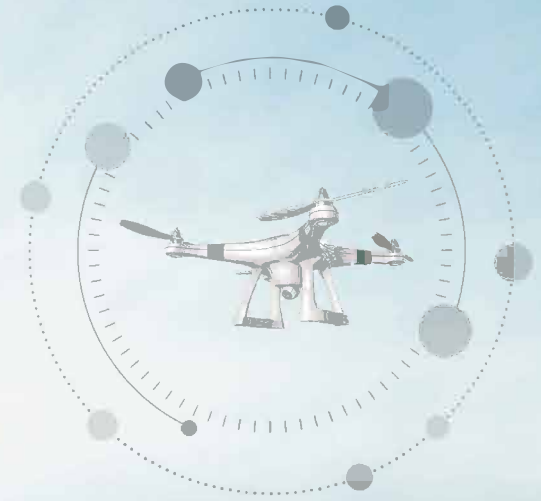


# Connecting People and Space with LX

2019 LX Sustainability Report



## About This Report

LX published its first sustainability report in 2008 and has been issuing annual reports since 2016. LX seeks for the active engagement and profound trust from stakeholders with the publication of sustainability reports, containing its major projects and performances.

<b>Principle of Report</b>	Complying with the core Global Reporting Initiative (GRI) Standards and fulfilling the requirements of the United Nations Global Compact (UNGC) and ISO 26000
<b>Scope of Report</b>	LX headquater, LX Education Institute, Spatial Information Research Institute, 12 regional headquarters, and 169 regional offices
<b>Period of Report</b>	From January 1 to December 31 in the year 2018 including partial activities and performances until the end of 2019 Time series analysis with more than recent three years (2016-2018) presented as year-on-year trend
<b>Assurance of Report</b>	Third-Party Assurance Statement (refer to page 59)
<b>Cycle of Report</b>	Annual report
<b>Principle of Release</b>	The report disclosed on LX webpage ( <a href="http://www.lx.or.kr">http://www.lx.or.kr</a> ) at all times
<b>Inquiry</b>	Contact below for further inquiries regarding the report. Address: 120, Giji-ro, Deokjin-gu, Jeonju-si, Jeollabuk-do 54870, Korea Social Value Implementation Office Tel: 063-713-1146 Email: <a href="mailto:dacapo1122@lx.or.kr">dacapo1122@lx.or.kr</a>

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## CEO Message

Fellow stakeholders,

I would like to extend my warmhearted gratitude to all of you for your unwavering care towards LX. LX has been making efforts to generate information that connects every corner of our land to safeguard a convenient life for the people as well as to discover new industries. Diverse projects have been carried out, playing the role of the bridge between land and people for better life and the innovative and inclusive growth in Korea.

In 2019, LX solidified its position as the global organization specialized in national land information, enabling sustainable growth. Above all, LX's global business has strengthened its competitiveness, and a variety of projects for innovative growth has witnessed significant progress, enhancing diversity and inclusion. In addition, as a leading institution in fulfilling social responsibility, LX joined the highest ranks of the shared growth appraisal of public institutions for two consecutive years. Looking forwards, LX will continue to communicate with the public and make various efforts to ensure sustainable growth as follows.

**Firstly, we will strive to strengthen our global competitiveness.**

The Year of 2019 marks as the symbolic year for Korean-style spatial information technology to create the 'Korean Wave' on the global stage. In cooperation with the Ministry of Land, Infrastructure and Transport, LX exported the essential technologies and know-how for land management including Korea Land Information System (KLIS) to the developing countries, contributing to the global poverty alleviation and economic development, which also can be the realization one of the 17 UN's Sustainable Development Goals, 'Strengthening Global Cooperation.' Moreover, both the Turkmenistan Cadastral Information Infrastructure Construction Project and the Uzbekistan Real Estate Registration System Construction Project have been recognized as the cornerstone of the economic development for each country through which LX transferred land information management system to establish and manage the digital cadastral map ahead of the implementation of land privatization, building a positive reputation.

**Secondly, we will take the lead in social value management by establishing the ecosystem for shared growth so that we can coexist with various social agents.**

In the cause of inclusive and sustainable growth, LX is focusing on reducing inequality and decent jobs and economic growth, the UN's SDG. For the purpose of creating fair jobs, LX has taken the lead in the transition of irregular employment positions to regular employment and has been at the forefront of building the ecosystem of shared growth by introducing the employment program for the disabled for the first time out of all the Korean public institutions. LX is also planning to pave the way for 'The Better Job' by setting the roadmap for 10,000 jobs in the spatial information sector by 2022. On top of that, 'LX Space Dream Center' will be the venue for everyone to start a business using spatial information, thereby creating innovative ecosystem for start-ups. With the expansion of the 'Fund for Win-Win Growth' at KRW 14.5 billion, LX fully supported SMEs and spatial information companies. These efforts earned LX the president award for excellent performance in shared growth as the public institution as well as the grand prize in SME Innovation Awards in 6 consecutive years.

**Thirdly, we will continue to seek for continuous innovation to establish ourselves as the 'Life Platform for All.'**

LX has established a life platform for people to make their lives convenient and safe. The series of recent sinkhole accidents and the growing usage of underground have brought intense attention to the project for drawing an integrated map of underground space. Against this backdrop, LX ought to provide reliable information for the people by standardize and systematically organize the underground data to the people as the designated institution to produce the integrated map of underground space. On top of that, LX has been implementing the Smarty City project with digital twin technology in partnership with the city of Jeonju in order to resolve the urban problems while surveying on the conditions of vacant houses that might cause accidents or crimes, thereby contributing greatly to stabilizing the residential environment. As a result, LX is contributing to resolving chronic urban problems by building urban forests to reduce fine dust, alleviating illegal parking, and handling food waste to fulfill the UN's SDG, 'inclusive, safe and resilient city.'

Distinguished stakeholders,

Your encouragement and support for LX have enabled tangible results in various fields this year. Looking forward, LX will continue to open various communication channels and listen to the voices of our customers. Furthermore, LX will move forward to become a public institution that provides active support for the advancement of technology of the national land information in cooperation with related organizations, while creating decent jobs and ecosystem of shared growth. I would like to ask your continued support and love for LX's sustainable management to become a platform institution for people's life going beyond the platform for national land's life.

Thank you very much.

*Chang-hak Choi*

March 2020  
CEO of LX, Choi, Chang-hak

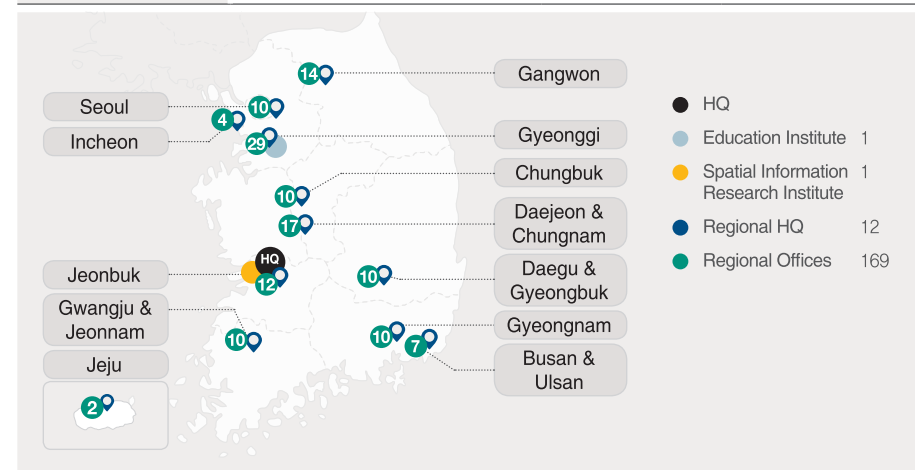
# Company Profile

## Introduction of LX

LX is a quasi-governmental institution under the umbrella of the Ministry of Land, Infrastructure, and Transport established with the aims of protecting people's property rights and promoting efficient management of the national land. After the foundation in 1977 as the Korea Cadastral Survey Corporation, we changed our name to the LX and expanded the business scope from cadastral survey to spatial information business. In recent days, LX has provided the smart national land information service, utilizing state-of-the-art technology, including Internet of Things (IoT) and big data, so that it can proactively respond to the emergence of the Fourth Industrial Revolution characterized by the latest information technology. By doing this, LX has made great contribution to the people's higher quality of living. LX will continue to exert itself for the sustainable national development, responding to various social requests as the public institution responsible for national spatial information.

As of December 31, 2018

Institution Name	LX	CEO	Choi, Chang-hak
Date of Establishment	July 1, 1977	No. of Employees	4,225 Persons
Legal Ground for Foundation	Article 12 of The Framework Act on National Spatial Data Infrastructure		
Location of HQ	120, Giji-ro, Deokjin-gu, Jeonju-si, Jeollabuk-do 54870, Korea		
Major Business Sites	Headquarters, LX Education Institute, Spatial Information Research Institute, 12 regional headquarters, and 169 regional offices		



## Main Business

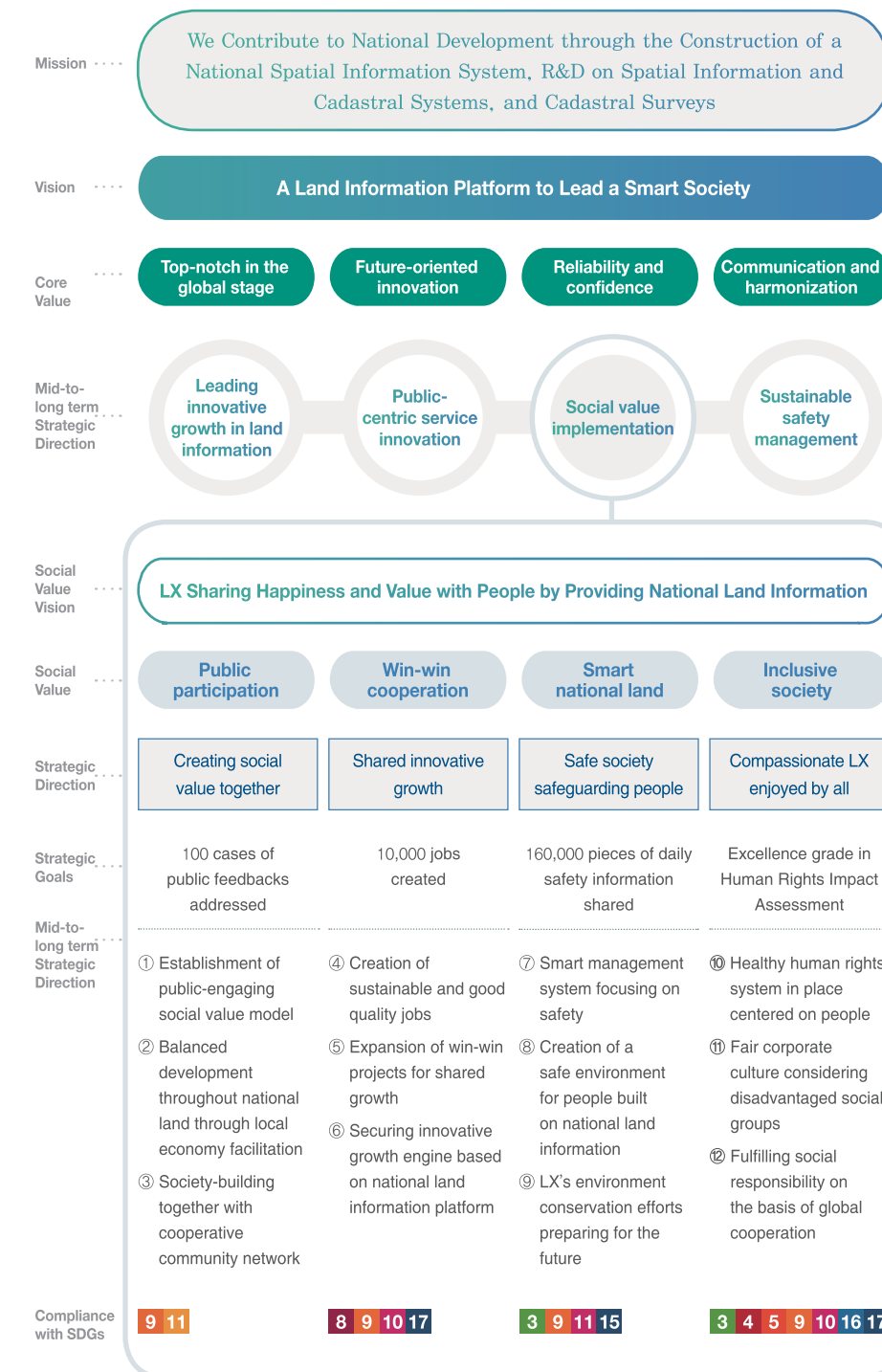
LX encompasses a wide range of responsibilities and its key businesses are national spatial information, cadastral survey, cadastral resurvey, and overseas business. In addition, LX's role includes the R&D and education business in national information fields.

	National Spatial Information	Facilitating spatial information industry and providing public service through the foundation of national spatial information system while converging various related spatial data
	Cadastral Survey	Registering land information in national cadastral records and conducting swift and accurate cadastral surveys for the protection of people's property rights
	Cadastral Resurvey	Conducting cadastral resurvey business and the world geodetic system conversion project for the completion of cadaster tailored to Korea and plan to work on the smart national land system by 2030
	Overseas Business	Passing on the Korean cadastral and spatial information technologies to developing counties and supporting private companies lacking overseas experience and infrastructures to make inroads into the global stage
	Research and Education	Strengthening the industrial capacity in land information field by conducting future-oriented R&D and studying related policies, providing the latest technology education

## Vision & Social Value Strategy of LX

In the Vision 2030 Declaration Ceremony in November 2018, LX officially declared its new vision, 'A Land Information Platform Leading Smart Society.' Furthermore, LX's four major strategic directions including 'leading innovative growth in land information,' 'public-centric service innovation,' 'social value implementation,' and 'Sustainable safety management' along with 12 strategic tasks are set in place so as to achieve the new vision, thereby those have been faithfully undertaken.

### LX Social Value Strategy System



## Key Management Indicators

**Total Assets**

2016	618.3 billion
2017	635.9 billion
2018	691.1 billion

**8.68%**▲

**Total Capital**

2016	396.1 billion
2017	437.6 billion
2018	465.6 billion

**6.40%**▲

**Operating Revenue**

2016	507.8 billion
2017	549.1 billion
2018	563.3 billion

**2.59%**▲

**Governmental Evaluation of Management**

2018	2019
A	AA+

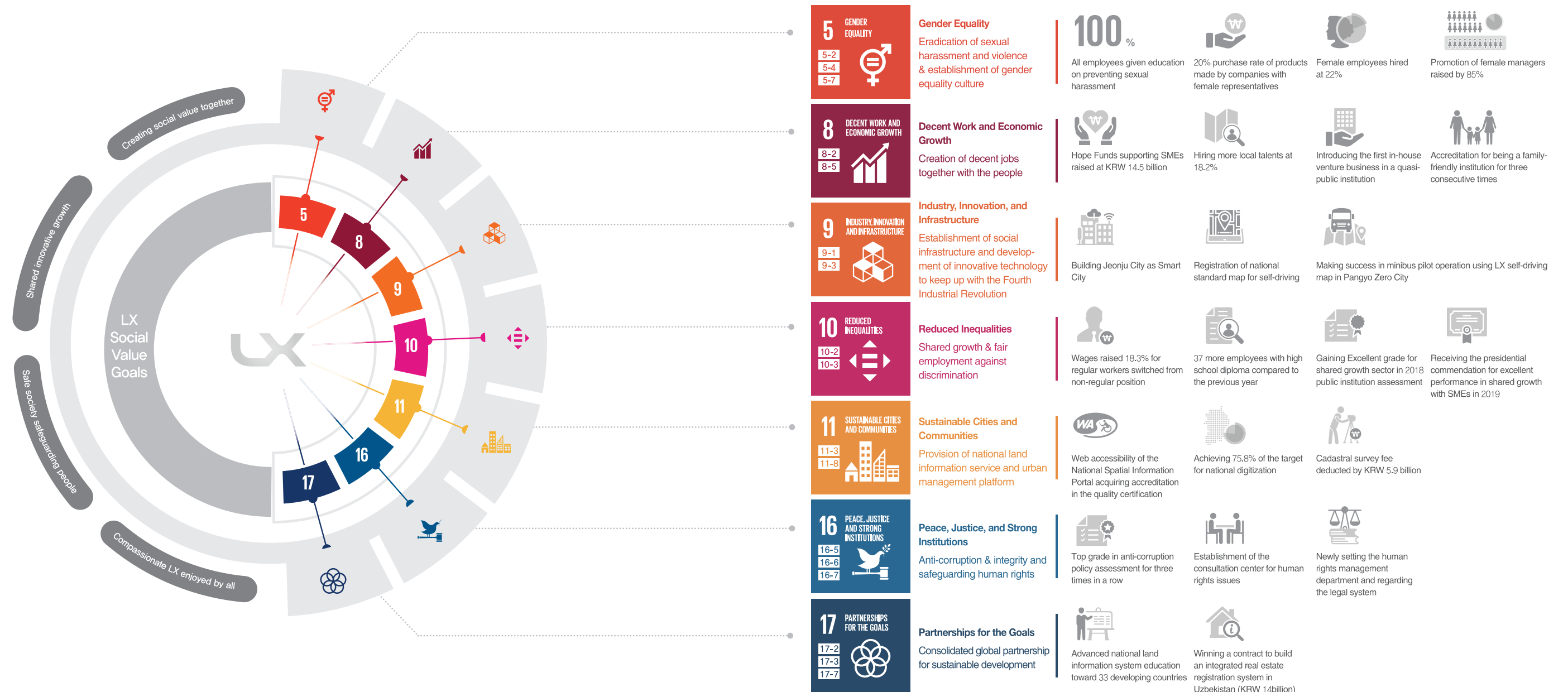
**Credit Rating**

# LX Social Value

## Social Value Objectives in Line with K-SDGs

The United Nations (UN) adopted the Sustainable Development Goals (SDGs) in 2015 to address problems encompassing all areas including the economy, society, and environment. The UN SDGs contain 17 goals and 169 detailed tasks that should be achieved by 2030 from 2016 as common objectives for all. Each country can select detailed targets and indices of the most appropriate and relative SDGs as the criterion because they allow flexibility depending on the situations of the nations. Accordingly, Korea established K-SDGs tailored to Korean situation as a part of its efforts to alleviate diverse problems in Korea

while contributing to the common objectives for the international community as a member country. Consisted of 5 main strategies including environmental conservation for all generations, economic growth for better quality of living, human rights protection & building inter-Korean peace, and strengthened global partnership, K-SDGs have 17 targets, 122 sub-targets, and 214 indicators for the implementation. As a public institution, LX has also taken part in this effort by reflecting UN SDGs and K-SDGs in business management to implement the social values in not only Korea but the international society.



# Materiality Assessment in the Perspective of the SDGs

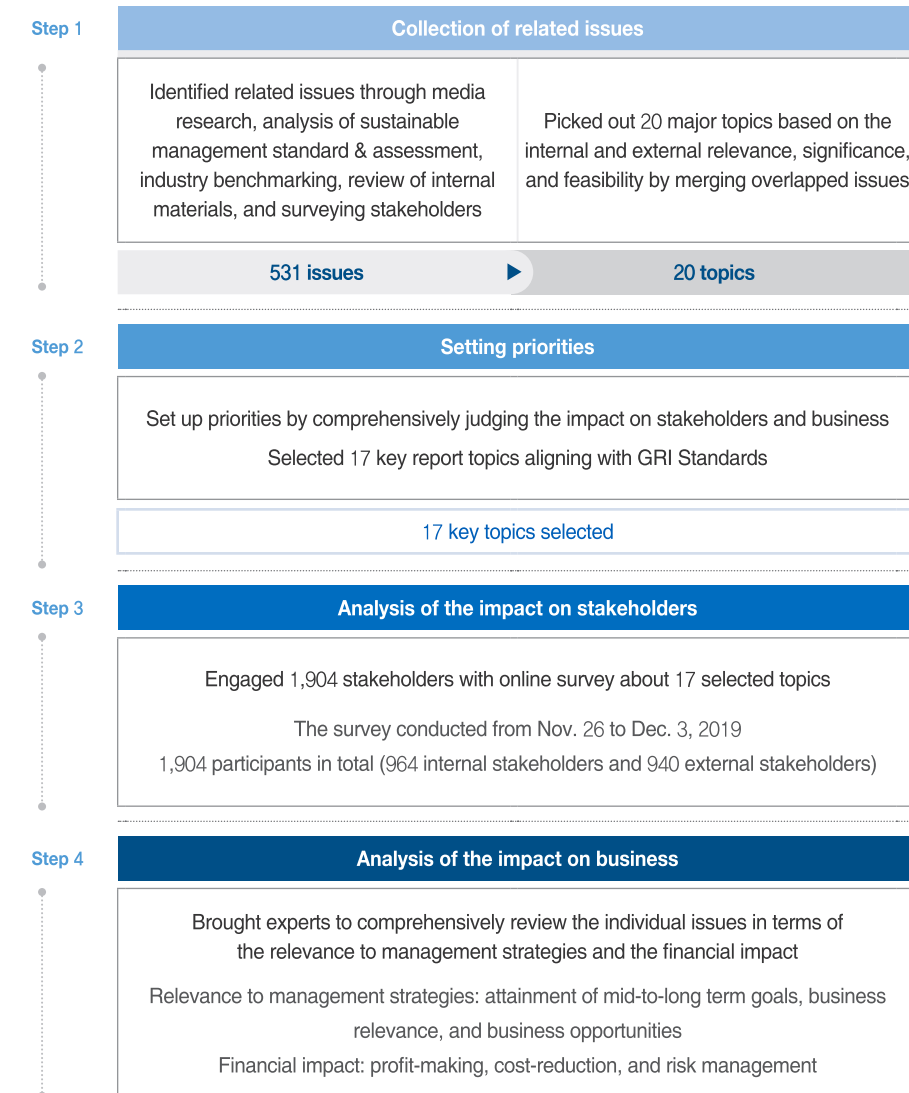
## SDGs Compass

The SDGs Compass, which is a guidance for companies to align with SDGs, was co-designed by GRI, the UN Global Compact, and the World Business Council for Sustainable Development (WBCSD) in 2015 for guiding businesses to strategically approach SDGs and ultimately contribute to the sustainable development through major activities. In accordance with the five steps in the SDGs Compass, LX set the goals on the basis of priorities in the value chain and has strived to transparently report integrated data. Looking forward, LX will continue its endeavors to realize not only K-SDGs but UN SDGs through the management strategy and main businesses immersed in social values.

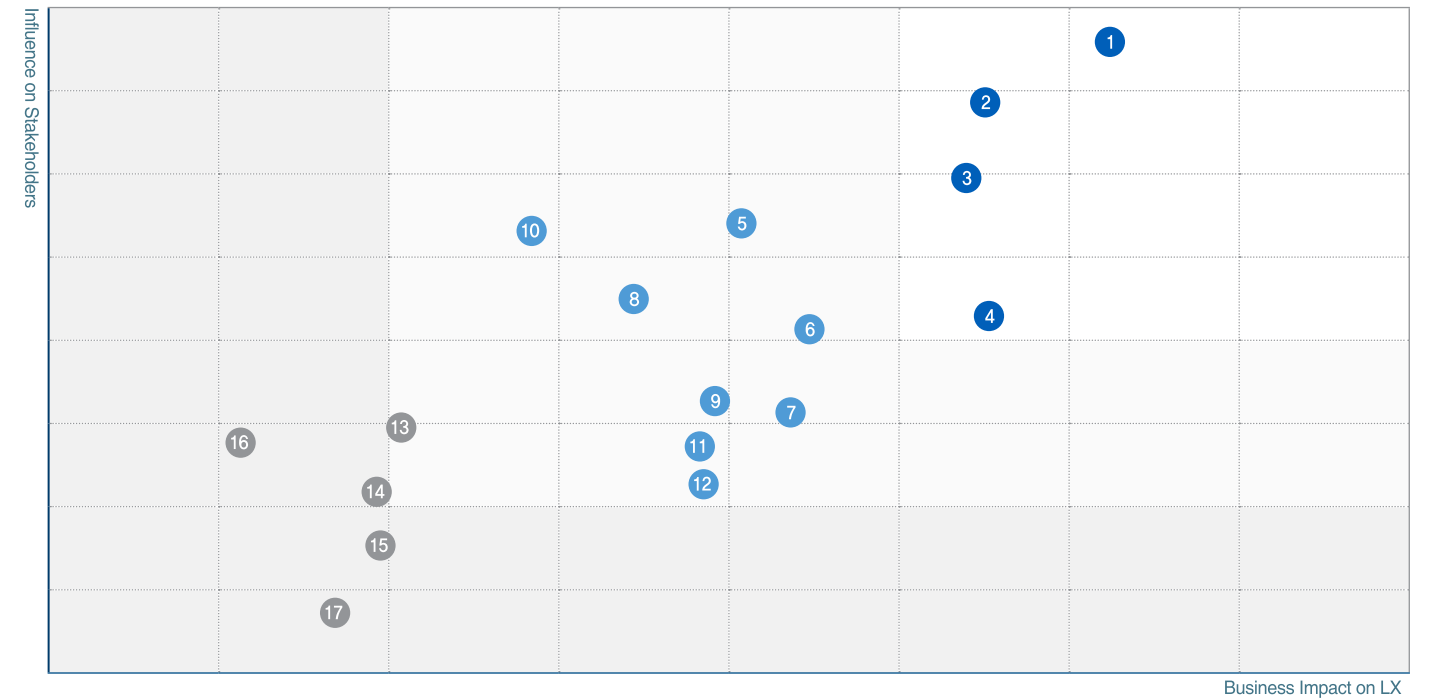
## LX's Materiality Assessment in 2019

LX has reported its key issues with the engagement of stakeholders after identifying the elements affecting stakeholders and management. Based on the internal and external analysis, the common stakeholders' opinions were selected as the topics of the report, mainly focusing on the significance and the effectiveness in terms of management. In particular, this report sets the critical topics in line with the sustainable business development goals with the foundation of SDGs Compass.

## Process of Materiality Assessment



## Result of Materiality Assessment



Type of Report	Priority	Key Topic	Scope of Report		Alignment with SDGs	Report Pages
			Internal Issues	External Issues		
Inclusive Growth for Spatial Value Creation	2	Improvement of national land information service	●	●	11	11-14
	7	National land information platform to countermeasure the 4 <sup>th</sup> Industrial Revolution	●	●	11	14-16
	9	Leading the future-oriented innovative growth	●	●	9, 17	16-17
	13	Economic performance	●	○	8	47
Social Value Creation with Concerted Efforts	4	Nurturing talents	●	○	8	21
	15	Contribution to local communities	○	●	4, 12	24-27
	14	Shared growth	●	●	10, 12	27-28
	6	Implementation of social value as a public institution	○	●	8, 10, 12	19-29
	10	Sustainable job creation	●	●	8, 10	22-23
	16	Response measures to climate change and environmental management	●	●	13, 15	29
Reliable and Trustworthy Institution	3	Intensified transparency and expertise in the board of members	●	○	16	31-32
	1	Ethics, integrity, and anti-corruption	●	○	16	33-34
	2	Strengthened safety management	●	●	1, 3	37-39
	6	Reinforced human rights management	●	●	16, 17	35-37
	11	Business risk management	●	○	-	40-42
Appendix	5	Customer satisfaction	○	●	-	44-45
	17	Stakeholders engagement	●	●	17	46

# Inclusive Growth for Spatial Value Creation

# 01



## Context

By setting 'innovative industries and securing social infrastructure' and 'sustainable city and residences' as the UN SDGs, international community laid the emphasis on the significance of land management for the sustainable development. For the sake of sustainable growth and social value creation, we need to correct any false cadastral errors and raise the value of the land use through adjusting the boundaries based on residents' requests. Furthermore, the digital land information service accessible anywhere at any time with the foundation of spatial information converged on IT will enrich the lives of people.

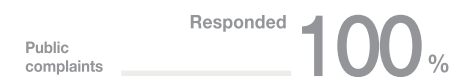
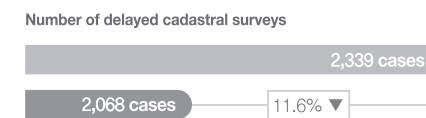
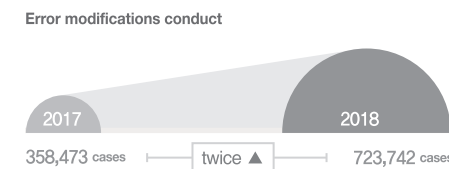
## Our Approach

LX has contributed to the protection of people's property rights by expanding the cadastral survey and registration while securing accurate cadaster in order to fulfill the 9th goal of UN SDGs, 'innovative industries and securing social infrastructure.' LX standardized and established spatial information system in key infrastructures, securing the innovative locomotive engine based on the national land information platform. Moreover, LX has endeavored to facilitate spatial information-fused technology, make stronger its R&D capacity, and encourage overseas expansion to be in line with the 11th and 17th goal of UN SDGs, 'sustainable city and residences,' and 'partnerships for the goals.'

## Compliance with SDGs

- SDGs 09. Industry, Innovation and Infrastructure**
  - Public complaints responded 100%
  - Maintenance for errors conducted more than twice, 11.6% dropped in cases of delayed cadastral survey
  - Construction of 44,937 High Precision Control Point
- SDGs 11. Sustainable Cities and Communities**
  - A support organization of smart city service
  - Highest score acquired in EA Maturity Assessment in public sector for 3 consecutive years
  - 468 accrued cases of research and development (24 increased)
- SDGs 17. Partnerships for the Goals**
  - Overseas business in 53 countries bringing KRW 42 billion so far

## Cadastral Business



## Greater Public Nature of Cadastral Survey

**More Cadastral Survey and Registration** With the foundation of long-accumulated on-site experience and state-of-the-art technology, LX has provided convenient and smart cadastral surveys to the people in every corner of Korea, including mountainous areas and the islands on the sea. 4,000 employees in 12 district departments and 169 branches nationwide meet the people with the medium of national land while swiftly offering the boundary relocation survey, current situation survey, subdivision survey, registration conversion survey, and new registration survey through various tools. LX has faithfully carried out its public role of setting the stage for the Fourth Industrial Era and protecting people's property rights with accurate spatial information.

**Accurate Cadastral Record** LX has conducted annual error modification project toward cadasters (cadastral record and cadastral book) to raise the quality of cadastral record as part of efforts to be in the interest of the people and to lower the social costs. In particular, for the cadastral record, LX has advanced its error modification system by fully taking control of modifications which was separately done by each local government. In accordance with the comprehensive error modification plan, systematic and consistent modification work has been conducted in terms of system improvement, training, and human resource assist to raise both efficiency and accuracy. As a result, error modifications were conducted more than twice compared to the previous year and the number of delayed cadastral surveys due to errors fell by 11.6%, making fruitful results. For the reference, the number of error modifications was 358,473 and 723,742 in 2017 and 2018, respectively and the number of delayed cadastral surveys marked 2,339 and 2,068 each.

### Modification of Cadastral Records

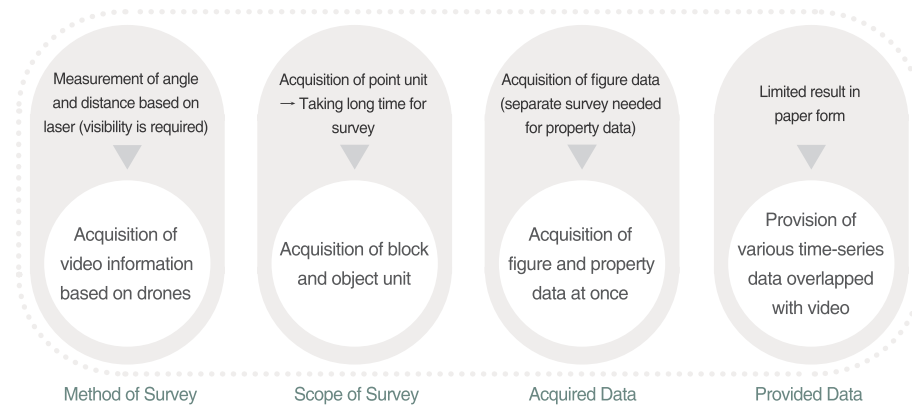
Improvement of system	Advancement of system	Support of labor and technology
Making the ground of modification in batch with improving the guidance of cadastral/forest map maintenance for standardizing maintenance by errors and the process	Developing the system to grasp the current error modification situation in nationwide and distributing the situation report to local governments	Providing related experts for system and business to the Ministry of land, Infrastructure, and Transport Providing 61 staff dedicated for modification to 80 local governments in Korea and offering related trainings

**Strengthened Communication with Public regarding Policy** Beyond the cadastral survey, LX has been striving to alleviated public complaints about land-related policies through active communication with people. In 2018, collected public complaints regarding policies like legalizing unlicensed shed and illegal mountainous area, and normalizing defense property were swiftly resolved with its expertise including networks nationwide, survey records, and related experience accumulated for 40 years. With such efforts, the financial burden of the people worth of KRW 3.46 billion was reduced and property rights were protected. In addition, the social cost due to inconvenience and conflict was reduced while related laws and systems became stabilized. For the year 2018, there were 32,255 complaints collected in total and LX successfully resolved all of them.



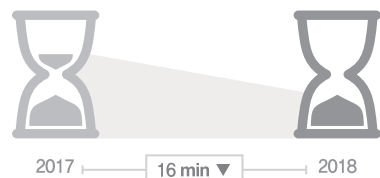
### Better Efficiency in Cadastral Projects

**Innovated Process of Cadastral Projects** LX introduced a smart working process to raise the efficiency of cadastral projects and the convenience of the people. In case of the large district unit project, the method of survey was switched from laser-based survey to drone-based video survey and reduced the period of the survey into three months, leading to cost reduction effect.



**Field surveys onto the large-scale districts for site development project**  
 - Researching the current situation of occupation and use by the usage situation and facilities (1,408km<sup>2</sup>, in Yeongcheon, Gyeongsangbuk-do Province)  
 - KRW 3.04 billion cost-reduction effect compared to the conventional survey

Taking time for survey drawing



Highest point of the High Precision Control Point



Land details of LX-Geo Go service



On top of that, LX introduced new technologies such as big data to Decision supporting system for performance determination\* to increase the work efficiency. With the adoption of big data, 1,553 cases of survey material that were originally spread in four systems were finally integrated, alleviating the inconvenience of connecting to each system. Also, streamlining the survey drawing process with the automated error detection functions reduced 16 minutes per each case compared to the process in 2017.

\* Decision supporting system for performance determination: A system to assist performance determination on cadastral survey by analyzing the previous survey results by types

**Optimization of Cadastral Survey Infrastructure** For the sake of accurate national land management and reinforced efficiency, LX has expanded the survey infrastructure like installing the high-precision control points. It had jointly established the installation plan for the high-precision control points with local government in 2018 and newly installed 44,937 high-precision control points in total in the most urgent areas like Gyeonggi and Jeonnam areas. LX also developed the management system for the connection to the government system while renewing the research data like damage, transfer, and installation date into the daily unit. By doing so, we successfully renewed a total of 68,646 control points into the latest data.

In September 2018, LX acquired the domestic and international accreditation on the test facilities for survey equipment test. It also introduced the real-name system in tests in order to put more responsibility to test inspectors or proof representatives while operating 169 temporary inspection facilities in branches nationwide for the inspection by the operators.

**'LX-Geo Go', Intelligent Cadastral Service** 'LX-Geo Go' is a mobile service that provides cadastral results based on Augmented Reality (AR), making it easy for people to check cadastral survey results anywhere at any time. This one-stop integrated service related to cadastral survey provides the inquiry on real estate information, the virtual simulation of allotment, merge, and construction, the automated calculation of survey fee, the survey request, and the smart information service, allowing easier administrative process for people.

### Cadastral Resurvey

**Urban Regeneration New Deal Project** The Urban Regeneration New Deal Project refers to the business to raise the competitiveness of the city by re-facilitating the urban and old residential areas led mainly by communities. These projects have been implemented in 500 places for 5 years with KRW 5 trillion. LX's cadastral resurvey protects national property rights by correcting false cadastral information and digitizing them. LX tries to preemptively prevent any disputes over land with the connection to the urban regeneration new deal project and the cadastral resurvey. With a view to preventing any boundary disputes in the course of business, LX has carried out cadastral resurveys to correctly register the size and boundary of land before implementing the urban regeneration project.

**Cadastral Resurvey Utilizing New Technology** As diverse location detecting devices have been developed like a drone, the cadastral resurvey environment has been transformed into technology-centered from labor-driven. Accordingly, LX made the foundation for cadastral resurvey fused with new technology by becoming the first public institution to establish the team solely responsible for drones in February 2018 and founding the specialized training institute for national land survey. The cadastral resurvey has adopted other new technologies including Internet of Things (IoT) and the mobile measurement system (GNSS). By these efforts, LX brings higher efficiency and technology competitiveness in cadastral resurvey sector.

**Mobile Measurement System based on GNSS\*** The mobile measurement system based on GNSS has advanced itself since LX adopted the new satellite navigation technology in the survey system in 2013. The replacement of PC with the lighter mobile measurement has made it more convenient for people to do business. Furthermore, it allows the real-time search and usage of materials, raising productivity and efficiency of the system by collaborating with other projects or using it differently by the characteristics of the district or the stages of the process. LX has consistently improved the functions of GNSS-based mobile measurement system by collecting opinions incoming to help desk, on-site interviews, and surveys. Also, it offers educations to staff about system operation while producing and distributing manuals for field to strengthen the competency of the system operation.

\*GNSS (Global Navigation Satellite System): It is the satellite navigation system to calculate location, altitude, and speed of moving objects on earth by utilizing the signals transmitted from satellites.

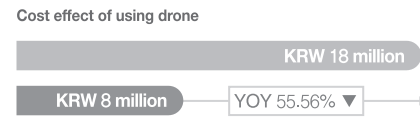
Roadmap of GNSS-based Mobile Measurement System

2013-2015	2016-2018	2019-2021
Introduction Stage	Stabilization Stage	Distribution Stage
Development of N-TOSS	Development of multi-N-TOSS	Development of mobile survey system
Connection to Network-RTK	Connection to multi-receiving Network-RTK	Universal support for on-site use
Combination with 1:1 Bluetooth	Combination with N:1 multi-Bluetooth	Further development of integrated platform for mobile cadastral projects (scheduled)
Pilot operation and observation test	Pilot operation of mobile APP prototype	

**National Land Management Based on Internet of Things** LX introduced IoT sensor to 'control point' and 'boundary monuments' which are the base data when reproducing boundaries of cadastral survey and cadastral record into the ground surface. With that, a GIS platform called 'Geo-IoT,' the intelligent cadastral information platform was developed. On top of that, we made a mobile application service that can receive real-time situation, location, and management information of boundary point from IoT sensors around Korea for the better efficiency and accuracy of the management. Currently, LX applied this IoT control point in earthquake-vulnerable areas including the urban regeneration district in Pohang and cadastral resurvey area in Gyeongju so that we can support earthquake monitoring using the analysis algorithm for earthquake data. Looking forward, LX will expand the field business, seeking for more inclusive public service model.

The technology for IoT control and boundary point — **Patent-pending**  
 Accredited by the government





**Cadastral Resurvey Using Drones** LX has reviewed the possibility of drone technology and developed related technologies if that can be applied to cadastral business since 2017. Currently, cadastral resurvey pilot project using videos from drones has been implemented and a total of 352 drone videos have been utilized in the processes from the selection of district, planning, measurement, setting boundaries, performance inspection to performance reports since 2018. This not only makes it easier for landowners to understand the project and make the right decision but also reduces the cost by 30-50% compared to the conventional aerial shots and time for efficiency. LX has laid the foundation to expand its business by the revision of the 'Drone operation manual for cadastral resurvey' for reinforcing the safety and security of drone usage. Also, it brings out the measures to improve the work efficiency and service quality by linking the cadastral resurvey with the 'Performance simplification experiment.'

# Spatial Information Business

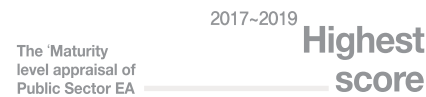
## Establishment of Spatial Information System

**Spatial Information System for Nation's Core Infrastructure** By adopting spatial information technology into the nation's core infrastructure can enhance the safety and efficiency of facilities. With the purpose of keeping the national SOC field safe and ensuring systematic management of it, LX has advanced the spatial information system for relevant facilities and guarantees its comprehensive management. In 2018, efforts for the advancement of spatial information system can be found in the completion of spatial information system for existing 3,884km of railway lines, and 110,000 new addresses granted as well as about 130,000 updates of Road Name Address System on buildings and roads. Moreover, LX also built 3D underground information system and expanded the scope of spatial information system to enable systematic management of underground facilities for national safety.

### Achievements of 2018 in Spatial Information System

Railways	Roadways	Address	Vacant Houses	Heritage
Spatial information system for railway lines	Updates in ledges to reflect current situation	Updates in Road Name Address System	Sign MOU with local governments to utilize the system for vacant houses	Digitalize the information of heritages
100% completed	53.8% completed	New addresses granted Information on buildings and roads	7 Major local governments	The Korean Provisional Government in Shanghai, Hyeonchungsa temple, etc.

**Reinforcement of IT Infrastructure** LX is striving to reinforce its IT infrastructure while boosting its capability for informatization by upgrading the IRIS (Information Resource Integration System) and expanding IT-related departments to secure speed, safety, and continuity in spatial information. In 2018, LX introduced multiplexing server and distributed processing methods for efficient use of server resources, thereby, securing safety in providing spatial information. Moreover, LX achieved the highest level of information management capability by acquiring the highest score for the third consecutive year in the 'Maturity level appraisal of Public Sector EA (Enterprise Architecture)' administered by the Ministry of Public Administration and Security.



## Spatial Information Service

**National Spatial Information Portal** LX has operated the national spatial information portal to make it convenient for the public to assess useful spatial information. By combining 11 national spatial information systems, we provide integrated data such as 1,300 types of maps, including national land fundamental, continuous cadastral, and digital map for free.

**New Address System** As the new address system based on street names instead of lot numbers was implemented in 2014 and the postal code system was transformed in 2015 to align with the national basic district system, LX has consistently updated its fundamental map of the new address system to make it up-to-date and accurate. LX also stepped up the promotion by putting a street address on the LX building and providing the internet digital map through the new address system guide for raising the awareness of the new address system.

**Big Data Business with Spatial Information** In cooperation with governmental agencies and public institutions, LX has strived for establishing the big data platform, converging spatial information with administrative information. The business contract with the Korea Post in regards to 'the introduction of spatial information technology into the postal delivery' became the foundation to share and utilize drone-related new technology and to make a special map for an optimized delivery route.

## Standardization of Spatial Information

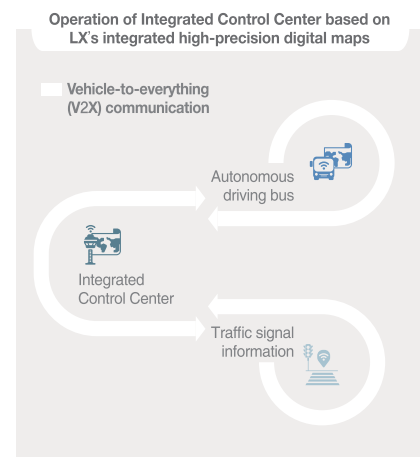
**Development of National Standards** Spatial information standard serves as a platform of data sharing and quality assurance to promote the convergence of spatial information. Thus, LX has adopted the international standards (ISO and OGC) while developing the national standards (KS) and group standards for spatial information reflecting domestic technologies required by the Fourth Industrial Revolution. The standards drafted by LX are to be reviewed four times through national standard development procedure; an external standards development cooperation organization, a standards expert, an internal spatial information standards technical committee, and a spatial information standards professional committee. In addition, LX supports the development of national standards by operating the 'Spatial Information Glossary' through which related terms can be efficiently managed.



**Promotion the standardization** Promoting the standardization of national spatial information projects, LX is creating a favorable environment for actual application with the cooperation of metropolitan cities and provinces. LX developed a set of criteria for each standard to lay the foundation for the standards to get into use. Also, we reviewed the application of standards based on the MOU with Seoul City signed in 2018. Moreover, LX has developed a national textbook for standardization and conducted professional education, consulting and promotion with the aim of proper use of standards. In 2019, a guide was developed to introduce and expound the standards necessary for the entire process of spatial information projects, resulting in 217 people in clients and businesses were educated through three times of lectures on the spatial information standards.

# Future Growth Engine

Smart city service  
**A support organization**  
 Selected by the Ministry of Land, Infrastructure and Transport



Accumulated Performance of R&D  
 2017 444 cases  
 2018 468 cases  
**24 cases ▲**

## Innovative Management

**Building a Smart City** LX is establishing itself as a leader of innovative growth, building a safe and convenient smart city for the better life of the people. LX also has made innovative efforts to make sure national safety with the 'digital twin' technology that embodies major information of the Fourth Industrial Revolution penetrating into every corner of our life like a neural network in virtual space. LX and the city of Jeonju signed a business agreement for building a smart city and carried out a pilot project to spread 'digital twin' technology.

**Booming of Spatial Information Convergence Technology** In the era of the Fourth Industrial Revolution, when the convergence of ICT plays a significant role, data will work as a driving force of all industries. Since land spatial information is an indispensable industry in the 4th Industrial Revolution era, LX is creating new value by incorporating cutting-edge technologies such as the Internet of Things (IoT) and big data into spatial information. In particular, LX is developing high-precision digital maps which will become the eyes of the autonomous vehicles, thereby, contributing to the safety and commercialization of autonomous vehicles with maps to control autonomous vehicles, maps to guide autonomous vehicles to their destinations, and analyzing big data.

### Core Technology Development Roadmap for Integrated High Precision Digital Map

2015-2018	2019	2020-2021
<b>Development of foundation technology</b>	<b>Development of substantial technology</b>	<b>Building a platform</b>
Building Map Data for Self-driving Building Information System for Location verification Development of Integrated high precision digital map	Support for Gyeonggi Autonomous Driving Control Center Development of GIS platform for autonomous driving Building Information System for Location verification dedicated to autonomous driving	Building a map for Integrated control Building a platform of spatial information for autonomous driving Groundwork for fully automated level 5 based on autonomous driving spatial information service

Opening on May 31, 2019, Gyeonggi Autonomous Driving Integrated Control Center is being operated with LX integrated high-precision digital maps for the pilot project of autonomous driving in Pangyo Zero City.

**Reinforcement of R&D for convergence technology** Under the vision of 'Global HUB Research Institute Leading R&D of Spatial Information,' LX is strengthening its R&D capabilities to secure future growth engines. As a result of efforts to develop key technologies of the 4th Industrial Revolution in response to the changes in government's policy directions and society in 2018, LX has successfully launched a DB service for intelligent vehicle and developed digital map application technology, as well as IoT-based prototypes to check status of for vacant houses and aging building to link them with the pilot project platform of the intelligent boundary point. With LX-GEO, a leading convergence technology service of LX, taking a step closer to spreading technology, LX actively carried out the national spatial information policy projects ordered by the Ministry of Land, Infrastructure, and Transport to conduct researches on the database advancement for the areas for certain purpose and smart spatial information planning. LX will continue to pursue R&D for convergence technology such as digital twin platform and drone-related technology.



Technical supporting to the advancement of Uruguay National Cadastre



Supporting project for digitalization of land management system in Tunisia

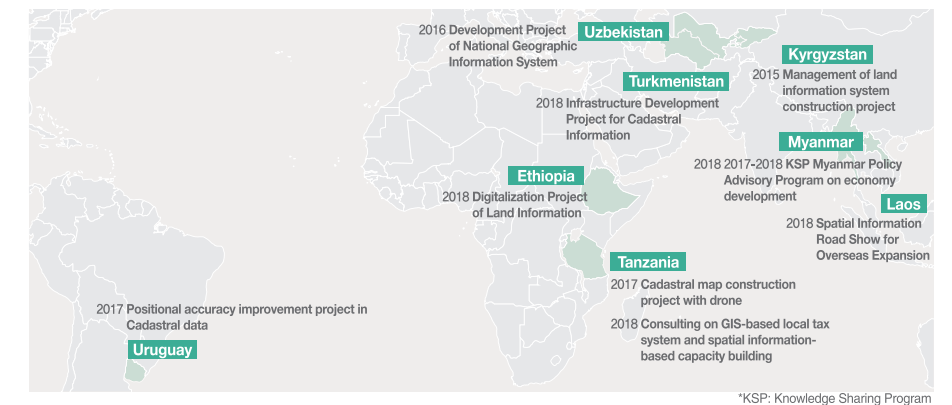
Accumulated overseas expansion 53 countries  
**KRW 42 billion**  
 As of 2018

## Promotion to make inroads into the global market

**Overseas Expansion** Advanced land information technology has empowered LX even at the global stage beyond Korea. Since 2006 with Laos cadastral surveying business, LX has made inroads into the global market by sharing technologies with developing countries to build and upgrade their national territory information system including cadastral surveying, spatial information consulting, capacity building, spatial information system for infrastructure construction and human capacity building. In 2019, LX successfully won an order for 'The Establishment of Integrated Real Estate Registration System' in Uzbekistan worth KRW 14 billion. Through which, LX builds and spreads real estate and land registration systems throughout Uzbekistan, providing various hardware and software for data center construction, while promotes capacity building to nurture experts, which will eventually lead to the great contribution to the development of land management and spatial information sector of the nation.

**Support for Overseas Expansion of Private Companies** LX has operated the Overseas Expansion Support Center (hereafter support center) aiming to support overseas expansion of private companies in spatial information. On the support center website, users can easily find various overseas business information such as 'UN-DB procurement information service' as well as information on the status of each country's spatial information establishment and successful overseas expansion cases. In addition, LX convened roadshows abroad in partnership with companies with excellent spatial information technology to support the promotion of enterprises and business meetings. In 2019, 26 domestic companies participated in the 'Spatial Information Road Show for Overseas Expansion' held in two countries in Tunisia and Tanzania, respectively, seeking to make inroads into global markets and bear a fruit of over KRW 68.1 billion for overseas project.

### Major Global Business



**Boosting network for cooperation** LX is striving to advance its global capabilities, attending regular meetings on geospatial information and engaging with experts from around the world. Since 2013, LX has been attending the annual meeting of WB Land and Poverty Conference and presented advanced cases on Korea's efficient land management system and technological development of spatial information at a conference on the topic of 'Catalyzing Innovation'. Moreover, the International Federation of Surveyors (FIG) Standing Committee was held at the margin of 2019 Smart Expo, and LX pledged to run a joint capacity building program for cooperation in cadastral and spatial information sector and fostering expertise, by signing an agreement for mutual cooperation with the Organization of American States (OAS).

# Social Value Creation with Concerted Efforts

# 02



## Context

The absolute poverty, one of the issues that UN SDGs are handling, or the objectives of developing countries might seem far from us but these issues have spread out across the world beyond borders, affecting greatly to each other. Therefore the Korean government has also set forth the realization of social values as one of its policy agendas, which has drawn much attention from the public. Against this backdrop, it is the high time for corporations, as members of society, to be more responsible in their management, going beyond profit-seeking. In the face of increasing social demands that especially public institutions should protect rights and interests of a variety of stakeholders concerned, seeking for public's interests, each institution has established the social values connected to their business.

## Our Approach

LX has established a fair system for job creation to make contribution to more quality job creations and economic growth, which are the eighth goal of the UN SDGs. As part of these efforts, the benefit sharing system has been expanded into the bargain. Activities for shared growth and social contribution, such as 'Measurement Nuriji Project', have been implemented in order to achieve the ninth goal of the SDGs, innovation of the industry and expansion of social infrastructure. In addition, we have contributed to the preservation of land ecosystem, which is the fifteenth goal of the SDGs, by means of the environmental management implementation system and its eco-friendly corporate culture.

## Compliance with SDGs

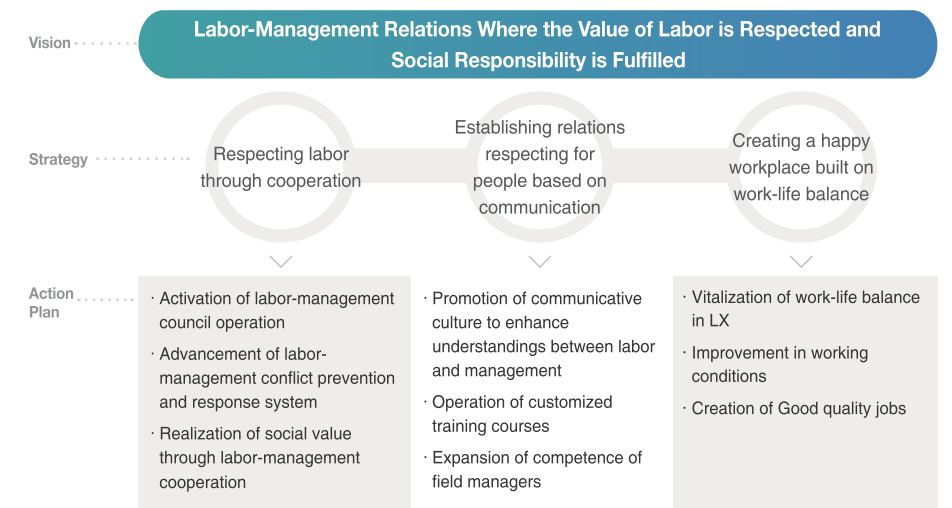
- 
**SDGs 8. Decent Work and Economic Growth**
  - 4% increase in childcare leave usage
  - 123% achievement of job creation target
- 
**SDGs 9. Industry, Innovation and Infrastructure**
  - KRW 14.5 billion of fund for SMEs (as of 2019)
- 
**SDGs 15. Life on Land**
  - 110% rate of rise in purchasing eco-friendly products

# Human Resource Management

## Communicative Labor-Management Culture

**Strategy for Labor-Management Relations** LX has strived to establish cooperative labor-management relations for an advanced labor-management culture. As part of efforts, we released, in November 2018, a job declaration stating 'creation of a labor-management culture where labor is fully respected through various communication channels,' 'elimination of risk factors to make workplace safe,' and 'enhancement of working conditions for balance between work and life.' LX also reestablished a new vision and strategy for LX labor-management in August last year. LX worked with internal and external experts to analyze the current industrial relations in a systematic way. The works include SWOT analysis of the labor-management environment and surveys of employees. Based on the analysis, we have set out a vision as below and implemented it.

### Strategy for Advanced Labor-Management Relations



**Reinforcing Communication Channels** LX has developed and operated a wide range of communication channels to form a consensus between labor and management to prevent possible conflicts. With an aim to boost exchanges and unity between them, LX has run many programs including labor meetings, visiting fields for communication, and labor-management meetings. LX has also established and operated diverse grievance settlement programs including 'skip-level meetings,' a council of better working conditions and so on. In 2018, we held horizontal and free discussions between both labor and management, which led us to enhance 38 working conditions. Future plans and main issues were also shared through a workshop for labor-management unity. LX's unionization rate\* stands at 86.72%

\* Unionization rate = the number of union members / the number of all employees x 100

### Labor-Management Communication Channels

	Management ↔ All Employees	All Employees ↔ Management	Management ↔ All Employees	Management ↔ Labor Union
Information Provision	Consensus forming (85 times)	Weland Q&A (565 cases) Dispatching standing auditors/auditors (38 times)	Video Meetings (49times)	Hot Line between labor and management (21times) Joint labor-management council (3times)
Exchange - Unity	Labor meetings (24 times)	Visiting fields for communication (50times)	Make friends (39times)	Labor-management workshop (1times) Labor-management meetings (24times)
Suggestion - Grievance	Skip level meetings (74times)	Voluntarily improving systems (12 cases) Bank for suggestions (94 cases)	Council of better working conditions (2times)	Labor-management council (4times) Expanded executive committee meetings (4times)

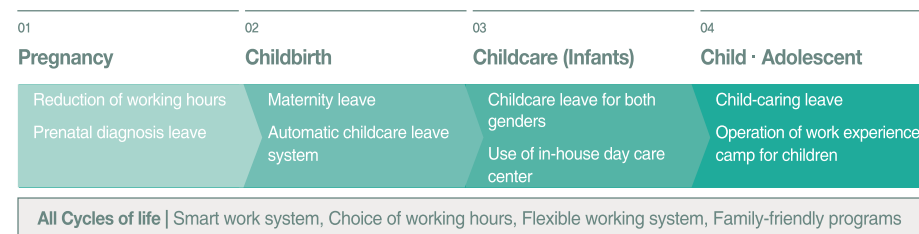
## Work-Life Balance

**Expansion of Work-Family Balance Culture** LX has established a family-friendly policy roadmap on the basis of the family life cycle to expand work-family balance in its corporate culture.

**Support for Pregnancy, Childbirth, and Childcare** In an effort to assist working mothers in childbirth, and also to achieve gender equality in childcare, LX has introduced an automatic childcare leave system which allows employees to apply for both mandatory maternity leave and leave of absence for childcare at once. This institution has also made a corporate culture encourage both genders to equally enjoy leave of absence for childcare. Moreover, we have been operating an in-house daycare and a child-caring leave program for a better workplace.

**Support for Family, Health, and Rest** LX has also put in place a variety of family-caring and family-friendly programs to achieve a better balance between work and home. The family members of the employees have offered the opportunities to receive medical checkups for their mind and body and to stay at resort condominiums to spend quality time with families. LX has also boosted a smart work system which reduces time and space restraints in the workplace so that the employees can spend more time with their families. These efforts have earned LX a good reputation for family-friendly policies. In November 2018, LX's policies were introduced as the best practice for the first time among public institutions for the series called 'family-friendly certification system in the past ten years and the next one hundred years' released in the Republic of Korea's Policy Briefing.

### Family-Friendly Policy Roadmap Built on Family Life Cycle



**Active Flexible Working Hours System** LX has allowed our employees to design their own working hours for themselves so as to meet more needs of them to make sure they will take more advantages of the flexible working hours system. In order to do this, we conducted a survey of all employees in 2018. The results showed us that the restraints and complexity of the system were the main obstacles to the use of the system. Based on the needs of employees, LX has actively improved the working system.

**Improvements in 2018** First of all, LX has reduced the minimum period of the staggered office hours and let employees choose the working hours even on public holidays. We have also eased the requirements for the flexible working system by reducing the prior approval period from the previous day to 24 hours from the use. On top of that, we have designated a time span as communal working hours from 10 am to 12 pm to beef up the work efficiency. The maximum and minimum working hours per day required for the flexible working have been clearly stated. LX has upgraded the system to inform our employees of all notices regarding public holidays, business trips and their leaves so that they can meet the 40-hour workweek. All these efforts contributed to the improved usage and satisfaction level of flexible working in 2018.

## Fair Personnel Management

**Fair Performance Review System** LX has established a human resources management system focusing on capabilities and performance while operating fair personnel procedures built on our

employees' opinions. We have adopted a blind review process for promotion where academic backgrounds and social connections are excluded from examination criteria, and also set personnel standards for fair and transparent transference. In addition, LX has developed a mobile application to enhance fairness in the placement of new employees. The same opportunities for promotion are also given to all employees regardless of their level of education.

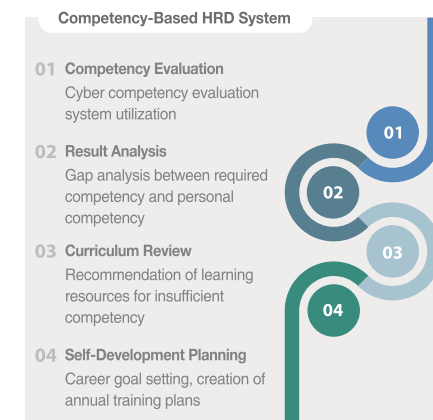
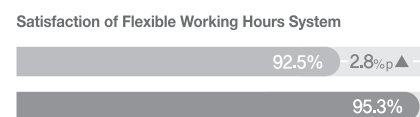
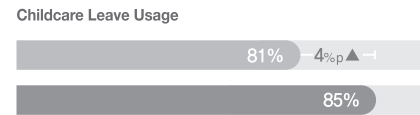
**Nondiscriminatory Employee Benefits Package** Our welfare programs, including tuition reimbursement, medical checkup, and flexible benefit plan, equally benefit both regular and non-regular workers to ensure that all workers receive the same treatment. LX has also assisted our temporary employees in developing their capabilities by giving opportunities to join our training and distance learning programs so that they can become regular workers.

## Human Resource Development

**Human Resource Development Strategy** The society and stakeholders have expected more about the role of companies in developing and cultivating their employees. LX has paid attention to how to nurture our employees from the perspective of life-long education ranging from recruitment to retirement and set up a medium to long term strategy for the cultivation of future talents creating new values. We have our training programs tailored to provide practical and capability-oriented courses so that our employees can enhance their expertise on national land spatial information. Along with these efforts, LX has strived to boost communication and to get a fairer personnel management system to attract more talented people.

**Customized Career Path Development** LX has set up a capability-oriented human resource development system on the basis of tailored career development programs. First, we diagnose our employees individually based on combining data acquired from self-diagnose, job performance plan, interviews and so on, and then tailor career development plans by position and job role so that our employees can make up for their own weak points. Job training and distance learning courses are also provided to help our workers sharpen their leadership, job skills, and also to develop their basic fundamentals. As part of efforts, we have revamped our classified training courses in regard to the cadastral survey, spatial information and overseas business, to make it more practical with an aim to prepare our talents for a future environment we will face. We also plan to expand a dispatch training course for a long time to provide a business mindset and capabilities to network to equip our workers for future leadership positions.

**National Land Spatial Information Specialist Training** LX has nurtured specialists by sector in the national spatial information field to proactively respond to the development of industries. Various courses for specialists were made ranging from new business planning, data processing and visualizing to spatial information analyzing while operating spatial information specialist courses to equip our core talents with capabilities to plan and perform new businesses in the field. LX's specialist courses are designed to be practical, offering our trainees opportunities to deal with projects. By doing so, LX assists its employees in carrying out a newly discovered project right after it is selected. A lot of projects were designed, including experimental research on visualizing the spatial information of forest-land use, supporting decision making on safety management of small-sized old buildings, supporting decision making on carbon emission reduction using spatial information, and supporting the decision making on prevention of epidemics. All of these courses dealt with local pressing issues, and some courses led to policy suggestions.



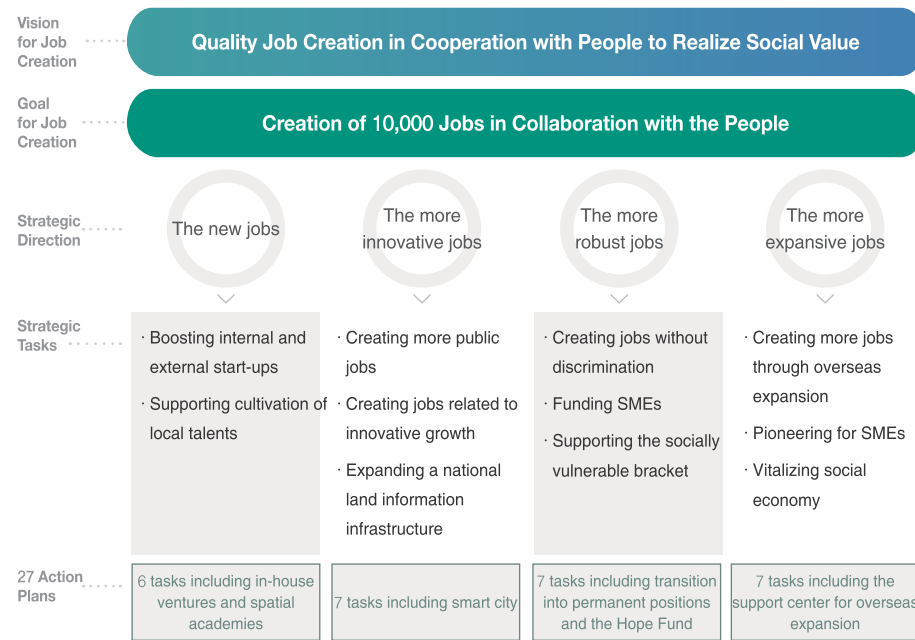
Public institutions' human resource development **3** consecutive years

# Sustainable Job Creation

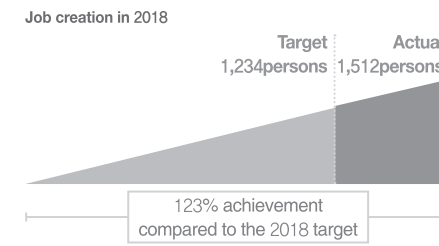
## Quality Job Creation

**Strategy for Job Creation** Quality job creation is one of the pressing issues that our society is facing, and the significance of the issue can't be overstated. To contribute to the sustainable job creation, LX has established a management plan and a strategy in both the public and private sectors.

In addition, LX has produced and implemented 11 strategic tasks and 27 action plans under the banners of 'The New Jobs,' 'The More Innovative Jobs,' 'The More Robust Jobs,' and 'The More Expansive Jobs.' We have also set a target of job creation on a yearly basis and kept track of its progress to produce better jobs as many as possible.



**Reinforced Fairness and Diversity in Recruitment** LX has expanded the capability-focused open recruitment intending to strengthen the fairness in the process. As part of efforts, we adopted a recruitment system in 2013 based on the National Competency Standards, which allows us to evaluate



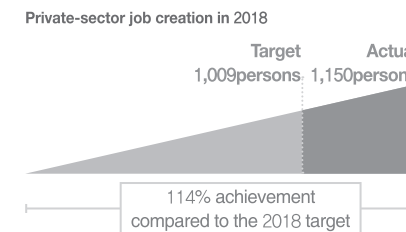
candidates' competency related to job positions. Along with this, the blind recruitment system has been brought in to secure fairness and objectivity of the process. Based on the system, we hired 365 new employees in 2018. The result of the recruitment showed us an 84.5 percent increase in the diversity of colleges that the newcomers graduated from.

On the other hand, to secure social equity in employment, LX has operated a recruitment system in favor of the vulnerable groups in employment including women, high school graduates, local talents, the disabled and so on. As a result, the recruitment rate of local talents has exceeded the target recommended by the government. We have also surpassed the target by 20 percent in terms of gender equality recruitment with benefitting job discontinued women in employment.

**Temporary to Permanent Employee Conversion** In accordance with a guideline on the conversion of temporary employees to permanent in the public sector, by means of a council consisted of labor and management experts, LX set up an affiliated company named LX Partners in December 2018, and converted 182 dispatched workers to permanent workers. We have also established a roadmap and secured fundings required for the enhancement of wages and relevant system. By doing so, we continue to give better treatments to workers who have got permanent positions.

## Expansion of Job Creation in Private Sector

**Job Creation in Private Sector based on Business** LX has performed a variety of job creation projects, capitalizing on its businesses and capabilities. For example, an in-house venture system was adopted for the first time among quasi-public institutions. Besides, our efforts for job creation in the private sector encompass all stages from starting businesses to finding markets by providing financial assistance and supporting overseas expansion. LX created 1,150 jobs in the private sector in 2018, the equivalent of 114 percent of the 2018 target.



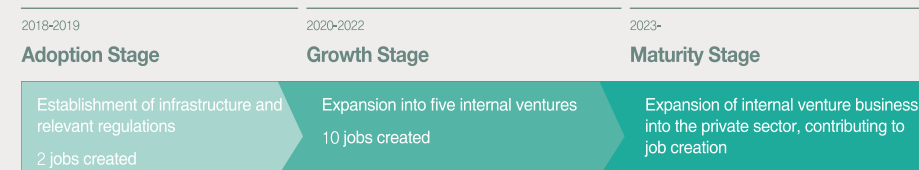
	National Spatial Information	System development, outsourcing of specialized skills   Spatial information&D, platform building   Overseas business consortium, support for start-ups
	Cadastral Surveying	Cadastral control points management system, new investment   Joint cadastral survey project   Outsourcing of non-core businesses
	Management Support	Development of customized human resources   Creation of regional win-win funds   Outsourcing of service business to local residents

# Best Practice

## Adoption of the First Internal Corporate Venture as the Quasi-public Institution

LX has introduced an in-house venture for job creation for the first time among quasi-public institutions. As part of efforts to set up the support system for this venture program, LX established a roadmap and formulated operating guidelines, setting a dedicated team with four members in 2018.

### Roadmap for Internal Corporate Venture



LX has put effort into launching this venture program from the very first stage. As part of our efforts, we held the 'Internal Corporate Venture Start-up Idea Contest' to get brilliant ideas from our employees. In December 2018, we selected a team, named Land Eye through the contest, and provided an independent space to work and start-up fund worth KRW 100 million as prizes.

### Result of the first internal corporate venture start-up idea contest

Winner: Land Eye, 2 employees received personnel appointment

Item: Providing accurate 3D territorial information based on drone images and measurement data

Expected Effects: Contributing to safe real estate deals by providing accurate territorial information to those who want to buy real estate but have difficulty in site-visits



LX will continue to hold the contest every year to boost the program for sustainable operation. If winners of contest start up their business, we will cooperate with them for technique development, and also give them preference when we purchase.

# Contribution to Local Communities

## Social Contribution Business

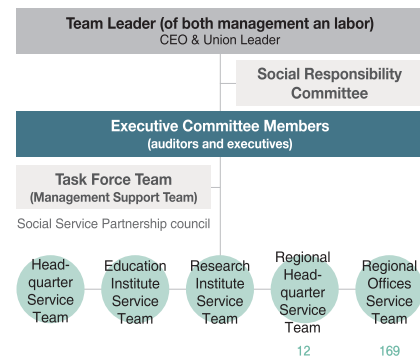
**Implementation System for Social Contribution** LX has performed a wide range of social contribution activities as a responsible public institution. We have utilized the nature of our business and competency to go beyond charitable donations in the activities. LX has set up four strategic directions; 'Happiness LX,' 'Hope LX,' 'Companion LX,' and 'Sensibility LX,' under a vision of 'the most reliable specialized institution for national land information through the fulfillment of social responsibility. We have a volunteer corps, named 'Nuriji,' where all of our employees take part in, to perform the activities.

Vision ..... **Most Reliable Specialized Institution for National Land Information through the Fulfillment of Social Responsibility**

Goal ..... **Sharing Along with Realizing Social Contribution in Cooperation with the People**

Strategic Direction	Happiness LX Sharing expertise	Hope LX Sharing social responsibility	Companion LX Sharing human resources	Sensibility LX Provision of cultural experiences
	Reflection of LX's business nature	Realization of social value	Volunteer corps	Promotion of culture, arts, and sports
Strategic Tasks	Utilizing job skills and providing a tailored social contribution ① Cadastral survey and happiness sharing ② Spatial information sharing ③ Pioneering global markets ④ Mobile customer service called Sinmungo	Bearing social responsibility for social value realization ① Strengthened role for SMEs growth ② Quality job creation ③ LX knowledge sharing	Supporting the socially vulnerable through the nation-wide network ① Talents donation of employees ② Tailored Assistance for the Vulnerable ③ Traffic accidents prevention and public service	Activities contributing to culture, art and sport promotion ① Expansion of interests in sports ② 'On-site Ballet Story Performance' in collaboration with LX and National Ballet Company

Organizational chart of social contribution



## Social Contribution Activities



LX has carried out a variety of sharing activities, capitalizing on our business nature and job skills. The services we provide include the 'Measurement Nurij Project' that we conduct cadastral surveys for free for the socially weak and also reduce the cost of survey, and 'National Land Nuriji' where we offer useful spatial information through our mobile application. LX won the Public Administration and Security Minister's prize for the Measurement Nurij Project in Best Practices Awards 2018 for Public Administrative Information Usage. As part of efforts to create more spatial information star-ups, and also to help our local promising start-ups, we have opened the 'LX Spatial Dream Center' equipped with offices, board rooms and a start-up zone. As of December 2019, the center accommodates now

Guidelines on Service of Survey Cost Reduction

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around 20 promising start-ups including 'My shop on shop,' 'Data King' who were winners of 'LX Spatial Information Start-up Ideas Competitions for the past two years.



LX has shared its expertise in cadastral survey and spatial information as a part of its expertise sharing activities. We call those activities 'Talents Sharing Nuriji'. In the program, a series of four source books were published and distributed to make it easier for people to understand the cadastral survey, and also for relevant organizations to improve their complaints handling skills. Various work experience programs and mentoring services have been given to teenagers and university students. In addition, as relocated to Jeonbuk Innovation City to establish itself as the more reliable public institution, LX has formed an interagency network and raised awareness of the gravity of fulfilling social responsibilities. It has also reached out to the marginalized people to improve their residential conditions and offer helping hands.



Taking advantage of our nationwide network, LX has expanded the outreach to the dead zone of welfare to give a beacon of hope. In order to do this, LX has conducted a wide range of activities, such as cultural assets preservation, environmental cleanup in local areas. Also, we have tried to reach out to people in need at times of need of help, such as national holidays or end of the year, to offer coal bricks, packed meals with Kimchi for national holidays. Headquarters and our branches have performed their own activities as part of 'Nuri In Sharing' program. All of those efforts We received citations and plaque of appreciation from the government and Korea Mecenat Association in recognition of our efforts' sincerity and contributiveness. In 2019, we held a tree planting campaign nationwide on Arbor day using our network, carrying out environmental cleanup activities throughout the nation on World Environment Day.



LX thinks highly of the power of culture and arts, so we have also put efforts into sharing activities in the culture and sports area through our 'Culture and Arts Nuriji' and 'Sports Nuriji' programs. Since 2011,

we have worked with the National Ballet Company and operated 'Visiting Ballet Story and Ballet Class' service. Along with these, to boost unpopular sports, we have operated a cycle sports team.

**Ballet Story, Ballet Class** LX has operated the 'Ballet Story' program over the past nine years. This program is to reproduce famous ballet pieces into forms of a gala show for performance. In 2019, as part of the program, we visited places where people hardly have access to cultural performances in the areas like Cheongju in Chungbuk Province and Hadong in Gyeongnam Province to perform Don Quijote, Serenade and Spartacus. Moreover, LX has invited the legendary ballerina Kang Su-jin to perform in four elementary schools and teach ballet to students. Until now, we have provided 'ballet classes' to students in eight elementary schools in areas such as Gangwon where there was huge damage due to a big fire, Sancheong, Cheongju, and Eumseong.

**LX Cycle Sports Team and Cycle Class** LX Cycle Sport Team, founded in 2006, is the best team in Korea with Director Jang Yoon-ho, who took the role of national team coach for the longest time, Couch Jang Sun-jae, who won Asian Games five times, and with seven outstanding players. In 2019, our players ranked both the first and the second in Korea National Championship 2019 and took the 1st place outperforming other world-renowned players in 2019 Japan Track Cup I.



Urban Agriculture Win-Win Project

located, to carry out a project, named 'Urban Agriculture Win-Win Project with Local Residents and LX Employees'. We also collaborated with local farming associations corporations to form 'Innovative Community for Tending Urban Gardens with Native Species of Seeds.' By doing this, we took part in urban agricultural activities and provided a shelter (tent) to all participants in the activities. In addition, we participated in a Social Living Lab organized by a consumer group to figure out pressing agendas to be solved in the lives of our local residents.

Furthermore, LX has joined the 'Innovative Umbrella Sharing Program' since June 2019. The umbrellas are placed in public organizations, schools, apartment buildings, multi-purpose facilities, and many other places so that the residents can borrow umbrellas in times of need and return them to places nearby. The program is expected to meet the real-life needs of our residents and spread out the sharing culture.

## Engagement of Local Communities and Local Development

**Cultivation of Local Talents** There are more and more needs to nurture local talents using our business's nature in the face of hollowing out caused by leakage of young talents in Jeonbuk Province, where our head office is located. As part of efforts, we held 'LX Vision Camp' where junior and high school students took part in Jeonbuk Province, in October 2019. The very purpose of the camp made based on the idea selected from the '2019 Competition for Ideas' is to cultivate local talents. In the camp, we introduced basic knowledge about LX, measurement and spatial information, and also provided work experience. As a result, LX has raised awareness of itself and spatial information among the youth.

Furthermore, LX plans to implement 'Local Talents Jump Up' from 2020. This program is designed to offer tailored and streamlined training courses by stage to students ranging from elementary school to university students and job seekers. LX aims to hire local talents up to 30 percent, and also make all the participants succeed to get jobs by providing persistent and organized education.

**Vitalization of Local Economy** With an aim to stimulate the tourism industry in Jeonbuk Province, LX has set up local resorts and hotels with six public institutions so that they could sign MOUs. By doing this, our employees are encouraged to use those facilities during their leaves, and also LX uses more of them for their events, which has contributed to stabilized sales of local resorts and hotels.

In addition, residents, the local government and public institutions relocated to Jeonbuk, including LX and National Pension Service, signed an MOU, and has implemented the 'Win-Win Development Forum' since June 2019, to grow together in both society and economy. The objective of the forum is to establish a social and economic organization to bring solutions to four tasks we have set as agendas to be resolved for the Innovation City. Four tasks are food, education, traffic and the environment. In 2019, LX offered books to children libraries, and also made public childcare available. In 2020, we plan to identify more items to work on and expand the scope of assistance by regular meetings with residents.

**Residents-oriented Win-Win Cooperation** LX has more closely communicated with local residents in order to depart from one-way social contribution activities to make them more residents-oriented. As part of activities, in 2019, LX worked with a consumer group of Jeonju, where our head office is



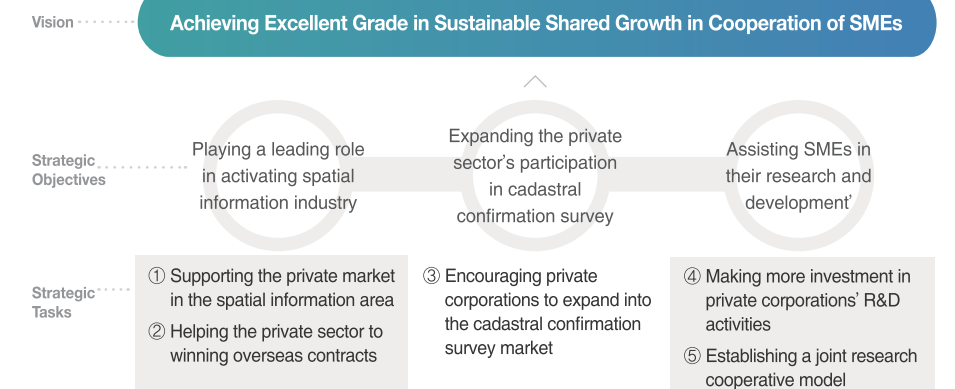
MOU Signing Ceremony for Win-Win Development Forum

## Win-Win Cooperation

Shared growth category in Korea SMEs Innovation Award **The Grand Prizes**  
For 6 consecutive years

## Shared Growth

**Strategy for Shared Growth** To go hand in hand with SMEs, LX has set three strategic objectives; 'playing a leading role in activating spatial information industry,' 'expanding the private sector's participation in cadastral confirmation survey' and 'assisting SMEs in their research and development.' Based on this, we have conducted diverse projects for growing together. In order to do this, many supporting groups were operated such as a supporting center for overseas expansion, a center for start-up and spatial information academy. LX has monitored and kept track of achievements regularly to check out where we are, and also to find out what we lack.



**Activation of Benefit-Sharing** LX has put in place a benefit-sharing system with business partners to find out what should be done for the sharing, and to sign a preliminary contract. To raise awareness of our employees about the sharing system, we have invited people in charge from relevant institutions to provide training regarding how to identify benefit-sharing tasks, best practices of other organizations and ways to promote the system. We have also included benefit-sharing performance as one of the criteria for internal evaluation to promote the system. In addition, we have simplified the task registration procedure of the benefit-sharing management system so that our partner companies can actively participate in this. LX has also helped its employees get relevant licenses to boost the sharing system in both quality and quantity. As a result of these efforts, in 2018, the number of tasks registered

for benefit sharing was increased by 8 cases to 29, and the sales of consignment companies went up by KRW 21.8 billion to KRW 167.8 billion.

**Creation of Start-up Ecosystem** LX has strived to set up a healthy start-up ecosystem as a public institution dedicated to national land information. In December 2018, we adopted an internal corporate venture system for the first time among quasi-public institutions, and also established the 'Space Dream Center' to provide information and items required for starting business or pioneering markets. Furthermore, start-up training courses are being operated through 'LX Spatial Information Academy.' LX is the first to launch 'Win-Win Supporters' program funding promising preliminary entrepreneurs and small-sized corporations and providing the 'One-Stop Incubating Program.' We selected young people and job discontinued women through a contest and rented them some parts of space of the LX's building free of charge as part of 'Start-up Incubating Business'. By doing this, LX has made contribution to local job creation.

**Supporting SMEs** LX has provided a wide range of supporting programs to set the stage for small-sized companies to grow into robust mid-sized ones. As part of programs, we have formed a 'Win-Win Hope Fund' to secure liquidity for SMEs and used our competence and infrastructure to assist them in research development and technology. On top of that, we have opened the 'Global Center' for their expansion into overseas markets. We have provided the information needed for the expansion, and also marketing supports. By doing this, we have also tried to create opportunities to enter into the global market together. All of these efforts earned LX the best rating in the shared growth category for two years in 2017 and 2018 among public institutions and won prizes for five years in a row in the shared growth category in Korea Small and Medium Enterprise Innovation Award.

### Leading in Fair Trade

**Fair and Transparent Contract System** For the sake of stimulated economic vitality of the socially weak corporations, LX has lifted a cap on performance, and raised standards of private contracts. In detail, the cap on performance was removed when opening bids under a posting price to induce start-ups to go for the bids actively. Social enterprises, Women-owned or Disability-owned business enterprises are encouraged to be more engaged in economic activities through increased criteria for private contracts.

In addition, LX has asked to write a pledge to protect human rights at the time of signing a contract, and also to institute a system where unit wage fluctuations are tied to contracts to protect the rights of workers.

**Establishment of Fair Economy** With the objective of establishing an order of fair economy to go hand in hand with small and medium-sized partner companies, LX has made institutional efforts. We have enhanced a payment system so that we can make payments within five days of tax invoices issued by the partner companies. Along with this, we have raised the maximum limit of advance payments, and also eased the restrictions on requirements for the remaining period. By doing this, we increased the rate of advance payment up to 46.9% in 2018, which allowed its partners to secure liquidity. Also, in order to prevent non-payment risks, we have made the protection of subcontractors mandatory, and also requested a written pledge that clearly states the direct payment condition at the time of signing a contract. LX has also put in place a system to reduce subcontractors and to boost local companies' participation when two or more companies form a partnership or joint venture to act as a prime contractor.

Supporting to establish spatial information SMEs **2018 30 enterprises**

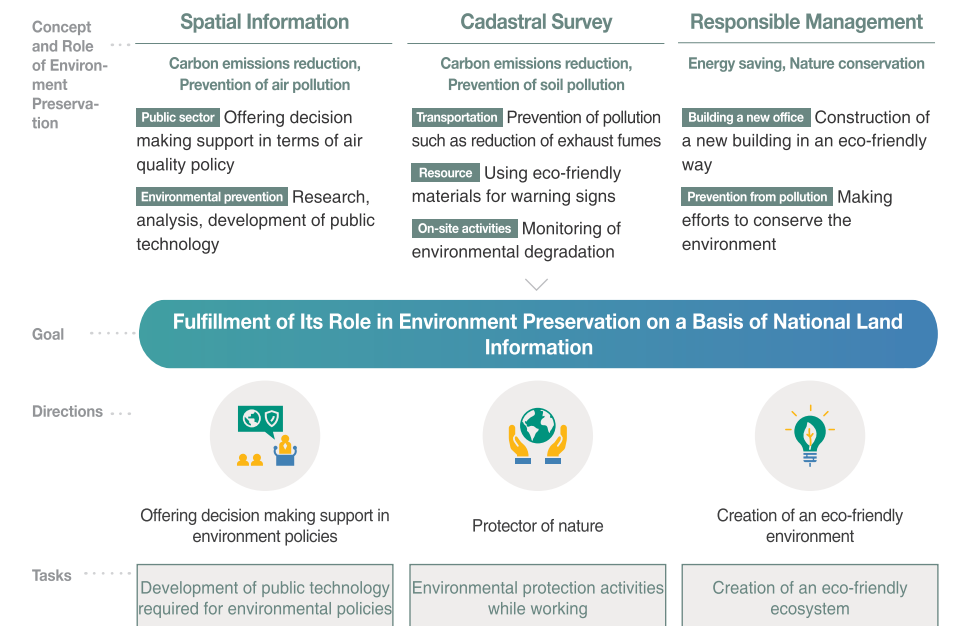
Investment in R&D in the private sector **KRW 2.95 billion**

Government's guidelines **100% compliance**  
Inclusion of the amendment to contract regulations in 2018

## Environmental Management

### Establishment of Environment-friendly Management System

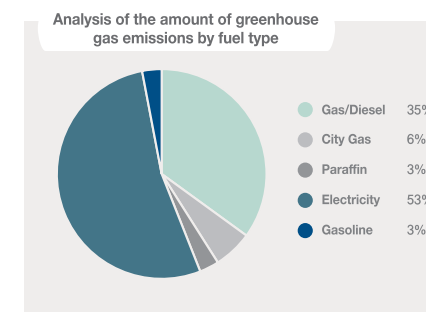
**Environmental Management System** LX has defined the concept of environmental preservation based on our business nature, and then figured out what should be done for the preservation. We have formed a committee for energy saving, which is a decision maker on issues regarding environmental management, in order to regularly check out the overall performances. We also have a team in charge of all regional headquarters' activities in terms of environmental preservation to ensure that environmental management is on track.



**Air Pollution Surveillance System** LX has developed an environmental monitoring system using drones and sensor information to analyze fine dust concentrations and causes in areas that environment surveillance doesn't reach out to. LX's monitoring system performs functions to measure and analyze 11 air pollutants including fine dust, ultra-fine dust, ammonia, hydrogen sulfide, band smell and so on. We have the system linked to 'Spatial Information Portal' so that the system can be used for making related policies. Incheon City has utilized the system to reduce air pollutants.

### Infusing Environmentally Friendly Culture

**Efforts to Reduce Green House Gas Emissions** LX has replaced its rented vehicles for business use with eco-friendly ones. And we also substituted plastic warning signs that we used to use during conducting cadastral surveys, with the ones made of eco-friendly materials to prevent possible environmental pollution caused in the process of working. Regarding the construction of 12 buildings, including Education Institute, Research Institute and regional offices, LX adopted green technologies for the whole construction process. We replaced all lightings with highly efficient LED ones and have encouraged the employees to reduce the usage of disposable products in their daily lives, such as paper cups, plastic bags, and so on. In addition, we have participated in environmentally preferred purchasing for supplies. LX won the first grade of Green Building Certification issued by the Korea Environmental Industry and Technology Institute and achieved perfect scores for two years in a row in green purchases.





# Reliable and Trustworthy Institution 03



## Context

Along with several global evaluation indexes, UN's Sustainable Development Goals (SDGs) emphasize the gravity of safety and human rights issues by setting Goal 3, Good Health and Well-being, Goal 5, Gender Equality, and Goal 16, Peace, Justice and Strong Institutions, and ask for attention of global citizens and efforts to achieve the goals.

Therefore, a lot of companies spare no effort to identify and systematically manage non-financial risk factors in terms of anti-corruption, safety and human rights, and information security to form a trustworthy relationship with stakeholders.

## Our Approach

LX conducts business based on trust across its value chain. Transparent governance has been secured by adding expertise and diversity in the BOD to establish ethics management system to infuse ethical culture. LX also has proclaimed a Declaration of Human Rights Management and established a department in charge to create a workplace where the human rights of all stakeholders of LX are respected. These efforts have contributed to upholding the values of Gender Equality and Human Rights, Justice, and Peace promoted by Goal 5 and 16 of UN's SDGs. In meanwhile, with all efforts for strengthening public safety such as adopting a safety keeper system, LX would like to make contributions to achieving Goal 3, Good health and Well-being, using spatial information technologies.

## Compliance with SDGs



### SDGs 3. Good Health and Well-being

- Zero accident of customers, Zero fatal industrial accident, Zero accident in construction sites
- Investment KRW 3.59 billion in safety



### SDGs 5. Gender Equality

- 100% of partner companies' pledge rate for human rights protection
- 100% of human rights training completion rate of the employees



### SDGs 16. Peace, Justice, and Strong Institutions

- Grade A (Excellent) in audit evaluation conducted by the Board of Audit
- Grade 1 in Anti-corruption Initiative Assessment for 3 consecutive years

# Transparent Governance

## Composition of the Board of Directors

**Composition of the Board of Directors** Under the principle of autonomous responsibility and transparent management, LX has formed and operated the board of directors, LX's top decision-making body, according to the operational regulation. Following the Act on the Management of Public Institutions, the CEO also serves as the Chairman of the Board and management independence is ensured by maintaining the majority as 6 non-executive directors among 10 BOD members.

**Expertise and Diversity in the Board of Directors** LX appoints non-executive directors having with expertise and experience in management, economy, law, and national spatial information, including cadastral information, considering factors of diversity such as gender and age. Its non-executive directors are carrying out strategic management activities harnessing their expertise in business administration and management, law, urban engineering, architecture, and civil engineering.

In 2018, LX newly established a Policy Committee to deliberate management plans and strategies for strengthening the deliberation function of the board of directors in addition to the existing Expert Committee. In 2018, the Expert Committee reviewed 74 agendas, leading to fruitful outcomes such as the establishment of LX Vision 2030 and Mid-to-long term Management Strategic, and the conclusion of Memorandum of Understandings (MOUs) based on digital twin technology.

### Composition of the Board of Directors

As of April 17th, 2019

Category	Name	Gender	Activity of Expert Committee	Work Experience
Executive Directors	Choi, Chang-hak	Male	N/A	Director of Daegu Digital Industry Promotion Agency Director of LX Spatial Information Research Institute Head of E-government Department at the Presidential Committee on Government Innovation
	Cho, Man-seung	Male	Policy Committee	Head of Cadastral Business Headquarters Head of Gwangju & Jeonnam Regional Headquarters Head of Cadastral Training Institute
	Choi, Gyu-seong	Male	Technical Committee	Head of Seoul Regional Headquarters Head of Management Support Office Head of Business Support Office
	Kim, Gi-seung	Male	Management Committee	Head of Gyeonggi Regional Headquarters Head of Daejeon & Chungnam Regional Headquarters Head of Cadastral Business Office in Gyeonggi Regional Headquarters
Non-executive officer	Shim, Dong-yeol	Male	Policy Committee	(Current) Head of Defense Industry Department, Korea Business Institute Head of Korea Defense Acquisition Program Institute
	Yoo, Seok-yeon	Female	Technical Committee	(Current) Professor of School of Urban and Environmental Engineering, University of Seoul (Current) Member of Seoul Metropolitan Government's Urban Renewal Committee
	Lee, Deok-choon	Male	Management Committee	(Current) Represent Lawyer of Hanseo (Law Firm) Economic & Financial News Reporter of Jeonbuk News
	Kim, Jeong-beom	Male	Policy Committee	(Current) Lawyer of Minwoo (Law Firm) (Current) Adjunct professor of Hanyang University School of Law
	Hwang, In-tae	Male	Management Committee	(Current) Director of Business Division of Damul Machinery Co., Ltd
Executive Auditor	Cho, Jae-won	Female	Technical Committee	(Current) Head of 01 Architecture Urban Study & Design Adjunct Professor of Yeonsei University
	Ryu, Geun-tae	Male	N/A	15th president of the Institution of Internal Auditors, Korea Director of Sharing and Vision Forum Director of Good World Charity Bank

**Responsibility and Composition of Expert Committee**

Policy Committee	Management Committee	Technical Committee
<p>Deliberation on the establishment of planning and management strategies, organizational management, establishment of policies, budgetary management, performance management, management evaluation, and legal strategies and regulations</p>	<p>Deliberation on management support, asset management, improvement of the human resource system, financial management, for-profit business, labor management, and compensation and welfare</p>	<p>Deliberation on cadastral system, surveying technologies, business development, collection and regulations of cadastral information, overseas business, information security and international cooperation issues</p>
<p>2 non-executive directors 1 executive director Head of the department</p>	<p>2 non-executive directors 1 executive director</p>	<p>2 non-executive directors 1 executive director</p>

**Operation of the Board of Directors**

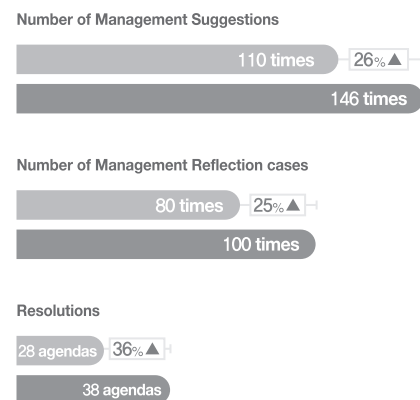
**Vitalization of operation of the BOD** LX has established annual management plans of the board of directors to specify and regularize its previous regulation that the board of directors of LX holds a board meeting each month. In addition, LX has increased efficiency of management of the board of directors with the Expert Committee and Management Committee conducting a review of proposed agendas in advance of board meetings. Also, LX has conducted the "On-site Briefing Session" through which the head of departments who proposed agendas visits directors and explain the agendas before board meetings to increase directors' understanding about the agendas, sharing management information such as weekly plans, current issues, and press releases. As part of support, exclusive workspaces and work standards were provided for newly appointed non-executive directors.

A total of 13 regular board meetings were held in 2018, with a participation rate of 95%, up 3%p over a year ago. Particularly, the average participation rate of non-executive was 85.4% with a comment rate of 84%.

**Transparent Evaluation and Compensation**

**Evaluation and Compensation of the Board of Directors** LX evaluates and remunerates the board of director's activities according to procedures stipulated in related laws and regulations.

CEO of LX is evaluated by management performance according to the management contract concluded with the Minister of Land, Infrastructure, and Transport. Executive directors receive remunerations depending on the job performance and salary policy. Remunerations of Non-executive directors are determined in accordance with the Guidelines for remuneration for executive officers of public institutions developed by the Ministry of Strategy and Finance, Korea.



# Ethics Management

**System for Integrity and Ethics Management**

**Ethics Management System** Under the vision of ethics management 'Clean LX earning public trust,' LX has established strategies for integrity in line with the anti-corruption plan and policies' directions of the Korean Government. It shows LX's determination to internalize and implement principles of integrity in every business, activities of employees, and relationships with various stakeholders such as partner companies and the public. Especially, LX tightened its regulation system to eliminate risk factors of corruption in advance by amending related corporate regulations such as contract and human resources and by implementing a corruption prevention system and monitoring.



Audit evaluation conducted by the Board of Audit **A grade (Excellent)**

**Integrity Governance** LX systematically organized a department responsible for the integrity and ethical affairs to achieve 'Integrity Governance' in every aspect of its business and departments.

**Department in Charge of Integrity** The department of Integrity and Ethics is fully in charge of 'Integrity Governance' and overall decisions are made by the Committee of Ethics Management composed of executive officers and heads of departments of the headquarters. A working group for Integrity composed of an employee responsible for corporate regulations and one of the union officials are working with a department in charge of anti-corruption and integrity policies to establish and amend code of conduct and implement code of ethics. Employees in charge of the code of conduct of each organization and integrity keepers of regional headquarters and branches take responsibility for promotion of integrity.

**Evaluation and Monitoring** Through the internal evaluation, such as diagnosis of corruption risk factors and the ethical awareness index, LX ensures 'Integrity Governance,' and takes rapid response by monitoring and operating the e-audit system, corruption report center, and ombudsperson system. By overcoming weakness through the internal diagnosis, results of integrity evaluation conducted by the Anti-corruption and Civil Rights Commission have continuously ameliorated.

**External Cooperation** LX has been cooperating with many organizations to strengthen its integrity and ethics. LX is a member of the 'Fair Player Club' hosted by the United Nations Global Compact (UNGC) and has concluded a pledge contract to make efforts for anti-corruption, cooperating with the government. And LX has taken a leading role in 'Jeonbuk Integrity Cluster Council' composed of 7 institutions relocated to Jeonbuk Innovation City including the National Pension Service and actively participated in Public-Private Council for Transparent Society in Jeonbuk.

3 consecutive years **1st grade**  
Anti-corruption Initiative Assessment

### Internalization of Integrity and Ethical Culture

**Internal Control System** In order to secure independence in management and budgeting, LX established an independent audit organization under the standing audit. To enhance the expertise of internal auditors, LX has provided online and offline job training and run a self-learning target system, which has led to 121 education hours of internal auditors. With support of the new auditors, all of them acquired a qualification of Certified Internal Auditor Internal Control Assessment. Also, LX has strived to improve transparency and trust in its audit through the cross audit with external audit organization, shared activities with the Audit Committee, Advisory Committee utilizing external experts, and the ombudsperson system. To reinforce a core risk monitoring, LX has enhanced its management system in addition to its existing audit system based on the e-Audit system and created the checklists of 78 items in total, adding 19 items on the previous lists. All of these efforts have led to 61 cases of prevention in 2018.

The results of the audit are published in the e-Audit system and LX's website and follow-up measures against negative comments are taken to prevent reoccurrence. LX recorded 100% of the implementation rate of audit disposition in 2018.

Operational Performance of Internal Control System in 2018	Total Auditing	Specific Auditing	Performance Auditing	Discipline Auditing	Financial Auditing
Auditing Target	Overall Management	Business, Accounting	Business, Budgeting, Accounting	Discipline, Service	Accounting, Purchase
No. of Audit Disposition	198	24	14	14	2
No. of System Improvement case	26	2	4	5	1



**Internalization of Integrity and Ethics** As the first public institution which introduced 'Integrity Gag Concert,' LX has cultivated the integrity and ethics of employees through holding the 'Integrity Cultural Festival' and ethics management workshop and distance learning using the Internet and mail. In 2018, LX issued a casebook 'The more you know, the more you become transparent' through 'Easy explanation of Improper Solicitation and Graft Act' and collecting cases of the inappropriate work order. The average hours of integrity training per employee are 25.4 hours.

LX has designated the 4th of every month as a 'Day of Integrity,' and raised awareness of ethics management of employees through various efforts such as discussion, campaign, system improvement, and idea sharing via the 'Echo of Integrity,' integrity newsletter of LX. Great ideas drawn from the efforts are reflected in ethics management policies. And Personal Integrity Mileage Program was introduced to promote employees to practice ethics management through rewarding employees and organizations.

**The spread of Integrity and Ethical Culture** '2019 Integrity Cultural Festival' was organized by LX, hosted by Jeonbuk Integrity Cluster Council, co-hosted by Jeonbuk Public-Private Council for Transparent Society, and participated by the public including public institutions, civic groups, and students to proclaim our willingness to anti-corruption and integrity and to spread the culture of integrity to the community. The festival has led to raised awareness of integrity in both the public and private sectors. LX is taking the lead in increasing public awareness of integrity and creating the integrity culture of public institutions.



2019 Integrity Cultural Festival in Jeonbuk

Communication Activities	Participation Activities
Issuance of 'Echo of Integrity that managers should know'	Holding Integrity UCC Contest
Education of Integrity and Ethics for executive officers	Sharing best practices through the Discussion Day of Integrity
Case study of Improper Solicitation and Graft Act	Developing a slogan for ethics management and making and distributing screen saver
Settling a culture to form a bond of sympathy through new programs for communication	Increasing the awareness of ethics through anti-corruption and integrity pledge of all employees

## Human Rights Management

### Establishment of Human Rights Management System

**Declaration of Human Rights Management** With joining the UN Global Compact in 2007, LX has supported standards and norms proposed by international organizations including UN and observed related laws and regulations such as the National Human Rights Commission of Korea Act. LX adopted the Declaration of Human Rights Management by resolution of the board of directors and officially proclaimed the principle of human rights management that LX respects human dignity and values in every aspect of its business. The declaration with 10 items including prevention and remedy efforts is applied to all stakeholders such as employees, customers and, communities and it is open to the public via LX's intranet and website. LX will adhere to the principle to realize 'LX respecting each other and growing together.'

#### Declaration of Human Rights Management

**Declaration of Human Rights Management**

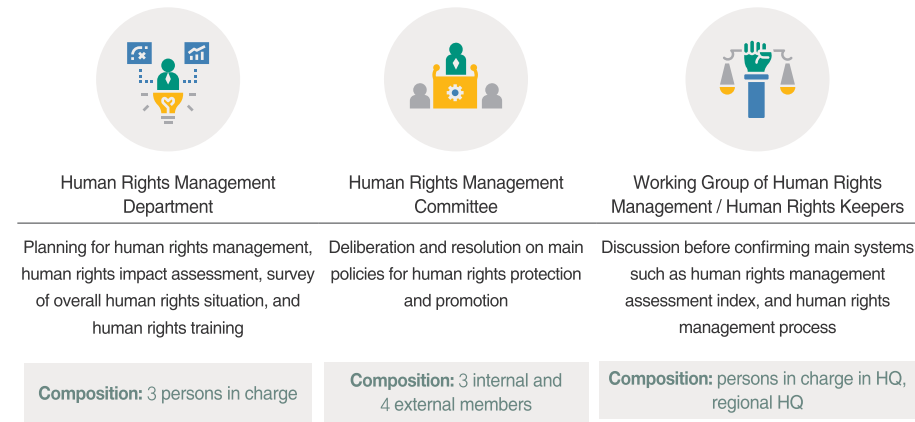
LX actively practices human rights management to respect human dignity and value in every aspect of its business. For this aim, LX identifies responsibilities to respect and protect the human rights of its employees, customers, stakeholders, and local residents and proclaims the following declaration of human rights management.

- We respect and support national and international standards and norms of human rights.
- We prevent the infringement of human rights in advance and strive to take appropriate measures against infringement.
- We guarantee the freedom of association and collective bargaining.
- We do not permit any form of forced labor and child labor in employment.
- We do not discriminate based on religion, gender, race, educational background, place of birth, and disability.
- We create safe and sound working conditions and enhance industrial safety and health.
- We strive to prevent the safety and privacy infringement of customers.
- We do not violate the human rights of local residents in our business areas.
- We comply with domestic and overseas environment-related laws and regulations and strive to protect the environment and prevent pollution.
- We treat stakeholders with fairness and support them to practice human rights management

October 1, 2019  
Employees of LX

**Establishment of Human Rights Management Department** Taking human rights into consideration in all management plans, LX has established Human Rights Management Department under Management Support Headquarter in 2018 to internalize human rights for all employees. Human Rights Management Department is in charge of the establishment of human rights management plans, human rights impact assessment, a survey of overall human rights situation and education of human rights. Human Rights Management Committee, LX's top decision-making organization in terms of human rights, deliberates and resolves main policies to protect and ameliorate human rights according to the regulation of human rights. And the Committee is composed of 3 internal and 4 external members for securing independence. In order to actively respond to various human rights issues across LX's business, LX has appointed Human Rights Keepers including the working group of human rights management and persons in charge of human rights affairs in each department, affiliates, and regional headquarters. Human rights keepers have been serving as a driving force for human rights management as they help identify human rights risks and respond to the risks.

**Organization of Human Rights Management**



**Human Rights Education** LX has strengthened its human rights education to raise the human rights awareness of the employees and spread the culture of respecting human rights. Human rights education has become mandatory. As part of education, trainings are provided online and offline and its educational contents were created according to positions such as heads and members of departments to increase its effectiveness. Also, LX has strived to raise the awareness of respecting human rights through sexual harassment prevention education and improving awareness of persons with disabilities.



**Identification and Management of Human Rights Risk**

**Human Rights Impact Assessment** In accordance with its regulation of human rights management, LX conducts human rights assessment more than once a year. The assessment is a procedure to identify practical and potential risks, which can be caused by LX's business activities and affect stakeholders' human rights. Marcspon, the independent third party, conducted LX's human rights impact assessment in December 2018. The assessment was carried out over 10 sectors, 33 items, and 165 indexes based on guidelines for human rights management developed by National Human Rights Commission and its results were reflected to human rights management to develop measures to control risks.

**Establishment of Remedy Procedure of Human Rights Infringement** LX developed 'Regulations for Human Rights Infringement Investigation and Remedy Procedure' in October 2019 as an official

remedy procedure. LX has established the Human Rights Counseling Center and appointed experts in counseling. The center provides advice to victims of human rights infringement, investigates cases, and introduces remedy agendas to the Human Rights Management Committee. And the Center can request the cases to external professional institutions to investigate the cases in a fair and objective manner. In order to improve reliability of the remedy procedures, protection of petitioners and prohibition of disadvantages are stipulated in the regulations.

**Remedy Procedures of Human Rights Infringement**



**Activities of Human Rights Protection** In order to prevent human rights violations of internal and external stakeholders, LX has identified risk factors for human rights violations depending on stakeholders and taken measures to protect their human rights.

**Employees** LX has been operating a program for counseling and relieving stress by introducing Employee Assistance Program (EAP) for employees. To build a safe working environment for employees of LX and partner companies, LX has strengthened facility safety such as establishing fire shelters. In particular, efforts to build a better workplace for disabled employees were made such as developing and distributing excavation safety manuals and removing door thresholds.

**Partner Companies** Safety problems of employees of partner companies have become an important social issue. Therefore, LX has supported the education of health and safety for employees of partner companies and examined their workplace to identify whether their human rights are protected. Through the measures, 24 risk factors were eliminated in advance. And all partner companies should submit the pledge of human rights protection to ensure the human rights protection of their employees.



**Customers and Local Residents** In order to protect customers' personal information and the right to know, LX has reinforced protection measures in cadastral survey and cadastral records revision such as holding a briefing session for local residents and having a discussion with them. LX has operated Cadastral Surveying Screening System to take follow-up measures over the process and results of the service.

**Safety Management**

**Creation of Safe Working Environment**

**Minimization of Site Risk Factors and Support for Safety Examination on Constructions** LX has promoted safety management to secure the safety of employees and the public from risk factors of sites. In 2018, 27 risk factors in surveying sites depending on working environments were examined and removed. And in order to prevent musculoskeletal system disorder, risk factors of the disorder in 40 tasks were eliminated. Regular examination of the sites is made to ensure the safety of all partner companies.

**Expanded Provision of Tailored Safety Gears** Considering various working conditions depending on regions and environments, LX has provided tailored safety gears. And it has increased its budget for

safety gears by 66% compared to that of last year. Therefore, measures to remove risks in advance have been developed by providing safety gears such as gloves, signs, masks against yellow dust, saline glucose, and wristlets against hot weather.

**Support of Employees in Emotional Labor Sector** LX has various emotional labor sectors such as a hotline call center. Therefore, LX has run programs to support employees in the sectors. 55 employees have counseled 117 times with professional counselors and the number of participants in the Healing Program for whom required emotional labor went up to 81 by 42 percent compared to the previous year.

### Endeavors to Ensure Public Safety

**Disaster Response Drill** LX has made every effort for immediate response to disasters, we have signed agreements on disaster preparedness information sharing and mutual support with relevant organizations in Jeollabuk-do, including government agencies, state-owned companies, broadcasting companies and general hospitals. We worked with the local fire station to conduct two joint drills. Our employees were trained how to do first aid trainings like CPR and how to escape in the event of fire or earthquake using descending lift lines. In addition, our civil defense team has been expanded, with more members added into firefighting, medical aid, and protective recovery units. As such, LX has improved its ability to react to disasters in any emergency situations.

**LX's Safety Keeping Activities** LX has carried out safety keeping activities to create a safe and pleasant environment so that the public can enjoy their daily lives. We have our all of 126 offices operate shelters so that people can avoid scorching heat and rest during hot summer season. Approximately, a total of 5,500 people used the shelters, and we also gave first aids to those who suffered from sunstroke. As part of efforts, we participated in the National Safety Diagnosis in 2018 and our 3,662 employees have downloaded the Safety Report Application. 26 risk factors have been reported through the application and we have taken measures to improve them by installing traffic signals, emergency exit sign lights, and surveillance cameras. In addition, LX has joined forces with

The number of risk factors reported **26** cases

local volunteer organizations to install solar LED streetlights in vulnerable areas lacking street lights, sharing the value of public safety.

**Ensuring Safety through Spatial Information Technology** LX has capitalized on its core business competence, spatial information technology, to ensure the public safety. As part of efforts, we have operated a mobile application, called 'Landirang', to render daily life safety service to the public on the basis of combined data of LX's space information and disaster-related data from telecommunication providers and hospitals. Jointly with the local governments, LX has conducted researches on the analysis of the level of deterioration and risk of old and vacant houses to support any decision-making regarding safety management. In collaboration with the Ministry of Land, Infrastructure, and Transport and the National Police Agency, LX has been contributing greatly to reinforcing the national disaster response and security.



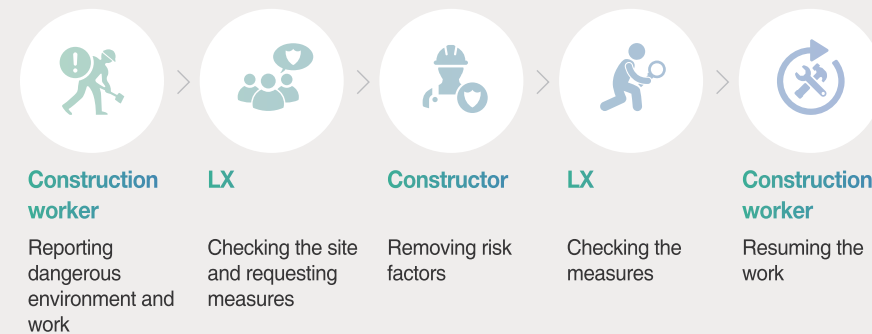
No. of Landirang app users 2013-18 **887,619** persons

Category	Description
'Landirang' Application	Provision of location-based customized daily safety service Linking to safety and weather data provided by KT, police, hospitals, shelters, etc.
Analysis on the risk level of old houses	Assisting decision-makings on small-sized old building safety with national land info. Risk analysis of old houses through measuring deterioration, risks, and human damage
LX Vacant House Information System called 'Gonggarang'	Conducting studies using administrative data on the situation of houses unoccupied for over 1 year, grading and classifying old and deterioration level
Provision of Floodmark Maps	Provision of flooding data, including location, area, and date to manage and prevent the damages from storm or heavy rainfall
Task-specific Drone Support	Supporting military drills with drones equipped with special cameras to search missing persons or detect enemies in rear area

## Best Practice

### Strengthening Safety Policy for Prevention of Accidents

#### Request System for Suspension of Work



LX has institutionalized a pair-work in dangerous tasks such as surveying and construction. Also, new employees with less than 6 months are prohibited from working alone for protection. In addition, the safety measures such as work standards and safety instructions were added to the existing cadastral surveying safety manual. This new manual has been distributed and announced to partner companies. LX has implemented the 'Work Break System,' which allows outdoor employees to stop their work and take enough break depending on working conditions such as extreme heat and fine dust. This system is applied to the employees of partner companies as well. The 'Request System for Suspension of Work' is a system that requests construction workers to report potential risks in the site and allows constructors to eliminate the risks in advance, contributing to creating a safe working environment.

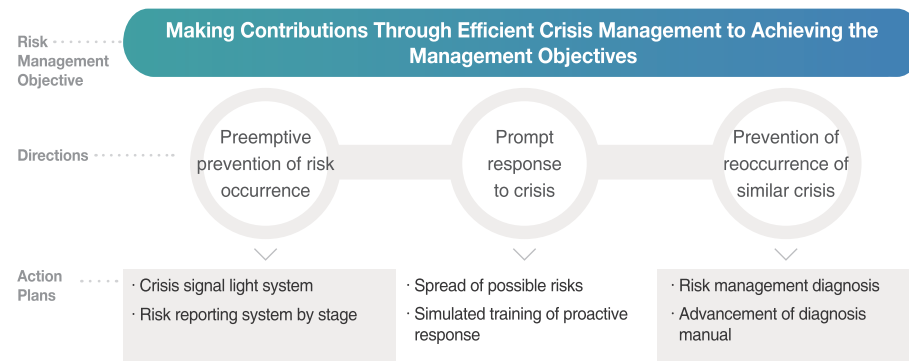
# Risk Management

Risk Management Organization Chart



## Emergency Response System

**Risk Management System** LX is well aware that the competitiveness of a company depends on its proactive responses to the rapidly changing business environment and its proactive risk management to minimize uncertainties. Accordingly, we have established the Emergency Management Rules and a risk management system to formulate possible scenarios so that we can take measures in advance against any possible risks. By appointing the CEO to the chief of the Risk Management Committee, the control tower of our risk management system, LX has maximized its abilities to promptly make decisions and proactively respond to risks.



**Risk Scenarios and Response Process** LX has formulated six scenarios, taking its businesses and characteristics into account, and analyzed the root causes of each risk and come up with countermeasures against them. We also have risk management officers and relevant departments such as the Planning and Coordination Office monitor the state of response to these risks on both regular and spot basis. Furthermore, LX has strived to encourage our employees to develop their risk management skills through internal, external educations and simulation trainings. Once the signs of risks are detected, the Risk Management Committee makes decisions on the basis of the measurements and analysis from key risk indicators as well as the consultation from experts. A task force team for response is to be formed immediately to give a prompt response. As the follow-up action, we evaluate response activities, share the results at the company level and constantly monitor to ensure the prevention of reoccurrence.

### Risk Scenarios & Countermeasures

Business	Risks	Countermeasures
Establishing digital cadastral information	Financial instability	Strengthening the cooperation with the government, the National Assembly, and private sector. Conducting more promotional activities to the public and multiple ministries
Spatial information for innovative growth	Lack of experts	Identifying the collaborative partnership with the private sector. Recruiting external experts and fostering internal competence
Spatial information standard & quality control	Quality defect rate	More consulting with organizations having spatial information. Reinforcing quality control from the data-gathering stage
Integral management of national spatial information system	Rising requests from agency in possession and increasing workload	Developing a more efficient management system with new technology. Encouraging the private sector to engage in joint participation
Nurturing innovative talents in spatial information sector	Poor achievement in employee training	Introducing staff incentive schemes for excellent employees. Selecting competent employees and providing intensive training
Core technology development for spatial information convergence	Rapidly changing technology and the lack of experts	Recruiting professional researchers in line with the trend of technology. Supporting competence development for knowledge convergence

Risk Response Process



## Strategic Risk Management

**Financial Risk Management** In the face of the changing business environment in 2018, LX successfully secured sustainable liquidity through the rational fund management. As a result, LX has seen its revenues increasing for five consecutive years, achieving its net profit worth KRW 50.4 billion in 2018 and maintaining excellent financial soundness.

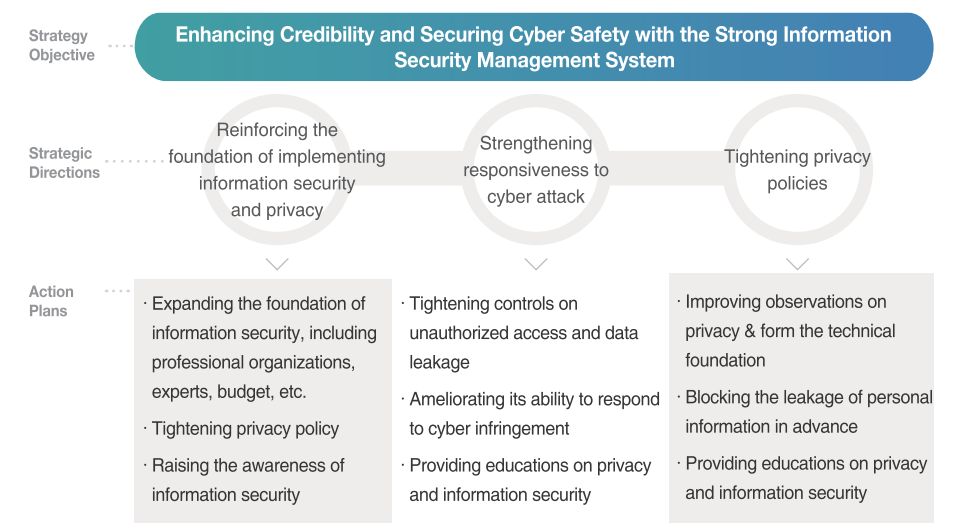
**Non-financial Risk Management** We have seen a growing significance of identification and management of non-financial risks for sustainable growth. In this sense, LX has identified and managed potential non-financial risks along with financial risks, including human rights, integrity ethics, communication with stakeholders, customer information security, employee health and safety, climate change. This helps us to lay the foundation for an integrated risk management system, which can preemptively prevent any risks from happening.

## Information Security System Advancement

**Management System for Information Security** To enhance its credibility and secure its cybersecurity through a stronger information security management system, LX has redoubled efforts to reinforce its cybersecurity responsiveness, to tighten information security policies, and to strengthen privacy management system. The head of the spatial information business division (as of 2019) has been appointed as the Chief Information Security Officer to constantly check the management status of the headquarters and all the regional headquarters. In addition, we have conducted on-site inspections every year at our affiliates, including LX Education Institute, Spatial Information Research Institute, all regional headquarters and their two regional offices, to evaluate their performances regarding information security management. We have also reviewed the security of the information-oriented projects and carried out prior-consultation system to go over the securities of projects and information systems in advance as part of efforts to have a firm grip on the information security management system.

Specialized trainings for information security **2** times in a year

### Information Security Management System



**Improvement of Information Security Expertise** LX has expanded and restructured its organization and experts specializing in the information security so as to improve the expertise in security. The former Information Security team consisting of four employees under the ICT Office has been expanded and integrated into the Information Planning and Safety Department under the Information

Resources Management Office. Educations focusing on information security such as network security and vulnerability analysis were provided to security experts so that they could enhance their expertise. Moreover, we have asked external specialized organizations to give relevant trainings twice a year in order for information security officers at regional headquarters and affiliated organizations to be equipped with required expertise.

On top of that, LX has provided employees with information security training once or twice a year, and also offered partner companies educations for their security competence. Online trainings for information security are scheduled to be provided as well.

**Forming council for Information security with relevant organizations in Jeollabuk-do province** Local government agencies, public organizations, and relevant organizations in Jeollabuk-do province have formed a council for information security as a close cooperative mechanism so as to prevent and, jointly respond to cyber infringement. Under the supervision of the National Intelligence Service, members of the council take turns to hold a committee meeting on a quarterly basis with the aim of laying the cooperative foundation through the exchanges of technology and information regarding information security, and sharing national information security policies.

## LX Cyber Safety Zone

**Strengthened Privacy Management** LX has always put customers' personal information protection first by reinforcing its personal information management. We have conducted on-site inspections regarding personal information protection to be more stringent in managing unique identifying information. A variety of privacy-related trainings have been provided to our employees to strengthen their awareness and to develop their competence against personal information leakage and extrusion. In addition, privacy-related policies have been reinforced by establishing the Personal Information Handling System Access Policy and enacting the Personal Information Encryption Procedure.

LX has advanced its PC filter and introduced the access management system along with the personal information processing system. By doing so, the interval of inspection on access records of personal data has been reduced from every six months to every month. These efforts have led to the prevention of the misuse of personal information and ensure the safety, raising the efficiency of the information protection management in LX.

In accordance with the guidelines on personal data processing, the customers' information is disposed immediately after a certain period in order to prevent any leakage. At the same time, disaster recovery drills are being conducted twice a year to keep customers' personal information in a safe manner.

**Advancement of Information Security Infrastructure** LX has formulated a mid-and-long term digitalization strategy to protect customers' information and prevent the leakage of corporate information assets while expanding the security infrastructure of technical and physical information. LX has carried out simulations of cyber-attack including phishing, hacked business email, intrusion, and cyber crisis situations five times a year. We have also done annual checks on the vulnerability of the information system, and immediately improved any problems detected to completely block any cyber threats and fortified its responsive capabilities to cyber-attack.

On top of that, LX's IT infrastructure has been reinforced to cope with any natural disaster or emergency. Since 2014, LX has operated Disaster Recovery Center to prevent any service interruption caused by system failures in the Headquarters' Information Center and to recover any failures in the shortest time. Through the continuous system advancement, LX has maintained 100% of replication rate for all data between the Information Center and Disaster Recovery Center, for instance, all data can be restored within 30 hours. In 2019, the disaster recovery trainings were held twice and zero replication error was found through the course.

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# Consumer Satisfaction Management

## Establishment of Consumer-Centered Management System

### Strategy for Consumer Satisfaction

LX has set up an innovative strategy for the CCM, consumer-centered management, in 2018 for the public benefits and convenience. With a view to providing trustworthy and reliable services, LX provides high-quality standardized services, while making sure that all employees of LX fully understand the CS charter and service standards. These efforts brought out a fruitful result with the accreditation of the Consumer-Centered Management from the Korea Fair Trade Commission in 2017 and 2018. The service standards have been revamped in 2019 with priority given to the service on the opinions of customers and the current environment. LX will ensure that the consumers are satisfied with the services through the continued improvement of Voice of Customer (VOC), thereby offering convenient and accurate spatial information and cadastral services.

### Strategies for Consumer-Centered Management



### Capacity Building for Customer Service

LX's competitiveness is being all the more strengthened through its specially tailored CS trainings as its competence is raised with corporate-wide trainings. For instance, LX invites internal and external experts for the CS consulting and provides trainings toward all employees regarding the ways to boost customer satisfaction and to prevent complaints. Moreover, staff in charge of customer service has chances to learn customer response skills, applicable legislation, and regulations on fees so as to provide more accurate information to customers.

### Monitoring Customer Contact Points\*

LX monitors the overall service quality with the support of external CS consultants for standardizing the service quality and giving pleasant experience in places where we come in contact with our customers. Based on the monitoring results, the on-site consulting was provided to 92 branches of LX along with customized coaching based on the situation and characteristics of customers. The coaching encompasses the compliance of service process, responding to VOC, providing information, business etiquette, and service facilities for the improvement of overall customer service in line with internal evaluation indicators. LX will continue to monitor the customer service by reflecting the CS rate and VOC responses into internal assessment in order to consolidate the customer service activities as well as the service standards in customer contact points.

\* Customer contact point: It refers to the situation or place where we meet customers for the first time. It includes customer service centers in district offices and on-site cadastral surveys.

## Customer Satisfaction With Innovation

### AI Customer Service with 'Landy Talk'

LX introduced the chatbot system, an intelligent automatic answering system, for the efficient and quality public service. Customers can use 'Landy Talk' anytime and anywhere via mobile or computer. This artificial intelligence, Landy Talk informs the introduction of LX and laws and regulations regarding cadastral survey, while responding to inquiries on the application for cadastral survey and related fees. LX will keep making the utmost efforts to provide prompt customer service 365 days a year through continuous maintenance of the Landy Talk database, implementing the smart service in regard to the national land information.

### Follow-Up Service through Mobile & Web

LX has been receiving the feedbacks through mobile web from customers who have used the cadastral surveys since 2018. Their satisfaction level and opinions through Voice of Customers (VOC) have become the foundation for CCM innovation committee and VOC improvement council to reform the system for the better services. As of 2019, LX has received around 50,000 feedbacks from customers, and these are continuously managed by connecting improvement goals to internal assessments.



▲ LX Landy Talk

## Enhanced of Communication with Customers

### CS council

LX has operated the Customer Satisfaction (CS) task force team consisting of specialists in and outside of the institution including the employees in charge of cadastral survey, national land information, resurvey, and training as well as experts from related agencies. Also, in order to actively put improvements into action, the CCM Innovation Committee and the CS Promotion Committee are in operation to focus on cascading the action plans into all branches. In particular, CCM Innovation Committee is sharing current issues under the leadership of the CS leader of the regional headquarters, leading to strengthening the capacity of employees. LX will endeavor to provide citizen-centered services in the future on the basis of communication by expanding civil counseling and free legal services.

### Creative Interview

LX has diversified its communication platform to discover customized services and encourage public participation. In particular, the creative interview has expanded to 13 sessions with 94 participants in 2019 since it began in 2018. The creative interview is the group interview to discover and identify the ways to improve the cadastral survey in the perspective of customers. The professional interviewer interviews the customer groups by age or gender under the selected theme to assess the current survey and share the ideas.



# Stakeholders Engagement

## Definition of Stakeholders and Communication

LX has been managing various stakeholders by classifying them into four types, public stakeholders, interactive stakeholders, political stakeholders, and internal stakeholders, by the ways of communication. The different approaches of communicating with them have brought about more facilitated interactions with each other, enabling LX to identify the specific needs of its related parties. Through diverse means of communication, LX will carry on collecting feedbacks from stakeholders as the driving force of its sustainable management, while seeking continued and systematic disclosure of management information.

### Communication Channels for Stakeholders

Type	Stakeholders	Strategy	Channels & Activities	Performance of Engagement	Monitoring & Evaluation
Public Stakeholders	Public Customer	Facilitating active participation	<ul style="list-style-type: none"> <li>LIBS (internet broadcasting station)</li> <li>Website, social network service</li> <li>Customer service</li> <li>Conducting 10 creative interviews</li> <li>Making innovative public engagement group</li> <li>Building platform for public communication</li> <li>Releasing and announcing information</li> </ul>	<ul style="list-style-type: none"> <li>60 policy agendas from innovative public engagement group reviewed</li> <li>Excellence grade accredited in information sharing assessment</li> </ul>	Customer satisfaction level
Interactive Stakeholders	Local community	Closer relationship	<ul style="list-style-type: none"> <li>Holding five Jeonbuk win-win council meetings</li> <li>Sharing videos with local media</li> <li>Participating in Jeonbuk Integrity Network</li> <li>Local concerts</li> </ul>	<ul style="list-style-type: none"> <li>32 videos contents like 'Jeonbuk Livelihood TV' being shared</li> <li>A sense of unity through cultural development</li> </ul>	Contribution level to social value
	Youth Students		<ul style="list-style-type: none"> <li>Job mentoring program</li> <li>Job-searching supports with on-site lectures</li> <li>Win-win supporters</li> </ul>	<ul style="list-style-type: none"> <li>727 youth and students participated in 21 sessions</li> <li>11 one-to-one consulting with startups</li> </ul>	
	SMEs		<ul style="list-style-type: none"> <li>Service center for SMEs</li> <li>Workshops regarding shared growth</li> <li>Upgrading overseas business center website</li> </ul>	<ul style="list-style-type: none"> <li>Satisfaction level marked at 88 points for overseas business support (up by 13%)</li> <li>Highest grade accredited in shared growth assessment</li> </ul>	
Internal Stakeholders	Employees Labor Union	Sharing and spreading innovation	<ul style="list-style-type: none"> <li>Intranet</li> <li>FriendLand, CoP(Community of Practice)</li> <li>Channel for counseling hardships</li> <li>New communication programs</li> <li>Hackathon meetings</li> <li>Internal venture competitions</li> <li>Healing-Talk</li> <li>Social gathering</li> </ul>	<ul style="list-style-type: none"> <li>19 innovative tasks identified by employees</li> <li>2 members selected for internal ventures, KRW 100 million supported</li> <li>19 suggestions responded</li> <li>Satisfaction level increased by 0.8 points regarding communication channel</li> </ul>	Vision sharing level
Political Stakeholders	Government National Assembly	Swift cooperation on policies	<ul style="list-style-type: none"> <li>Involvement in Smart City Data Hub</li> <li>Participation in Urban Renewal Agreement Forum</li> </ul>	<ul style="list-style-type: none"> <li>Sharing of location-based spatial information</li> <li>Cooperative ways discussed for urban restoration</li> </ul>	Achievement level for policy tasks
	Experts Relevant Institutions		<ul style="list-style-type: none"> <li>Spatial Information Newsletter</li> <li>Holding Digital Hub Conference</li> <li>Holding the Spatial Information Standard Workshop</li> </ul>	<ul style="list-style-type: none"> <li>Discussion on digital twin technology</li> <li>Discussion on development of national standards</li> </ul>	
	Media Academia		<ul style="list-style-type: none"> <li>Sharing and spreading the Vision 2030</li> <li>Public contest about R&amp;D in the transferred area</li> </ul>	<ul style="list-style-type: none"> <li>42 major press articles published</li> <li>6 tasks selected &amp; KRW 1.95 billion supported</li> </ul>	

# Performance Summary

## Economy

### K-IFRS Summary Statement of Financial Position

Category	Unit	2016	2017	2018	
Asstes	Current Assets	KRW 1 million	240,200	226,151	233,818
	Non-Current Assets	KRW 1 million	378,095	409,738	457,318
	<b>Total Assets</b>	<b>KRW 1 million</b>	<b>618,295</b>	<b>635,889</b>	<b>691,136</b>
Liabilities	Current Liabilities	KRW 1 million	126,444	97,375	98,682
	Non-Current Liabilities	KRW 1 million	95,763	100,952	126,897
	<b>Total Liabilities</b>	<b>KRW 1 million</b>	<b>222,207</b>	<b>198,327</b>	<b>225,579</b>
Capital	Capital	KRW 1 million	10,000	10,000	10,000
	Retained Earnings	KRW 1 million	386,087	427,562	455,557
	<b>Total Shareholder's Equity</b>	<b>KRW 1 million</b>	<b>396,087</b>	<b>437,562</b>	<b>465,557</b>

### K-IFRS Summary Statement of Comprehensive Income

Category	Unit	2016	2017	2018
Operating Revenue	KRW 1 million	507,843	549,081	563,284
Operating Expenses (Variable)	KRW 1 million	384,411	396,807	406,843
Operating Expenses (Fixed)	KRW 1 million	72,854	76,373	84,445
Operating Profit	KRW 1 million	50,578	75,901	71,996
Other Revenues	KRW 1 million	6,697	4,732	3,652
Other Expenses	KRW 1 million	13,494	13,512	13,944
Other Profit	KRW 1 million	148,543	544	1,583
Finance Profit	KRW 1 million	3,024	3,382	4,113
Finance Costs	KRW 1 million	1	164	0
Net income Before Income Tax	KRW 1 million	195,347	70,883	67,400
Income Tax Expenses	KRW 1 million	47,193	17,060	16,955
Net Income for The Year	KRW 1 million	148,154	53,823	50,445
Other Comprehensive Income	KRW 1 million	-20,431	-12,348	-22,450
<b>Total Comprehensive Income</b>	<b>KRW 1 million</b>	<b>127,723</b>	<b>41,475</b>	<b>27,995</b>

## Key Financial Indicators

Category	Unit	2016	2017	2018	
Stability	Current Ratio	%	189.97	232.25	236.94
	Debt Ratio	%	56.1	45.33	48.45
	Capital Ratio	%	N/A	N/A	N/A
Profitability	Ratio of Operating Profit to Net Sales	%	9.96	13.82	12.78
	Ratio of Net Income to Net Sales	%	29.17	9.8	8.96
	<b>Return on Assets</b>	%	<b>28.33</b>	<b>8.58</b>	<b>7.60</b>
	<b>Operating Profit Growth Rate</b>	%	<b>11.15</b>	<b>4.29</b>	<b>8.81</b>
Growth Potentials	Net Sales Growth Rate	%	7.39	8.12	2.59
	Operating Profit Growth Rate	%	8.54	50.07	-5.14
	Net Profit Growth Rate	%	372.06	-63.67	-6.28
	<b>Total Assets Growth Rate</b>	%	<b>44.57</b>	<b>2.85</b>	<b>8.69</b>
	<b>Asset Turnover Ratio</b>	%	<b>0.97</b>	<b>0.88</b>	<b>0.85</b>
Productivity	<b>Gross Calue Added to Total Assets or Productivity of Capital</b>	%	<b>117.14</b>	<b>77.94</b>	<b>77.54</b>
	Gross Value Added to Proerty, Plant and Equipment	%	219.01	153.25	147.04
	Unit Labor Cost Growth Rate	%	4.08	-3.02	0.58
	Value-Added Productivity Per Employee	%	41.77	-2.25	-0.32

## R&amp;D Investments

Category	Unit	2016	2017	2018
R&D Expenses	KRW 1 million	12,110	11,968	12,426
Ratio of R&D Expenses to Sales	%	2.38	2.18	2.21

## Registration of Intellectual Property Rights

Category	Unit	2016	2017	2018
Patents (Unility Models)	case	13	23	26
Trademark Rights	case	55	55	57
Copyrights (Program Registration)	case	372	381	399
<b>Total</b>	case	<b>440</b>	<b>459</b>	<b>482</b>

## Environment

## Energy Consumption and Energy Intensity

Category	Unit	2016	2017	2018
Diesel	TJ	46.95	49.64	49.29
Gas (LNG)	TJ	6.79	7.27	8.10
Gas (LPG)	TJ	0.13	1.01	2.43
White Kersosene	TJ	7.54	6.6	5.20
Gasoline	TJ	1.98	1.68	1.66
Electricity	TJ	92.11	98.97	118.11
Other	TJ	2.51	2.37	2.21
<b>Total*</b>	<b>TJ</b>	<b>158.01</b>	<b>167.54</b>	<b>187.00</b>
Energy Consumption Intensity**	TJ/KRW 100 million	0.03	0.03	0.03

\* Total: Company-Wide (HQ, regional HQs &amp; offices)

\*\* Energy Consumption Intensity: Based on Sales

## Water Usage by Source

Category	Unit	2016	2017	2018
Tap water*	ton	74,814	76,990	85,944

\* Tap water: Company-Wide (HQ, regional HQs &amp; offices)

## Greenhouse Gas Emission and Greenhouse Gas Intensity

Category	Unit	2016	2017	2018
Direct Greenhouse Gas Emissions	tCO <sub>2</sub> e	4,466	4,860	4,414
Indirect Greenhouse Gas Emissions	tCO <sub>2</sub> e	4,818	5,127	5,729
<b>Total*</b>	<b>tCO<sub>2</sub>e</b>	<b>9,284</b>	<b>9,987</b>	<b>10,143</b>
Direct Greenhouse Gas Emissions Intensity**	tCO <sub>2</sub> e/KRW 100 million	0.88	0.89	0.82
Indirect Greenhouse Gas Emissions Intensity**	tCO <sub>2</sub> e/KRW 100 million	0.95	0.93	1.04

\* Total: Company-Wide (HQ, regional HQs &amp; offices)

\*\* Direct/Indirect Greenhouse Gass Emissions Instensity: Based on Sales

## Wasate Generation by Type

Category	Unit	2016	2017	2018
General Waste	ton	77	86	76
Specified Waste	ton	-	-	-
<b>Total*</b>	<b>ton</b>	<b>77</b>	<b>86</b>	<b>76</b>

\* Total: Company-Wide (HQ, regional HQs &amp; offices)

## Society

### Employees

Category	Unit	2016	2017	2018
<b>Total Employees</b>	<b>Persons</b>	<b>4,115</b>	<b>4,256</b>	<b>4,225</b>
Employment Type	Executives	5	5	5
	Regular Workers	3,844	3,892	3,856
	Unlimited Contract Workers	109	334	352
	Non-Regular Workers	157	25	12
Region	Headquarters	225	306	328
	Education Institute	34	32	31
	Research Institute	55	50	48
	Regional Headquarters	462	416	384
	Regional Offices	3,339	3,452	3,434
Gender	Female Employees*	438	467	509
	Female Managers**	55	71	71
Minorities	People with Disabilities	125	124	113
	Veterans	243	236	235

\* Female Employees: Regular Workers  
 \*\* Female Managers: Level 4 or Above of Regular Workers

### The Ratio of Average Annual Salary Compared to the Highest Annual Salary

Category	Unit	2016	2017	2018
Total Annual Salary of the Highest Salaried Recipient (A)	KRW 1 million	103.1	106.1	109.4
Average Salary Based on Total Employee (B)	KRW 1 million	67.5	69.9	71.7
<b>Ratio(A/B)</b>	<b>%</b>	<b>153</b>	<b>152</b>	<b>153</b>

### The Ratio of Average Annual Salary Increase Rate Compared to the Highest Annual Salary

Category	Unit	2016	2017	2018
The Salary Increase Rate of the Highest Salary Recipient(A)	KRW 1 million	0.68	2.83	3.11
Average Salary Increase Rate (B)	%	1.66	3.56	2.58
<b>Ratio(A/B)</b>	<b>%</b>	<b>41</b>	<b>79</b>	<b>121</b>

### Retirement Pension System

Category	Unit	2016	2017	2018
Retirement Pension Amount (DB)	KRW 1 million	132,301	137,732	158,417
Retirement Pension Amount (DC)	KRW 1 million	46,499	47,288	44,233
<b>Total Retirement Pension Amount</b>	<b>KRW 1 million</b>	<b>178,800</b>	<b>185,020</b>	<b>202,650</b>
Coverage of retirement pension (DB)	Persons	3,899	3,902	4,237
Coverage of retirement pension (DC)	Persons	502	509	277
<b>Total coverage of retirement pension</b>	<b>Persons</b>	<b>4,401</b>	<b>4,411</b>	<b>4,514</b>

### The Ratio of Wages of New Employees to Statutory Minimum Wages (per hour)

Category	Unit	2016	2017	2018
Statutory Minimum Wages	KRW	6,470	7,530	8,350
Wages of New Employees(male)	KRW	14,940	15,412	15,689
Wages of New Employees(Female)	KRW	14,940	15,412	15,689
Ratio(Male)	%	231	205	188
Ratio(Female)	%	231	205	188

### Number of New Hires and Displaced Workers (Retirees)

Category	Unit	2016	2017	2018	
Total Number of Employees (Regular workers)	Persons	3,844	3,892	3,856	
Number of New Hires (Regular Workers)	Gender	Male	143	137	282
		Female	40	39	79
Number of New Hires (Regular Workers)	Age	Under 30	124	126	258
		From 30 to 50	57	48	103
		Over 50	2	2	0
Number of New Hires (Regular Workers)	Local Employees	Non-metropolitan	90	81	220
		Transferred region	15	12	60
<b>Total</b>	<b>Persons</b>	<b>183</b>	<b>176</b>	<b>361</b>	
Ratio of Newly Employed Workers	%	4.8	4.5	9.4	
Number of Displaced Workers (Retirees)	Persons	8	9	9	
Ratio of Displaced Workers (Retirees)	%	0.2	0.2	0.2	

## Use of Parental Leave

Category	Unit	2016	2017	2018	
User of Parental Leave	Male	Persons	4	5	15
	Female	Persons	34	30	37
	<b>Total</b>	Persons	<b>38</b>	<b>35</b>	<b>52</b>
Return After Parental Leave	Parental leave completed	Persons	-	56	41
	Employment status remained for more than 12 months after childcare leave	Persons	-	53	39

## Current Status of Flexible Work Arrangements

Category	Unit	2016	2017	2018	
Part-time work	Persons	11	9	10	
Flexible Work Arrangements	Staggered working hours	Persons	941	2,603	2,505
	Optional working hours	Persons	184	2,163	2,087
Remote Work Arrangements	Smart Work	Persons	6	15	16

## Rate of Total Workforce Represented in Joint Labor-Management Safety and Health Committees

Category	Unit	2016	2017	2018
Number of Participants in the Safety and Health Committee	Persons	14	14	14
Ration of Participants in the Safety and Health Committee	%	100	100	100

## Proportion of Work-related Disasters

Category	Unit	2016	2017	2018
Injury Incidence Rate	%	0.21	0.20	0.25
Number of Fatalities	Persons	0	0	0

## Ratio of Employees Subject to Performance Evaluation

Category	Unit	2016	2017	2018
Total Number of Employees	Persons	4,115	4,256	4,225
Number of Evaluated Employees	Persons	4,115	4,256	4,225
Ratio of Performance Evaluation	%	100	100	100

## Security Guard Human Right Education

Category	Unit	2016	2017	2018
Total Number of Security Guard	Persons	3	6	5
Number of Security Guard Educated in Human Right	Persons	3	6	5
Ratio of Security Guard Educated in Human Right	%	100	100	100

## Average Education Time per Employee

Category	Unit	2016	2017	2018
Total Number of Employees (Regular workers)	Persons	3,844	3,892	3,856
Total Education Time	Hour	465,094	471,761	519,278
Education time Per Person	Hour	121	121	135

## The Ratio of the Employee Diversity (by Category)

Category	Unit	2016	2017	2018	
Gender	Male	%	88.6	88.0	86.8
	Female	%	11.4	12.0	13.2
Age	Under 30	%	7	6.1	15.1
	From 30 to 50	%	62.8	57.4	57.3
	Over 50	%	30.2	36.5	27.6

## The Ratio of the Basic Salary and Remuneration Female Workers to those of Male Workers (by Type of Worker)

Category	Unit	2016	2017	2018	
Executives	Ratio of Basic Salary of Female to that of Male	%	100	100	100
	Ratio of Total Remuneration of Female to that of Male	%	100	100	100
Employees	Ratio of Basic Salary of Female to that of Male	%	91	91	91
	Ratio of Total Remuneration of Female to that of Male	%	91	91	91

## Amount of Local Product Purchase

Category	Unit	2016	2017	2018
<b>Total Purchase Amount*</b>	<b>KRW 1 million</b>	<b>50,493</b>	<b>60,440</b>	<b>49,012</b>
Small and medium-sized enterprises	KRW 1 million	41,710	56,766	44,797
Technology Development	KRW 1 million	851	2,269	2,822
Enterprises of Females	KRW 1 million	4,936	7,793	7,821
Social Enterprises	KRW 1 million	360	743	915
People with Severe Disabilities	KRW 1 million	445	525	302
Self-Support Village for Disabled Veterans	KRW 1 million	24	62	86

\* Total Purchase Amount: Individual expenses are overlapped.

## Social Contribution Expenses

Category	Unit	2016	2017	2018	
Disbursement Method	Donations, etc.(direct cost)	KRW 1 million	960	111	973
Disbursement type	Cash	KRW 1 million	923	54	907
	In-kind	KRW 1 million	37	57	66
<b>Total</b>	<b>KRW 1 million</b>	<b>960</b>	<b>111</b>	<b>973</b>	

# GRI Content Index

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	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	No violation cases

## UN Global Compact



UN Global Compact (UNGC), an international initiative that requires social responsibility of global enterprises, consists of ten principles on human rights, labor, environment, and anti-corruption. LX joined UNGC and declared its commitment for sincerely complying in 2007.

Category	Principle	Contents
Human Rights	Principle1	Businesses should support and respect the protection of internationally proclaimed human rights; and
	Principle2	make sure that they are not complicit in human rights abuses.
Labour	Principle3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
	Principle4	the elimination of all forms of forced and compulsory labour;
	Principle5	the effective abolition of child labour; and
Environment	Principle6	the elimination of discrimination in respect of employment and occupation.
	Principle7	Businesses should support a precautionary approach to environmental challenges;
Anti-corruption	Principle8	undertake initiatives to promote greater environmental responsibility; and
	Principle9	encourage the development and diffusion of environmentally friendly technologies.
	Principle10	Businesses should work against corruption in all its forms, including extortion and bribery.

## Awards

No.	Name of Award	Host of the Award
1	Excellence Prize in Best Practice Contest 2019	The Ministry of Land, Infrastructure and Transport
2	Grand Prize in the 11 <sup>th</sup> SMEs Innovation Award 2019 in shared growth sector	Shared Growth Committee
3	Grand Prize in Korea Employment-friendly Management Award 2019 in job-searching support sector	The Ministry of Employment and Labor
4	Grand Prize in Korea Trusted Public Innovation Award 2019	JoongAng Ilbo
5	Gold Prize in Asia-Pacific Stevie Award 2019 in public-innovative publication sector	The U.S. Stevie Award
6	Excellence Prize in Web Award Korea in public sector	KIPFA
7	Excellence Prize in Korea communication webzine sector	Korea Business Communicators Association
8	Excellence Prize in Korea communication publish sector	Korea Business Communicators Association
9	Presidential Prize in Korea Economy TV Award in spatial information sector	Korea Economy TV
10	Ministerial Prize in E-Government Performance Management Award 2019	The Ministry of the Interior and Safety
11	Ministerial Prize in the 2 <sup>nd</sup> Overseas Construction Best Practice Performance Management Award	The Ministry of Land, Infrastructure and Transport
12	Grand Prize in the 9 <sup>th</sup> Happiness Plus Social Contribution Campaign Award in social responsibility sector	Korea Journalists Association, Korea Enterprises Federation

## Third-Party Assurance Statement

To the Stakeholder of LX

KFQ has been requested by LX to provide independent assurance on the 2019 LX Sustainability Report (further 'the Report'). Our responsibility is to perform an assurance and to provide assurance statement based on the work carried out. KFQ was not involved in the process of preparing the Report thus LX has responsibility to the contents contained in the Report.

Standards and Scope	<p>The assurance was planned and carried out according to the following standards and scope:</p> <ul style="list-style-type: none"> <li>• Compliance with GRI Standards according to the criteria of 'Core Option'</li> <li>• Compliance with GRI Standards regarding principles for defining report content and report quality</li> <li>• Application of Type 1 and moderate level approach according to AA1000APS (2008) and AA1000AS (2008)</li> <li>• Linking sustainable management activities with UN SDGs</li> </ul>
Methodology	<p>In order to assess the reliability of the contents of the report, we reviewed the process for preparation of the Report as well as for data and information gathering. We checked the non-financial information in the Report against evidence provided by LX and information gathered from media by KFQ. In the case of financial information, it was checked whether the data identified through All Public Information In-One (<a href="http://www.alio.go.kr">http://www.alio.go.kr</a>) is correctly reported. Through on-site verification, we reviewed a series of processes for materiality assessment, data collection and report preparation.</p>
Limitations	<p>The completeness and responsiveness of sustainability performance in the report has inherent limitations due to its nature and the methodology used to determine, calculate and estimate its performance. In accordance with the terms of our engagement, the scope of our work did not include verification of raw data of specified performance information.</p>
Findings and Conclusions	<p>As a result of the above our work, we confirm that the content of this report meets the requirements of the 'Core option' of GRI Standards and that KFQ has secured a reasonable basis for Type 1 assurance level. And we could not find any material error or inappropriate information of the final Report against the following principles:</p> <ul style="list-style-type: none"> <li>• Inclusivity: KFQ confirmed that LX has gathered stakeholders' views and expectations through various communication channels and reflected them in sustainable management. In addition, the LX is implementing a stakeholder engagement process to disclose critical issues affecting stakeholders in the report and these issues are appropriately reflected in the sustainable management activities associated with the implementation of the UN SDG.</li> <li>• Materiality: LX identifies and prioritizes issues to be reported by applying the materiality assessment process and reported relevant sustainable management activities and performance. And LX analyzed impact of material issues on its business and aligned the issues with its business strategies.</li> <li>• Responsiveness: LX reported activities and performance that addresses needs and concerns of stakeholders which were identified from materiality assessment process and responds to their opinion by taking into consideration for its management.</li> </ul>
Recommendation for improvement	<p>KFQ recommends the followings for advanced approach to achieve LX's sustainable management goal and provide its performance effectively in the next report:</p> <ul style="list-style-type: none"> <li>• We look forward to LX to deliberate improving social responsibility on its main business related to cover broader range of stakeholders including vulnerable groups.</li> <li>• We hope LX to establish improved system to quantitatively measure and report the impact on stakeholders and prepare performance indicator to ensure that the strategy is working properly.</li> </ul>
Competency and independence	<p>The assurance team was formed in accordance with KFQ's internal regulations. KFQ has no conflict of interest which could threaten the independence and impartiality of verification, other than providing third-party audit services in the LX business.</p>

February, 2020  
Seoul, Korea  
**Ji Young Song, CEO**  
Korean Foundation for Quality (KFQ)



*Ji Young Song*







To minimize impact on environment and use of natural resources, spot color and coating are avoided, and soybean oil is used for printing process.