

CSR Report 2019



About This Report

Since the first Corporate Social Responsibility (CSR) report has been published in 2015, ISU PETASYS continues to publish CSR report for the transparent disclosure of information on its CSR activities and performance. This is the third issue of the CSR report of ISU PETASYS.

Reporting Period

This report focused on the ISU PETASYS CSR activities and performance from January 1st to December 31st, 2018. For certain important issues, it includes the performance up to 2019. This report also covers for 3 fiscal year result to show the progress by time series as it needs.

Reporting Coverage and Boundaries

This report was prepared centering on the CSR activities and performances of domestic establishments, and in case matters pertaining to certain affiliates, such has been noted in the report.

Reporting Standards

This report was prepared in accordance with the 'Core Option' of Global Reporting Initiative (GRI) Standards Guidelines, and referred to ISO 26000, the international standard of social responsibility, and to <IR> Framework of International Integrated Reporting Council.

Report Assurance

This report was verified by an independent third-party assurance provider to ensure the reliability and quality of the information presented. The details of the independent assurance statement can be found in the Appendix.

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Table of Contents

About This Report	
CEO Message	02
Overview	04
ISU PETASYS Overview	04
ISU PETASYS and CSR	07
Corporate Governance	08
Ethical Management	10
Risk Management	11
Materiality Test and Stakeholder Engagement	12
CSR Strategy & Performance	14
Securing Competitiveness for Future	16
Human Rights and Labor	20
Environment·Safety·Health (ESH)	24
Sustainable Supply Chain Establishment	30
Product Responsibility Reinforcement	34
Community Participation Expansion	38
Appendix	42
CSR Performance	44
GRI Content Index	47
Third Party Assurance Statement	50
Principle and Membership	51

CEO MESSAGE



Dear stakeholders,

Thank you for your steadfast interest and affection for ISU PETASYS. 2019 CSR report is the third report published by ISU PETASYS, containing the business performance and social responsibility performances.

Last year, ISU PETASYS achieved record-high sales since its establishment, thanks to the increase in new customer sales. This is all the more meaningful as it was achieved through the efforts of the employees and the interest and support from the stakeholders despite the difficult business environment such as the slow global economic growth and expansion of trade protectionism. ISU PETASYS shall not settle for the status quo, and go on to secure competitiveness while carrying out its social responsibility as a corporate citizen, and grow to be the No. 1 company leading the PCB industry.

We are reinforcing the future competitiveness in the ever-changing environment.

The 4th industrial revolution, including 5G network commercialization, is bringing a great impact to the global PCB industry. Accordingly, ISU PETASYS is focused on securing future competitiveness in line with the changing times. Focusing on persistent production innovation, sales force reinforcement, new growth drive discovery, customer satisfaction reinforcement, and product quality improvement, we shall build ourselves with the capacity to convert changes into opportunities.

We are striving for corporate social value creation.

Today, the stakeholders consider the execution of corporate social responsibility to be an essential element for sustainable growth. Accordingly, in order to manage social responsibility in all areas of management such as human rights, safety, environment, fair operation, product responsibility, and community participation, ISU PETASYS has set the CSR KPIs (Key Performance Indicators) and manages the performances thereof. Especially in 2018, ISU PETASYS was recognized for its performances by winning the Minister of Trade, Industry and Energy Award at "The Most Loved Companies in Korea Government Prize," which evaluates and awards prizes on corporate social responsibility. Going forward, ISU PETASYS will do its part in social responsibility across all areas of management to be a sustainable business.

ISU PETASYS will continue to create a beautiful future pursuing abundance and convenience to life, and do its utter best to live up to the trust of all the stakeholders.

Thank you.

ISU PETASYS CEO Young-joon Seo

ISU PETASYS Overview

General Status

ISU PETASYS produces ultra-high layer PCB* used for network equipment (switch, router), servers, storage equipment, supercomputers and such, leading the market by developing high-quality products.

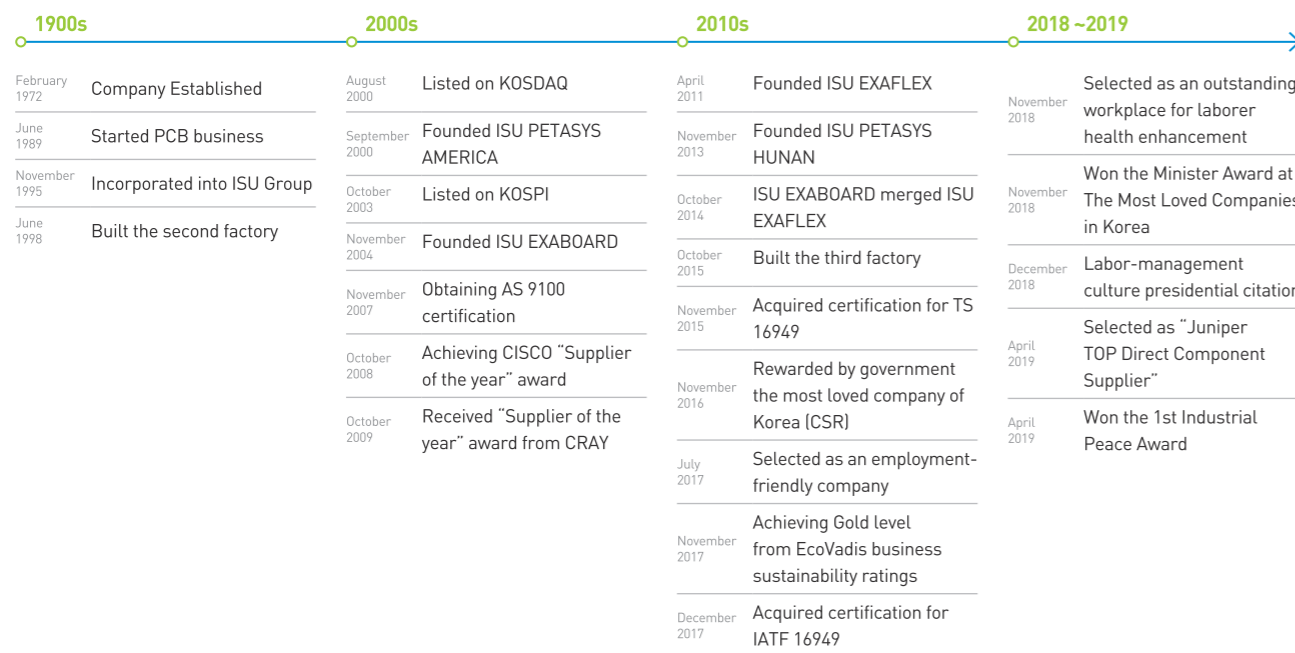
Overview

As of 31, December 2018

Company Name	ISU Petasys Co., Ltd
CEO	Young-joon Seo
Date of Foundation	February 1972
Main Business	PCB production and sales
Location	Head Office 36, Nongong-ro 53-gil, Nongong-eup, Dalseong-gun, Daegu, Korea Seoul Office 84, Sapyeong-daero, Seocho-gu, Seoul, Korea
Number of Employees	921 employees
Capital Stock	USD 36.9 million
Sales	USD 508.9 million
Affiliated Companies	ISU Exaboard Co., Ltd., ISU Petasys Corp., ISU Petasys Asia Limited

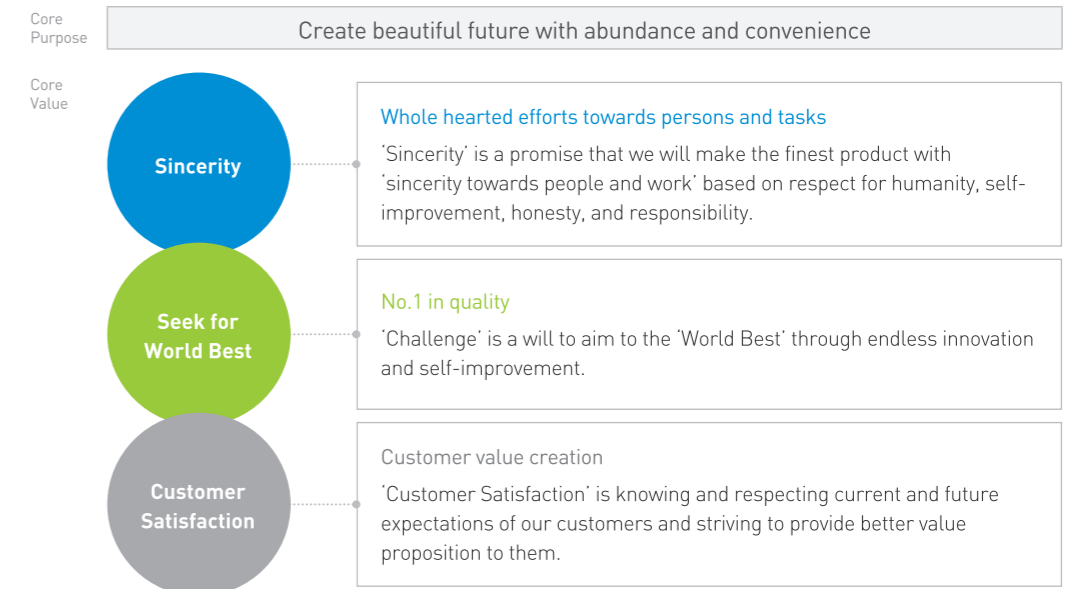
*PCB: Printed Circuit Board

History



Management Philosophy

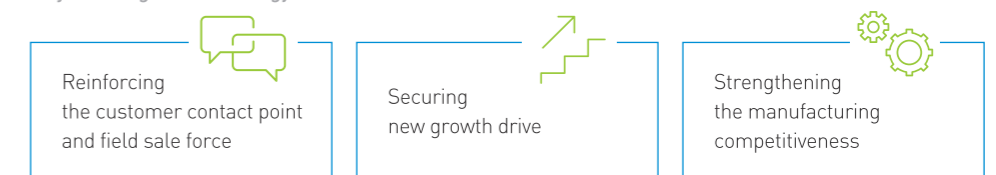
In order to create a beautiful future that adds richness and convenience to life, ISU PETASYS sets Sincerity, Seek for World Best, and Customer Satisfaction as its management philosophy. The sincere attitude to create the best product with sincerity for the human being and the work, the challenge through self-development and endless innovation, and customer satisfaction through providing better values are actualized across all areas of management of ISU PETASYS.



Management Strategy

ISU PETASYS, as a PCB company with business activities in the global market, has established a management strategy reflecting changes in market environment to play a leading role in the globalization era. Reinforcing the customer contact point and field sale force, securing new growth drive, and strengthening the manufacturing competitiveness are the major management strategies, and ISU PETASYS strives to create sustainable value with various stakeholders such as the customers, shareholders, employees, and local community.

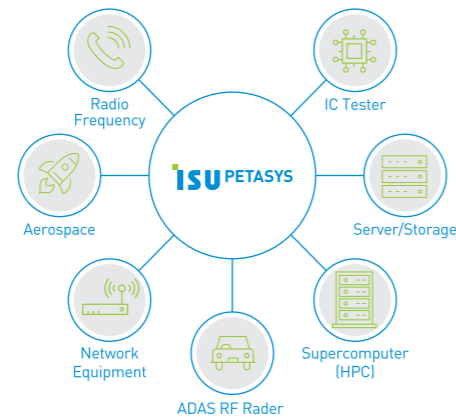
Major Management Strategy



Business Areas

ISU PETASYS specializes in ultra-high layer PCB production, producing PCB used in network, server/storage, supercomputer, space/aviation, IC tester, automotive radar, and base stations. PCB is the core component of all electrical/electronic products, connecting various electronic components and also mechanically fixing them. Midst the changes of 4th industrial revolution, the IT-based manufacturing environment is rapidly changing, and the increase in layers and concentration of PCB is growing in importance for fast data transmission and processing. ISU PETASYS consistently participates in new product development and fostering next-generation growing industry in early stages so as to respond to rapidly changing environment actively, thus growing to be one of the top global electronic component companies.

Business Areas



Network Equipment	The ultra-high layer PCB is equipped on network equipment that demands high performance, high concentration, and high reliability, and the global top advanced level PCB manufacturing technology is applied for faster and safer communication without loss in a high network traffic environment.
Server/Storage	Based on network ultra-high layer technology, ISU PETASYS entered the white-box server market, and has secured numerous global customers and is leading the market.
Supercomputer (HPC)	Supercomputer PCB is widely used in research institutions, meteorological agencies, and large enterprises in order to process a large volume of data at a high speed.
Aerospace	A malfunction in space/aviation industry PCB may lead to critical issues or great accidents. ISU PETASYS provides high-quality, high-reliability PCB to space/aviation industry.
IC Tester	In order to secure new growth drive based on ultra-high layer technology, ISU PETASYS entered semiconductor test equipment PCB market. ISU PETASYS provides IC Tester PCB which minimizes loss due to fault occurrences by evaluating semiconductor functionality and reliability at the early stage.
ADAS RF Rader	ISU PETASYS provides automotive radar PCB that will pioneer a new automobile telecommunication era based on know-how on using special materials of ultra-high layer PCB.
Radio Frequency	ISU PETASYS is doing its very best to secure a new growth foundation by providing base station RF (radio frequency) PCB that supports 5G, the core infrastructure of the 4th industrial revolution.

ISU PETASYS and CSR



Won the Minister of Trade, Industry and Energy Award of 2018 The Most Loved Companies in Korea

CSR Strategy System

ISU PETASYS has set the CSR goals and 6 strategic goals under the vision of company-wide socially responsible management, establishing the CSR strategy system. Also, the detailed execution plan and performance indicators for 6 strategic goals were drawn to examine, inspect, and improve annual performances.



CSR Committee

The CSR Committee of ISU PETASYS is operated as a subcommittee within the board of directors, and the chair of the committee is the CEO. It is overseen by the secretariat (planning team) of the CSR Committee, participated by the members of the board of directors and officers in charge of each area, deliberates CSR-related strategies and policies, and also inspects the CSR status, major performances, and plans. In 2018, the 4th CSR Committee was held, and the major agenda per each CSR area is as follows.

Composition of CSR Committee



2018 CSR Committee Agenda



Corporate Governance

Establishment and Operation of Board of Directors

The board of directors is the highest body of decision-making at ISU PETASYS, which deliberates and decides on major management matters, and consists of three standing directors and a non-standing director. The term of a director is 3 years, and the compensation is determined by a resolution by the general shareholder meeting. The chair of the board of directors is held by CEO, and in order to reinforce the expertise of the board of directors, the directors with expertise in each area were included in the board of directors.

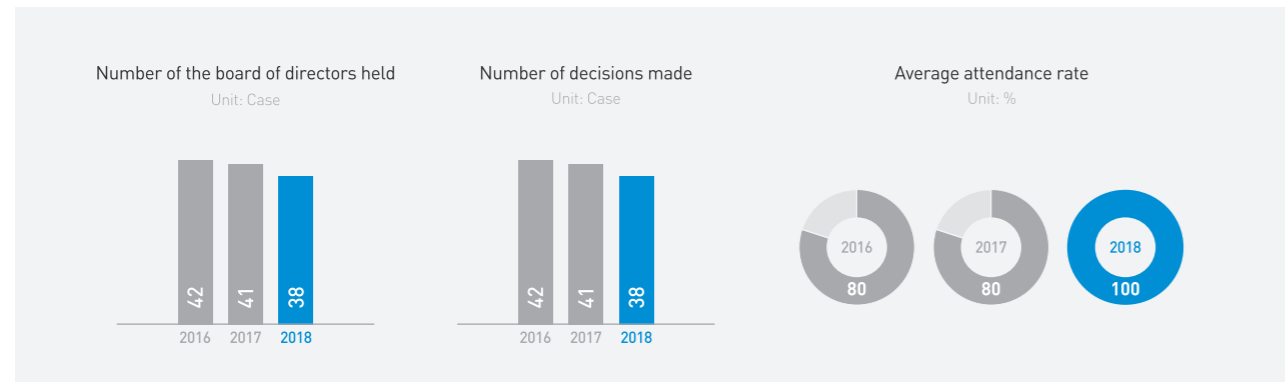
Board of Directors Composition

As of June 2019

Name	Category	Post	Area of Expertise	Major Background
Young-joon Seo	Standing director	CEO	Electronic engineering	<ul style="list-style-type: none"> Mechanical engineering, Kumoh National Institute of Technology
Sung-min Kim		ISU Co., Ltd. Head of management improvement department	Business administration	<ul style="list-style-type: none"> Master of Business Administration, Seoul National University CEO, ISU Co., Ltd.
Dae-sung Kim		Vice president		<ul style="list-style-type: none"> CEO, ISU Venture Capital CEO, ISU ABXIS Business Administration, Seoul National University
Jae-kyung Lee	Non-standing director	External director		<ul style="list-style-type: none"> PhD in Business Administration, University of Texas Professor, Business Administration, Kookmin University
Sang-il Park	Standing director	Auditor	Economics	<ul style="list-style-type: none"> School of Economics, Dongkuk University Head of New Growth Policy Finance Center, Korea Development Bank

Board of Directors Activities

As of 31, December 2018



Board of Directors Transparency

When appointing a director, ISU PETASYS transparently makes public all information on the director before the general shareholder meeting, and externally publicizes the history on the relationship to the recommender and the largest shareholder and trade with the company. Most director appointment takes place through shareholder voting on the director candidate recommended by the board of directors. Also, in order to secure the transparency of the board of directors, ISU PETASYS has a full-time auditor based on the stipulations of the commercial law for accounting and business auditing activities, and the auditor also attends and states opinions at the board of directors meeting. When appointing an auditor, it is stipulated that a shareholder with 3% or more of total voting share issuance cannot exercise the voting right for the exceeding amount of shares.

Evaluation and Compensation

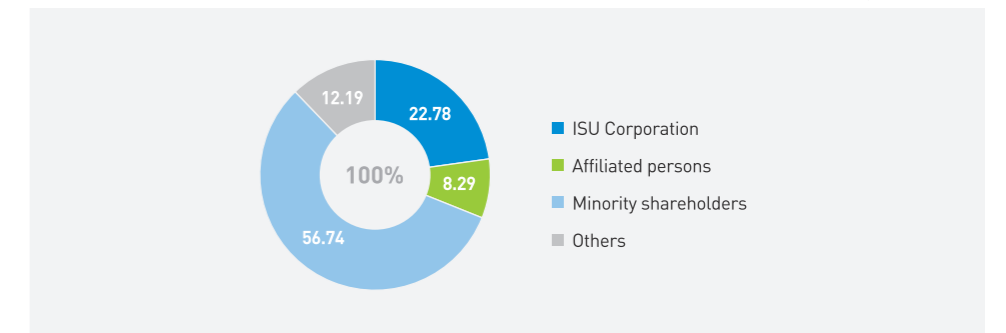
The compensation for the members of the board of directors is paid within the compensation limit approved at the general shareholder meeting according to the director performance compensation payment standards. The compensation for the members of the board of directors is the sum of basic salary and bonuses, and when bonuses are paid, not only the quantitative indicators of company sales, operating income, and net profit performances, but also the non-quantitative indicators of leadership, expertise, ethical management performances are evaluated. The detailed compensation history of the board of directors is transparently made public through DART (Data Analysis, Retrieval and Transfer System) of Financial Supervisory Service.

Ownership Structure and Communication.

ISU PETASYS holds a general meeting of shareholders on a yearly basis and actively reflects the opinions of shareholders in the decision-making process and management. Furthermore, the company is proactively communicating with shareholders by officially announcing important management decisions on its website and the DART of the FSS.

Ownership Structure

As of 31, December 2018



Ethical Management

Ethical Management System

ISU PETASYS has prepared a code of ethics in an effort to build a fair and healthy corporate culture and ethical management environment. All employees are made aware that the code of conduct according to the code of ethics is strictly required, and are encouraged to put it into practice, and the external stakeholders such as partners are recommended to abide by it as well. The contents of the code of ethics of ISU PETASYS broadly cover the attitude towards shareholders and investors, the attitude towards customers, the attitude towards competitors and partners, the responsibility to the employees, the responsibility to the society, and the basic ethics of the employees. Also, the ethical management committee is constantly in operation to improve the corporate reliability and the timely response to ethical issues.

Code of Ethics



Expansion of Ethical Management Culture

ISU PETASYS raises the awareness for integrity and internalizes the value of respecting human rights through employees ethical conduct and respect for human rights guideline. Also, through the principle of anti-corruption and bribery prevention, any act of bribery or conflict of interest such as receiving money, treatment, or accommodations from a stakeholder are prohibited under any circumstances. Also, in order to internalize the ethical management, anti-corruption education was conducted for total of 895 employees and the employees of partners in 2018, and there has not been a single case of violation related to anti-corruption during the reporting period.

Operation of Whistle-Blower System

ISU PETASYS has established and operates a whistle-blower system for external stakeholders and employees. All stakeholders of ISU PETASYS can freely report all acts in violation of ethical management through the online hotline on the website (<http://www.petasys.com/eng/csr/cyber.jsp>), and the ethical management committee promotes fair management of the whistle-blower system as the body of deliberation. Also, in order to vitalize the whistle-blower system, the personal information of the reporter is strictly kept confidential in an effort for identity protection. In case the report is an internal member, he or she is protected against disadvantaged treatment in terms of evaluation, reassignment, or finances.

Online Hotline



Risk Management

Risk Management System

ISU PETASYS categorizes potential risks for identification and management. For a thorough risk management, not only are the risks and opportunities identified, but also the impact on business, possibility of occurrence, risk severity, preventability, risk rating, and countermeasure strategies are drawn.

Internal Accounting Management | ISU PETASYS prevents illegality and errors of disclosed accounting information by complying with the accounting-related laws and regulations while establishing an internal accounting management system, thereby increasing internal/external reliability. The operator in charge of the internal account management system is CEO, and the manager is appointed as a full-time director with accounting capabilities, who manages the system compliance, occurrence of accounting instructions noncompliant with the system, and accuracy of accounting information in handling of the accounting.

Compliance Risk | ISU PETASYS strictly complies with the laws and regulations of the local country at both domestic and foreign workplaces, and especially complies with CSR-related laws and regulations and international agreements in all organization activities through CSR laws and regulations management guideline to reduce the compliance risk occurrence possibility. ISU PETASYS periodically identifies enactments/amendments of relevant CSR laws and regulations for business activities, and identifies the subsequent assignments and establishes the execution plans thereof.

Business Continuity | As the important and impact of CSR management is only ever-increasing, the occurrence of CSR risk has a profound impact on the business continuity. Accordingly, ISU PETASYS conducts regular and occasional risk assessments, where the regular risk assessment is conducted once every year in principle, and the occasional risk assessment is conducted whenever the business or environment pertaining to each functional organization has occurred. When the risk impact assessment is conducted, not only are the risks and opportunities identified, but also the impact on business, possibility of occurrence, risk severity, preventability, risk rating, and countermeasure strategies are drawn. Also, in acknowledgement of the importance of follow-up management, the risk management results are re-assessed within 6 months after the completion of all improvements on the risks.

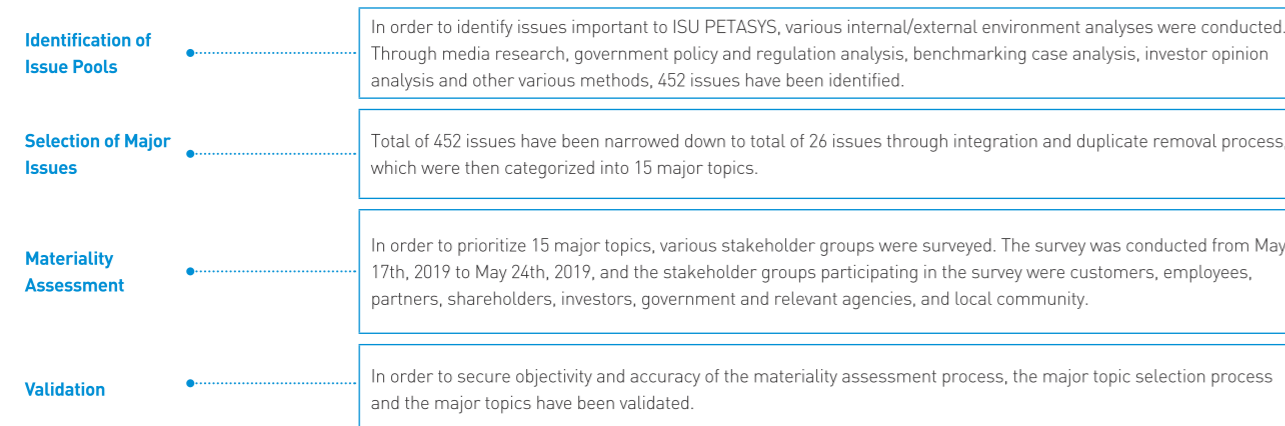
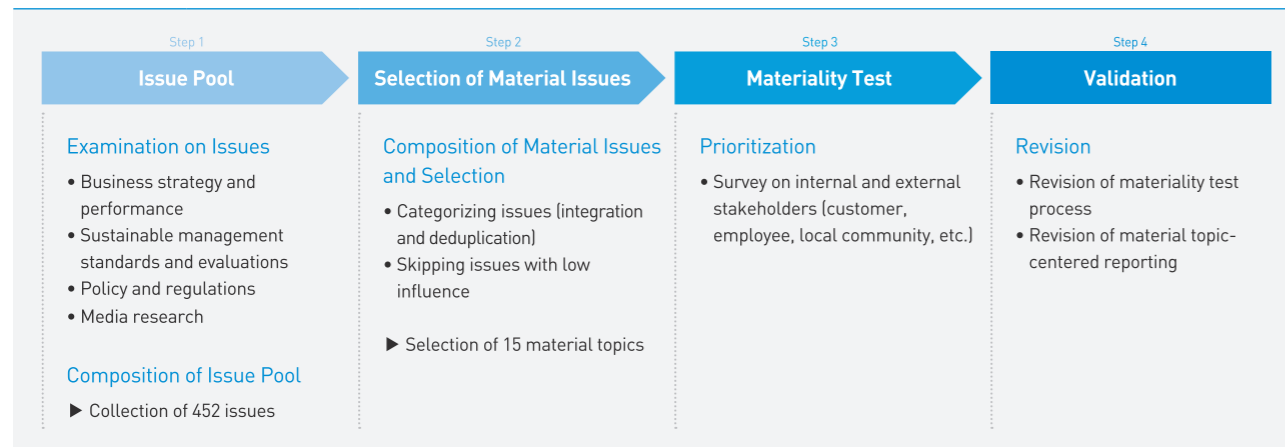
Information Protection | ISU PETASYS has established an electronic management procedure to prepare against system failure and information security accidents. The major information systems are installed in restricted areas with physical security and are monitored weekly for information system anomalies, along with execution of status check activities for performance and capacity of major information systems. Also, various education programs such as job digitalization education, computing technical education, and PC user education are conducted annually along with information security oath renewals, and all employees are supported to participated in the information protection risk countermeasures along with improvement of information protection capability enhancements.

Materiality Test and Stakeholder Engagement

In order to draw important issues for sustainable management and CSR, ISU PETASYS has conducted internal/external environment analysis on global sustainable management trends, major report issues in the industry, and current management issues. Also, a survey was conducted against core stakeholders to identify the opinions and needs of the stakeholders, which were included in the report.

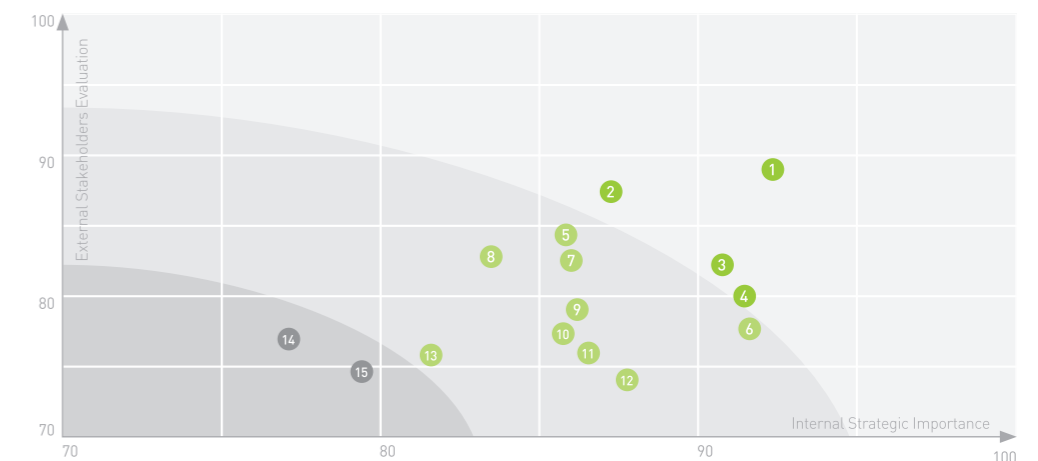
Materiality Assessment Process

Materiality assessment is conducted to reflect the internal/external business environment and the expectations and issues of interest of various stakeholders effectively on the report. Especially, this report conforms to the guideline on determining and constituting report matters proposed in GRI (Global Reporting Initiative) Standards, a new reporting standard. Total of 452 sustainable management-related issues have been collected, and according to GRI Standards, they were integrated/categorized into 15 major topics. The 15 major topics have been prioritized through internal/external stakeholder survey, and the details on the materiality assessment process are as follows.



Materiality Assessment Result

The major issues selected through the materiality assessment process have been categorized into three grades (High, Medium, Low) based on the priorities considering the stakeholder opinions and strategic importance. According to the materiality assessment results, the importance level was found to be in the order of quality control reinforcement, new growth drive discovery, workplace health and safety, business performance, and eco-friendly management, from highest to lowest, and an effort has been made to include the matters pertaining to all major topics in the report.



Material Topic List

Rank	Material topics	Internal	External
1	Quality management	92.19	89.10
2	New growth engines	86.97	87.80
3	Health and safety	90.48	82.29
4	Business performance	91.28	79.96
5	Environmental management	85.78	84.29
6	Sales ability	91.42	78.13
7	Risk management	85.82	82.89
8	Corporate governance	83.30	83.08
9	Innovation in manufacturing	85.92	79.12
10	Nurturing talents	85.64	77.66
11	Ethical management	86.20	76.32
12	Human rights management	87.50	74.25
13	Stakeholder engagement	81.41	76.14
14	Community engagement and development	77.00	77.31
15	Mutual growth	79.20	75.00

CSR Strategy & Performance

- ① Securing Competitiveness for Future
- ② Human Rights and Labor
- ③ Environment·Safety·Health (ESH)
- ④ Sustainable Supply Chain Establishment
- ⑤ Product Responsibility Reinforcement
- ⑥ Community Participation Expansion



1

Securing Competitiveness for Future

Context

The changes due to the 4th industrial revolution is rapidly transforming the IT-based manufacturing environment. The competition among PCB manufacturers is growing fierce, and there are difficulties such as increased production cost due to increased production of small number of items. Accordingly, the important to secure competitiveness for sustainable growth is greater than ever.

Our Approach

ISU PETASYS responds to the market change through high-level technology and innovation of production. Also, new growth drives are being secured through constant research and development, and the safe force is being reinforced to prepare a stable sales base. ISU PETASYS also strives to maintain a persistent relationship with already secured customers through customer satisfaction activities.

Our Performance

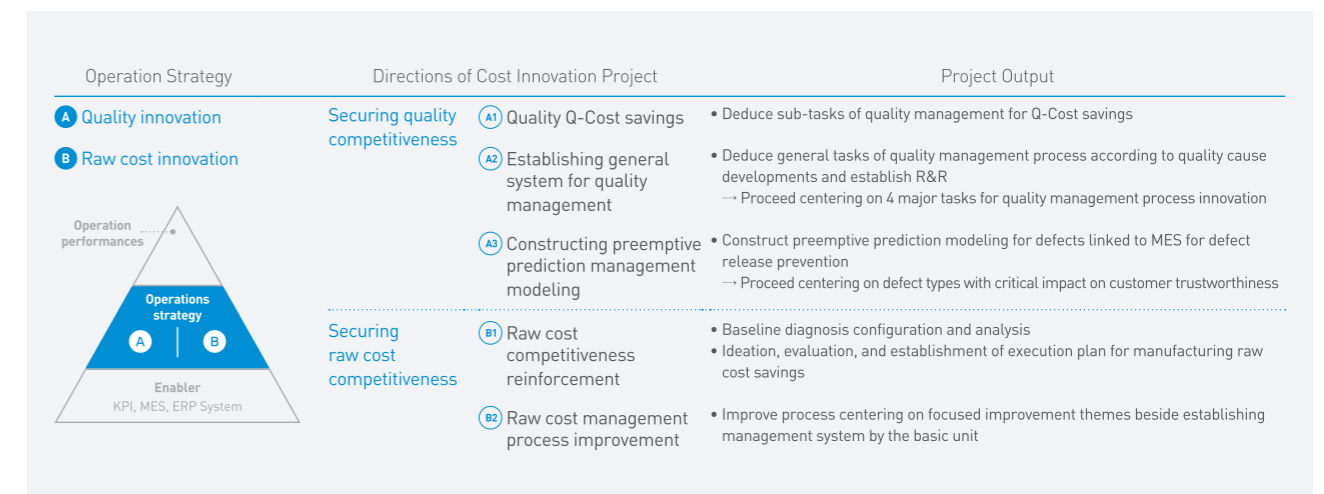


Innovation of Production

Cost Innovation

ISU PETASYS recognizes the raw cost and quality competitiveness as important elements of production innovation, and to secure them, is promoting the Cost Innovation project. In order to reinforce raw cost and quality competitiveness, ISU PETASYS continues to resolve the deduced vulnerabilities, and establishes an innovation process in an effort to build an operation system optimized for business.

Cost Innovation Project Process



Market Analysis

Telecommunication Operator

- Increase in demand according to network environment changes
- Equipment integration trend according to network technology changes
- Continued increase in exchange equipment demand according to traffic increase

Data Center

- Increase in the importance of cloud service businesses

Server/Storage

- Increase in data storage device demand due to traffic increase

HPC

- Increase in HPC server demand due to traffic increase

Sales Force Reinforcement

Field Sales Force Reinforcement

ISU PETASYS has allocated additional manpower centering on global offices with major customers and potential customers, engaging in purchase and quality response, technological prowess development, and new customer discovery. In future, the plan is to expand manpower in phases to reinforce customer relations and field sales force.

New and Potential Customer Discovery

ISU PETASYS strives for new and potential customer discovery through market analysis. New and potential customers that have not entered the existing market were discovered according to the growth of telecommunication operator wired network, data center, server/storage, and HPC market through market analysis. Also, as a part of the sales strategy, the per-market new and potential customer sales progress, sales volume, and growth were considered to draw the customer priority, and the sales capabilities are utilized in distribution.

New Growth Drive Discovery

New Business Promotion

ISU PETASYS is reinforcing the business structure through new business discovery, with various efforts to raise the new business sales to a significant level. The prominent new business areas of ISU PETASYS include semiconductor test equipment PCB, base station RF PCB, and automobile radar, and as they are expected to see high growth in the PCB industry, the product portfolio is being expanded centering on the said businesses. Beside the development of core technology for new business promotion, ISU PETASYS focuses on verification of PCB element that can optimize PCB for a smart vehicle and development to secure signal integrity. Moreover, alongside improving the customer satisfaction for new businesses, ISU PETASYS continues to develop the potential customers to extend the new businesses.

R&D Performances

R&D project name	Research period	Research performance	Major commercialization detail
5G Base Station PCB development	June 2018 ~ June 2020	<ul style="list-style-type: none"> 5G Base station element technology R&D: verify and optimize the factors influencing wireless antennas 	<ul style="list-style-type: none"> Contribution to technology improvement: apply for 5G technology patent
Situation-recognition smart vehicle fusion platform development	April 2018 ~ December 2019	<ul style="list-style-type: none"> Automobile radar board characteristic technology R&D: verify and optimize the factors influencing antenna and FEM 	<ul style="list-style-type: none"> Contribution to technology improvement

Customer Satisfaction Reinforcement

Client Opinion Hearing and Quick Response

Since the clients have diverse requirements, and the PCB structure is different per application, ISU PETASYS adopts 100% order-made production. Thus, it is very important to listen to the client opinions and quickly respond to the requests from clients. ISU PETASYS directly listens to the customer requirements through regular visits to the clients, and quickly responds to the client requests received through domestic, U.S., China, and Asia offices. Especially, ISU PETASYS has a system that can immediately respond to requests in case there are technical support requests from clients or an issue occurs.

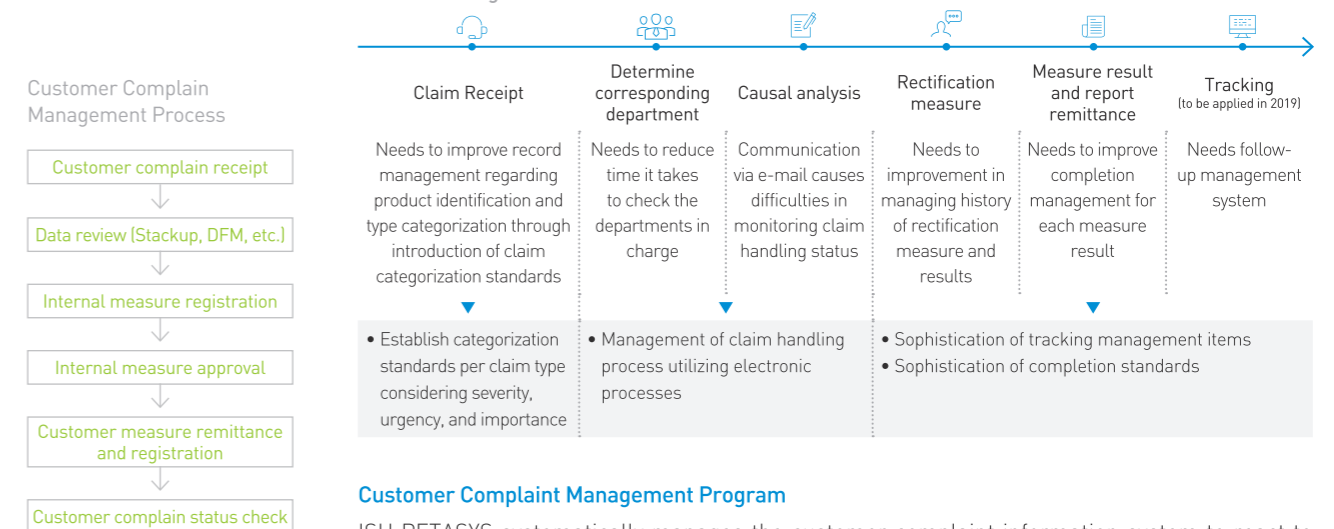
Quick Response System

Request Detail	Corresponding Team	Response Principle
Quote, deadline adjustment, urgent inquiry response, etc.	Sales Team	Respond within 24 hours
Data review (Stackup, DFM, etc.)	Design Technique Team	Respond within 48 hours

Claim Handling Process Improvement Activity

The claim handling process of ISU PETASYS consists of receipt, determination of corresponding department, causal analysis, rectification measure, and result and report remittance. ISU PETASYS constantly improves the claim handling process in order to customer satisfaction, and since 2019, in order to reinforce the follow-up management system and the roles and responsibilities of the corresponding officer, tracking process will be added to the operation. Besides, through improvements such as establishing claim type categorization standards and management through electronic process, the company-wide claim handling process that can quickly respond to the customer demands and requirements is to be established.

Claim Handling Process



Customer Complaint Management Program

ISU PETASYS systematically manages the customer complaint information system to react to the customer complaints actively, and constantly draws points of improvement and reflects them on management activities. ISU PETASYS gives its very best efforts for customer satisfaction reinforcement such that recently, the customer complaint timely resolution rate was 100%.

Customer Satisfaction Assessment

ISU PETASYS regularly conducts customer satisfaction assessment to gather the voice of the customers. The customer satisfaction assessment consists of on-time delivery, service & flexibility, technical support, quality, and cost, and for certain major clients, sustainable management assessment items are also included. In 2018, the average customer satisfaction was 82.5 points higher than the past year.

Customer Information Protection

ISU PETASYS takes the information security, including customer information and technology protection, to be a part of the corporate management, such that CEO and employees all actively participate in information property protection. All employees of ISU PETASYS protects customer information according to the security guideline, and the important customer information is collected and disclosed only when the information disclosure is consented by the customer or legally required. Also, ISU PETASYS has a security accident countermeasure procedure which minimizes damage by notifying the customer of the related details in case of a customer information leakage accident.



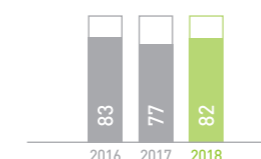
Settlement of customer complaints on time

100%
for 3 consecutive years

Audit findings on quality system

0 case
for 3 consecutive years

Average customer satisfaction (points)



2

Human Rights and Labor


Context


According to the expansion of corporate social impact, the demand for human rights protection and respect by corporations is on the rise. Global evaluation indicators for corporate sustainability such as EcoVadis or DJSI treats human rights issues gravely, and domestically, the 3rd National Human Rights Policy Basic Plan (NAP) has been established in 2018, and as such, the importance of human rights is heightening.

Our Approach

Due to the characteristics of PCB industry of being a manufacturing process, the labor conditions and human rights management of the employees is a core element in maintaining business competitiveness. Accordingly, ISU PETASYS establishes the value of respect for human rights at the systematic level and practices in all corporate activities. Also, ISU PETASYS strives for talent development and improvement of quality of life so that all employees can exercise their full potential, along with respect for human rights and labor.

Our Performance

 Annual education time per 1 employee **96.7** hours

 Annual education and training expense per 1 employee **USD 694.8**

 Welfare expense compared to sales **1.4%**

Human Rights Policy and Promotion System

ISU PETASYS participates in the global initiative of UN Global Compact 10 Principles, supporting the international standards and principles related to human rights and labor. Moreover, the principles of UNGC in human rights area will be actively reflected on CSR policy and operation to secure global-level human-rights management. Also, the negative influence in terms of human rights that may occur in the corporate operation process is preemptively identified, and the overall basic guidelines of human resources and labor are integrated with enactment and operation of human rights and labor guideline. The human rights and labor guideline, based on the value of respect for human being which respects all laborers as human beings, clarifies the stipulations on forced labor and child labor prohibition, anti-discrimination, work hours, and compensation and welfare. ISU PETASYS has designated the human resources and labor team as the department dedicated to human rights, promoting a broad range of human rights policies.

Respect for Human Rights of Employees

Internalization of Culture of Respect for Human Rights

ISU PETASYS raises the human rights awareness of employees and internalizes the culture of respect for human rights through various human rights management activities. In 2018, all employees were educated on human rights including sexual harassment prevention education. Also, a pledge program for respect for human rights is operated so that all employees can comply with the code of ethics and respect for human rights guideline.

Employee grievance

ISU PETASYS operates a cyber reporting system on its website (<http://www.petasys.com/eng/csr/cyber.jsp>) to handle grievances of employees. All employees can submit grievances through the cyber reporting system regarding labor conditions, human resource management, gender, workplace sexual harassment, or other personal affairs, and all submissions are subject to the grievance handling regulations and are fairly handled through the grievance handling committee. ISU PETASYS operates various grievance handling channels beside the cyber reporting system including phone, fax, walk-in interview, and written submission so as to support all employees can handle grievances more conveniently. Also, grievance counselling and reports are operated as an open channel accessible by not only the employees, but also external stakeholders such as customers and partners.

Diversity and Anti-discrimination

ISU PETASYS stipulates anti-discrimination items in the human rights and labor guideline in order to build a workplace with respect for diversity and free from discrimination. Also, the employees code of ethics and respect for human rights guideline specify not to discriminate according to gender, age, position, political position, or religion.



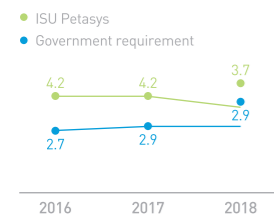
Employee Code of Ethics and Respect for Human Rights Guideline

I, as an employee of ISU PETASYS, shall comply with the following guideline.

- ① I will maintain a healthy private life and not engage in any act that compromises dignity.
- ② I will not misuse my professional position or appropriate the company property for personal use, or execute expenses nontransparently.
- ③ I will not receive money, treatment, or accommodations from stakeholders such as colleagues, customers, partners, or accounts.
- ④ I will not disclose trade secrets learned through business, and comply with the security guideline.
- ⑤ I will not discriminate colleagues on gender, age, position, employment status, political position, or religion.
- ⑥ I will respect colleagues and not exercise physical, sexual, or lingual violence.
- ⑦ I will immediately stop it if I see a violation of any of the above, and notify the relevant department.

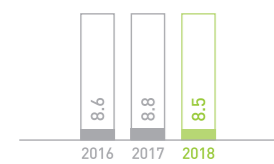
Fair Opportunity and Compensation

Employment rate of the disabled (%)

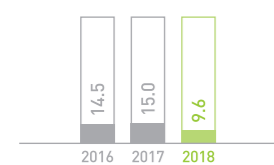


ISU PETASYS adopts a transparent and fair employment policy, where the fair treatment of all employees are systematically guaranteed to provide stable employment. ISU PETASYS adjusts the gender ratio of interviewers and educates the interviewers prior to the interviews so as to exclude potential discrimination elements from the hiring stage. Also, equal wage for all genders and equal welfare are applied to reinforce the fair compensation system. Also, in order to exclude sexual discrimination in promotions, a transparent performance evaluation system is operated to provide equal opportunity and compensation. Besides, the number of handicapped employees at ISU PETASYS in 2018 is 39 including 6 severely handicapped persons, taking leadership to remove the prejudice that hiring handicapped persons at a cutting-edge electronics business compromises production efficiency and developing jobs suitable for the handicapped. As the result, ISU PETASYS has been selected as an excellent gender-equal employment company and handicapped employment company by Ministry of Employment and Labor, and in 2017, it was selected the exemplary employment-friendly business by the City of Daegu.

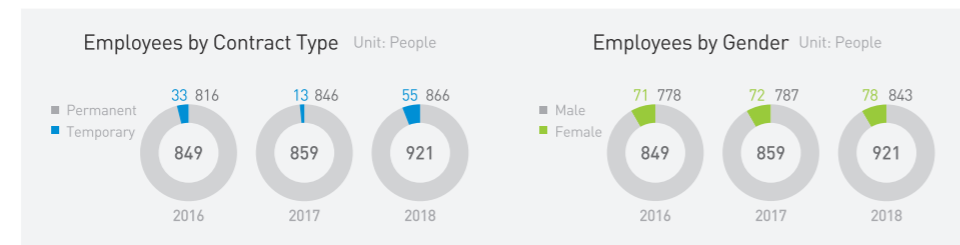
Ratio of female employees (%)



Ratio of female of recruitment (%)

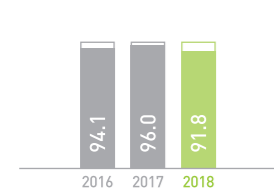


Employees by Contract Type and Gender



Expansion of Labor-Management Coexistence Culture

Ratio of union membership (%)



ISU PETASYS maintains a cooperative labor-management relation, and has the record of no strike since foundation. ISU PETASYS is building a corporate culture of coexistence through labor-management harmony, guarantees the freedom of assembly for the employees, and promotes social conversation. The labor-management coexistence culture is the most prominent corporate culture of ISU PETASYS, where the labor and management frequently exchange opinions through labor and group agreement negotiation, labor-management conference, labor-management safety and health committee, labor-management human resources subcommittee and such, and reflect the results on workplace environment and labor condition improvements. Also, labor and management have jointly adopted the social responsibility practice declaration statement so as to expand the coexistence culture of human-centered management, local economy vitalization, local hiring expansion and such to the overall areas of the society.

Nurturing and Improving Life Quality Talents

Talent Training

ISU PETASYS strives to provide quality education to the employees. Systematic education operation is executed to allow the employees to acquire basic attainments, knowledge, technology, and functions to develop individual capabilities and contribute to securing business competitiveness. Customized education per position and role of employees is conducted, and year-round language education courses for global capability training are also provided.

Employee Training Performance*

Category	Education program	Details	Number of participants
Per-tier capability reinforcement	All-hands education	Ownership, basic improvement and organization vitalization, sexual harassment prevention, anti-corruption, quality education	840
	New employee course and OJT	Course for new employees, My Board course, etc.	17
Job specialization	Cyber/reading communication	Job course execution	860
	External job education	Job specialization course	250
	Labor union executive education	Labor-management relation expert and labor-management representative education	41
Capability for globalization	Internal language course	English and Chinese language proficiency improvement	50

*Selecting a few training among a variety of training programs for employee

Improvement of Quality of Life

In order to improve the quality of life of its employees, ISU PETASYS has adopted flextime since 2016, and since 2018, the focus hours system has been in operation where meetings, calls, instructions, and reports are prohibited during the focus hours, providing conditions to reduce work hours. Also, in order to reduce unnecessary get-togethers and overtime, get-togethers are prohibited on family days (every Wednesday). Besides, newly introduced in 2018 are holiday exchange system where work days and holidays can be exchanged, half-day holiday system that guarantees holiday usage, and automatic parental leave system to reduce the pressure against using parental leave, all in an effort to improve the quality of life of the employees. Moreover, tuition support, feeding rooms operation and such welfare systems are operated to take the lead in systematic support for all staff and employees to have stable and rich lives in all areas of lives.

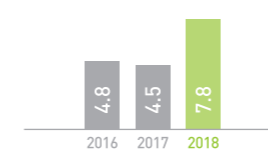
Welfare System

Life Balance	Leisure & Activity	Happy Workplace	Motivation
<ul style="list-style-type: none"> Tuition support Dormitory operation Regular health examinations Group accident insurance Language education expense support Voucher provision (handicapped/veteran) 	<ul style="list-style-type: none"> Cafeteria operation Congratulations and condolences expenditure support Congratulations and condolences holiday support Clothing provision Feeding room Medical room operation / dressing room and visiting room provision Rest area / shower room operation 	<ul style="list-style-type: none"> Condominium operation Various clubs operation and support Group culture activity (movie ticket provision, etc.) Group / company-wide athletic meet Voucher provision 	<ul style="list-style-type: none"> Long-term employee rewards and holidays Exemplary employee domestic/overseas training support Graduate school support through evaluation Production incentive payment Excellent education subject voucher payment

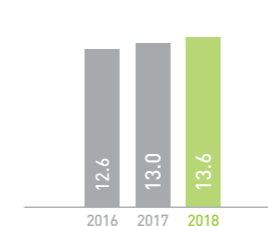
Welfare cost compared to sales (%)



Average wage inflation (%)



Average length of service (year)



3

Environment-Safety-Health (ESH)

Context

Corporate activities contribute to the survival and convenience of mankind, but the negative impact on the environment keeps increasing. Accordingly, the domestic/foreign regulations on environmental protection and energy are stronger than ever. Also, as the social interest in safety is increasing, the strict safety and health management in corporate management activity is growing in importance.

Our Approach

ISU PETASYS has established the environment/safety/health promotion system, selecting focus projects every year and executing activities for improvements thereof. Also, in order to improve serious environmental influences due to production activities, ISU PETASYS engages in various efforts such as impact assessment and contaminant control, and especially the scope of safety and health is extended to partners with support activities.

Our Performance



Environment-Safety-Health Promotion System

ISU PETASYS has established Environment-Safety-Health integrated management system for systematic management of environmental impact incurred across overall management activities and establishment of safe work environment. With the ESH laws and regulations compliance as the baseline, focus tasks in the areas of environment, safety and health are selected, and the environment and safety team acts as the control tower to promote major policies company-wide with corresponding ESH officers in each department.

Environment-Safety-Health Management Promotion System

Category	ESH Focus Task Selection	Major Policy Establishment	Key Performance Indicator
Environment	Zero environmental accident	Execute environment impact assessment	Execution rate
		Improve severe environment impact	Goal achievement rate
	Sustainable resource usage	Conduct legal education on hazardous chemical substances	Completion rate
		Reinforce waste storage/treatment in processes	Execution rate
Climate change mitigation	Greenhouse gas emission reduction	Execution rate	
		Emission amount	
Safety-health	Zero safety accident	Execute risk assessment	Execution rate
		Improve severe danger	Improvement rate
		Near-miss accident discovery activity	Discovery activity count
	Disease rate reduction activity	Manage safety check subjects	Execution rate
		Execute internal health enhancement program - Alcohol temperance campaign - Anti-smoking campaign	Execution
			Operate disease rate team objective management system
		Execute safety and health education	Complete supervisor (new/returning) education
Execute regular safety and health education (office positions, managerial positions 2hr/month)	Execution count		
Partner safety and health support	Execute coexistence cooperation program	Execution result	
Common	Raise environment safety awareness	Execute emergency drill (4 times/year)	Execution count
		Basic safety guideline compliance campaign (12 times/year)	Execution count
	Improve ESH management system validity	First respondent selection and specialization education	Execution
Upgrade safety and health management system - OHSAS18001 → ISO45001		Certification	

Minimize environment, safety and health impact

Environment Management System

Environmental Impact Assessment Reinforcement

ISU PETASYS executes environmental impact assessment in order to identify the impact on environment from the perspective of the entire process from raw material acquisition to disposal for products and services. The environmental impact assessment is executed upon the occurrence of matters such as new installation or expansion of equipment, new product development, stakeholder request, severe environmental impact occurrence, or changes to chemicals used in the production process, and the results* are grade from A to F. Environmental impact items with grade D or higher are categorized as severe environmental impacts, which are reflected when setting environmental goals and details objectives so as to enable focused management.

* Environmental impact assessment result: A (no environmental impact at all), B (very small environmental impact), C (small environmental impact), D (somewhat severe environmental impact), E (severe environmental impact), F (very severe environmental impact)

Severe Environmental Impact Improvement

ISU PETASYS improves environmental impact by managing contaminants that can be discharged from production process such as air pollutant, water pollutant, hazardous chemical substance, or waste.

Hazardous Chemical Substance Management

ISU PETASYS strictly manages chemical substances included in chemical products used in all production processes. Before a new chemical substance is to be used, the related laws and regulations are reviewed and screening/hazard assessments are conducted, and even the issues that may occur in the disposal stages are preemptively identified. The facilities that handle hazardous chemical substances are managed through daily, weekly, and monthly inspections, and the material safety data sheet (MSDS) is provided on site, which is also equipped with safety protectors necessary for handling and disaster prevention equipment against leakage accidents. Moreover, the handlers of hazardous chemical substances are regularly educated in the best of efforts to prevent accidents related to hazardous chemical substances.

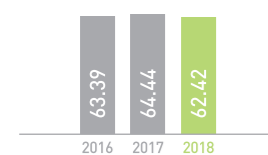
Air Pollutant Management

ISU PETASYS strives for strict management and process improvements in order to reduce the generation of air pollutants discharged from the production process. In order to minimize the air pollutant discharge emission, the pollutant absorbent and such of the air pollution prevention facility is regularly replaced.

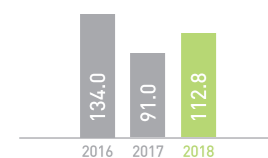
Water Pollutant Management

ISU PETASYS has established a processing system to manage the waste water and water pollutants inevitably generated from the production process. The waste water generated due to the production activity is categorized per process characteristics and processed at the proprietary facilities, and the processed waste water is again directed to the waste water sewage treatment plant for second processing before release. The high-concentration waste water that cannot be processed internally are separately collected and processed by an agency, and the internal discharge allowance criteria for pollutants are more strict than the legal requirements.

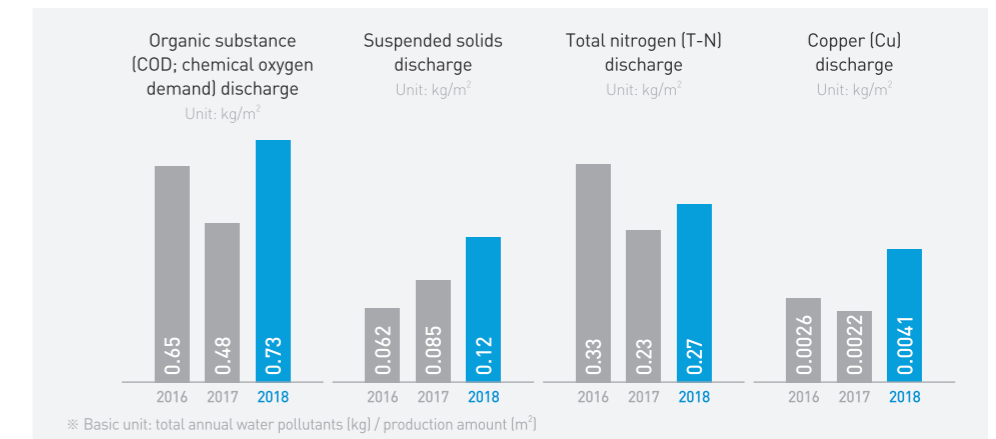
Hazardous chemical substance usage, basic unit(kg/m²)
※Basic unit: total annual usage of hazardous chemical substance (kg) / production amount (m²)



Air pollutant emission, basic unit(g/m²)
※Basic unit: total annual air pollutant substance (g) / production amount (m²)



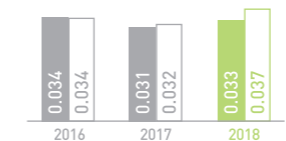
Water Pollutants, basic unit



Waste discharges (Ton/m²)

※Basic unit: total annual waste discharges (Ton) / production amount (m²)

■ General waste discharge, basic unit
□ Designated waste discharge, basic unit



Waste Management

ISU PETASYS sets per-process reduction objectives and manages all wastes from the stage of generation to storage and processing in order to minimize waste generation during production activities. Also, in order to minimize the environmental impact of the consigned waste, the waste processors are regularly assessed with items such as equipment, technology, consignment handling capability, and legal matters, and the wastes are consigned only to businesses with tradable grade.

Tackling Climate Change

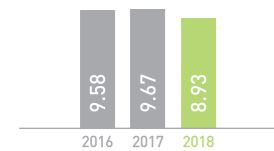
Greenhouse Gas Emission and Energy Usage Management

ISU PETASYS engages in activities such as greenhouse gas emission calculation and management and greenhouse gas inventory establishment based on the national greenhouse gas management system (NGMS). ISU PETASYS recognizes that the greenhouse gas emission and energy usage reduction is the core activity for climate change mitigation and engages in greenhouse gas emission and energy usage reduction activity per production process, and also gives efforts to replace aged equipment. Nevertheless, the greenhouse gas emission and energy usage showed a small increase in 2018 due to the increased production, and accordingly the 2019 objectives were set more challengingly in an effort to contribute to the climate change mitigation.

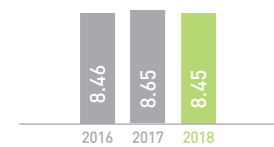
Greenhouse gas emissions and energy consumption

Category	Unit	2016	2017	2018
		GHG Emission	tCO ₂ eq	51,400
Energy Consumption	TJ	118	122	142
		619	603	632
		737	725	774

Water usage, basic unit (Ton/m²)
※ Basic unit: total water usage (Ton) / production amount (m²)



Waste water generated, basic unit (Ton/m²)
※ Basic unit: total waste water generated (Ton) / production amount (m²)



Water Usage Reduction

ISU PETASYS minimizes the water usage for production to respond to the climate change. In 2018, WET equipment was examined and improvement actions were taken to stop the water supply automatically when idle.

Resource Recycle and Reuse

ISU PETASYS recycles waste generated through production activities and reuses raw and subsidiary materials in a company-wide effort to enable sustainable resource usage. For waste recycling, the internally generated waste including disposed products due to faults are categorized into 47 types, 45 of which are recycled, and 87% of wastes generated in 2018 were recycled. Also, ideas on raw and subsidiary material reduction and reuse are constantly sought for and executed. ISU PETASYS operates collection facility for valuable metals such as gold (Au), silver (Ag), and copper (Cu) included in the raw and subsidiary materials. As the result of such efforts, ISU PETASYS won a citation from the Minister of Environment in recognition for the contribution to formation of resource circulation society through workplace waste reduction and excellent eco-friendly corporate management.

Safety and Health System

Safety and Health Management System Operation

ISU PETASYS operates safety and health management system to establish a safe and healthy workplace, and maintains KOSHA 18001 and OHSAS 18001 certifications. KOSHA 18001 certification was re-certified in July 2019, and OHSAS 18001 certification is to be converted to ISO45001 in October, 2019 for new attainment and maintenance.

Industrial Safety and Health Committee

ISU PETASYS deliberates and resolves matters regarding safety and health through the industrial safety and health committee, which is seated by 8 members including the officer in charge of safety and health and the head of the labor union, and the major resolutions included amendment of safety and health management regulations, workplace improvements and such.

Preemptive ESH Assessment

ISU PETASYS reviews the ESH risks and conducts on-site examinations at a stage before the investment deliberation and consultation for building construction, equipment installation/expansion and such, through which the safety can be secured and accidents can be prevented preemptively. The preemptive ESH assessment is conducted centering on the department in charge of environmental safety, and the safety assessment is categorized into safety, health, and fire protection.

Preemptive ESH Assessment Process



Safety and Health Program



Safety accident count (accidental disaster)

0 case for 3 consecutive years

Day of Safety Check



Safety and Health Program

ISU PETASYS conducts safety and health education in order to raise the safety and health awareness of the employees and establish an accident-free workplace. The safety and health education are regularly conducted every month, and also upon new hires or changes in work details. Besides, various education programs are in operation such as process safety job education, special safety and health education, and supervisor education, and education training assessments are conducted so that all employees can acknowledge the importance of safety and health.

Near-Miss Accident Discovery Activity

Near-miss accident is that there was a potential risk of an accident due to worker negligence or on-site equipment failure, but such did not lead to an accident. ISU PETASYS considers near-miss accidents as a hint of industrial disaster, and executes discovery activities at the production process stage.

Near-Miss Accident Discovery Cases

Discovered process	Before	Revised
Out layer process	Risk of worker accident during supply of chemicals with tubs (musculoskeletal illness, chemical accident, etc.)	Remove worker risk elements by installing chemical supply pumps
Plating process	Risk of bumping accident by carrier control switch when moving on the walkway beside the equipment	Remove obstacles by making the carrier control switch container box
Drilling process	Risk of stabbing accident from idle drill bit	Prevent stabbing accident by making bit container box

Emergency Preparations / Responses

ISU PETASYS has established emergency scenarios against accidents such as hazardous chemical substance leakage, fire explosion, or natural disaster in order to minimize damages in case of emergencies, and verifies the validity of response system through regular emergency drills 4 times a year (fire, chemical leakage, closed space rescue, etc.) and emergency items inspection (once every month). Also, a self-defense firefighting team within ISU PETASYS where CEO assumes the role of head firefighter is operated for a thorough preparation against potential fire accidents.

Healthy Workplace Establishment

ISU PETASYS operates health and work environment improvement program so that all staff and employees can work healthy and prevent work-induced illnesses. Twice every year, the work environment is measured to check the exposure of workers to harmful elements such as chemical, metal, gas, and noise. In 2018, no harmful elements exceeding the exposure threshold were found. Also, a system to prevent musculoskeletal illnesses has been established to prevent work-induced illnesses due to simple repetitive tasks through education and medical treatment, and in addition to the periodical general health examinations, regular special health examinations are also conducted for employees exposed to harmful elements such as night-shift workers. All patients are being treated first-hand through medical rooms, and emergency first-aid kits are placed at locations with high potential risk of emergencies.

* Musculoskeletal illness: Illness occurs to neck, shoulder, etc., and the surrounding tissues as physical stress is accumulated due to repetitive tasks

4

Sustainable Supply Chain Establishment

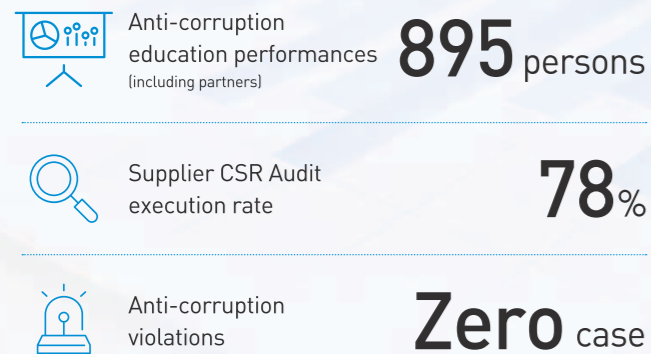
Context

As the business areas and markets of corporations expand, the corporate supply chain from raw material stage to final production. As the risks from supply chain such as quality issue or unfair trade are also increasing, responsible supply chain management is in demand, and the coexistence with partners are increasingly recognized as an important element to secure the corporate sustainability.

Our Approach

ISU PETASYS engages in various education and support activities to enhance the capabilities of partners within the supply chain, and shares opinions with partners through mutual growth conferences. Also, in order to maintain sustainable supply chain, ISU PETASYS gives efforts for fair operation, legal compliance, anti-corruption, and raw material management.





Our Performance



Mutual Growth

Mutual Growth Orientation

ISU PETASYS engages in various coexistence activities according to the values of joint-interest group, righteous management, performance promotion, and mutual innovation as suggested in the code of conduct to actualize mutual growth with partners. Also, ISU PETASYS strives to contribute to the CSR reinforcement of partners, and operates communication channels through conferences and such.

 Joint-interest Group	 Righteous Management	 Performance Promotion	 Mutual Innovation
Under the sense of mission that we are not simply in cooperation, but are a joint-interest community to rise to No. 1, we actualize the value of mutual growth based on trust.	We respect the fair and free market economy order according to the principle of free competition among partners, and compete fairly with competitors so as to contribute to increasing the growth value of partners. We promote mutual development by establishing mutual trust and cooperating relationships through fair trade with the partners.	We set and promote the goal to rise to be the top global PCB group.	We select competitive partners and focus on fundamental improvements. We support the growth of strong partners and promote self-innovation so as to rise to be the global leader. We promote the value of innovation that enables coexistence by securing long-term self-perpetuity of partners.

Education and Consulting

ISU PETASYS engages in education and consulting to improve the capabilities of partners. Human resources and labor relations education and financial consulting are provided for partners, and in order to prevent infringement of human rights and labor rights at the workplaces of partners, the basic education on human resource management guideline is conducted, and the education on human resources and labor related matters such employment contracts and rules is supported. Also, risk assessment education is conducted every year, and safety and health education is supported every month so that the partners can maintain a safe workplace.

Mutual Growth Conference

ISU PETASYS conducts mutual growth conferences every year in order to share the business status and major issues with partners and establish healthy partnership culture. At the 2018 mutual growth conference, total of 20 partners participated, and reinforced the partnership relations by sharing PCB industry market environment and 5G technology matters. Moreover, ISU PETASYS strives to maintain a partnership of mutual growth by listening to the grievances and demands of the partners.

2018 Meeting for Mutual Growth



Fair Operation



2018 Staff, Employees and Partners Fair Trade and Anti-Corruption Education Performance

895 persons

Fair Operation Reinforcement

ISU PETASYS has reinforced fair operation to promote mutual growth with partners. All partners are guaranteed a fair opportunity for participation, and in order to improve the capabilities of partners, partner evaluation system is in operation, based on deadline, quality, financial stability, and cooperation. The evaluation results are divided into 4 grades (A, B, C, D) where excellent partners are incentivized while shortcomings are given the opportunity to be improved. Also, in order to expand fair competition and anti-corruption culture among partners, the fair trade and anti-corruption education program is in operation for staff, employees and partners.

Anti-Corruption



2018 Anti-Corruption Violation Count

0 violation

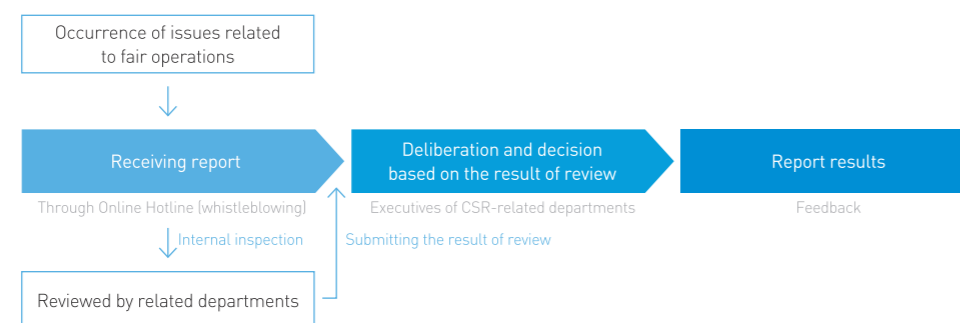
Corruption Prevention and Anti-Corruption Management

ISU PETASYS complies with domestic and foreign laws and regulations regarding anti-corruption and prevents corruption through internal audit and control system. Through ISU PETASYS code of conduct and anti-bribery principles, bribery, corruption, coercion, and misappropriation are prohibited under any circumstances, and providing bribes or other methods for improper benefits is forbidden. As the result of such efforts, there has been no violation related to anti-corruption in 2018.

Internal Whistle-Blower System

ISU PETASYS has established the internal whistle-blower as an online program so as to systematically guarantee that internal/external stakeholders can report all unfair activities related to management including corruption activities. Anyone who is a stakeholder of ISU PETASYS such as staff, employee, customer, or partner can anonymously make a submission, and a unique number is attributed to each posting so as to protect reporter confidence strictly according to internal CSR rules. No submission was received in 2018, and upon report receipt, appropriate measures are taken through a systematic internal whistle-blower system process.

Whistleblowing Process



Supply Chain CSR Management

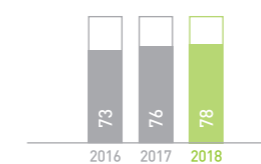
Supply Chain CSR Management Standard Establishment

In order to establish a stable supply chain, ISU PETASYS reduces potential risks in the supply chain by reflecting CSR management standards in the supplier and partner management procedure document. ISU PETASYS shall continue the persistent supply chain CSR management so that all businesses in the supply chain can build a safe work environment and promote eco-friendly and ethical corporate operation.

CSR Audit

ISU PETASYS executes CSR Audit in order to manage social responsibility in the overall supply chain. ISU PETASYS executes audit in four areas of human rights and labor, environment/safety/health, fair operation, and product responsibility so as to reduce the potential risks in the supply chain and reinforce the basis of sustainable management.

Supply Chain CSR Audit (%)



Raw Material Management

Responsible Mineral Procurement

The importance of conflict mineral management is globally on the rise. Conflict minerals refer to the minerals produced in countries with conflicts, and as the funds made from conflict minerals flow into the armed forces within the corresponding countries, human rights issues such as child labor, forced labor, and abuse of women are being raised. Accordingly, ISU PETASYS has established a conflict mineral management policy to exclude conflict minerals from the supply chain under any circumstances. Also, in case the information necessary to determine whether conflict minerals have been used was not sufficiently provided by the partners or non-factual information was provided, or in case the measures according to the discovery of risks in the partner supply chain was not executed, it is specified that the trade with the said partner can be suspended.

Conflict Mineral Management of ISU PETASYS

- We shall establish conflict mineral work process for legal compliance by applying the international standards regulating conflict minerals, and actively support the conflict mineral prohibition activities promoted by EICC and Global e-Sustainability Initiative (GeSI).
- We shall identify the names and locations of all smelters of tin, tantalum, tungsten, and gold used in our products by using conflict mineral usage report inquiry provided by EICC-GeSI.
- We shall request the partners for written verification that they are not using conflict minerals and submission of conflict mineral usage report questionnaire.
- We shall support the partners to purchase conflict minerals from smelters certified by 'Conflict-Free Smelter Program.'
- We shall establish the due diligence procedure according to the OECD Due Diligence Guidance, and when necessary, the partner shall execute due diligence for the executed procedures and materials for the conflict mineral usage report.

Conflict Mineral Management for Partners

- A partner must establish a documented conflict mineral management policy and procedure to exclude conflict minerals that contribute to the benefit of armed forces of Democratic Republic of Congo, or its neighboring countries, from products supplied to ISU PETASYS.
- A partner must give good-will efforts to identify all the names and locations of all smelters from which the conflict minerals were purchased within the supply chain.
- A partner must prepare the conflict mineral usage report inquiry and make a timely submission upon the request of ISU PETASYS.
- A partner must take timely rectification measures in case a risk in the supply chain has been identified.

5

Product Responsibility Reinforcement

Context

PCB, compared to the neural network of a human body, is used in various electronic devices from small home appliances to cutting-edge telecommunication devices. Thus, the lack of a strict quality management in the PCB production process may lead to final product defect where PCB is used. Accordingly, to provide responsible product through a strict quality management has become a major requirement of business.

Our Approach

ISU PETASYS is reinforcing quality management across all production processes, and based on high technology, has obtained major quality-related certifications from officially approved quality certification agency. Also, ISU PETASYS takes the quality of the final product one step higher through support activities for quality management of partners.

Our Performance

Quality System Audit
Comment Count **Zero** comment



Quality Management

Entire Process Quality Management System

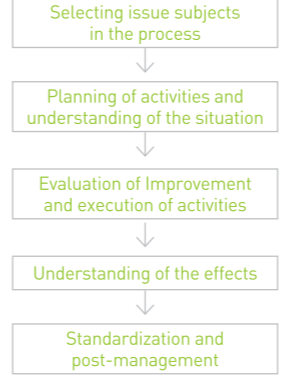
One of the major competitive factors of PCB industry, with the characteristics of device and material industry, is quality. As the demand level for quality heightens, the efforts of ISU PETASYS for quality is growing stronger. ISU PETASYS, according to the quality guideline, supplies the products and services the customer needs, with the level of quality the customer demands, at a competitive price, at a time the customer wants. The quality management system is applied to the entire production process from the raw material stage and the product packaging stage to secure the quality level, and the defects that may occur in the process is minimized through automatic optical test, electrical performance test and such in the PCB process stage. Also, the potential risk elements with impact on quality is preemptively shared to the production process through the preemptive alarm system (Q-Communication) and then verified so as to minimize the release of nonconforming products or omission of quality assessment.

Quality Policies

- Quality policy of ISU PETASYS is that all employees shall responsibly carry out quality assurance activities satisfying customers through supplying the products & services required by customers
- ① By equipping them with the quality level demanded by customers
 - ② At the time desired by customers
 - ③ For competitive prices

Quality TFT Activity

Process of Quality TFT Activities



ISU PETASYS engages in quality TFT activity in order to conduct a general diagnosis and resolution of quality issues that are problematic per defect type. Based on the development of fundamental cause of defect, the ideation and proposal activities are being reinforced, allowing company-wide substantive activities for product quality improvement to take place. Also, the execution of activity promotion is improved by managing the progress of TFT on a weekly basis. In 2018, total of 4 quality TFT's selected detailed goals and improvement rates and engaged in improvement them activities, and 4 teams in the first half of 2019 and 2 teams in the second half of 2019 are in operation. ISU PETASYS fully supports quality improvement activities such as issue resolution technique education, and going forward, will continue the activities to quality improvements at the company-wide level. Quality TFT activity is not just simple resolution of defects, but to analyze the underlying cause and resolve the issue, showing the sincerity of ISU PETASYS about quality management.

PCB Manufacturing Process



Quality and Technology Recognition

ISU PETASYS has obtained major quality-related certifications from official quality certification agencies, externally being recognized for excellent quality and technology. From ISO 9001 in 1994 to IATF 16949 in 2017, the efforts of ISU PETASYS for quality management continue. The IATF 16949 obtained in 2017 is a standard replacing the TS 16949, includes regulation requirements and customer-designated demands along with core tools for automobile production and assembly, and services and embedded products.

List of Major Certifications

		
<p>TL 9000 (2003) Telecommunication Leadership 9000</p>	<p>AS 9100 (2007) Aerospace Standard 9100</p>	<p>ITAR (2010) International Traffic in Arms Regulations</p>
	<p>NADCAP (2010) National Aerospace & Defense Contractors Accreditation Program</p>	
		<p>IATF 16949 (2017) Technical Specification 16949</p> <p>And others: MIL-PRF-55110F (2001), Bellcore(2001), ISO 9001 (1994)</p>
<p>OHSAS 18001 (2004)</p>	<p>ISO 14001 (1998)</p>	

6

Community Participation Expansion

Context

The times are changing from an era centering on economic value, where profit creation was considered the most important in corporate activities, to an era of social value creation, which accommodates various social demands. The demand for domestic corporations to execute social responsibility is increasing as in the movement of legislation of CSR disclosure, and accordingly, many corporations are engaging in social responsibility activities utilizing their characteristics and capabilities.

Our Approach

ISU PETASYS utilizes its understanding of the local community and its capabilities to engage in social contribution activities. The participation by employees is encouraged that they all contribute to the local community development, and providing help that beneficiaries actually need through reinforced communication with the local community.

Our Performance



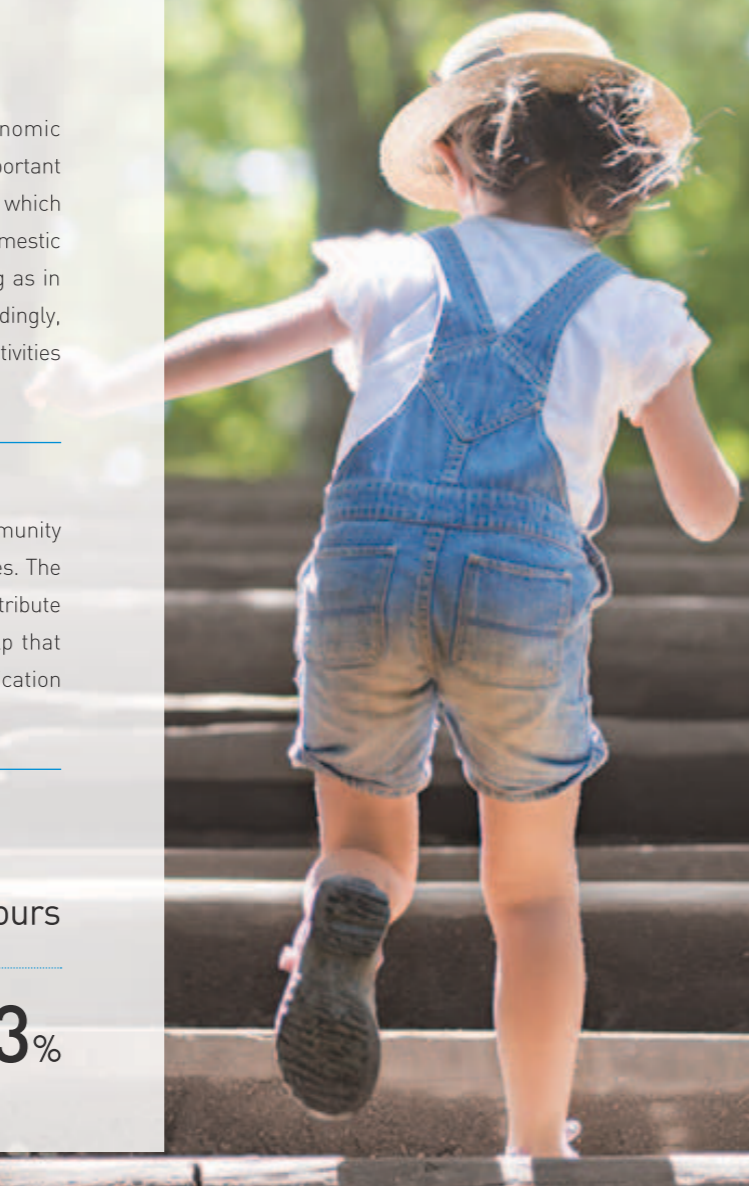
Volunteer hours per employee

3 hours



Volunteer participation rate of staff and employees

23%



Direction for Social Contribution Activities

ISU PETASYS promotes a balanced development of corporate values and social values through social contribution activities. Rather than simple donation activities, volunteer activities where employees can participate are constantly being reinforced, through which ISU PETASYS intends to actualize the value of social contribution where both the participant and the beneficiary can be satisfied. Going forward, ISU PETASYS will continue to contribute to the local community development through activities such as local community development support, education and scholarship support, disaster recovery, social imbalance resolution, and support for the social disadvantaged.

Social contribution orientation	Create the beautiful and rich future value		
Social contribution objective	Mutual growth with local community and social responsibility execution through sharing management		
Development direction	Promote distinguished social contribution activities	Communication with local community through sharing	Improve corporate image
	Increase effectiveness through concentration of social contribution activities and promote activities demanded by the local community	Reinforce communication with local residents and contribute to mutual growth with local community through various activities centering on the volunteer group.	Raise the corporate brand value and likability through social contribution activities so as to reinforce the external image

Framework of Social Contribution Activity

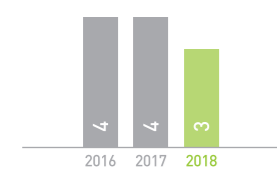
ISU PETASYS has designated the management support team to be the dedicated department for social contribution activities, establishing operation standards for social contribution activities and improving the impact of community participation activities. ISU PETASYS proposes a standard for social contribution activities through the social contribution activity operation standards and clarifies the scope and objective of the activities.

Social Contribution Activity Promotion Framework

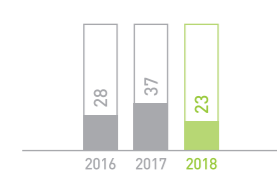


Encouraging Employees' Participation

Volunteer hours per employee (unit: hours)



Employee participation in social contribution activities (unit: %)



ISU PETASYS strives to help all employees understand the important of corporate social responsibility, and to settle the sharing culture, operating ISU sharing volunteer group and paid volunteer systems, and also supporting expenses necessary for volunteer activities to expand the participation rate and activity hours of the employees. In case of paid volunteer works, ISU PETASYS sets the objectives for employees volunteer activity hours and social contribution participation rates, and expands the participating volunteer activities and reinforces the volunteer group promotion to achieve the objectives every year.

Major Social Contribution Programs

Handicapped Facility Support



ISU PETASYS sharing volunteer group pays a monthly visit to the general social welfare center located in Dalseong-gun, Daegu, continuing volunteer activities for the handicapped through building cleaning, wheelchair repairs and such. Going forward, ISU PETASYS will strive to do its part in the proper corporate social responsibility activities close to the local residents through sharing volunteer activities in the local community.

ISU PETASYS freely donates electronic devices (PC, monitors, printers, multi-functional printers, etc.) to developing countries in cooperation with Korea IT Welfare Agency. Unused or aged devices are collected and readjusted, and then freely supplied to the socially disadvantaged group, and 91 pieces were donated in 2018. Going forward, ISU PETASYS plans to continue to engage in responsible support activities along with the free donations every year.

Electronic Devices Donation



Youth Activity Capability Reinforcement Program 'Vision School'



ISU PETASYS conducted 'Vision School' with the local NGO as a part of the self-initiative learning program and youth activity capability reinforcement program. Specialized professionals such as make-up artists were invited for career education, while the career experience activities for youths were supported through various programs such as college tours. In 2018, ISU PETASYS partnered with two of the local middle schools to support total of 13 youths, 12 times a year. ISU PETASYS shall continue to support various career experience activities for local low-income youths through 'Vision School' with the objective of continued support into the future.

The employees of ISU PETASYS sharing volunteer group conducts briquette sharing activities for the elderly who live alone in Daegu area. Also, the scope of volunteer participants was expanded so that the family of the employees of the volunteer group can also join the briquette sharing activities. In 2018, 300 briquettes were delivered to the households of the elderly who live alone in the areas of Dalseong-gun, Daegu.

Briquette Sharing Volunteer Service



Children Cultural Experience Activity 'Hope Experience School'



ISU PETASYS supports cultural experience activities for local low-income children every year, since the partnership with Dalseong General Social Welfare Center. Every year, the employees get together to provide various cultural experience activities such as traditional Korean housing experience, museum visits, history tours, and amusement park visits, and in 2018, twelve ISU PETASYS employees and thirty children visited Daegu E-World and had the time for cultural experience activities such as VR and ice rink.

Appendix

CSR Performance

GRI Content Index

Third Party Assurance Statement

Principle and Membership



CSR Performance

Financial Performance

Financial Statement	Unit	2016	2017	2018
Current assets	USD million	281.63	253.31	240.46
Non-current assets		174.21	197.93	211.77
Total assets		455.84	451.25	452.23
Current liabilities		217.17	238.14	239.95
Non-current liabilities		74.84	51.46	53.38
Total liabilities		292.01	289.60	293.32
Capital stock		34.13	38.53	36.91
Capital surplus		13.33	14.16	13.89
Retained earnings		122.10	121.99	104.50
Total Stockholders' equity		163.83	161.65	158.90

Income Statement	Unit	2016	2017	2018
Sales	USD million	477.33	469.80	508.93
Gross profit (loss)		49.33	33.98	51.57
Operating income (loss)		9.52	(7.10)	6.81
Non-operating income		16.05	16.55	9.85
Non-operating expenses		33.00	37.77	41.54
Net income (loss)		0.20	(13.16)	(6.70)

Creation and Distribution of Economic Value

Stakeholder	Economic value	Unit	2018
Shareholder and investor	Dividend	USD 1,000	2,529
Employee	Wage, severance pay, benefits		64,286
Local community	Social contribution amount		30
Government	Corporate tax		6,672
Total			73,517

CSR Key Performance Indicator

Human Rights & Labor	Unit	2016	2017	2018	Target for 2019
Average training hour per employee	Hour	108.1	110	96.73	100
Average training cost per employee	USD	819	849	695	739
Total training cost		700,971	751,547	625,554	673,025
Proportion of female recruits	%	14.5	15.0	9.6	10.6
Proportion of female employees		8.6	8.8	8.5	9.4
Rate of return after parenting and maternity leave		100.0	100.0	100.0	100
Rate of employees with disabilities		4.2	4.2	3.7	4.1
Resignation rate	Year	1.65	1.20	7.20	7.9
Average length of service		12.6	13	13.6	14
Average wage growth rate		4.8	4.5	7.8	8.6
Ratio of benefits to sales	%	2.0	2.0	1.4	1.5
Ratio of employees under collective agreement		94.1	96.0	91.8	100

ESH	Unit	2016	2017	2018	Target for 2019
GHG emission	Scope 1 (direct)	21,317	20,508	23,840	22,648
	Scope 2 (indirect)	30,083	29,284	30,690	29,156
Energy consumption	Direct consumption	118	122	142	135
	Indirect consumption	619	603	632	600
Waste disposal	General, base unit	0.034	0.031	0.033	0.032
	Designated, base unit	0.034	0.032	0.037	0.036
Waste recycling rate	%	88	85	87	88
Air pollutant emission	g/m ²	134.0	91.0	112.8	107.2
Wastewater discharge, base unit	Ton/m ²	8.46	8.65	8.45	8.20
Water pollutant discharge	COD, base unit	0.65	0.48	0.73	0.70
	SS, base unit	0.062	0.085	0.12	0.11
	T-N, base unit	0.33	0.23	0.27	0.26
	Cu, base unit	0.0026	0.0022	0.0041	0.0039

GRI Content Index

ESH	Unit	2016	2017	2018	Target for 2019
Water consumption, base unit	Ton/m2	9.58	9.67	8.93	8.66
Hazardous chemicals leakage accidents	case	-	-	-	-
Number of safety accidents	case	-	-	-	-
Rate of industrial accidents	%	0.0%	0.0%	0.0%	0.0%
Hazardous chemical consumption, base unit	kg/m2	63.39	64.44	62.42	60.68

Fair Operating	Unit	2016	2017	2018	Target for 2019
Education on anti-corruption and fair trade	Person	868	874	895	900
Rate of conducting CSR Audit in supply chain	%	73	76	78	80

Product & Customer	Unit	2016	2017	2018	Target for 2019
Rate of resolving customer complaints on time	%	100	100	100	100
Number of findings at quality system audit	case	0	0	0	0
Customer satisfaction	Point	83	77	82	84

Community Involvement & Development	Unit	2016	2017	2018	Target for 2019
Volunteering hours per employees	Hour	4	4	3	4
Rate of employee participation in social contribution activities	%	28	37	23	35

Universal Standards(GRI 100)	Description	Page	
Organizational Profile	GRI 102-1	Name of the organization	4
	GRI 102-2	Activities, brands, products, and services	4, 6
	GRI 102-3	Location of headquarters	4
	GRI 102-4	Location of operations	4
	GRI 102-5	Ownership and legal form	4
	GRI 102-6	Markets served	4
	GRI 102-7	Scale of the organization	4
	GRI 102-8	Information on employees and other workers	4, 22
	GRI 102-9	Supply chain	30-33
	GRI 102-10	Significant changes to the organization and its supply chain	N/A
Strategy	GRI 102-11	Precautionary Principle or approach	11
	GRI 102-12	External initiatives	51
Ethics and Integrity	GRI 102-13	Membership of associations	51
	GRI 102-14	Statement from senior decision-maker	2-3
	GRI 102-15	Key impacts, risks, and opportunities	2-3, 11
Governance	GRI 102-16	Values, principles, standards, and norms of behavior	5, 10
	GRI 102-17	Mechanisms for advice and concerns about ethics	10
Stakeholder Engagement	GRI 102-18	Governance structure	8-9
	GRI 102-35	Remuneration policies	8-9
	GRI 102-40	List of stakeholder groups	12-13
	GRI 102-41	Collective bargaining agreements	22
	GRI 102-42	Identifying and selecting stakeholders	12-13
	GRI 102-43	Approach to stakeholder engagement	12-13
	GRI 102-44	Key topics and concerns raised	12-13

Universal Standards(GRI 100)

	Description	Page	
Reporting Practice	GRI 102-45	Entities included in the consolidated financial statements	4
	GRI 102-46	Defining report content and topic boundaries	About This Report
	GRI 102-47	List of material topics	13
	GRI 102-48	Restatements of information	N/A
	GRI 102-49	Changes in reporting	N/A
	GRI 102-50	Reporting period	About This Report
	GRI 102-51	Date of most recent report	About This Report
	GRI 102-52	Reporting cycle	About This Report
	GRI 102-53	Contact point for questions regarding the report	About This Report
	GRI 102-54	Claims of reporting in accordance with the GRI Standards	About This Report
	GRI 102-55	GRI content index	47-49
Management Approach	GRI 102-56	External assurance	50
	GRI 103-1	Explanation of the material topic and its boundary, and the management approach and its components	16, 20, 24, 30, 34, 38
	GRI 103-2		
GRI 103-3			

Topic Specific Standards
-Economic Performance(GRI 200)

	Description	Page	
Economic Performance	GRI 201-1	Direct economic value generated and distributed	44
	GRI 201-2	Risks and opportunities posed by climate change that have the potential to generate substantive changes in operations, revenue, or expenditure	24
Indirect Economic Impacts	GRI 203-1	Infrastructure investments and services supported	39-41
	GRI 203-2	Significant indirect economic impacts	39-41
Anti-corruption	GRI 205-2	Communication and training about anti-corruption policies and procedures	30, 32
	GRI 205-3	Confirmed incidents of corruption and actions taken	30

Topic Specific Standards
-Environmental Performance(GRI 300)

	Description	Page	
Energy	GRI 302-1	Energy consumption within the organization	45
Water	GRI 303-1	Interactions with water as a shared resource	46
Emissions	GRI 305-1	Direct (Scope 1) GHG emissions	45
	GRI 305-2	Energy indirect (Scope 2) GHG emissions	45
	GRI 305-7	Amount of significant air emissions	26
Waste	GRI 306-2	Total waste generated	27
Compliance	GRI 307-1	Significant fines and non-monetary sanctions	N/A

Topic Specific Standards
-Social Performance(GRI 400)

	Description	Page	
Employment	GRI 401-1	New employee hires and employee turnover	22, 45
	GRI 401-3	Parental leave	45
Occupational Health and Safety	GRI 403-1	Occupational health and safety management system	45
	GRI 403-2	Hazard identification, risk assessment, and incident investigation	24
Training and Education	GRI 404-1	Average hours of training per year per employee	45
	GRI 404-2	Programs for upgrading employee skills and transition assistance programs	22-23
	GRI 404-3	"Percentage of employees receiving regular performance and career development reviews"	22-23
Diversity and Equal Opportunity	GRI 405-1	Diversity of governance bodies and employees	8-9
Non-discrimination	GRI 406-1	Incidents of discrimination and corrective actions taken	22
Child Labor	GRI 408-1	Operations and suppliers at significant risk for incidents of child labor	33
Forced or Compulsory Labor	GRI 409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	33
Human Rights Assessment	GRI 412-2	Employee training on human rights policies or procedures	21
Local Communities	GRI 413-1	Operations with local community engagement, impact assessments, and development programs	39-41
Customer Health and Safety	GRI 416-1	Assessment of the health and safety impacts of product and service categories	25
Customer Privacy	GRI 418-1	Substantiated complaints regarding concerning breaches of customer privacy and losses of customer data	N/A

Third Party Assurance Statement

To the stakeholder of ISU PETASYS:

This Third Party Assurance Statement is prepared for ISU PETASYS. Marcspoon Inc. (hereinafter "assurance provider") has been requested by ISU PETASYS to verify the contents of its CSR Report 2019 (hereinafter "the Report").

Assurance Standard	The assurance provider performed a Type 1, moderate level of assurance using AA1000AS (2008) as an assurance standard, and reviewed suitability according to Principles of Inclusivity, Materiality and Responsiveness. In addition, the assurance provider checked the compliance with the GRI Standard guidelines and ISO 26000.
Assurance Scope	The scope of Third Party Assurance Statement is from January 1 to December 31, 2018, which is same as the reporting period of the Report. The assurance provider reviewed social, economic and environmental performance of ISU PETASYS.
Assurance Process	<p>The assurance provider took the following process of review in order to check the Report's reliability and internal process used by ISU PETASYS to obtain data in the Report.</p> <ul style="list-style-type: none"> • Review of methodology and process used to calculate data • Review of reporting contents' reference document and data • Interviews with stakeholders related with reporting contents • Review of material issue selection process • Review of compliance with the GRI Standard guidelines in terms of contents and quality
Our Conclusion	<p>The assurance provider reviewed reporting contents from draft and provided opinions to ISU PETASYS, and revision was reflected as necessary. The assurance provider verified that the Report contents reflect the CSR activities and performance sincerely and fairly without critical errors or prejudice. Also, it was verified that the Report is prepared in accordance with the 'Core Option' of GRI Standard.</p> <p>The Report properly reflects the organization's alignment to and implementation of the AA 1000 Assurance Standard (2008) principles of Inclusivity, Materiality and Responsiveness in its operations. Details are provided below;</p> <ul style="list-style-type: none"> • Inclusivity : ISU PETASYS is maintaining the process of stakeholder engagement. Information is actively shared through a variety of stakeholder communication channels, and ISU PETASYS collects and reflects the opinions. Also, the assurance provider was not able to find omitted material stakeholder group. • Materiality : The Report contains material issues of ISU PETASYS through conducting materiality assessment on economic, environmental and social issues. The assurance team could not find any critical issues left out in this process. • Responsiveness : The assurance provider reviewed that the Report reflects the identified material issues and ISU PETASYS responds to stakeholders' opinions through the stakeholder response process. Also, the assurance provider could not find any inappropriate activities reported in the report.
Recommendation for Improvement	<p>The assurance provider highly appreciates ISU PETASYS' effort and performance to strengthen its CSR management. The following recommendations are to improve the quality of the next CSR Report and CSR management.</p> <ul style="list-style-type: none"> • Promote CSR management-related to higher level. Promote CSR-related mission and strategic system, and Intensify KPIs and goals in order to operate CSR management in a systematic way. • As the importance of human rights management increases, ISU PETASYS should establish human rights management system, and select human rights vulnerable group and manage risks in the overall business value chain. Also, ISU PETASYS should tackle human rights risks in advance through human rights impact assessment.

Principle and Membership

UN Global Compact

In order to support and implement corporate social responsibility, ISU PETASYS has participated in UN Global Compact Principle as a global initiative. ISU PETASYS will secure the global level of CSR competitiveness by actively integrating UNGC's ten principles in four areas of human rights, labor, the environment and anti-corruption into its CSR policy and operation.

UN Global Compact

Human Rights	Principles 1 Principles 2	Businesses should support and respect the protection of internationally proclaimed human rights; and make sure that they are not complicit in human rights abuses.
Labour	Principles 3 Principles 4 Principles 5 Principles 6	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced and compulsory labour; the effective abolition of child labour; and the elimination of discrimination in respect of employment and occupation.
Environment	Principles 7 Principles 8 Principles 9	Businesses should support a precautionary approach to environmental challenges; undertake initiatives to promote greater environmental responsibility; and encourage the development and diffusion of environmentally friendly technologies.
Anti-Corruption	Principles 10	Businesses should work against corruption in all its forms, including extortion and bribery.

Memberships and Association

Daegu Employers Federation	Daegu Chamber of Commerce and Industry
Korea International Trade Association	Korea Exchange
UN Global Compact	Korea Listed Companies Association
Federation of Korean Trade Unions	Korea Electric Engineers Association
Electronics and Telecommunications Research Institute	Korea Printed Circuit Association
Daekyung PSM Council Meeting	Korea Industrial Safety Association
Dalsung Industrial Complex Safety Health Management Meeting	Dalsung Industrial Complex Environment Monitoring Meeting
Korea Institute of Science and Technology Information	KISANHYUP
Korea Environmental Engineers Association	Daewoosky Institute

한정원



marcspoon

August 2019 MARCSPON CEO Jung-Won Han

2019 ISU PETASYS CSR Report

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To minimize environmental impact throughout the entire lifecycle of this eco-design report, ISU PETASYS has used soybean oil and shunned the use of spot color printing or coating.