

A FIFTY YEAR JOURNEY TOWARDS A SUSTAINABLE FUTURE

Samsung Electronics

Sustainability Report 2019

SAMSUNG

A FIFTY YEAR JOURNEY TOWARDS A SUSTAINABLE FUTURE

■ About This Report

At Samsung Electronics, we publish an annual sustainability report with the aim of transparently communicating about our achievements in creating economic, social and environmental value to a wide range of stakeholders. 2019 marks our twelfth annual sustainability report.

■ Reporting Period

This report illustrates our economic, social and environmental activities and achievements between January 1st and December 31st 2018. For some of the qualitative achievements, data to May 2019 is included. For the quantitative achievements, this report provides numerical data for the past three years, to allow for trend analysis over time.

■ Reporting Scope

This report covers all of our Korean and global supply chains and worksites. Financial performance data is based upon consolidated K-IFRS accounts. Quantitative environmental performance of worksites is based upon data collected from 37 Korean and global production subsidiaries.

■ Reporting Standards

This report has been prepared in accordance with the GRI Standards : Core option.

FOR FURTHER DETAILS ON THIS REPORT

- Samsung Electronics Website : <http://www.samsung.com>
- Sustainability Website : <https://www.samsung.com/us/aboutsamsung/sustainability/strategy/>
- IR Website : <https://www.samsung.com/global/ir/>
- Samsung Electronics Newsroom : <http://news.samsung.com/kr>
<http://news.samsung.com/global>
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CEO Message



A handwritten signature in black ink that reads "Ki Nam Kim".

Samsung Electronics Co., Ltd. | Vice Chairman and CEO **Kim, Ki Nam**

I would like to begin by expressing my sincere appreciation to our shareholders, customers, suppliers, communities, and employees around the globe for your continuous support of Samsung Electronics.

This year marks our 50th anniversary. Founded as a small manufacturer of black-and-white TVs, Samsung Electronics has grown to become a major global IT company in 50 years. We delivered record-high earnings last year despite an unfavorable business environment, and have been ceaselessly working to lay the foundation to take us through the next 50 years.

We designed our Sustainability Report 2019 to both look back on our activities over the past 50 years as well as offer a guide on our direction for the next 50 years.

In the coming years, we are well aware that we will not be evaluated solely based on our business performance. As such, and in addition to our efforts to pursue profits and increase shareholder value, which are fundamental purposes of businesses, we will endeavor to fulfill our social responsibilities as a global company.

Our environmental activities have included countermeasures against climate change—including reducing our greenhouse gas emissions and expanding the use of renewable energy—and active participation in the recycling of resources to minimize the environmental footprint of our operation. The impetus for the company's environmental activities is shifting from selective spending to essential investments that create value, and we will continue to engage in environmental activities, believing economic development and environmental sustainability can coexist.

Furthermore, we aim to take safety at our worksites and suppliers to the world's highest levels by internalizing a commitment to environment, health, and safety (EHS) management

in our business strategy. With safety as a top priority, we have engaged in numerous improvement activities such as "EHS Innovation Day", an event held to spread a culture of safety, and EHS consulting for our suppliers. Through our efforts, we will establish a "safety first" culture in which even minor safety issues are not overlooked, aiming to create an accident-free working environment.

Finally, aligning with our pursuit of co-prosperity with our communities, we have continued providing Win-Win funds for our suppliers, support for non-profit organizations, and smart-factory projects for small and medium-sized enterprises. In addition, we have launched a new corporate citizenship initiative with a vision to focus on the education of future generations, carrying out myriad social contribution programs around the globe. We have made the pursuit of co-prosperity one of our core values, and will thus keep working with local communities, our country, and humanity to benefit all stakeholders.






At Samsung Electronics, we follow a simple business philosophy—We will devote our human resources and technology to create superior products and services, thereby contributing to a better global society. Leveraging our technology and business knowledge, we will proactively address social and environmental issues and strive to become a company that can flourish alongside our communities for more than 100 years.

We look forward to your continued interest and support in our 100-year journey to create a prosperous, sustainable society.

Thank you.

Management Philosophy


At Samsung Electronics, we will devote our human resources and technology to create superior products and services, thereby contributing to a better global society. This commitment is guided by our set of values that consist of “Management Philosophy, Core Values, and Business Principles”. To this end, we translated our five management principles into detailed action plan guidelines to establish the Samsung Electronics Global Code of Conduct that all of our employees are guided by. To drive our sustainable growth and define our way forward, we are guided by the following core values, which are instrumental to the way our employees conduct business.

<p>Philosophy</p>	<p>We will devote our human resources and technology to create superior products and services, thereby contributing to a better global society.</p>				
<p>Core Values</p>	<p>PEOPLE</p>  <p>We value our people with a strong belief in “A company is its people” philosophy and providing opportunities to perform their full potential.</p>	<p>EXCELLENCE</p>  <p>We give our best efforts with endless passion and a challenge spirit to become world best in every ways.</p>	<p>CHANGE</p>  <p>We rapidly take the initiative in executing change and innovation with risk awareness : we cannot survive if we do not constantly strive to innovate.</p>	<p>INTEGRITY</p>  <p>We act in a right and ethical way in all manners, ensuring fairness with honor and grace.</p>	<p>CO-PROSPERITY</p>  <p>We take full responsibilities as a good corporate citizen in pursuit of mutual prosperity with our community, nation and human society.</p>
<p>Business Principles</p>	<ol style="list-style-type: none"> 1. We comply with laws and ethical standards. 2. We maintain a clean organizational culture with high integrity. 3. We respect customers, shareholders and employees. 4. We care for the environment, health and safety of all. 5. We are a socially responsible corporate citizen. 				



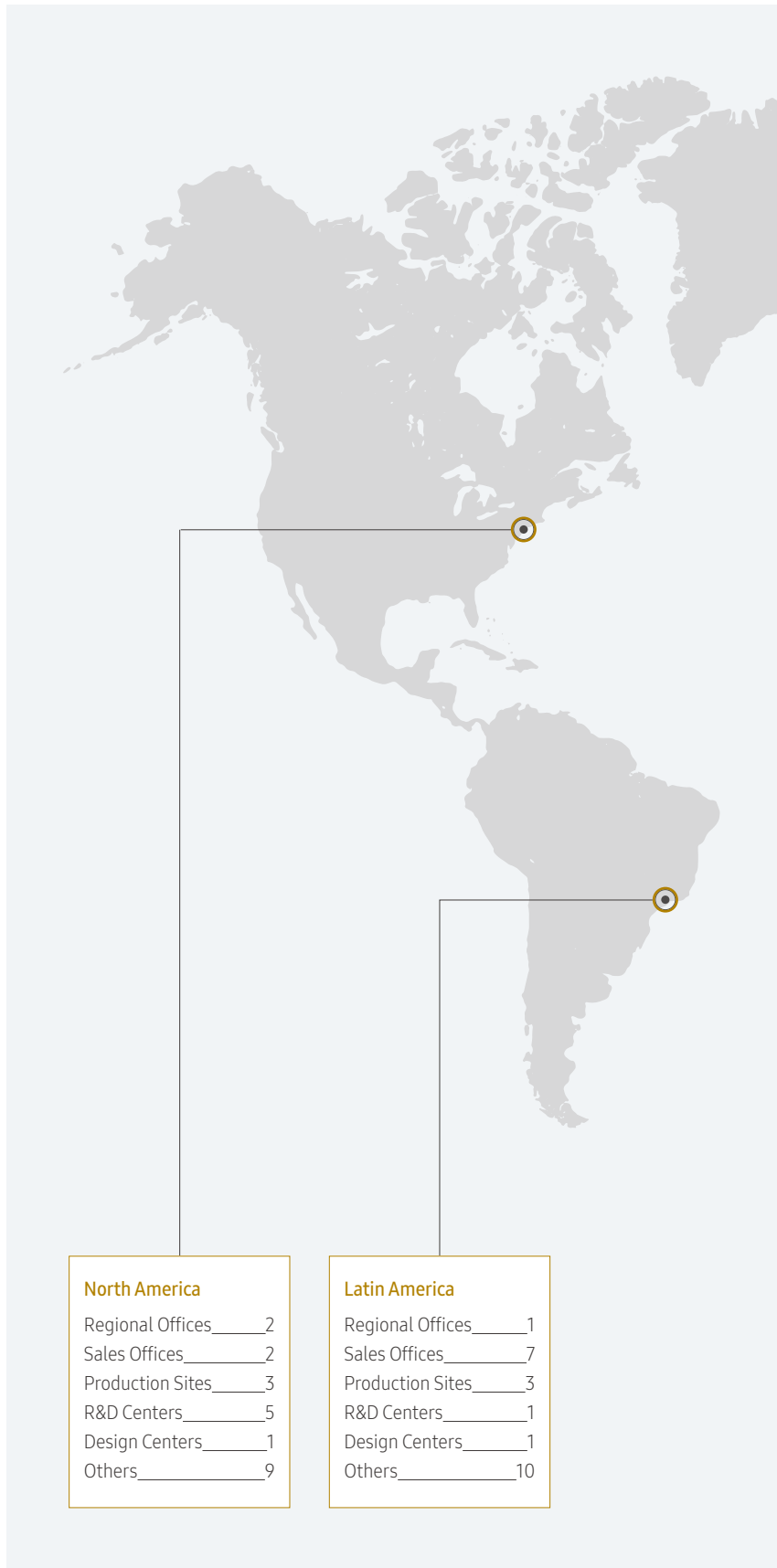
Samsung Electronics in the World

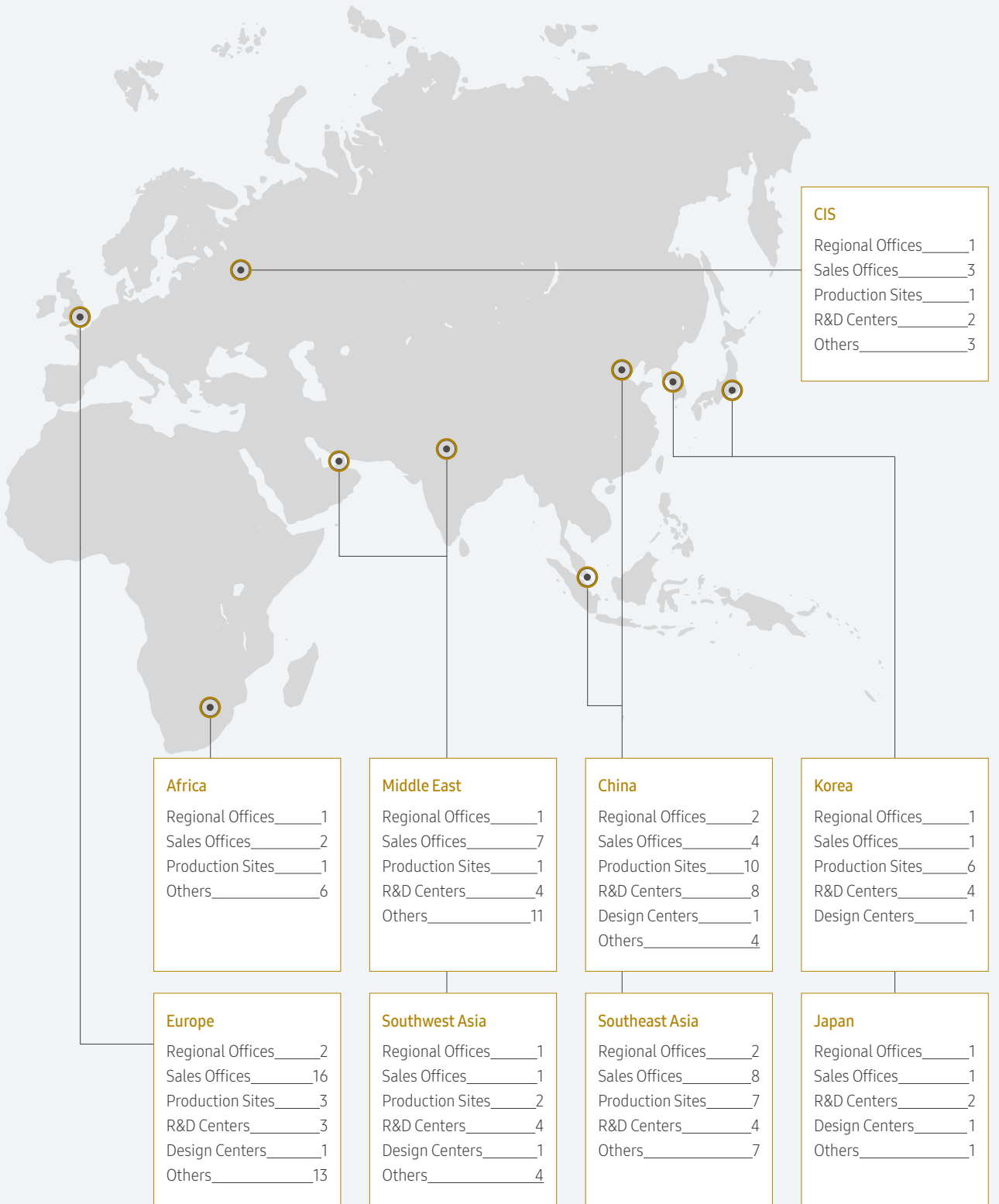
At the end of 2018, we had 216 worldwide operating hubs, including our HQ in Suwon South Korea, manufacturing subsidiaries, sales subsidiaries, design centers and R&D Centers, while operating 15 Regional Offices in South Korea, North America, Europe, Southeast Asia, Africa and other regions of the world.

-  Employees **309,630**
-  Suppliers (First tier) **2,389**
-  Countries **74**
-  R&D Expenditure **19** KRW trillion

	Total
Regional Offices	15
Sales Offices	52
Production Sites	37
R&D Centers	37
Design Centers	7
Others	68

* Regional classification is based on Samsung Electronics' internal management criteria
 * Others : Sales Branches, Service Centers, Distribution Bases, etc.





50 YEARS 50 Sustainability Facts

Samsung Electronics has grown to a global IT brand through the spirit of challenge and culture of innovation. We have focused on sustainability throughout our journey and wanted to highlight 50 key sustainability achievements for our stakeholders.



1

Product Stewardship

We are working to improve the energy efficiency of our products and focus on the environmental impact of our products. In addition, we are committed to the circular economy, including by recycling and reusing resources.

2

Commitment to the Environment in Our Operation

We will continue our efforts to expand the use of renewable energy and reduce emissions to minimize the environmental impact of our operation.

3

Enabling People

Through innovation and technology, we are providing greater access to opportunities and improving the accessibility of the underprivileged. In addition, we are helping local communities through STEM education.

4

Technology for Good

We encourage employees to contribute to their communities by solving social problems through creative solutions. Moreover, when we develop innovative products and services, we strive to protect consumer's personal information and privacy.

5

Investing in Our Employees

We support global efforts to prevent child labor and forced labor and adhere to strict policies to advance these global efforts. We also provide an inclusive, safe and cooperative organizational culture for our employees.

6

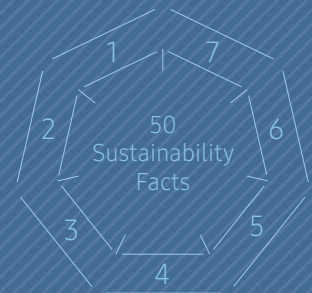
Sustainable Supply Chain

We pursue sustainable growth with our supply chain by effective management and through tools that enhance the competitiveness of our suppliers.

7

Sustainability Foundation

We continue to strengthen our systematic sustainability management and work with local communities as well as stakeholders throughout the world to help do our part in advancing society.





1- Product Stewardship

01

Established e-waste take-back and recycling centers in Korea in 1998

We have taken various actions to collect e-waste across our global operation since we established e-waste take-back and recycling centers in Korea in 1998.

2009-2018
Collected e-waste
(cumulative)



3.55 Million tons

03

Established an environmental analysis lab in 2005

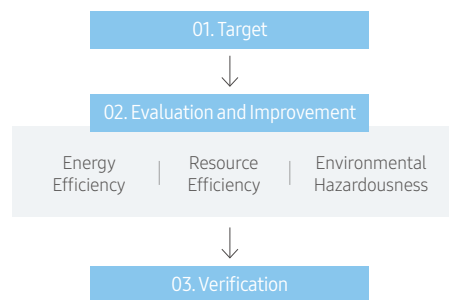
We set up an environmental analysis lab, in order to check whether hazardous substances are included in our components and finished products across our entire manufacturing process.



02

Introduced an Eco-Design process in 2004

We have built sustainability into our product design process. Through eco-design process, we assess our products' energy efficiency, resource efficiency and environmental hazardousness.



04

Initiated the Green Memory project in 2009

Green Memory delivers high speed, low power and high reliability in products. If all the servers in the World used our 5G Green Memory Solutions as of 2014, the overall annual effect would be power savings of around 45 TWh. The environmental impact would be equivalent to planting an additional 800 million 10-year-old trees.



45 TWh saving

=

Planting
800 Million Trees



05

The industry's first cadmium-free TV in 2015

We produced Quantum Dot TV, the industry's first cadmium-free TV. We received a 2016 SMM award from the US EPA.



— Upcycling speaker for used galaxy smartphone

06

Galaxy Upcycling as an innovative repurposing of e-waste in 2017

Galaxy Upcycling program is a pilot project which would upcycle old Galaxy smart phones for use as IoT solutions. We were received Cutting Edge Award in a 2017 SMM(Sustainable Materials Management) Champion Award by the US EPA(Environmental Protection Agency) for the Galaxy Upcycling program.

07

Won US EPA ENERGY STAR Partner of the Year- Sustained Excellence Award six times

We have received the US EPA's ENERGY STAR Partner of the Year Award six times, including Sustained Excellence Award in 2019, due to our commitment to expand our lineup of energy-efficient products(washing machines, refrigerators). As of 2018, 706 of our product models are ENERGY STAR certified.





2- Commitment to the Environment in Our Operation

08

Expansion of green management activities since 1992

We have been committed to sustainability with a vision starting in 1992 with our "Environmental Declaration". Since then we have been pursuing our "Green Management" goals, as outlined in 1996, 2009 and 2014.

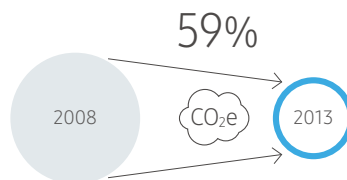
10

Reduced GHG emissions by 59% from 2008 to 2013; and participated in a GHG emission trading scheme in Korea

In 2013, our GHG emission intensity decreased by 59% from 2008 levels, and we have continued to take actions to further reduce emissions, including the introduction of high energy-efficient facilities and process gas treatment facilities.



— Fugitive emissions process facility in semiconductor work sites



09

Annual participation in the UN World Water Day and water resources protection activities, since 1997

Every year, each worksite engages in activities alongside local communities to conserve nearby aquatic ecosystems. Our worksites in Korea, in cooperation with local universities, have analyzed and improved the water quality and ecosystems of nearby streams.



— A pond with purified water from wastewater treatment facilities

11

Established our policies for biodiversity conservation in 2010; and conducted endangered species protection activities

We have enacted ecosystem protection activities and campaigns to protect endangered species at each worksite in Korea since the establishment of our policy for biodiversity conservation in 2010.

— Media art show with endangered animals through "The Frame TV" at the National Geographic Photo Art Exhibition



12

Energy Management System(ISO 50001) certified at Korean worksites in 2011

Obtained the ISO 50001 Energy Management System certification for our Korean worksites in 2011—the first in the country—and for all our global worksites in 2013.



Certification history in global worksites

[34 manufacturing worksites received certifications](#)

Within two years of ISO's international standards initiation, we adopted energy management systems meeting international standards for all our global manufacturing worksites

Number of worksites: **34**

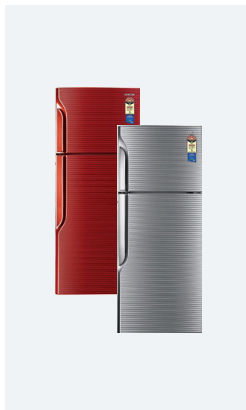
13

The world's first CDM(Clean Development Mechanism) Project in home appliance approved by the United Nations in 2013

We engage in various activities to analyze and reduce our impact on climate change, such as our home appliance CDM project in India in 2013, an industry-university joint research project on adaptations to climate change in 2015, and a cookstove CDM project in Kenya in 2017.



— Providing bioethanol cook stoves in Kenya in 2017



— Approval for UN CDM Project based on high-energy efficiency refrigerators in 2013

14

Announced a plan in 2018 to transition to renewable energy at our operation

By 2020, we plan to source renewable energy for 100% of the energy used for all of its factories, office buildings, and operational facilities in the US, Europe and China. We are also installing solar and geothermal power generation facilities at our Korean worksites.



— Installation of solar panels at the rooftops of parking areas in Suwon



3- Enabling People

15

Created an organization dedicated to corporate citizenship projects in 1995

We perform a variety of global citizenship projects across the globe in support of the sustainable development of society. Our cumulative contribution to such projects over the past decade amounts to around KRW 3.75 trillion.



16

Sponsorship for technicians since 2007

We have sponsored national tech contents and World Skill Olympics for technicians. We have supported 43 national representatives and 26 medalists among our employees for World Skill Olympics. In addition, we sponsor national representatives from Russia and Vietnam. Since 2007, around 490 Korean technicians have been hired at Samsung Electronics.

17

Launched Samsung Smart School in 2012

We have run Samsung Smart School programs as part of our corporate citizenship projects since 2012. As of 2018, more than 2.7 million students from around 1,200 schools in 48 countries have benefited from the programs.

2018

48 countries
1,200 schools
2.7M students

18

Launched Samsung Dream Class in 2012

We run Samsung Dream Class, a program designed to offer education opportunities to middle school students in regions where educational support is needed in Korea. As of 2018, around 73,000 middle school students have benefited from the program, with 20,000 college students participating as mentors.

2018

73,000 middle school students
20,000 university students as instructors

19

Commenced measuring the social and environmental value of our operation in 2015

Looking beyond economic value, we started measuring the social and environmental value of our operation in 2015. For 2018, our social and environmental values amounted to nearly KRW 54.5 trillion¹⁾.

Footnote:
1) Refer to page 105

20

Developed a mobile, eye-diagnostic device in 2018

We developed a mobile, eye-diagnostic device via Samsung Tomorrow Solutions - a program which helps address social issues through creative ideas. We have provided the devices to 40 community health centers in Vietnam, benefiting about 28,000 patients.



21

Unveiled a new corporate citizenship vision of "Enabling People" in 2019

We launched a new corporate citizenship initiative with a vision of "Enabling People" by focusing on the education of future generations.



4- Technology for Good



22

Established the Creativity & Innovation Center and C-Lab program in 2012

To promote a creative corporate culture, we have run the C-Lab program since the establishment of the Creativity & Innovation Center in 2012. As of the end of 2018, a total of 918 employees have performed 229 projects, resulting in 36 spin-off start-ups. We started supporting external start-ups since 2014 and created C-Lab Outside to extend our support to start-ups outside of our company in October 2018. Together with these start-ups, we have been advancing technology in society.

23

Launched Samsung MOSAIC, a collective intelligence platform, in 2014

MOSAIC, a collective intelligence platform for our employees, has collected around 123,000 ideas in total as of the end of 2018, with an average of 95,000 employees accessing the platform on a daily basis. Through MOSAIC, our employees can discuss issues and share ideas, creating an innovative corporate culture.



24

Developed accessibility design principles in 2015

Based on our accessibility design principles, we strive to ensure that all consumers can conveniently use our products regardless of their physical condition.



26

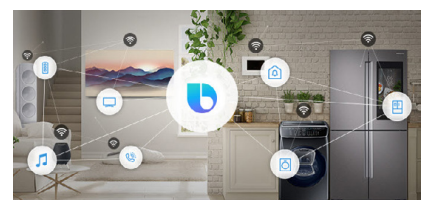
Unveiled our AI ethics in 2019

During CES 2019, we unveiled our ethical principles on the development and utilization of AI products. We will strive to ensure AI technology can be utilized in an ethical manner by offering guidelines and training sessions to our employees.

25

Established the Global Privacy Office in 2015

In line with laws and regulations, we developed global policies to protect privacy and personal data in 2013 and established the Global Privacy Office in 2015. We ensure that personal data is protected over a product's life cycle, while providing mandatory personal data protection training for all employees.





5- Investing in Our Employees

27

Introduced a regional specialist program in 1990

The regional specialist program, which epitomizes our commitment to pioneer global markets and nurture talent, allows selected employees to provide training overseas while also learning local languages and culture for one to two years.

Regional specialist program performance

84 countries /
total 3,468 regional specialist

*As of December 2018



28

Introduced a performance-based salary system in 1998

We shifted from a seniority-based to a performance-based salary system in 1998. Depending upon business performance, we have paid up to 50% of an employee's annual salary as an incentive since the introduction of a profit-sharing scheme in 2000. In addition, we have strengthened individual performance-based compensation with the adoption of a "plus-sum" system in 2010.



30

Introduced flextime in 2009

In 2009, we introduced a flexible working-hours system that allows our employees to manage their starting time. From 2015 onwards, employees have been able to choose not only their work starting time but also ending time. This helps employees to have a better balance between work and personal life.



29

Established a career consulting center in 2001

Our career consulting center helps employees prepare for their future after retirement, while also offering our retirees opportunities to start anew. As of the end of 2018, we have helped 6,187 people (out of 7,100 applicants) find new jobs.



31

Established the Samsung Health Research Institute in 2010

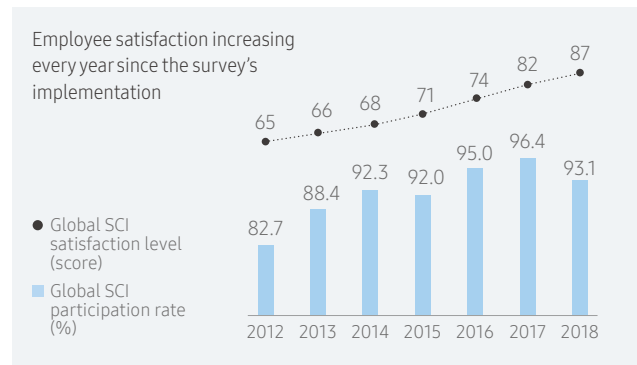
We operate the Samsung Health Research Institute to carry out research on the work environment and new manufacturing processes and materials to ensure the health of our employees.



32

Introduced the Samsung Culture Index (SCI)

We conduct a global survey of our employees annually to promote a better understanding of diverse cultures and build a creative organizational culture. The survey assesses job satisfaction, creativity, and team trust. In 2018, around 280,000 employees participated in the survey, and the SCI hit a record high.



33

Developed Human Rights Policy

Since the 2014 introduction of a child labor prohibition policy in our Chinese operation, we have adopted various other policies to safeguard human rights and manage employee health and safety. These include guidelines for migrant workers and apprenticeship training.

35

Transparency about restricted substances in manufacturing process

To achieve a major milestone in health and safety management transparency, we voluntarily disclosed a Restricted Substances List (RSL) of 11 hazardous substances in 2018. We updated that list by adding 14 more substances and including chemical substances that we prohibit or restrict in our suppliers' manufacturing process in 2019.

34

Conducted a human rights impact assessment in 2018

We have engaged in numerous activities to enhance our compliance management using means such as inspections, consultations, and third-party audits of our overseas subsidiaries' work environments. In particular, we carried out a human rights impact assessment (HRIA) of our Vietnamese operation (Samsung Electronics Vietnam, SEV) in 2018.





6- Sustainable Supply Chain

36

Announced KRW1 trillion to support suppliers in Korea in 2004

We announced a plan to support and nurture our suppliers and created an organization dedicated to carrying out this plan. Thereafter, we provided our suppliers with financial assistance and on-site guidance, as well as support for technological development and human resources training for five years, thus enhancing their competitiveness.

37

Created Win-Win funds for first- and second-tier suppliers in Korea in 2010

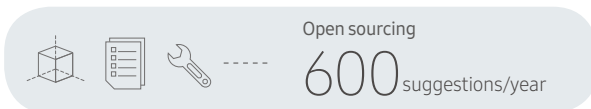
In 2018, as part of the financial assistance we provide to suppliers, we expanded the Win-Win funds to KRW 1.4 trillion by including our third-tier suppliers. Furthermore, we created a KRW 500 billion fund to improve payment conditions between first- and second-tier suppliers in 2017, and an additional KRW 300 billion fund helping to improve payments between second- and third-tier suppliers in 2018.



38

Introduced an open sourcing program in 2011

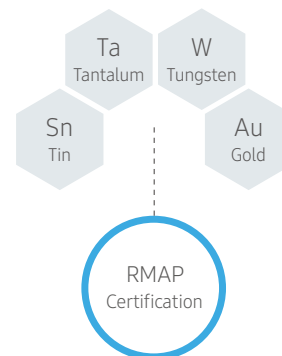
We use an open sourcing program to identify potential partners with a new technology or an innovative ideas. Through this, we receive around 600 suggestions every year.



39

Established a management system to ban the use of conflict minerals in the supply chain in 2012

We have a management system that prevents the use of conflict minerals in our supply chain and that is designed to minimize the risk of mining conflict minerals, including human rights violations and environmental damage. As of 2018, all of our suppliers only do business with RMAP (Responsible Minerals Assurance Process) -certified smelters for the four major conflict minerals-i.e., tantalum, tin, tungsten, and gold.



40

Developed the Samsung Electronics Supplier Code of Conduct in 2012

To ensure the responsible management of our supply chain, we developed the Samsung Electronics Supplier Code of Conduct and operate an organization responsible for managing our suppliers' work environments via on-site inspections and third-party audits.

41

Created a Partner Collaboration Academy in 2013

The Partner Collaboration Academy aims to support supplier human resource training. As of the end of 2018, we have offered training sessions to 540 suppliers, with 80,677 trainees completing the sessions.



42

Initiated a smart factory support project in 2015

We carried out a first-round of a smart factory support project for 1,086 small and medium-sized enterprises(SMEs) over 2015–2017 to prepare for the Fourth Industrial Revolution. In 2018, we kicked off a second-round of the project to support 2,500 companies over the next five years.



43

Opened and transferred patents in 2015

Since 2015, we have opened 27,000 patents to strengthen technological competitiveness of SMEs. Furthermore, we held a Biz technology fair, offering consulting on the transfer of around 12,000 patents related to semiconductors, mobile devices, and home appliances.

44

Participated in a responsible mineral mining project in DR Congo in 2019

We have participated in a social contribution project to address cobalt mining issues in DR Congo by providing personal protective equipment and training programs to miners.



7- Sustainability Foundation

45

Released “Declaration of Customer Rights” in 1994

The “Declaration of Customer Rights” served as a turning point in the protection of consumer rights. Our consumer policies have focused on guaranteeing product quality, service, and safety.



Declaration of Customer Rights

Quality Service Safety

48

Set up the CSR (Corporate Social Responsibility) Committee under the Board of Directors (BOD) in 2013

We created the CSR Committee under the BOD to fulfill our social responsibilities. In 2017, we expanded the role of the CSR Committee to include shareholder value enhancement, thus creating the Governance Committee.

CSR Committee
2013

Enhance shareholder's value

Governance Committee
2017

46

Enacted Samsung Electronics Global Code of Conduct in 2005

We have enacted Samsung Electronics Global Code of Conduct for all our employees to observe, as global corporate citizens. This “Global Code of Conduct” is the guiding standard for everyone in Samsung Electronics, outlining standards of conduct in all business activities.

47

Established Corporate Compliance Team in 2010

Since the establishment of the Compliance team, the Company enhanced employees’ understanding of compliance by offering regular compliance training sessions. In addition, we are managing our compliance system effectively by offering preventive measures, close monitoring, and post-management.



49

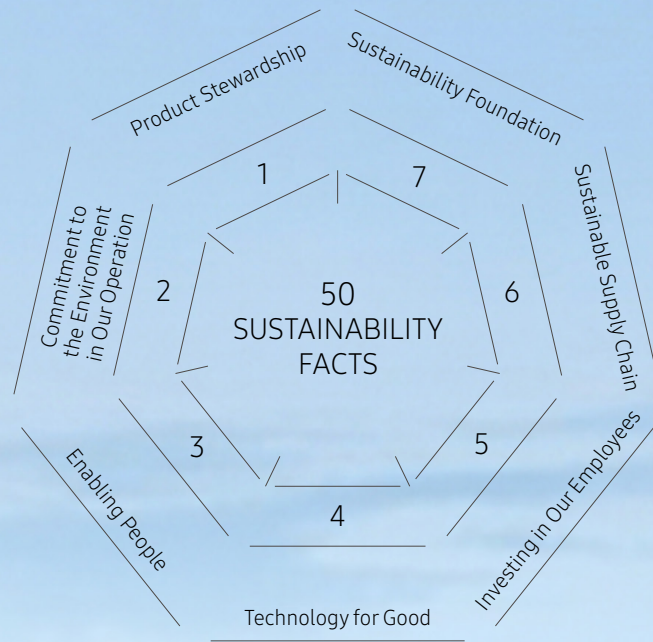
Established principles for disclosure on financial donations in 2017

To enhance transparency regarding financial donations, the Company decided to get BoD resolution for all financial donations & contributions KRW 1 billion or higher. Related information is also disclosed.

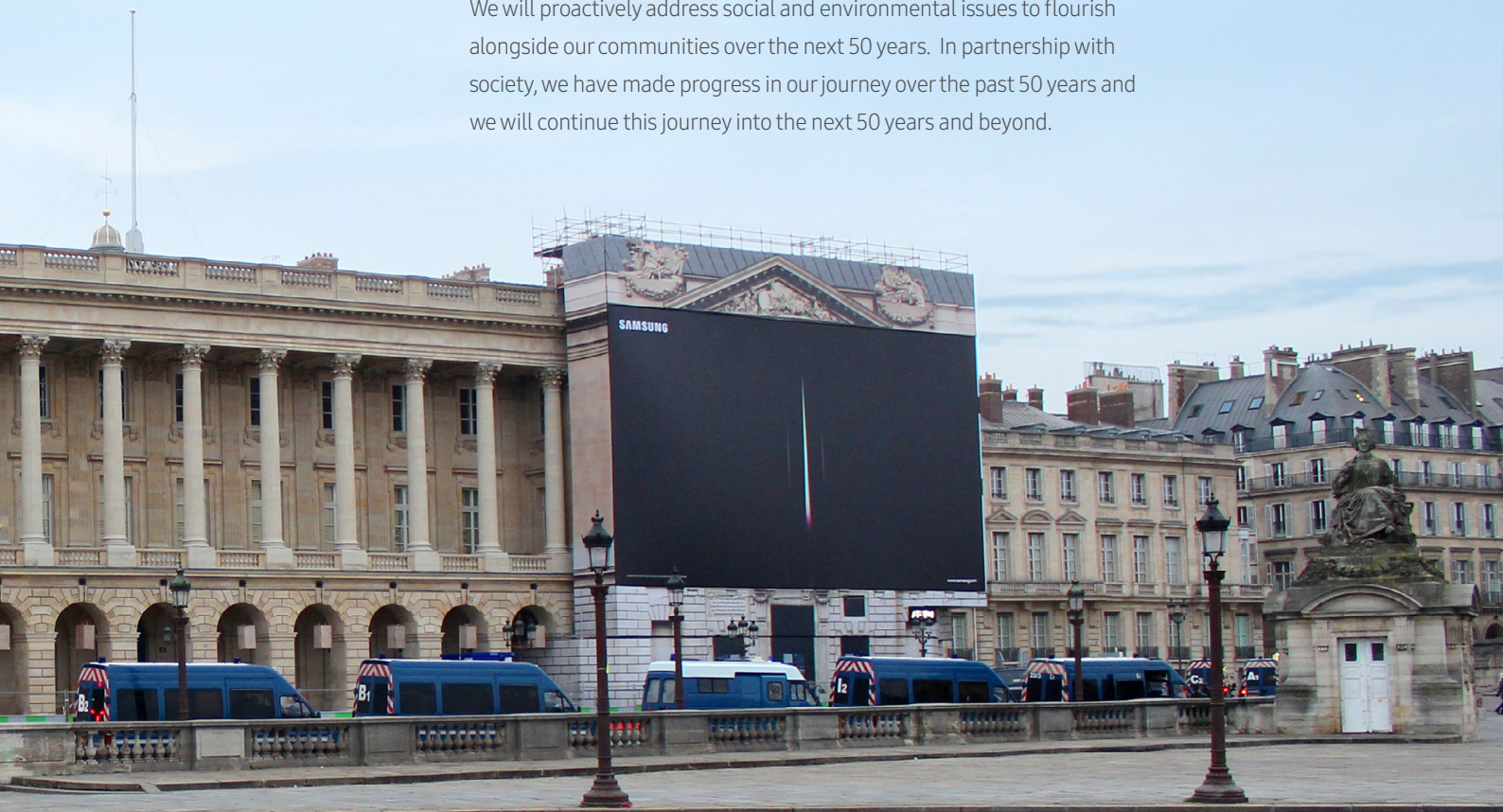
50

Separated the roles of CEO and Chairman of the BOD in 2018

We separated the roles of CEO and Chairman of the BOD to bolster management transparency and the independence of the BOD.



We will proactively address social and environmental issues to flourish alongside our communities over the next 50 years. In partnership with society, we have made progress in our journey over the past 50 years and we will continue this journey into the next 50 years and beyond.

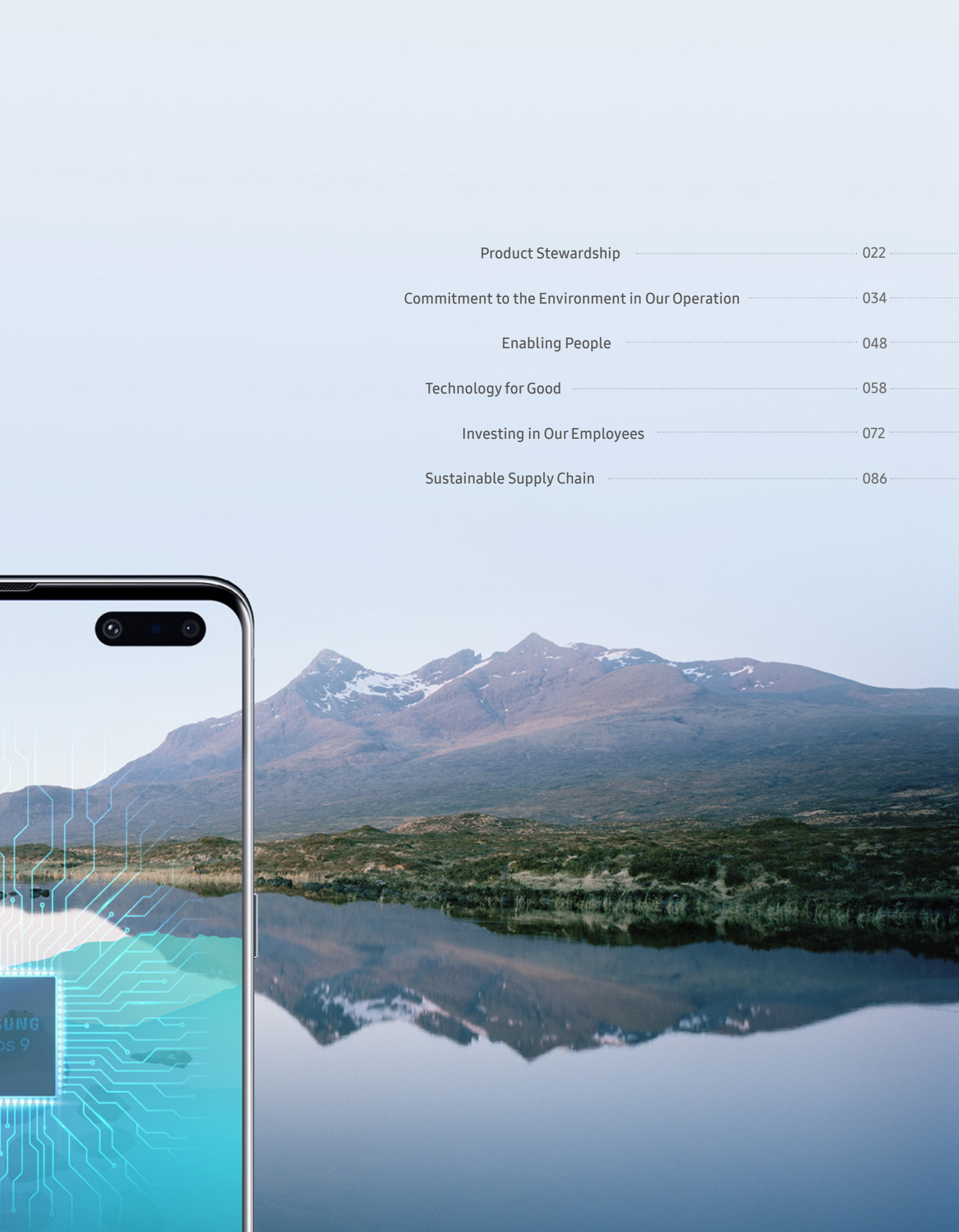


Sustainability Pillars





Product Stewardship	022
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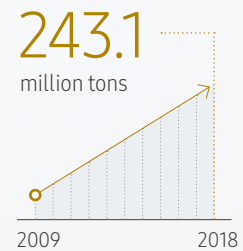
PRODUCT STEWARDSHIP

2018 HIGHLIGHTS

Environmentally conscious Products¹⁾ as a Percentage of Total



Cumulative Greenhouse Gases Emissions Reduction in the Product Use Phase²⁾



Cumulative Use of Recycled Plastics³⁾

220,000 tons



Footnote:

1) Based on development projects

2), 3) Accumulated from 2009

We strive to enhance product stewardship to minimize our environmental impact throughout the product life cycle from raw materials sourcing, product design, manufacturing to use and disposal. In the product development phase, we make efforts to reduce environmentally hazardous factors as well as to improve product energy efficiency and durability. We are fulfilling our environmental responsibilities by seeking to minimize water consumption, and to reuse waste materials in the manufacturing processes. In the product disposal phase, we operate e-waste take-back programs.

ALIGNMENT WITH SUSTAINABLE DEVELOPMENT GOALS



[Goal 12] Ensure sustainable consumption and production patterns

12.2 By 2030, achieve the sustainable management and efficient use of natural resources

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse



[Goal 13] Take urgent action to combat climate change and its impacts

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning



[Goal 15] Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development



Innovative Environmentally conscious Product : Galaxy S10

We have made comprehensive efforts to offer customers with a variety of environmentally conscious products. In particular, we consider the use of environmentally conscious materials in the product design stage, and strive to enhance energy efficiency.

Newly launched in 2019, the Galaxy S10 entails several key eco-conscious features, including the use of bio-based/ recycled plastics and high charging efficiency.

In particular, the use of bio-based plastic in the Galaxy S10 represents our active commitment to incorporate bio-based materials in our production. Bio-based plastics, which are derived from renewable biomass sources, such as vegetable oils and corn starch, are one of the main factors that enhance the environmental consciousness of our products.

The Galaxy S10's earjack housing and Galaxy S10e's front deco part contain bio-based plastics (29% for the S10 and 37% for the S10e).

We also make our best effort to utilize recycled plastics and paper. The Galaxy S10 charger is made of 20% recycled plastic, while its unit box is made of 70% recycled paper.

Beyond Our Products: Environmentally Conscious Packaging

We strive to focus on environmentally conscious packaging in addition to our efforts to expand environmentally conscious products.

We have been developing recycled paper for our packaging materials, printing with soybeans ink, and plastic bags with natural stone powder. We started to use pulp molds packing materials for laptops in 2018, and we have been gradually replacing vinyl packaging with recycled and bio-based materials for all household appliances since 2019. We are also replacing plastic containers that used to hold our mobile products with pulp mold and paper, while vinyl that was wrapped around earphones and cables will also be changed to paper or other environmentally conscious materials.

We have established progressive goals to apply environmentally conscious materials to our product packing and aim to achieve the 100% use of sustainably sourced paper for packaging by 2020.

In the future, we will expand the use of environmentally conscious materials, while minimizing the packaging of all our mobile products, including the Galaxy Fold and Smartwatches, in addition to the Galaxy S10.

Regarding paper, we will only use sustainably sourced paper for all packaging and product manuals by 2020 in order to reduce the environmental footprint.

Major Changes in Environmentally Conscious Packaging

Material	Products	Item	Before	After
Plastic	Mobile Phone, Tablet, Wearable	Holder tray	PS ¹⁾	Pulp mold, Paper
		Accessory packaging	PET ²⁾	Paper, Bio-based plastic
		Unit Box	Paper box with sleeve	Optimized structure by removing-sleeve (surface of packing box)
	TV	Bags (to protect product)	LDPE ³⁾	Bio-based plastic
	Refrigerator, Washing Machine, Air Conditioner	Bags (to protect product)	LDPE ³⁾	Recycled or bio-based plastic
	Vacuum, Oven	Bags (to protect product)	LDPE ³⁾	Bio-based plastic
Paper	All products	Papers in packaging	Mixed	100% sustainably sourced paper

Footnote:

1) PolyStyrene

2) PolyEthylene Terephthalate

3) Low Density PolyEthylene

Target by Year



Footnote:

1) For the other products, environmentally conscious packaging will be applied only to products launched in Korea

Green Management

Samsung Electronics officially announced the Environmental Declaration in 1992. In addition, we set Green Management Value System in 2008 and additional goals in the form of our global Eco-Management 2020 plan in 2014 and are endeavoring to create environmental value through numerous initiatives.

We strive to minimize the negative impact on the environment by producing products with less resources and reducing greenhouse gas emissions during use.

Green Management Value System

PHILOSOPHY

We contribute to the prosperity of human life and the conservation of the environment by conducting business activities that respect humanity and nature






VISION

- Provide Green Experience, Creating Sustainable Future
- Provide customers with new eco-friendly experiences and lead the way to a sustainable future for the global community through innovative and eco-conscious products and technologies



Samsung Electronics PlanetFirst Logo:
The circular logo shape represents planet earth, while the colors blue and green symbolize permanent fertile soil and water, respectively.

Product Stewardship KPIs

	→	<p>Accumulated GHG emissions reduction in the product use phase between 2009 and 2020</p> <p>Reach 250 million tons</p>
	→	<p>Use renewable materials including recycled plastic between 2009 and 2030</p> <p>Reach 500 thousand tons</p>
	→	<p>Reach 90%</p> <p>Eco-conscious Products out of all developed products by 2020</p>
	→	<p>Accumulate collected e-waste between 2009 and 2030</p> <p>Reach 7.5 million tons</p>
	→	<p>Reach 100%</p> <p>sustainable sourced paper packaging by 2020¹⁾</p>

Footnotes:
1) Certified sustainable sourced paper and recycled paper (packaging, manuals, etc.)

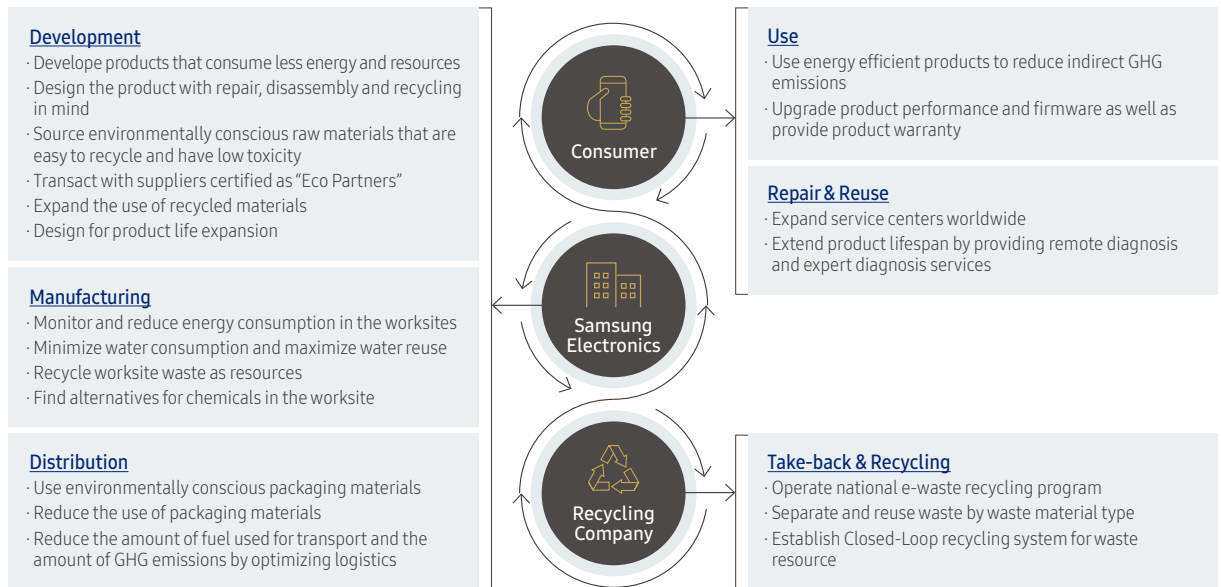
Environmental Focus in Our Products

Environmentally Conscious Products

We have set up a comprehensive development process to create products with high resource efficiency. In addition, our chemical substance management system identifies materials in our components during our purchasing stage.

Our programs also include waste recycling in the production phase, firmware upgrade services to extend product life, and recycling programs across the globe.

Product Stewardship Strategy

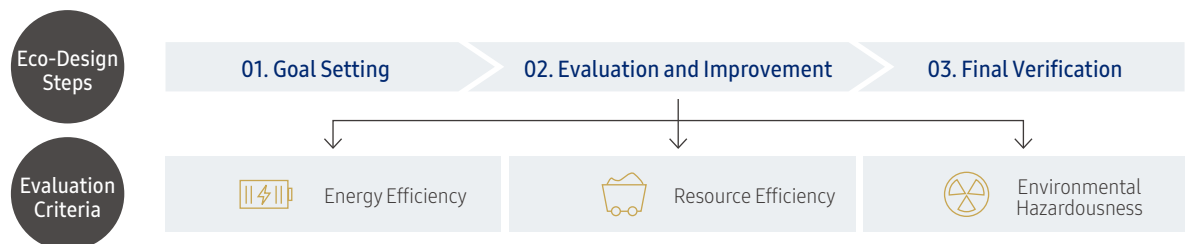


Eco-Design

From the product design stage, we apply our internal eco-design process, which incorporates environmental attributes of products into product development. Since 2014, we have incorporated global eco-labeling requirements in the eco-design

process, securing the objectivity of the process. The eco-design process begins with the environmental goal settings for each development project, which is followed by evaluation/improvement, and ends with final verification.

Eco-design Process



Product Energy Efficiency

We hold Eco-Council and working-level committees where environmental experts and managers meet to share ideas about technological and regulatory trends to help develop highly energy efficient products. As a result, in 2018, we successfully adopted energy-saving technologies including highly-efficient refrigerator compressors and washing machines motors. Our focus on energy efficiency resulted in about 39% reduction in annual energy consumption compared to the 2008 levels.¹⁾ We define GHG emissions produced by energy consumption during product use as “Emissions in the Product Use Phase” and manage it as one of our major KPIs of the Eco-Management 2020.

Footnote:

1) Scope of data collection: 7 major product categories including refrigerators, air conditioners, washers, televisions, monitors, laptops, and mobile phones.

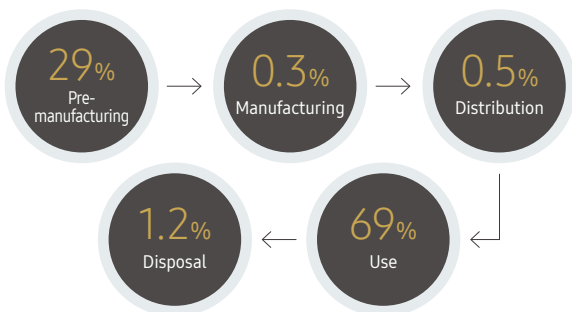
Life Cycle Assessment (LCA)

We have been looking for ways to efficiently use our resources and reuse waste in product development and production. We perform Life Cycle Assessment (LCA) to identify the potential environmental impact of our products throughout their life cycle in order to detect their potential environmental footprints. For example, in 2018, we conducted LCAs on the Galaxy A6 and a large-sized flat panel product looking at each phase of the product life cycle. We have been using the outcomes to develop products that have a lesser impact on the environment. By way of example to show how we conduct LCAs, the following is the global warming impact based on 12 categories of our model QMF55N (a large-size flat panel display) in the pre-manufacturing, manufacturing, distribution, use and disposal phases. We are committed to utilizing these data to select raw materials with low environmental impact and improve the energy efficiency of the products.

Footnote:

1) Global warming, acidification, eutrophication, ozone layer depletion, formation of photochemical oxidants, human toxicity, freshwater toxicity, seawater toxicity, soil toxicity, primary energy consumption, water use, and waste generation

Result of LCA (Global Warming Impact) of Large-sized Flat Panel QM55N



Chemical Management

We are committed to strictly managing chemicals through rigorous inspections and due diligence on all parts and raw materials used in our products. We recognize that international environmental regulations, such as Restriction of Hazardous Substances in Electrical and Electronic Equipment (EU RoHS) and Registration, Evaluation, Authorization and Restriction of Chemicals (EU REACH), are being tightened. Under the circumstances, we believe that hazardous substance management is important for not only our operation, but also the environment of our communities. Accordingly, we have operated an environmental analysis laboratory for analyzing 6 RoHS hazardous substances and 4 types of phthalates (DEHP, BBP, DBP, DIBP) and established our self-monitoring process for regulated substances. In addition, we have established the Environment Chemical Integrated Management System (e-CIMS) to strictly monitor and assess hazardous substances in the supply chain. Furthermore, we evaluate suppliers' environmental quality control systems and do businesses only with those that meet our requirements.

Timeline for Hazardous Substance Management

2005	<ul style="list-style-type: none"> Developed a Technical-Tree to reduce the use of BFRs¹⁾ (supply chain improvement) Banned the use of BFRs for packaging materials
2006	<ul style="list-style-type: none"> Set plans to reduce the use of BFRs and PVC²⁾
2008	<ul style="list-style-type: none"> Released mobile phones free of BFRs/PVC (some models) Banned the use of PFOS³⁾ and antimonides
2010	<ul style="list-style-type: none"> Released new mobile phone/camera/MP3 models free of BFRs/PVC Banned the use of cobalt chloride
2011	<ul style="list-style-type: none"> Released mobile phone free of beryllium compounds
2012	<ul style="list-style-type: none"> Banned the use of chlorinated flame retardants in mobile phones and MP3s Released laptops, TVs, monitors, and home theater products (some components) free of PVC
2013	<ul style="list-style-type: none"> Released laptops, TVs, monitors, and home theater products (some components) free of phthalates or antimonides
2015	<ul style="list-style-type: none"> Banned the use of HBCD⁴⁾ and nonylphenol
2016	<ul style="list-style-type: none"> Banned the use of 4 types of phthalates for new component (DEHP⁵⁾, BBP⁶⁾, DBP⁷⁾, DIBP⁸⁾)
2018	<ul style="list-style-type: none"> Banned the use of 4 types of phthalates (DEHP, BBP, DBP, DIBP) for all parts Plan to ban additional 8 types of phthalates (DINP⁹⁾, DIDP¹⁰⁾, DnOP¹¹⁾, DnHP¹²⁾, DMEP¹³⁾, DIPP¹⁴⁾, nPIPP¹⁵⁾, DnPP¹⁶⁾) for all product components by July 2019

Footnote:

- 1) BFRs: Brominated Flame Retardants
- 2) PVC: Polyvinyl Chloride
- 3) PFOS: Perfluorooctanesulfonate
- 4) HBCD: Hexabromocyclododecane
- 5) DEHP: Bis (2-ethylhexyl) phthalate
- 6) BBP: Butyl benzyl phthalate
- 7) DBP: Dibutyl phthalate
- 8) DIBP: Diisobutyl phthalate
- 9) DINP: Diisononyl phthalate
- 10) DIDP: Di-isodecyl phthalate
- 11) DnOP: Di-n-octyl phthalate
- 12) DnHP: Di-n-hexyl phthalate
- 13) DMEP: Bis (2-methoxyethyl) phthalate
- 14) DIPP: Di-iso-pentyl phthalate
- 15) nPIPP: n-Pentyl-isopentyl phthalate
- 16) DnPP: Di-n-pentyl phthalate

Environmental Certifications and Awards

Global Environmental Certification

We have been developing environmentally conscious products and obtaining environmental certifications around the globe. Many of our products are certified by a total of 9 governments including South Korea, the US, and Europe as well as such standards organizations as UL (Underwriters Laboratory) of the US and the Canadian Standards Association (CSA). By the end of 2018, a total of 1,253 models obtained these eco-label certifications on an accumulated basis.

“Green Technology” Certification in Korea

The number of our technologies that are certified as “Green Technology” by Korean Ministry of Environment has been increasing. As of the end of 2018, we have secured a total of 12 green technologies such as monitor and network equipment.

Acquisition of Green Technology Certification in 2018

Sector	Green Technology	No. of Certifications
CE	Monitor standby power reducing technique, etc.	10
IM	User and schedule based wireless LAN power saving automation technologies, etc.	2

Environmental Awards Granted in 2018










Our commitment to the product stewardship continues to be recognized around the world as demonstrated by the following awards.

Environmental Awards Received in 2018



Category	Country	Name of Award	Organizer	Time	Description
Company	Russia	All-Russian eco-day “Green Spring”	Kommersant (Russia Daily Newspaper)	Dec. '18	· Awarded ‘Silver Crane’ for installation/operation of eco-boxes collecting e-waste/ appliances
	US	SMM Electronics Challenge Champion Award	US Environmental Protection Agency	Dec. '18	· Achieved ‘Gold Tier’ on e-waste collection and recycling
Product	Korea	Energy Winner Awards of the Year	Consumers Korea	Jul. '18	· Wind-free air conditioner 4 way cassette air conditioning/ heating
		Green Product Awards of the Year	Korea Green Purchasing Network	Jul. '18	· Grande dryer
	US	ENERGY STAR Partner of the Year Award	US Environmental Protection Agency	Feb. '18	· Awarded Partner of the Year (Sustained Excellence)
		Environmental Leader Award	US Environmental Protection Agency	May '18	· Galaxy Upcycling (Project section)

Eco Achievements













Eco-Label

Asia	 Korea	 China	
North America	 UL	 US	 CSA
Europe	 Sweden	 Northern Europe	 Russia
Central/Latin America	 Brazil		

Carbon-Label

Korea	 	UK Carbon Trust	
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Environmental Highlights from Products in 2018

<p>LED TV (UE75NU7100)</p>  <ul style="list-style-type: none"> · EU Energy Label A+ · Energy Saving mode · Screwless design (productivity↑, recycle availability↑) · Accessory bag made of 20% of sugar cane 	<p>Monitor (S24E650PL)</p>  <ul style="list-style-type: none"> · Standby power below 0.005W · Eco Saving mode · 30% of recycled plastic use · Certification of ENERGY STAR in all capitals and EPEAT 	<p>Smartphone (Galaxy Note9)</p>  <ul style="list-style-type: none"> · High-efficient charger (Charging efficiency 86% / Standby power 0.02W) · Ultra Power Saving mode · 20% of recycled plastic use · Application of bio-based material (use packaging materials from by-product of sugarcane and bamboo)
<p>Refrigerator (RF22R7351SG)</p>  <ul style="list-style-type: none"> · Eco-friendly R600a refrigerant · ENERGY STAR Certified · FlexZone™ Drawer · Twin Cooling Plus™ · Food Showcase Door with Metal Cooling plate minimizing the loss of air 	<p>QuickDrive™ Washing Machine (WW80M6450PW)</p>  <ul style="list-style-type: none"> · Innovative QuickDrive™ technology; unique fabric care drum equipped with a pulsator · Washing time can be reduced by up to 50%, without compromising the cleaning performance · Highest Energy-efficiency class in Europe with A+++(-40%) 	<p>360 Cassette (AC145KN4PBH5)</p>  <ul style="list-style-type: none"> · Cool from every angle · Innovative circular design · Maximize energy saving (If absence, automatic OFF mode) · PM1.0 air purifying · Auto elevation grill
<p>Dryer (DV16R8540KV)</p>  <ul style="list-style-type: none"> · Maintain optimal drying temperature 60°C to protect fabric. · A huge 16kg capacity for king-sized bedding. · Preheat the air quickly by electric heater · Remove 99% of germs and bacteria, 100% of dust mites 	<p>Wind-Free Cube Air Purifier (AX47N9980SSD)</p>  <ul style="list-style-type: none"> · Remove up to 99.999% of 0.3µm sized dust · Sterilize bacteria collected in filter · Filter Saver(double the filter life) 	<p>AirDresser (DF60N8700MG)</p>  <ul style="list-style-type: none"> · Clothing care system with Jetsteam and Jet Air · Remove dust with fine dust filter · Remove odor causing particles with deodorizing filter · Eliminate 99.9% of viruses and bacteria
<p>Notebook 9 Always (NT900X3N)</p>  <ul style="list-style-type: none"> · Slim & ultra-light metal (13.9mm, 799g) · Eco-conscious packaging material (pulp mold package) · Won government innovation awards "KOREA STAR AWARDS 2018" for future packaging 	<p>Server DRAM (256GB 3DS DDR4 RDIMM)</p>  <ul style="list-style-type: none"> · World's fastest DDR4 DRAM-the most energy-efficient enterprise server Module · 30% improvement of system power consumption efficiency (alternate high-density 4 modules of 64GB) · World's first 3.2Gb/s 256GB DRAM development (1.2 times faster than 64GB) · System load storage 6TB solution (256GB * 24, cost effective equipment) · Combines 144 of world's first 10nm-class 16Gb DDR4 DRAM 	<p>Supercomputer SSD (3.84TB NVMe Z-SSD, SZ1733)</p>  <ul style="list-style-type: none"> · World's first fastest response speed SSD for super computers with extremely high speed and minimum delay · 5 times increase of system response speed (for AI, big data applications) · Industry's largest system capacity with sole supplying of Dual-port 3.84TB NVMe Z-SSD (more practical with high capacity storage than single-port 800GB Z-SSD) · Combines 500 of the industry's fastest 48-layer 64Gb SLC Z-NAND

Circular Economy

Our Circular Economy Principles

We endeavor to move towards a circular economy in which we create a virtuous cycle of longevity, repair, reuse and recycling. To ensure the reuse of resources, we abide by circular economy principles, including extension of product life span and recycling of products at end-of life.

Our Circular Economy Principles

- 

Expanding use and purchase of recycled materials at product design stage while minimizing use of raw materials
- 

Working towards maximizing product lifespan by designing products based on end customer needs and rigorous quality testing
- 

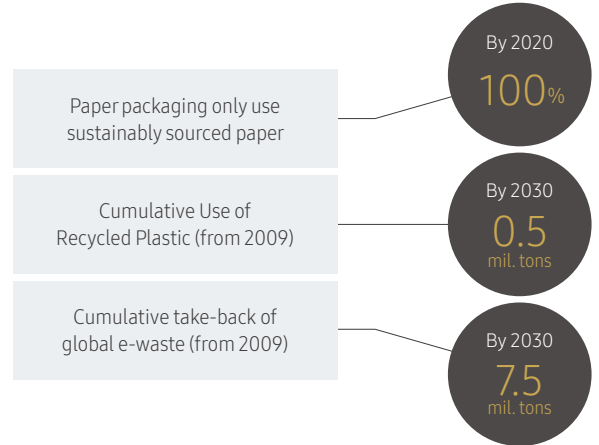
Reducing the use of virgin natural resources and raw materials by maximizing re-use of scrap materials from manufacturing stage
- 

Minimizing use of raw materials and maximizing transportation efficiency by creating compact product designs and packaging
- 

Extending the product life span and increasing customer satisfaction through a professional repair service network

Under the principles, we engage in a variety of resource re-circulation activities, and strive to achieve the mid to long-term goals that we have set for the circular economy.

Mid to long-term Goals for Circular Economy



Closed-loop System

We strive toward a closed-loop system as part of our circular economy. Through various activities seen below, we have tried to minimize our environmental impacts across the product life-cycle and manage resources efficiently.

Closed-loop Programs

Programs	Definition and Related activities
Expanding recycled plastic use	· To use recycled plastic and PCM (Post Consumer Materials) in manufacturing our products including mobile phone chargers and home appliances.
Recycling key metal resources	· To identify and recycle the metals crucial in terms of supply chain stability, societal/ environmental impacts
Operating recycling centers	· To operate recycling centers and collect copper, aluminum, and plastic from used home appliances · To recycle collected plastics
Extending product lifespan	· To expand our service networks globally · To conduct product testing

Pursuing a Circular Economy Through Reuse of Resources

Efforts to Expand the Use of Environmentally Conscious Materials

We apply environmentally conscious materials, such as bio-based or recycled plastics to our products.

Expanding Recycled Plastic Use

We are focusing on expanding use of recycled plastic in a wide range of products including refrigerators, washing machines, air conditioners, televisions, monitors, and mobile phone chargers.

In 2018, we used around 40 thousand tons of PCM (Post Consumer Materials), which is recycled material from wastewater bottles and consumer plastics. By 2030, we plan to expand the accumulated amount of recycled plastics use to 500 thousand tons.

Using Bio-plastics in Our Products

We are aiming to use bio-plastics in our products. For example, on the Galaxy S10e, the front deco part is composed of 37% bio-plastic, which is derived from castor oil.

Make Packaging More Environmentally Conscious

As part of our circular economy, we are taking measures to address product packaging. To cut back on the use of disposable plastics, we will gradually shift to environmentally conscious packaging materials, including paper, and we will only use fiber materials certified by Sustainable Forestry Initiative, which ensures sustainable sourcing. We are also optimizing overall packaging structures to reduce paper usage.

Introducing a Refrigerator with Modular Design

Samsung introduced BESPOKE in 2019, a refrigerator with modular design, as part of our efforts towards a circular economy. With BESPOKE, consumers can make choice of materials and colors of the refrigerator door depending on their lifestyle and taste. Consumers can enjoy experiencing new design by simply replacing the door without having to dispose the existing products, and avoid producing unnecessary waste of resources.



Extending Product Life Through Accessible, Safe and Secure Repair

We strive to improve the resource efficiency of our products by extending their lifespan and keeping their performance in tact through optimal technical services when the need for repair arises. To increase product durability, we make efforts to provide more accessible, safer, and specialized repair services. We strive to expand our repair network, while making sure that our service personnel can identify problems accurately and take necessary actions, thus extending the lifespan of our products. In the US, we expanded our efforts to provide high-quality repair services through our partnership with 'uBreakiFix' in 2018. Through more than 300 'uBreakiFix' service locations, our customers can receive Samsung Care-authorized repair service within less than two hours. In addition, we newly opened the Samsung Service Center in Naples, Italy, and Antwerp, Belgium, respectively in December 2018 and January 2019.

Expanding Take-back-Recycle of Product's E-waste

Samsung Re+ is an initiative to collect end-of-life products from our customers all around the world. We have installed collection bins in our local sales points and service sites so that customers can discard their end-of-life products without any cost.

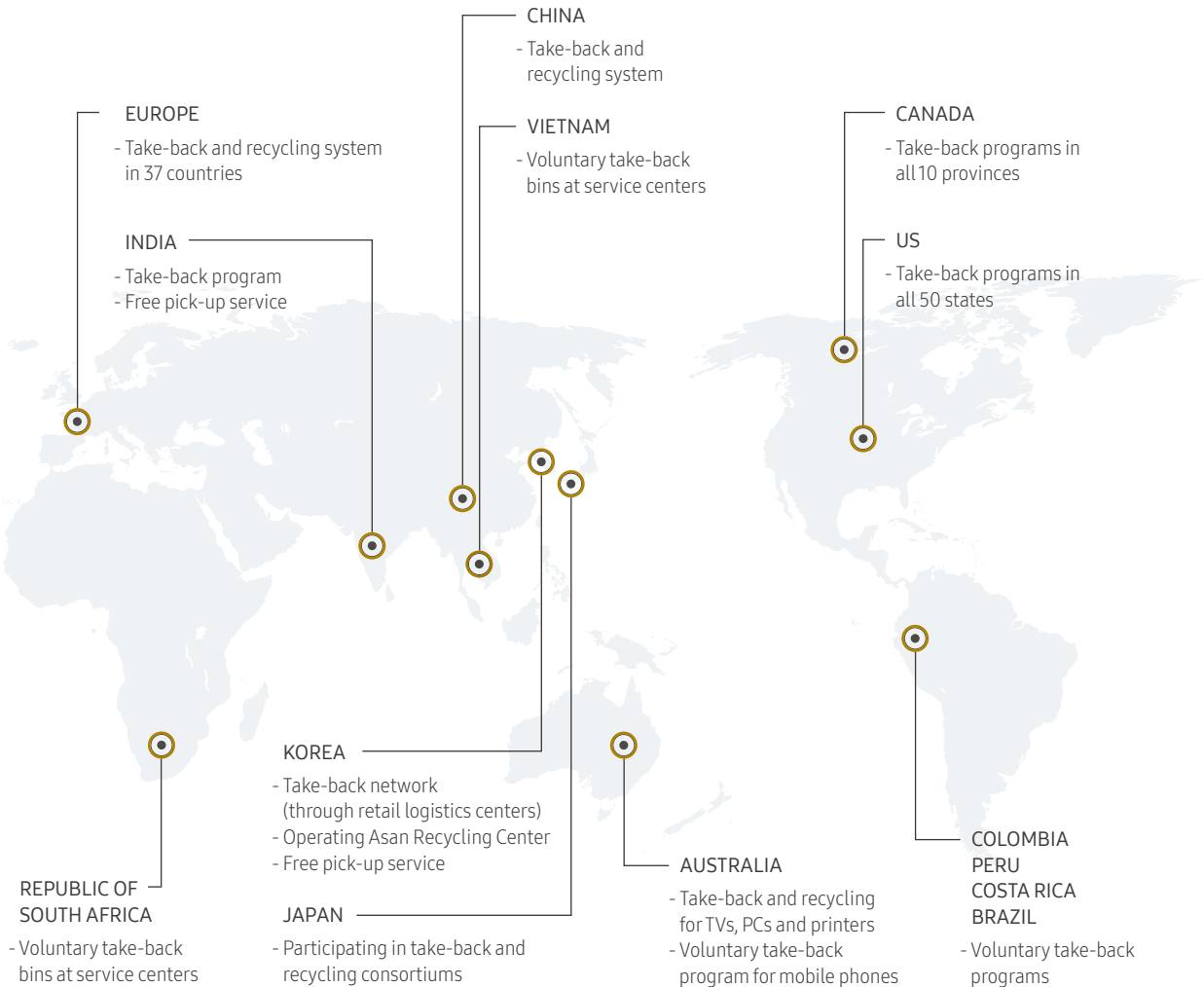
As of 2018, this e-waste take-back program is in place in 54 countries. In Korea, we cooperate with new product distributors and logistics companies to manage the system of collecting e-waste from customers. The collected e-waste are reused into new products through the recycling of material.



This represents our leading resource efficiency initiative undertaken under the slogan "Samsung recycling program, Re+ makes "PLUS" to the environment"

For mobile phone battery waste, we have developed an environmentally conscious, safe treatment to prevent fires caused by short circuit. In addition, we have established a 4-step process (perforation, salting, drying and fragmentation) to extract rare metals from battery wastes, thus increasing the rate of resource recycling. In addition, we operate the Asan Recycling Centre to collect our end-of-life products such as refrigerators, air conditioners and other IT devices to recover materials such as copper, aluminum, and plastics. In 2018, we collected 25,207 tons of resources, leading to the production of 2,743 tons of recycled plastic.

Global Take-back and Recycling Programs Status



End-of-Life Products Collection and Resources Recovered at Asan Recycling Centre (2018)

Waste Collection	
Collected End-of-life Products (eg. Home Appliances and IT devices)	369,000 units
Amount of Collected Resources	
Steel	14,838 tons
Aluminum	1,028 tons
Copper	1,840 tons
Plastics	7,501 tons
Total	25,207 tons
Amount of Recycled Plastic Used to Samsung Electronics Products	
Recycled Plastic	2,743 tons

Environmental Protection Award for Recycling and Responsible Waste Disposal

We operated a program called 'School of recycling: electronics' in Russia, in order to advocate for waste disposal and environmental protection.

Schools and local municipalities have actively engaged in the project and over 500 tons of e-waste instead of wastes have been collected to date through the program.

Our efforts for environmental leadership were recognized with the 'Silver Crane' (Ecology) award by the Kommersant, a Russian journal.

COMMITMENT TO THE ENVIRONMENT IN OUR OPERATIONS

2018 HIGHLIGHTS

Renewable Energy

1,356GWh

GHG emissions

3.6

tCO₂e/KRW100 million

Energy Saving

5,011GWh

Certification of EHS
Management Systems

100%

Water Use

64

ton/KRW100 million

Recycling of Waste

96%

We have long engaged in various activities to reduce the environmental impact of our operation, including reductions in GHG and air pollutant emissions as well as the expansion of our renewable energy use. Furthermore, we have also been committed to undertaking social contribution projects related to climate change, managing the environmental impact of our suppliers, and cooperating with local communities to protect ecosystem near our operation. We have set the targets for key performance indicators (KPIs) in four areas—EHS (Environment, Health, and Safety) management system, GHG emissions, water resource, and waste management. We will make the best efforts to achieve the targets by 2020.

ALIGNMENT WITH SUSTAINABLE DEVELOPMENT GOALS



[Goal 6] Ensure availability and sustainable management of water and sanitation for all

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally



[Goal 7] Ensure access to affordable, reliable, sustainable and modern energy for all

7.2 By 2030, increase substantially the share of renewable energy in the global energy mix

7.3 By 2030, double the global rate of improvement in energy efficiency

7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology



[Goal 13] Take urgent action to combat climate change and its impacts

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Expansion of Renewable Energy Use



In June 2018, we announced our plans to source renewable energy for specific regions. Since that announcement, we have launched initiatives to increase our sourcing of renewable energy, including the installation of solar panels and geothermal units, the purchase of Renewable Energy Certificates, a Power Purchasing Agreement, and the pursuit of Green Pricing.

In October 2018, we converted to 100% renewable energy at our US headquarters and all of our US Device Solution manufacturing plants. In addition, our Slovakia worksites in Europe followed in the footsteps of the US headquarters and DS worksites. Furthermore, our Chinese TV and Device Solution worksites installed solar panels with a 5.5MW capacity on their rooftops. We will gradually convert other worksites in the US, Europe and China to source renewable energy, reflecting regional differences.

At our Suwon worksite in Korea, we installed solar panels with a combined capacity of 1.9MW on the rooftops of its five R&D facilities in December 2018. The energy generated by the panels is used in our R&D and parking areas.

By 2020, we will gradually introduce additional solar panels and geothermal units to other worksites, Hwasung and Pyeongtaek worksites.

In addition to our worksites in the US, Europe, and China, we are also converting to renewable energy in other regions, where ample renewable energy is available. For instance, we installed 1.1 MW of solar panel capacity as a pilot in India in 2018, and are considering further installations in the country. Our worksites in Brazil and Mexico source a certain portion of their power consumption from renewable energy sources, and we will continue to increase the percentage of renewable energy use at our worksites.

Goals for Expansion of Renewable Energy Use

- 01 Aim to source 100% renewable energy for energy used in our factories, office buildings, and operational facilities in the US, Europe and China by 2020
- 02 Install solar panels and geothermal units at parking areas and on the rooftops of domestic worksites in Suwon, Hwaseong, and Pyeongtaek by 2020
- 03 Encourage our 100 major suppliers to establish their own renewable energy targets, in line with our participation in the Carbon Disclosure Project (CDP) supply chain in 2019



Energy Savings at Overseas Worksites

In order to minimize our environmental impact, we are committed to saving energy at our worksites. For overseas worksites, We have a list of 100 energy saving tasks. These tasks are carried out according to the area-specific characteristics of each subsidiary.

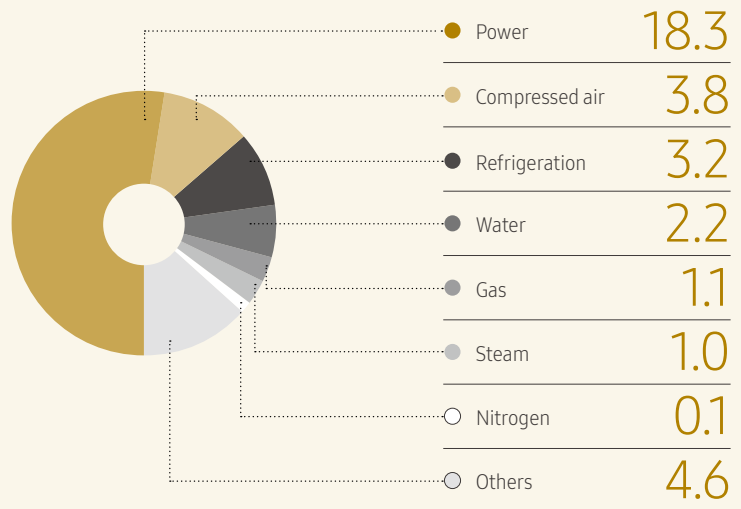
Our major energy saving initiatives include: 1) the optimization of air-conditioning, refrigeration, air-compressing and pumping rates 2) blockage of leakage in clean rooms as well as reduction in outdoor air volume for pressurization 3) installation of an automatic cleaning

system for condensers to enhance refrigerating efficiency 4) optimization of the expandable polystyrene (EPS) molding machine's steam working pressure. As a result, we achieved a cost saving of 34.35 billion KRW in 2018, 127% higher than our target.

We plan to continue to pursue the previous year's major initiatives by including them in the list of the 100 tasks for energy saving in 2019, and we will highlight the best initiatives at our annual Environment & Safety Innovation Day.

Energy Cost Saving by Type

Unit : Bil. KRW



EHS Management System

Samsung Electronics' investment in environmental impact reduction has been a long-standing commitment. Our Global Environment, Health and Safety (EHS) Center and Global Customer Service (CS) Center, under the direct leadership of the CEO, actively manage EHS issues and the environmental impacts of products, respectively. Moreover, we operate our Global Environment, Health and Safety (G-EHS) system to manage the EHS status and performances of all worksites.

According to our mid- to long-term roadmap of green management, we have established four EHS key performance indicators that we expect to achieve by 2020 in the four areas: EHS man-

agement systems, GHG emissions, water resource, and waste management. In addition to these goals, we have added a 2020 renewable energy pledge and thoroughly monitored them.

Our global manufacturing sites are certified by management systems based on global EHS standards. In order to retain these management systems certifications, we conduct an after-the-fact self-evaluation and a third-party renewal evaluation every three years. As a result of conducting internal EHS audits, we identified 862 improvement tasks and achieved 97% of them in 2018.



Committees and Councils

We operate committees and councils dedicated to EHS management in which relevant departments engage in regular meetings and management carefully supervises the operation of the activities.

Committees and Councils	Description		Meeting Schedule
Environment & Safety Committee	Discuss company-wide environmental strategy and discuss worksite-related pending issues	CFO	3 times a year
Eco Council	Set development goals and implementation strategies for highly energy-efficient and environmentally conscious products	Head of the Global CS Center	2 times a year
IM & CE Division Synergy Committee	Discuss workplace EHS issues, best practices, and healthcare	Head of the Global EHS Center	2 times a year
DS Division EHS Committee	Discuss key EHS issues	CEO	6 times a year
EHS Manager Council	Discuss a safety culture, regulatory compliance, and chemicals management	Head of the Global EHS Center	6 times a year
GHG Management Council	Select implementation tasks to respond to climate change and manage their progress	Head of the Global EHS Center	2 times a year
Construction Safety Council	Establish a strategy for site construction safety management and discuss major issues	Head of the Global EHS Center	10 times a year
Construction Safety Innovation Research Committee	Perform strategic tasks (design, construction method, and IoT technology) for accident prevention at construction sites	Head of the Global EHS Center	12 times a year

Energy and Climate Change

In order to effectively tackle climate change, we identify and analyze major issues and risks, and then establish and implement relevant strategies. The results are periodically reviewed by the relevant committees and councils. We manage GHG emissions at our all workplace (Scope 1 and 2) through the

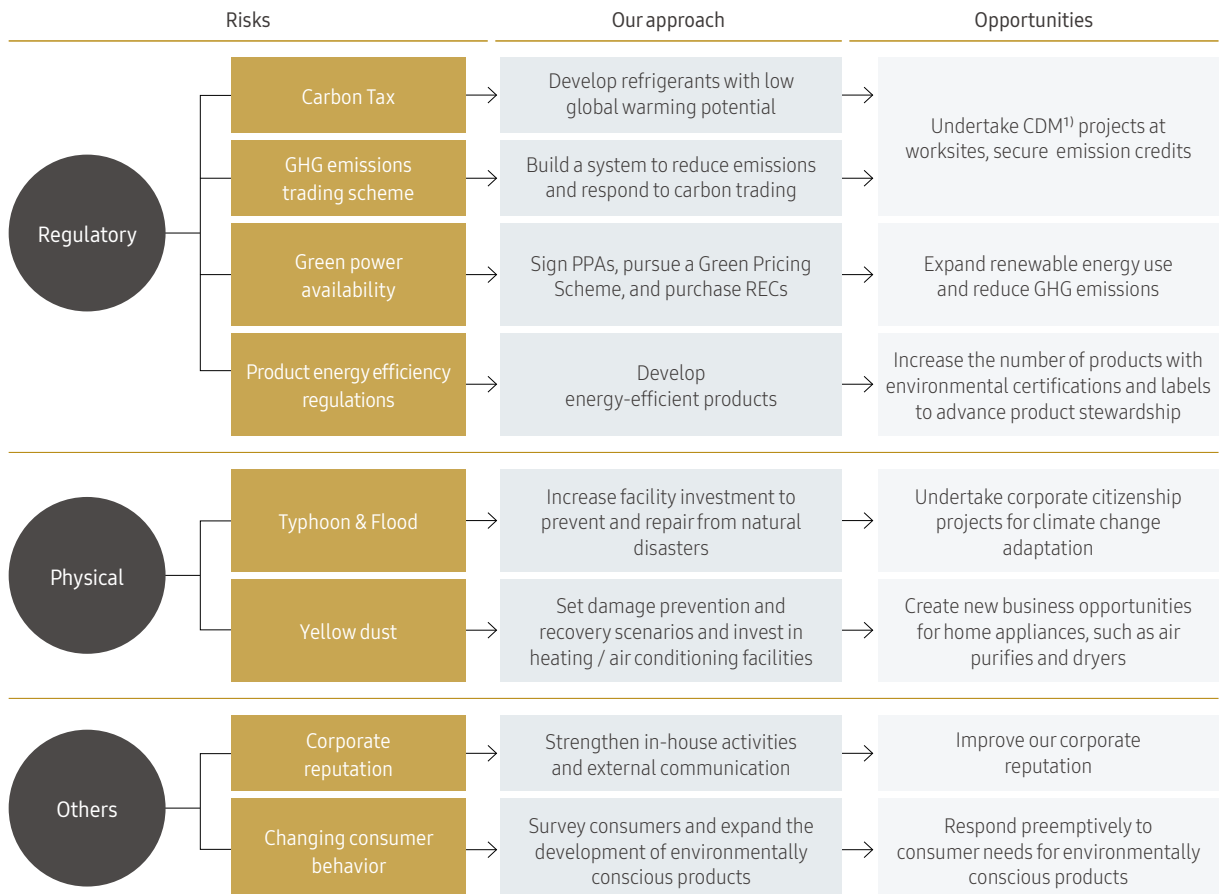
Global EHS System on a monthly basis. In 2018, our GHG emissions were 10.1% less than expected. For indirect GHG emissions (in Scope 3), we cooperate with suppliers, R&D institutes, and relevant departments to meet our reduction targets.

- 1 Identify Global Climate Change Status and Issues
- 2 Analyze Impact, Risk and Opportunity for Our Corporation
- 3 Establish Response Strategies for the Entire Corporation and Relevant Departments
- 4 Implement and Monitor Pursuing Tasks
- 5 Analyze Results and Manage Goals

Risk and Opportunity Analysis

We established a strategy to mitigate and adapt to the impacts of climate change. We prioritize major climate change issues based on importance of business and impacts on stakeholders and reflect the results in the strategic decisions.

Issue Identification and Risk/Opportunity Analysis



Footnote:
1) Clean Development Mechanism

Establishing and Implementing Our Strategy

In order to better cope with climate change, we established strategies and related action plans to reduce our Scope 1, 2 and 3 emissions. For Scope 3 emissions, we have been monitoring emissions from our suppliers. In particular, we have encouraged our 100 major suppliers to set their own renewable energy targets, since we joined the CDP Supply Chain in April 2019. Additionally, we have been exploring ways to reduce indirect GHG emissions from the use of our products, employee business trips, logistics, and suppliers.

Strategy and Action Plans

Reduction in GHG emissions at worksites	<ul style="list-style-type: none"> Operate F-Gas¹⁾ emission reduction facilities for the semiconductor manufacturing process Manage energy saving projects and improve energy efficiency
Expansion of energy management at worksites	<ul style="list-style-type: none"> Develop energy management systems across all worksites and maintain the relevant certification (from 2013 onwards) Manage worksite specific energy costs and indicators
Reduction in GHG emissions in the product use phase	<ul style="list-style-type: none"> Develop and launch products with high energy efficiency
Management of Scope 3 emissions	<ul style="list-style-type: none"> Manage GHG emissions from logistics, business trips and others (from 2009 onwards)
Supplier support	<ul style="list-style-type: none"> Monitor suppliers' GHG emissions (from 2012 onwards) Join CDP Supply Chain

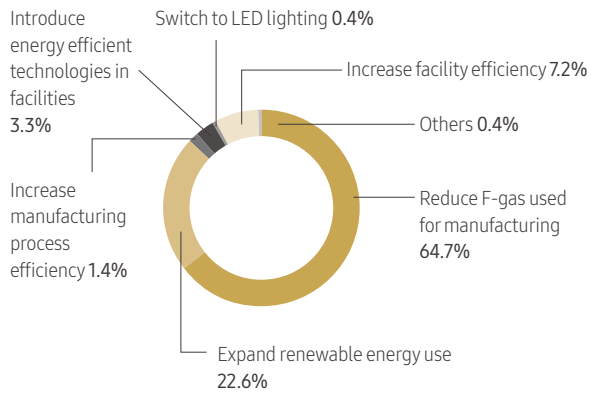
Footnote:
1) Fluorinated Gas

GHG Reduction Results and Plans

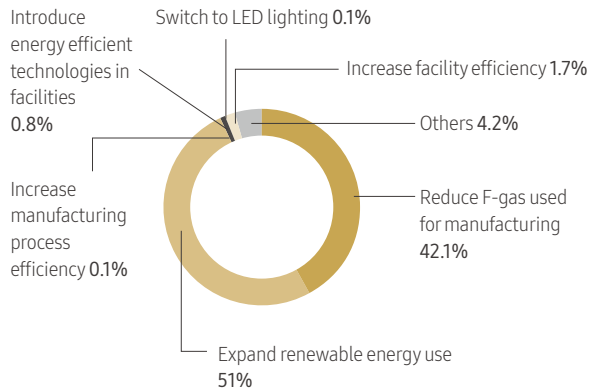
Expansion of Renewable Energy Use at Worksites

In June 2018, we announced plans to source renewable energy for 100% of the energy used for all of its factories, office buildings, and operational facilities in the US, Europe and China by 2020. In Korea, we have been installing solar PV & geothermal power generation systems on the 63,000m² rooftops and parking lots of our worksites, including Suwon, Pyeongtaek, and Hwaseong. In accordance with our June 2018 commitment, we consumed 1,356GWh renewable energy in 2018.

GHG Emissions Reduced in 2018



GHG Emissions Reduction Plan for 2019



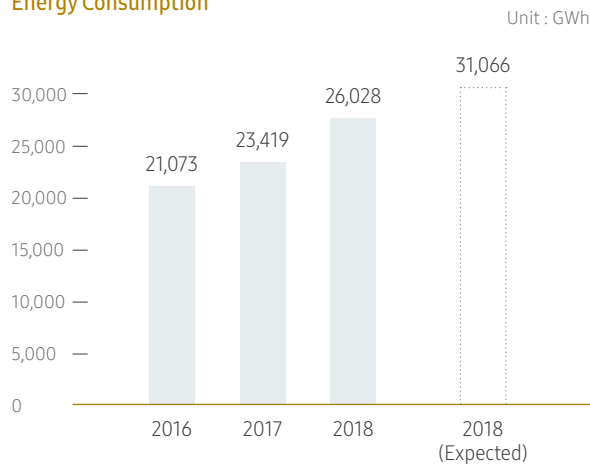
GHG Emission Reductions at Workplaces

Our GHG emissions are increasing every year due to production volume growth. In 2018, we invested in emission reduction equipment and optimized facility operation, reducing 2,931 metric tons of GHG emissions. In particular, at our semiconductor plants, which use more power than other manufacturing worksites, we took 17 actions to cut GHG emissions, including F-Gas treatment, optimal manufacturing facility operation, and the introduction of a heat recovery system, thus reducing a total of 2.25 million tons of GHG emissions.

Energy Saving

To adequately manage the energy consumption at our worksites, we formulate annual energy reduction programs and action plans for each worksite and we monitor their progress on monthly basis. In 2018, we saved 5,038GWh(16.2%) from our expected consumption of 31,066GWh.

Energy Consumption



Scope 3 Emissions Reduction

In 2018, we reduced 1,459 tons of CO_{2e} from Scope 3 logistics emissions through 25 reduction measures, including transport route changes, loading efficiency improvements, and efficient transport management. In addition, we estimated our suppliers' GHG emissions from their energy consumption including the use of fossil fuels and electricity. Furthermore, our employees are increasingly replacing business trips with video conferences to minimize unnecessary emissions. A total of 195,279 video conferences were held in 2018, which resulted in a 7.6% reduction in GHG emissions from domestic business compared to 2017.

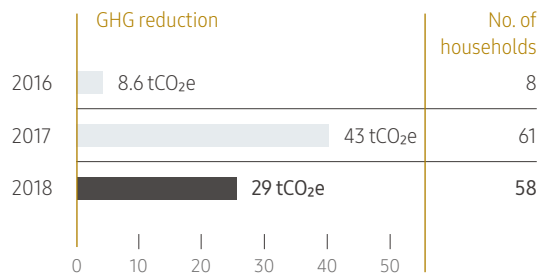
Climate Change Adaptation

Through our R&D and business operation, we are making a variety of efforts for both climate change mitigation and climate change adaptation. Climate change adaptation is a strategy that minimizes existing or expected risks such as changes to ecosystems, industrial changes, and disasters caused by climate change. The strategy also aims to maximize opportunities for sustainable development.

Household Energy Efficiency Improvement Project

Since 2016, we have promoted a "Household Energy Efficiency Improvement Project", providing an energy-efficient home design with energy diagnosis and reconstruction through improvements in insulation, boilers, windows, and home structure. In 2018, we supported 58 households in 13 cities in Gyeonggi Province through the project. With this project, we aim to save 29 tons of GHG emissions, per annum.

Project Result from 2016 to 2018



LED Lighting Installation Project - External GHG Emissions Reduction

In 2017, we installed 2,700 LED street lightings to ensure the safety of residents in the province. In December 2018, we signed a social contribution agreement to transfer Emission Reduction Credits (ERCs) with Gangwon province. The GHG emission reductions that will arise from this project have been approved as an external reduction activity under the Korean Offset Program. We will transfer the ERCs that will be created for the next ten years to the provincial government. Going forward, we will expand our external reduction activities in cooperation with local communities.

Water Resource Management

Water management at our worksites is an integral part of protecting the environment. Through our Water Resource 3R activities, which include reduce, reuse and recycle, as well as monitoring of water discharge, we strive to achieve our target of reaching 50 tons/KRW 100 million intensity-based water consumption. Specifically, each worksite has adopted water consumption as a core KPI and set an annual goal for effective water management.

Water Risk Management

We monitor water resource risks at our global manufacturing sites, based on the water resource management methodology suggested by the Food and Agricultural Organization (FAO), the World Business Council for Sustainable Development (WBCSD), and the World Resource Institute (WRI). In addition, we have devised a strategy according to the CDP Water Guidelines. Out of the regions where we operate, our risk analysis identifies 5 countries (in which 12 of our subsidiaries are based) as water-stressed.

Water Withdrawal by Region

Unit: thousand tons

	Subsidiaries	Withdrawal Amount	Discharge	Notes
Total	37	134,230	107,699	-
Subsidiaries in water-stressed region¹⁾	12	92,003	76,354	Korea (7) India (2) Poland (1) Egypt (1) South Africa (1)

Footnote:

1) It is calculated based on the water resource management methodology suggested by FAO, WBCSD, and WRI.

Water Resource Policy

Our Belief	We recognize the importance of water resources in maintaining a sustainable society and conducting business, and fulfill our social responsibility to protect these valuable resources as a global company.			
Action Guidelines	We work hard to minimize water resource risk in business management. 1	We recognize the importance of water resources as part of our corporate culture. 2	We actively cooperate with external water resource policies. 3	We disclose our water resource policies and activities. 4
	We evaluate the impacts of our business activities, including production, on water resources to minimize risks and to continuously pursue the introduction of new technology.	We establish the preservation and sustainability of water resources as our corporate culture to help our employees recognize their responsibility for water resource management, and consider the impacts of our operation, on local communities and the environment with the highest priority.	Based on domestic and overseas guidelines on water resources, we actively cooperate with local and central governments of the regions where we operate, as well as international organizations, in establishing and executing policies on water resources.	We transparently disclose corporate policies and activities regarding the use of water resources to stakeholders, including local communities.

Water Risk Analysis and Strategy by Region

Country	Type	Strategy
Korea	Physical risk (floods)	Create wetlands and dikes in response to floods affecting streams in the vicinity of our worksites Purchase disaster insurance policies and regularly check flood control equipment
India	Physical risk (water quality degradation)	Increase the frequency of conducting in-house water quality analysis and the efficiency of water treatment facilities
Poland	Physical risk (floods)	Build an emergency response system and conduct regular drills in preparation for wastewater leaks due to river flooding around the worksites
Egypt	Physical risk (droughts)	Install water tanks to store water sufficient for one day operation of production facilities on average
South Africa	Regulatory risk (discharge)	Sewage and wastewater from worksites are moved to the terminal treatment facility within the industrial complex for processing (no in-house sewage/wastewater treatment facility under operation)
Common	Physical risk (water quality degradation)	Secure water quality through the pre-intake water treatment process
	Physical risk (water outages)	Install dual water intake facilities and water collecting facilities to prevent production delays
	Regulatory risk (regulatory change in water use and discharge)	Abide by the in-house criteria stricter than country-specific legal discharge criteria
	Regulatory risk (enactment of efficiency standards)	Conduct water efficiency reviews when building new facilities and make facility investment to improve the water efficiency of existing facilities
	Regulatory risk (uncertainty over new regulations)	Continuously monitor global environmental regulations
	Reputational risk	Continuously monitor effluent discharge
	(lawsuits raised due to wastewater)	Build an environmental management system early on for new manufacturing sites

Water Risk Reduction

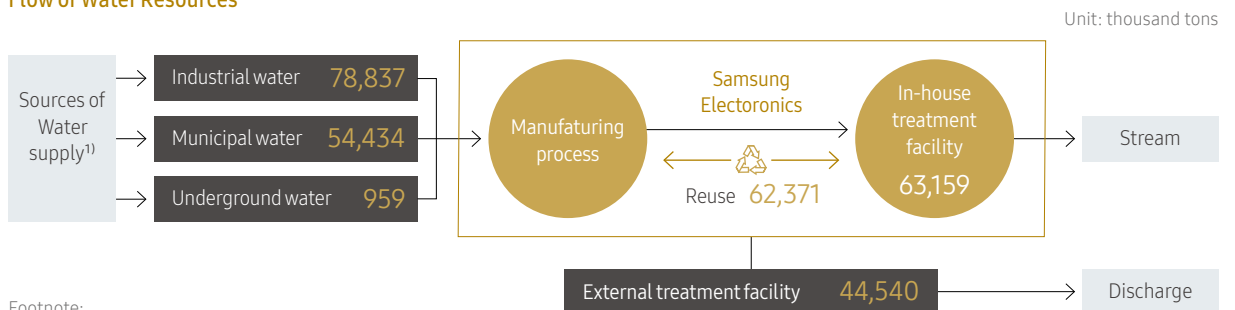
We minimize water resource risks by securing dual water supply pathways and installing water storage tanks.

In order to increase our water reuse, we classify water into 4 categories—sewage, wastewater, industrial water, and ultra-pure water—and manage them separately at each site. We manage the reuse rate of each category through our internal “G-EHS sys-

tem.” We calculate the reuse volume by subtracting the amount of water discharged, evaporated, and lost from the total amount of water used at treatment facilities.

We safely discharge water through our internal and external treatment facilities. When discharged through the in-house treatment facility, we ensure safe discharge by applying stricter standards than legal requirements.

Flow of Water Resources



Footnote:
1) water resource risks are minimized by securing dual water supply pathways and installing water storage tanks

Water Resource Management Activities

Our efforts to optimize water use at our facilities range from daily commitments, such as replacing old valves with new ones and improving the control of tower drain valves, to structural improvements, including manufacturing process improvements and the establishment of a recycling system. In 2018, we were able to reuse 62,371 thousand tons of water, which is an increase of 11%, when compared to 2017.

Major Improvements in Water Management in 2018

- 1 Minimize water usage by introducing highly efficient technology in our facilities
- 2 Optimize water use through process improvement
 - Replace major systems in major utility facilities, such as piping and ducts
 - Replace the source of water use process to recycled water
 - Introduce an automatic control system by utilizing sensing technology
- 3 Reduce water usage by effective use of key facilities
 - Replace consumable components with improved ones
 - Adjust the extra load capacity of facility operation

Optimization of manufacturing facilities

For the Pyeongtaek worksite, the average daily water consumption has been reduced by 1,124 tonnes through the optimization of water-using facilities and the streamlining of manufacturing processes.

Reduction of Ultra-Pure Water Use in Facilities

Giheung and Hwasung plants streamlined ultra-pure water process facility systems, applied high-efficiency sensing technology, and revised an integrated monitoring system. After these efforts, we have been able to reduce daily use of ultra-pure water by 599 tonnes.

Maximum Use of Underground Water

Our site located in Suwon has maximized the use of underground water in landscaping, fire extinguishing facilities, and toilet flushing for each large building. These efforts have reduced daily water usage by 579 tons.

World Water Day in 2018

Demonstrating our commitment to protecting our planet, we celebrate World Water Day and conduct activities to preserve streams and marine ecosystems each year in our worksites around the globe. In 2018, a total of 3,200 employees from 27 overseas worksites (including Brazil, Mexico and Vietnam), as well as Korean ones, participated in the event. At each worksite, local governments, NGOs and students engaged in activities to clean-up streams near the site, preserve ecosystems (such as releasing native fish and planting aquatic plants). Participants also conducted water conservation campaigns and educational activities.

Waste and Hazardous Waste

Waste Management

In order to minimize waste generated from production, we have developed a product design and manufacturing process that considers resource efficiency. In addition, we have a waste control system in place in the manufacturing process to minimize waste generation.

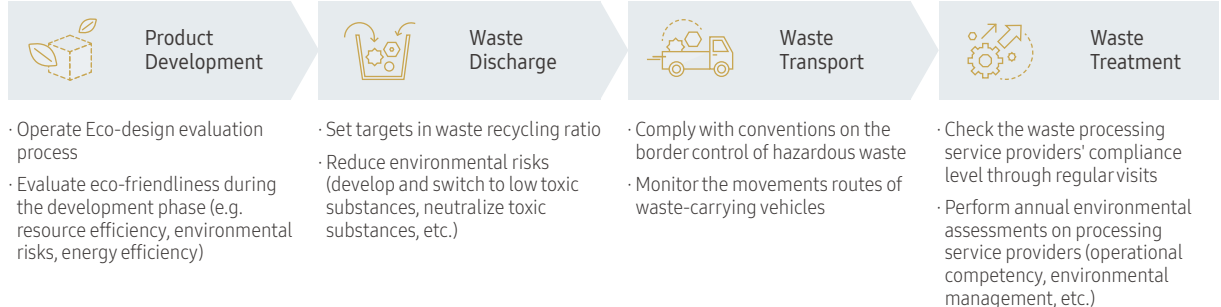
We classify waste according to the standards in each nation. We generally separate waste into general and designated waste, and dispose of or recycle it in accordance with prescribed laws and best practices. When we are unable to dispose of the generated waste in-house, we select qualified third party contractors to measure its weight and treat it. We monitor the amount of waste generated and recycled at each worksite every month to achieve a waste recycling rate of 95%. For those worksites failing to meet their targets, we develop separate management plans, in order to ensure that the waste is properly treated and to improve the recycling rate.

Reducing Disposable Products (Office, Restaurant, Stores at the worksites)

We encourage the use of personal cups at work to reduce the use of disposable products. Also, we have enhanced the separate collection of waste at our worksites in Korea.

In our employee restaurants and canteens, plastic containers are being replaced with paper to improve resource efficiency. In stores at the worksites, paper cups and straws are used instead of plastics. These stores also provide drinks in mugs and offer discounts when customers use their own tumblers. Through the implementation of such a campaign in 2018, we reduced office-generated disposable product usage by 80 ton in 3 months. Since 2018, we have helped our community by reusing waste milk packs generated from our worksites. Waste milk packs are recycled into toilet paper, which we donate to the disadvantaged in our local communities.

Waste Management Plan



Pollutant Management

To reduce air pollutant emissions, we have introduced a Nitrogen Oxide (NOx) reduction system, a catalyst oxidation process, and a dust collector and cyclone system. We have also eliminated 93% of water pollutants at our worksites in Korea by optimizing wastewater treatment facilities.

In accordance with the Montreal Protocol, worksites in Korea use hydro chloro-fluorocarbon (HCFC)-based substances as refrigerants for freezers and chillers. These substances have a relatively low ozone depletion potential. We plan to replace all refrigerant materials used at our worksites with those that minimize the impacts on the ozone layer.

Nitrogen Oxide (NOx) Reduction Activity

We developed a new technology for reducing NOx, the main cause of fine dust, and applied high-efficient facility with the aim of reducing environmental impact. With our boiler-reducing technology (Low NOx burner, DeNOx Facility), we were able to reduce NOx emissions by approximately 90%, in terms of concentration through the introduction of such technology. In addition, in semiconductor manufacturing sites, we have reduced NOx emissions through the optimization of primary control equipment at the rear of the facility. By further applying the technology to rooftop prevention, we expect to reduce 75% of NOx concentrations in the future. In addition to improvement activities to reduce NOx at workplaces, we are also making an effort to comprehensively study fine dust problems and find technical solutions through our Fine Dust Research Institute, which was established in January 2019.

Biodiversity

Biodiversity Conservation Policy

We have established a strategy and a course of action to protect biodiversity by informing our employees of the importance of preserving biodiversity and reflecting it in our business plans.

Conservation of Biodiversity

Our Belief

We recognize the importance of biodiversity. We aim to minimize any negative impact on biodiversity, and fully undertake ecosystem preservation initiatives.

Action Plans

1. Value Recognition

All our employees recognize that the preservation of biodiversity is an important part of our green management.

2. Impact Assessment and Minimization

We assess and analyze our influence on ecosystems and biodiversity along the life cycle of our products and strive to minimize any negative impacts.

3. Activities

We prioritise areas of high biodiversity value across all our worksites. We undertake biodiversity preservation activities that cater to local needs and challenges.

4. Communication

We constantly communicate with employees, local communities, NGOs, and other stakeholders to contribute to the preservation of biodiversity in local communities.

Biodiversity Improvement Activities

At our worksites in Korea, we regularly measure water quality in our surrounding streams. In particular, we monitor chemical oxygen demand (COD), biochemical oxygen demand (BOD), and pH (PH) to manage ecological effects.

In addition, we identify endangered species and take actions to conserve their habitats. These conservation activities are conducted in partnership with local NGOs, family members of our employees, and students.

Ecological Impact Analysis on Nearby Streams

Wonchenri Stream, Hwaseong

- **Measured by:** Kyunghee University, Korea
- **Fish:** 658 individuals from 15 species were confirmed (carp 88%, mudskipper 7%)
- **Ecosystem:** Benthic invertebrates were confirmed (insects 69% / non-insects 31%) Dominant species: Diptera (31%)
- **Ecotoxicity:** No impact on the stream was observed as a result of measuring effluent

Osan Stream, Giheung

- **Measured by:** Korea Ecology & Environment Institute
- **Fish:** 169 individuals from 12 species were confirmed (crucian carp 31%, carp 16%)
- **Ecosystem:** Benthic invertebrates were confirmed (insects 65% / non-insects 35%) Dominant species: Caddisfly (*Cheumatopsyche brevilineata* Iwata, 12%)
- **Ecotoxicity:** No impact on the stream was observed as a result of measuring effluent

Seojeongri Stream, Pyeongtaek

- **Measured by:** Pyeongtaek University
- **Fish:** 238 individuals from 8 species (Dominant species: Crucian carp, subdominant species: carp)
- **Benthic invertebrates:** 722 individuals from 22 species (dominant species: Red midge, subdominant species: Tubifex)
- **Attached algae:** Confirmed 16 genera of 40 taxa (Dominant species, subdominant species: diatom)

Endangered Species by Region across Worksites in Korea

Unit: Individual

Habitat	Suwon	Yongin	Hwa-seong	Gumi	Gwangju	Asan
Mammal	-	-	-	1	2	-
Bird	-	-	12	1	1	5
Fish	-	-	-	1	1	-
Amphibian	1	2	2	-	-	2
Insect	-	1	1	1	1	-
Plant	-	-	2	2	2	-
Others	-	-	-	1	-	1

Communicating with Stakeholders

We disclose our environmental management strategies and goals and report to our stakeholders about our activities. Notably, we are involved in the Carbon Disclosure Project to disclose our performance and information on climate change.

In addition, we operate channels to continuously enhance stakeholders' environmental awareness. For our semiconductor sites in Korea, we hold monthly meetings with local citizens of Yongin, Hwaseong, and Pyeongtaek to communicate and receive their feedback. In 2018, we received from internal and external stakeholders a total of 3,689 inquiries and requests on environmental improvements in our operation, and took care of 99% of them. Moreover, we have established a Supplier Environmental Safety Council to support on-site inspections and improvement activities for our suppliers.

Environmental Compliance

We manage environmental compliance with standards and criteria that are more stringent than what is required by local regulations across the world. Our internal environmental targets are set at approximately 30% of legal requirement levels in each country.

From 2014 to 2018, there were no violation of environmental regulations at any of our global manufacturing sites.

Our Communication Channels

CONSUMERS

- Green Shop
- Elementary school education programs: Planet First (Korea), Climate Superstar (US)
- Promotion of energy efficient products

- E-waste collection campaign
- In-house communication channel (Samsung Electronics LiVE)

EMPLOYEES

COOPERATIVE COMPANY

- Support for establishing GHG inventory
- Green procurement guide
- Education about countermeasures against climate change

- Semiconductor plant communication council
- 'World Water Day' celebration event

COMMUNITY



ENABLING PEOPLE

2018 HIGHLIGHTS

Total Corporate Citizenship
Expenditure

KRW 409,636 million

Total Time of Employee
Volunteering

1,131,915 hours

Cumulative Number of Beneficiaries
of Major Corporate Citizenship
Activities

- Cumulative Number of Beneficiaries
of Samsung Smart School

2,712,024 people

- Cumulative Number of Beneficiaries
of Samsung Tech Institute

113,395 people

We are committed to fulfilling our social responsibilities to ensure a better quality of life for humanity. In particular, we are running solution contests to tackle societal problems. We also offer technology education in addition to programs that help youth realize their potential and develop useful skills for their future. In 2019, as we mark our 50th anniversary, we announced a new vision and theme for our global corporate citizenship : “Enabling People - Education for the Future Generations.” Under this new vision, we will work to help build a world that provides greater access to educational opportunities for youth.

ALIGNMENT WITH SUSTAINABLE DEVELOPMENT GOALS



[Goal 4] Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

4.B By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries



Goal 8] Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training



[Goal 9] Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation

9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry’s share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries

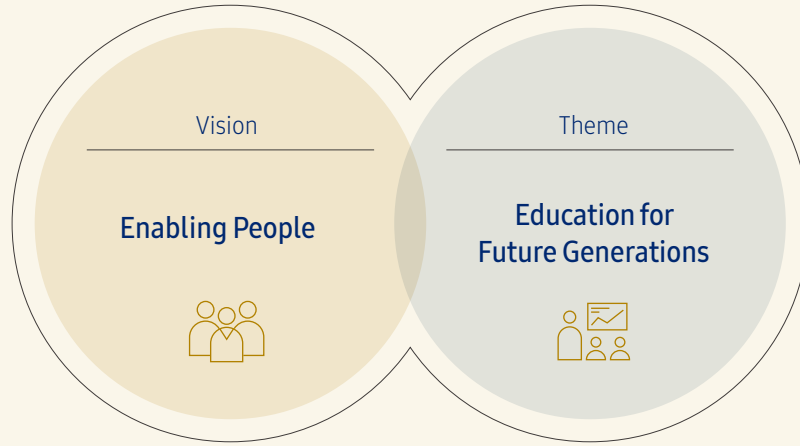
9.C Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020



[Goal 17] Strengthen the means of implementation and revitalize the global partnership for sustainable development

17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed

17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology



New Corporate Citizenship Vision and Theme

To become a trusted and valued member of global society, for many years, Samsung Electronics has committed itself to corporate social responsibility (CSR); and has launched robust CSR initiatives.

Throughout 2018, we have revisited our citizenship direction and achievements. We had in-depth discussions and interviews with many stakeholders to obtain advice and ideas necessary to refine our future direction.

In order to mark our 50th anniversary this year, we have refined our corporate citizenship vision and themes based on our core values “People First” and “Co-prosperity”, laying the foundation to carry out corporate citizenship programs in a more systematic, and consistent manner.

The new vision is “Enabling People”.

This vision points to our commitment to help people fulfill their true potential to develop a better future. In this new vision, we will focus on “the Education of Future Generations” as the main theme of our corporate citizenship efforts.



We are living in an age of ultra-connectivity characterized by extraordinary social and generational changes such as those emerging from the Fourth Industrial Revolution. To respond to these changes, it is critical to educate and nurture youth with ample potential.

Leveraging our human resources development experiences, we will strive to develop the capabilities of young generation. In addition, we will provide a new

educational model based on our technology and innovation expertise, helping youth play major roles in our society in the future.

Furthermore, we plan to strengthen our partnership with various stakeholders and closely communicate with society as we carry out our citizenship activities.

We will continue to create a culture where all our employees, including top management, contribute to society by taking part in volunteering activities. We will also expand employee volunteering opportunities.

We will continue to do our best to be a responsible contributor to our society and to our communities, recognizing that success is tied to sharing with those around us.



Competitions Inspiring People to Tackle Social Problems

At Samsung Electronics, we believe in the promise of Science, Technology Engineering and Math (STEM) to solve societal problems. Thus, we run programs called "Samsung Solve for Tomorrow" in 14 countries around the world and a similar program in Korea called "Samsung Tomorrow Solutions." These programs allow participants to develop solutions for problems facing our communities by applying creative problem-solving capabilities and knowledge on STEM. We plan to expand these solution contests to more countries, explore ways for collaboration with our in-house venture program C-Lab(Creative Lab), and with external social ventures.

Samsung Solve for Tomorrow

Samsung Solve for Tomorrow aims to solve societal challenges through creative ideas from youth using STEM.

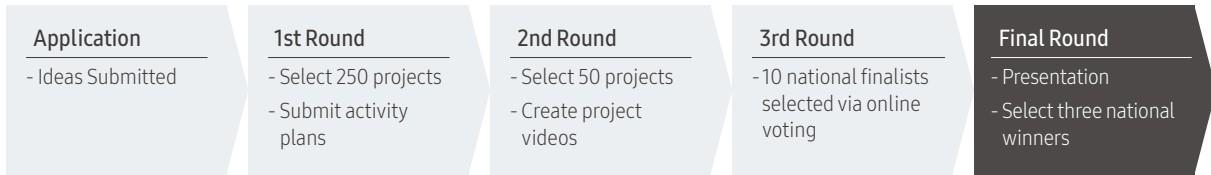
Through this program, students work on ideas to address salient societal issues. As schools progress in the competition, we provide students with support for implementation.

Public school teachers and students participating in this contest collaborate as a team to propose an idea for local community improvement based on their STEM knowledge.

Samsung Electronics employees also participate in this program as a skill-based mentors and project advisors. Mentoring and guidance from our employees is igniting a passion to address societal issues among youth and developing a pioneering spirit in the participating youth.

Since 2010, Samsung Solve for Tomorrow has been providing thousands of students with opportunities to address social issues while developing their leadership skills.

Samsung Solve for Tomorrow Process in the US



Smart School Bus Stop Sign

Cars illegally passing stopped school buses often cause student injuries and fatalities. After a classmate was almost hit by a car, students at Holly Grove Middle School in North Carolina, US were inspired to take action to solve this problem. They created “Smart School Bus Stop Sign”.

In this solution, the bus sensor is designed to alert drivers of an approaching bus before it even arrives. The students believed that this would prevent pedestrian accidents.

Accordingly, Holly Grove Middle School was named a 2019 national winner in the US. They also won an additional \$10,000 for their school. The team is now working with city officials to install Smart School Bus Stop Signs at locations where frequent violations occur.



Students of Holly Grove Middle School

English Conversation App for Migrant Workers

The Alpha Lupi team from Nanyang Girls’ High School in Singapore developed a mobile application for migrant workers to help them learn English for workplace conversation.

To help migrant workers understand conversational English, the team proposed a mobile app that teaches users common workplace expressions through features such as games, vocabulary cards and video lessons.

Samsung Electronics selected the Alpha Lupi team as the winner of 2018 in the middle school category, and gave SGD 20,000 worth of Samsung Electronics products to their school, as well as SGD 1,600 for the team.



Alpha Lupi Team

Samsung STEM Girls Program in China

To nurture the next generation of women scientists, Samsung China and China Women’s Development Foundation operate a program to support future talent, especially in the field of STEM. The program provides online learning, offline workshops and training camps for girls aged from 12 to 16.

In 2018, a total 1,573 students from 155 schools participated in this program. 12 of these students who came up with multiple ideas to improve living conditions in Inner Mongolia, were given the opportunity to visit the University of Cambridge in the U.K.



Awards Certificates for Young Female Scientists

Customized 3D Splints

The “3D Splints” team from Technical School No.1 in Argentina has been reflecting on ways to make peoples lives better by using their skills they were learning.

The team found a way to make splints customized for each patient, replacing conventional splints that were costly and uncomfortable. In order to do so, the team utilized a body scanner to tailor splints to a patient’s body shape. They then applied 3D printing technology to create splints with recyclable plastic materials that are light (250g), comfortable, and affordable.

As a result, the team won a prize in the 2018 Samsung Solve for Tomorrow and received USD 12,000 worth of Samsung Electronics products.



Customized 3D Splints

Samsung Tomorrow Solutions

Samsung Tomorrow Solutions is an annual contest held in Korea since 2013. This program is open to anyone to propose their own creative ideas to address social issues. Samsung Electronics employees and expert mentors provide support for contest participants. As part of the program, outstanding solutions are implemented to address social issues. Participants can suggest ideas on any topic such as education, health & medical care, local communities, environment & safety.

We select a contestant's idea based on a set of criteria that examines creativity, durability, empathy, feasibility, and social impact. There are two types of award categories: "idea" and "impact" categories. During the contest, the participants get a chance to make their solutions more sophisticated. Moreover, employees and experts mentoring help the finalists to build prototypes of their solutions. In addition, we help the contestants in commercializing and distributing their products by collaborating with our in-house venture program C-Lab.

"MAYDAY" – Signal to Save More Lives

Firefighter Young Shin Park wanted to create an enhanced communication device that can be used in fires. So, together with telecommunication experts and his colleagues, he entered Samsung Tomorrow Solutions contest. Firefighters may miss important signs in a fire due to high levels of noise. To solve this problem, his team developed a communication device called "MAYDAY", which integrates earphones and a neck microphone into a fire helmet.

The team gathered opinions from 641 field officers, and advice from Samsung mentors. This feedback allowed the team to enhance the functions of their product including earphone features.

MAYDAY, a device created by collective ideas, won a grand prize in Samsung Tomorrow Solutions with high scores in the "social impact" and "empathy" criteria in the "idea" category. The team plans to further enhance the performance of MAYDAY, and to distribute the device to as many firefighters as possible.

Solution to Prevent Vision Loss

There are approximately 280 million people with low vision worldwide with 90 percent of them in emerging and developing economies. Eye disorders can be treated if diagnosed in the early stages, but people who have difficulty in affording treatments using expensive diagnostic devices often miss a chance for a timely treatment, raising the likelihood of vision loss.

To address this problem, a team of medical workers named "Project BOM" developed a smartphone-based diagnostic camera. Using this camera, a medical officer visits a patient to take pictures of their eyes, and a doctor then remotely diagnoses the patient's eye conditions.

"Project BOM" received a grand prize in the "impact" category of Samsung Tomorrow Solutions. This portable eye diagnostic device is in pilot use at 20 community health centers in Vietnam, and we plan to distribute the device to additional 20 centers in the country by the end of 2019.



MAYDAY and Developer Young Shin Park



Mobile Eye Disorder Diagnosis Device

Technology Education

At Samsung Electronics, we cooperate with local governments and academic institutions to provide IT skills training for students and youth and prepare them for their future. As of 2018, we have executed a total of 150 programs around the world in places where we operate. Such endeavors have allowed Samsung Electronics to transfer knowledge and enhance the skills of aspiring youth.

Samsung Digital Academy in India

We have operated Samsung Digital Academy to foster IT talents in cooperation with the Indian Institute of Technology in India since 2015. The academy offers training sessions on emerging technology, such as IoT and AI. Over the past four years, approximately 566 students participated in research projects using our products and solutions. In addition, approximately 40 of our employees have been providing technology mentoring to students, and they continuously exchange ideas on the subject.

Samsung Lets App in Italy

Since 2013, Samsung Electronics in Italy has been fostering the creativity of young students by actively providing educational opportunities. In 2017, in partnership with the Italian Ministry of Education, we developed a new educational program for tech education (coding and IoT), and softskills (leadership and problem solving capabilities).

Since 2018 “LetsApp” provides high school students with a digital learning platform for software skills such as coding and IoT education. The program helps the students transform their ideas into concrete entrepreneurial projects. We have already provided education for approximately 50,000 students from 4,000 high schools, while 3,000 teachers have participated in this program. Recognizing the successful outcome, the Ministry of Education in Italy chose this program as the “Project for High School Students with the Highest Impacts” and recognized it as an essential internship program (Alternanza Scuola Lavoro) for youth skill development.

“Samsung Software Academy for Youth (SSAFY)” in particular is an academy established in Korea to strengthen the software skills of youth who are looking for jobs. Moving forward, we will continue offering technology education programs for youth to assist them in developing skills needed for the Fourth Industrial Revolution.

Samsung IoT Academy in Russia

The Samsung IoT Academy in Russia is a program designed to foster IoT experts through practical training. The academy aims to strengthen the IoT and AI data analysis capabilities of students from leading technical universities.

In 2017, we launched an IoT lab, as well as an one-year course, as a pilot project at the Moscow Institute of Radio Engineering, Electronics and Automation (MIREA) and the Moscow Institute of Physics and Technology (MIPT). In 2018, we expanded the IoT academy to eight universities and plan to launch additional AI courses in 2019.

For the Samsung IoT Academy, we received awards 4 times in 2018, including “Best Social Project” awarded by the Ministry of Education and Science of Russia.



Samsung IoT Academy in Russia

Youth Education

As part of our endeavor to provide technology education and capacity building for future generations, we are also providing students with software skills training programs. This includes our Samsung Junior Software Academy / Cup and Samsung Semiconductor Science Class and Samsung Dreamclass.

Samsung Junior Software Academy / Cup

We have run the Samsung Junior Software Academy since July 2013. The Samsung Junior Software Academy, open to middle to high school students, is a software training program that is oriented to foster problem-solving skills. In addition, we hold the Junior Software Cup annually. This program allows youth to develop their own software to help solve societal problems. In 2018, we hosted the fourth Junior Software Cup under the theme of "happiness". A total of 2,403 teams participated in the event, and 23 teams received awards.

Samsung Semiconductor Science Class in Korea

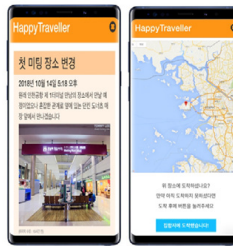
Since 2013, our DS (Device Solutions) division employees have been voluntarily teaching elementary and middle school students from local communities in a "Samsung Semiconductor Science Class." The course provides basic knowledge about semiconductors. Last year, more than 2,800 students participated in this program.

Due to the successful operation of the program and excellent reviews from teachers and students, our DS business signed MOUs with local offices of education to expand the program. In 2019, we plan to expand the program to double the number of beneficiaries to 6,100 students from 50 schools with 1,900 employees participating as volunteer teachers. School teachers and our DS employees have organized a task force for developing and teaching aid kits. The curriculum is composed of actual exercises to help students understand how semiconductors work in an interactive way. At some middle schools in Korea, the program has now become a regular curriculum for students in their first year of school.

Winner of Junior Software Cup: Happy Traveler

Happy Traveler, an award-winning app in the 2018 Junior Software Cup, was developed by an 8th grade student, Jeon Dong-yun. He was inspired to make this app after his uncomfortable experience from touring in groups.

Happy Traveler consists mainly of three functions: ① "Travel Information" to provide sufficient information on tour sites without a tour guide's assistance, ② "Notice" for the guide to send notices to tourists, and ③ "People Checking" for the guide to verify that all tourists have arrived on time. Jeong Dong-yun was able to develop the app with support and mentoring from his teacher and our employee mentors.



"Happy Traveler" Application

Samsung Dreamclass

As part of our goal to foster education for the future generations, we have been running Samsung Dreamclass program in Korea since 2012.

Samsung Dreamclass is a program that offers Math and English tutoring for middle school students who come from disadvantaged backgrounds and have a high motivation for learning. The program also grants scholarships to university students who volunteer as a teacher.

The Dreamclass started as a three-month pilot program in December 2011, by taking into account the opinions from community members, including students, parents, teachers and governmental organizations. Samsung benchmarked two reputable education programs (Teach for America and Building Educated Leaders for Life) in the US before launching Dreamclass. The participating students have improved their English scores by 7 points and math scores by 15 points on average. Dreamclass now has become one of Samsung's regular programs since 2012. Currently, Samsung Dreamclass operates under three different formats: (1) Weekday Classes, (2) Weekend Classes and (3) Dreamclass Camp.

(1) Weekday Classes : Weekday classes offers eight hours of math and English tutoring per week. We hold weekday classes in 31 cities, including Seoul, Korea's six largest cities, and Jeju Island. There are 174 middle schools participating in weekday classes.

(2) Weekend Classes : Weekend classes focus on small and mid-sized cities. Weekend classes provides 8 hours of math and English tutoring per week, and a total of 11 middle schools in seven cities are currently participating. On top of the weekday and weekend classes, we have partnered with the "Hope Culture Club" at the Korea National Council on Social Welfare and support students with cultural experiences such as musicals, classical music performances, art exhibitions, and ballets.

(3) Dreamclass Camp : Dreamclass Camp offers a sleepover camp for 3 weeks during middle school students' winter or summer vacations. The camp takes places at major universities, and 12 universities hosted this camp in 2018. The camp focuses on middle school students living in rural cities and island villages lacking infrastructure as well as those from specific groups such as children of military personnel, fire fighters, coast guard officers, police officers and other people who served the country. At this camp, we offer not only 150 hours of tutoring classes, but also counseling on students' post-secondary educational plans as

well as cultural activities, such as ballet and concerts. As of 2018, Samsung Dreamclass successfully provided opportunities for 73,000 students with the support of more than 20,000 university students.

In our seven years of operation, we have observed that this investment in our youth has led to the virtuous cycle of giving back. Students who once participated in our program are revisiting Samsung Dreamclass as university mentors. Our goal of Samsung Dreamclass is to inspire students and provide greater educational opportunities to youth from disadvantaged backgrounds.

Back to Samsung Dreamclass as a mentor

Noh Hye Ji participated in Samsung Dreamclass in 2012. As a third-year middle school student, she was in search of greater educational opportunities and mentors who could provide her with guidance on post-secondary education.

Samsung Dreamclass offered her a chance to connect with university student mentors and to attend various courses as well.

When Hye Ji entered university, she was happy to return as a mentor at the 2017 Winter Camp. She hopes that her own students will one day revisit Dreamclass as mentors, just as she has done.

My Dreamclass

In October 2018, we released a short film called "My Dream Class" based on the story of our Samsung Dreamclass program.

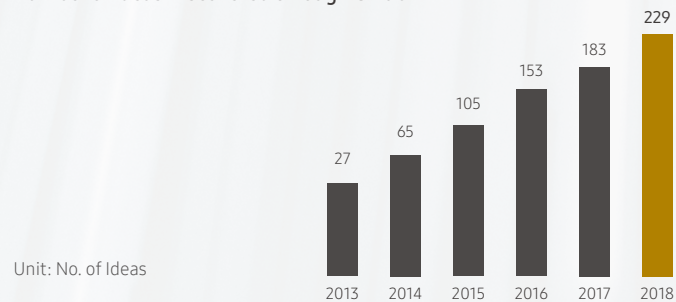
The film's story revolves around the small fictional island, Byeolliseom, where two university student volunteers are Dreamclass mentors. Through mentoring and teaching their passionate students, these instructors also learn about themselves and find the true meaning of contributing to society through education.

We invited 400 Samsung Dreamclass alumni to the preview event of the film. One of the alumni, Eom Seon Yeop, commented, "Samsung Dreamclass was a turning point in my life. I hope "My Dream Class" can inspire more college students to become instructors that can help disadvantaged students pursue their dreams".

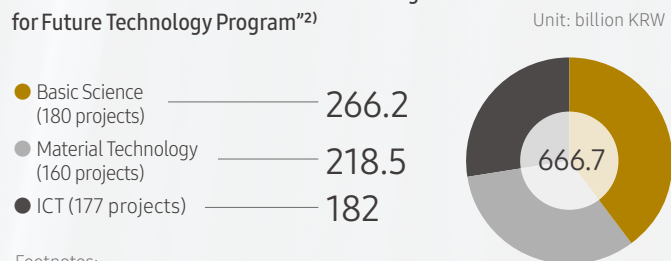
TECHNOLOGY FOR GOOD

2018 HIGHLIGHTS

Number of Ideas Discovered through C-Lab¹⁾



Amount of Investment in "Research Funding for Future Technology Program"²⁾



Footnotes:

1) As of December 2018

2) As of April 2019

We are committed not only to offering innovative products and services, but also to creating a social environment where entrepreneurship is encouraged and diverse start-ups can flourish. Furthermore, we are providing full support for the development of basic sciences. Whilst innovative product development is important, safeguarding security and personal data is paramount, as they are critical to the human rights of consumers. We want our technology and innovation to be accessible. Thus, we provide various features in our products that make it more accessible to all users.

ALIGNMENT WITH SUSTAINABLE DEVELOPMENT GOALS



[Goal 9] Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities

9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020



[Goal 17] Strengthen the means of implementation and revitalize the global partnership for sustainable development

17.17 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries

Linkflow: a Story of C-Lab Spin-off

At the end of 2012, we launched an in-house idea incubation program called "C-Lab (Creative Lab)" to allow for the realization of creative ideas by employees of Samsung Electronics. Furthermore, in 2015, we started the C-Lab Spin-off program to accelerate start-ups originating in C-Lab. The program has contributed to revitalizing entrepreneurial ecosystem in Korea.

Linkflow, one of our representative start-up cases, started as part of the C-Lab project in July 2015, and it was founded in November 2016 as a spin-off. The signature product of Linkflow is the world's first 360-degree neckband wearable camera, "FITT 360". With three mounted mini-cameras, users can record with just one click while wearing FITT360 around their neck. The neckband shape frees users' hands while makes the first person viewpoint recording possible, which provides more realistic pictures. With its

innovative technology and design, the FITT360 won the Innovation Award from CES (Consumer Electronics Show) for the two consecutive years in 2018 and 2019.

Securing new opportunities in the market, the company recently widened their horizons to the B2B market and developed "FITT 360 SECURITY", a bodycam for officers and security guards, to target security market. While existing bodycams for police officers and security guards only allow limited views from the front and rear directions, "FITT 360 SECURITY" provides a 360 degree view without any blind spots. Linkflow is continuously improving the device by listening to users' feedback.

In 2018, Linkflow was recognized for its competitiveness in the global market, and it raised about 400 million KRW of crowd funding via Kickstarter and indiegogo.



Linkflow's FITT 360 Security Camera



Linkflow employees

Our Efforts to Enhance Accessibility

Samsung Electronics continues to develop and research accessibility features in our products and services with the goal of serving the needs of all users.

In cooperation with Korea Blind Union, Korea Association of the Deaf and Korea Association of Persons with Physical Disabilities, we have improved or newly developed the accessibility of home appliances by operating an accessibility advisory group consisting of seven users who have low vision, are hard of hearing or have physical motor limitations from 2017 to 2018.

For example, we have launched the FlexWash washing machine to help low vision consumers understand the process of washing. One of our employees with low vision voluntarily participated in the development process and installed the product in his house for three months to try it for himself. As a result, we improved accessibility features and developed new voice scenarios to apply to the FlexWash.

With respect to mobile products, our “Samsung Supporters” is another accessibility research initiative. Supporters gather on a regular basis and share their needs when they use a smartphone in their daily lives. These opinions are reflected to enhance the accessibility of our Galaxy smartphones.

For instance, people with low vision often encounter discomfort when using the Voice Assistant function. Users cited their discomfort when using the function in public, even after they removed the ear-phones, the voice guide would still be activated and audible to people around them.

Considering such feedbacks, we improved the function so that the sound can be muted in situations where it should not be audible.

Since 2013, we have been cooperating with international associations for people needs to increase the accessibility features in our TVs.

For instance, we develop a multi-output audio feature to allow individual users to enjoy different volume setting simultaneously. People who are deaf or hard of hearing expressed the inconvenience of the sign language screen size. Accordingly, we gathered their opinions and developed a zoom-in feature for the sign language screen allowing 200% enlargement of the screen. In recognition of this effort, we received the CES Accessibility Innovation Award for four consecutive years and Inclusive Society Award from the Royal National Institute of Blind People.

Samsung Supporters Discussing Galaxy Functions



Inspiring Creativity and Innovation

C-Lab (Creative Lab)

Since the end of 2012, we have been operating an incubation program called C-Lab, not only to develop a new future growth engine by fostering new business areas, but also to foster a creative organizational culture where our employees can easily explore their ideas.

C-Lab is operated in two ways: C-Lab Inside and C-Lab Outside

C-Lab Inside is part of our in-house venture program in which employees can discuss and propose ideas. The employees with selected ideas will have a full year, taking a leave from their regular task, to explore ways to realize their ideas.

With C-Lab, we develop products and solutions that can resolve social issues and help vulnerable groups. An example is the VR application "Relumino", which was developed through C-Lab to aid people with low vision.

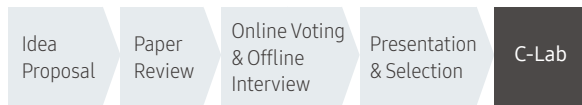
C-Lab Outside, a new part of the program created in 2018, was developed to contribute to stimulate Korean economy and create jobs. The C-Lab Outside was designed to share our expertise externally and activate Korean start-up ecosystems.

C-Lab Inside

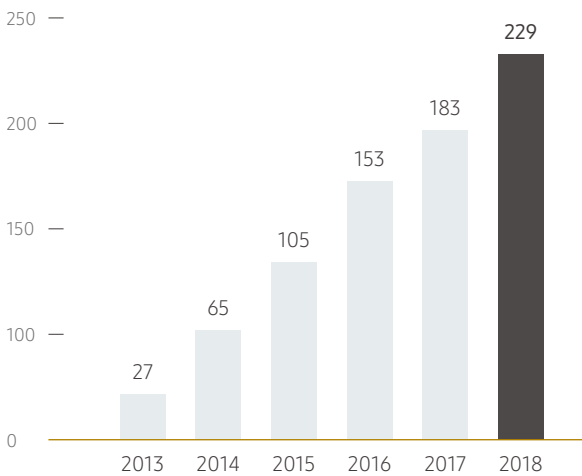
Through C-Lab Inside, Samsung Electronics encourages and fosters our employees' outstanding ideas in an innovative environment. We have been supporting the result of C-Lab ideas through in-house product development. We also support selected ideas to be transformed into fully fledged start-ups through spin-off program.

For the past 6 years, a total number of 918 employees participated in C-Lab processes and 229 C-Lab ideas were discovered. While 45 ideas are undergoing incubation process, 78 ideas were transferred to relevant business units for further development. In addition, through the spin-off program of C-Lab Inside, a total of 135 people are founding members of 36 newly established companies as of December 2018, while recruiting about 170 employees, contributing to job creation.

C-Lab Inside Selection Process



Accumulated Number of C-Lab Inside Ideas¹⁾ Unit : No of Ideas



Footnotes:
1) As of December 2018

Mangoslab

Mangoslab developed an innovative printer "Nemonic" that prints people's ideas written in PCs and mobile devices into sticky notes. For this innovation, the company received the Best Innovation Award in 2017 CES. Established by 4 founding members, the company expanded to have 24 employees from the age of 20s to 50s to embrace diversity. The company successfully started product as a one-year old start-up and has launched the products in Korea and Japan. Moreover, Mangoslab collaborated with Samsung Electronics for the promotion of Galaxy Note8 pre-order.

Lululab

Lululab's Lumini is an artificial intelligence-based beauty solution app that analyzes skin through a single photo shot and recommends cosmetics accordingly. This AI beauty solution was recognized for its usability of big data in CES (Consumer Electronics Show) 2019 by winning the Innovation Award in Biotechnology sector, while receiving two design awards from the world's top 3 renowned design awards such as iF Design Award and Reddot Design Award.

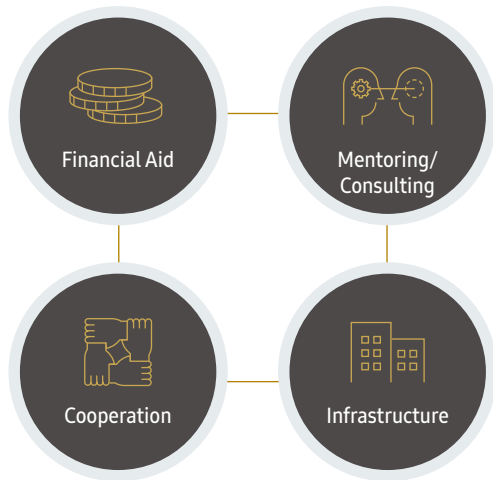
C-Lab Outside

C-Lab Outside encourages prospective entrepreneurs outside Samsung Electronics to pitch their ideas and garner support for their start-ups through financial aid, mentoring, consultancy advice, business cooperation, and infrastructure.

C-Lab Outside is an initiative to share our successful experiences and know-how with the outside world. This will not only stimulate Korean economy, but also create opportunities for entrepreneurs to implement their innovative ideas.

We plan to support 300 start-ups over the next five years. We hope to help create an ecosystem for start-ups in Korea by sharing our know-how from C-Lab, and to promote a culture where people can venture into start-ups without fear. Moreover, we welcome partnership opportunities with these start-ups so that we grow together as a community.

Aids for C-Lab Outside



Solving Social Problems through C-Lab

C-Lab ideas have tackled societal problems and helped vulnerable groups in our society.

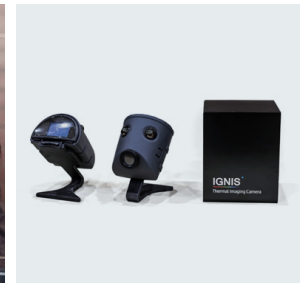
For instance, Relumino, a visual aid application to help people with low vision, started from the idea that users with different visual needs should also be able to feel the joy of daily activities that most people usually take for granted. While existing visual aid equipment in the market is often very expensive, Relumino is accessible and more affordable to anyone with a Galaxy smartphone and Gear VR. After Relumino was offered free of charge to the public in 2017, approximately 1,400 low vision users have benefited from this application. At the request of our customers, we are currently developing a version of Relumino that will be suitable for outdoor use.

Moreover, "Ignis", a lightweight, wearable thermal imaging device and gas mask visor for firefighters, was developed through C-Lab based on the idea of a firefighter.

Samsung Electronics has distributed 1,000 Ignis to fire stations in Korea, and 300 devices to fire stations in Vietnam.



Relumino



Ignis

Research Funding for Future Technology Program

Samsung Electronics' Research Funding for Future Technology Program was launched in 2013 in Korea, with the belief that investing in basic science contributes to laying long-term foundation for humanity and industry development. By 2022, we plan to support 1.5 trillion KRW to leading research projects in basic science, material technology and ICT sectors. The program is run under the principle of "high risk, high impact", meaning that participants are not bound by agreement or obligated to produce tangible results from their research. The program's purpose is to encourage new or daring scientists to become pioneers in technology foundations. Professors and experts from 46 renowned institutions and universities, such as KAIST (Korea Advanced Institute of Science and Technology), POS-TECH (Pohang University of Science and technology), KIST (Korea

Institute of Science and Technology), and KIAS (Korea Institute for Advanced Study), have participated in this program, with the total number of 8,657 people participating. As of April 2019, we funded total of 666.7 billion KRW to support 517 projects, and this includes 180 projects for basic science, 160 projects for material technology, and 177 projects for ICT. There are also 601 accumulated patents applications as a result of our program. In addition to providing mentorship for patent registration, and for starting business, we provide opportunities for knowledge exchange between scientists and industry experts. In the first half of 2019, we selected 44 projects for 61.7 billion KRW of funding, including 16 projects in basic science, 11 projects in material technology, and 17 projects in ICT.

Process of Research Funding for Future Technology Program



Major Projects for Research Funding for Future

<p>01 Basic Science</p> <ul style="list-style-type: none"> · Study on recovering damaged DNAs (from radiation or viruses) for cancer treatment and prevention · Study on salt diet to control sodium intake for hypertension treatment and prevention 	<p>02 Material Science</p> <ul style="list-style-type: none"> · Study on multi-functional filter that purifies multiple pollutants (e.g. Heavy metal, organic substances) at once · Study on an electrochemical reaction based desalination equipment without brine discharge 	<p>03 ICT</p> <ul style="list-style-type: none"> · Study on skin-adhesive sensor aiding people who are deaf or hard of hearing · Study on microscopic LED system for brain tumor treatment where surgery is difficult
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Digital Responsibility

Cybersecurity

To protect consumers from cybersecurity threats, we not only comply with international laws and regulations, but also make substantial investments to maintain the highest level of security for our products and services.

Samsung Knox

Samsung Knox is our defense-grade security platform. Knox consists of a highly secure multi-layered platform built into Samsung Electronics devices across hardware and software, and it ensures data protection from malware and malicious threats. In addition, public and private sectors, such as governments, financial institutions, and healthcare companies have been leveraging our Knox platform as part of their security business solutions.

Since 2013, we have been applying Knox to our devices such as mobile phones and tablets. In 2017, we found a solution to incorporate Knox into Smart TVs and household appliances.

In May 2019, the Gartner report on security controls rated Knox as “Strong” for 27 features across 30 key security features. Also, the solution has successfully achieved certifications and security requirements by governments and security organizations around the world. We have been certified by FIPS 140-2, US Department of Defense (DOD), NCSC (U.K. National Cyber Security Center), ANSSI (Agence nationale de la sécurité des systèmes d’information of France), and ISCCC (the International Safe Community Certifying Centre).

Samsung Knox to safeguard election integrity

The election oversight agency of a Latin American country needed a mobile solution to help employees transmit vote counts from the country’s voting districts. The solution included the Knox Manage mobile device management (MDM) solution, which enables the institution to lock down devices and Knox Mobile Enrollment. The agency’s major concern was the security of sensitive data transmission. First, the agency helped raise security standards for carriers to help ensure transparency and minimize election fraud. To protect against data leakage and hacking, the agency knew it also needed to retain maximum control over all devices distributed. Based on these requirements, Samsung solutions allowed IT admins to be able to restrict device usage, monitor and track devices remotely, and simplify life cycle management. With our solution, the agency received one-stop support when an issue was raised in managing election data. In addition, they were able to safeguard election integrity through the efficient and safe management of data and devices.

Knox Manage for faster delivery and cost saving

Kazpost, which is national postal service in Kazakhstan selected a comprehensive Samsung solution consisting of Samsung Knox Manage EMM (Enterprise Mobility Management) solutions and Samsung Galaxy smartphones for saving delivery time and cost. In particular, Knox Manage successfully digitalized the postal service work process allowing remote management from a central console. After applying Knox solutions, Kazpost was able to improve their management in security perspective by constantly monitoring for hacking, and preventing corporate information leakage from their devices.

Composition of Knox Platform

IT Solutions	Developer Tool	Personal App
Knox IT solutions leverage the Knox platform, for end-to-end solutions, from configuration and deployment, to management	Build B2B apps on secure Samsung Electronics devices with Knox developer tools	Knox to verify system security and safeguard data of Samsung Electronics apps

Privacy and Personal Data Protection

To protect consumer privacy and personal data, we established “Samsung Electronics Global Privacy Policy” and operate local policies that reflect relevant laws and regulations of each country. We also provide our employees with a “Data Protection Handbook” and the “Privacy Guideline for Third-party Agencies” to raise their awareness in privacy and personal data protection. Moreover, we consistently provide education so as to manage these policies to be practically and continuously reflected in employees’ daily tasks. Each year all of our employees including top management mandatorily receive privacy and personal data protection education, and new employees receive additional course on compliance. In particular, we provide offline courses for employees who are to treat personal data at their daily tasks.

We are continuously seeking for the best ways to reduce risks associated with privacy and personal data protection.

Number of Employees who have completed personal data management training¹⁾

Unit: No. of persons



Footnote:
1) Scope: Employees in Korea

Organizations and Committees for Privacy and Personal Data Protection

Global Privacy Office	Privacy Offices in Business Divisions	Privacy Officer in Regional Offices	Privacy Steering Committee
<ul style="list-style-type: none"> Establish strategies and policies to protect privacy, develop relevant processes Provide legal advice and support on privacy issues Examine and take anticipatory measures to monitor and prevent the security issues of products and services Provide employee training to raise awareness 	<ul style="list-style-type: none"> Conduct audits and training on the privacy programs of business divisions Report and follow up in a prompt manner when an issue arises 	<ul style="list-style-type: none"> Conduct audits and training on privacy programs of the concerned regional offices and subsidiaries Report and follow up in a prompt manner when an issue arises 	<ul style="list-style-type: none"> Make decisions on policies and protection measures associated with privacy and personal data protection Discuss measures and share issues on privacy and personal data protection by products and business div

Personal Data Management Process



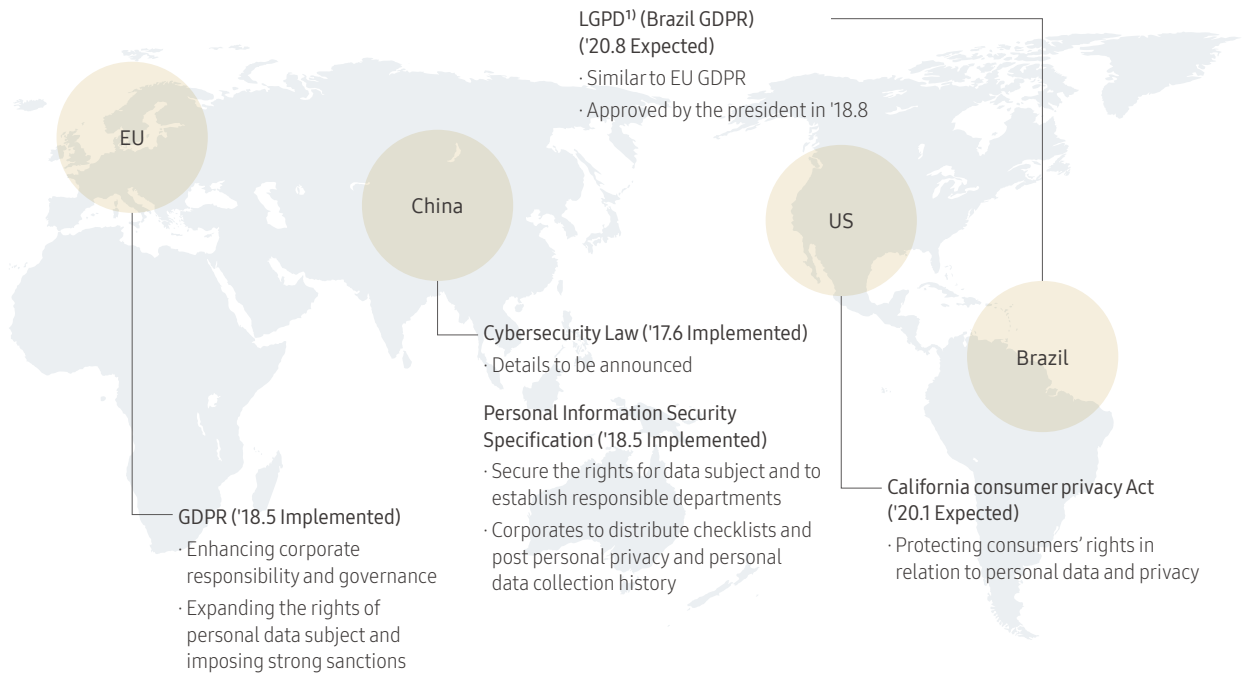
Privacy Legal Management System (PLMS) Operation

In order to comply with global regulations regarding personal data and privacy from the development stage of products and services, Samsung Electronics operates a Privacy Legal Management System (PLMS) in conjunction with the Product Lifecycle and R&D management system (PLM). We assess the potential risks throughout the lifecycle of products and services- from planning, development, operation and to discontinuation- by utilizing personal data and privacy risk checklists. The checklists are then reviewed by dedicated personnel from our legal department.

Efforts for Global Regulatory Compliance

To ensure that our products and services do not violate any laws or regulations of each country, we monitor laws and regulations on personal data protection around the world. To comply with EU GDPR (General Data Protection Regulation) implemented in May 2018, our worksites in the EU region have been establishing relevant organizations, policies, protection procedures while enhancing IT system that can reinforce personal data subject's rights as stated in regulations. In China, Brazil, and the US, we have established dedicated departments in accordance with the relevant laws, and have established a system that can safely process and transfer data. We also established a system to ensure that the personal data subject can exercise his or her rights properly, and are reviewing relevant policies and processes.

Global Regulatory Status and Our Efforts for Compliance



Footnotes:

1) Lei Geral e única de Proteção de Dados (General Data Protection Law)

Accessibility

We are continuously striving to improve accessibility of our products and services to serve the needs of our consumers. We apply “4C Accessibility Design Principles” to all our products, content and services in order to carefully consider the wide range of users’ experience.

To develop products and services reflecting these principles, we have developed and distributed an Accessibility UX Design Guideline and an Accessibility UX Design Checklist across the company.

Audio Acordes

In 2018, Samsung Electronics Brazil launched Samsung Audio Acordes (Chords), a free application that helps people with low vision learn to play the guitar in a practical and intuitive way.

The application provides the function of an audio dictionary that teaches people how to play a chord if they have low vision and helps allow for learning of music for such users. We hope that all people can enjoy music regardless of any physical disabilities.

SeeColors Application

We apply a SeeColors application to our TV models, which checks color blindness and adjusts the screen so that those users who have difficulty detecting colors are able to see the colors expressed on TV properly.





When this set of users perform a SeeColors application, the app checks color blindness of 10 different types. Based on the result, the SeeColors application adjusts the color expression of the TV to suit the user.

Accessibility Sound Improvements

We conducted user studies with 12 people with poor vision to enhance product accessibility of our home appliances. We learned from the study that for such users, auditory information should be complemented with sound signals different in tone. Based on this feedback, we established the Accessibility Sound UX principle and developed and reflected the sounds in the home appliances to enhance accessibility.

In conventional washing machines, distinguishing different options of the buttons was difficult because the sound signals were the same. So we developed different sounds to enable the people with low vision to clearly recognize options of the washing machine only by the sounds. As a result we received positive feedbacks from people with low vision that now it was possible to distinguish different options of when setting the temperature or the washing mode.

Samsung Electronics’ 4C Accessibility Experience Design Principles

Considerate	Comprehensive	Coherent	Co-create
			
Design carefully and consider of user’s point of view	Design for all equally	Design that provides the same accessibility to all products	Design created jointly with users

Samsung Electronics Product's Accessibility

	Visibility Assistant	Hearing Assistant	Assistant for Physical Motor Limitations
Mobile	<ul style="list-style-type: none"> · Screen Reader Provide spoken feedback to help users with low vision or blindness · Provide high contrast theme/font/ keyboard, show button shapes, negative colors, color lens, magnifier window, magnifier widget features 	<ul style="list-style-type: none"> · Sound Detectors Sound detectors allow the device to detect the sound of a baby crying or a doorbell ringing. Notification will be given through visual cues and vibration · Hearing Aid Support Enhance the sound quality to work better with hearing aids · Left / Right Sound Balance Adjust the left/right sound balance to suit your hearing preferences · Notification Reminders Set the device to alert you to notifications that you have not checked at your pre-set intervals · Mute All Sounds, Speech-to-text 	<ul style="list-style-type: none"> · Universal Switch Control the touchscreen by connecting an external switch, by tapping the screen, or by using head movements and face gestures · Assistant Menu Show the assistive shortcut icon for accessing apps, features, and settings. You can easily control your phone by tapping the assistive menus in the icon · Interaction Control Turn on interaction control mode to restrict your phone's sensitivity to touch interaction whilst using apps · Tap Duration, Ignore Repeated Touches, Easy Screen Turn On, Single Tap to Swipe
	<ul style="list-style-type: none"> · Direct Access Provide quick turn on and off of accessibility features 	<ul style="list-style-type: none"> · Notification Reminders Alert notifications that has not been checked with pre-set intervals 	
Wearable	<ul style="list-style-type: none"> · Screen Reader Provide spoken feedback to help users with low vision or blindness · Provide greyscale, negative colors, dark screen and screen magnification / reduction 	<ul style="list-style-type: none"> · Provide time notifications with vibration, turn off all sounds, and provide alert reminder 	
TV	<ul style="list-style-type: none"> · Voice Guide TV menu and operation voice guidance · Audio Description Provide by many television programs, whereby an additional audio track is broadcast which provides a verbal description of the scene to aid understanding · Learn Remote Control Remote control learning support through voice guidance · Learn Menu Screen Guide on how to use TV through voice guidance · SeeColors For color blind people to see wide spectrum of colors · High Contrast, Enlarge, Grayscale, Color Inversion 	<ul style="list-style-type: none"> · Closed Caption (Subtitle) Provide for almost all TV programs. Dialogue is visually displayed as text on the TV screen. · Closed Caption Position Move the subtitles to prevent overlap with the screen text · Multi-Output Audio Flexibility to configure the TV audio directed to multiple users allowing independent volume control · Sign Language Zoom Enlarging the sign language window 	<ul style="list-style-type: none"> · Remote Button Repeat Settings Prevent malfunctions by delaying remote control input time
	<ul style="list-style-type: none"> · Accessibility Shortcuts One-touch route to an on-screen menu which allows you to view or adjust the status of the TV's Accessibility features. 		
Home Appliance	<ul style="list-style-type: none"> · Screen Reader Provide spoken feedback to help users with poor vision or blindness · Descriptive Video Service Function to receive contextual information on the screen through subtitles · Grayscale, Negative Color, Font Size 	<ul style="list-style-type: none"> · Closed Caption (Subtitle) Function to output subtitle information by receiving them from a broadcasting company 	<ul style="list-style-type: none"> · Accessible Screen Function that allows the screen to be scrolled down at a rate of 10 to 50% of the total screen, which is effective for children and wheelchair users · Side Navigation The screen can be adjusted up and down so that it is easier to operate the screen · Bixby All the contents provided from the refrigerator are able to be voice-controlled through voice commands
	<ul style="list-style-type: none"> · Home Appliances Common Feature Accessibility Sound 	<ul style="list-style-type: none"> · Washing Machines Using "Add Window" when adding more laundry is possible to use it with less effort 	<ul style="list-style-type: none"> · Refrigerator "Easy Handle" on the door allows the users to open the door with less effort

Responsible Artificial Intelligence (AI)

Samsung Electronics sells over half a billion devices globally every year, giving us the ability to connect AI services across our extensive and unrivaled portfolio. We are uniquely positioned to bring a truly connected AI experience because of its diverse product portfolio, from semiconductors to home appliances and network equipment.

We believe AI should provide meaningful value, for the good of humanity. So, we are striving to build user-based AI products and services based on our AI principles of “User Centric”, “Always Learning”, “Always There”, “Always Helpful”, and “Always Safe”.

We understand that as AI technologies evolve, ethical considerations, including potential impacts on human rights, need to be inherent in the design and deployment of AI products and services. In this respect, we have announced the core principles of Fairness, Accountability, and Transparency for AI ethics in 2019. We will make every effort to place these ethical principles at the heart of what we do and how we do our work in AI, dictating every decision throughout the entire process from development to rollout of our products and services.

Furthermore, we will increase the importance of AI ethics through various means including internal guidelines and educational programs for employees aimed at raising awareness and to hold ourselves to a higher standard with regards to AI ethics.

Efforts towards AI Ethics

We recognize that discussions on a global scale with industry peers are essential to determine the appropriate and ethical use of AI. With the aim to better understand the impact of AI and

to build and utilize AI technology in a collaborative manner as a group, we have joined the Partnership on Artificial Intelligence (PAI), a consortium on AI technology, in 2018. We are also participating in working groups of the PAI to research safer AI technology with peers, and to formulate best practices.

Capacity Building for AI R&D

We expect that technical robustness will play a key role in facilitating our development of best practices in AI. As part of our dedication to expanding the capabilities for AI research, we have opened a series of global AI research centers. Starting with establishment of AI center in Korea (Seoul), Samsung Electronics has established a total of 7 global AI centers in 5 countries, including the UK (Cambridge), Canada (Toronto, Montreal), Russia (Moscow), and the US (Silicon Valley, New York) in 2018.

Since AI covers a very extensive range of research fields, open cooperation on research with experts from various fields is important. For this reason, we will continue to build open R&D to advance AI technology by establishing AI centers in cities that have the best AI talent and technology in the world.

We invest about 8 percent of its annual sales in R&D and are one of the largest R&D spenders globally. A considerable portion of this investment goes into the development of new technologies like AI.

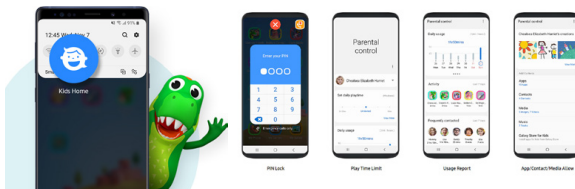
Global Samsung Electronics AI Centers & Key Research Domains



Child Digital Safety – Samsung Kids Home

Samsung Electronics is concerned about the increased risk of children being exposed to harmful online content, especially as the use of IT devices increases. So we are making an effort to prevent such risks. We developed Samsung Kids Mode in 2014, an application for safe digital contents on the internet for children. We expanded upon Kids Mode with Samsung Kids Home, which offers better accessibility and ease of use in 2019.

Samsung Kids Home is a service that protects children from harmful information and helps them develop the right and smart device use habits. Users can run Samsung Kids Home with a single touch of the Quick Panel on their devices without downloading application. You can easily convert a parent's phone into a child's phone, providing a secure digital playground. It also enables child protection by setting daily play time, listing contacts and allowing kids access apps permitted by parents. It also provides various content such as creative games, drawing, and block coding that will help children develop their imaginations.



Samsung Kids Home on Quick Panel

Parental Control Function

Partnership with Internet Matters

To improve children's digital safety and parental access to information, Samsung Electronics in UK partnered with Internet Matters. Internet Matters is a not-for-profit organization empowering millions of families to keep children safe online. Through the partnership, we are ensuring that the most up-to-date and relevant information is provided to parents and care givers, aiming to help children use Samsung Electronics products safely.

Our joint micro-site with Internet Matters features step-by-step advice on setting up the parental controls across Samsung products, including Samsung Kids Home.

Safer Internet Day

We supported "Safer Internet Day (SID)" in 2019. SID is an international event that started as an initiative of the European Union "SafeBorders" project. This event is now celebrated in more than 100 countries worldwide, and across six continents.

In 2019, our Samsung Electronics Baltic, Nordic, Poland and UK offices actively supported SID, organizing workshops and raising awareness about online safety through social media and press releases.

Prevention of Cyberbullying

As the IT technologies rapidly evolve, we are fulfilling our responsibility to help ensure that technology is used to further society and its people. In "Samsung Electronics Guidelines on the Prevention of Harassment", we define cyber-bullying as a form of harassing behavior that aims to humiliate, intimidate, or threaten through the use of electronics devices such as tablets, computers and mobile phones. In addition, we have been running campaigns to raise awareness on the prevention of cyber-bullying throughout our global operation sites. In particular, we are engaged in various activities to minimize cyberbullying with a particular focus on youth.

Family approach to new technologies

Samsung Electronics in Poland organized "Family approach to new technologies" workshops, involving children and their parents in playful activities aimed at promoting the safe use of new technologies.

As part of the workshop, two handbooks have been created to teach children the basics of programming and to develop healthy digital habits within the family for the safe use of new technologies.

Don't be a Cyberbully!

Samsung Electronics in Turkey is running a digital campaign to eradicate cyberbullying among teenagers.

We posted anti-cyberbullying materials on digital screens at our service centers and retail-shops. In addition, we conducted a program where our employees mentored Turkish students and worked to prevent of cyberbullying. While closely cooperating with governments, universities and schools, we have contributed to enhancing the awareness on cyberbullying by implementing various online campaigns through offline education and digital media.

As a result, we received the MIXX Award Gold Award in February 2018, the Social Media Gold Awards in April 2018 and won the Turkey Best Social Responsibility Campaign Award in October 2018.

INVESTING IN OUR EMPLOYEES

2018 HIGHLIGHTS

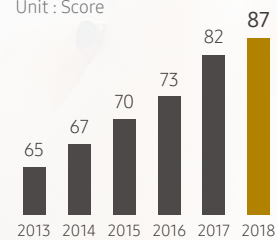
Number of Employees on
Training Programs for Capacity
Building



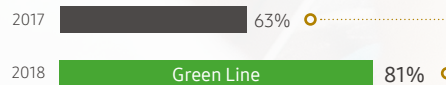
155,505

Samsung Culture
Index Score

Unit : Score



Employee Health Management
Programs - Ergonomic Line Certification Results



18%
From 2017

We put forward our best efforts and apply strict management standards to protect the labor and human rights of our employees and our suppliers' employees. Moreover, we have rigorous human resources management standards in place to strengthen employee competencies.

To create a safety culture that meets global standards, we have embedded our environment, health, and safety (EHS) management system in our business strategy, with safety management being part of our management's performance targets. We also assess workplace safety and offer safety training programs to our employees. In addition, we undertake various safety initiatives by identifying safety issues and performing assessments at all our manufacturing sites.

ALIGNMENT WITH SUSTAINABLE DEVELOPMENT GOALS



[Goal 3] Ensure healthy lives and promote well-being for all at all ages

3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination



[Goal 5] Achieve gender equality and empower all women and girls

5.1 End all forms of discrimination against all women and girls everywhere

5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life



[Goal 8] Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms

8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment



[Goal 10] Reduce inequality within and among countries

10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

At Samsung Electronics, throughout 2018 and 2019, we conducted a Human Rights Impact Assessment (HRIA) for Samsung Electronics Vietnam (SEV) in collaboration with Business for Social Responsibility (BSR), a global non-profit organization specializing in human rights.

Assessing human rights impacts is a step in the due diligence process proposed by the United Nations Guiding Principles on Business and Human Rights (UNGPs) to minimize human rights violations and resolve their adverse impacts. In this sense, we set the following goals of the HRIA for assessing SEV's human rights policy and management system:

1) identifying factors that affect human rights; 2) making recommendations to mitigate risks and maximize opportunities; and 3) improving human rights management by empowering employees and other stakeholders based on constructive dialogue.

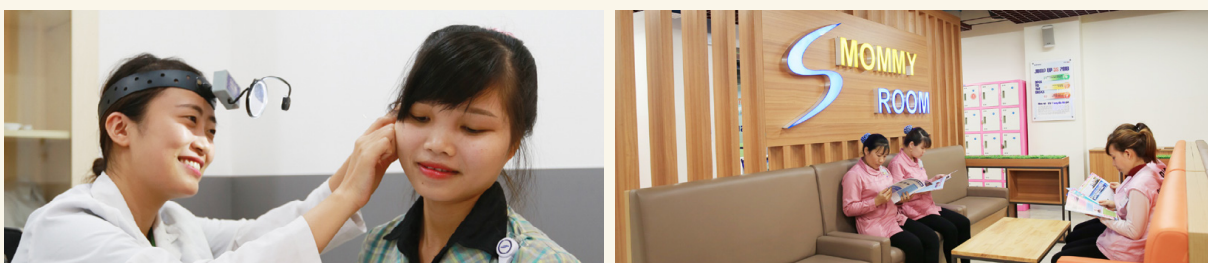
To achieve these objectives, the BSR conducted the HRIA in line with the three main parts of the UNGPs framework - Protect, Respect, and Remedy. The assessment identified and prioritized actual and potential adverse impacts, and proposed measures for remedy. In addition, BSR's assessment included external stakeholders interviews on-site at SEV, in Vietnam, and globally, as well as an extensive document review and interview with employees and management.

To actively communicate and engage with our stakeholders, we held a stakeholder engagement forum in Vietnam with approximately 300 stakeholders. Under the topic of "Gender Equality and Integration in the Digital Era", we invited the Vietnam General Confederation of Labour, the International Labour Organization (ILO), UN Women, the World Bank, and other non-profit organizations, to present and held panel discussions. The forum enabled us to gather meaningful perspectives from all relevant stakeholders on how to enhance human rights as a member of the global community and an industry leader.

Moreover, we are implementing various systems to improve our employees' welfare. To allow our employees to work in safer conditions, we operate in-house hospitals with a total of 93 hospital beds. We are also operating 22 Mommy Room's for expectant mother employees and in-house hospital with gynaecologists.

Going forward, we will continue our various activities to identify the characteristics that negatively affect human rights and to develop appropriate mitigation plans in order to ensure improvements in our worksites' environment and the protection of our employees' labor and human rights.

Our Efforts to Respect Human Rights



Transparency in Chemicals Management

We work to safeguard our employees' health by minimizing the environmental impacts of the materials and chemicals used at our manufacturing sites. We firmly believe our employees involved in any manufacturing process have the right to work in an environment without any safety concerns.

All of our worksites are obliged to follow the European Union's (EU) Restriction

of Hazardous Substances Directive (RoHS) and the EU's Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) standards. We also manage restricted substances strictly in accordance with the applicable laws of each relevant country and our internal regulations.

In 2018, we achieved a major milestone in health and safety management transparency by publishing a Restricted Substances List (RSL) of 11 hazardous substances. We updated that list by adding 14 more substances in 2019, thereby disclosing a total of 25 hazardous substances. We classify those substances into two types, strictly banning the use of "prohibited"¹⁾

substances at all times and allowing the use of "restricted"²⁾ materials only under very strictly controlled conditions.

We conduct a due diligence audit to examine supplier practices regarding a safe work environment. Through on-site audits we provide solutions for the suppliers for improving their chemical management procedures and control systems. In addition, we have supported suppliers' chemical management improvement by providing alternative chemical storage facilities, providing spill palettes for leak prevention and improving exhaust systems. In 2019, we disclose the list of chemical substances that we prohibit or restrict in our suppliers' manufacturing process.

Footnote:

1) Strictly prohibited for use

2) Should meet following conditions ① Must receive permission before use ② Prohibited in cleansing stages

③ Must be used observant of workplace regulations (e.g. Rules on Ventilation system, protective outwear, etc.)

Restricted Substances List (RSL)

Types	Cas No.	Chemical	Range of Restriction	Regulatory Standard	Target
Prohibited	71-43-2	Benzene	All purposes	Occupational Safety and Health Act ¹⁾ (Special C, M), IARC ²⁾ , Company Standard	Samsung Electronics & Suppliers
Prohibited	110-54-3	n-Hexane	All purposes	Occupational Safety and Health Act (Management R), EU Reproductive Toxic Chemicals, Company Standard	Samsung Electronics & Suppliers
Restricted	68-12-2	Dimethyl formamide	Cleansing/Degreasing	IARC(2A), EU Reproductive Toxic Chemicals(1B), Occupational Safety and Health Act (Management R)	Samsung Electronics & Suppliers
Restricted	75-52-5	Nitromethane	Cleansing/Degreasing	IARC(2B), Occupational Safety and Health Act (Management C)	Samsung Electronics & Suppliers
Restricted	67-66-3	Chloroform	Cleansing/Degreasing	IARC(2B), EU Reproductive Toxic Chemicals(1B), Occupational Safety and Health Act (Management C,R)	Samsung Electronics & Suppliers
Restricted	79-01-6	TCE	Cleansing/Degreasing	IARC, Occupational Safety and Health Act (Special C, M)	Samsung Electronics & Suppliers
Restricted	108-88-3	Toluene	Cleansing/Degreasing	EU Reproductive Toxic Chemicals, Occupational Safety and Health Act (Management R)	Samsung Electronics & Suppliers
Restricted	127-18-4	PCE	Cleansing/Degreasing	IARC(2A), Occupational Safety and Health Act (Special C)	Samsung Electronics & Suppliers
Restricted	67-56-1	Methanol	Cleansing/Degreasing/Cooling	Occupational Safety and Health Act (Management C)	Samsung Electronics & Suppliers
Restricted	108-94-1	Cyclohexanone	Cleansing/Degreasing	Occupational Safety and Health Act (Management C)	Samsung Electronics & Suppliers
Restricted	75-09-2	Dichloromethane	Cleansing/Degreasing	Occupational Safety and Health Act (Management C), IARC(2A)	Samsung Electronics & Suppliers
Restricted	75-21-8	Ethylene Oxide	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management C,M), IARC(1)	Samsung Electronics
Restricted	109-86-4	2-Methoxyethanol	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management R)	Samsung Electronics
Restricted	110-49-6	2-Methoxyethylacetate	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management R)	Samsung Electronics
Restricted	110-80-5	2-Ethoxyethanol	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management R)	Samsung Electronics
Restricted	111-15-9	2-Ethoxyethylacetate	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management R)	Samsung Electronics
Restricted	50-00-0	Formaldehyde	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management C,M), IARC(1)	Samsung Electronics
Restricted	111-96-6	Bis(2-Methoxyethyl)ether	Cleansing/Degreasing	EU Reproductive Toxic Chemicals(1B)	Samsung Electronics
Restricted	78-87-5	1,2-Dichloropropane	Cleansing/Degreasing	Occupational Safety and Health Act (Management C), IARC(1)	Samsung Electronics
Restricted	106-99-0	1,3-Butadiene	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management C,R), IRAC(1)	Samsung Electronics
Restricted	127-19-5	N,N-Dimethyl acetamide	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management R)	Samsung Electronics
Restricted	106-94-5	1-Bromopropane	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management C,R), IRAC(2B)	Samsung Electronics
Restricted	75-26-3	2-Bromopropane	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management R)	Samsung Electronics
Restricted	107-13-1	Acrylonitrile	Cleansing/Degreasing	Occupational Safety and Health Act (Special/Management C), IRAC(2B)	Samsung Electronics
Restricted	75-01-4	Vinyl Chloride	Cleansing/Degreasing	Occupational Safety and Health Act (Management C), IARC(1)	Samsung Electronics

Footnote:

1) Occupational Safety and Health Act in Korea

2) International Agency for Research on Cancer

Labor & Human Rights

We are carrying out various activities to protect labor and human rights throughout our operation and business activities. We ensure equal opportunities for all employees and applicants with 'Guidelines on the Prevention of Harassment'. We endorse global efforts to prevent child labor and forced labor. Respecting and protecting human rights - the fundamental and inalienable rights and freedoms to which all people are entitled - is at the core of our labor practices.

To actively remain in investing in human capital in response global environmental changes, we have developed policies and a management system associated with not only labor and human rights but also human capital development. As part of our human capital investments, in addition to policies and a management system, we operate a human rights analysis system, educational programs for raising employee awareness regarding human rights, diversity and inclusion initiatives, and employee competency reinforcement programs.

Samsung Electronics' Approach to the UNGPs' Human Rights Due Diligence

	Policy Commitment & Management System	Impact/Risk Analysis & Management	Grievance Mechanisms & Stakeholder Engagement
Policy & Approach	The Samsung Electronics' Code of Conduct and the Business Conduct Guidelines reference our commitment to respect human rights an ethical labor practices.	We constantly identify, evaluate, and manage the actual and potential impacts that our business activities have directly and indirectly on human rights.	Our employees are very important to us and we strive to have an open dialogue with them to understand their needs and concerns.
	We observe the Code of Conduct of RBA as a member of the Responsible Business Alliance (RBA).	We recognize that the internal capabilities and management processes of enterprises are critical to minimizing negative human rights impacts.	The grievance resolution channel for our employees and external stakeholders is a key element of Samsung Electronics' human rights activities and offers important information to identify potential human rights impacts.
	We support and strive to work in accordance with the United Nations Guiding Principles on Business and Human Rights.	We continue to make sure that adverse impacts on human rights are dealt with properly and make further improvements.	We systematically communicate with internal and external stakeholders, including employees, through a variety of channels.
Actions	We have various internal policies and procedures on human rights, human resources, labor rights, and health and safety. These policies and procedures are supplemented by management systems and processes to ensure their effective implementation. Their effectiveness is frequently evaluated and revised according to need.	We have established a system for human rights impact/risk assessment and management in place, where compliance with human rights policy and internal management is periodically assessed. We also take into account external factors and conduct separate assessments for high-risk situations.	As a member of various industry associations, we periodically engages with various companies to discuss the key industry-wide human rights issues posed by external stakeholders.
	We provide training to raise awareness of labor and human rights so that our policies and procedures are thoroughly followed at each business site.	We identify vulnerable groups (such apprentices and migrant workers) with whom human rights issues may arise and pay close attention to these groups.	We operate various types of Grievance Resolution Channels for our employees and external stakeholders.

Human Capital Policies and Management System

Samsung Electronics' labor & human rights policies embrace the idea and value of international human rights principles and standards set forth in the Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights (UNGPs), the guidelines from Organization for Economic Co-operation and Development for multinational corporations, the UN Convention on the Rights of the Child, the International Labour Organisation's Declaration on Fundamental Principles and Rights at Work, and the laws of the countries where we conduct our business. Additionally, we abide by the Code of Conduct of the RBA. All Samsung Electronics' employees must comply with diverse internal policies regarding human rights, including bans on discrimination, forced labor, and child labor. To manage such compliance,

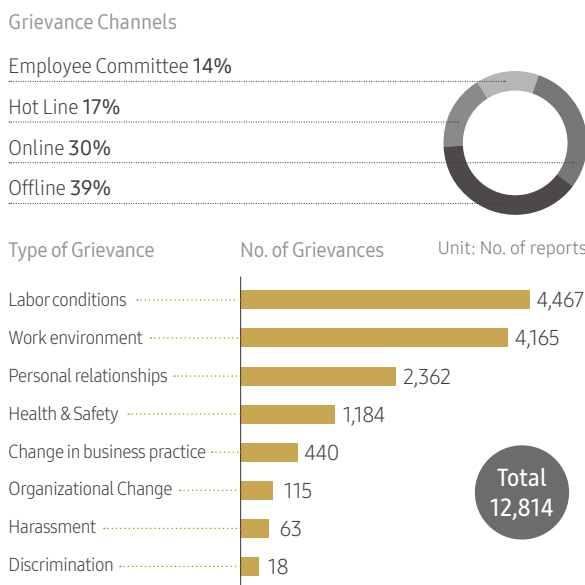
we perform evaluations on a regular basis to identify the status of compliance and design improvement activities of each workplace.

Grievance Resolution Procedure

In accordance with the 'Effectiveness criteria of non-judicial grievance mechanisms' as implied in Clause 31 of the UN Guiding Principles on Business and Human Rights, we continuously address ways to protect the substantive and procedural rights of our employees. This includes providing accurate information on the process and results of grievance management, prohibiting disadvantaging those who submit grievances, and banning discrimination when dealing with grievances. Based on the Grievance Resolution Guideline, the company operates four types of grievance-handling channels to suit characteristics of each

site. (As of April 2019, there were 30 business sites and 308 channels) In addition, in 2018, we established an additional grievance handling channel (civilsociety@samsung.com) to listen to various voices of stakeholders. Since 2016, through the workplace monitoring system, we have monitored and reported grievances by channel, grievance handling progress and processing results; and we manage compliance rates by channel and analyze employee satisfaction and awareness as performance indicators. In particular, our workplaces employing migrant workers provide information on grievance resolution channels in their native languages to enhance their accessibility. In 2018, we received a total of 12,814 grievance reports, out of which 12,779 reports (99.7%) were completely resolved within our grievance handling deadline.

Data on Grievance Submissions (2018)



Labor and Human Rights Capacity-Building Training

To raise our employees' awareness regarding the labor and human rights, we have developed regionally specialized training programs that consider regional cultural characteristics for overseas production worksites. We provide these training programs for employees as compulsory education courses.

Labor and Human Rights Capacity-Building Education Programs

Target	All employees at our overseas production subsidiaries
Description	18 courses in a total of 6 domains, including ban on discrimination, workplace harassment, personal data protection and privacy, health and safety, diversity.

Work Council

To channel the voice of our employees, we operate work councils in 48 global workplaces in accordance with the country's laws and regulations as well as based on each business site's characteristics. Our employees elect their representatives on their own under the principle of direct, secret votes, and the representatives hold discussions or meetings with on-site workers more than once a week. In 2018, 1,180 discussions were held and joined by a total of 17,256 employees. Our Work Councils at respective worksites host regular meetings to consult on such wide-ranging agendas issues as wages, labor conditions, welfare, and other diverse issues related to the promotion of employee rights. The results of the consultation are disclosed to our employees via bulletin boards. In 2018, a total 3,027 items were raised through these forums globally, out of which 2,740 items (90.5%) were resolved.

Work Councils by Region (2018)

Category	No. of Work Councils	No. of Employee Representatives	No. of Members
Korea	7	181	97,154
China	14	156	26,453
Southeast/Southwest Asia and Others	15	293	127,314
Europe, North America, Central/Latin America	12	148	20,953
Total	48	778	271,874¹⁾

Footnote:
1) 87.8% of all employees (309,630)

Work Council Agenda in Worksites (2018) Unit: No. of Items, %

Category	Agenda	Ratio
Wages & benefits	488	17.8
Institution & system	320	11.7
Organizational culture	314	11.5
Work hours	87	3.2
Infrastructure	995	36.3
Environment & Safety	316	11.5
Others	220	8
Total	2,740	100

Capacity building training to 331 in-house trainers

3 hours training per employee for 155,505 employees

2019 Plan

Reach 95% or higher in the percentage of employees who complete such training, including our policy to respect human rights and in-house grievance-handling channels as part of the compulsory introductory training for new recruits

Footnote:
1) Including redundancies

Vulnerable Groups’ Rights Protection

We have established various policies for a number of vulnerable groups such as children, apprentices and migrant workers, whose human rights are vulnerable and repeatedly in need of protection.

Samsung Electronics’ Policies for Vulnerable Groups Protection

Policies	Description
Child Labor Prohibition Policy	Prohibition of child labor and implement remedies for victims
Migrant Worker Guidelines	Prohibition of forced labor (imposing recruitment fees, collecting identity card) and human trafficking
Guidelines for Apprenticeships	Provide job training that is suitable for apprenticeship purposes
Juvenile Worker Policy	Protect juvenile workers based on their physical and emotional status (Restrict from dangerous or hazardous jobs)
Student Worker Policy	Provide jobs relevant to their learning purposes

Labor and Human Rights Risk Management

Human rights risks need a comprehensive, systematic approach. As such, the working-level experts and executives of our five business divisions (Human Resources Team, Legal Team, Partner Collaboration Center, Global Public Affairs Team and Global EHS Center) have operated the Global Labor Issue (GLI) Committee biweekly to discuss the relevant issues. Furthermore, material issues will be elevated to the Sustainability Council, which key executives are participating in, for discussion and will be reported to the top management.

Risk Identification

We operate a worksite monitoring system, where we regularly evaluate compliance management levels and improvement activities at each worksite, and a risk analysis system, where we assess various internal and external indicators to identify factors that could adversely affect human rights.

Risk Identification

Risk Identification System	Descriptions
Worksite Monitoring System	Conduct a monthly assessment of compliance management and improvement activities 55 assessment items in 7 areas in 12 languages, including English, Chinese, Vietnamese, and Spanish
Worksite Risk Analysis System	Monthly external/internal risk assessments A total of 53 indicators analysis - 32 internal management indicators, such as working environment, working conditions, workforce operation and systems - 21 external environmental indicators of the country where our worksite is located
Employee Communication	Operate internal grievance resolution channels Regular meetings and interviews with the executives, managers, and employee representative bodies
Networking with External Stakeholders	Identify various risk factors and problems that may arise in global worksites through networks such as governments, NGOs, and academia

Risk Assessment

Every year, we identify our priorities for risk assessment and capacity building in the areas of labor and human rights, as well as environment, health and safety based on registered data from our worksites monitoring system and risk analysis system. For the selected worksites, we provide annual labor and human rights expert consultations.

In 2018, seven worksites conducted such consultations including two in China, two in Vietnam, and one in Europe. A total of 154 improvement tasks were identified, of which 115 tasks (74.7%) were completed.

To improve the management capacity of overseas worksites, each business division conducts a special diagnosis, including management of working hours and protection of employees of vulnerable classes. Reviews are conducted by external third party specialized organizations upon request from customers.

Samsung Electronics Expert Consulting Process (Assessment)

Diagnosis Steps	Descriptions
Select audit targets	· 2 to 3 worksites are selected every quarter that showed increased risk of human rights impact in the worksite monitoring system and risk analysis system
Organize an audit team	· Select 6 experts ¹⁾ on global labor and human rights for each business division
Self-diagnosis	· Conduct a self-diagnosis of compliance management on the worksite based on the inspection checklist
On-site audits	· The inspection criteria consist of a total of 139 items, including RBA-based items ²⁾ and self-inspection items ³⁾
Follow-up management	· Share the inspection results with the worksite management · Establish future improvement plans and measures to prevent recurrence within one week of inspection · Implementing improvement tasks by organizing an expert Task Force such as personnel and environmental safety · Management of monthly progress of improvement tasks through the worksite monitoring system

Footnote:

- 1) RBA Auditors who have completed 'RBA Labor & Ethics Lead Auditor Training' and other global labor and human rights experts
- 2) 51 items in the fields of labor/human rights, health and safety, environment, business ethics.
- 3) 27 items in human rights, legal compliance, and etc., 41 items in communication, human resource policy, and employee representative body, and etc., 10 items in infrastructure, and 10 items classified as 'others'

Through these assessments, we put forward our best efforts to enhance the working conditions of overseas worksites. We do this by organizing and maintaining a variety of policies for our operation as well as enhancing grievance mechanism and business partner management standards. Moreover, we provide educations to our employees on human rights, RBA Code of Conduct, internal guidelines, and grievance handling procedures.

RBA On-site Audits

As a member of RBA, a global coalition devoted to corporate social responsibility, Samsung Electronics is applying RBA Code of Conduct to manage the work environment of global worksites and suppliers. RBA on-site audit is an audit process designed to identify work environment-related risks and drive improvement measurements in the areas of labor, health & safety, environment, business ethics, and business systems.

In 2018, we collaborated with an RBA-certified agency to assess compliance with local labor laws and RBA assessment standards at eleven production sites in eight countries in Europe, Latin America and Asia according to RBA standards. Two worksites in Brazil, one in China and one in Korea have achieved Platinum, the highest level of recognition in a VAP audit.

Diversity & Inclusion (D&I)

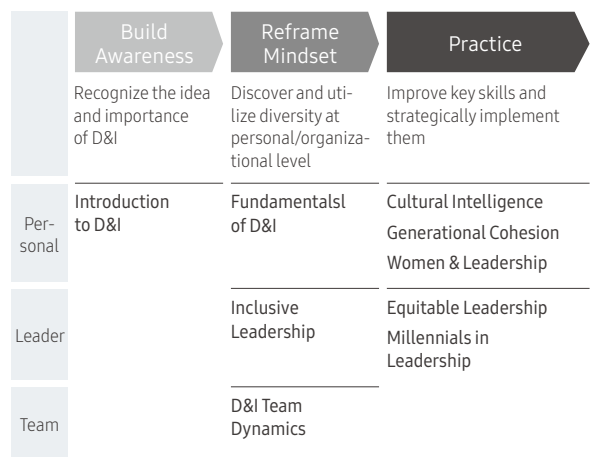
Our D&I vision is to create a future by developing a diverse and inclusive culture that attracts and grows the world's top talent. We seek to achieve the vision by implementing policies and programs to support our business and employees, focusing on such universal elements of diversity as gender, age, and culture. To

that end, Samsung Electronics offices around the world have designed region-specific initiatives based on their diversity interest and cultural priorities in alignment with our global D&I vision.

Learning & Development Structure to Foster Diversity & Inclusion

We have established and provided learning and development programs to successfully cultivate and maintain diversity and inclusion within our corporate culture as employees are performing daily tasks. In order to do so, we assess our worksites' needs for diversity and inclusion, while encouraging our employees all around the globe to participate in learning and development programs for diversity and inclusion.

Training Curriculum for Fostering Diversity & Inclusion Culture



Global D&I Initiatives

Regions	Area	Highlighted Initiative
North America	US, Canada	Female Leadership Development Held 'Seoul Sisters Conference' annually to encourage female employees and provide them with opportunities
	Brazil	D&I Education Provided diversity and inclusion (D&I) education to more than 4,000 employees
Europe	CIS	Recruitment Improved the recruitment process to be more inclusive towards applicants with cognitive or physical motor limitations
Asia	Korea	D&I Training Curriculum Development Hosted a global team of content creators and D&I advisors from 13 countries to continue development of global D&I training courses
	China	Cultural Intelligence Created a community to provide employees and leaders with the opportunities to learn from each other across functional areas
	India	Recruitment Improved the recruitment process regarding D&I
	Malaysia	D&I Fundamentals Incorporated D&I coaches into the business and organization to support cultural, generational, and gender issues
Africa	South Africa	Cultural Intelligence Celebrated events to highlight women and minorities

Investing in Our Human Capital

Employee Competency Development Programs in Korea

Type	Description
STaR Session ¹⁾ / HR Fair	STaR Session is a comprehensive talent development process designed to support our employees in charting their career paths with their leaders. Based on each employee's job competency modeling results, STaR Session offers a variety of development opportunities encompassing job training and academic training programs including MBA degrees that can be customized to each participant's career stage and development needs.
Job Posting	Our employees are provided with opportunities to move to different positions within the company through our Job Posting program, which is available upon needs. This program follows a systematic in-house process including posting jobs, receiving applications, screening papers, and interviewing the applicants. Over the past three years, a total of 2,120 employees were able to move to their desired positions through the Job Posting program.
Career Consulting Center	Since 2001, we have provided retirees, as well as current employees, with opportunities to start anew in order to prepare for future career. We have supported programs such as career consulting for current employees, life designing consulting for retirees, career change training and external job matching. Among approximately 7,100 employees received the assistance; a total of 6,187 employees have been able to successfully begin new careers since the establishment of the Center.
Life Design Training	This course allows our employees to plan their future in preparation for an extended retirement age and aging society. Each year, eligible employees are offered an opportunity to self-reflect and ponder over what they would like their life after retirement to look like. The course aims to help employees remain productive at work while effectively dealing with the anxiety associated with their respective life/career stages. It also represents another way that we fulfill our corporate social responsibility.

Footnote:

1) Samsung Talent Review Session

Samsung Culture Index (SCI)

The SCI survey is a survey conducted every year with the aim of identifying company strengths and areas for improvement of our corporate culture among all of our employees. More than 280,000 employees from 130 subsidiaries participated in the annual survey in 2018.

At Samsung Electronics, we conduct the survey focusing on five categories-Work Smart, Think Hard, Build Trust, Leadership and Policy- which are the core elements of our 2020 vision of 'Inspire the World, Create the Future'.

Since the introduction of this index in 2012, comprehensive employee satisfaction has risen every year, with the over-

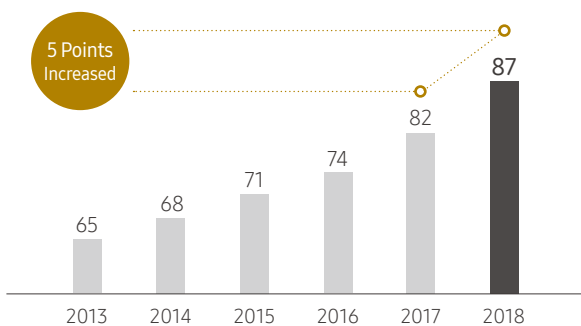
all score for the 2018 global SCI result at 87 points, which is 5 points higher than in 2017. The score means that 87 percent of global Samsung Electronics employees are satisfied with our corporate culture.

Number of worksites and participants for SCI (2018)

Unit: No. of worksites / No. of participants

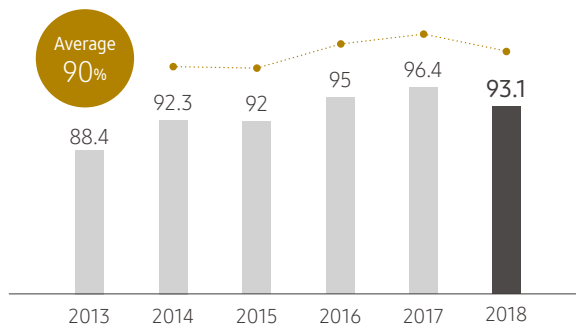
	Total	HQ	Productions	Sales	R&D
Numbs of worksites	130	1	28	71	30
Participants	286,209	86,298	160,525	22,138	17,248

SCI Result



Participation Rate

Unit : %



Health and Safety in Our Operation

Occupational Health and Safety

Samsung Safety Culture Assessment (SSCA)

We assess the level of safety culture at our domestic and global worksites to identify the safety awareness of our employees and to establish an advanced safety culture in our operation. In 2018, we evaluated the safety culture of all production sites in Korea (including suppliers in our worksites) and 24 overseas production subsidiaries, covering a total of 148,000 employees in the assessment.

The assessment focused on top management’s commitment/roles/responsibilities, risk management, communication/participation, environmental safety capabilities, compliance with regulations, cause analysis/corrective actions, monitoring, and performance management.

As a result of our proactive efforts to establish a safety culture, our safety awareness level improved more than 9% in 2018, when compared with 2017. Based on these assessment results, we plan to strengthen safety culture communication with our employees.

Building a Safe Environment

Accident Prevention Processes

We regularly conduct safety training in order to identify potential safety issues arising from aging equipment and to eliminate risk factors caused by failure to adhere to safety requirements. Once we discover potential risk factors, we formulate improvement measures and eliminate environment/safety risks through continuous monitoring.

Accident Prevention Process

	<p>Identification of Risk Factors</p> <ul style="list-style-type: none"> · Old facilities · Non-compliance with safety regulations · Lack of proper on-site management
	<p>Setting Countermeasures</p> <ul style="list-style-type: none"> · Estimate the life span of facilities · Set measures to comply with safety regulations · Re-examine on-site management system
	<p>Improvement</p> <ul style="list-style-type: none"> · Monitor facilities · Offer safety training · Perform on-site audits
	<p>Monitoring</p> <ul style="list-style-type: none"> · Evaluate performance · Rules and processes

Major Improvement Activities in 2018

As part of major activities in the accident prevention process, we have improved our fire safety practices. We are replacing our carbon dioxide extinguishing system with a clean gaseous agent system. The new system has reduced the risk of suffocation during a gas leakage. We also received consulting for further improvement in our extinguishing systems. By renovating aging facilities, we expect to prevent any fire protection-related accidents effectively in the future.

Accident Response Procedures

We strive to minimize damage from an accident by establishing accident response procedures. In addition to a recovery plan, we analyze the cause of the accident and establish plans to prevent any recurrence of the accident.

Accident Response Procedure



Strengthening EHS Capacity

EHS Drill and Education

We regularly conduct emergency drills in preparation of emergency situations. The drills include preparation for fire escape, earthquake response, chemical leakage response and hands-on fire drill. In 2018, emergency drills were undertaken on 1,169 occasions, and each of our employees attended an average of 2 drills. Regular drills under diverse emergency scenarios by accident type enable us to continually monitor and verify the effectiveness of our emergency response system. In addition, in 2018, we provided fire safety education to employees of our suppliers. Our average per-capita training hours last year amounted to 19.3 hours.

Experiential Emergency Drill

We provide various experiential training programs on emergency evacuation in order to improve employees' ability to quickly respond to emergency situations. In particular, in consideration of the situations that could occur in real life, we provided comprehensive education on cardiopulmonary resuscitation, fire extinguisher, fire hydrant, descending life line, and air mattress, as well as the experiential training related to earthquake, which have recently occurred more frequently in Korea.

EHS Education for Employees

Target	Descriptions	Achievement in 2018
Employees	Introductory courses, legally mandated standard courses, safety leadership courses for executives	Total 5,311,635 hours of training were conducted, completed by 524,790 employees
EHS staffs	In-house examiner courses, professional licensing courses (such as master craftsmen and engineer.), refresher and extension courses	Total 62,360 hours of training were offered, completed by 11,537 employees
Employees at overseas production sites	Global EHS Conference, key leader courses, sewage/waste-water treatment specialist in regional training courses	Total 3,163,648 hours of training were offered, completed by 197,769 employees

EHS Innovation Day

To improve our EHS capabilities, we have held an EHS Innovation Day in Korea since 2013, and in Vietnam and China since 2017. Starting in 2018, we expanded the event globally to include Southeast Asia and Latin America. This global event has boosted the safety awareness of our top management as well as our employees, spreading a safety culture at our worksites. At the event, we also hold an EHS Supplier Day where we share our best practices with our suppliers. The suppliers also share their successful improvement activities. In order to enhance the health and safety capability of each business, we are expanding the event in line with the characteristics of the each business.

EHS Innovation Day Programs

Classification	Key Features
Innovation Practice Exhibition	Exhibiting best practices selected from on-site improvement activities conducted at Samsung Electronics' global manufacturing sites and at suppliers last year
Excellent Worksite Benchmarking	Providing various best practices in safety where attendees at the event can find benchmarks and apply best practices to their facilities
Special Lectures on Safety Culture	Inviting lecturers from companies with advanced EHS management to introduce risk practices to overcome risks and share the importance of safety culture
Presentation of Best Practices	Having a best worksite practice contest to provide a learning opportunity for employees through the presentation of final selected practices

Expansion of EHS Innovation Day

In March 2019, along with our affiliates including Samsung Display, Samsung SDI, Samsung Electro-Mechanics, and Samsung BioLogics, Samsung Electronics held "2019 EHS Innovation Day" at the Hwasung worksite to strengthen our EHS capabilities.

At the event, the Environmental Safety Ten Rules were adopted as a new guideline. About 100 top managements and executives of our affiliates gathered to reinforce their commitment to strengthen safety at their operation. In addition, we shared our know-how by presenting expert lectures on how to build innovative and safe worksites and introduced examples of excellent innovation in each affiliate's environmental safety field.

Safety Inspection with Drones

In order to prevent dangerous situations during a safety inspection of worksites, drones are used to inspect high-risk locations and facilities, such as airways, electrical facilities, building roofs. We have verified their effectiveness after introducing them to worksites in Korea in 2018, and we are planning to apply drone inspection in overseas worksites as well.

Employee Health Management System

Our employee health management system consists of three factors: work environment, health care, and disease prevention. In addition, the system includes providing health check-ups to employees and studying harmful musculoskeletal factors in the work environment.

Health Management System



Health Care

- Provide health check-ups
- Operate in-house fitness facilities : Fitness gyms, musculoskeletal fitness centers
- Health care programs : Anti-smoking / moderate drinking campaigns, taking the stairs campaign, healthy meals



Work Environment

- Measure risk factors in the work environment
- Study harmful musculoskeletal factors
- Undertake No odor / Dust / Noise initiatives



Disease Prevention

- Monitor infectious diseases and explain prevention rules
- Operate in-house health clinics : Vaccination against influenza, hepatitis, and others
- Health care for employees on business trips : Manage the list of countries where travel is restricted or prohibited, and offer household medicines

Health Management Council

In July 2017, through our “Health Culture” initiative, led by the Health Management Office with top executives from the Human Resources, General Affairs and EHS teams, we promoted a revamped focus on health of employees. As a result of this effort, the number of employees with a health risk in 2018 was 50% lower than in 2017.

Major activities of Health Management Council

3-Care Comprehensive Management

We conduct tri-fold “3-Care” comprehensive management system. The EHS team strengthens our face-to-face medical consultation policy and provide a health care program. The HR team improves the working environment (working hours, late-night work) and provide customized work out opportunities and healthy menus. The head of each department conducts personal health-related interviews and adjusts workloads.

BOOST Solution

Health Management Council introduced “BOOST solution”, which stands for Burn out, Obesity, Overdrink, Smoking, and Take-care group. Under the solution, employees with one of the 4 high-risk health issues are selected as a “Take-care group” to receive a special attention.

Employees with High-risk of Cardiovascular Diseases

We identify and support employees with high-risk of cardiovascular disease based on blood pressure and obesity levels found in employees' health examination results.

Health Campaigns

For all employees, we have conducted several health campaigns, such as Walking Campaign using the Samsung Health App and No Smoking&Drinking.

Ergonomic Management

Ergonomic Line Certification

To manage our employees' health, we have introduced an “Ergonomic line certification” that evaluates overseas worksites' operational level by calculating a percentage after the ergonomic assessment of manufacturing processes. For this system, we conduct REBA (Rapid Entire Body Assessment) to evaluate and manage the line certification for each process with G-EHS system. In total, 1,589 certifications were completed in 2018 with 81 percent meeting Green Line standards, which is the recognition for the highest level of ergonomic excellence.

Initiation of Robotic Automation

We are implementing robotic automation to guarantee employee safety and enable “Smart Safety Management” in connection with Smart Factory and IoT. We reviewed and selected the processes that can cause worker's musculoskeletal pain in the production process and replaced them with robots. In 2018, we reviewed our production processes, and found a total of 48 tasks that need to be improved. We have designed and applied robots for each task. A total of 17 tasks were automated in 2018.

Mediation and Compensation on Occupational Disease

In November 2018, Samsung Electronics accepted a settlement plan recommended by the Mediation Committee, a third party committee formed to oversee the mediation process to resolve claims regarding health issues of employees of Samsung's semiconductor production lines.

The Mediation Committee was launched in December 2014, and with the proposal of the Family Committee, former Supreme Court Justice and lawyer Ji-Hyung Kim (who specializes in labor law) became the head of the Mediation Committee. Since then, the Mediation Committee has led the mediation among stakeholders.

In accordance with the Mediation Committee's compensation guidelines and details to be set forth and operated by a third-

party compensation committee, Samsung committed to starting the compensation process in 2018 and continuing it until 2028. In addition, Samsung expressed its regret to the aggrieved employees and families for not having responded in a timelier manner and has pledged KRW 50 billion to the Korea Occupational Safety and Health Agency for research in improving the health of workers in the electronics industry.

Although it is very difficult to establish the causal relationship between the workplace environment and the contracted illnesses, Samsung has unconditionally accepted the resolution from the Mediation Committee because it was willing to do what was best for alleviating the pain of the grieving families.

Samsung will continue its efforts to provide a safe and healthy workplace.

Workplace Chemical Management

Chemical Management

To ensure the safety of the chemical substances we use, we have developed chemical handling safety measures following EHS expert diagnosis and implementing such measures. We also provide regular training for employees who handle chemicals as well as routinely inspect chemical storage and handling facilities. We adopt a three-phase management approach: developing substitute materials, reducing the concentration of chemicals used and discontinuing their use.

Chemicals Management Process

We manage chemicals through a system which covers data from all stages of our chemical management process starting from the substance purchase stage up to the final disposal stage. At every worksite, our employees are required to perform a preliminary evaluation of the chemical prior to purchase. In addition, chemicals must meet our stringent assessment standards in order to be registered and eligible for use at our worksites. In 2018, we carried out a total of 4,837 evaluations. After use, chemical waste goes through our chemical waste treatment procedures, designed prevent accidents.

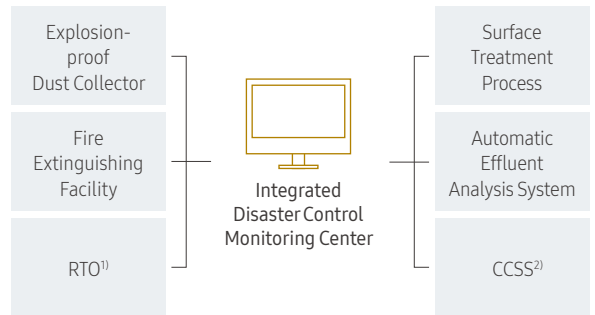
Integrated Chemicals Monitoring System

We have developed an integrated monitoring system that helps us to govern our environmental facilities, chemical-handling facilities and disaster control facilities. Through this system, we can check the status of chemical supply and treatment facilities, and take emergency response in connection with damage prevention facilities upon the occurrence of emergency.

Installation of Screen Door for Chemicals Storage in Pyeongtaek worksite

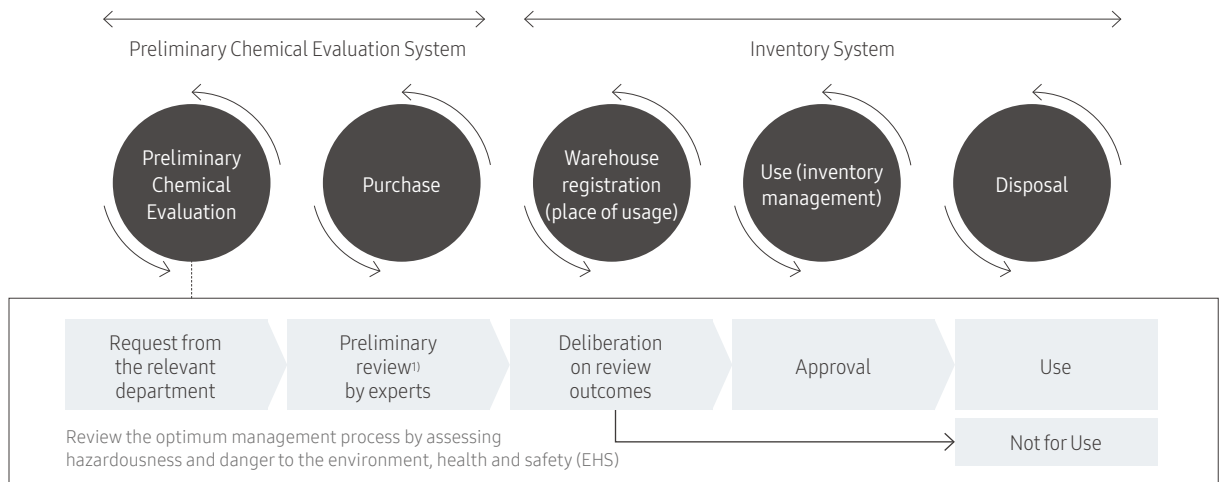
We have installed a shatter-resistant screen door system to a warehouse handling chemicals in order to protect employees from chemical leakage accidents and to prevent any secondary damages. We selected automatic screen doors as they have several advantages, such as easier monitoring, immediate management, and inter-operation with firefighting facilities interlock management systems.

Integrated Chemicals Monitoring System



Footnote:
 1) Regenerated Thermal Oxidation
 2) Central Chemical Supply System

Chemical Management Process



Footnote:
 1) Preliminary review: Performed based on Material Safety Data Sheet (MSDS), chemical warranty letters, and letters of confirmation (LOC)

SUSTAINABLE SUPPLY CHAIN

2018 HIGHLIGHTS

Investment in Smart Factory Support Project

Manufacturing Experts / Invested Funds

150_{people} / 100_{Billion KRW}

Funding Support

Amount of Win-Win Funds Invested in Suppliers

833.9_{Billion KRW}

Supply Chain Conflict Minerals Management

Percentage of RMAP¹⁾ Certified Smelter within Supply Chain

100%

Footnote:

1) Responsible Minerals Assurance Process

We firmly embrace the philosophy of fairness, openness and co-prosperity with about 2,400 first-tier suppliers worldwide. Moreover, to establish a sustainable business ecosystem, we strive to strengthen the competitiveness of our supply chain as well as to require them complying with global laws and regulations and fulfilling social responsibilities.

ALIGNMENT WITH SUSTAINABLE DEVELOPMENT GOALS



[Goal 3] Ensure healthy lives and promote well-being for all at all ages

3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination



[Goal 8] Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services

8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms

8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment



[Goal 12] Ensure sustainable consumption and production patterns

12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle

Our Knowledge Sharing with SMEs - Building Smart Factory

In 2015, we started a project called “Smart Factory Construction” to share our technological knowledge on building a smart factory small and medium-sized enterprises(SMEs).

A smart factory integrates IT technologies in manufacturing industries for automation of factory operation. It can improve production efficiency, reduce costs, minimize environmental impacts and reduce workplace risks.

Smart factory technology includes: building a foundation of site management starting with site clean-up; improving environmental health and safety by reducing hazardous materials and fire-watch; enhancing productivity through process innovation; optimizing logistics; establishing a standard product quality process; automating manufacturing processes; and conducting process simulations.

For three consecutive years between 2015 and 2017, we shared our knowledge with 1,086 SMEs (120 in 2015, 479 in 2016 and 487 in 2017) in Korea. Among the SMEs that participated in the Smart Factory Construction project, small enterprises saw a 54% increase in productivity, while medium-sized enterprises saw a 58% increase.

We will expand our support over the next five years from 2018 until 2022 to reach out to 2,500 SMEs. We cooperated with Korea’s Ministry of SMEs & Startups to grant a fund of KRW100 billion in the next five years. Compared to the current project which focused on manufacturing capability-building, the expanded project will focus on SMEs’ sustainable growth in the era of Industry 4.0. The expanded program will provide support for training human resources, securing technology, sharing our intellectual property, and creating new market opportunities.

Moreover, we supported SMEs’ entry into new markets by hosting exhibitions for outstanding products and by matching new companies with investors and buyers. For example, we hosted the third annual “Smart Biz Expo” in 2018 as part of our support for new entrants into the market, which helped SMEs network with domestic and international buy-

ers and investors. In addition to the fund that we agreed to raise with Korea’s Ministry of SMEs & Startups, we are raising another fund to support SMEs’ market entry for five years with a total of KRW10 billion. We are also holding a Partner Collaboration Academy for training of supplier employees as well as a Smart Factory Academy to educate professionals.

We believe that these efforts will help SMEs not only by increasing short-term profits through process innovation but also by promoting long-term sustainable business management. Accordingly, we will actively work to increase SMEs’ short-term sales, stimulate the economy, create jobs, and improve corporate culture. By doing so, we seek to promote SME innovation and the further advancement of such companies in Korea.



Agreement on Smart Factory Construction with Korean Ministry of SMEs and Startups

Vietnamese Industrial Consultant Training Program

In March 2018, we signed a memorandum of understanding (MOU) regarding a consultant training program with Vietnamese Ministry of Industry and Trade.

This program provided training sessions for Vietnamese industry experts, including consultants, public officials, and professors, selected by the Vietnamese Ministry of Industry and Trade. The goal of this program was to help Vietnam nurture its own human resources in the technology sector and, subsequently, increase the rate of local components production.

The program consists of two stages – 1) a local consultant training session for worksite improvement consulting; and 2) a master consultant training session for consultant nurturing. Those who completed these two sessions worked as instructors to help local consultants and provided substantive consultation on production and quality improvements within Vietnamese companies.

Ninety five trainees completed the local consultant training session in 2018, and 30% of them are on the master consultant training session. In collaboration with the local community, including the Vietnamese government, the well-organized training program smoothly transferred the knowledge and experience of Samsung Electronics experts to Vietnamese trainees, thereby contributing to the development of local human resources and the creation of a local component industry ecosystem.

Until 2020, we will continue to provide the local consultant and master consultant training with the aim of training a total of 200 local consultants and 60 master consultants.

Vietnamese Industrial Consultant Training Program



Global Supply Chain Operation

Supply Chain Management Approach

“We Buy Value, We Pay Trust”

Under our vision of “We Buy Value, We Pay Trust”, we operate our supply chain considering economic, social, and environmental aspects. Also we actively manage our supply chain sustainably throughout the entire process from supplier selection, operation and evaluation while working towards mutual growth.

Economic : We optimize cost, delivery, technology, quality, and human resources to maximize synergy effects, speed and efficiency as well as to create a sustainable corporate ecosystem.

Social : We require our suppliers to abide by international standards and regulations with regard to human rights, workplace safety, ethics, and conflict minerals issues. Our goal is to build an open and transparent management accountability system observed by all stakeholders along the supply chain.

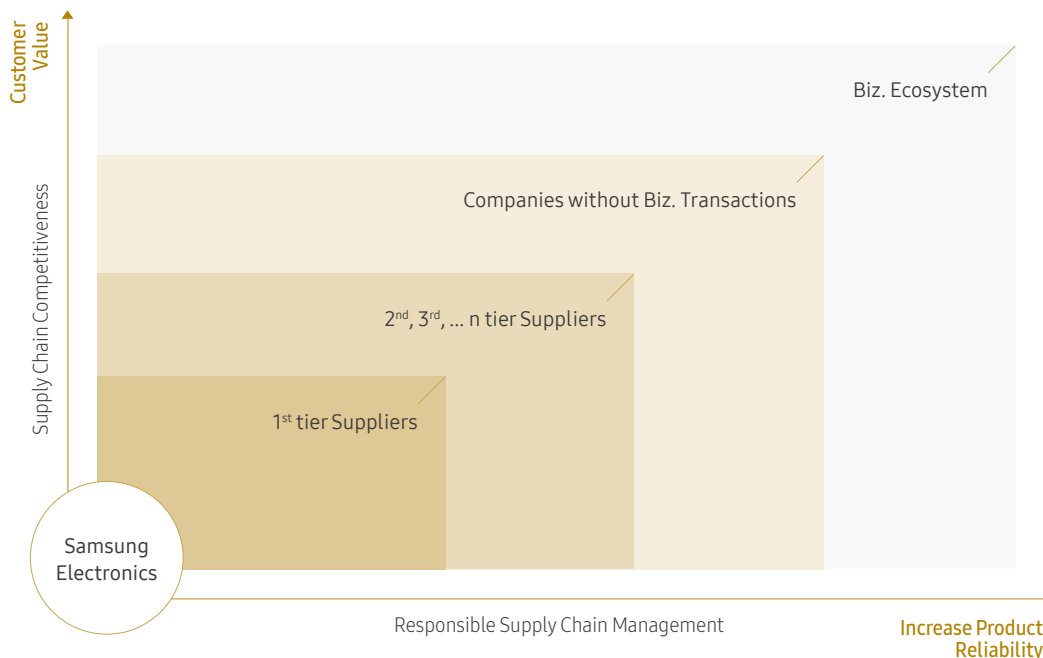
Environmental : We only work with internally certified suppliers (Eco-Partner) to assess and manage the environmental impacts of component manufacturing, sourcing of raw materials and associated production processes.

Sustainable Supply Chain Operation Strategy

To establish a sustainable business ecosystem, we relentlessly strive to strengthen the competitiveness of our supply chain, while observing global laws and regulations, and fulfilling our responsibilities. Our top management is committed to continuously investing in the competitiveness of not only our first-tier suppliers but also our second- and third-tier suppliers and, furthermore, to small and medium-sized companies that do not have prior business relationships with us.

As part of our efforts to bolster competitiveness in our supply chain, we continuously help our suppliers secure global competitiveness and growth, based on our business philosophy that our competitive advantage comes from the competitiveness of our suppliers.

For responsible supply chain management, we help our suppliers comply with the Samsung Electronics Supplier Code of Conduct by organizing regular training sessions and operating in accordance with relevant local regulations as well as international standards. Furthermore, we support our suppliers in managing sustainability issues associated with human rights, EHS (Environment, Health and Safety), finance, and ethics. In addition, we endeavor to ensure transparency of minerals used in our products.



Selection of New Suppliers

Registration of New Suppliers

We evaluate candidate suppliers based on five criteria—procurement and quality, EHS (Environment, Health and Safety), labor and human rights, Eco-Partner, and financial status. Only those that score 80 points or higher out of 100 points in all five criteria qualify to register as a Samsung Electronics supplier. For the EHS, labor and human rights, and Eco-Partner domains, we use a checklist based on RBA standards to perform intensive reviews. To identify the actual conditions of candidate suppliers, our in-house experts conduct on-site visits to suppliers, while their financial status (credit rating) is reviewed by professional external agencies.

Our standard supplier contract signed with first-tier suppliers stipulates abiding by the Samsung Electronics Environmental Standard, the Samsung Electronics Supplier Code of Conduct, and international human rights standards.

EHS (Environment, Health and Safety) : Suppliers must satisfy 22 criteria, including occupational safety, fire prevention facilities, occupational health, handling of chemicals, and environmental facilities. In particular, full compliance is required in eight mandatory items, including fire prevention facilities and the handling of chemicals of concern and waste substances, sewage and wastewater.

Labor and Human Rights : On-site audits are performed on 20 items, including voluntary work, compliance with work hour regulations, and ban on discrimination. In particular, a ban on child labor, a minimum wage guarantee, and a ban on inhumane treatment are mandatory requirements.

Eco-Partner : The Eco-Partner certification aims to review our suppliers in terms of their product environment policy, education & training, and the inclusion of certain chemicals of concern in their products. We manage the quality of products from suppliers and their social and environmental impacts.

Open Sourcing

We maintain an open sourcing program to keep our supply chain competitive. Through the International Procurement Center (IPC) and Global Supplier Relationship Management System (G-SRM), companies that wish to do business with us can propose use of their components and materials in our products. Our IPCs, procurement bases located in strategically-important areas across the globe, enable us to monitor technological trends in relevant regions and identify new suppliers. In 2018, a total of 610 suggestions were reviewed, of which 72 were chosen for our product application.

Operation of Global Suppliers

Based on our Procurement and Supplier Codes of Conduct, our procurement operation is governed by an integrated procurement system. We have a dedicated organization responsible for managing our supply chain from every angle. Our supply chain management is focused on the strategic importance of suppliers with due attention being paid to lower-tier suppliers. In addition, we are committed to boosting transparency in our supply chain by disclosing our list of suppliers.

Global Procurement Code of Conduct : All of our purchasing personnel must adhere to our Procurement Code of Conduct including the Standards and Principles of Purchasing, Ethical Standards for Purchasing, and Socially Responsible Purchasing.

Supplier Code of Conduct : Through the Samsung Electronics Supplier Code of Conduct, we ensure that our suppliers operate in accordance with local laws and regulations as well as international standards while helping advance the responsible management of their work environment. We update our Supplier Code of Conduct to reflect the latest version of Responsible Business Alliance Code of Conduct and revised international standards. In addition, we provide a guide to supplement our Supplier Code of Conduct to help with compliance.

Integrated Procurement System : We utilize our integrated procurement system (G-SRM) for supply chain management information sharing with our suppliers, including supplier evaluation/registration management, risk management, integrated management of suppliers' compliance and work environments. We also share our Supplier Code of Conduct and provide self-initiated evaluation checklists through this system.

Dedicated Organizations : We operate an organization responsible for managing suppliers' work environments, as well as a Partner Collaboration Academy for suppliers' R&D activities and employee training. In 2018, we established a Smart Factory Support Center to help suppliers prepare for Industry 4.0 in the areas of nurturing human resources, securing technology, and acquiring new customers.

Supply Chain Natural Disaster Risk Management System : We monitor and manage natural disaster risks to ensure business continuity and minimize impacts on our business. We obtain natural disaster data from a related agency and run an automated system to analyze the impact of natural disasters.

Key Suppliers

For our first-tier suppliers, we designate those with high transaction volume and business importance as key suppliers in order to identify opportunities and effectively focus on monitoring and managing the supply chain. We give key suppliers extensive support, including a priority for contract renewals, more transaction allocations, a capacity building program and on-site services to improve their work environment. In 2018, the key suppliers accounted for nearly 34% of our supply chain, with purchases from them representing approximately 92% of our total procurement spend. In particular, we designate suppliers, who have a large impact on our supply chain from managing multiple lower-tier companies, as priority suppliers and manage compliance.

We also designate our second-tier suppliers who supply to our key first-tier suppliers and have large transaction volumes for Samsung Electronics as our key second-tier suppliers. This is done in order to manage the potential risks on working environment such as the use chemicals of concern in the manufacturing process.

Lower-tier Supply Chain Management

Our supplier management approach extends to second-tier suppliers based in Korea in order to strengthen our competitive advantage along the entire supply chain. To manage second-tier suppliers, we clearly define first-tier suppliers' responsibilities regarding the working conditions within sub-suppliers. We encourage our suppliers to engage in responsible corporate activities described in our Supplier Code of Conduct and ensure compliance among their sub-contractors.

Contracts Between First- and Second-tier Suppliers : First-tier suppliers are required to sign a standard contract form with second-tier suppliers that are engaged in the production of the items supplied to Samsung Electronics. It includes the same level of compliance that we ask of our first-tier suppliers.

Worksite Environment, Health and Safety : We hold our first-tier suppliers accountable for building and supporting a safe work environment at second- and/or lower-tier suppliers and reflect on outcomes in evaluating their performance. For items with high environment, health and safety concerns (e.g. chemical substances), we have developed and distributed a safe management guidance to our first-tier suppliers, which assists them in examining the environmental, health and safety performance of second-tier and lower tier suppliers.

Promotion of Fair Trade Policy : We support wide-ranging programs to promote a fair trade between first- and second-tier suppliers. With the help of Hyeopseonghoe, a council made up of our first-tier suppliers, and a Council of Trustees (consisting of second-tier suppliers), we establish a culture of fair trade and

provide programs for mutual growth. Also, since 2011, we are encouraging our first-tier suppliers to sign a fair trade agreement with second-tier suppliers, which we annually sign with our first-tier suppliers. Starting from 2018, we are encouraging a fair trade agreement with second-tier suppliers, between our second- and third-tier suppliers so that our culture of fair trade and mutual growth is expanded to lower-tier suppliers.

Comprehensive Supplier Evaluation

We perform a comprehensive annual supplier evaluation to assess the competitive edge of suppliers and to control sustainability issues by using eight evaluation criteria—Technology, Quality, Responsiveness, Delivery, Cost, EHS (Environment, Health & Safety), Finance, and Law. Among these, three criteria (Finance, EHS, and Law) are utilized for the analysis of supplier-related sustainability issues linked to economic, environmental and social compliance. We use various methods to evaluate suppliers, including transaction data, on-site inspection results, and data uploaded by suppliers. As the evaluation process is conducted on an ongoing basis throughout the year, all suppliers can check and monitor their performance in real-time, through the integrated procurement system. In 2018, we evaluated 91% of our total suppliers, with those registered less than one year excluded.

High Performers

The results of our comprehensive supplier evaluation are used in all supplier management processes. As such, raising the proportion of high performers (rated as “excellent” or “good”), is a key performance indicator in our supply chain management in terms of securing sustainable competitive edge of suppliers. The proportion of suppliers rated as high performers in 2018 stood at 64%. In the 2018 evaluation, we strengthened our evaluation standards related to environment, health and safety, process failure, and payments between suppliers in order to boost sustainability by expanding the social responsibilities of the supply chain. We aim to maintain the percentage of high performers at above 60%.

High performers are granted incentives, including the preferential transaction allocations for the following year and an opportunity to join capability building initiatives, while underperformers are required to take corrective measures and are subject to penalties, including reductions on transaction volume and restrictions on additional transactions. In addition, as part of incentives for our suppliers, we hold an annual event Partner Collaboration Day and award prizes for best innovation practices.

Managing Suppliers with High-Risk in Sustainability

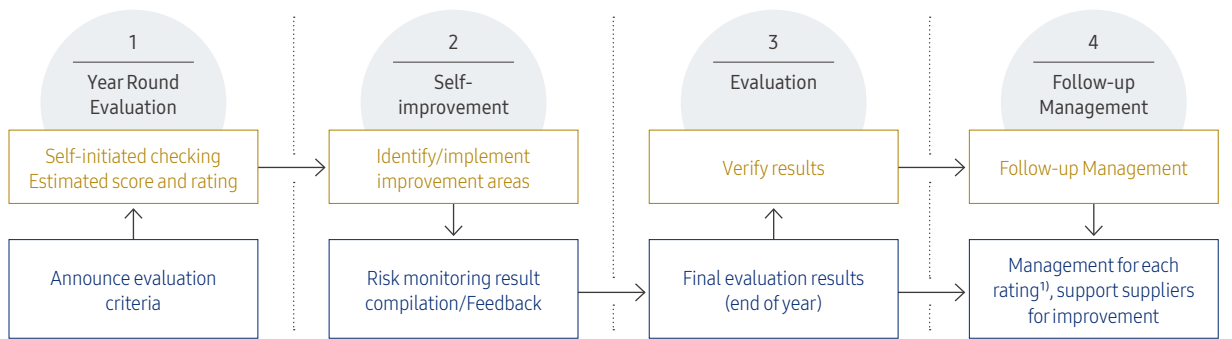
We concentrate on managing our supply chain by identifying suppliers who require additional due diligence based on our comprehensive supplier evaluation and on-site audit, which include Economic, Social and EHS topics. To this end, we visit such suppliers on a regular basis to provide them with consulting services and improve their work processes. In 2018, the proportion of high-risk suppliers remained flat year-on-year, at 2.7%.

Finance : Based on business information and data from a credit rating agency, we monitor suppliers' financial information on a quarterly basis. Regarding the suppliers found to have low credit rating, we take proactive measures to prevent business risk.

Law (Social) : We conduct on-site audits of our suppliers to check their compliance with mandatory RBA items. Based on the on-site audits, suppliers who need to correct for actions are required to put in measures for improvement.

EHS (Environment, Health and Safety) : Suppliers who use chemicals of concern in manufacturing processes are classified for further due diligence. We send our EHS experts to support their activities for improvement.

Comprehensive Evaluation Process



Footnote:
 1) Post management for each rating:
 ① Excellent: Give preference in allocating volume for the following year
 ② Underperforming: Request improvement measures
 ③ Poor: Reduction in transaction volume and restriction of additional transactions

Comprehensive Evaluation Items

Category	Item	
Business Competitiveness	Technology	· Eight items, including the ownership of technology patents and R&D investment
	Quality	· Five items, including failure rates and quality management system
	Responsiveness	· Six items, including engagement in our policies and the use of conflict minerals
	Delivery	· Six items, including on time delivery and RTP ¹⁾ response rates
	Cost	· Five items, including increases in transaction value and competitive edge in terms of cost
Sustainability Issue	EHS	· Five items, including workplace safety and international certification
	Finance	· Three items, including credit rating and debt ratio
	Law (Social)	· Five items, including labor/human rights in the workplace and anti-corruption

Footnote:
 1) Return to Purchasing order

Strengthening the Competitiveness of Supply Chain

As a global corporate citizen, we seek co-prosperity with communities, countries, and humanity as a whole. To this end, we are committed to bolstering mutual trust with our first-, second-, and third-tier suppliers via support and cooperation, and

to enhancing competitiveness in our supply chain. In addition, we have been expanding our partner collaboration programs to include SMEs that we have no business relationship with to strengthen a corporate ecosystem in the community.

Partner Collaboration Support Programs

Training and Hiring	<ul style="list-style-type: none"> · Customized training courses, a job fair, a next-generation entrepreneur program, etc. * Operate a training center for suppliers in Suwon, Gyeonggi Province 	1st- /2nd- /3rd-tier suppliers
Funding	<ul style="list-style-type: none"> · Win-Win funds (KRW1.4 trillion), Payment support funds (KRW 800 billion scale¹⁾) 	1st- /2nd- /3rd-tier suppliers
New Technology Development and Business Opportunities	<ul style="list-style-type: none"> · High technology forum, Business technology forum, Patent sharing 	1st- /2nd- /3rd-tier suppliers, SMEs with no business relationship
Competitiveness Enhancement	<ul style="list-style-type: none"> · Management consulting, Advisory support and Improvements to EHS · Smart factory 	1st- /2nd- /3rd-tier suppliers, SMEs with no business relationship
Sales Channel	<ul style="list-style-type: none"> · Export/marketing of best products, Smart Biz Expo 	1st- /2nd- /3rd-tier suppliers, SMEs with no business relationship

Footnote:

1) Payment support funds target first- and second-tier suppliers

Training and Hiring

We provide 540 training programs in 10 areas (including leadership, global, R&D, procurement, sales, and business innovation) for our suppliers to strengthen the capabilities of their employees so that our growth knowledge can be shared with our suppliers. Around 70% of the collective training sessions are assigned to job skill training in order to ensure practical improvements. In 2018, we expanded ICT conversion and semiconductor technology academy sessions to help suppliers lay the foundation for future competitiveness and prepare for Industry 4.0. In addition, we held industry trend and business innovation seminars to support the transition into smart manufacturing. Furthermore, we jointly hold job fairs with suppliers that have difficulties with hiring to help them secure talent. In the 2018 job fair, a total of 120 suppliers and 10 thousand job applicants participated.

Funding Support

We manage Win-Win funds and provide funding to suppliers in Korea in an effort to address suppliers' financing difficulties and provide liquidity. Win-Win funds offer loans of up to KRW 9 billion at low interest rates to support facility investments and technology development. A KRW 1 trillion Win-Win fund was created for first- and second-tier suppliers in 2010, and an additional fund of KRW 400 billion was formed for third-tier suppliers in 2018. The payment support funds are designed to provide zero-interest loans to suppliers to make cash payments to their sub-suppliers within 30 days. A KRW 500 billion fund was created in 2017 to improve payment conditions between first- and second-tier suppliers, and an additional KRW 300 billion fund was set-up for transactions between second- and third-tier suppliers in 2018.

New Technology Development and Business Opportunities

We are committed to sharing our technology development expertise and new technology trends with our suppliers, thus helping them secure technology. As part of these efforts, we offer a superior technology exchange program called “High Technology Forum” that highlights our technology trends and superior technologies held by universities and research organizations. In addition, we hold a “Business Technology Forum” that showcases advanced, commercialized technologies to help our suppliers identify new business opportunities. In addition, since 2013, we have been participating in a public-private joint technology development project, an initiative led by the the Korean Ministry of SMEs & Startups to promote technology development by domestic SMEs that have ideas and technology but lack sufficient financial resources. Furthermore, since 2015, we have made 27,000 patents available, in order to strengthen technological competitiveness of SMEs. We provide explanatory and consulting sessions for suppliers, including those with which we do not have business transactions, on a quarterly basis.

Support for Competitiveness Enhancement

We supported a variety of innovation activities (including worksite consulting, improvements in working conditions and product quality, and optimization of production) for our first-, second-, and third-tier suppliers at home and abroad to secure global competitiveness.

Management Consulting

For 32 first-tier suppliers facing difficulties with profitability and product quality, we improved their corporate fundamentals and product quality through innovation activities, including process improvements and removal of waste factors. These consulting services led to a cost reduction of around KRW 40 billion in 2018. In addition, we offered worksite improvement consulting services to optimize production at Korean and overseas local companies.

Advisory Support

Our Supplier Consulting Office consisting of our executive-level consultants shared their worksite experiences and knowledge with our suppliers, helping them secure their own professional management capabilities.

Improvements to EHS

In 2014, we established a dedicated organization to support suppliers’ environmental safety management. The organization provides various programs including promotion of EHS Modeling suppliers, environmental safety consultancy, and improvement activities for suppliers that handle chemicals of concern. In 2018, we provided environmental safety consulting to 628 suppliers. For 22 first-tier and 33 second- and third-tier suppliers that use chemicals of concern in their worksites, we provided 28 environmental safety experts. These consulting services improved their level of environmental safety. In addition, out of the suppliers for whom we provided environmental safety consulting in 2017, we selected 44 first-tier and 120 second- and third-tier suppliers to improving their current condition of worksites.

Industry Innovation Movement

From 2013, we have been a part of the Industry Innovation Movement led by the Korean Ministry of Trade, Industry and Energy, supporting productivity innovation for our second-and/third-tier suppliers as well as SMEs with whom we have no business relationships. By 2018 when the movement came to an end, we had supported a total of 2,376 companies (1,767 second-and/third-tier suppliers and 609 SMEs).

Smart Factory

We carried out a first-round smart factory support project from 2015 to 2017. In 2018, we kicked off a second-round project by expanding the previous project nationwide to support 2,500 companies (including ones that do not have business relationships with Samsung Electronics) over the next five years. To this end, we have provided consulting services of 150 manufacturing experts and provided KRW 100 billion (with government support of KRW 50 billion). Since 2018, we have been providing support to around 500 companies.

Irenox, a Tissue Manufacturer

Irenox, a tissue manufacturer, operates an automated factory using huge volumes of raw pulp paper. In 2016, the company was able to automate many of its manufacturing processes, due to the introduction of production and resources management systems following its participation in our smart factory support project. This allowed for greater efficiencies than before when employees would move pulp paper twice as large as an adult. These changes have driven down the proportion of defects by 75%, while increasing productivity by 11% and revenue by 22%.

Hephzibah F&B, a Dried Fruit Chip Maker

The CEO of a dried fruit chip maker Hephzibah participated in the smart factory support project and received assistance in preparing for a review by the US Food and Drug Administration. Our mentors visited the production site every day for two months, helping them meet the requirements of the FDA review, including areas such as production equipment manufacturing and improvements in warehouses and packaging rooms. As a result, the FDA review, which had been expected to take two days, was completed just in two hours. In addition, the company has increased its productivity by 47%.

Sales Channel Support

In addition to support for manufacturing and production innovation, we help identify sales channels for our suppliers and SMEs with whom we have no business transactions. Leveraging Samsung Electronics’ global brand awareness, network and marketing knowledge, we provide support such as PR activities, marketing campaigns in international media, and information session for companies who want to launch their products in online retailers. In addition, we hold a Smart Biz Expo, offering sales and investment opportunities for approximately 100 companies.

Responsible Supply Chain Management

Management of Suppliers' Work Environment

In our management of suppliers' work environments, we require all participants to take the same levels of responsibility and actions. We assess our first-tier suppliers' risks related to labor & human rights and, EHS (Environment, Health & Safety) based on our Supplier Code of Conduct and a guide on the code of conduct.

In addition, we require that our first-tier suppliers and their sub-contractors (such as second-tier suppliers including the recruitment agency) protect labor/human rights for their employees by using a G-SRM system and implementing a three-stage review process.

On-Site Audit

For thorough verification, we interview suppliers' employees and examine their workplace environment. We devise final improvement tasks and register them with the G-SRM. After suppliers establish an improvement plan, they implement improvement measures on their own. For tasks that require urgent or action, suppliers engage in corrective action plans immediately. Typically, tasks are completed within 30 days after registration. For those that would take some time and costs to implement, such as facility investments and certifications, we check on the progress that suppliers are making according to their timeline and monitor the completion of improvement measures.

Applying the same criteria as the RBA's, we achieved a compliance rate of 91% in 2018. Going forward, we will make further efforts to achieve higher compliance rates through the intensive management of incomplete tasks.

Integrated Working Environment Management Process



Third-Party Audit

In 2018, we greatly expanded the number of suppliers subject to third-party audits, particularly in the Southeast Asian region where working environment issues were raised. The compliance rate of the 2018 third-party audits were similar to the 2017 results, suggesting that our efforts to improve suppliers' working environment were paying off.

Although most suppliers had their own working environment polices in place based on our supplier code of conduct, the 2018 audits found that some of new suppliers had area for improvement, particularly in their self-assessment process and air pollutant emission reduction. For the issues raised, we are currently working closely with the suppliers to formulate plans to address the issues.

Compliance Rate by Audit Area¹⁾

Unit : %

Item	2016	2017	2018
Total	95	96	96
Labor/Human Rights	90	92	95
Health/Safety	96	97	96
Environment	97	97	96
Ethics	100	100	99
Management System	100	98	96

Footnote:

1) Representing final compliance rates and reflect the results of improvement measures suggested via the third-party audits.

While we found that the working hours per week in general was not above the RBA Code of Conduct, there were a few working hour violations in some Southeast Asian countries for which we sharply expanded the number of third-party audit targets in 2018. These violations were mainly due to a gap between the countries' legal working hours and the RBA standards. We will continue to monitor the working hours and take corrective actions so that they can be managed within the standard.

Working Hour Management ¹⁾

Items	Unit	2016	2017	2018
Average Compliance of the Workweek ²⁾	%	83	87	84
Weekly Average Work Hours	hours	53	52	49
Maximum Weekly Average Work Hours	hours	57	54	51
Average Work Hours of Those Who Work 40 Hours or More per Week	hours	55	54	53
Compliance with the Guarantee of One-day off per Week	%	94	97	95

Footnote:

1) Based on global suppliers

2) A workweek should not be more than 60 hours per week (RBA criteria)

Grievance Handling Channels

We have been operating a hotline system since 2013 to gather reports on violations of the working environment standards or infringements on human rights within our suppliers' worksites. Such reports are submitted via landline, e-mail, or mobile platform and are reviewed by respective departments for verification at Samsung Electronics. Then, those who raised the issues are notified of the corrective actions to be taken within one week, followed by a review of whether suppliers have taken corrective actions. Of note, posters showing grievance handling channels in local languages are placed in offices, corridors, manufacturing sites, dormitories, dining facilities, as well as other high-visibility locations. The number of hotline reports has been decreasing due to suppliers' voluntary efforts. To promote the grievance handling system, we are utilizing the system as a channel for suggesting policy and management system, rather than just for making personal complaints, so that suppliers can improve the working environment in partnership with their workers.

Type of Hotline Reports

Types of Grievances	Unit	2016	2017	2018
Total No. of reports	No. of occasions	74	63	21
Complaints related to managers	%	41.9	52.4	38.1
Wages	%	20.3	20.6	28.5
Environment, health & safety	%	16.2	14.3	23.8
Benefits	%	13.5	4.8	4.8
Work hours	%	5.4	1.6	4.8
Others	%	2.7	6.3	0

Caring for the Work Environment of Our Supplier's Migrant Workers

At Samsung Electronics, we care about working conditions of our suppliers' migrant workers and we are paying great attention to the improvement of the working environment and resolution of grievances. Migrant workers are often vulnerable to the risk of forced, bonded, or indentured labor as well as human trafficking as they are seeking economic opportunities outside their own country due to unstable political or economic situation in their home countries. In 2018, we conducted an investigation of all our first-tier suppliers located in Malaysia. We took an especially closer look at recruitment fees and identification documents. After the inspections, we provided education for the entire suppliers' management and working groups to avoid recurrence of similar issues and to protect migrant workers. Regarding the problems identified in some suppliers, we will formulate improvement measures through root cause analysis and we will make continuous efforts to improve the working environment for migrant workers.

Responsible Sourcing of Minerals

We are aware of the heightened risk of human rights violations and environmental degradation emanating from mining operation in the conflict areas including Africa. As part of our commitment to addressing these issues, we have established a responsible supply chain management system, while strengthening transparency in the supply chain. We are committed to ethical and responsible sourcing throughout our supply chain by applying the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. We also require our suppliers to adopt the Samsung Electronics Supplier Code of Conduct, which was developed in line with international human rights guidelines. Moreover, we urge our industry peers and stakeholders to promote the responsible sourcing of minerals through RMI (Responsible Mineral Initiative), GeSI (Global e-Sustainability Initiative) and EPRM (European Partnership for Responsible Minerals). Also, as a member of the RMI steering committee, we collaborate with industry on governance standards for responsible minerals.

Samsung Minerals Due Diligence Process Based on OECD Due Diligence Guidance

01 Raise Suppliers' Awareness

- Secure a commitment from suppliers to ban the use of conflict-affected and high-risk minerals from all first-tier suppliers
- Distribute the conflict-affected areas and high-risk minerals management guide and support working-level training
- Request that lower-tier suppliers expand their policy to ban the use of conflict-affected and high-risk minerals and to source ethically and responsibly

02 Inspect the Use of Conflict-affected and High-risk Minerals along the Supply Chain

- Monitor data on all first-tier suppliers use of conflict-affected and high-risk minerals as well as smelters' use of such minerals along the supply chain

03 Conduct Reasonable Due Diligence and Verification on Inspection Outcomes

- Conduct on-site inspections on the data submitted by suppliers
- Identify and share best practices in suppliers' management of conflict-affected and high-risk minerals

04 Verify and Assess Risk Factors within the Supply Chain

- Categorize suppliers into four rating groups based on inspection outcomes (based on the credibility of submitted data and the management level of conflict-affected and high-risk minerals)

05 Develop Improvement Plans for Risk and Report Relevant Data

- Restrict transactions with suppliers that work with non-third party-audited smelters
- Recommend smelters along the supply chain to become third party certified

Raising Suppliers' Awareness

We require all of our suppliers to submit their consent to ban illegally distributed minerals from conflict-affected and high-risk areas in our system. Also, we make it mandatory for our suppliers to extend Samsung Electronics' mineral policy banning the use of minerals from conflict and high-risk areas to their sub-suppliers.

We offer online and offline training on our conflict minerals policies to our executives and staff members responsible for procurement to improve their conflict mineral management capabilities and also provide suppliers with guidance and systemic support on conflict minerals. In addition, we have made the online training program on conflict minerals mandatory for all employees dealing with procurement. By 2018, a total of 2,945 employees had participated in collective training sessions on conflict minerals. Additionally, we developed a management guide on conflict minerals and shared it with all of our suppliers so that they could train and educate their own employees. To raise supplier awareness about conflict minerals issues, we had conducted training sessions to 1,929 people from 1,568 suppliers by 2018, covering our conflict minerals policies, a manual on the conflict minerals management system, and information on how to become a RMAP certified smelter. After carrying out on-site inspections, we offered additional training to suppliers that needed improvement in managing conflict minerals.

Surveys on the Use of Conflict Minerals and Cobalt

Using the Conflict Minerals Reporting Template (CMRT) between January and February in 2019, we collected information for 2018 from our suppliers about the use of conflict minerals at suppliers and smelters in our supply chain. In addition, we required our suppliers to extend the policy regarding the ban on conflict minerals to their subcontractors to keep them in line with our policy. The cobalt use status will be monitored by applying RMI CRT (Cobalt Reporting Template) to all suppliers within the first half of 2019.

On-site Inspection

In 2018, following an internal review of the information submitted by our suppliers, we carried out on-site inspections of 244 global suppliers for which additional verification was required, reviewing the reliability of the data they had provided, as well as the operational status of their conflict minerals policies. This resulted in the annual improvements of our suppliers' management capacity of conflict minerals.

Risk Factor Identification and Assessment

Based on the results of on-site inspections, we classify our suppliers into different groups according to the reliability of information submitted and the status of their conflict minerals management. Best practices are shared for benchmarking, while those classi-

fied for further attention are required to back up their data. In some cases, we provide on-site support for suppliers who need improvement at their request. Through these activities, we help our suppliers to review and improve their conflict minerals management policies/organization and information management systems so that they can strengthen their ability to manage conflict minerals and enhance their due diligence system.

Improvement Plans for Risk

We have required all of our suppliers to ban the use of conflict minerals, while urging them to switch to smelters certified by the RMAP. Transaction of materials that use minerals supplied by non-RMAP-certified smelter is blocked by our G-SRM. In addition, we established a VOC channel for our suppliers in order to provide sufficient support to our suppliers and operated a real-time support system. In addition, we always verify the origin of minerals and the use of conflict minerals based on smelter information submitted by each supplier. We then re-check whether smelters using minerals of uncertain origins or without a RMAP certification use conflict minerals, and recommend they seek to obtain a RMAP certification.

Switching to RMAP-certified Smelters :

All of our suppliers, as of 2018, do business only with RMAP-certified smelters for all conflict minerals.

Recommending Smelters to Obtain RMAP Certification :

We have urged all smelters to obtain RMAP certification as a member of the RMI. For Korean smelters, we are making a recommendation for RMAP certification in cooperation with the Korea Urban Mining Association.

Conflict Minerals

We require our suppliers to partner with RMAP- certified smelters by blocking transactions with uncertified smelters via our IT system. This has resulted in the 100% participation of smelters we do business with in the RMAP certification.

Conflict Minerals-Related RMAP Certification of Smelters among the Supply Chain (as of Dec. 2018)

Unit: No. of Smelters

Mineral	Total	RMAP Certification Completed
Tantalum	40	40
Tin	73	73
Tungsten	41	41
Gold	104	104
Total	258	258

* Smelter List 

Responsible Minerals

Responsible minerals are defined as minerals that are mined under vulnerable conditions with potential human rights violations or environmental destruction. For cobalt, we have been reviewing our use of the mineral according to OECD Due Diligence Guidance and will further monitor status based on the RMI Cobalt Reporting Template. As such, we have been investigating smelters regarding the child labor in Democratic Republic of the Congo. We will continue to set clear guidelines for our suppliers and raise their awareness about responsible sourcing of minerals through educational training. We are always seeking ways to work together with other global companies and are listening to the opinions of our stakeholders, including through our engagement with RMI. Furthermore, we participate in a variety of global initiatives such as the European Partnership for Responsible Minerals and with partner groups.

Industry Cooperation for Sustainable Cobalt Mining - "Cobalt for Development"

In order to address issues of human rights violations and environmental degradation that arise from mining cobalt in the Democratic Republic of the Congo, Samsung Electronics started Cobalt for Development, a joint pilot project financed by Samsung SDI, BMW Group, BASF, and Samsung Electronics, which is implemented by GIZ (German development corporation). The project aims to improve not only the labor conditions of artisanal cobalt mining operation in that pilot mine, but also the living environment near a selected cobalt mine. To this end, in addition to risks assessment for the environment, health and safety, and expanding use of personal protective equipment, we plan to support financial literacy training, farming & entrepreneurship training, and to improve access to education. Once the project is proven effective, this could be applied to other legal artisanal mines in the short term and address structural challenges in the long term.

Recycling Minerals from E-Waste

We have tightened our waste management standards to ensure that waste containing minerals are transferred only to RMAP-certified smelters/refiners while processing waste generated by manufacturing sites in Korea as well as collected e-waste. In Korea, we have cooperated with the Korea Urban Mining Association to urge Korean smelters/refiners to seek RMAP certification.

Sustainability Foundation



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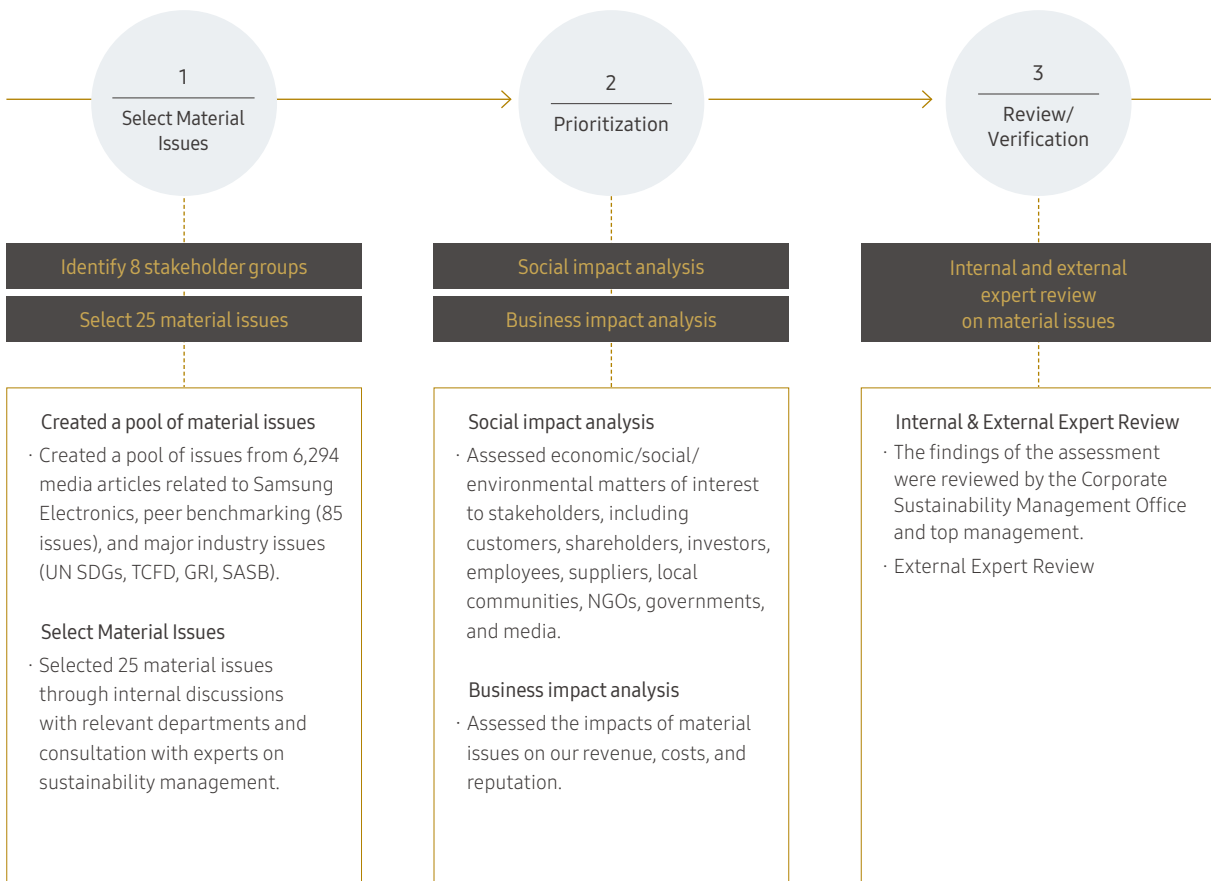


Materiality Assessment

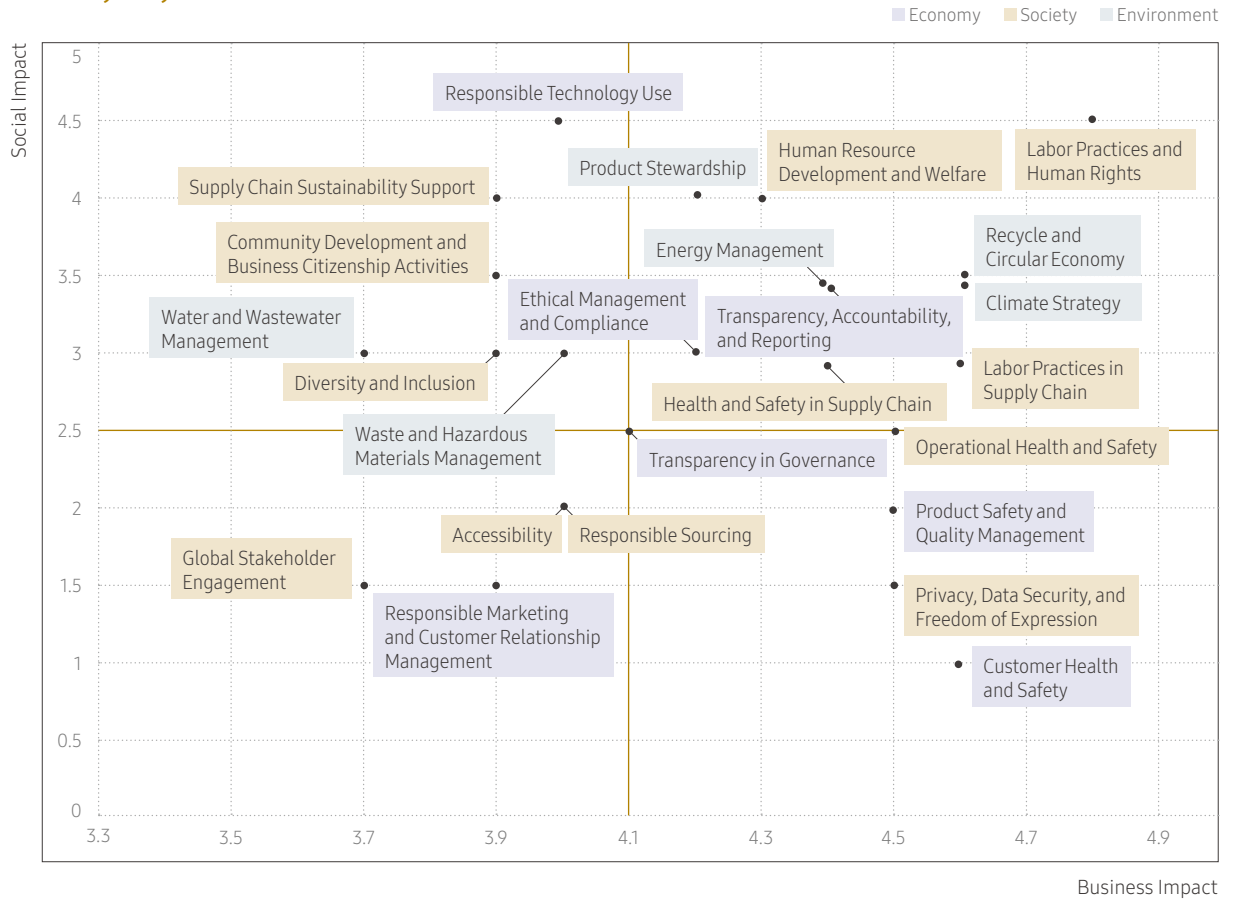
We conduct a materiality assessment on an annual basis to reflect the topics we believe are of the greatest interest to our stakeholders and our businesses. We use the outcomes of this assessment to identify material issues and disclose relevant data in our sustainability reports. We created a pool of issues based on media reports, business conditions, global standards and initiatives on sustainability management, and expert opinions. Out of the pool of issues, 25 were selected as material

issues through internal discussions with relevant departments and consultation with experts. The material issues were prioritized according to economic/social/environmental matters of interest to stakeholders, as well as the business impacts of the issues (in terms of revenue, costs, and reputation). The findings from the materiality assessment were reviewed and finalized by the Corporate Sustainability Management Office and top management.

Materiality Analysis Process



Materiality Analysis Outcomes



Economy	Society	Environment
· Responsible Technology Use	· Labor Practices and Human Rights	· Product Stewardship
· Transparency, Accountability, and Reporting	· Human Resource Development and Welfare	· Climate Strategy
· Transparency in Governance	· Supply Chain Sustainability Support	· Recycle and Circular Economy
· Product Safety and Quality Management	· Labor Practices in Supply Chain	· Energy Management
· Customer Health and Safety	· Community Development and Business Citizenship Activities	· Waste and Hazardous Materials Management
· Responsible Marketing and Customer Relationship Management	· Health and Safety in Supply Chain	· Water and Wastewater Management
· Ethical Management and Compliance	· Diversity and Inclusion	
	· Operational Health and Safety	
	· Accessibility	
	· Responsible Sourcing	
	· Privacy, Data Security, and Freedom of Expression	
	· Global Stakeholder Engagement	

Stakeholder Engagement and Communication

Key Stakeholders

Stakeholder	Key Concerns of Stakeholders	Communication Channel	Our Strategy
Customers	<ul style="list-style-type: none"> · Product/service quality · Safe product use · Correct product information · Transparent communication 	<ul style="list-style-type: none"> · Customer satisfaction surveys conducted by external organizations · Call centers, service centers · Prosumer programs · Samsung Electronics Newsroom · Samsung Semicon Story · YoungSamsung Community 	<ul style="list-style-type: none"> · Strengthen the quality and safety management system · Provide product information by launching country-specific websites · Gather and address the voice of customers · Identify and consult on customer reputations through the Reputation Institute (Europe/Central and Latin America)
Shareholders & Investors	<ul style="list-style-type: none"> · Economic outcomes · Risk management · Information sharing · Sustainability Issues (environmental, social and governance) 	<ul style="list-style-type: none"> · Investor Relations meetings · General shareholder meetings · One-on-one meetings · Analyst Day · Samsung Electronics' Corporate Films YouTube URL: https://www.youtube.com/samsungelectronics 	<ul style="list-style-type: none"> · Stable profit generation · Strengthen shareholder return policy · Set up the Governance Committee under the BOD · Reinforce transparency in operating external sponsorships · Host the Investors Forum · Attended by key institutional investors, analysts, and IT industry experts in domestic and global sites
Employees	<ul style="list-style-type: none"> · Workplace health and safety · Diversity and equal opportunity · Training and career development · Employment and benefits · Labor relations 	<ul style="list-style-type: none"> · Work Council · Counseling centers · Satisfaction surveys · Samsung LiVE · Newsletters · Reporting systems (compliance, ethics) 	<ul style="list-style-type: none"> · Manage work environment · Build a creative organizational culture · Announce the three years Diversity & Inclusion Plan (North America) · Operate a customized career life cycle program · Host business briefings
Suppliers	<ul style="list-style-type: none"> · Fair trade · Shared growth · Employees' human rights protection · Supplier assessment of their impact on society 	<ul style="list-style-type: none"> · Hotline, Cyber Shinmungo · Supplier meetings, Partner Collaboration Day · Shared Growth Academy · Management counseling group for suppliers 	<ul style="list-style-type: none"> · Promote fair trade and shared growth · Assist suppliers with their innovation initiatives · Host the Tech Trans Fair · Operate supplier support fund · Ensure responsible management of the supplier work environment
Local Communities	<ul style="list-style-type: none"> · Local recruitment, local economy revitalization, and other indirect economic effects · Local environmental protection · Donation, volunteering, and other social-giving initiatives 	<ul style="list-style-type: none"> · Local volunteer centers · Local community council · Samsung Nanum Village · Local Community Blog (Suwon, Gumi, and Gwangju sites) · Yongin-Hwaseong community Blog (http://www.sotongsamsung.com/) 	<ul style="list-style-type: none"> · Support local SMEs through the Smart Factory program · Preserve the ecosystem of streams in the vicinity of our worksites · Implement educational and recruitment corporate citizenship programs · Operate employee volunteer groups
NGOs, CSR Councils, Specialized Institutions	<ul style="list-style-type: none"> · Social responsibility for local communities and the environment · Contribution to the UN SDGs · Transparent and prompt information disclosure 	<ul style="list-style-type: none"> · Business networking events · Open and transparent engagement with NGOs 	<ul style="list-style-type: none"> · Gather feedback from global and local NGOs · Engage in the work of RBA (Responsible Business Alliance) and GeSI (Global e-Sustainability Initiative) · Develop human rights policies in cooperation with BSR (Business for Social Responsibility) · Participate in multi-stakeholder engagements such as the European Partnership for Responsible Minerals and in industry initiatives such as the Responsible Minerals Initiative
Governments	<ul style="list-style-type: none"> · Indirect economic effects · Fair trade · Health and safety · Compliance 	<ul style="list-style-type: none"> · Attend policy debates · Attend council meetings · Participate in policy consultative bodies 	<ul style="list-style-type: none"> · Operate SME support programs with government agencies · Comply with laws and regulations on fair trade, workplace health & safety, and the environment · Develop and operate a venture investment window in collaboration with governments
Media	<ul style="list-style-type: none"> · Transparent and prompt information disclosure 	<ul style="list-style-type: none"> · Press releases · Communication team by HQs/entities · Samsung Electronics Newsroom 	<ul style="list-style-type: none"> · Support news coverage · Host Media Day

Sustainability Management Value Creation

We strive to create not only an economic value but also social and environmental values through sustainable management, contributing to the global humanity. As these social and environmental values are hard to quantify, we have taken a qualitative approach in setting our sustainability management goals. Since 2016, in order to improve data reliability, we have measured the outcome of our social and environmental value creation activities using KPMG's "True Value" methodology, which provides a proven approach in the quantification of social and environmental indicators.

Total value, which is expressed in positive or negative numbers, points to the sum of social value that we increased or decreased

for a given year. For 2018, our financial value was approximately KRW 44.3 Trillion, and our True Value, which includes socio-economic and environmental values, amounted to nearly KRW 54.5 Trillion, approximately 23% higher than the financial value and 11% higher than the 2017 True Value.

As the currently available value indicators are not enough to estimate the value of all sustainable management activities, we have been steadily monitoring research on value measurement methodologies to expand the number of value indicators. In 2018, we reviewed additional indicators by benchmarking social value estimation firms. We will continue to conduct research to add more indicators to our 2019 measurement.

Value measurement methodology

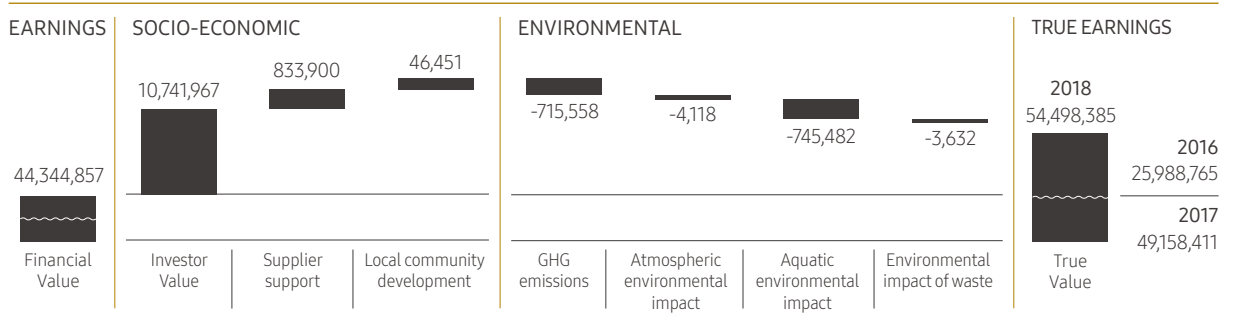
Category	Type	Measurement methodology ¹⁾
Socio-economic Value	Investor Value	Dividends and interest payments to investors and creditors
	Supplier Support	Investments made in the Win-Win Cooperation Fund
	Local Community	Return on investment made in educational projects (118%) ²⁾ Return on investment made in infrastructure development projects (250%) ³⁾ Return on investment made in sanitary facility development projects (550%) ⁴⁾
Environmental Value	GHG emissions in workplace	Social costs that incur due to GHG emissions ⁵⁾
	Atmospheric Environmental Impact	Social costs that incur due to the emission of air pollutants (NOx, SOx, PM) ⁶⁾
	Aquatic Environmental Impact	Social costs that incur due to water consumption based on severe water shortages in the area where our worksites are located ⁷⁾
	Environmental Impact of Waste	Social costs that incur due to waste landfilling, incineration, and recycling respectively ⁸⁾

* Footnotes:

- 1) The above benefits and costs are adjusted in consideration of price fluctuations; Based on the USD/KRW rate of 1,114 and EUR/KRW rate of 1,274 as of December 31st of 2018.
- 2) G.Psacharopoulos and H.A. Patrinos, Returns to investment in education: a further update (2004)
- 3) BCG, The cement sector: a strategic contributor to Europe's future
- 4) G. Hutton, Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage (2012)
- 5) EPA, Technical update of the social cost of carbon for regulatory impact analysis (2013)
- 6) EEA, Revealing the cost of air pollution from industrial facilities in Europe (2011)
- 7) TruCost PLC, Natural capital at risk: the top 100 externalities of business (2013)
- 8) A. Rabl, J. V. Spadaro and A. Zoughaib, Environmental impacts and costs of solid waste: a comparison of landfill and incineration (2009)

2018 True value

Unit: million KRW



Our Alignment with the United Nations (UN) Sustainable Development Goals

At the United Nations General Assembly in September 2015, the Sustainable Development Goals (SDGs) were adopted for the purpose of establishing a sustainable society across the world through community development, environmental protection and inclusive economic growth. The timeline for these UN SDGs runs from 2016 until 2030. As a global corporate citizen, we aim to take account of the SDGs in how we run our business. We focus on the SDGs most relevant to our businesses and established approaches to help achieve them. Based on these approaches, we have engaged in a variety of sustainability activities to help achieve these goals.

UN SDGs

At its 2015 General Assembly, the UN adopted the Sustainable Development Goals (SDGs) to establish a sustainable society across the world. While the Millennium Development Goals (MDGs) established in 2000 focused on underdeveloped countries, the SDGs are universal goals for all countries, including developed nations. To achieve the SDGs, civil society and private-sector companies, as well as governments and experts, need to be proactively involved.

1 NO POVERTY

End poverty in all its forms everywhere

2 ZERO HUNGER

End hunger, Improve food security, and promote sustainable agriculture

3 GOOD HEALTH AND WELL-BEING

Ensure healthy lives and promote well-being for all at all ages

4 QUALITY EDUCATION

Ensure quality education and promote life-long learning opportunities for all

5 GENDER EQUALITY

Achieve gender equality and empower all women and girls

6 CLEAN WATER AND SANITATION

Ensure availability and sustainable management of water and sanitation for all

7 AFFORDABLE AND CLEAN ENERGY

Ensure access to sustainable energy for all

8 DECENT WORK AND ECONOMIC GROWTH

Promote sustainable economic growth, full employment and decent work for all

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Build resilient infrastructure, promote sustainable industrialization

10 REDUCED INEQUALITIES

Reduce inequality within and among countries

11 SUSTAINABLE CITIES AND COMMUNITIES

Make cities and human settlements inclusive, safe, resilient, and sustainable

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns

13 CLIMATE ACTION

Take urgent action to combat climate change and its impacts

14 LIFE BELOW WATER

Protect and sustainably use the oceans, seas, and marine resources

15 LIFE ON LAND

Protect the ecosystem and preserve biodiversity (forests, deserts, land, etc.)

16 PEACE, JUSTICE AND STRONG INSTITUTIONS






Establish a fair justice system for all

17 PARTNERSHIPS FOR THE GOALS

Strengthen the means of implementation and revitalize the global partnership for sustainable development



What We Do in Alignment with UN SDGs

<p>Product Stewardship</p> 	<p>Commitment to the Environment in Our Operation</p> 	<p>Enabling People</p> 
<p>Technology for Good</p> 	<p>Investing in Our Employees</p> 	<p>Sustainable Supply Chain</p> 

Category	Our Approach	Major Activities
	We are committed to minimizing health and environmental impacts related to the use of chemicals of concern. In addition, we strive to create an environment where our employees can work without concerns over their health and safety in the manufacturing processes.	<ul style="list-style-type: none"> · EHS Innovation Day · Consultancy on improving suppliers' environmental safety
	We run customized education programs to promote the development of local communities, while providing a variety of support (via our employees and technology) to enable local residents and communities to build capabilities necessary to plan for a better future.	<ul style="list-style-type: none"> · Samsung Dream Class · Samsung Software Academy For Youth · Samsung Solve for Tomorrow
	We have a firm belief that ensuring equal opportunities is key to economic growth, political stability, and social change. We endeavor to find new ways to help women globe and prepare youth for the future.	<ul style="list-style-type: none"> · Samsung STEM Girls Program · Female leadership programs
	We make an efficient use of water through the 3Rs (Reduce, Reuse and Recycle). In wastewater treatment, we apply an in-house standard which is stricter than legal requirements, minimizing the impact on water resources.	<ul style="list-style-type: none"> · World Water Day · Participation in CDP Water
	We are fully aware of our responsibility to expand our renewable energy use to tackle global climate change. As such, we strive to expand the use of renewable energy at our worksites via the installation of solar panels and geothermal units, we have signed Power Purchasing Agreements, and have pursued Green Pricing.	<ul style="list-style-type: none"> · Our renewable energy use in 2018: 1,356GWh
	We are committed to pursuing innovation and new growth drivers to share related technology with our society. As such, we run programs and systems to build an innovative culture and expand investments in R&Ds and productivity growth.	<ul style="list-style-type: none"> · Vietnamese consultant training program · C-Lab (Creative Lab)
	We strive to improve the accessibility of our IT devices and technology to allow all consumers to benefit equally from cutting-edge technology.	<ul style="list-style-type: none"> · Accessibility design principles (4Cs) · Home appliance accessibility advisory group
	We offer equal opportunities to all employees and applicants. In addition, we do not tolerate any kinds of discrimination in our HR management on the grounds of nationality, race, gender, age, religion, marital status, sexual orientation, social status, pregnancy, physical disabilities, military service, genetic information, or political propensity.	<ul style="list-style-type: none"> · Global diversity initiatives
	We have five circular economy principles—the expansion of the use of recycled materials, product durability improvement, compact product packaging, reduction in the use of virgin natural resources, and the extension of product life span/use. We will continue to strive to minimize our environmental footprint through the recycling and reuse of resources.	<ul style="list-style-type: none"> · Galaxy Upcycling · Re+ program
	We have prioritized climate change issues according to the degree of their importance and impact, devising a strategy to respond to them. Furthermore, we have invested in facilities to reduce GHG emissions; “optimize our operation”.	<ul style="list-style-type: none"> · Development of energy –efficient products · Participation in CDP Climate Change
	We are committed to minimizing the impact of our operation on biodiversity. In particular, we have consistently undertaken ecosystem protection activities, including the identification of endangered species near our worksites and protection of their habitats.	<ul style="list-style-type: none"> · Stream ecosystem protection activities
	We run local programs to address a variety of social issues (related to education, healthcare, employment, and environment) by sharing our advanced technology and cooperating with stakeholders.	<ul style="list-style-type: none"> · Partnership on AI · “Cobalt for Development” Project in DR Congo

Corporate Governance

We believe that corporate governance is key to sustainable business operation. Based on this belief we make a conscientious effort to embrace core values such as independence, transparency, expertise and diversity. In addition, we are well aware that stakeholder engagement adds substantial value to our efforts with respect to our sustainable growth, and we will expand our communication with diverse stakeholders.

Board Composition

In accordance with Article 24 of the Articles of Incorporation, Samsung Electronics' Board shall have at least three but no more than fourteen Directors. The decision for having more than three Directors complies with Article 383 of the Commercial Act in South Korea, while we believed that the maximum number of Directors should not exceed fourteen considering company size, meeting operation and the efficiency of decision making.

As a result, the current Board consists of eleven Directors, six of whom are Independent Directors. Thus, the current composition complies with Article 542-8 of the Commercial Act, which states that a company shall have at least three Independent Directors and that Independent Directors shall constitute a majority of the Board.

As of April 2019, our Board composition is as follows.

Independence and Transparency of the Board

The Board should be able to make independent judgments and decisions. Directors should be appointed through a transparent procedure. To enhance the independence of our Board, we made sure that Independent Directors constitute a majority and separated the roles of Chief Executive Officer and Chairman of the Board. The Chairman widely listens to the opinions and acts as a mediator between the Executive and Independent Directors; and does not serve on any Committee, including the management Committee to wholly preserve an objective point of view.

Aside from meetings with the Company's management, sessions only attended by Independent Directors are arranged to facilitate a candid exchange of opinions on important matters, including ways to enhance shareholder value. A Director is appointed by a resolution of a general meeting of shareholders, in accordance with Article 382 of the Commercial Act. Executive Director candidates are nominated by the Board and Independent Directors are elected from candidates recommended by the Independent Director Recommendation Committee, according to Article 542-8 of the Commercial Act.

The Independent Director Recommendation Committee is a committee under the Board who, after in-depth reviews, recommends Independent Director candidates to be presented at a general meeting of shareholders. The Committee consists entirely of Independent Directors. This meets requirements of Article 542-8 of the Commercial Act, which states that Independent Directors must constitute a majority to ensure the Committee's independence and transparency and that it duly recommends candidates.

Board Composition

● Chair ○ Member

Name	Title	Management Committee	Audit Committee	Independent Director Recommendation Committee	Related Party Transactions Committee	Compensation Committee	Governance Committee
Sang Hoon Lee	Chairman of the Board						
Jae Yong Lee	Vice Chairman						
Kinam Kim	Vice Chairman & CEO (DS)	●					
Hyun Suk Kim	President & CEO (CE)	○					
Dong Jin Koh	President & CEO (IM)	○					
Jaewan Bahk	Independent Director		●		○	○	●
Sunuk Kim	Independent Director		○		●		○
Byung Gook Park	Independent Director			○		○	○
Jeong Hun Kim	Independent Director			●		○	○
Curie Ahn	Independent Director			○			○
Han Jo Kim	Independent Director		○		○		○

Expertise and Diversity of the Board

In a rapidly changing business environment, Director expertise is essential as the Board is constantly required to make strategic decisions. The Company's three main businesses—the Device Solutions (DS), Consumer Electronics (CE), and IT & Mobile Communications (IM) divisions—are directed by leading professionals in the relevant field who practice responsible management as chief executive officers and also participate on the Board. In addition, the Board needs diverse perspectives in order to make good decisions. Independent Directors leverage their expertise and skills in myriad fields, including finance, law, engineering, IT, public administration, and ESG to contribute to the Board's informed and objective decision-making process.

As of the reporting date, we enhanced Board diversity and expertise by increasing the ratio of female Directors, and also increasing the ratio of financial experts in the Audit Committee.




Board Operation

The Board holds seven to eight regular meetings per year for matters such as approving quarterly financial statements and convening the AGM (Annual General Meeting). A special or extraordinary meeting can be called when deemed necessary. In accordance with Article 30 of the Articles of Incorporation and Article 8 of the Regulations of the Board of Directors,

a meeting of the Board shall be convened by the Chairman of the Board, and the Chairman shall give notice to each Director of the date, time, place, and meeting agenda at least 24 hours prior to the meeting. Directors may request the Chairman to convene a Board meeting when deemed necessary in the performance of duties; and they shall explain the agenda and reasons for such action to the Chairman. If the Chairman rejects a meeting request without a valid reason, the Director who made the request may convene a meeting directly.

In accordance with Article 31 of the Articles of Incorporation and Article 9 of the Regulations of the Board of Directors, the presence of a majority of all Directors shall constitute a quorum for a meeting of the Board and the resolutions of the Board shall be adopted by a majority of the votes of the Directors attending the meeting. In accordance with Article 391 of the Commercial Act, the Board may adopt a resolution without all or some of the Directors being present at the meeting in person if they are present by means of a remote communications system that enables the simultaneous transmission and receipt of the voice of the Directors. In such cases, the relevant Directors shall be deemed as being directly present at the meeting. According to Article 9 of the Regulations of the Board of Directors, voting rights of a Director who has a special interest in the agenda item shall be limited in order to eliminate the possibility of conflict of interest.

Our Board of Directors

<p>Independence</p>		<ul style="list-style-type: none"> · Directors are prohibited from engaging in business activities in the same industry without the BOD's approval · Those who are full-time employees, affiliated to the Company's largest shareholder or to the Company itself, or recently worked at the Company within the past two years are prohibited from serving as Independent Directors · The Chairman of the Board is appointed by the Directors through a Board resolution in accordance with the Articles of Incorporation and the Regulations of the BOD · Directors are not allowed to exercise their voting rights regarding agenda items in which they have special interest
<p>Transparency</p>		<ul style="list-style-type: none"> · All Directors are appointed by a resolution of a general meeting of shareholders · Executive Director candidates are nominated by the Board and Independent Director candidates by the Independent Director Recommendation Committee
<p>Expertise and Diversity</p>		<ul style="list-style-type: none"> · Independent Director candidates are nominated based on their expertise or experience in areas such as business administration, economics, accounting, law, and relevant technologies · Independent Directors are provided with regular internal training via visits to domestic/overseas business sites and through briefings on the Company's operational status · Multiple factors – religion, race, gender, hometown, expertise – are taken into account during the selection process, and discrimination based on such factors is prohibited when nominating director candidates

Board Committees

The Board has established six committees in accordance with Article 28-2 of the Articles of Incorporation and Article 11-2 of the Regulations of the Board of Directors, and has delegated certain responsibilities to the committees to ensure efficient operation of the Board. Excluding the Management Committee, which consists of three Executive Directors to make efficient decisions about business matters, we increased independence across the board by forming all committees entirely with Independent Directors. Each Committee stipulates its organization, operation, and authority in accordance with the Regulations of the Committees established under Board resolutions.

Each agenda approved by the Board's Committees is provided to all Directors and if deemed necessary, each Director may call for a meeting of the Board to put the resolutions approved by the Committee forward for a vote at a meeting of the Board. However, agendas approved by the Audit Committee are excluded to ensure the Audit Committee's independence. Information about the committees as of the reporting date is listed below.

BOD Committee Operation

<p>Management Committee</p>	<p>Audit Committee</p>	<p>Independent Director Recommendation Committee</p>
<ul style="list-style-type: none"> - Make resolutions on matters concerning the Company's business, finance and matters delegated by the Board 	<ul style="list-style-type: none"> - Review and audit matters concerning management of the Company, including oversight of the Company's financial status - Consists of three Independent Directors 	<ul style="list-style-type: none"> - Recommend Independent Director candidates after assessing their independence, diversity, and ability - Consists of three Independent Directors
<p>Related Party Transactions Committee</p>	<p>Compensation Committee</p>	<p>Governance Committee</p>
<ul style="list-style-type: none"> - Voluntarily comply with fair transaction regulations to enhance corporate transparency - Consists of three Independent Directors 	<ul style="list-style-type: none"> - Ensure objectivity and transparency of the decision making process for Director compensation - Consists of three Independent Directors 	<ul style="list-style-type: none"> - Promote the Company's corporate social responsibility and act to enhance shareholder value - Consists of six Independent Directors

Risk Management

As a global leader in the IT industry, we identify both external and internal risk factors causing business uncertainty, including sustainability risks such as human rights risks or environmental risks, and we respond to this uncertainty to strengthen our sustainable competitiveness in the market. In line with top management’s commitment to risk management, we established a systemized risk response policy and process for each business division.

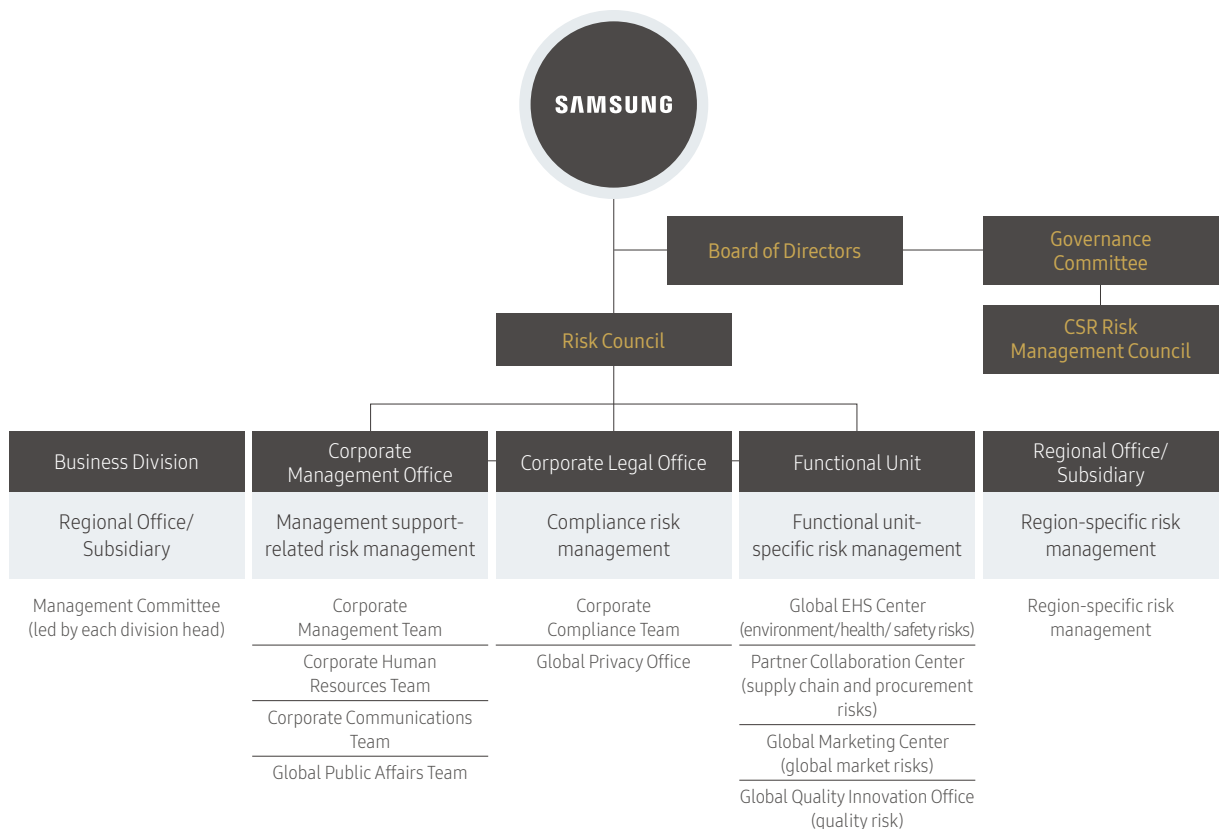
Monitoring and Sensing Global Issues

We seek advice on a variety of risk factors through our network with professional consulting firms, government, academia and NGOs to identify risks in economic, social, regulatory, and environmental aspects associated with key global issues.

Our Response to Risks

We set up systematic risk responding system for each business division. We report identified risk factors to top management to respond to the risk factors in an efficient, effective manner. Three business divisions—DS, IM, and CE—and the Corporate Management Office, which are key organizations in business operation, are responsible for managing financial risks such as markets, liquidity and credit. Through the Management Committee (consisting of CEOs) and the Risk Council (led by CFO), non-financial risks including the corporate sustainability issue are also reviewed. In his role as a Chief Risk Officer for the entire company, the CFO leads the Risk Council which brings together the heads of various departments, including Legal, Human Resources, Communications, Public Affairs, Global Environment, Health and Safety Center, Partner Collaboration Center, and Global Product Quality Innovation, allowing them to collectively discuss and manage risks, including sustainability risks, in a holistic way across departments and functions.

Risk Management System



Reinforcement of the Board's Supervision on Risk Management

We recognize that business operation is exposed to a wide array of risks arising from the business environment. These risks are managed by the relevant departments, but critical issues need to be supervised by the Board of Directors. Under the Governance Committee, we operate the CSR (Corporate Social Responsibility) Risk Management Council to strengthen the oversight of the Board on risk response and management. The Council oversees the internal management system for CSR Risks and discusses solutions to resolve arising issues. Independent Directors and related departments participate to hold the Council on a quarterly basis and discuss the agenda. We report agendas of non-financial risks—including topics such as climate change, labor and human rights, and operational health and safety—to the Board of Directors as critical issues. Through the reporting, our Board of Directors thoroughly examine the issues and comprehensively manages the potential risks.

System-enabled Company-wide Risk Management

We have established a system of continuous risk management monitoring through a company-wide system, along with the risk management functions of each division. We monitor our global supply chains, with a strong focus on our first-tier, related to development, procurement, manufacturing, logistics, sales and services in real time. We also strive to minimize supply chain risks by sensing market changes and unusual events.

In 2004, we adopted a Disclosure Control and Procedures (DC&P) system to manage company-wide financial risks. We also have prepared CEO/CFO approval procedures as well as internal control procedures for efficient financial risk management. In addition, we operate a self-diagnosis system to prevent and mitigate risks across the company using a wide array of IT systems such as Global Enterprise Resource Planning (G-ERP) and Global Supply Chain Management (G-SCM) for financial and supply chain risk management; Global Environment, Health & Safety System (G-EHS) for the integrated management of environmental, health and safety risks; and Global Supplier Relationship Management (G-SRM) for the integrated management of supplier risks. We continue to improve business efficiency and productivity by standardizing various processes and systems located around the world.

Responsible Business Practices

Compliance

We take compliance with integrity and regard laws and regulations as one of our top priorities. To fulfill our responsibility as a global player, we endeavor to promote ethical business practices. Also, we carefully observe law and regulation of all countries we operate and strive to endeavor all illegal or wrongful acts in order to sustain our business in lawful and ethical manner.

Compliance Management

We operate the Corporate Compliance Team and Global Privacy Office within our Corporate Legal Office which is under the direct control of the CEO. Furthermore, we assist our top management’s decision making process through our compliance-related committees and the Privacy Steering Committee. Each business division and overseas regional offices also have their own organizations responsible for compliance and privacy at the local level.

Compliance Management System

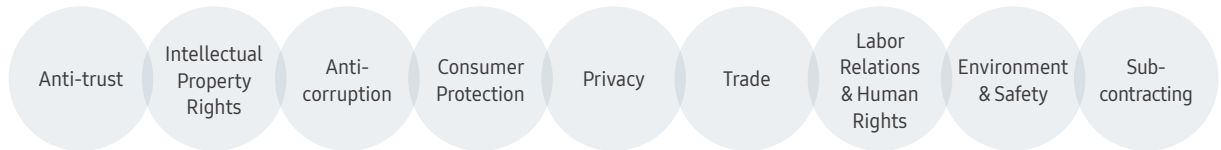
To embed compliance—a fundamental element of responsible business conduct— within our organizational culture, we continuously take measures to enhance our compliance manage-

ment system. We strive to minimize the risks that could arise from unlawful business practices, and we operate compliance programs to reinforce our responsibility for matters such as anti-trust, anti-corruption, labor & human rights, health and safety, and environment issues.

The Compliance Program Management System (CPMS), an IT system developed to manage compliance-related risks, provides our area-specific policies, and the details of regional consumer protection issue monitoring. We also operate a help desk under the CPMS to provide advice on work-related inquiries and support when they are encountering difficulties with determining illegalities solely based on our guidelines. Our whistle-blowing system for employees, operating within the CPMS, thoroughly guarantees confidentiality and protects whistle-blowers from any disadvantages due to reporting.

In order to resolve and remediate key issues in the areas of labor relations and human rights (e.g., involving child labor, migrant workers, conflict minerals, privacy, and personal data), we manage risks and develop improvement measures throughout the supply chain with all the related teams in charge.

Focus Areas in Compliance Management



Compliance Management System by Area

Category	Management System	Mandate	Responsible Unit
Compliance	Compliance Program Management System (CPMS ¹⁾)	Reporting of compliance violations; operating of help desk and self-test programs; posting of manuals and guides	Corporate Compliance Team, Global Privacy Office
Anti- corruption	Ethics Management System	Posting of the Management Principles and Code of Conduct; reporting of corrupt practices	Audit Team
Privacy and Personal Data Protection	Privacy Legal Management System (PLMS ²⁾)	Personal data protection management of products and services	Global Privacy Office
Intellectual Property Rights	IT4U	Ban on the illegal use of software	IT Strategy Group
Human Resources	GHRP Portal	Compliance with labor and human rights standards, posting of HR regulations	HR Team
Environment	Global Environment, Health and Safety System (G-EHS ³⁾)	Environment & Safety of workplaces and products	Global EHS Center
Trade	Trade Compliance System(TCS ⁴⁾)	Export control of strategic materials	Corporate Compliance Team
Others	Global Policy & Procedure Manuals (GPPM ⁵⁾) management	Standardization of global business processes	Administration Team
	Contract management system		Corporate Legal Office

Footnote:

1) Compliance Program Management System
2) Privacy Legal Management System

3) Global Environment, Health & Safety System
4) Trade Compliance System

5) Global Policy & Procedure Manuals

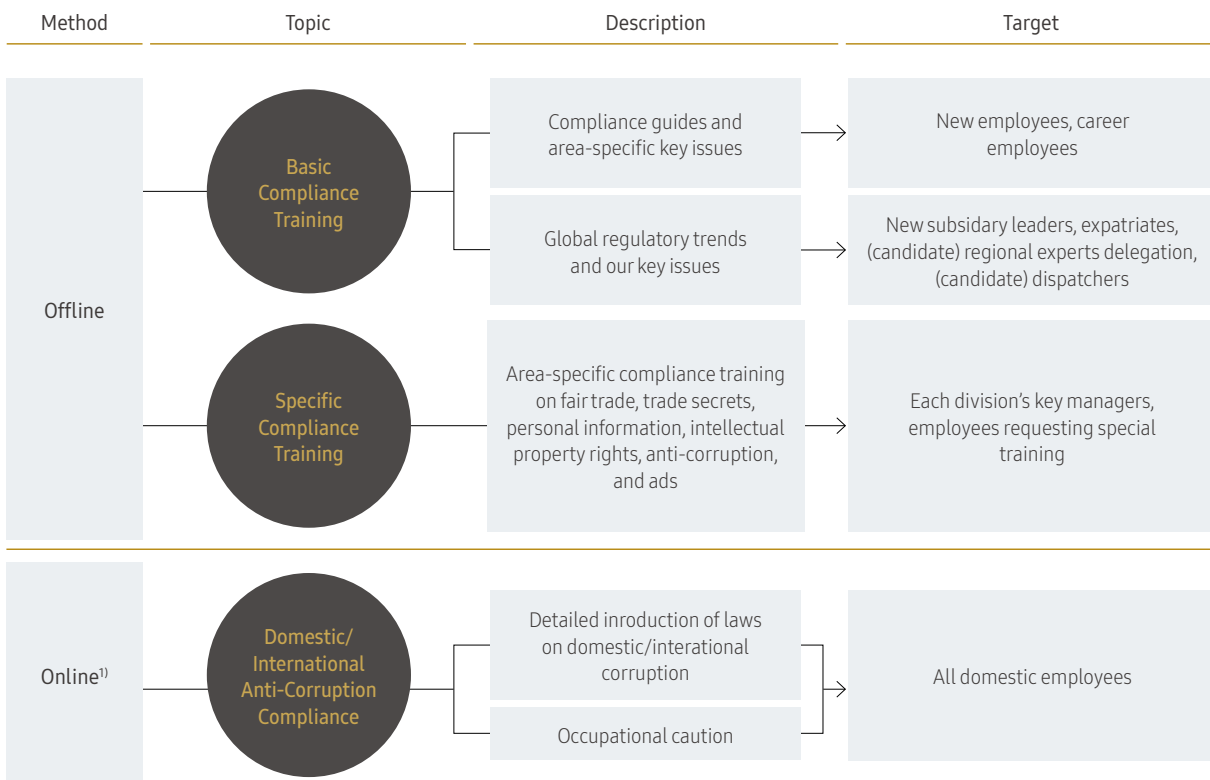
Compliance Training

We strive to enhance our employees' awareness on compliance and share our commitment to compliance management with all of our employees at global worksites. In order to achieve such objectives, we provide specific compliance guidelines that can be promptly implemented into an employee's daily work schedule, and we also operate consistent training programs that reflect regulatory trends and properties specific to each worksite. To minimize risks with legal violations occurring in overseas, we hold training sessions for expatriates and overseas site executives with respect to global regulatory status and major issues in the corresponding area; and our overseas worksites voluntarily hold training sessions for their own employees as well. On top of such training to raise our employee's awareness level on compliance issues, our business departments voluntarily requested compliance education, and we provided training programs tailored to employees' different level of awareness and compliance risks.

Compliance Management Process



Annual Compliance Training



Footnote:

1) Subject of online training changes each year

Ethics Management

Ethics Management Website

We provide the Global Code of Conduct to our suppliers, customers, and other external stakeholders as well as to our employees through our ethics management website (www.sec-audit.com), and provide a channel to report on any violation. In addition, we also post our Employee Guidelines on our intranets for our employees to encourage our employees to pursue ethics management.

Our Global Code of Conduct and Employee Conduct Guidelines are available in a total of 15 languages (including Korean) and uploaded on our intranet. In 2018, a total of 375 reports were received through global reporting channels, of which consumer complaints accounted for 32%, and corruption-related reports for 20% of the total number of reports. All corruption-related reports are subject to investigation and if the report is found to be substantiated, disciplinary actions are taken according to the severity of the concerned issues. The results are reported to the Audit Committee twice a year. Separate "Business Guidelines" are provided to our business partners to establish transparent transaction practices.

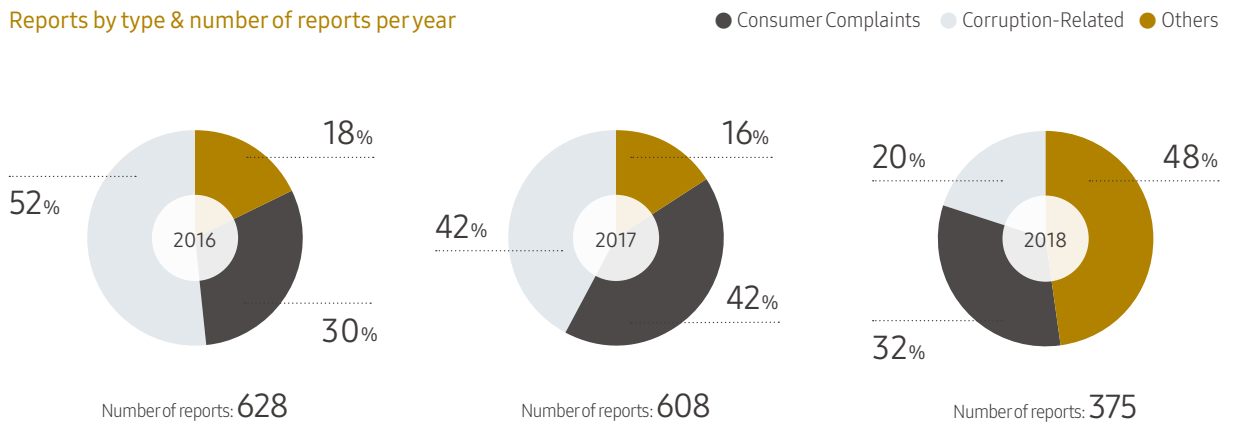
Preventative Education on Corruption

To promote a transparent corporate culture, the Company provides preventative education on corruption more than once a year to all employees (offline, online, and audio/visual training).

Total Number of Employees Taking Anti-corruption Training

2016	2017	2018
313,590	317,965	303,445

Reports by type & number of reports per year



Tax Risk Management

At Samsung Electronics, we strive to comply with laws and regulations in all our business activities and fulfill our tax filing and payment obligations, contributing to the national finances and society. In addition, we consider legal/regulatory compliance as one of our top business priorities, while assessing tax risks from a variety of perspectives.

Tax Risk Assessment

We are committed to preventing any tax risk that can occur during business activities, including goods and services transactions, M&As, corporate restructuring, international transactions, new business launches, and changes in transaction terms. As such, when making a business decision, our tax-related departments assess tax risks in cooperation with external experts and make final decision considering various factors, including tax risk assessment results.

Tax Risk Management

We have a decision-making system for tax risks based on the careful assessment and reviews, in order to abide by laws and business practices. In addition, we meet all tax filing and payment due dates, while archiving evidence related to business transactions. We also maintain a transparent relationship with taxation authorities and respond immediately to requests for data from the related parties. Notably, we maintain fair trade prices in transactions with both third and related parties in accordance with relevant laws. For international transactions, we trade at prices regulated by law






Contribution to Local Community Development via Tax Risk Management

We serve as a major tax payer and an investor all over the world. We contribute to revitalizing the local economy via product and service purchases as well as job creation. Furthermore, we contribute to tax revenues for governments through sur-taxes and withholding taxes as well as corporate taxes.

Tax Management Policy

Law Observance and Transparent Tax Filing/ Payment		
01	02	03
<p>We comply with the laws and regulations of the countries in which we do business and fulfill our responsibilities for transparent tax filing and payments.</p> <p>To this end, we maintain an open and transparent relationship with the tax authorities of each country and provide relevant factual evidence and supporting documents upon request.</p>	<p>As we conduct a variety of business activities in several countries, we strive to prevent tax risks by identifying legal and regulatory differences in each country, and engage only in the transactions that are appropriate in terms of relevant laws, regulations and practices.</p>	<p>The employees in charge of tax management at each subsidiary are required to comply with laws and regulations in accordance with our tax policies and perform their tasks under the principle of maintaining a transparent relationship with the tax authorities.</p>

Key Criteria to Assess Tax Risks related to Business Activities

-  Thorough analysis of specific factual grounds
-  Review of local and international tax regulations and practices
-  Scenarios of profits and costs depending as many plans as possible
-  Possibilities and existence of potential risks
-  Countermeasures to risks

Customer Service Management

Customer satisfaction is one of the fundamental ways to outperform in an era of global competition and continues to be a focus for our company. Based on our vision of achieving customer satisfaction through innovation in product quality and services, we have been revamping our customer service operation system, providing faster and more accurate repair services and managing all our after-sale service processes in real time via IT systems.

Customer Service Channels

We provide both locally-optimized and global common channels for our global customers to receive after-sales services swiftly and conveniently. In particular, empathetic services that our global subsidiaries offer to a variety of customer groups such as people with disabilities, have been well received. To control the quality of our wide-ranging services around the globe, we carry out on-site inspections and training sessions.

Galaxy Consultant

We are expanding smartphone consulting services to provide quick answers to simple inquiries at sales stores. Our Galaxy consultants afford various customer services such as OS upgrading, account set-up, data movement, application installation, and training and tutorial.

Category	Unit	2016	2017	2018
No. of Galaxy Consultant	person	1,099	1,322	1,229

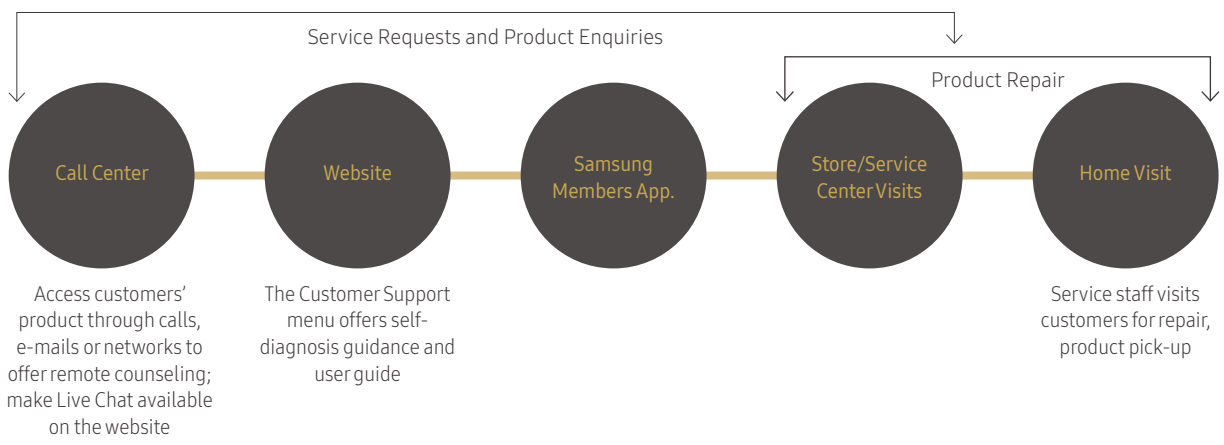
Samsung Members Application

Our Samsung Members application enables our customers to address issues that occur in product use through FAQs, inquiries, and self-help features. In 2018, we added the features of making an appointment to visit a handset service center, and requesting large-sized home appliance repair and checking the repair status. In 2019, we plan to apply these features gradually to other countries, thus bolstering our customer response capabilities.

Customer Service Vision and Goals

Vision	Secure customer satisfaction through product and service innovation			
Goals	Increase customer value by recognizing customer needs accurately and meeting them swiftly	Increase customer value by delivering empathetic services	Improve the speed and precision of repair services through constant innovation in service operational system	Manage all of our after-sale service processes in real time via IT systems

Samsung Electronics Service Channels



[24/7 Call Center](#)

In Korea, we recently launched a 24/7 call center, to enable us to address issues as soon as possible, thereby providing customers with new service experiences. We also plan to expand this service to other countries.

Service Quality Control

[Standard Service Operation](#)

We provide standardized services by developing process guidelines for service centers and call centers, and sharing them with all of our global subsidiaries through a company-wide work process standard system. For our regional subsidiaries, customized manuals that reflect their own market conditions are used for personnel training, with the manuals being shared via our "Knowledge Portal" system.

[Service Quality Inspection](#)

We evaluate our service centers on a regular basis, focusing on service standard implementation, skill, repair equipment, infrastructure, resource management, and financial soundness. Based on the achievement of improvement targets that service centers set themselves depending on their size, we provide incentives, such as a commission increase or awards for top performers.

[Service Skill Training](#)

We provide our service center managers and repair engineers with training programs on how to repair new products and handle customer requests. Training programs come in the form of either remote video learning courses or classroom training depending on product and country characteristics, with video training content and technical materials available anytime through our systems. Every December, our headquarters holds a customer service strategy workshop, which brings together expatriate employees from service centers at various subsidiaries, to review the past year's achievements and formulate new service strategies for the coming year. In addition, our Regional Offices, particularly in North America, China, and Europe, organize their own workshops to develop differentiated region-specific strategies.

Customer Communication and Satisfaction

[Global Integrated Voice of Customer \(VOC\) Management System](#)

We gather voice of customers (VOC) data on product purchases, repairs, and user guides through our call center and website to handle customer complaints. Furthermore, we analyze customer needs via a globally integrated VOC management system and share them across the company to improve our products and services.

[Customer Service Satisfaction Survey](#)

We conduct a customer satisfaction survey to gain feedback from those who have experienced our services. Survey outcomes are shared with relevant departments to improve service areas. Thanks to these efforts, we have seen steady improvements in the results of the survey since its inception in 1994.

[Dual Vocational Education in Thailand](#)

Our business worksites all around the globe cooperate closely with local communities to operate Dual Vocational Education (DVE) program for youth. The program trains local youth in vocational skillsets and techniques, while program participants can seek their career opportunities at global Samsung Electronics Service Centers through internships and job recommendations.

In 2018, 13 of our worksites are taking part in DVE programs. Our Thailand worksite received the Beneficiary Award from Thailand's Ministry of Education for social contribution. Since 2016, the Thailand worksite and Office of Vocational Education Commission have jointly run this program to train local students on relevant technologies and skills in service engineering. In Thailand, 692 students have participated in the DVE program since its initiation, and 142 of them have stepped into internship experiences at our customer service centers.



Students Taking Dual Vocational Education in Thailand

2018 Achievements in Customer Satisfaction

<p style="text-align: center;">Germany ('18.4)</p> <p style="text-align: center;">TOP SERVICE Deutschland 2018</p>	<p style="text-align: center;">Poland ('18.4)</p> <p style="text-align: center;">Star Quality Service Award by Customer</p>	<p style="text-align: center;">US ('18.6)</p> <p style="text-align: center;">2018 CCW Excellence Awards: Best Training & Development Program</p>
<p>Host</p> <ul style="list-style-type: none"> · Service Rating Institute · Handelblatt (newspaper) · Mannheim (university) 	<p>Host</p> <ul style="list-style-type: none"> · JAKOSC OBSLUGI (Polish rating agency) · Awarded Gwiazda Jakosci Obslugi 2018 ("STAR QUALITY SERVICE" Award by Customer) 	<p>Host</p> <ul style="list-style-type: none"> · Call Center Week (CCW, the world's largest customer service consortium)
<p>Evaluation</p> <ul style="list-style-type: none"> · A review panel conducts interviews, surveys, and on-site visits, as well as examines service processes 	<p>Evaluation</p> <ul style="list-style-type: none"> · Selected as the No.1 based on a customer satisfaction assessment across 33 industries (involving 80,000 consumers) 	<p>Samsung</p> <ul style="list-style-type: none"> · Awarded for customized online training content for customer service representatives (CSRs) by customer group and product, separate training programs between entry-level and experienced CSRs, and a training certification system
<p>Samsung</p> <ul style="list-style-type: none"> · Awarded three times (2015, 2017, 2018) 	<p>Samsung</p> <ul style="list-style-type: none"> · Ranked 1st for five consecutive years (2014-18) in the electronics (home appliances/TV) category 	
<p style="text-align: center;">Austria ('18.6)</p> <p style="text-align: center;">2018 Top Service Award</p>	<p style="text-align: center;">Austria ('18.9)</p> <p style="text-align: center;">Service Champions Austria 2018 (Service Champion No.1 of the Electronics Manufacturer)</p>	<p style="text-align: center;">Germany ('18.10)</p> <p style="text-align: center;">2018 German Fairness Award, 2018 Service Champion Award</p>
<p>Host</p> <ul style="list-style-type: none"> · Emotion Banking (consulting firm) · Die Presse (newspaper) 	<p>Host</p> <ul style="list-style-type: none"> · Servicevalue (research firm) · Goethe University 	<p>German Fairness Award</p> <ul style="list-style-type: none"> · Ranking second in smartphone services (out of 18 firms)
<p>Samsung</p> <ul style="list-style-type: none"> · Selected as one of Excellence Group firms (the only manufacturing firm included in the group); also chosen as Innovation of the Year · Awarded for two consecutive years following 2017 	<p>Evaluation</p> <ul style="list-style-type: none"> · Based on a survey on customer satisfaction for 401 companies in major industries <p>Samsung</p> <ul style="list-style-type: none"> · Ranked 1st with a score of 81.7 in the electronics category 	<p>Service Champion Award</p> <ul style="list-style-type: none"> · Ranked 1st in electronics; Gold Award in home appliances
<p style="text-align: center;">Spain ('18.10)</p> <p style="text-align: center;">2018 Best Customer Service</p>	<p style="text-align: center;">France ('18.10)</p> <p style="text-align: center;">Election of Customer Service of the Year 2018</p>	
<p>Host</p> <ul style="list-style-type: none"> · Sotto Tempo Advertising (research firm) 	<p>Host</p> <ul style="list-style-type: none"> · Jointly organized by a media outlet and a consumer research group 	
<p>Evaluation</p> <ul style="list-style-type: none"> · Based on mystery shopping (80%) and a service satisfaction survey (20%) 	<p>Evaluation</p> <ul style="list-style-type: none"> · Based on the results of 225 cases of mystery shopping (140 calls, 50 e-mails, 15 web postings, 10 SNS comments, 10 chats) 	
<p>Samsung</p> <ul style="list-style-type: none"> · Won best customer service awards for mobile phones, TV, and home appliances 	<p>Samsung</p> <ul style="list-style-type: none"> · Ranked 1st in IM, VD, and DA (awarded for two consecutive years following 2017) 	

2018 Awards in Korea – Product/Service Satisfaction

KCSI	KS-QEI	GCSI	KS-SQI
Research Korean Customer Satisfaction Index	Research Korean Standard Quality Excellence Index	Research Global Customer Satisfaction Competency Index	Research Korean Standard Service Quality Index
Host Korea Management Association Consulting	Host Korean Standards Association	Host Academic Society of Global Business Administration	Host Korean Standards Association
1st place award TV, refrigerator, washing machine, air conditioner, kimchi refrigerator, smartphone, PC	1st place award TV, refrigerator, drum washing machine, air conditioner, kimchi refrigerator, smartphone, tablet, PC	1st place award TV, refrigerator, washing machine, vacuum cleaner, kimchi refrigerator, air purifier, air conditioner, smartphone, PC	1st place award Computer and mobile phone after-sales services
*Korean Customer Satisfaction Index	*Korean Standard Quality Excellence Index	*Global Customer Satisfaction Competency Index	*Korean Standard Service Quality Index

KSQI	KS-WCI	NCSI
Research Korean Service Quality Index	Research Korean Standard Well-Being Customer Index	Research National Customer Satisfaction Index
Host Korea Management Association Consulting	Host Korean Standards Association	Host Korea Productivity Center, Chosun Ilbo
[Customer Contact category] Home appliance after-sales services (home visit), mobile phone after-sales services [Call Center category] Home appliance services	1st place award Vacuum cleaner, smart TV, washing machine, air conditioner, kimchi refrigerator, refrigerator, notebook, smartphone	1st place award TV, refrigerator, air conditioner, smartphone, PC
*Korean Service Quality Index	*Korean Standard Well-Being Customer Index	*National Customer Satisfaction Index

Global Customer Magazines 2018

US	UK	Germany	France
Magazine Consumer Report	Magazine Which	Magazine Test	Magazine Que Choisir
36 products ranked 1st as of the end of 2018 5 for TVs, 4 for AVs, 3 for smartphones, 1 for tablet, 1 for NPC, 1 for fitness tracker, 2 for home appliances	10 products ranked 1st as of the end of 2018 3 for TVs, 1 for Blue-ray, 1 for HTS, 1 for soundbar, 2 for smartphones, 1 for tablet, and 1 for home appliance	10 products ranked 1st as of the end of 2018 3 for TVs, 1 for soundbar, 3 for smartphones, 3 for tablets, and 1 for home appliance	7 products ranked 1st as of the end of 2018 2 for TV, 3 for smartphones, 1 for tablet, 1 for home appliances

Performance Summary

Economic Performance

		2016	2017	2018	Unit
Key Financial Performance		* Based on the consolidated financial statement			
Sales		201.9	239.6	243.8	KRW trillion
	Operating profit	29.2	53.6	58.9	KRW trillion
	Net income	22.7	42.2	44.3	KRW trillion
Sales by Business Division / Region		* Based on net sales			
Sales by Business Division (Absolute value)	Consumer Electronics ¹⁾	44.7	44.6	42.1	KRW trillion
	IT & Mobile Communications	100.3	106.7	100.7	KRW trillion
	Device Solutions_Semiconductor	51.2	74.2	86.3	KRW trillion
	Device Solutions_Display	26.9	34.5	32.5	KRW trillion
	Harman		7.1	8.8	KRW trillion
Sales by Business Division (%)	Consumer Electronics ¹⁾	20	17	16	%
	IT & Mobile Communications	45	40	37	%
	Device Solutions_Semiconductor	23	28	32	%
	Device Solutions_Display	12	13	12	%
	Harman	-	2	3	%
Sales by Region (Absolute value)	Americas	68.7	81	81.7	KRW trillion
	Europe/CIS	38.3	44.4	43	KRW trillion
	China	35.6	38.3	43.2	KRW trillion
	Korea	20.2	31.6	33.9	KRW trillion
	Asia/Africa	39.1	44.3	42	KRW trillion
Sales by Region (%)	Americas	34	34	34	%
	Europe/CIS	19	19	18	%
	China	18	16	18	%
	Korea	10	13	14	%
	Asia/Africa	19	18	16	%
Economic Value Distribution					
[Supplier] Procurement costs		127	135.2	156	KRW trillion
[Local Community] Social contributions		444	385	409	KRW billion
[Shareholder/Investor] Dividends		3,992	5,826	9,619	KRW billion
[Shareholder/Investor] Pay-out ratio		17.8	14.1	21.9	%
[Creditor] Interest expenses		588	655	675	KRW billion
[Employee] Remuneration		24	27.2	27.8	KRW trillion
[Government] Taxes and dues by region		8.9	15.1	17.8	KRW trillion
	Asia	19	10	6	%
	Korea	67	81	86	%
	Americas/Europe	13	8	7	%
	Others	1	1	1	%

Ratio of Economic Value Distributed in 2018						Unit : %
Supplier ²⁾	Local Community ³⁾	Shareholder & Investor ⁴⁾	Creditor ⁵⁾	Employee ⁶⁾	Government ⁷⁾	
63.2	0.2	3.9	0.3	11.3	7.2	

Footnote:

- 1) Changed the data from 2016 and 2017 according to excluding health & medical equipment business from CE business division
- 2) Cost of all products and services purchased by Samsung Electronics for its business operation
- 3) Sum of all social contributions made through donations and other expense accounts

- 4) Dividends paid
- 5) Interest expenses paid
- 6) Sum of salaries, severance payments, and welfare benefits included in the cost of sales, R&D costs and SG&A costs
- 7) Sum of consolidated income taxes, other taxes, and dues calculated on an accrued basis

Social performance indicator

External Contributions¹⁾

Contribution	Amount	Details	Others
Management plans for the Social Contribution Fund for 2018	KRW 12.21 billion	<ul style="list-style-type: none"> The Social Contribution Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 12.21 billion in matching funds in 2018. The contribution will be used for domestic and overseas volunteer programs as well as and local social contribution activities. 	The Board approved this action at the meeting held on January 31, 2018.
Samsung Dream Scholarship Foundation	KRW 1.12 billion	<ul style="list-style-type: none"> The contribution was made to support education of low-income high school students. 	
Chungnam Samsung Academy	KRW 2.742 billion	<ul style="list-style-type: none"> The contribution was made to improve education of the region. 	The Board approved this action at the meeting held on February
Donation of Electronics to celebrate Samsung's 80th anniversary	Approximately KRW 7.5 billion	<ul style="list-style-type: none"> Electronics were donated to about 1,500 social welfare centers to celebrate the 80th anniversary of Samsung. 	The Board approved this action at the meeting held on March 23, 2018.
Samsung Welfare Foundation	KRW 19.5 billion	<ul style="list-style-type: none"> The contribution was made to support education of low-income middle school students. 	The Board approved this action at the meeting held on April 26, 2018.
Samsung Life Public Welfare Foundation	KRW 41.5 billion	<ul style="list-style-type: none"> The contribution was made to support the Samsung Medical Center. 	
Ho-Am Foundation	KRW 4.0 billion	<ul style="list-style-type: none"> The contribution was made to support the Foundation's activities such as the Ho-Am Award. 	
Sungkyunkwan University	KRW 15.0 billion	<ul style="list-style-type: none"> The contribution was made to support Samsung Scholarship. 	
Smart Factory	KRW 60 billion	<ul style="list-style-type: none"> The contribution was made to support small- and mid-sized enterprises strengthen manufacturing competitiveness, foster talent, and achieve sustainable growth. 	The Board approved this action at the meeting held on July 31, 2018.
Samsung Software Academy For Youth	KRW 499.6 billion	<ul style="list-style-type: none"> The contribution was made to provide quality software education and support job seekers foster capabilities expected by companies. (Date: Dec 2018–Jun 2024) 	The Board approved this action at the meeting held on October 31, 2018.
2019 Annual Fundraising	KRW 25.2 billion	<ul style="list-style-type: none"> The contribution was made to fulfil corporate social responsibilities and help the marginalized. 	The Board approved this action at the meeting held on
Performance incentive to secondary suppliers of the DS division	Approximately KRW 4.32 billion	<ul style="list-style-type: none"> The contribution was provided to 89 suppliers of the DS division to improve safety accident prevention, boost productivity, and enable co-growth with suppliers. 	November 30, 2018.

Footnote:

1) External contributions are based on the resolution of Board

	2016	2017	2018	Unit
Empowering Society				
Total corporate citizenship management expenditures	444,789	385,571	409,636	KRW million
Total hours of domestic and global sites employee volunteer work hours	1,083,849	1,259,893	1,131,915	No. of hours
Volunteer hours per person ¹⁾	3.51	3.93	3.66	No. of hours
Corporate Citizenship Program				
Accumulated no. of Samsung Smart School beneficiaries	1,401,776	2,228,150	2,712,024	No. of persons
Accumulated no. of Samsung Smart School beneficiaries	74,192	85,388	113,395	No. of persons
Labor and Human Rights				
Total employees ²⁾	308,745	320,671	309,630	No. of persons
Global (Excluding Korea)	215,541	224,213	209,925	No. of persons
Korea	93,204	96,458	99,705	No. of persons
Employees by Contract Type				
Employees on permanent contracts	304,715	316,534	304,640	No. of persons
Employees on fixed-term contracts ³⁾	4,030	4,137	4,990	No. of persons
Employees by Age Group				
Under 30	172,272	171,877	150,565	No. of persons
30's	93,348	100,856	106,226	No. of persons
40 and older	43,125	47,938	52,839	No. of persons
Employees by Job Functions				
Product development	62,546	65,494	66,328	No. of persons
Manufacturing	194,669	203,076	187,326	No. of persons
Sales/Marketing	25,836	25,266	25,731	No. of persons
Others	25,694	26,835	30,245	No. of persons
Employees by Job Positions				
Staff ⁴⁾	248,415	256,944	240,135	No. of persons
Managers	59,014	62,406	68,156	No. of persons
Executives ⁵⁾	1,316	1,321	1,339	No. of persons
Employees by Region				
Korea	93,204	96,458	99,705	No. of persons
Southeast Asia/Southwest Asia/Japan	134,386	145,577	137,365	No. of persons
China	37,070	34,843	29,110	No. of persons
North America/Central & Latin America	25,988	25,814	25,630	No. of persons
Europe/CIS	14,445	14,711	14,681	No. of persons
Middle East	2,810	2,592	2,552	No. of persons
Africa	842	676	587	No. of persons
Employees by Region				
Global Turnover Rate Excluding Korea ⁶⁾	16.9	17.1	17.9	%
Turnover Rate in Korea ⁶⁾	5.5	2.3	2.3	%
Welfare and Benefit Expenditure in Domestic and Global Sites	3,459	3,813	4,096	KRW billion
Human Capital (Diversity and Employee Development)				
Employees who took childcare leave ⁷⁾	3,818	3,643	3,305	No. of persons
Employees who return to work after childcare leave ⁷⁾	93.8	94.4	95.9	%
Daycare center capacity ⁷⁾	2,905	2,905	2,980	No. of persons
No. of daycare centers ⁷⁾	14	14	14	No. of centers
No. of mentally/physically-challenged employees ⁷⁾	1,550	1,530	1,538	No. of persons
Ratio of mentally/physically-challenged employees ⁷⁾	1.7	1.6	1.5	%
Ratio of Female Employees ⁸⁾	44	45	43	%
Career Development				
Product development	17	18	17	%
Manufacturing	56	57	55	%
Sales/Marketing	29	30	31	%
Others	37	39	36	%

Footnote:

- 1) Total hours of domestic and global sites employee volunteer work hours / total employees
- 2) As of the end of the year, excluding supplier employees stationed in Samsung Electronics, those who are taking leave, interns, and those who are taking full-time degree courses
- 3) South Korea: Classified according to the law, Overseas: Contractor + apprentice

- 4) Including those working flexible work hours and other positions
- 5) Including the Vice President at global worksites
- 6) Ratio of employees who resigned against the average No. of employees during the concerned fiscal year
- 7) Scope of data collection: Domestic employees
- 8) Based on the total number of global employees

Social performance indicator

		2016	2017	2018	Unit
Labor and Human Rights					
Ratio of female employees by Region	Korea	25.3	25.3	25.2	%
	Southeast Asia/Southwest Asia/Japan	63.2	63.1	59.9	%
	China	41.4	39.5	40.3	%
	North America/Central & Latin America	34.9	34.8	34.4	%
	Europe/CIS	35.0	35.0	34.7	%
	Middle East	14.1	14.9	14.5	%
	Africa	32.5	33.6	36.5	%
Ratio of female employees by Job Positions	Staff	51.8	53.1	51.6	%
	Managers	12.7	13.2	14.2	%
	Executives ¹⁾	6.3	6.8	6.3	%
Career Development	Employees who received training ²⁾	477	463	488	10,000 persons
	Global (Excluding Korea)	368	327	346	10,000 persons
	Korea	109	136	142	10,000 persons
	Average training hours per person ³⁾	71	73.5	62.2	No. of hours
	Global (Excluding Korea)	67	68.3	57.1	No. of hours
	Korea	80	85.6	72.8	No. of hours
	Training Expenditures				
	Total training expenditures ⁴⁾	1117	1097	1,469	KRW100 million
	Training expenditures per person ⁵⁾	1,198	1,137	1,473	KRW thousand
	Training expenditure against sales ⁶⁾	0.06	0.05	0.06	%
	Training expenditures against remuneration costs ⁷⁾	1.1	1.0	1.2	%
	Employees who applied for re-employment through the Career Development Center ⁸⁾	6,400	6,924	7,126	No. of persons
	Employees re-employed through the Career Development Center ⁸⁾	5,508	5,886	6,187	No. of persons
	Employees re-employed through the Career Development Center	86.1	85.0	86.8	%
	Investing in the Competitiveness of Our Suppliers				
Investment in the Win-Win Fund		8,232	8,228	8,339	KRW100 million
	1st-tier suppliers	6,015	6,173	6,113	KRW100 million
	2nd-, 3rd-tier suppliers ⁹⁾	2,217	2,054	2,226	KRW100 million
Supplier Incentive in Monetary Value ¹⁰⁾		368	653	821	KRW100 million
Attendees at Supplier Training		759	805	877	No. of suppliers
	1st-tier suppliers	664	632	589	No. of suppliers
	2nd-tier suppliers	95	173	288	No. of suppliers
Trainees at Supplier Training ¹¹⁾		13,089	16,209	18,777	No. of persons
	1st-tier suppliers	12,673	12,687	13,673	No. of persons
	2nd-tier suppliers	416	3,522	5,104	No. of persons
1st-tier Suppliers Supported for Their Innovation Initiatives		64	137	124	No. of suppliers
	Global (Excluding Korea)	19	22	26	No. of suppliers
	Korea	45	115	98	No. of suppliers
Beneficiaries of the Smart Factory Program ¹²⁾		479	487	0	No. of suppliers
	Samsung Electronics suppliers	39	66	0	No. of suppliers
	SMEs without business transactions with Samsung Electronics	440	421	0	No. of suppliers

Footnote:

1) Including the Vice President at global worksites

2) Based on online/offline training, including redundancy

3) Based on online/offline training

4) Scope of data collection: Employees in South Korea

5) Total training expenditure ÷ total No. of employees in South Korea

6) Total training expenditure ÷ consolidated sales

7) Total training expenses ÷ labor expenses

8) On an accumulated basis between 2001 and 2018

9) As of 2018, including 3rd tier suppliers

10) Supported a total of 224 suppliers in 2018, Correction of numerical errors in 2016 and 2017

11) Based on the total number of global employees

12) No. of beneficiaries in 2018 didn't included in 2018 performance. That's because the program in 2018 ended in May 2019

	2016	2017	2018	Unit
Responsible Management of Our Supplier Work Environment				
Third Party Initial Audit (Accumulated) ¹⁾	190	214	306	No. of suppliers
Third Party Closure Audit (Accumulated) ¹⁾	92	109	193	No. of suppliers
Responsible Sourcing of Minerals				
Onsite Inspections for Suppliers' Conflict Minerals Management	163	252	244	No. of suppliers
Comprehensive Supplier Evaluation				
Suppliers Evaluated ²⁾	83	89	91	%
Suppliers Rated Excellent	70	60	64	%
Ratio of ISO 14001-certified Suppliers ³⁾	86	86	87	%
Ratio of OSHAS 18001-certified Suppliers	39	32	37	%
Health & Safety				
Frequency Rate ^{4) 5)}	0.227	0.086	0.036	
Injury Rate ^{4) 6)}	0.044	0.017	0.008	
Compliance Management				
Employees who received compliance training ^{7) 8)}	210,229	260,032	214,450	No. of persons
Reports of the violation of business integrity ⁹⁾	628	608	375	No. of occasions
Reports of corruption	18	16	20	%
Reports of consumer complaints	52	42	32	%
Other	31	42	48	%
Employees who received anti-corruption training ¹⁰⁾	313,590	317,965	303,445	No. of persons
Responsible Marketing and Customer Relationship Management				
Ratio of CS Career Path (In-House Certification Program) Certified Employees ¹¹⁾	95	95.8	93	%
Customer Satisfaction	84	83.9	85.4	Point

Footnote:

1) Accumulated since 2013

2) All suppliers excluding those registered less than one years ago (annual registration) are subject to evaluations conducted in eight categories

3) Demand that suppliers comply with ISO 14001 or other corresponding standards in the standard contract form

4) Based on all domestic employees and employees at the overseas manufacturing subsidiaries

5) (No. of injuries ÷ No. of annual work hours) x 1,000,000

6) (No. of injured workers ÷ No. of workers) x 100

7) Scope of data collection: Employees in South Korea

8) Including redundancy

9) Based on the data collected from the Samsung Electronics business integrity website (sec-audit.com)

10) Based on the total number of global employees

11) Among all CS staff

Supplier Compliance by Key Third-party Verification Item¹⁾

	2016	2017	2018	Unit
Labor & Human Rights				
Management System	97	98	99	%
Prohibition of child labor	100	100	100	%
Protection of underage workers	100	100	100	%
Work hour management	83	87	84	%
Guarantee of one-day off per week	94	97	95	%
Wages and benefits	99	95	96	%
Humane treatment	98	100	100	%
Non-discrimination	100	100	99	%
Health & Safety				
Occupational Safety	98	96	96	%
Emergency preparedness	91	94	94	%
Occupational injury and illness	99	98	96	%
Physically-demanding work	100	100	96	%
Machine safeguarding	100	100	100	%
Food, sanitation & housing	98	100	99	%
Environment				
Pollution Prevention	100	100	99	%
Hazardous substance management	100	94	98	%
Wastewater/solid waste management	100	98	100	%
Air pollution	100	100	91	%
Restriction of product materials	100	100	99	%
Ethics				
Business Integrity	100	100	100	%
No improper advantage	100	100	99	%
Disclosure of information	100	100	99	%
Intellectual property	100	100	100	%
Protection of identity	100	100	100	%
Protection of personal information	100	100	99	%
Non-retaliation	100	100	100	%
Management System				
Company Commitment	100	100	100	%
Management responsibility	100	98	100	%
Risk assessment	100	88	92	%
Training	100	100	96	%
Communication	100	100	100	%
Employee feedback	100	100	98	%
Corrective action	100	96	98	%
Management of Business	100	100	96	%
Improvement Goal				

Footnote:

1) Figures that reflect the improvements made

Environment Performance Indicator

	2016	2017	2018	Unit
Product Stewardship				
Development of eco-friendly products ¹⁾	86	94	94	%
Eco Invention_Energy Efficiency				
Estimated GHG emissions reduction in the product ²⁾ use phase ³⁾	188	217	243	Million tCO ₂ e
Estimated GHG emissions reduction in the product ²⁾ use phase of the concerned year ⁴⁾	32,232	28,486	26,482	Thousand tCO ₂ e
Estimated reduction ⁴⁾ in energy consumption for products ²⁾	49	36	39	%
Eco Invention_Resource Efficiency				
Accumulated recovery of end-of-life products ³⁾	271	312	355	10,000 Ton
Recovery of end-of-life products in the concerned year	444,473	417,253	423,229	Ton
Asia/Oceania	127,911	140,814	142,111	Ton
Europe	262,942	220,015	226,616	Ton
Americas	53,618	56,424	54,502	Ton
Recycling				
Recycling of packaging materials ⁵⁾	7,911	9,619	13,934	Ton
Recycling of products ⁵⁾	82,867	92,195	95,856	Ton
Large appliance ⁶⁾	69,905	79,999	83,344	Ton
IT equipment ⁶⁾	7,217	5,831	5,008	Ton
Medium appliance ⁶⁾	2,597	2,421	3,464	Ton
Small appliance ⁶⁾	3,148	3,944	4,041	Ton
Conversion into resources ⁵⁾	71,528	79,579	82,739	Ton
Scrap metal	33,597	37,379	38,863	Ton
Nonferrous metal	12,456	13,858	14,408	Ton
Synthetic resin	20,286	22,569	23,466	Ton
Glass	1,482	1,648	1,714	Ton
Other	3,707	4,125	4,289	Ton
Consumption of recycled plastics	30,849	35,268	39,226	Ton
Adoption of recycled plastics	5	6	6.7	%
Operational Impact				
Environment and safety Investment	9,334	9,513	9,167	KRW100 million
Violation of environmental regulations	0	0	0	No. of violations

Footnote:

- 1) Product development projects rated Good Eco-Product or above
- 2) Scope of data collection: Seven major product categories (mobile phones, notebooks, TVs, monitors, refrigerators, washers, and air conditioners)
- 3) Accumulated since 2009
- 4) Average annual energy consumption against the average annual energy consumption in 2008

5) Scope of data collection: South Korea

6) Reclassified according to "Act for Resource Recycling of Electrical/Electronic Products and Automobiles" in South Korea

Environment Performance Indicator

	2016	2017	2018	Unit
Climate Stewardship				
Use of renewable energy	181.77	228.54	1,356.47	GWh
GHG emissions generated in the workplace ¹⁾	11,600	13,585	15,173	1,000tCO ₂ e
Scope 1 ²⁾	2,554	3,668	4,855	1,000tCO ₂ e
Scope 2 ³⁾	9,046	9,917	10,318	1,000tCO ₂ e
CO ₂	9,909	10,889	11,439	1,000tCO ₂ e
CH ₄	2	2	2	1,000tCO ₂ e
N ₂ O	264	343	322	1,000tCO ₂ e
HFCs	218	327	505	1,000tCO ₂ e
PFCs	1,115	1,847	2,737	1,000tCO ₂ e
SF ₆	92	177	168	1,000tCO ₂ e
GHG emissions intensity ⁴⁾	3.0	3.3	3.6	tCO ₂ e/KRW 100 million
Scope 3 emissions				
Emissions from suppliers ⁵⁾	6,326	7,038	7,952	1,000tCO ₂ e
Emissions from logistics	7,562	7,625	7,846	1,000tCO ₂ e
Emissions from business trips ⁶⁾	87	119	110	1,000tCO ₂ e
Energy consumption in the workplace	21,073	23,419	26,028	GWh
Power	16,587	18,450	20,558	GWh
Others	4,486	4,970	5,470	GWh
Energy consumption intensity ⁴⁾	5	5.7	6.2	MWh/KRW 100 million
Water and Wastewater Management				
Water consumption	104,253	120,618	134,230	1,000 Ton
Industrial water	62,986	67,708	78,837	1,000 Ton
Municipal water (tap water)	40,147	51,916	54,434	1,000 Ton
Underground water	1,120	994	959	1,000 Ton
Intensity of water consumption ⁷⁾	60	59	64	Ton/KRW 100 million
Wastewater discharge	81,716	95,919	107,699	1,000 Ton
Reuse of water	48,602	56,154	62,371	1,000 Ton
Rate of water reused	47	47	46	%
Supply of ultra-pure water for reuse	37,770	44,582	52,607	1,000 Ton
Recovery of ultra-pure water for reuse	15,529	16,358	17,513	1,000 Ton
Rate of recovery of ultra-pure water	41	37	33	%
Suppliers' water consumption ⁵⁾	64,407	65,487	67,934	1,000 Ton

Footnote:

- 1) Calculated in accordance with nation-specific GHG management guidelines, IPCC guidelines, and ISO 14064 standards
- 2) Direct GHG Emissions: the consumption of fuel including LPG/LNG, the process emission by fluorinated gas use, and so on.
- 3) Indirect GHG Emissions: the consumption of purchased electricity and steam
- 4) (Total emissions/total consumption/total generation) ÷ consolidated global sales ÷ price index, excluding the sales of the Display Business Division, price index: Producer price index that was announced by the Bank of Korea for the concerned year (basis: 2005 = 1)
- 5) Scope of the Data collection: The carbon emissions and water consumption of top 500 suppliers was examined, and then calculation were made in consideration of their respective share of business conducted with Samsung Electronics. (Changed the date from 2016 and 2017 according to the result.) Scope of the Data collection: The carbon emissions and water consumption of top 500 suppliers was examined, and then calculation were made in consideration of their respective share of business conducted with Samsung Electronics. (Changed the date from 2016 and 2017 according to the result.)

6) Scope of Data collection: Worksites in South Korea

7) Total consumption ÷ consolidated global sales, excluding the sales of the Display Business Division

	2016	2017	2018	Unit
Waste and Hazardous Waste				
Waste generation	1,078,309	1,146,812	1,210,521	Ton
General waste	728,905	760,463	813,831	Ton
Hazardous waste ¹⁾	349,404	386,349	396,690	Ton
Waste processed	1,078,309	1,146,812	1,210,521	Ton
Conversion into resources	1,022,686	1,088,979	1,157,621	Ton
Incineration (outside the Company)	26,622	32,301	31,377	Ton
Landfill (outside the Company)	29,001	25,532	21,524	Ton
Conversion of waste into resources	95	95	96	%
Pollutant Management				
Emission of air pollutants	2,062	1,311	1,060	Ton
NOx	635	685	616	Ton
SOx	196	69	55	Ton
Dust	1,197	509	281	Ton
NH ₃	27	38	95	Ton
HF	7	10	13	Ton
VOC emissions ²⁾	131	166	211	Ton
Discharge of water pollutants	3,055	3,190	3,797	Ton
COD	1,639	1,771	2,407	Ton
BOD	520	521	392	Ton
SS	598	497	649	Ton
F	253	386	337	Ton
Heavy metal	45	15	12	Ton
Consumption of ozone-depleting substances (CFC-eq) ³⁾	5	3	2	Ton
Workplace Chemicals Management ⁴⁾				
Consumption of chemicals ³⁾	321	364	417	1,000 ton
Leakage of major harmful substances	0	0	0	No. of occasions

Footnote:

- 1) Based on the calculation criteria adopted by the country of respective worksites
- 2) Correction of the calculation error in 2017 emissions
- 3) Scope of Data collection: Worksites in South Korea
- 4) Scope of data collection: changed the data from 2016 and 2017 due to reclassified according to PRTR (Pollutant Release and Transfer Registers) as of 2018

APPENDIX

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Independent Assurance Report



To the management of Samsung Electronics Co., Ltd.

We have been engaged by Samsung Electronics Co., Ltd. (the "Company") to perform an independent assurance engagement in regard to the following aspects of Samsung Electronics Sustainability Report 2019 (the "Report").

Scope and subject matter

The information for the year ended December 31, 2018 (hereinafter, collectively referred to as the "Sustainability information") on which we provide limited assurance consists of:

- The Company's conclusion on meeting the principles of Inclusivity, Materiality and Responsiveness in the AA1000 AccountAbility Principles
- Whether the non-financial information ("Sustainability management data"), stated in "GRI (Global Reporting Initiative) Index (the pages 136 through 139)" is prepared based on the reporting principles set out on GRI Standards with Core option

We read the other information included in the Report and considered whether it was consistent with the Sustainability Information. We considered the implications for our report in the case that we became aware of any apparent misstatements or material inconsistencies with the Sustainability Information. Our responsibilities do not extend to any other information.

Assurance work performed

We conducted our engagement in accordance with ISAE 3000¹⁾ and AA1000AS²⁾

The term "moderate assurance" used in AA1000AS (2008) is designed to be consistent with "limited assurance" as articulated in ISAE 3000.

Our assurance is a Type II assurance engagement as defined in the AA1000AS (2008).

- 1) International Standard on Assurance Engagements 3000 – "Assurance Engagements other than Audits or Reviews of Historical Financial Information" issued by International Auditing and Assurance Standards Board
 2) AA1000 Assurance Standard (2008), issued by AccountAbility

Our work involved the following activities:

1. Interviews with the personnel responsible for internal reporting and data collection to discuss their approaches to stakeholder inclusivity, materiality and responsiveness
2. Visits to the Company's headquarter in Suwon office to understand the systems and processes in place for managing and reporting the Sustainability Data
3. Review of samples of internal documents relevant to output from the risk assessment process, sustainability-related policies and standards, the sustainability materiality assessment matrix and other documents from stakeholder-engaged activities
4. Evaluating the design and implementation of key processes and controls for managing and reporting the Sustainability Data
5. Limited testing, through inquiry and analytical review procedures, of the preparation and collation of the Sustainability Data

Respective responsibilities of the management of the Company and Samil PricewaterhouseCoopers

The management of the Company is responsible for establishing reporting principles that meet the principles of Inclusivity, Materiality and Responsiveness in the AA1000APS, measuring performance based on the reporting principles, and reporting this performance in the Report. Our responsibility is to provide a conclusion based on our assurance procedures in accordance with ISAE 3000 and AA1000AS.

This report, including the conclusion, has been prepared for the management of the Company as a body, to assist the management in reporting on the Company's sustainability performance and activities. We do not accept or assume responsibility to anyone other than the management of the Company as a body and the Company for our work or this report save where terms are expressly agreed and with our prior consent in writing.

Inherent limitations

Non-financial performance information is subject to more inherent limitations than financial information, given the characteristics of the subject matter and the methods used for determining such information. Qualitative interpretations of relevance, materiality and the accuracy of data are subject to individual assumptions and judgments.

A limited assurance engagement is less in scope than a reasonable assurance engagement under ISAE 3000. Consequently, the nature, timing and extent of procedures for gathering sufficient, appropriate evidence are deliberately limited relative to a reasonable assurance engagement.

In particular:

- We did not attend any stakeholder-engaged activities. Therefore our conclusion is based on our discussions with the management and the staff of the Company, and our review of sampled documents provided to us by the Company.
- The scope of our work was restricted to 2018 performance only, as set out in the scope and subject matter section above. Information related to the year ended December 31, 2017 and earlier periods have not been subject to assurance by us.

Conclusion

Based on the results of the assurance work performed, our conclusion is as follows

On the AA1000APS principles

· Inclusivity

- The Company has collected concerns and opinion through stakeholder communication channels that include those of Customers, Shareholders, Investors, Employees, Suppliers, NGOs, Specialized Institutions, Governments and Media.
- Nothing has come to our attention to suggest that material stakeholder groups were excluded from these channels.

· Materiality

- The Company has identified most relevant and significant sustainability issues through process for identifying material issues.
- Nothing has come to our attention to suggest that material issues were omitted in this process.

· Responsiveness

- The Company has included in the Report its response to the material sustainability issues which are defined through process for identifying material issues.
- Nothing has come to our attention to suggest that there were material deficiencies in the issue management system.

Nothing has come to our attention that causes us to believe that the Sustainability Data for the year ended December 31, 2018 is not fairly stated, in all material respects, in accordance with the Company's internal reporting principles set out on GRI Standard with Core option.

Recommendations

As a result of our work, we have provided the following recommendations to the management.

- The value system of Samsung Electronics "Management Philosophy, Core Values, and Business Principles" expresses the company's willingness to fulfill its social responsibility. To ensure the effective implementation of this management philosophy, the Governance Committee within the company's board of directors has been in operation since 2017. It is expected that the committee will act as the top decision making body in relation to CSR in order to protect the rights and interests of both the shareholders as well as various stakeholders, and play a pivotal role in ensuring transparent communication. This can increase the credibility of Samsung Electronics' sustainable growth from stakeholders.
- Samsung Electronics discloses the outcome of its sustainable management into six different categories, also known as the six sustainability pillars, which comprises of Product Stewardship, Commitment to the Environment in Our Operation, Enabling People, Technology for Good, Investing in Our Employees and Sustainable Supply Chain. In the future, it is recommended that the more materialized company-wide sustainability management strategy is reflected in the direction of the six pillars. Moreover, inclusion of Samsung Electronics' distinctive strategic approach and results of the analysis of the potential risks identified during the process, which is not a declarative or rhetorical approach will enhance the sincerity of the company's sustainability management promotion from the stakeholders.
- Samsung Electronics is a global company that builds networks and conducts business around the world. The report includes the goals, achievement and activities of some overseas subsidiaries. It is recommended that the scope of collection and reporting of the relevant data to be expanded to all global operation sites in order to help stakeholders understand the overall level of the company's sustainability. In addition, efforts should be made to enhance transparency in the information collected on sustainability management. Through this process, Samsung Electronics can communicate to the stakeholders more transparently about the company's systematic and exemplary management of sustainability issue.

Samil PricewaterhouseCoopers
Jae-Heum Park, Partner

Samil PricewaterhouseCoopers

Jaeheum Park

Seoul, Korea
June 14, 2019

Verification statement on 2018 Samsung Electronics Co., Ltd., Greenhouse Gas Emission



Introduction

Korean Foundation for Quality (hereinafter "KFQ") has been engaged by Samsung Electronics Co., Ltd. (hereinafter the "Company") to independently verify its 2018 Greenhouse Gas Emission Report of domestic corporations and 28 overseas subsidiaries.

It is the responsibility of the Company to compile the Greenhouse Gas Emission Report according to the "Guidelines for GHG emission reporting and certification of GHG emission trading scheme (Notification No. 2018-78 of Ministry of Trade, Industry and Energy)", "GHG Protocol Scope 2 Guidance" and "ISO 14064-1:2006" and KFQ has responsibility to conduct verification based on "ISO 14064-3:2006" to provide verification opinion on compliance of the Report against verification criteria.

Verification Scope

In this verification, domestic corporations and 28 overseas subsidiaries under operational control of Samsung Electronics Co., Ltd., and reported emission is including Scope 1 and Scope 2 emission.

Verification Opinion

Through the verification process according to the "ISO 14064-3:2006", KFQ could obtain reasonable basis to express following conclusion on the Greenhouse Gas Emission Report.

- 1) 2018 Samsung Electronics Co., Ltd., Greenhouse Gas Emission Report was prepared against "Samsung Electronics Co., Ltd., Greenhouse Gas Inventory Guideline" developed based on the "Guidelines for GHG emission reporting and certification of GHG emission trading scheme", "GHG Protocol Scope 2 Guidance" and "ISO 14064-1:2006".
- 2) As a result of materiality assessment on 2018 domestic Greenhouse Gas Emission, material discrepancy is less than the criteria of 2.0% for the organization which emits more than 5,000,000 tCO₂eq/year in accordance with the requirements of the "Guidelines of verification for Greenhouse gas emission trading scheme".
- 3) For the 28 overseas subsidiaries, document review was conducted for entire 28 subsidiaries and sampling on-site assessment was conducted for 4 subsidiaries, 2 in the US, 1 in Thailand and 1 in Malaysia, as well as Company self-assessment. The result of material discrepancy is less than 2.0%.
- 4) As reported Greenhouse Gas Emission purchased electricity, process emission by fluorinated gas use and LNG consumption take more than 99% of total emission. Activity data of these emission sources were checked through the objective evidence provided by supplier therefore KFQ could confirm that these activity data is valid itself.
- 5) However, verification opinion regarding to the relevant error caused by emission reduction efficiency of emission reduction technologies in process emission which affect Greenhouse Gas Emission was not considered. It is because of the efficiency has to be assessed and confirmed by the Government or related specialized agency but it was developed by Company according to the Company own methodology.
For the overseas subsidiaries, each national net caloric value and electricity emission factor were preferentially used but net caloric value and electricity emission factor were adopted from IPCC Guidelines or Korean Energy Law Enforcement Regulation and IEA statistics respectively in case of nonexistence of it. Therefore, it is necessary to re-calculate Greenhouse Gas Emission in any change of these parameters or factors.
- 6) Except unconsidered emission source in the "Samsung Electronics Co., Ltd., Greenhouse Gas Inventory Guideline", material error, omission or insignificant issues was not found in 2018 Samsung Electronics Co., Ltd., Greenhouse Gas Emission Report.

2018 Samsung Electronics Co., Ltd., Greenhouse Gas Emission

unit: kiloton CO₂ eq

Report year		2018.1.1~2018.12.31							
		Domestic	Overseas						Total
Verification Scope			China	Southeast Asia	India	Europe	America	Africa	
GHG Emission	Sub Total	10,775	2,427	1,487	123	111	233	17	15,173
	Direct Emission (Scope 1)	3,962	588	114	9	24	154	4	4,855
	Indirect Emission (Scope 2)	6,813	1,839	1,373	114	87	79	13	10,318

President & CEO Korean Foundation for Quality
Seok Un Yoon

April 29th, 2019

TCFD Index

From 2019, Samsung Electronics starts to disclose climate-related financial information according to TCFD (Task Force on Climate-related Financial Disclosures) recommendations. We strongly believe engaging in TCFD would enhance our responsibility towards investors, lenders, insurers, and other stakeholders.

TCFD recommendation	Samsung Electronics' Disclosure Source/Reference	
<p>Governance : Disclose the organization's governance around climate-related risks and opportunities.</p>		
<p>a) Describe the board's oversight of climate-related risks and opportunities.</p>	<p>2018 CDP Climate Change survey response: CC1.1a, CC1.1b</p>	<p>The board oversees climate change-related issues through its regular meetings. Global EHS Center under CFO and Global CS Center are responsible for identifying and reporting climate change-related report agendas. Examples of quarterly agenda include the status of eco-friendly product certification, greenhouse gas emissions and energy usage.</p>
<p>b) Describe management's role in assessing and managing climate-related risks and opportunities.</p>	<p>2018 CDP Climate Change survey response: CC1.2a</p>	<p>Our Global Environment, Health and Safety (EHS) Center, under the direct leadership of the CEO, actively manages EHS including climate change. The CFO serves as the Chief Risk Officer (CRO) and operates the Risk Council with the heads of various functions including Global Environment, Health & Safety Center, Public Affairs, etc. CFO also leads Environment and Safety committee 3 times a year, deliberated on green management and GHG issues.</p>
<p>Strategy : Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.</p>		
<p>a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.</p>	<p>2018 CDP Climate Change survey response: CC2.2c, CC2.3a, CC2.4a, CC3.1c</p>	<p>In short-term, pricing of GHG emissions (carbon tax and/or GHG emissions trading scheme), severity of extreme weather events and changing customer behavior are identified as potential risks whereas new products or services development via R&D and innovation is considered an opportunity. In mid-term, shift in consumer preferences and participation in carbon market are identified as opportunities. Lastly, as set out in our Eco-Management 2020 strategy, effective mitigation of GHG emissions and strategic approach for emissions trading scheme are considered the salient issues in long term.</p>
<p>b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.</p>	<p>2018 CDP Climate Change survey response: CC2.5, CC2.6</p>	<p>Within the business, the climate-related risks and opportunities have impacted on our products and services, supply chain, adaptation and mitigation activities, investment in R&D, and other operation. In products and services, for instance, we have been accelerating development of energy-efficient products. Within our seven product categories of refrigerator, washing machine, TV, monitor, laptop, and mobile phone, energy efficient products now account for about half of total revenues in 2017.</p>
<p>c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.</p>	<p>2018 CDP Climate Change survey response: CC3.1c, CC3.1d</p>	<p>Samsung Electronics established a strategy to effectively reduce GHG emission while considering 2°C scenario. We are reviewing the company-wise strategy by using RCP 2.6 scenario and Energy Technology Perspectives (ETP) 2016 data of International Energy Agency (IEA). In order to reduce Scope 3 emissions, we will continuously cooperate with our suppliers.</p>

TCFD recommendation	Samsung Electronics' Disclosure Source/Reference	
· Risk Management : Disclose how the organization identifies, assesses, and manages climate-related risks.		
a) Describe the organization's processes for identifying and assessing climate-related risks.	2018 CDP Climate Change survey response: CC1.2a, CC2.2b	The CFO serves as the Chief Risk Officer (CRO) and operates the Risk Council in collaboration with the heads of various functions including Global Environment and Health and Safety Center. The CFO leads Environment and Safety Committee (three times a year) to review and monitor any important climate-related risks. For urgent issues on climate change, such risks are reported to CEO and the responsible executives. We also have bi-monthly climate change report to share any important climate change issues with relevant executives and personnel.
b) Describe the organization's processes for managing climate-related risks.	2018 CDP Climate Change survey response: CC2.2d	Samsung Electronics regularly monitors/reviews risks identified and global offices are required to report to Global EHS center about EHS, energy, GHG, renewable-related issues. These issues are checked via regular conference call meetings. Risks are reported to Environment and Safety Committee or GHG Council and decisions are made/passed on to the related departments. The production site's Infra or EHS departments will carry out risk management procedures according to the council's decision.
c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	2018 CDP Climate Change survey response: CC2.2	Climate-related risks are integrated into multi-disciplinary company-wide risk identification, assessment, and management processes.
· Metrics and Targets : Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.		
a) Disclose the metrics used by the organization to assess climate related risks and opportunities in line with its strategy and risk management process.	2018 CDP Climate Change survey response CC11.3	To measure and manage climate change risk and opportunities, we used a number of indicators including GHG emissions, intensity-based GHG emissions (normalized by sales), energy consumption and saving. Moreover, our Global EHS Center, which makes decisions on climate change issues, uses internal carbon prices as decision indicators for investment in energy facilities, energy generation projects, settlement of in-house carbon credits, and renewable energy project. For instance, using internal carbon price led to a shorter pay-back period and corresponding investment decision when reviewing economics of solar PV project in our Suwon operation site.
b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	2019 Sustainability Report: page. 128	Scope 1: 4,855 Kton CO ₂ e Scope 2: 10,318 Kton CO ₂ e Scope 3 ¹⁾ : 15,908 Kton CO ₂ e
c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	2018 CDP climate Change survey response : C4	We have set intensity-based GHG emissions reduction target – 70% reduction by 2020 to 1.55 tCO ₂ e/KRW 100 million from 5.17 tCO ₂ e/KRW 100 million in 2008. Our GHG emissions intensity in 2018 was 3.59 tCO ₂ e/KRW 100 million, 9.45% higher than 2017.

Footnote:

1)Scope 3 includes emission from suppliers, logistics, and business trips

GRI Content Index

Aspect	GRI No.	Index Description	'18 Status	Page	Comments
General Disclosures					
Organizational Profile	102-1	Name of the organization	●	1	
	102-2	Activities, brands, products, and services	○		Refer to the company website
	102-3	Location of headquarters	●	1	
	102-4	Location of operations	●	4-5	
	102-5	Ownership and legal form	○		Refer to the business report
	102-6	Markets served	●	4-5	
	102-7	Scale of the organization	●	121,123	
	102-8	Information on employees and other workers	●	123-124	
	102-9	Supply chain	●	4-5, 90-92	
	102-10	Significant changes to the organization and its supply chain	○		Refer to the business report
	102-11	Precautionary Principle or approach	●	111-112	
	102-12	External initiatives	●	76	
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Strategy	102-14	Statement from senior decision-maker	●	2	
	102-15	Key impacts, risks, and opportunities	●	102-103	
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	102-21	Consulting stakeholders on economic, environmental, and social topics	●	104	
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	102-23	Chair of the highest governance body	●	108	
	102-24	Nominating and selecting the highest governance body	●	108-110	
	102-25	Conflicts of interest	○		
	102-26	Role of highest governance body in setting purpose, values, and strategy	●	108-110	
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	102-28	Evaluating the highest governance body's performance	○		
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	102-34	Nature and total number of critical concerns	●	108-110	
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	102-36	Process for determining remuneration	○		
	102-37	Stakeholders' involvement in remuneration	○		
	102-38	Annual total compensation ratio	○		
	102-39	Percentage increase in annual total compensation ratio	○		
	102-40	List of stakeholder groups	●	104	
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	102-42	Identifying and selecting stakeholders	●	102-103	
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	102-44	Key topics and concerns raised	●	104	
	102-45	Entities included in the consolidated financial statements	○		Refer to the business report
	102-46	Defining report content and topic Boundaries	●	102-103	
	102-47	List of material topics	●	103	
	102-48	Restatements of information	●	121-129	

Aspect	GRI No.	Index Description	'18 Status	Page	Comments
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Reporting Practice	102-49	Changes in reporting	●		No significant changes during reporting period
	102-50	Reporting period	●	1	
	102-51	Date of most recent report	●	1	
	102-52	Reporting cycle	●	1	
	102-53	Contact point for questions regarding the report	●	1	
	102-54	Claims of reporting in accordance with the GRI Standards	●	1	
	102-55	GRI content index	●	136-139	
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GRI Content Index

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Environmental					
Biodiversity	304	Management Approach	●	34-35	
	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	●	46	
	304-2	Significant impacts of activities, products, and services on biodiversity	●	46	
	304-3	Habitats protected or restored	●	46	
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	●	46	
Emissions	305	Management Approach	●	34-35	
	305-1	Direct (Scope 1) GHG emissions	●	128	
	305-2	Energy indirect (Scope 2) GHG emissions	●	128	
	305-3	Other indirect (Scope 3) GHG emissions	●	128	
	305-4	GHG emissions intensity	●	128	
	305-5	Reduction of GHG emissions	●	40	
	305-6	Emissions of ozone-depleting substances (ODS)	●	129	
Effluents and Waste	306	Management Approach	●	34-35	
	306-1	Water discharge by quality and destination	●	128	
	306-2	Waste by type and disposal method	●	129	
	306-3	Significant spills	●		No significant spills during reporting period
	306-4	Transport of hazardous waste	●		We comply with conversions on the border control of hazardous waste
Environmental Compliance	306-5	Water bodies affected by water discharges and/or runoff	●	46	
	307	Management Approach	●	47	
Supplier Assessment	307-1	Non-compliance with environmental laws and regulations	●	47	
	308	Management Approach	●	91-93	
Environmental Assessment	308-1	New suppliers that were screened using environmental criteria	●	125	
	308-2	Negative environmental impacts in the supply chain and actions taken	●	93	
Social					
Employment	401	Management Approach	●	72-73	
	401-1	New employee hires and employee turnover	●	123	
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	○		
	401-3	Parental leave	●	123	
Labor/Management Relations	402	Management Approach	●	76	
	402-1	Minimum notice periods regarding operational changes	○		
Occupational Health and Safety	403	Management Approach	●	81	
	403-1	Workers representation in formal joint management-worker health and safety committees	●	77	
	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	●	125	
	403-3	Workers with high incidence or high risk of diseases related to their occupation	○		
Training and Education	403-4	Health and safety topics covered in formal agreements with trade unions	○		
	404	Management Approach	●	72-73	
	404-1	Average hours of training per year per employee	●	124	
	404-2	Programs for upgrading employee skills and transition assistance programs	●	80	
	404-3	Percentage of employees receiving regular performance and career development reviews	●	123	

Aspect	GRI No.	Index Description	'18 Status	Page	Comments
Social					
Diversity and Equal Opportunity	405	Management Approach	●	79	
	405-1	Diversity of governance bodies and employees	●	124	
	405-2	Ratio of basic salary and remuneration of women to men	●		We do not discriminate on any basis in all processes including promotion, compensation and disciplinary measures
Non-Discrimination	406	Management Approach	●	72-73	
	406-1	Incidents of discrimination and corrective actions taken	●	77	
Freedom of Association and Collective Bargaining	407	Management Approach	○		
	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	○		
Child Labor	408	Management Approach	●	72-73	
	408-1	Operations and suppliers at significant risk for incidents of child labor	●	78	
Forced or Compulsory Labor	409	Management Approach	●	72-73	
	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	●	78	
Security Practices	410	Management Approach	○		
	410-1	Security personnel trained in human rights policies or procedures	○		
Rights of Indigenous Peoples	411	Management Approach	○		
	411-1	Incidents of violations involving rights of indigenous peoples	○		
Human Rights Assessment	412	Management Approach	●	72-73	
	412-1	Operations that have been subject to human rights reviews or impact assessments	●	74, 78	
	412-2	Employee training on human rights policies or procedures	●	74	
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	○		
Local Communities	413	Management Approach	●	48-49	
	413-1	Operations with local community engagement, impact assessments, and development programs	●	48-57	
	413-2	Operations with significant actual and potential negative impacts on local communities	○		
Supplier Social Assessment	414	Management Approach	●	86-87	
	414-1	New suppliers that were screened using social criteria	●	125	
	414-2	Negative social impacts in the supply chain and actions taken	●	126	
Public Policy	415	Management Approach	●	113-115	
	415-1	Political contributions	●		Code of Conduct prohibits contribution to political parties
Customer Health and Safety	416	Management Approach	○		
	416-1	Assessment of the health and safety impacts of product and service categories	○		
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	○		Refer to the business report
Marketing and Labeling	417	Management Approach	●	29	
	417-1	Requirements for product and service information and labeling	●	29	
	417-2	Incidents of non-compliance concerning product and service information and labeling	○		
	417-3	Incidents of non-compliance concerning marketing communications	○		Refer to the business report
Customer Privacy	418	Management Approach	●	66-67	
	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	●		No violations during reporting period
Socioeconomic Compliance	419	Management Approach	●	113-115	
	419-1	Non-compliance with laws and regulations in the social and economic area	○		Refer to the business report

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