016	2017
Male	147	100	170
Female	50	32	62
Total	197	132	232

* Domestic Data

8. Average years of employment

(Unit: Year)

Category	2015	2016	2017
Male	10.5	11.4	12.7
Female	9.0	9.9	10.7
Total	10.1	11.0	12.2

* Domestic Data

9. Employee Education & Training

Category	2015	2016	2017
No. of participants (No. of Employees)	6,353	6,289	6,418
Training hours per employee (Time)	71.7	49.0	58.3

10. Industrial Accident

Category	2015	2016	2017
No. of Cases(Case)	2	1	1
Accident Rate(%)	0.03	0.01	0.01

11. Parental Leave

(Unit: No. of Employees)

Category	2015	2016	2017
Parental Leave Beneficiaries	103	147	109

Memberships & Associations (47 in Total)

Korea IT Service Industry Association	Korea Industrial Technology Association	The Information Communication Professional Engineers Association	Korea Photovoltic 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

* As of February 2018

Management System Certifications

Certification Title	Certification (Y. M.)	Validity (Y. M.)	Certification Range	Remarks
ISO14001	2010.09	2018.09	Future Strategy Business Div. Fin/Gov Biz Div. Gov Biz Officer Fin/Gov Biz Div. Transport Biz Officer Fin/Gov Biz Div. Fin/Gov Implementation Officer	Planned for corporate-wide expansion in 2018
OHSAS18001	2014.08	2020.07	Future Strategy Business Div. Fin/Gov Biz Div. Gov Biz Officer Fin/Gov Biz Div. Transport Biz Officer Fin/Gov Biz Div. Fin/Gov Implementation Officer	To be replaced with ISO 45001 and expanded to a corporate-wide level in 2018
ISO27001	2016.04	2019.04	Busan Global Cloud Data Center	
ISMS	2017.11	2020.11	Corporate-wide external service and IDC operation	
ISO9001	1994.07	2020.07	Head Office: IT and maintenance service including software and system integration consulting, analysis, and development in the areas of energy, transportation, manufacturing, medicine, finance, public, national defense, communication media, ICBMA (IoT, Cloud, Big Data, Mobile, AI), business commercial transaction, and convergence Greece Branch Office: training, software prevention management, and maintenance service for A.F.C.S. (Automatic Fare Collection System) project users for OASA[1)]	

1) OASA : ATHENS URBAN TRANSPORT ORGANISATION

Environmental Performance

Key Environmental Index

Item	Criteria	Unit	2015	2016	2017
Energy	Consumption	TJ	698	585	444
Greenhouse Gas	Emissions	tCO_2eq	31,843	26,610	20,346
Water (water and sewage usage volume)	Consumption	Ton	12	13	15
Waste Water	Consumption	Ton	15	16	19
COD	Amount	Ton	0	0	0
Waste	Amount	Ton	25	8	10

*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

VERIFICATION

Certificate No. GHGV-2018-05251

The Emission of Greenhouse Gas reported by
LG CNS Sangam IT Center
424, Worldcupbuk-ro, Mapo-gu, Seoul, Korea

Verification Institute
DAEIL E&C Verified the Greenhouse gas & Energy STATEMENTS of 2017 reported by LG CNS Sangam IT Center

Verification criteria
The Comprehensive Standards and Guidelines on the Operation of Greenhouse Gas and Energy Target Management Scheme (Notification No. 2016-255, Korea Ministry of Environment).

Verification Conclusion
We, DAEIL E&C, Verify the Greenhouse Gas Emission and Energy STATEMENTS 2017 of LG CNS Sangam IT Center are based on a Reasonable Level of Assurance.

- Energy consumption: 444 TJ
- GHG Emission: 20,346 CO_2eq. ton

May 25, 2018

DAEIL E&C CO.,LTD

GRI Standards Index (Core Option)

General Standards

Topic	Index	Description	Page	More Info.	Self-Assurance
Organizational Profile	102-1	Name of the organization	5		●
	102-2	Activities, brands, products, and services	4		●
	102-3	Location of headquarters	4		●
	102-4	Location of operations	4		●
	102-5	Ownership and legal form	6		●
	102-6	Markets served	4		●
	102-7	Scale of the organization (employees, sales, capital)	4, 5, 77		●
	102-8	Information on employees and other workers	4, 77-78		●
	102-9	Supply chain	53-56		●
	102-10	Significant changes to the organization and its supply chain	No significant change		●
	102-11	Precautionary principle or approach	52, 67, 69		●
	102-12	Voluntary economic, environmental and social principles or external initiatives	66, 84		●
	102-13	Membership of associations	79		●
Strategy	102-14	Statement from senior decision-maker	2		●
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	66		●
Governance	102-18	Governance structure	6		●
Stakeholder Engagement	102-40	List of stakeholder groups	8		●
	102-41	Collective bargaining agreements	64, 77-78		●
	102-42	Identifying and selecting stakeholders	8		●
	102-43	Approach to stakeholder engagement	8		●
	102-44	Key topics and concerns raised	10		●
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	9, 10		●
	102-47	List of material topics	10		●
	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	June 2017		●
	102-52	Reporting cycle	1 Year		●
	102-53	Contact point for questions regarding the report	About this Report		●
	102-54	Claims of reporting in accordance with the GRI Standards	81-82		●
	102-55	GRI content index	81-82		●
	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, 76-77		●
Indirect Economic mpacts	203-1	Infrastructure investments and services supported	57-59		●
	203-2	Significant indirect economic impacts	3, 77		●
Energy	302-1	Energy consumption within the organization	74, 79	Environmental data only applies to Sangam IT Center ("Environmental Data Disclosure" Business Sites)	●
	302-2	Energy consumption outside of the organization	74		●
	302-3	Energy intensity	74, 79		●
	302-4	Reduction of energy consumption	73, 74		●
Water	303-1	Water withdrawal by source	79		●
Emissions	305-4	GHG emissions intensity	79		●
	305-5	Reduction of GHG emissions	73-74		●
Effluents and Waste	306-1	Water discharge by quality and destination	79		●
	306-2	Waste by type and disposal method	79		●
Employment	401-1	New employee hires and employee turnover	78		●
	401-2	Benefits provided to full-time employees	62, 64-65		●
	401-3	Parental leave	78		●
Occupational Health and Safety	403-1	Workers' representation in formal joint management–worker health and safety committees and ratio represented by the health committee	64, 72		●
	403-2	Types of injury and rates of injury, occupational diseases, lost days, absenteeism, and number of work-related fatalities	78		●
	403-4	Health and safety topics covered in formal agreements with trade unions	70-72		●
Customer Health and Safety	416-1	Assessment of the health and safety impacts of product and service categories	46-49		●

Other Standards

Topic	Index	Description	Page	More Info.	Self-Assurance
Strategy	102-15	Key impacts, risks, and opportunities	2		●
Ethics and Integrity	102-17	Mechanisms for advice and concerns about ethics	64		●
Governance	102-29	Identifying and managing economic, environmental, and social impacts	70		●
	102-34	Nature and total number of critical concerns and grievance handling mechanisms	64		●
	102-35	Remuneration policies	Business Report		●
	102-36	Process for determining remuneration	Business Report		●
Economic Performance	201-4	Financial assistance received from government	77		●
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	67-69		●
	205-3	Confirmed incidents of corruption and actions taken	67		●
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	56		●
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, 78		●
	404-2	Programs for upgrading employee skills and transition assistance programs	60-62		●
	404-3	Percentage of employees receiving regular performance and career development reviews	62		●
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	62		●
	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	57-59		●
	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 comprises seventeen goals and 169 targets covering a broad range of economic, social and environmental issues, and 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 and 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.

	Ensure healthy lives and promote well-being for all at all ages	64
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	60 - 62, 65
	Achieve gender equality and empower all women and girls	78
	We are committed to making sustainable and reliable energy available at a reasonable price.	37 - 39
	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	60 - 65
	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	12 - 44
	Make cities and human settlements inclusive, safe, resilient and sustainable	70 - 74

Human Rights Policy

LG CNS Global Labor Policy

As part of our commitment for 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 and provide our employees with the prevailing wage 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 respected, and they shall not be treated in any severe and 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 system including employment, promotion, compensation, and training opportunities, and the provision of products and services, all stakeholders shall not be discriminated on the grounds of nationality, race, age, gender, sexual orientation, disability, pregnancy, religion, membership of political organization 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, and the minimum age for work is determined by the regulations of each country and region. Underage and/or pregnant employees are excluded from dangerous tasks. In accordance with ILO agreements ratified by each country, 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.

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