DSME Integrated Report 2021



DSME

About This Report

Overview
This integrated report has been prepared to disclose the business performance, activities and mid-to-long-term strategies of Daewoo Shipbuilding & Marine Engineering Co., Ltd. (DSME) from the perspective of ESG in a transparent and systematic manner. This integrated report is organized to make it easy to understand the financial and non-financial performances and activities of DSME to improve sustainable management and corporate value by combining sustainable management information and content in an annual report.

Standards for writing this report
This report was prepared based on the Core Option of the GRI (Global Reporting Initiative) Standards. In addition, the IR framework of IIRC (International Integrated Reporting Council) was referred to and the indicators of UN SDGs (Sustainable Development Goals) were incorporated.

Reporting scope and boundary
The scope of reporting consists of the activities and outcomes of sustainable management activities in the Head Office and domestic business sites and some data including overseas business sites. The report on financial performance was prepared based on K-IFRS consolidated financial statements.

Reporting period
This report contains performance data covering the period from January 1, 2020 to December 31, 2020. Major quantitative data incorporates the performance of the last 3 years, and some data includes information related to the first half of 2021.

Reporting interval
The previous report was published in June 2015, but this report will be published annually from 2021.

Reliability of the report
To secure the reliability of this report, it was verified by a third party DNV Business Assurance Korea, which is an independent verification organization. The results are shown on pages 104 to 105.

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Company website
www.dsme.co.kr

Sustainable Management website
www.dsme.co.kr/e_sustainability.do

Organization in charge of publication:
ESG Office, e-mail: esg@dsme.co.kr

Address of Head Office
53302, 3370, Geoje-daero, Geoje-si,
Gyeongsangnam-do, Korea

CEO Message

Dear Valued Stakeholders,

Thank you for showing deep trust and interest in DSME amid difficult circumstances such as COVID-19 situation, global economic contraction and prolonged real economy stagnation.

Despite challenging circumstances, DSME has made good performance including the achievement of operating profit surplus for four consecutive years up until last year. In addition, we started to take a very meaningful step such as the restart the publication of sustainable management (integrated) report from this year based on our business performance so far and establishment of ESG dedicated organization.

Recently, ESG management has become a hot topic as it intends to change all corporate activities and fundamentals focusing on global response to climate change and sustainable prosperity of mankind. This is a reflection of the trend of time that the reasons for the existence (raison d'être') of the company goes beyond providing economic value toward the realization of social values to make the world a better place to live where people live together.



Dear stakeholders!
DSME has devoted itself to realizing social values where the company lives together with community such as environmental protection and construction of schools and hospitals since its foundation in 1973. So far, we have been in open communication with various stakeholders and we have potential and confidence to be a global leading company in terms of ESG management.

In fact, DSME is promoting activities to satisfy customer needs, such as reducing carbon emissions, under the banner of 'Technology DSME' in line with the transition to new and renewable energy, and is leading the development of various eco-friendly products and technologies and applying them to shipbuilding actively. In addition, DSME declared 'the achievement of carbon neutrality target by 2050' together with shipbuilding and marine engineering industry with a plan to reduce greenhouse gas emissions from workplace where product is made and conduct activities to expand the use of renewable energy step by step. In addition, we are also focusing on creating an eco-friendly, people-centered, accident-free workplace through digital transformation.
DSME established 'DSME ESG Administration' to realize the plan and maximize the effect. Under the group, we have environmental, social and governance subcommittee so that management and employees participate to implement the plan in a practical manner.

Although the status of Korean shipbuilding industry was shaken temporarily, it maintains No. 1 position in the world in terms of technology and market share, solidifying its position. However, it is the time to fortify our position to become a No.1 company in terms of future sustainable values through environmental protection, social responsibilities and sound governance in addition to the 'present external values' such as shipbuilding capabilities, quality and technology. DSME promises to set the example in the demand of our times by presenting the future and blueprint of Korea's shipbuilding industry and the global shipbuilding industry as expected by stakeholders. DSME executives and employees will do its best for a sustainable development of DSME and a brighter future of Korea's shipbuilding industry and various stakeholders. Thank you.

June, 2021
President & CEO of DSME
Sung Geun Lee



2020 Highlights





#TCO FGP



TCO Chinldren Safty Poster Competition

01

Early delivery of TCO FGP (Future Growth Project) with 42 million zero-accident hours achieved

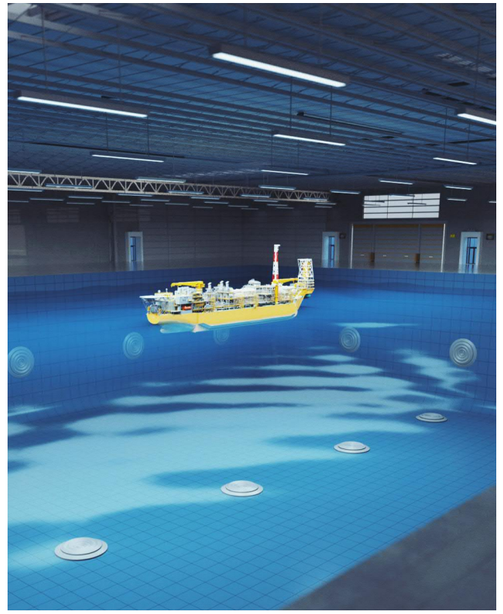
DSME has completed the TCO FGP construction project, an energy plant module production project with the world's largest volume (186,000 tons, 81 modules, 171 PAU*) as a single project to which successfully utilized high-level new materials and pioneering construction methods. Overcoming adverse conditions such as design changes by the client and a delay of Owner Furnished Equipment (OFEs), DSME has made monumental achievements. These achievements include the delivery of the highest quality product with no Carry-over Work*, reducing the construction period for all modules by 10 days on average by conducting the project based on the "One-team Spirit", and establishing common goals based on mutual trust and making timely decisions. In addition, TCO FGP achieved 42 million zero-accident hours, writing a new chapter in the history of Korea's energy plant projects.

* PAU (Pre-assembly Unit), Carry-over Work (work transferred to on-site construction in the event work has not been finished at the shipyard in a timely manner.



#R&D Campus



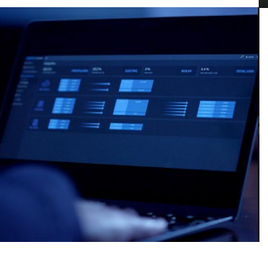


02

Completion of the construction of Siheung R&D Campus

DSME completed the construction of Siheung R&D Campus in September 2020. Siheung R&D Campus was established to respond to the rapidly changing technological advancement in the fields of ships, energy plants, and naval ships quickly and to develop eco-friendly, high-efficiency products in-house as future growth engines for the company. Siheung R&D Campus is equipped with the latest towing tank, the world's largest commercial cavitation tunnel, the only acoustic water tank in domestic shipyards, and eco-friendly fuel Land Based Test Site (LBTS). DSME develops competitive new hull-form designs and new products by utilizing these state-of-the-art research facilities and plans to strengthen technological competitiveness by establishing a consistent research support system from marketing, design, and production to sea-trial. In addition, Siheung R&D Campus is expected to play a pivotal role in the development of new technologies and new products which can lead the future market, as it actively conducts R&D on natural gas and eco-friendly energy such as LNG re-liquefaction system and LNG Fuel Gas Supply System (FGSS) related to LNG carriers for which DSME has the highest competitiveness in the world. Furthermore, R&D on future technologies are also intensely conducted such as smartships, stealth naval ships, and technologies for utilizing ocean space.



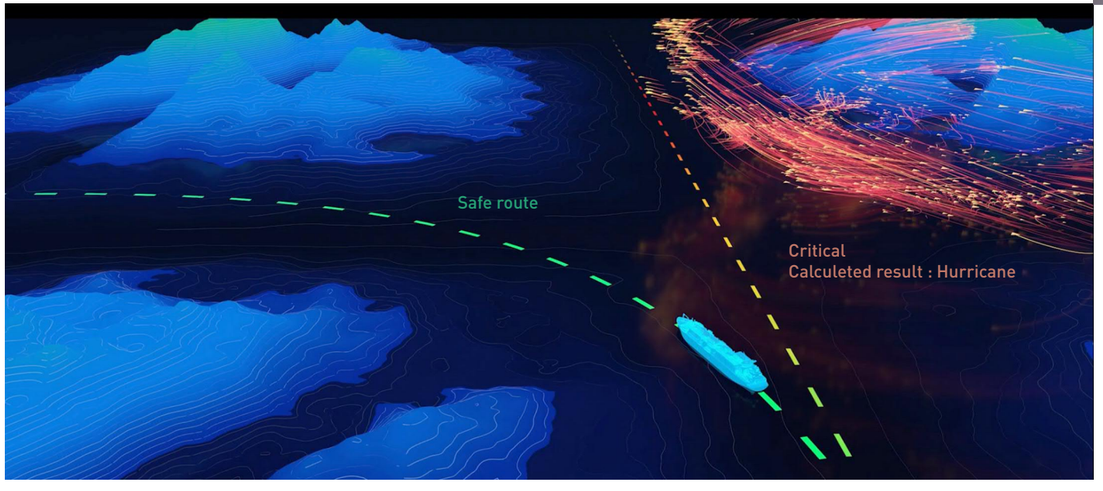


03

Launching DS4, a DSME Smartship Solution

DSME developed DS4, a DSME Smartship Solution in 2019 and launched it on the market in 2020. It applied the solution to 24,000 TEU mega container ships and 174K large LNG carriers. In addition, the DS4 Shore Operations Center was established at Siheung R&D Campus to collect and analyze the ship operating data via satellites for near real-time monitoring services and data analysis services. DSME's





Smart Ship Solution

Smartship Solution has openness in various operational environments and supports various technologies to maximize the operational efficiency and convenience of shipowners. In addition, DSME provides customized contents and services to shipowners by nurturing operation data analysts who have both engineering and data analysis capabilities. In the shipbuilding market, Smartship technology is recognized not as an option, but an essential requirement. DSME's Smartship Solution is provided as a basic component in specifications to ships currently contracted. DSME plans to expand the application of Smartship Solution to defense sector and offshore plants.

04

Selected as the best ship

Two of DSME-built ships were bestowed the 'Significant Ships 2020' awards by RINA(Royal Institution of Naval Architects). To date, 162 ships of DSME have been selected as "vessel of the year" since the Bow Pioneer was selected as "vessel of the year" for the first time as a DSME ship in 1982. The two ships selected this time were a mega container ship and an LNG carrier, which are eco-friendly ships to which DSME's latest technologies have been applied. The mega container ship has a capacity of greater than 24,000 TEU and achieved phase 3 requirements of the Energy Efficiency Design Index (EEDI). The LNG carrier was highly acclaimed for its eco-friendly design by improving the high-pressure duel fuel engine and saving fuel with the application of DS-BOW (Bulbous bow) and PRDI (Propulsion Redundancy Design Intent). In particular, the mega container ship has become renowned as a symbol of the renewal of Korea's shipping industry as it has the largest size in the world.



The world's first capability to load

24,000 TEU container



05

Technical awards

1. Korea Technology Awards
- DSME 1,400ton class submarine for export
- Ministry of Trade, Industry and Energy/ Korea Evaluation Institute of Industrial Technology
- Technology developed and successfully commercialized in Korea

2. Top 10 Mechanical Technologies of the Year
- Smart Energy Saving System
- The Korean Federation of Mechanical Engineering Societies/ The Korean Society of Mechanical Engineers
- Excellent technologies or products developed in Korea in the field of mechanical engineering

3. World's Best Product
- "Mega container ship" that includes the world's largest 24,000 TEU container ship
- Ministry of Trade, Industry and Energy/KOTRA
- Considering global market share, market size and export volume

BUSINESS OVERVIEW

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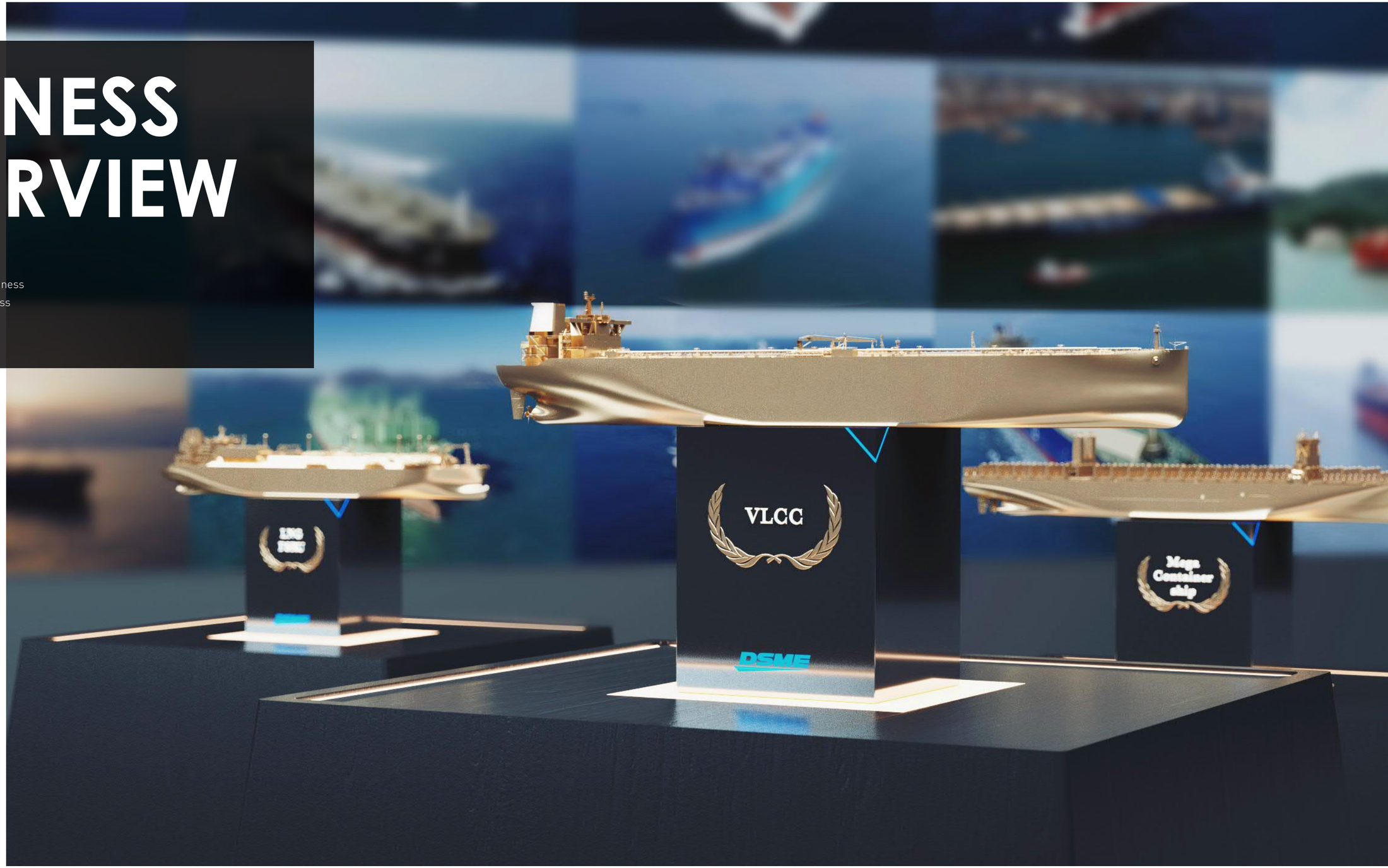
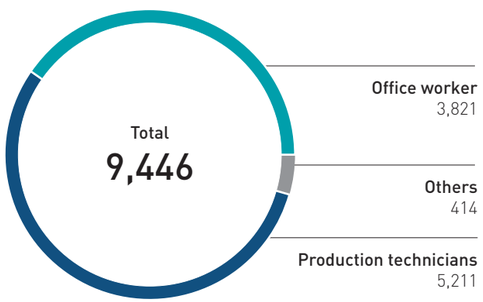


Company Profile

Company name	Daewoo Shipbuilding & Marine Engineering Co., Ltd.
CEO	Sung Geun Lee
Foundation date	September, 26, 1978

Number of employees

(As of December 31, 2020)



Business sites

Head Office (Okpo Shipyard)
- Commercial ship, offshore & energy plant, naval & special ship
- 3370, Geoje-daero, Geoje-si, Gyeongsangnam-do, Republic of Korea

Seoul Office
- Sales, marketing, management support
- 14, Sejongdae-ro, Jung-gu, Seoul, Republic of Korea

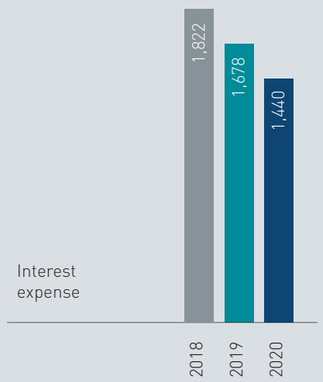
Siheung R&D Campus
- R&D
- 96, Baegot 2-ro, Siheung-si, Gyeonggi-do, Republic of Korea

Financial Summary

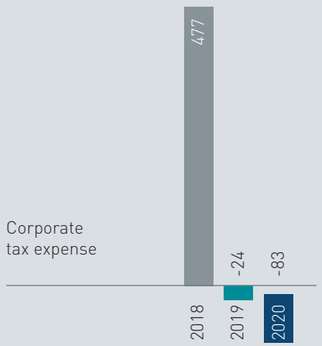
Remark(KRW 1 million)	2018	2019	2020
1. Sales	9,644,384	8,358,745	7,030,175
Commercial Ship	6,516,161	5,646,767	5,104,119
Offshore, Naval & Special Ship	3,066,482	2,637,694	1,873,898
Others	61,741	74,284	52,158
2. Operating profit	1,024,832	292,761	153,437
3. Net income (loss)	320,052	△46,485	86,573
4. Total assets	11,918,522	11,276,079	10,320,775
5. Total liabilities	8,078,300	7,521,182	6,451,804
6. Total equity	3,840,222	3,754,897	3,868,971
7. Debt ratio	210%	200%	167%

Distribution to stakeholders(100 million won)

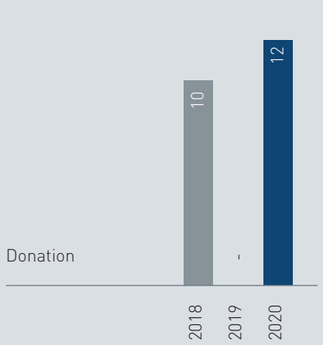
Shareholders & investors



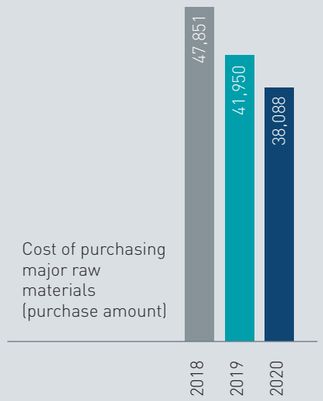
Government



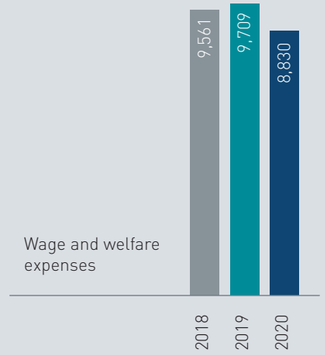
Community



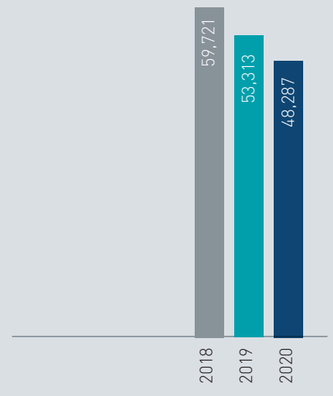
Suppliers



Employees



Total



Company Profile

Global network



Subsidiaries

Company name	Address	Capital	Number of shares held (number of shares)	Shareholding (%)
DSME Shinhan Heavy Industries Co., Ltd. (DSHI)	35, Ubonggangyang-ro, Onsan-eup, Ulju-gun, Ulsan, Republic of Korea	KRW 7,703 million	1,374,485	89.22
DSME Samwoo Heavy Industries Co., Ltd. (DSSW)	111, Yulchonsandan 3-ro, Gwangyang-eup, Gwangyang-si, Jeollanam-do, Republic of Korea	KRW 41,910 million	8,382,045	100.00
DSME Information & Consulting (DINC)	3370, Geoje-daero, Geoje-si, Gyeongsangnam-do, Republic of Korea	KRW 200 million	40,000	100.00
DAEHAN SHIPBUILDING CO., LTD. (DHSC)	498, Joseonso-gil, Hwawon-myeon, Haenam-gun, Jeollanam-do, Republic of Korea	KRW 65,214 million	4,243,045	65.06
DSME SHANDONG CO., LTD. (DSSC)	Bajiao-Zhen, Yantai-Kaifaqu, Shandong-Sheng, China	CNY 624,462,000	-	100.00
DK Maritime S.A.	53rd East Street, Urbanizacion Marbella, MMG Tower 16th Floor, Panama	USD 125,600,000	1,256,000	100.00
PT. DSME Indonesia	Tempo Scan Tower Lt. 30-31Jl. H.R. Rasuna Said Kav.3-4 Jakarta 12950 Indonesia	USD 5,500,000	5,225	95.00
DSME Offshore Engineering Corporation	16340 Park Ten Place, Suite 100 Houston, TX 77084	USD 6,036,000	6,306	100.00
DSME Kazakhstan LLP	No 116, 3 floor, 5A Business Center 'Nurly-Tau' Al-Farabi7, Almaty City, 050059, The Republic of Kazakhstan	USD 500,000	-	100.00
D&H Solutions AS	Verkstedveien 3, 0277 Oslo P.O.Box 157, 0212 Oslo, Norway	NOK 100,000	100,000	100.00
Cadore Del Equador S.A.	Av. 12 del Octubre y Av. Colon, Edificio Boreal Piso 7, Oficina 701, Quito, Ecuador	USD 800	-	100.00

Current State Of Business

New orders and backlog by business

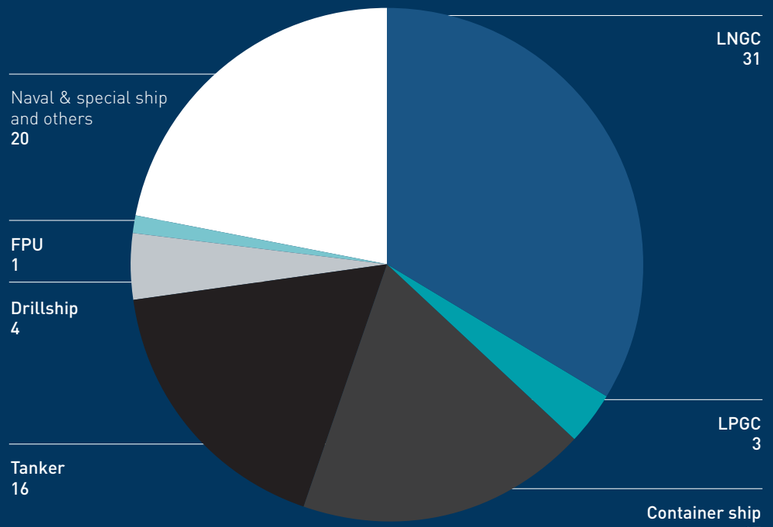
New orders

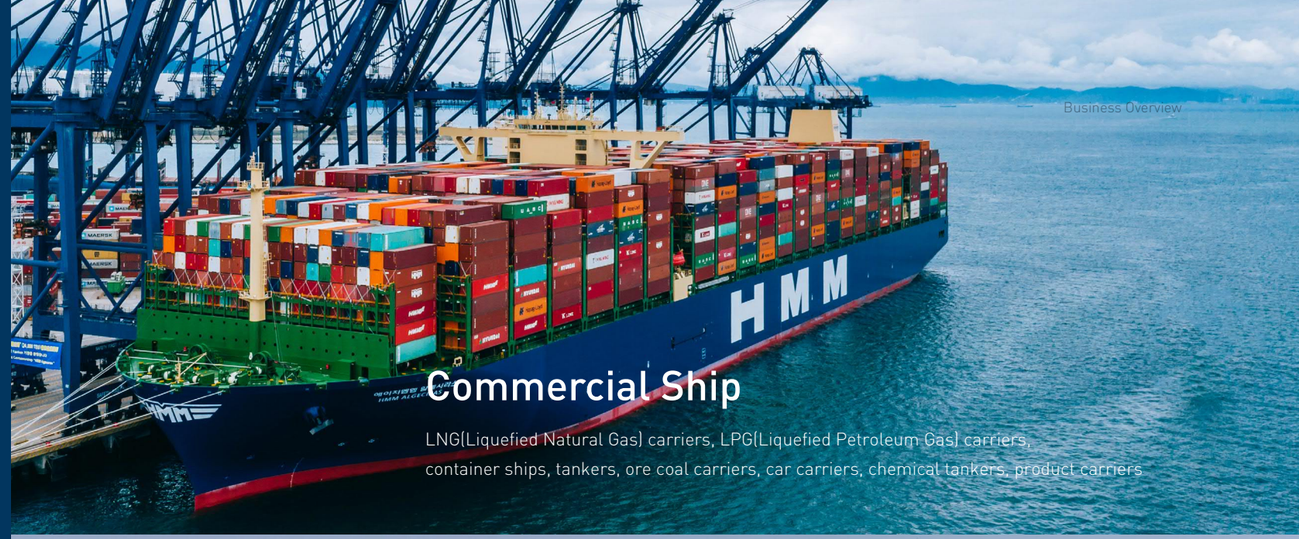
Type(USD 100 million)		2018		2019		2020	
		Number of ships	Sub-total	Number of ships	Sub-total	Number of ships	Sub-total
Commercial ship	LNGC	18	57.3 (41 ships)	10	44.6 (33 ships)	9	54.1 (31 ships)
	LPGC	-		2		1	
	Container ship	7		11		12	
	Tanker	16		10		9	
Offshore & energy plant	Floating Production Unit	-	-	1	1.95	-	0.4
Naval & special ship and others		8	10.8	5	22.2	4	1.9
Total		**49**	**68.1**	**39**	**68.8**	**35**	**56.4**

Backlog

As of December 31, 2020

18.98 billion $ (92 ships/units)





Commercial Ship

LNG(Liquefied Natural Gas) carriers, LPG(Liquefied Petroleum Gas) carriers, container ships, tankers, ore coal carriers, car carriers, chemical tankers, product carriers



Offshore & Energy Plant

Building offshore and energy plants such as drillship, FPSO (Floating Production Storage and Offloading), semi-rig, floating offshore structure, oil & gas production/drilling equipment, fixed platform for the development of offshore oil and natural gas



Naval & Special Ship

Building naval & special ships such as submarines, destroyers, frigates, combat support ships, rescue & salvage ships





2021 Outlook

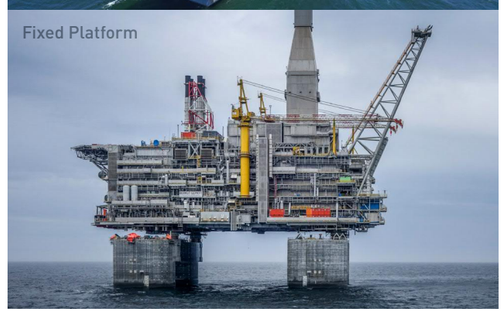
Commercial Ship Business

In 2021, the economic growth rate is expected to increase thanks to the base effect of 2020, and the recovery of global trade volume is expected to begin in the second half of 2021. In addition, it is expected that the demand for potential orders will increase due to the decommissioning of old ships and their replacement, and investment in eco-friendly ships with the direction of the IMO 2020 regulations and related transition to eco-friendliness. Demand for LNG carriers and LNG-fueled ships is expected to continue to grow. LNG plays a bridging role in energy conversion for decarbonization and the market size is continuously growing. The market size is continuously growing, and orders are expected to continue steadily thanks to the acceleration of global eco-friendly policy implementation. The VLCC (Very Large Crude-oil Carrier) market is expected to be weak in 2021 due to lower freight rates and the burden of fuel costs. However, the decommissioning of old ships has been accelerated due to IMO environmental regulations and there have been continued interest and inquiries about LNG-fueled VLCC to respond to environmental regulations preemptively. In the future, the US eco-friendly energy policy stance, the easing of sanctions on Iran and Venezuela, and the direction of the US-China conflict are expected to be important variables for the change in crude oil trade volume. Adjustment of ships among shipping companies and changes in demand as a result of COVID-19 serve as major variables in the container ship market. As new building orders for large container ships are driven by fare that surged from the second half of 2020, DSME is expecting to receive inquiries on new ship building. In particular, container ships have a higher ratio of fossil fuel use compared with other ships so we expect that the trend will be changed toward orders of eco-friendly, high-efficient ships rather than competition in terms of size.

Energy Plant Business

International oil prices are on the rise from the previous year due to full-fledged COVID-19 vaccinations and oil producing countries' policy to maintain oil production volume. Therefore, we carefully expect the resumption of investment in some promising projects among the projects of oil majors which had been cancelled or delayed. For drilling facilities, the oversupply situation continues and restructuring and M&A of some drilling companies are underway. The drilling industry is fairly expected to take some time to restart new project. However, the bidding process for large-scale fixed platforms and floating production storage and offloading (FPSO) facilities for the North Sea and Brazil is underway, allowing us to expect tangible results. The interest in new and renewable energy infrastructure is elevated in line with the global energy transition for carbon-free and the return of the US to eco-friendly policies. In particular, the demand for WTIV (Wind Turbine Installation Vessel) is rapidly increasing to support the trend toward larger wind power generation facilities.









Naval & Special Ships

For the domestic naval ship market, it is expected that orders for high-added value, large ships will continue with the Ocean-going Navy / Smart Navy construction target promoted by the Navy of the Republic of Korea to protect maritime sovereignty in line with continued increase in the defense budget and improvement costs. DSME is working closely with the Defense Acquisition Program Administration and the Navy to serve as a defense industry shipyard that is considered first to enhance naval power based on its experience of building surface warships and submarines delivered successfully. For overseas business, the demand for overseas ships is increasing due to changes in the international situation and elevating tensions in the South China Sea. DSME is competitive in various types of ships such as submarines, surface warships and supporting ships based on its excellent technological excellence and price competitiveness. As building trust between the Korean government and the government of the purchasing country is important, DSME works closely with government organizations including Korean embassies in sales target countries, the Defense Acquisition Program Administration and KOTRA. DSME will strengthen its competitiveness in the domestic and overseas surface warships and submarines market through the development of advanced smart ship technologies, thereby leading the future-oriented warship market.

Value Creation Process

Input

Financial capital

Assets: KRW 10.3208 trillion
Liabilities : KRW 6.4518 trillion
Equity: KRW 3.869 trillion
Capital stock: KRW 541.5 billion

Manufactured capital

Production area: 4,900,000m^2
Tangible assets: KRW 3.6679 trillion
Major facility investment: KRW 193.8 billion
* Refer to business report for other production capacities

Intellectual capital

Research personnel: 366
Ordinary R&D expenses: KRW 20.97 billion
R&D facility investment: KRW 36.73 billion

Natural capital

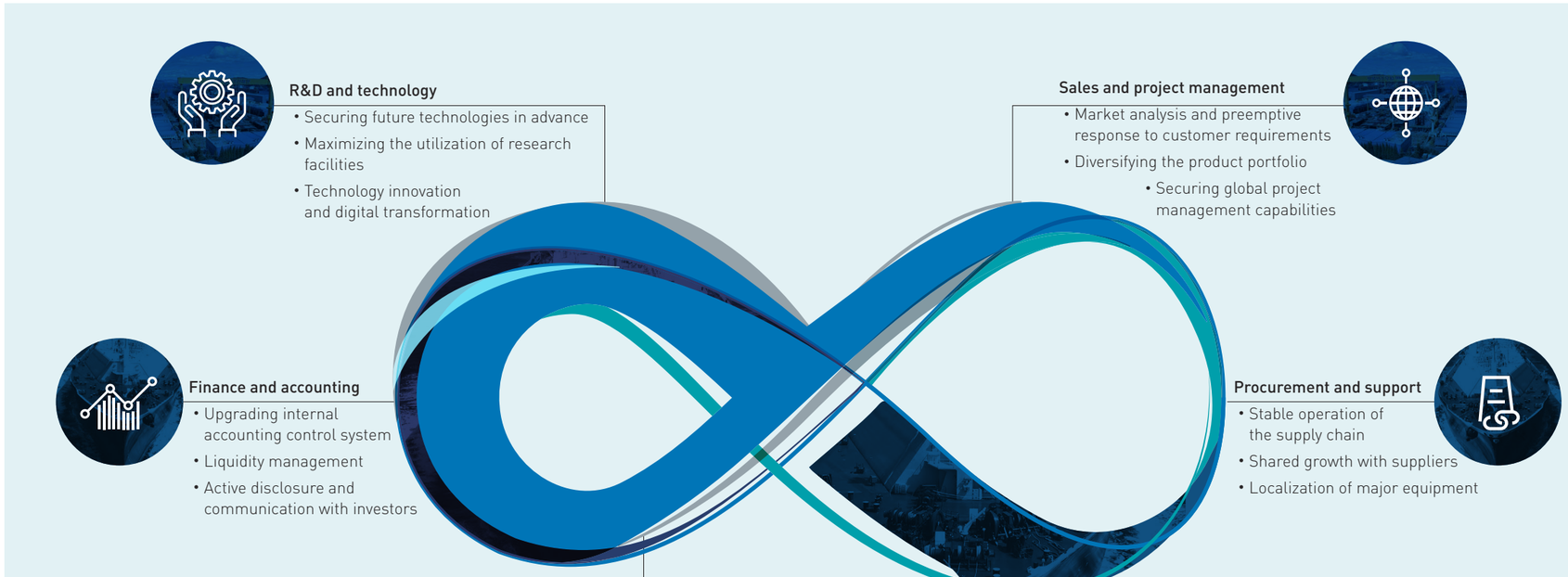
Acquired ISO 14001, 50001
Energy use: 6,434 TJ
Water use: 2,639,266 Ton
Environment-related investment: KRW 265.8 billion

Human Resources

The number of employees (female employees): 9,446 (384)
The number of labor union members: 5,478
Training hours: 390,000 MH (41.3H per person)
* Man Hour= The amount of work that can be done by one person per hour

Social & Relationship capital

Participation in social volunteering work group: 2,431
Operation support for Koje University: KRW 1 billion



R&D and technology
- Securing future technologies in advance
- Maximizing the utilization of research facilities
- Technology innovation and digital transformation

Sales and project management
- Market analysis and preemptive response to customer requirements
- Diversifying the product portfolio
- Securing global project management capabilities

Finance and accounting
- Upgrading internal accounting control system
- Liquidity management
- Active disclosure and communication with investors

Procurement and support
- Stable operation of the supply chain
- Shared growth with suppliers
- Localization of major equipment

Strategy and business management
- Presenting directions and managing risks preemptively
- Laying the foundation for sustainable management
- Managing cost competitiveness and profit and loss of projects

Production
- Maximizing production efficiency
- Creating a safety-first production environment
- Securing environmental-friendliness

Major business areas

Commercial ships
DSME produces large commercial ships, which are the center of global logistics. And DSME has the world's best technology and competitiveness in all types of commercial ships including LNG carriers, container ships and oil tankers.

Energy plants
DSME secures competitiveness in project implementation for all products covering offshore drilling/production facilities and onshore modular plants and focuses on securing markets for new and renewable energy products in line with rapidly changing global market trends based on its experience in constructing various offshore facilities.

Naval & special ships
DSME has maintained an unrivaled position in the domestic surface warships (battle ships and supporting ships). And submarine market and it continues to win new building and overhaul/maintenance projects as its excellent technologies are well recognized in overseas markets such as Southeast Asia, Southwest Asia and the Middle East.

Output

Financial capital

Sales: KRW 7.0302 trillion
Operating profit: KRW 153.4 billion
Net income: KRW 86.6 billion

Manufactured capital

Deliveries: 31 ships
Commercial ship production volume: 2,460,000 CGT
Offshore and naval & special ship production volume: 4,523,000 MH
Production time: 25,746,000MH
Backlog (either on order or under construction): $ 18.98 billion (92 ships/units)

Intellectual capital

Completion of Siheung R&D Campus
Number of patent applications: 577
Training on digital transformation (DX): 1,412

Natural capital

Greenhouse gas emissions: 360,403 tco$_2$eq
Wastewater recycling amount: 261,975 Ton
Waste recycling amount: 26,251 Ton

Human Resources

The number of trainees a year: 2,900
Participation in workshop on organizational communication: 864 employees from 23 departments
Severe accident rate: 0% for 2 consecutive years

Social & Relationship capital

Donation: KRW 163,692,000
Environmental preservation activities: 721 (874 hours)
Social welfare activities: 2,111(8,719 hours)

MATERIAL TOPICS

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Sustainable Management Implementation Strategies

Direction for the implementation of sustainable management

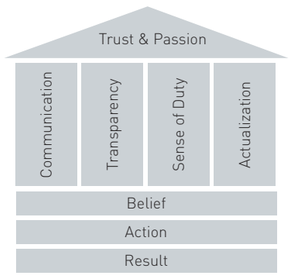
DSME pursues economic performance and financial stability. At the same time, it creates innovation and values actively for non-financial issues such as environmental, social and governance. DSME develops the best technologies and nurtures talent based on its core values of trust and passion and pursues joint growth, shared growth and maximization of total benefits for stakeholders through proactive communication with internal and external stakeholders.

Systematic evaluation and improvement

DSME has a transparent and reliable organizational performance management system. The company conducts comprehensive management evaluations where an independent review organization conducts evaluation on quantitative and qualitative items related to business performance with the confirmation of accounting firm and runs an organizational performance management system for each division. Quantitative KPI and qualitative tasks in line with ESG management are applied to 2021 organizational performance target indicators planned in 2020 and ESG indicators related to management policy and mid-term strategies will be identified and managed actively from 2022. Through this process, DSME will achieve management that maximizes the value of stakeholders and establish itself as a leading company in implementing ESG management in the industry.

Vision and core values

Vision	As a leading shipbuilder, we pursue technological excellence to lead the market and achieve sustainable growth.
Strategic focus	Maximize competitiveness, take a proactive approach to change, focus on talents and technologies, gain trust with sustainable business practices.
Core values	Trust and passion (Trust through communication and transparency. Passion through actualization and sense of duty)



Core values — These are the shared values that guide the thoughts and actions of all DSME members and form the solid foundation for the DSME's corporate culture.

Action values — The way of thinking and behavior to respond to changes in internal and external environment in line with core values.
- Manifestation of core values based on environmental changes

Action principles — A set of principles expressed through actions
- Manifestation of action values

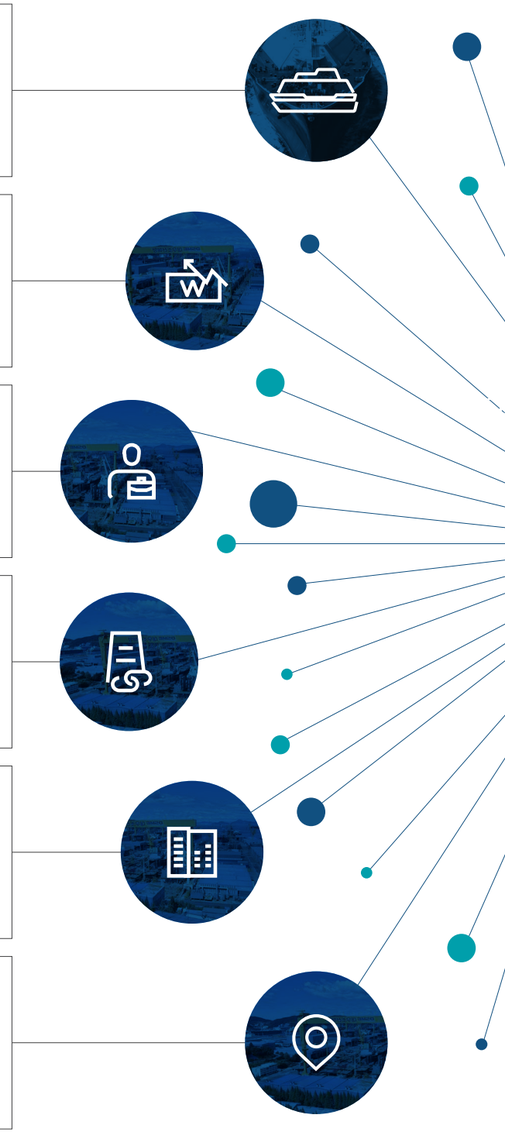
Principles of disclosing sustainable management information

Clarity	Reliability	Balance	Timeliness
Include information that can be understood and evaluated by stakeholders	Include information that can be verified and reviewed by a third party.	Provide balanced information considering both positive and negative sides.	Provide information to enable stakeholders to make timely decisions.

Communication with stakeholders

DSME shares the business performance and future values of the company and mutual interest in sustainable growth and devises measures and future-oriented development methods for issues identified based on mutual trust through transparent and true communication with all stakeholders including customers, shareholders, investors, employees, partners, suppliers, government, industry and the local community.

Stakeholder	Major issues	Communication activities
Customers	• Customer communication & satisfaction • Product and service quality • Eco-friendly & high efficiency products and services	• Customer satisfaction and VOC (voice of customer) survey • International fair and conference • Visit to customers (running branch offices)
Shareholders and investors	• Business performance • Corporate values and sustainable management possibilities • Reasonable profit distribution policy	• Company presentation • Shareholders' meeting, information disclosure • IR conference call
Employees	• Job security &quality of life for employees • Workplace safety and health • Healthy labor management relationship and corporate culture	• Business presentation, card news, in-house media, Youth Board of Directors, labor-management council, collective bargaining
Partners and suppliers	• Fair trade and shared growth • Sustainable supply chain	• Inhouse supplier representative council • Global Top (suppliers' council)
Government and industry	• Fair market competition • Increasing industrial competitiveness • Soundness of the corporate governance structures	• Various associations and societies • Conference and meeting • Working-level exchanges in the same industry
Local community	• Communication and contribution to the community • Management of pollutants, harmful substances release	• Regional presentations and meeting • Local CSR activities



UN SDGs Implementation Status

DSME agrees with the SDGs (Sustainable Development Goals) proposed by the UN, and is promoting related activities centered on goals that are highly connected to our business areas and directions for sustainable management. In the future, DSME plans to join these efforts continuously, establish strategic implementation tasks based on constant considerations and expand related targets.

UN SDGs		Specific goals	Activities	Page
3 GOOD HEALTH AND WELL-BEING	Ensure healthy lives and promote well-being for all at all ages	[3.4] Reduce premature mortality from non-communicable diseases through the prevention and treatment and promote mental health and well-being [3.9] Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	• Environmental management system certification (ISO14001) • Strengthening health management through further developing an integrated health management system • Operation of systematic COVID-19 response policy	Environmental Management 72-75 >>> Safety And Health 66-71 >>>
4 QUALITY EDUCATION	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	[4.4] Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills for employment, decent jobs and entrepreneurship	• Establishment of education foundation (elementary/middle/high school and college) • Operation of DSME Heavy Industries Academy and Technology Education Department • Education program to improve job competency throughout the entire work period • DX(digital transformation) talent nurturing program • Education to support re-employment	Shared Growth 76-81 >>> Talent Management 54-59 >>>
6 CLEAN WATER AND SANITATION	Ensure availability and sustainable management of water and sanitation for all	[6.3] Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and sustainability increasing recycling and safe use globally	• Management of quantitative indicators related to water quality, use of water and waste water treatment	Environmental Management 72-75 >>>
7 AFFORDABLE AND CLEAN ENERGY	Ensure access to affordable, reliable, sustainable and modern energy for all	[7.3] By 2030, double the global rate of improvement in energy efficiency	• Development and commercialization of ship Energy Saving Devices	R&D And Innovation 46-53 >>>
8 DECENT WORK AND ECONOMIC GROWTH	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	[8.3] Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation and encourage the formalization and growth of micro, small and medium sized enterprises [8.5] Achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	• Maintaining international safety specification, ISO45001 certification • Supporting safety activities of suppliers • Operation of communication channels for employees (CEO communication management bulletin board, Hae-Oleum-Teo (in-house media), youth board of directors, team building exercises and activities, team values workshop, compliment relay program, etc.) • Various kinds of shared growth programs such as financial support, technical support and equipment localization for suppliers • Flexible working hours, expansion of parental leave for a spouse, operation of day care	Safety And Health 66-71 >>> Shared Growth 76-81 >>> Talent Management 54-59 >>>
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	[9.4] Increased energy use efficiency, greater adoption of clean and environmentally sound technologies and industrial processes	• Promoting smart yard through digital transformation (DX) • Work Re-Design campaign (promoting office work productivity innovation)	R&D And Innovation 46-53 >>>
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Ensure sustainable consumption and production patterns	[12.2] Achieve the sustainable management and efficient use of natural resources	• Focusing on R&D related to LNG sector such as natural gas reliquefaction device and natural gas fuel supply system	R&D And Innovation 46-53 >>>
13 CLIMATE ACTION	Take urgent action to combat climate change and its impacts	[13.2] Integrate climate change measures into national policies, strategies and planning	• Establishing comprehensive energy and greenhouse gas management system • Maintaining ISO14001, ISO50001 certifications • 3R(Reduce, Reuse, Recycle) movement	Environmental Management 72-75 >>>
14 LIFE BELOW WATER	Conserve and sustainable use the oceans, seas and marine resources for sustainable development	[14.1] Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	• 1,000 days of zero administrative actions on water environment • In-house marine water quality management • Development and commercialization of eco-friendly ship technologies based on IMO Rule	Environmental Management 72-75 >>> R&D And Innovation 46-53 >>>
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	[16.5] Substantially reduce corruption and bribery in all their forms	• Practicing ethical management and compliance • Organizing and operating board of directors in a sound and transparent manner	Ethics And Compliance 82-89 >>> Governance Structure 94-97 >>>

Materiality Assessment

DSME selected four material topics for five top issues by identifying candidates for major issues related to our Sustainable Management through a materiality assessment process and evaluating stakeholder interest and impact on our business. In this report, the management status, performance results and future plans for the selected topics are disclosed, and the contents will be reflected in future management plans and strategies to contribute to increasing the future value of DSME.

Materiality Assessment Process

Step 1

Identify issues

Identify major issues that could have an impact on the performance of DSME's sustainable management by analyzing international guidelines such as GRI and UN SDGs (Sustainable Development Goals)

Step 2

Evaluate issues

Conduct assessment on social interest in identified issues ① and business impact ②.

① Incorporate the results of survey on external stakeholders

② Conduct survey on executives and employees + assess the impact on sales, expenses, risk and reputation

Step 3

Select topics

Select material topics by combining the issues rated as high identified based on the assessment.

Step 4

Report and obtain approval

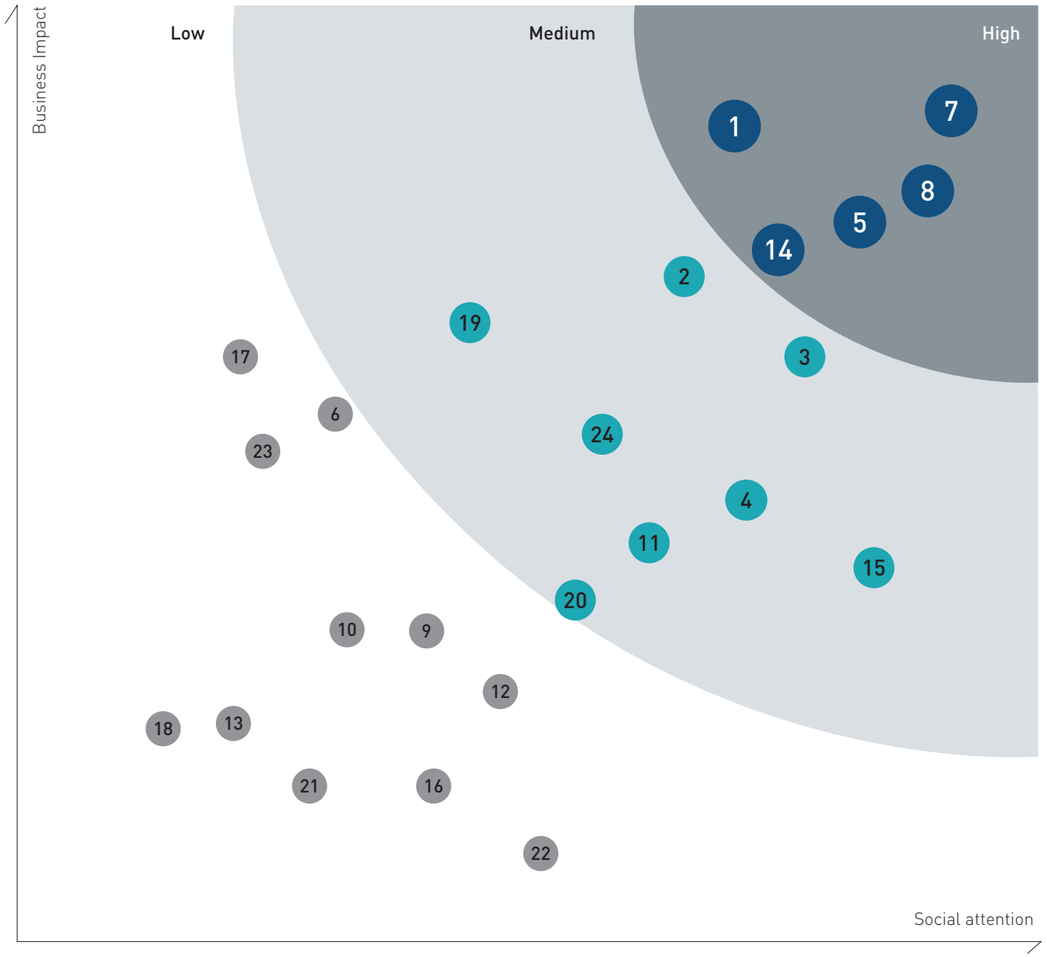
Report the management material assessment results and selection of material topics and get approval (incorporate them into future business plans and strategies).

List of major issues (24 issues)

No.	Major Issues
1	**Product and Service Quality**
2	Customer Communication & Satisfaction
3	Competence of Employees & Healthy Company Culture
4	Job Security & Quality of Life for Employees
5	**Retention and Fostering of Key Talent**
6	Future Oriented Labor-management Relationship
7	**Core Technologies for the Future**
8	**Eco-friendly & High-efficiency Products and Services**
9	Innovation for Productivity & Office Efficiency
10	Energy Conservation & Use of Clean Energy
11	Climate Change Mitigation (Such as GHG Management)
12	Toxic Pollutants and Hazardous Chemicals Management
13	Utilization Efficiency and Recycling of Resources
14	**Workplace Safety and Health**
15	Fair Trade & Shared Growth
16	Stakeholder Communication & Contribution to the Community
17	Sustainable Supply-chain
18	Protection of Security Information and Facilities
19	Integrated Risk Management System
20	Ethics and Compliance Management
21	Respect for Human Rights and Diversity
22	Fair Market Competition
23	Soundness of the Corporate Governance Structures
24	Transparent and Reasonable Profit Distribution Policy

Rank	Interest	Impact	Issues rated as high	Materiality topics	UN SDGs	Stakeholder	Reporting	GRI Topic
1st	1st	1st	Core Technologies for the Future	R&D and innovation	7.3, 9.4, 12.2, 14.1	Customers, shareholders, investors, employees, partners, suppliers, government and the industry	Material topic 1	-
2nd	2nd	3rd	Eco-friendly & High-efficiency Products and Services					
3rd	4th	4th	Retention and Fostering of Key Talent	Talent management	4.4, 8.3, 8.5	Customers, shareholders, investors, employees, government and industry	Material topic 2	404-1, 404-2, 404-3
4th	8th	1st	Product and Service Quality	Customer and Quality	7.3, 16.5	Customers, employees, partners, suppliers	Material topic 3	-
5th	6th	5th	Workplace Safety and Health	Safety and Health	3.4, 3.9, 8.3	Customers, employees, partners, suppliers, local community	Material topic 4	403-8

Results of issue assessment and selection of material topics



MATERIAL TOPIC 1

R&D AND INNOVATION

Background of selection and implementation direction

"Securing future core technologies" and "developing eco-friendly and high-efficiency products and services" were evaluated as issues in which stakeholders have a high interest in relation to sustainable management with the highest impact on our business. R&D and innovation capabilities are required to develop future core technologies and eco-friendly, high-efficiency products and services. To this end, DSME has completed investment in the latest R&D facilities in the Siheung R&D Campus and the Okpo shipyard. In addition, it has secured ecofriendly future technologies and conducted activities such as gas ship technology innovation, strengthening competitiveness of the defense industry and conversion to digital-based business such as Smart ship/Smart yard through the contributions of 360 R&D professionals in 3 different areas of study.

* Please refer to "R&D and Innovation" under 3. Sustainable Performance for more details.

Core issues and impact on stakeholders

Core Issues	Rank	Detailed rank		From the perspective of impact on stakeholders			
		Social attention	Business impact	Sales	Cost	Risk	Reputation
Core technologies for the future	1st	1st	1st	High	Low	Medium	High
Eco-friendly & high-efficiency products and services	2nd	2nd	3rd	High	Low	Medium	High

Opinion of stakeholders (excerpts from survey)

Customers
It is expected that shipping companies will have a differentiated competitiveness based on ships made in DSME to which eco-friendly technologies and energy saving technologies are applied.

Investors
It is necessary to explore a new market by connecting new shipbuilding technologies to sales including preemptive responses to changes in fuel for ships and presenting roadmap for eco-friendly ships.

Employees
In this market environment we cannot survive anymore without securing future technologies and technology competitiveness should be strengthened and a strong vision should be presented to employees.

Partner companies
DSME should be a shipyard that ensures customers come voluntarily to secure sufficient orders with active investment in future core technologies.

2020 Major outcomes

Technology verification of high manganese steel LNG fuel tank (IMO Type-B) and application to actual vessels

Launching DS4, a DSME Smartship solution

Promoting digital transformation (DX) innovation

Core management items and future implementation plan

Deadline : -2021

Number of patent applications (domestic, overseas)

462 (including gas, high-efficient/ eco-friendly, etc.)

Ratio of R&D expenditure to sales

1.0%

MATERIAL TOPIC 2

TALENT MANAGEMENT

Background of selection and implementation direction

"Securing and nurturing key talents" is an issue that has a high social and business impact in relation to securing the sustainable competitiveness of a company. Sustainable growth can only be achieved by a company where talented people with competence and expertise focus on performance creation and contribute to the company's value creation through various opportunities for growth. DSME helps employees create performance and transforms future-oriented thinking through position system reorganization, digital transformation, and office productivity innovation support based on a healthy organizational culture founded on trust and passion. DSME organizes and supports educational programs considering life after the retirement.

* Please refer to "Talent Management" under 3. Sustainable Performance for more details.

Core issues and impact on stakeholders

Core Issues	Rank	Detailed rank		From the perspective of impact on stakeholders			
		Social attention	Business impact	Sales	Cost	Risk	Reputation
Retention and fostering of key talent	3rd	4th	4th	High	Low	High	High

Opinion of stakeholders (excerpts from survey)

Customers
Talented people with various experience in achieving high quality and reducing cost are the core competitiveness of a shipyard.

Investors
Need to establish a sound organizational system with capacity building of employees and sound organizational culture to secure ethical and technical advantages compared to companies in the same industry.

Employees
Need to strengthen employees' competitiveness such as securing key talent and empowerment of employees and to find ways to prevent talented people with experience from leaving.

Partner companies
To be a sustainable company, it is necessary to provide fair compensation, human rights protection and job security.

2020 Major outcomes

Organizational health diagnosis and coaching (targeting 4,012 employees)

Reorganization of the position system for office worker and improvement of personnel evaluation

Achieving training ours of 390,000 MH

Core management items and future implementation plan

Deadline : -2021

Indicators related to training per person
- Education expense per person:

262,000 won,

- Education opportunity per person: 1.7 times
- Training hours per person: 29.5 MH

Companywide talent retention management

Maintaining the retention rate of

97 %

MATERIAL TOPIC 3

CUSTOMER AND QUALITY

Background of selection and implementation direction

"Product and service quality" is our promise to DSME's customers and is a key factor in determining our brand value. In addition, it is necessary to cooperate with key stakeholders such as in-house/outside partner companies and subcontractors as well as our employees, and extensively manage the entire product life cycle from the marketing stage to delivery and post-stages in order to maintain the quality of products and services offered. DSME provides services for customer satisfaction through close communication with customers from order receipt to delivery and maintenance, and responds by establishing a quality management system based on the international standard quality management systems: ISO9001 and ISO29001.

* Please refer to "Customers and Quality" under 3. Sustainable Performance for more details.

Core issues and impact on stakeholders

Core Issues	Rank	Detailed rank		From the perspective of impact on stakeholders			
		Social attention	Business impact	Sales	Cost	Risk	Reputation
Product and service quality	4th	8th	1st	High	High	Medium	High

Opinion of stakeholders (excerpts from survey)

Customers
As ships should be used for more than 20 years under harsh environmental conditions, product quality is the most important factor. It is necessary to satisfy our customers by listening to the experience of customers.

Investors
As environmental regulations in the shipping industry are strengthened, it is the most important for DSME to equip vessels with superior solutions in order to win out over rival companies.

Employees
It is necessary to identify customer demand accurately through communication, respond quickly to customers, strengthen management of existing customers and actively attract new customers.

Partner companies
It should be possible to secure volume and generate profit by improving trust with customers.

2020 Major outcomes

Establishing a platform for communication with customers (VOC system)

One-Team quality innovation activities (for newly ordered types of ships)

Customer quality satisfaction survey (7.8 points)

Core Management Items And Future Implementation Plan

Deadline : -2021

Quality indicators management

- Ship process re-inspection rate of 1.21%
- Accuracy rate of **97.37**%
- Ship non-destructive re-inspection rate (RT 1.58%, UT 0.54%)

Customer quality satisfaction

8.0 points

MATERIAL TOPIC 4

SAFETY AND HEALTH

Background of selection and implementation direction

In the era of the COVID-19 global pandemic and growing social interest in and concerns about severe accidents, "securing safety and health management at the workplace" has emerged as an issue that determines the future value and sustainability of a company. DSME is equipped with the Korea's best HSE facilities to achieve zero accident and zero diseases, and our equipment and personnel are established and operated with the latest safety and health management system through ISO 45001 certification, an international safety standard.

* Please refer to "Safety and Health" under 3. Sustainable Performance for more details.

Core issues and impact on stakeholders

Core Issues	Rank	Detailed rank		From the perspective of impact on stakeholders			
		Social attention	Business impact	Sales	Cost	Risk	Reputation
Workplace safety and health	5th	6th	5th	Medium	High	High	High

Opinion of stakeholders (excerpts from survey)

Customers
The shipbuilding industry is a labor-intensive large-scale industry, requiring various activities to improve the safety and health of various stakeholders.

Investors
Companywide and preemptive prevention and improvement efforts are required to deal with social issues including severe accidents.

Employees
Securing safety at the workplace is legally required and severe accidents and health issues (infectious diseases) could lead to significant loss.

Partner companies
Safety and health are the most basic requirements for a company's continuity, and it is necessary to intensively manage internal health issues caused by the recent COVID-19.

2020 Major outcomes

Achievement of zero severe accidents

Development of virtual reality (VR) safety training program

Integrating the development of the health management system

Core management items and future implementation plan

Deadline : -2021

Severe accident rate management

ZERO

severe accidents for 3 consecutive years

Health management indicators management

- Medical check-up rate of 100%
- Post management rate for those with diseases found: **100%**
- Health management rate* of 89.6%

* Health management rate: Percentage of normal workers related to hypertension, diabetes and hyperlipidemia

SUSTAINABLE PERFORMANCE

46 R&D and Innovation
54 Talent Management
60 Customer and Quality
66 Safety and Health
72 Environmental Management
76 Shared Growth
82 Ethics and Compliance
90 Risk Management
94 Governance Structure



May You Grow- family member of employee Kim Min-cheol, Engineering & Technology Unit
(Geoje-myeon, Geoje-si, Gyeongsangnam-do, Republic of Korea)

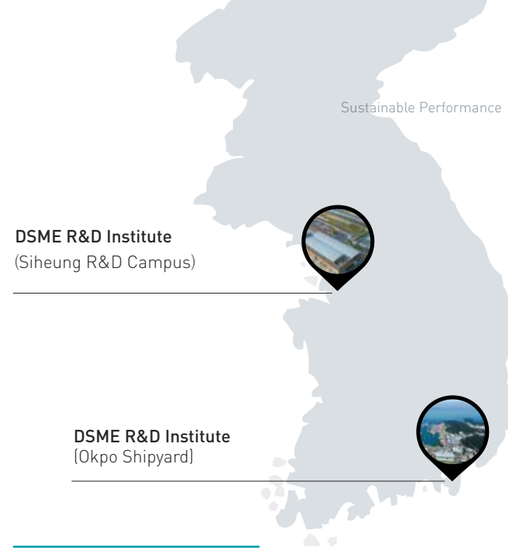


01

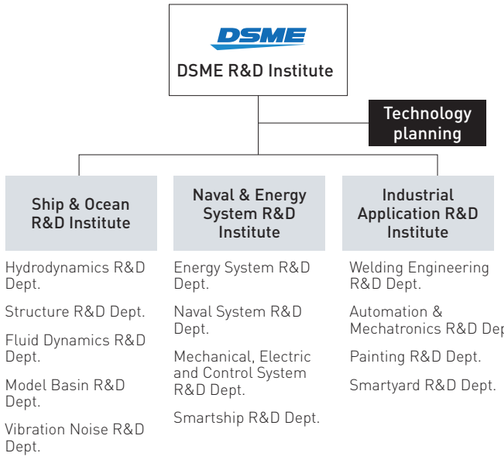
R&D AND INNOVATION

R&D implementation system

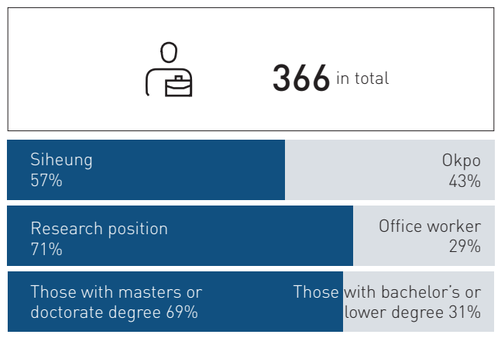
The DSME R&D Institute, which has laid the foundation for the sustainable development and growth of DSME, is driven by the vision of establishing the world's best global R&D center by securing core competencies in the fields of shipbuilding/offshore/naval shipbuilding and developing leading new products and technologies. To achieve this vision, it has established the specific goals of strengthening competitiveness, developing leading technologies to capture the market, strengthening convergence technology power, new product and technology development R&D capabilities. Our about 360 research professionals in 3 different research areas are striving to achieve market-leading technology.



Organization and Personnel



The number of personnel



2020 Major Investment Outcomes

Ordinary R&D expenses	KRW 20.97 billion
investment in R&D facilities	KRW 36.73 billion
ratio of R&D expenses to sales (accounting standards such as sales and administration expenses, manufacturing costs)	1.0%



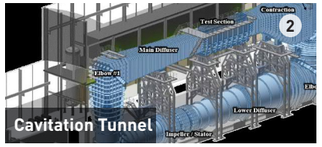


Major Research Equipment

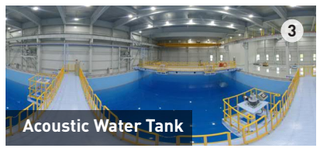
Siheung R&D Campus
Opened in August, 2018, With the scale of 50,000m²



- Tank specification: 300m(L) x 16m(W) x 7m(D)
- Max.carriage speed: 8m/s
- Max. model size: 12m(length)



- Test section: 13m(L) x 2.8m(B) x 2.4m(H)
- Max. flow speed in the test section: 15m/s



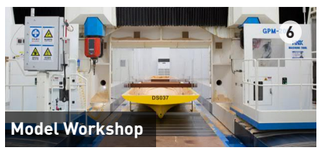
- Acoustic Water: 25m(L) x 15m(W) x 10m(D)
- Double layered tank wall for noise/ vibration isolation
- Inner wall with roughness design to suppress scattered sound



- Data sharing with Cloud and other platforms
- Real-time performance monitoring and data analysis for fleet



- Test facility for carious eco-friendly fuels and systems
- Laboratories and control rooms for marine application and O_2/N_2 gas tank



- 5 & 10-axis CNC Machines
- 3-Axis CNC Machines & Rotary Index Table(2-Axis)
- 3D Printer

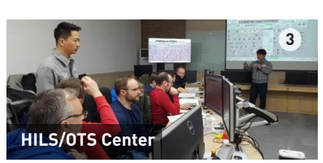
Okpo Shipyard



- Area: 3,440㎡
- Facility for studies of production automation, machine intelligence, and eco-friendly production



- Area: 8,000 m³
- The first research center in shipbuilding industry that is specialized in conducting performance and endurace tests with cryogenic liquids



- Establishment of HILS*/OTS* center for ships and offshore plants
- Conducting HILS/OTS for LNGC FGSS*, FSRU* Re-gas system



- Sloshing model tests with two 6-DOF Motion platforms
- The platforms are equipped with about 500ea pressure sensors and data acquire system



- Optimize production plans, improve production operational efficiency and support data-based rapid decision making through connecticity. automation, and intelligence of real-time production data.

* FGSS :
Fuel Gas Supply System

* FSRU :
Floating Storage Re-gasification Unit

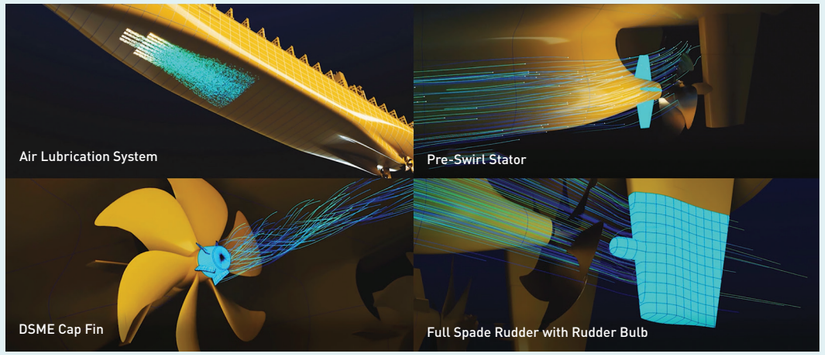
* HILS :
Hardware-In-the-Loop Simulation

* OTS :
Operation Training Simulator

2020 Major R&D Achievements

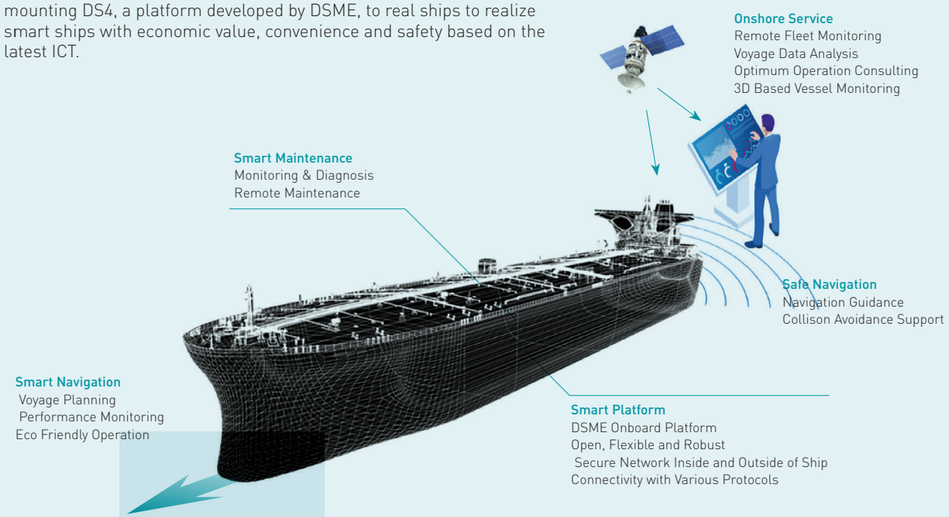
Air lubrication system performance improvement and expansion of ship types

ALS is an energy saving device that reduced skin friction resistance working on a hull by sending air to the bottom surface. Research has been conducted on the performance of this system which has been applied to existing LNG carriers and application of the system to new types of ships such as LPG carriers and container ships.



Establishment and demonstration of operation optimization service utilizing an economic operation solution

We have established an environmental data operating system and realized optimized service through our onshore analysis center by mounting DS4, a platform developed by DSME, to real ships to realize smart ships with economic value, convenience and safety based on the latest ICT.



High manganese steel LNG fuel tank technology verification and application of the technology to a real ship

In order to apply to an actual ships high manganese steel IMO Type B tank technology, a cryogenic tank using a new material that is economical and does not cause sloshing, we developed core technologies related to production, inspection, and working environments including welding automation.

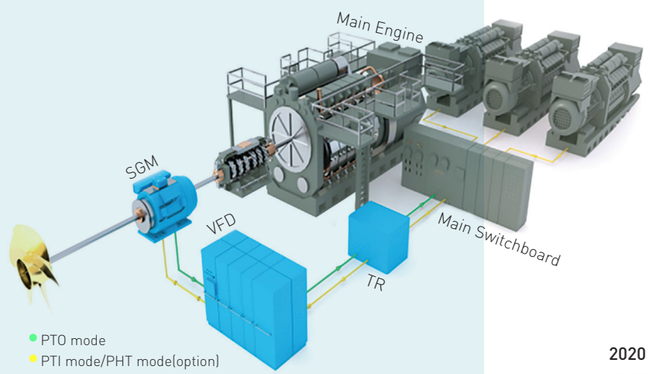
Development of simulator of next-generation Korean submarine

We have completed the development Completed development, system integration and evaluation of SNDC*, IPMS, and Submarine Dynamic Motion/System Simulation Software through the Korean Next Generation Submarine System Development Project.

*SNDC: Steering and Diving Consoles
** IPMS: Integrated Platform Management System

Shaft generator motor system development

An eco-friendly technology that connects a generator to a shaft that connects a ship engine and a propeller to generate electricity using kinetic energy obtained from shaft rotation



2020 Major Activities

1. **Identification and securing of intellectual property rights**

- 400 domestic patents and proceeded overseas patent application for major technology: 577 cases

2. **Upgrading the intellectual property rights management system (EDISON)**

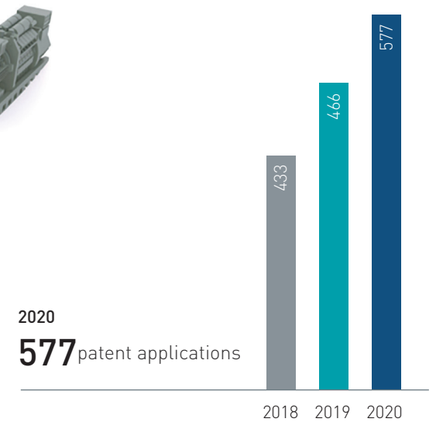
- Upgrading the IP management system
- Creating strong knowledge property by increasing the usability of intellectual properties

3. **Precedent technology survey and patent analysis**

- (Internal) 2 patent analysis cases and more than 15 cases of precedent technology surveys >>> 24 cases
- (External) 1 patent analysis >>> 3 cases

4. **Winning awards from the head of Patent Office for 6 consecutive years through innovative R&D activities, the first to achieve such a record in the shipbuilding industry.**

Number of patent applications (National and foreign countries)



2020
577 patent applications

2021 Plan for R&D

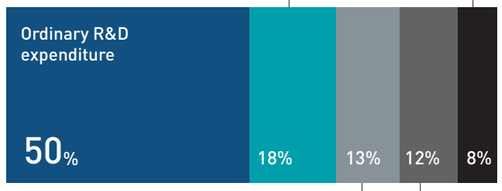
DSME sets the direction for 2021 R&D activities as securing future technologies in advance, expanding technology base projects, technology innovation to achieve order targets, strengthening cost competitiveness, and maximizing research efficiency. To this end, DSME plans to conduct activities such a securing eco-friendly future technology in advance, transition to digital-based business such as Smart ships/Smart yard, maximization of research efficiency, maintaining key personnel, full utilization of Siheung R&D Campus research facilities and infrastructure, technology innovation for gas carriers and strengthening the competitiveness of naval ship technologies.

Major Investment Plan

Strengthening competitiveness of major ship type
-Improve the performance of major ship type
-Strengthen LFS competitiveness
-Develop energy saving devices
-Future fuel and propulsion technology
-Defense core technology R&D
9.81 billion

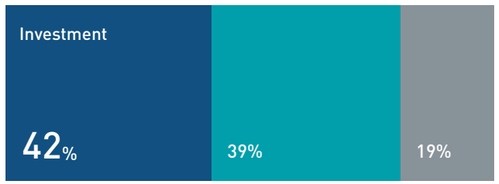
DX R&D
Smart ship
Smart yard
3.54billion

Others
Localization of equipment
1.51 billion



External cooperation
-Industry-business joint research
- Joint research on classification
- Cooperation with external organizations
2.47 billion

Production automation
-Welding technology R&D
-Automation R&D
-Painting R&D
2.25 billion



Facility establishment and equipment purchase for Siheung
8.57 billion

Facility establishment and equipment purchase for Okpo
7.86 billion

Acquisition of other new assets
3.74 billion

Promoting digital transformation

DSME is implementing DSME DX (Digital Transformation), which is a companywide digital transformation strategy that enables innovation of existing business operations and significant improvement of productivity, safety and quality. To this end, a DX roadmap was established for 6 core areas for a period of 3 years from 2020 to 2023 and 1,412 employees have completed the DX talent nurturing course composed of basic/practical/expert courses in the areas such as AI and machine learning.

DX training provided

Classification	Target	Method	Number of training provided	Number of trainees
Basic	All employees	Offline and online training	11 times in total	1,123
Practical	Working-level staff at division level	Offline training, in cooperation with Korea Software Industry Association	8 times (40H/time)	249
Expert	DX expert nurturing course	Offline training, KAIST SW training center	1 time (152H)	40

Internet of Things (IoT)
- Cranes and blocks GPS tracking
- Smart yard operation system
- Smart steel stock yard(SSY)



Artificial Intelligence (AI)
- AI-based basic/detailed design support system
- Chatbot system to provide administrative assistance



Mobile/ RPA
- Smart form based quality control (QC)
- Work improvement through RPA



Virtual/ Augmented Reality (VR/AR)
- VR-based crew training system
- Submarine VR system
- Scrubber VR system
- AR-based material quality inspection



2020 Major Achievement

Core area	Major task	Progress
Digital Management	Spread of RPA (Robotic Process Automation), administrative support Chatbot system, etc.	Developed and applied
Digital Engineering	AI design automation, design support system, etc.	Developed and application is underway
Digital Platform	IoT platform upgrade, VR/AR support system, preparation for the next-generation ERP transition	Developed and application is underway
Digital Manufacturing	Yard control, data center, video recognition AI, automation equipment, robot, etc.	Developed and applied
Digital Product	Smartship platform upgrade, economic operation solution, onshore control platform, etc.	Developed and applied
Digital Culture	DX expert development training	Completed

Innovation of office productivity (Work redesign)

Through our Work Redesign campaign, a companywide campaign for innovation in office productivity in 2020, DSME has promoted innovative changes in its recognition, structure and system to remove inefficiency across office work such as meeting culture, division of work, reporting and instruction. In 2021, the companywide office productivity innovation will continue through Work Revolution activities which are linked with DX strategies based on achievements in 2020.

2020 Major Achievement

Classification	Major activities	Purpose	Performance (2020)
Recognition	• Issue card news	• Form a consensus and introduce best practices	Weekly
	• Issue internal newsletter	• Introduce best practices by work type (first half of the year) and by division (second half of the year)	Weekly
	• Conduct survey	• Conduct survey on the level of awareness/empathy and sensing, analyze results and incorporate the results into implementation direction	3 times
	• Organization/employee evaluation and reward	• Motivate continuous participation	2 times
	• My WR Solution	• Event to receive solution-oriented solution from employees	1 time
Structure	• TDL (To Do List)	• Establish the culture of making a work plan considering significance and priority	1 time/voluntary
	• Statement of practice (DDL)	• Form an innovative atmosphere through the activities led by appointed person	2 times
	• WR Workshop	• Establish the forum for decision making to reduce inefficient work and division of work	2 times
	• Meeting without explanation	• Improve productivity of meeting with focused decision-making	1 times
	• Division of work (removing gray zone)	• Remove unclear division of work and establish division of work process	Continuous
	• Upgrade employee position	• Upgrade with specific information on individual jobs and standardization	1 time/voluntary
	• Reporting/directing culture innovation	• Provide 9 solution for reporting and instruction in addition to meeting culture improvement activities	Continuous
System	• RPA development	• Remove simple and repeated work	Continuous
	• System development	• Pursue computerization of work	Continuous
	• Run a portal bulletin board	• Share innovation information and induce benchmarking	Continuous
	• Non-face-to-face meeting	• Diversify the way of holding a meeting by providing equipment and promoting etiquette	Continuous
	• Employee convenience system	• Induce the improvement of employees' satisfaction and expedite administrative work	1 time



02
Talent Management

DSME pursues a harmonious growth between employees and the company as it respects the human rights and diversity of employees and regards talent management to be the source of the sustainable competitiveness of a company. DSME runs policies and programs to establish a healthy organizational culture based on trust and passion and supports employees to utilize opportunities for growth by focusing on generating outcome through the reform in our job position system based on job expertise. In line with the introduction of a 52-hour workweek system, DSME promoted the leisure and quality of life of employees by improving work efficiency significantly through digital transformation and various office productivity innovation programs. In addition, it promotes communication with various classes and jobs by running interactive online and offline channels between the management and members and running a youth board of directors. In addition, DSME complies with the labor laws of local countries where projects are being conducted and the UN International Labor Organization (ILO) convention is applied. In addition, it is making notable efforts to establish a future oriented and cooperative labor-management relationship through active communication and consultation with labor unions.

Status of employees

Category		Major items	2018	2019	2020
Employment of employees	By employment type	Regular workers	9,797	9,461	9,032
		Non-regular workers	141	306	414
	By business area	Executives	36	47	45
		Office worker	3,892	3,814	3,776
		Production	5,869	5,600	5,211
			141	306	414
	By sex	Male	9,557	9,364	9,062
		Female	381	403	384

Forming a healthy corporate culture

Major communication channels for employees

Communication with the CEO: Renewal and operation of a bulletin board to communicate with the CEO

Issuance of in-house media (Hae-Oleum-Teo): Regular publication currently up to the 49 issue, family-oriented magazine, card news that summarizes the quarterly business status

Interactive online and offline communication channels: Strengthening communication through gatherings and video content (documentaries on jobs, DSME Vlogs, etc.)

DSME youth board of directors: 1st members: 12 members in Okpo, 2nd members: 21 members, expanded to Seoul and Siheung

Organizational culture innovation program

Diagnosis of organizational culture and follow-up coaching activities: Conducted diagnosis of organizational culture targeting 4,012 office worker (3,275 responded[81.6%]). After conducting the diagnosis, coaching/improvement programs were planned and incorporated into operation/leadership training.

Program to vitalize communication at the unit organization level: Team building exercises and activities that help to build cohesion among employees to ensure they can work in harmony (17th workshop for office workers, 17 departments, with the participation of 580 [97% of satisfaction level], 7th workshop for production workers, 6 departments, with the participation of 284 [93% satisfaction level]), communication camp (3rd time including pilot program, with the participation of 180 people)

Team value workshop ("time to find the meaning and value in our work"): 13 workshop sessions in total, 13 organizations with the participation of 500 people (67.5% satisfaction level)

Employee reward system establishment and vitalization : Monthly/annual reward (DSME of the year/month award), information posted on bulletin boards (Hall of DSME Stars)

Establishment and operation of a compliment relay program among co-workers: 29th announcement (201 office workers, 94 production workers, 295 people in total), raising a compliment fund of KRW 2.28million which was donated to marginalized neighbors.

Talent nurturing and HR system
Major indicators and 2020 performance

Training expenses	KRW 2.72 billion
[Expenses] Office worker : Production Worker	70% : 26% (others: 5%)
Training expenses per person	KRW 282,000
Investment in training	0.039%
Training center operation rate	95%
The number of training courses	45 (18 new courses)
The number of employees who completed the training	29,000 people
(Number of trainee) Office worker: production worker	82% : 18%
Training opportunity per person	3.1 times
Training hours per person	41.3H
The number of training man-hours	390,000 man-hours
Training hours ÷ production hours	13.3%
Training satisfaction	4.56points (Out of 5 points)

DSME talent nurturing system

- Organization of a training program for the entire working period to ensure that employees improve their capabilities while working and preparing themselves for retirement.
- Improving the digital competency of employees and encouraging future-oriented thinking by organizing various DX (digital transformation) training programs that are suitable in the era of the 4th Industrial Revolution
- Reducing the burden of being promoted by renewing and simplifying ranks so that employees can focus on generating output. Improve the HR system to strengthen fairness and objectiveness.

Status of employee training investment

Category		2018	2019	2020
Training expense(0.1 billion won)		32.48	33.80	27.16
Training expense per person (10,000 won)	Total average	32.2	34.1	28.2
	Average of office workers	47.7	56.3	45.4
	Average of production workers	20.2	17.2	12.7
The number of training courses		45	38	45
Type	Group training	39	31	37
	Online	3	4	4
	Others	3	3	4
By category	Leadership	5	10	9
	Position-specific	3	4	6
	Job-specific	16	5	12
	Language	9	3	4
	Special	7	11	9
	Linked with degree	3	2	2
	Online	2	3	3

Employee training program

Legend: Common / Office worker / Production worker

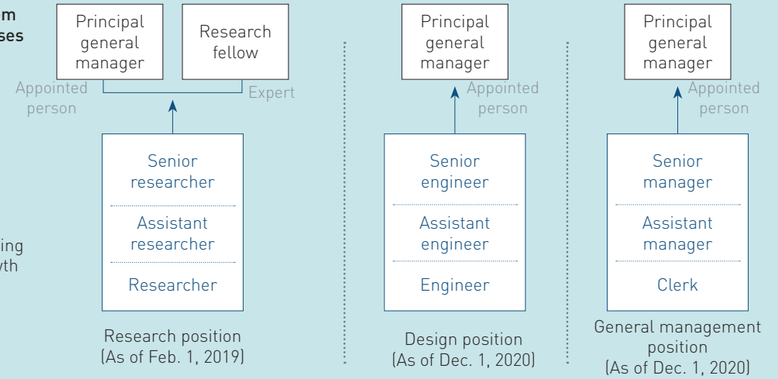
Classification	Leadership training/ position-specific training				Job training										Special training					Training linked with degree	
Executives	Special lecture for executives	Newly appointed executives																			
Senior manager (senior employee/ supervisor/ manager)	Newly appointed heads of departments	Heads of departments	Core talents for office work	Innovative leader for production work	DX basic/ practice/ expert	DX bridge	DX core technology short-term intensive	DX smart production management practice	Cost innovation	Future offshore plant development project job	Voluntary after work	Commissioned to external training agency	Led by function/organization	Cyber campus/ education broadcasting	For whose who are expected to retire soon	Support for re-employment	Technology DSME vision sharing	Card school	Underperformers	Domestic or overseas training	Contract department
Assistant manager (assistant employee)	Newly appointed part leader	Newly appointed production group leader																			
Clerk (production employee)	New office worker		New production worker																		

Renewing the position system for office workers

Change the position system from 5 classes into 3 classes for office worker

(as of Dec. 1, 2020)

- Establish the working culture not based on position, but based on expertise
- Talented people with competencies and expertise focus on creating outcome, pursuing growth opportunity.



HR evaluation system

In line with the renewal of position system for office workers in 2020, the promotion system has been changed according to simplified position system. For a fair and objective evaluation, evaluation regulations and guidelines have been established and evaluators are being trained using such guidelines. HR evaluation results are finally approved by HR Committee, which has been delegated the authority of CEO.

Classification	2018	2019	2020
The number of employees subject to evaluation	3,913	3,746	3,671
The number of employees evaluated	3,831	3,672	3,593
Ratio (%)	98	98	98

HR system, not stipulated in applicable laws

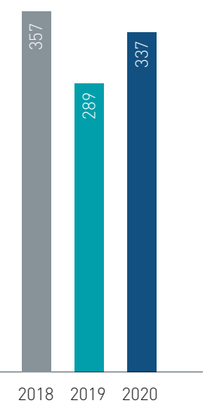
Maternity flex-time work Follow the regulations on maternity protection for female workers, such as maternity leave before and after childbirth, quasi-maternity leave, spouse's maternity leave, menstrual leave, leave for regular fetal examination, prohibition of overtime work for female workers during pregnancy, reduction of working hours, and job adjustment, and operate a separate flexible working hours to promote work efficiency by supporting child raising stably.

This is a flexible working-hour system (normal: 08:00~17:00 → Optional: 09:00~18:00) in which pregnant women and female employees with children under the 3rd grade of elementary school can choose their working hours flexibly, effective as of March 2013.

Training for reemployment Provide education and training on future career design, matching, getting a job/starting a business by diagnosing career or aptitude to make sure that employees can reduce the fear of life after retirement, have a positive recognition in the later stage of their lives and design their life after retirement.

Training to support re-employment

Total **983** employees



Remuneration and welfare of employees

DSME sets wage and wage increase rate incorporating the employee's job competency, expertise, performance as internal factors and inflation and minimum wage increase rate as external factors to make sure that employees can live a stable life. Depending on the company's business performance and individual work performance, compensation system is established for individuals, providing performance-driven compensation.

Remuneration and wage of employees

Classification	Payment cycle	Office technician	Production technician	Remark
Fixed salary	Monthly	Monthly salary, allowances	Basic salary, allowances, monthly bonus	
	Quarterly	-	Regular bonus	
	As and when necessary	Holiday bonus, vacation allowances, summer vacation allowances		
Variable salary	Monthly	Overtime work allowance, monthly allowance		
	As and when necessary	Encouragement bonus, performance-based bonus, annual allowance		

Major welfare policy

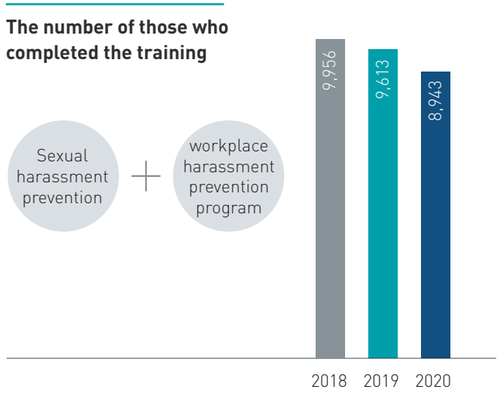
Category	Major system	Details
Housing support	Mortgage	Supporting finance to purchase or rent housing with financial institutions
	Dormitory/ company house	Providing dormitories and rental apartment to reduce the housing cost burden of employees
Family support	Children's tuition	Tuition support for preschool, middle school, and university children
	Medical expenses	Support for hospitalization/surgical costs and dental prosthetics for employees and their family members
	Collective insurance	Collective insurance for all employees to support the expenses for future diseases or accidents (death, cancer, accident, coverage, etc.)
	Congratulations and condolences program	Support for congratulatory and condolences leave for spouse and relatives, leave allowance
	Medical check-up	Medical check-up every year (comprehensive check-up every two years)
	Child care	Day care center (3 places)
Leisure support	Long-term service	Leave for long-term service to boost morale, allowance for long-term service leave
	Self-development	Self-development allowance, opening courses for capability development
	Accommodation and leisure	Condominium and resorts support
Others	Bus for commuting	Bus for commuting (Okpo Shipyard, Siheung R&D Campus)
	In-house welfare fund	In-house welfare fund to support grievances, rehabilitation of children with disabilities, sports and cultural activities
	Employees' stock ownership association	Stock ownership system to support wealth formation, foster a sense of participation in management and ownership

Activities to protect human rights of employees

Sexual harassment prevention and workplace harassment prevention program

DSME operates an anonymous reporting center where any employee can report on workplace harassment and sexual harassment with relief. In addition, in-house psychological counseling is provided at all times to support employees, and the Deliberation Committee composed of members recommended by labor union and lawyers is in operation for fair resolution of cases. In addition, to improve employees' awareness of workplace harassment and sexual harassment, we have established a regular prevention system and have been conducting preventive education and campaigns.

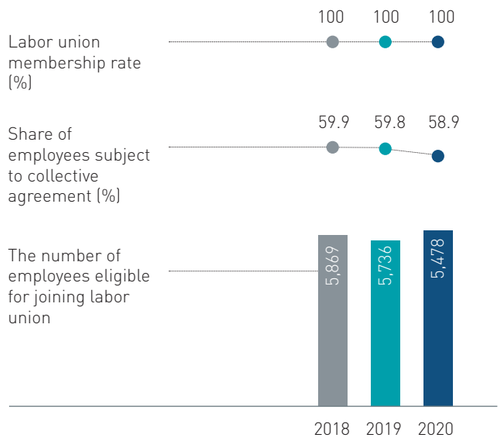
The number of those who completed the training



Labor-management relationship

DSME complies with domestic and overseas regulations and laws related to labor and pursues future-oriented and cooperative labor-management relationship. To improve the working condition of employees, we renew collective agreement every 2 years. Every year, collective bargaining is conducted to negotiate wage and various communications and discussions are promoted to improve the welfare of employees.

Status of labor union



Campaigns for prevention



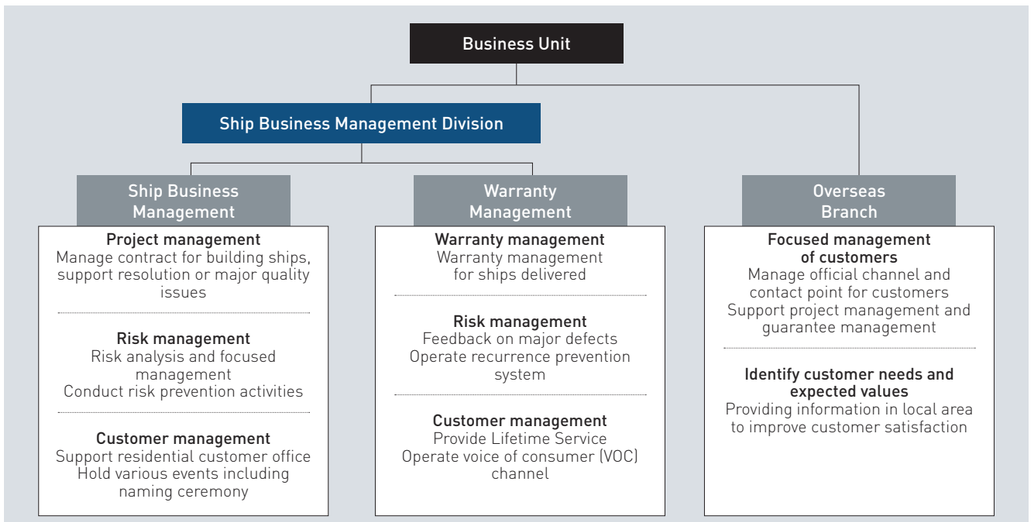


03
Customer And Quality

Customer satisfaction management implementation system

DSME is providing services to satisfy customers throughout the lifecycle of products from winning orders, through to delivery and post-delivery maintenance. We established our VOC (Voice of Customer) system, which is a channel for regular communication with customers to monitor quality and feedback on our products, services and technologies, and identify measures for improvement to address customer complaints.

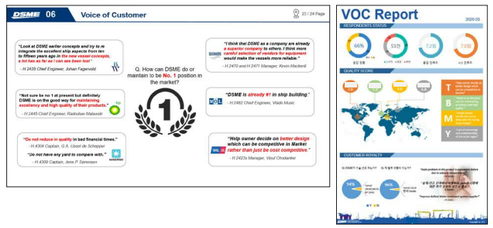
Organization to implement customer satisfaction management



Operation of VOC(Voice of Customer), a communication channel

DSME is communicating with customers by utilizing real-time online survey and analysis platforms based on the latest ICT and big data analysis technologies. By doing so, we can monitor the customers' feedback on our products, services and technologies regularly and come up with measures for improvement.

Example of analyzing Voice of Customer results



VOC operation process

Survey on ships delivered by DSME

Send VOC survey link to customers → Customers access online VOC survey and input data into the survey → Analyze the trend of survey response → Identify the results of VOC

How to participate

Method 1	Method 2	Questionnaire
Access online link	Respond to e-mail	Survey questions Quality: 9 questions Guarantee: 5 questions Royalty: 5 questions

2021 Customer Satisfaction Management Implementation Plan

DSME responds to potential problems and customer complaints preemptively by organizing 4M council composed of project management(PM), design (EM), production (CM) and quality (QM) and project management organization. With diverse requirements of our global customers to respond to global eco-friendly trend and strengthening IMO environmental regulations, we will expand the lifetime service for our customers to meet their needs and continue to conduct customer satisfaction activities by identifying and analyzing customers' expectations through network and overseas branch office network. In order to listen more carefully to the voice of customers, we expanded the scope of those who can raise their voices to ship owners, captain who operates ships at the head office, chief engineers and engineers who are our end-customers. In addition, we will strengthen warranty service including technical support, performance improvement, supply of parts and equipment and provide remote quality control and remote commissioning service and Smartship solution developed by our company.

Quality management implementation system

DSME has acquired ISO9001 and ISO29001, which are international quality management system and it has established and shared quality management policy every year with its members. DSME establishes the quality management system that can respond to risk and opportunities based on characteristics and requirements of stakeholders related to quality and improves process continuously through regular internal review.

Quality management system certification


DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

DAEWOO SHIPBUILDING & MARINE ENGINEERING CO., LTD.

ISO/TS 29001:2010

Design, Manufacture/Building, Installation and Services of On-shore/Off-shore Structures and Plants.


DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

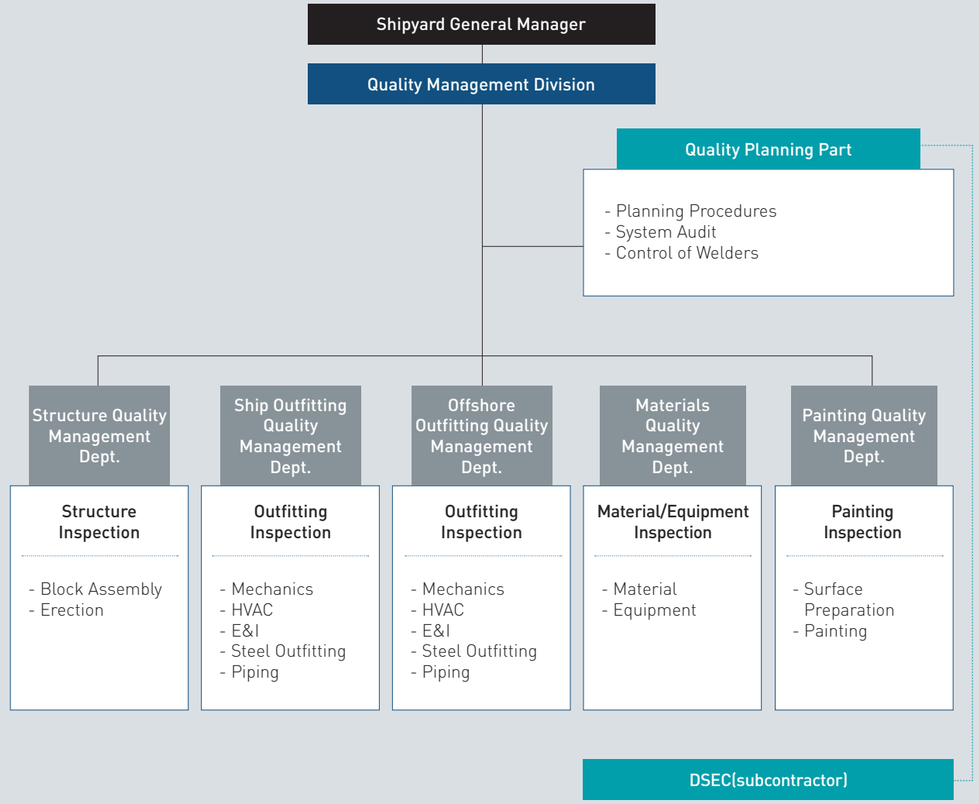
DAEWOO SHIPBUILDING & MARINE ENGINEERING CO., LTD.

Operation of quality management system in 2020

Status of internal audit		Number of cases to which preventive or corrective actions are issued (improvement action rate)	Expected effects
Unit	The number of review		
Production Business Unit	11	102(100%)	Reduce product defect rate by clarifying qualification of production workers Improve organizational performance with systematic quality objective management
Engineering & Technology Unit	6	34(100%)	Improve design quality by strengthening job training and education for those in charge of design
Naval & Special Ship Business Unit	10	46(100%)	Improve design quality by strengthening job training and education for those in charge of design and improve organizational performance by managing quality objectives systematically.
Industrial Application R&D Institute	1	11(100%)	Improve welding quality by strengthening job training and education for those in charge of welding
Shipyard General Manager Affiliates	1	6(100%)	Improve job competency of those transferred in by strengthening job training and education
Management Support Unit	2	14(100%)	Improve delivery management by strengthening job training and education for those in charge of procurement
Total	**31**	**213(100%)**	

Quality management system

1 Organization



2 Quality meetings

Quality management meeting
(quarterly, led by Shipyard General Manager)

3 Quality training

Training on quality system
(for those in charge of quality in 106 departments across the country)

Quality awareness training, Line QC
(650 Line QCs across the company)

Status of quality control of partner companies

Classification	Lead	Cycle	Target
New evaluation	Procurement Department/Co-prosperity Planning Department	As necessary	Outside partner companies (block/materials)
	Procurement Planning Department	2 times/year	Outside partner companies (materials)
Regular evaluation	Quality Management Division	1 time/quarter	Outside partner companies (block)
	Co-prosperity Planning Department	1 time/ half-year	Outside partner companies (block) In-house partner companies
	Procurement Planning Department	1 time/ year	Outside partner companies (materials)
	Steel Outfitting Materials Procurement Department	2 times/year	Outside partner companies (steel outfitting materials)

Quality innovation activities

Management of quality indicators

DSME checks the targets and actual of quality management indicators in the fields of production, design and procurement through quarterly quality management meetings. Major quality management indicators include process reinspection rate, hit rate, non-destructive re-test rate and delay in taking actions on quality issues.

Excellent quality improvement activities

We have shared the best practices in the field every month regarding quality improvement, and gave award to those who have made significant improvement. In 2020, a total of 81 cases were registered, 18 cases were shared as good practice and 13 cases were awarded.

One-Team quality innovation activities

In order to prevent the quality risk related to equipment and systems of new types of ships, DSME conducted One-Team innovative activities in 2020 involving research institute, design, production, procurement, materials and quality organizations to verify the performance of new products and equipment that requires certification and come up with measures to prevent the delay in the receipt of equipment from other countries. Through this, 176 or about 58% of 301 risk items from 12 systems related to 3 new types of ships were resolved in advance. Based on this achievement, we will continue to promote One-Team innovative activities in 2021 to manage quality successfully until the delivery of new project.



Quality indicators

Item	Indicators	2018		2019		2020	
		Target	Actual	Target	Actual	Target	Actual
Process inspection	Re-inspection rate	0.16	0.19	2.50	0.83	1.46	0.63
	Hit rate	-	-	95.30	97.84	96.70	98.23
Non-destructive test	Re-inspection rate (RT)	1.50	0.77	1.15	0.75	1.66	1.77
	Re-inspection rate (UT)	0.45	0.29	0.58	0.32	0.67	0.36
Quality issues	Rate of delay in actions	-	-	1.60	1.30	1.59	5.31

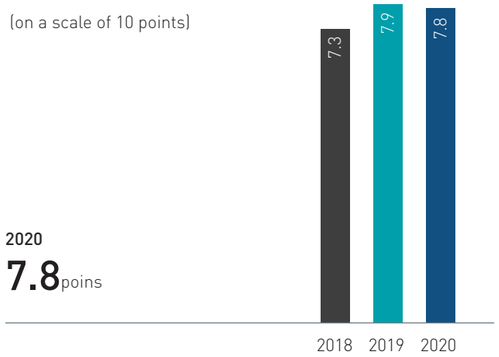
* Shipbuilding business related indicators (separate management for offshore and naval & special ships), process inspection hit rate and rate of delay in actions to deal with quality issues have been applied since 2019

Survey on customer satisfaction in terms of quality

DSME conducted a survey composed of 15 questions in 5 areas of design, procurement, partner companies production and quality management targeting 65 supervisors from customers staying in the shipyard to find out the customer's satisfaction level for our quality in 2020. Based on the survey results, the trend of satisfaction level by year, customer specific score and area specific score were analyzed to identify areas for quality improvement and incorporate them into future quality management plan, exploring solution to urgent issues actively.

Customer satisfaction in terms of quality

(on a scale of 10 points)



2020
7.8points

2021 quality management implementation plan

As a major direction for quality management in 2021, DSME selected timely management of risk, maximization of work efficiency, strengthening preventive activities, minimizing the cost of quality failure, strengthening QM capabilities, upgrading quality, stabilizing quality of partner companies and making the culture of communication take root firmly. We are planning to prevent quality risk in advance and strengthen quality capabilities of our employees and partner companies, thereby making our customers feel more satisfactory about our quality.

Focus for implementation

Timely management of risk and maximizing work efficiency

Major Activities

- Manage risk related to equipment and systems for new types of ships and secure quality in advance
- Operate HR resources efficiently and maximize work efficiency

Strengthening preventive measures and minimizing the cost of quality failure

- Maximize preemptive activities and quality management throughout the process
- Secure competitiveness through optimization, simplification, and upgrade of inspection criteria.
- Reducing cost of failure by improving frequent and repeated problems fundamentally

Strengthening QM capabilities and upgrading quality

- Nurture key talents/ experts and improve individual capabilities
- Upgrade quality inspection/system and improve office productivity
- DATABASE-based quality management/enhanced improvement activities

Stabilizing the quality of partner companies and making the culture of communication take root firmly

- Stabilize quality and provide technical support for in-house/outside partner companies
- Secure safe inspection workplace and make safety/ethical culture take root

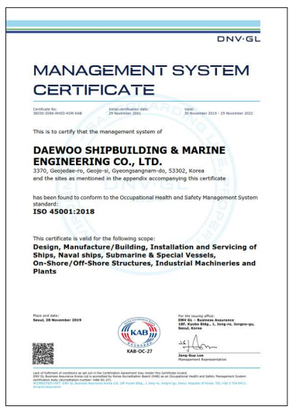


04

Safety And Health

DSME is equipped with the highest level of HSE facilities, equipment and human resources in Korea to achieve zero accidents and zero diseases by putting safety and health management on the top management priority. DSME has established the latest safety and health management system by obtaining ISO45001, an international safety standards. We will make our utmost effort to build working environment and culture where everyone can be safe and healthy under the vision of 'realizing HSE with zero accidents for everyone's safety'

Safety and health management system


DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of

DAEWOO SHIPBUILDING & MARINE ENGINEERING CO., LTD.
3370, Geojedae-ro, Geoje-si, Gyeongsangnam-do, 53302, Korea
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Occupational Health and Safety Management System standard:
ISO 45001:2018

This certificate is valid for the following scope:
Design, Manufacture/Building, Installation and Servicing of Ships, Naval ships, Submarine & Special Vessels, On-Shore/Off-Shore Structures, Industrial Machineries and Plants

Place and date:
Seoul, 28 November 2019

For the issuing office:
DNV GL - Business Assurance
107, Pyeongchon-ro, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea

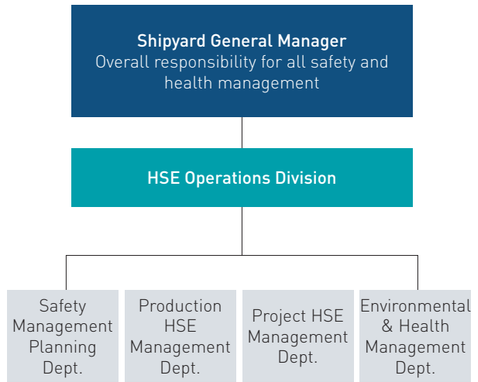
KAB-OC-27

Jong Hup Lee
Management Representative

Safety and health management system : ISO45001

Organization

DSME operates a HSE organization specialized in strengthening HSE implementation power in the field and has the highest level of expertise in terms of HSE managers assigned to production sites and safety managers specialized in shipbuilding industry.



Implementation system

① Safety and health management meetings (control tower)

- Corporate HSE management meeting, HQ/ responsible safety committee, emergency preparedness committee (severe accident, bad weather, etc.), operation of comprehensive situation room to respond to other infectious diseases

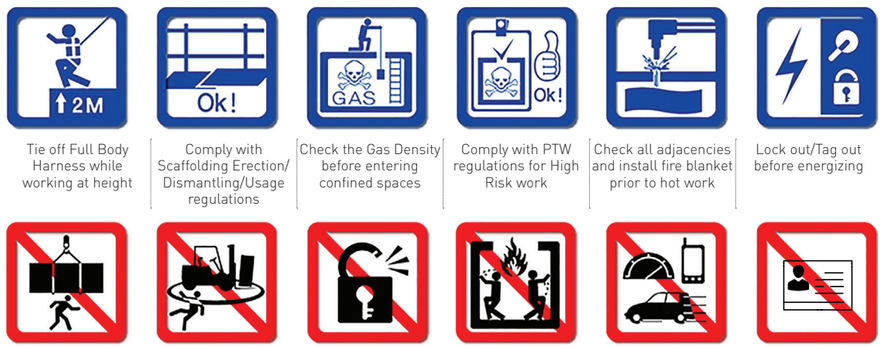
② Establishment of infrastructure for safety and health management

- PSM(Process Safety Management) management system
- Integrated safety monitoring system
- Real-time monitoring system for health risk groups

③ Safety and health management program

- Safety walk-through, safety training, prevention of the recurrence of near-miss events, HSE management program
- 'HSE management performance system' and 'safety risk alarm system' are in operation (each department monitors safety management status in real time).
- Prevent accidents utilizing safety diagnosis experts specialized in shipbuilding industry, in-house clinic facilities and medical professionals to prevent severe accidents and operate various health promotion programs.
- Check emergency/disaster response manuals, emergency drill at the ship/building level.
- Establish "Severe Accident Eradication Key Activity Cycle". Compliance with the 12 Golden Rules (established with essential information on the prevention of severe accidents by analyzing various in-house accident cases from the past 20 years).

12 Golden Rules



Tie off Full Body Harness while working at height	Comply with Scaffolding Erection/ Dismantling/Usage regulations	Check the Gas Density before entering confined spaces	Comply with PTW regulations for High Risk work	Check all adjacencies and install fire blanket prior to hot work	Lock out/Tag out before energizing
Do not place yourself under suspended loads	Do not place yourself in close proximity to operating machines or equipment	Do not remove safety devices/guards	Do not carry out simultaneous operation of hot work and spray painting	Do not use cell phones while driving or operating heavy equipment/Do not speed	No operation or driving by unqualified person

I should follow the 12 Golden Rules to eradicate severe accidents.

2020 Major Activities

Major activities for safety

Strengthening safety leadership and enhancing safety culture DSME promotes a safety culture where employees take care of each other and stop work if they recognize risk in order to strengthen position-specific self-safety leadership and nurture trusted HSE supervisors.

Support for safety of partner companies DSME identifies those vulnerable to safety such as new partner companies and new employees of partner companies and manage them with focus to prevent severe accidents preemptively. The safety level certification system for partner companies is in operation.

Participatory safety training To increase the effect of safety training, not only essential training to improve the competency of safety managers but also VR(virtual reality) training programs and 4D digital safety training content are developed and provided so that learners can experience safety accidents virtually in a specific situation or work space and learn how to respond and how to be familiar with one's duty.

Training for new employees	Training for new employees, employees from Technology Education Department, Korean ship owners/ classification of ships and engineers
Position-specific training	Training for on-site managers and supervisors, regular training on safety and health for those in charge of safety and health management, legally required safety and health training
HSE-led training	Job competency training for HSE managers, VR experience based safety training, "12 Golden Rules" Violator Education

VR experience-based safety training

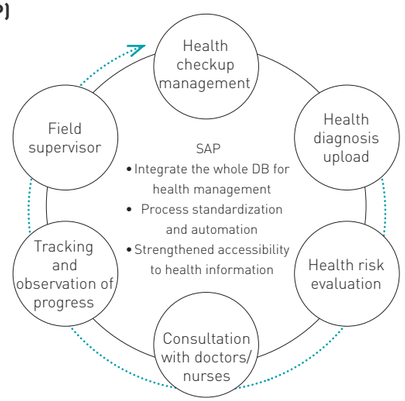


Major activities for health

Upgrading employees' health management system

To respond to increased health risk such as aging population and increase in the number of patients with chronic diseases, DSME developed an integrated health management system to ① improve health risk group management procedures and ② promote voluntary health management by assigning organizational health management goals.

Development of integrated health management system (SAP)



1 Improve the management procedure for groups at health risk: using system

- Integrate DB for the whole process from health to follow-up management
- Generate information on risk group incorporating real-time information
  → Providing timely health management for those with abnormality

2 Giving health management target at the organization level

- Establish 'Health Management' item in the monthly HSE performance evaluation items(No checkup (-2 points), no consultation (-3 points))
  * Added the function for the supervisor to inquire the information
- Information on the status of groups with health risk shared with the field (SAP, once/month)(Major functions: inquire individual checkup/judgement results, reservation of appointment/change of appointment

3 Adoption and promotion of mobile health management application

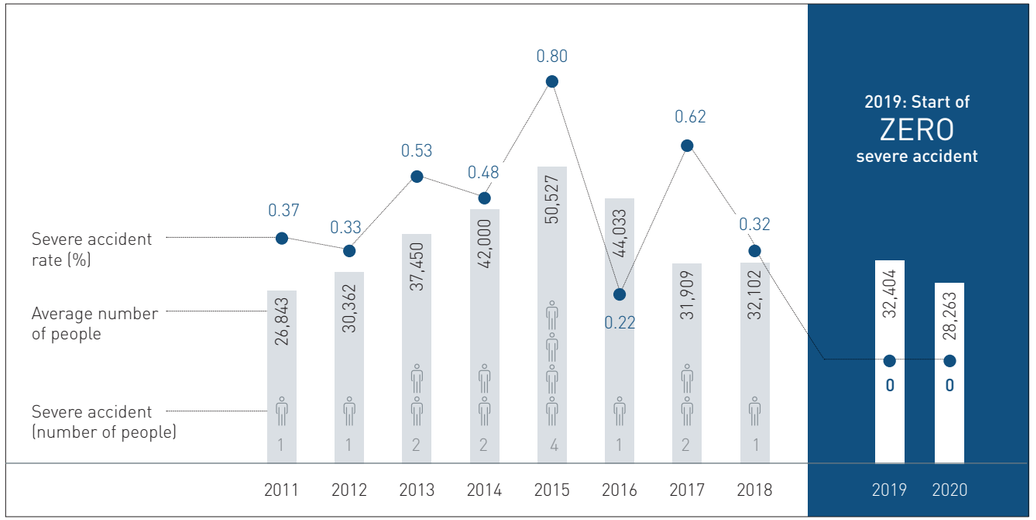


- Major functions: Personal check-up, inquiry of medical check-up results, consultation reservation/change, etc.
- Share the information on the use of mobile application across the company (posting, etc.)
- Provide training to managers/ groups with high health risk and induce them to install the application
  * Using TBM+, it is possible to assign appropriate person after checking health status in real time

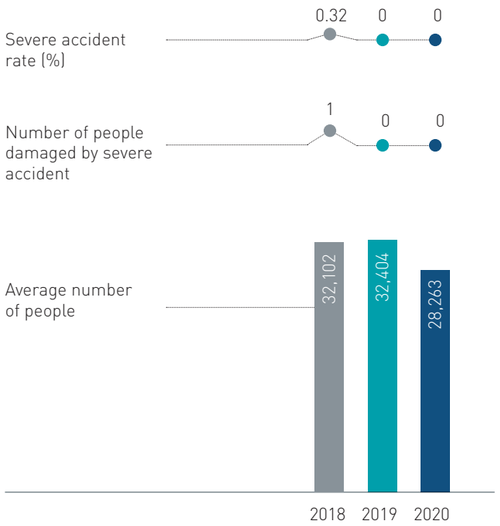
Major Achievement

Safety

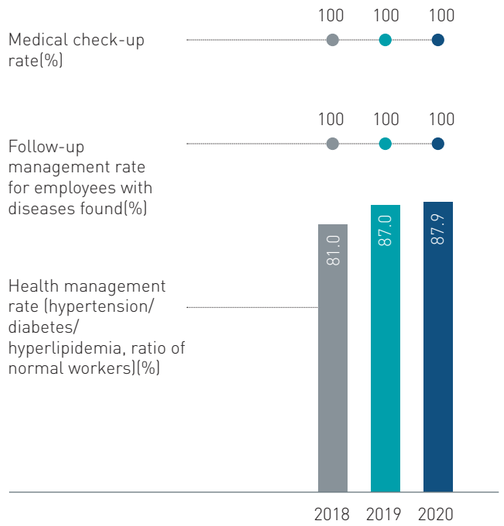
Thanks to investment in the prevention of industrial accidents and improvement of employees' awareness on safety, the accident rate has been reduced for the past 4 years significantly (reducing accidents by more than 30% on annual average since 2017) and the company achieved zero severe accidents for two consecutive years in 2019 and 2020, recording the lowest industrial accident rate (0.17%) in the same industry.



Safety

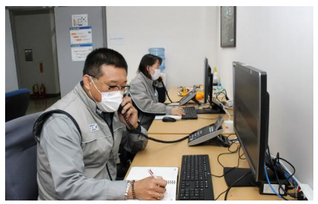


Health



Response to COVID-19

After the first confirmed case of COVID-19 in Korea in January 2020, the virus spread rapidly. Accordingly, DSME organized the DSME COVID-19 Emergency Operation Room with the involvement of relevant departments (8 organizations including HSE, HR, General Affairs and 14 regular members) to conduct infectious disease prevention activities and respond to confirmed cases. In addition, DSME supported quarantine items to partner companies and conducted international CSR activities in relation to COVID-19 actively by providing 10,000 masks to China (Feb.) and 10,000 diagnosis kits to Indonesia (May).



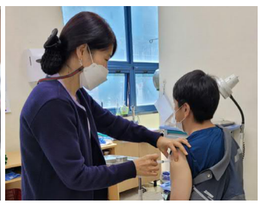
COVID-19 call center



In-house self-quarantine facility



Install partition at the cafeteria



DSME flu vaccination



Screen protector

Major activities related to COVID-19

Core duty target	1. Manage those suspected of COVID-19 and with symptoms	2. Manage work standard	3. Business continuity	4. Quarantine/hygiene	5. Education/information sharing
Major activities	- Collect information on confirmed cases contact with positive cases, travel in and out of Korea - 24-hour call center operation (51400)	- Manage business trip, group training, event, seminar, meeting, visitors - Adjust details of response level depending on pandemic situation in Korea (before and after taking a leave, Geoje community infection, etc.)	- Operate emergency work facilities and quarantine facilities - Establish scenario to respond to each situation: Quarantine/ closure, large-scale test, division-specific scenario	- Strengthen quarantine standard (severe), operate special quarantine team (2 groups), support emergency quarantine - Provide mask(12ea/ person), hand sanitizer, installation of partitions at cafeteria, flu vaccination	- MMS, IPTV, screen protector, Haeoeumteo, HR journal, HSE newsletter, poster, etc. - Sharing information on confirmed cases, internal guideline, personal hygiene rules
	100% RESPONSE TO REPORTED CASE	Advertise response guideline by situation	Minimize the discontinuity of business	Prevent infection at the company	Provide/share major information in a timely manner.

Initial outbreak (1/20~2/17)

- First confirmed cases in Korea (1/19)
- Relevant organization TF (1/30)

Mass infection and spread (2/18~ mid April)

- Spread of COVID-19 among Shincheon-ji members (2/18)
- Warning level elevated to severe (2/23)
- TF meeting led by shipyard general manager (2/24)
- The first community infection in Geoje (2/25)
- Organized situation room (2/27)
- Epidemic mainly in Daegu/Gyeongbuk area
- Special entry procedure by major countries (3.19)
- All countries strengthened entry control (3/29, 2-week self quarantine)
- Strengthened social distancing (3/22~4.19)

Continued sporadic infection across the nation

- Shift to distancing in daily life (5/6)
- First confirmed case in Itaewon (5/6)
- 7th confirmed cases after an instructor from Incheon is confirmed positive (5.9)
- Mass infection continued in metropolitan area
- Spread ignited by door-to-door seller (Metropolitan area +Daejeon/Gwangju)
- Mass infection in ocean-going ship in Busan (6/22)
- Designated as the country with strengthened quarantine measures with increase in the number of patients coming from other countries (7.13)

Another spread of COVID-19 after 8.15 assembly

- Mass infection caused by 8.15 assembly and religious group
- Mass infection in Geoje (20 people confirmed positive between August 21~29), declared strengthened stage 2 (8.30)
- Mass infection occurred at other shipbuilding company (9/6)

Major response guideline of DSME

January
- **Advertise preventive measures (1//31)**
- Limit the overseas business trip/ group training
- Produce/distribute posters

February
- **Inform the response guideline for sever stage (2/19)**
- Reporting the plan to enter into or come from other countries (2/12~)
- Guideline for supervisors, personal hygiene principles
- Suspension of the operating of shuttle to Daegu
- Reporting those suspected of COVID-19 infection/those with symptoms (2/23~)

March
- **Special immigration control (3/18)**

April

May
- **Easing response guideline (5/21)**

June
- **Strengthened response due to pandemic in metropolitan area (~ June)**
- **Guidelines on workers at Seoul/Siheung**
- **Strengthened standards for managing ocean going ships**

July
- **Extended strengthened guideline**
- **Strengthened standards for managing ocean going ships**

August
- **Special management during summer vacation season**
- **Situation as a result of sever spread (8.19)**

September
- **Special management for Chuseok holiday**

October
- **Flu vaccination**
- **Eased response guideline (10/12)**
- **Strengthened management of those coming from overseas countries (checking COVID-19 status)**


View of Yeocha Hongpo observatory, Nambumyeon, Geoje-si

05 Environmental Management

DSME has been operating environmental management system based on ISO 14001 and ISO 50001, which are international standards for environmental and energy management, in order to respond to global crisis of climate change and minimize the negative impact on the environment. In addition to complying with ever strengthening environmental laws and regulations, the company shares the problem on environmental preservation with all employees through campaigns such as 3R (Reduce, Reuse and Recycle) and promoting sustainable environmental improvement activities. In addition, DSME is actively promoting the use of energy such as electricity, oil and gas and reduction of greenhouse gas emissions with an aim to achieve eco-friendly high-efficient energy business place. In the future, we will actively join the national vision of realizing carbon neutrality by 2050 for Korea's shipbuilding industry and make an effort to lead the reduction of energy use and greenhouse gas emissions by balancing the short-term outcome oriented goals and mid to long-term goals based on a roadmap.

Environmental management system


DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of

Daewoo Shipbuilding & Marine Engineering Co., Ltd. Okpo shipyard

3370, Geojedae-ro,Geoje-si, Gyeongsangnam-do, 53302, Korea
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Environmental Management System standard:
ISO 14001:2015

This certificate is valid for the following scope:
Design, Manufacture/Building, Installation and Servicing of Ships, Naval ships, Submarine & special Vessels, On-shore/Off-shore Structures, Industrial Machineries and Plants


bsi.

By Royal Charter

Certificate of Registration

ENERGY MANAGEMENT SYSTEM - ISO 50001:2018

This is to certify that:

Daewoo Shipbuilding
& Marine Engineering Co.,Ltd.
OKPO Shipbuilding yard
3370
Geoje-daero
Geoje-si
Gyeongsangnam-do
53302
Republic of Korea

Holds Certificate No: **ENMS 717082**

and operates an Energy Management System which complies with the requirements of ISO 50001:2018 for the following scope:

The construction and installation of shipbuilding and offshore.

For and on behalf of BSI:

Chris Cheung, Head of Compliance & Risk - Asia Pacific

Original Registration Date: 2014-10-14
Latest Revision Date: 2019-11-06

Effective Date: 2019-11-06
Expiry Date: 2022-11-05

Page: 1 of 1

...making excellence a habit.

Environmental management policy

① **Compliance with environmental laws and regulations and minimization of discharge of pollutants:** Develop environmental technologies continuously to reduce the use of raw materials and energy.

② **Turning every employee into 'Green Agent':** Provide environmental education to all employees so that they can practice environmental management.

③ **Inspection to prevent environmental accidents:** Self-check to prevent potential environmental pollution expected throughout the whole processes.

④ **Continuous 3R initiative: Promote continuous environmental improvement by practicing 3R:** Reduce, Reuse and Recycle

⑤ **Disclosure of environmental information transparently:** disclose information regularly to guarantee the transparency of implementing environmental policy

Energy management policy

① **Establishment and achievement of energy target:** establish energy management goals based on corporate vision and strategies and secure all information and resources necessary to achieve the goals.

② **Eco-friendly energy design and purchase:** Incorporate energy efficient and eco-friendly technologies in facilities, equipment or product design or purchase stages.

③ **Compliance with laws and regulations on energy :** Identify and comply with voluntary obligations such as domestic and overseas laws, regulations, corporate regulations, agreement with customers in relation to energy use, consumption and efficiency.

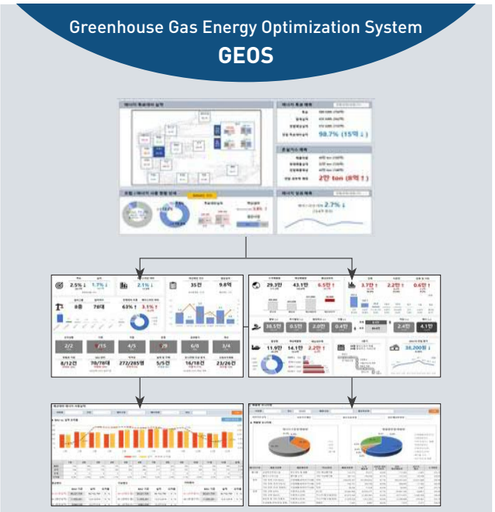
④ **Improvement of energy management awareness:** Provide full support to make sure that all employees recognize energy efficient improvement as a key element in production activities and create corporate value through active energy management.

Organizations for environmental and energy management committee

Classification	Relevant organizations	Remarks
Responsible person	Shipyard General Manager	
Leading organization	Production Support Division, HSE Operations Division	Leading energy/ environmental management
Participating organization	Departments using energy, Departments in charge of managing environment	

2020 Major Performance

Established ISO 50001-based GEOS (Greenhouse Gas & Energy Optimization System)



Comprehensive management platform for DSME energy and greenhouse gas

- Completed the installation of an integrated wastewater treatment plant (completed in May, 2020, preventing environmental accidents and stable waste water treatment by replacing outdated facilities)
- Achieved zero administrative actions on water environment for 1,000 days (achieved in September, 2020)
- Completed the dismantling of buildings containing asbestos (progress rate of 58% across the company)
- Achieved the goal of installing VOCs (Volatile Organic Compounds) reduction facilities at large painting workshops (2020 target: 30%)
- Resources circulation performance management* target compliance

* Activities to deter the final disposal by managing actual recycling amount, final disposal amount with increased waste recycling from the generation to the final disposal of waste.

Classification/year		2018	2019	2020
Final disposal rate (%) (▼)	Government target	37.52	37.52	46.78
	Company actual	46.78	47.22	28.66
Recycling rate (%) (▲)	Government target	24.24	24.24	25.02
	Company actual	24.26	25.44	52.47

Major indicators and performance

Energy consumption and greenhouse gas emissions

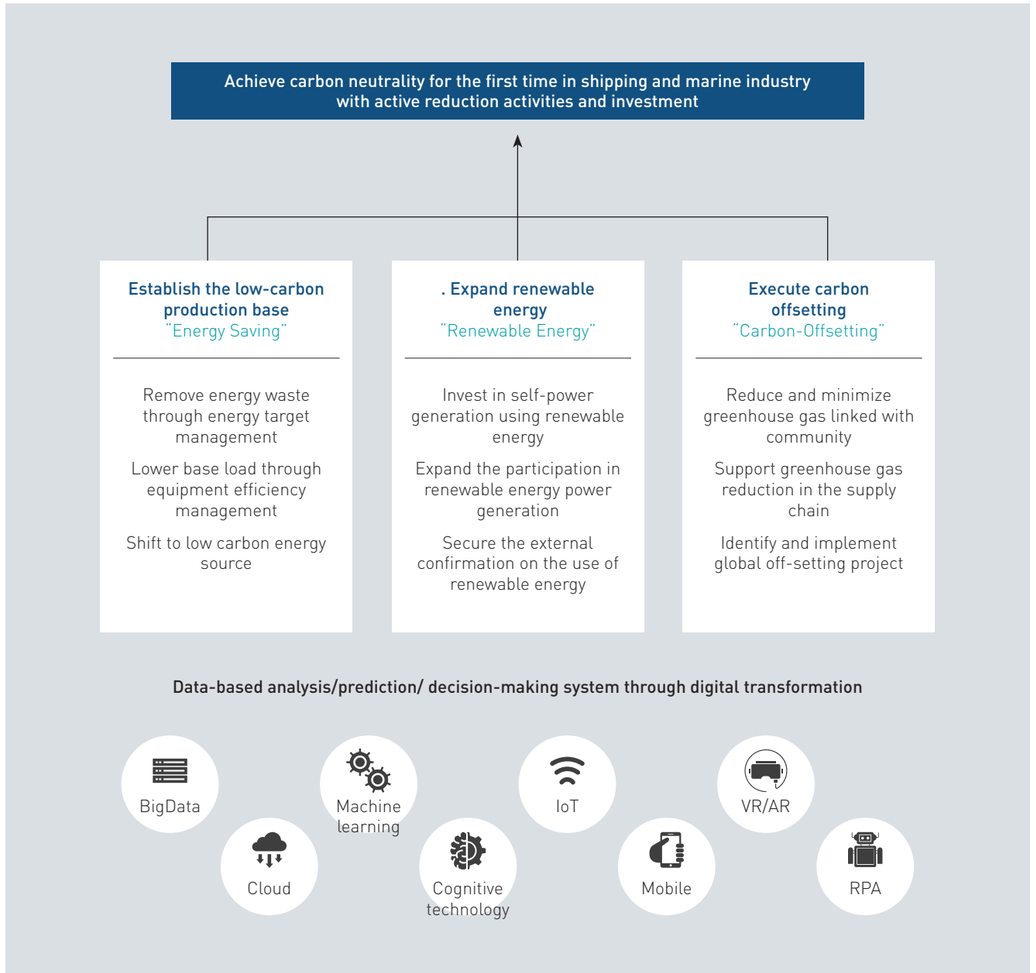
Category	Unit	2018	2019	2020
CO_2	tco_2eq	428,183	442,312	358,736
CH_4	tco_2eq	346	378	279
N2O	tco_2eq	1,721	1,920	1,388
Total emissions	tco_2eq	430,250	444,610	360,403
Indirect emissions ratio	%	62%	58%	64%
Direct emissions ratio	%	38%	42%	36%
Energy use	TJ	7,614	7,749	6,434
Sales	KRW 100 million	95,998	83,176	70,416
Greenhouse gas emissions amount, KRW	tco_2eq/ KRW 100 million (sales)	4.48	5.35	5.12
Energy use, KRW	TJ/ KRW 100 million (sales)	0.079	0.093	0.091

Discharge of environmental pollutants

Category/year		Unit	2018	2019	2020
Use of toxic substances		ton	-	0.001	-
Release of chemical substances		ton	2,046	1,796	1,187
Total COD (Chemical Oxygen Demand) discharge		mg/l	0.378	0.381	0.25
Total SS discharge		mg/l	0.088	0.069	0.041
Marine water quality within the company		mg/l	COD: 1 DO: 8.5	COD : 1 DO : 8.6	COD : 0.9 DO : 9.7
Air quality within the company	PM10	$\mu g/m^3$	51	49	42
	Sox	ppm	0.005	0.004	0.004
	O_3	ppm	0.03	0.03	0.03
Soil contamination BTEX (Benzene, Toluene, Ethylbenzene, Xylene), TPH (Total Petroleum Hydrocarbon) test result			Appropriate	Appropriate	Appropriate
Water consumption		ton	2,941,804	2,777,285	2,639,266
Total amount of waste water		ton	1,100,593	1,123,724	997,475
Waste water recycling amount		ton	308,471	225,642	261,975
Total waste generation amount		ton	82,033	78,917	71,443
Disposal by waste	Recycling	ton	28,278	27,156	26,251
	Incineration	ton	20,142	19,636	16,218
	Landfill	ton	10,552	7,990	6,977
	Others/ physical and chemical treatment	ton	23,062	24,135	21,996

Future plan

DSME will contribute to the achievement of customers' eco-friendly management goals by developing the world's best eco-friendly ships and establish specific goals and visions for the establishment of an eco-friendly shipyard that can reduce energy use and minimize the release of harmful substances such as greenhouse gases. Our target for 2021 is to achieve environmental targets which can be achieved in the short-term, establish a mid to long-term plan to achieve the national vision of carbon neutrality by 2050 for Korea's shipbuilding sector and lay the foundation to join the implementation of such plan. Phase 1 short-term goal is to establish low carbon production base where energy sources such as oil and gas are switched to the use of power together with making equipment efficient. Phase 2 mid to long-term goal is to adopt new and renewable energy and implement projects for external greenhouse gas emissions.





06
Shared Growth

DSME runs various system to including financial, education and technical support to realize the vision of shared growth 'formation of competitive corporate ecosystem' and improve the competitiveness of partner companies. Because we believe that sustainable management ecosystem can be established by complying with policies and regulations on fair trade and legitimate subcontracting and providing practical and long-term support to partner companies based on mutual trust and communication. In addition, DSME promotes the community where it contributes to the development of the local economy as a member of the local community and lives together with the community. To this end, DSME is conducting environmental protection and social welfare activities actively through community volunteer work, support for education projects and voluntary participation of members.

2020 Major Activities

Establishment of Co-prosperity Division

Moving away from the image of supporting and managing partner companies, DSME changed the name of departments incorporating the mission and vision of an organization that promotes shared growth and cooperation with partner companies and established the division dedicated to implementing tasks to improve subcontracting practice, strengthening the support for and communication with partner companies.

Improvement of partner company evaluation system

We are promoting voluntary capacity building of partner companies and shared growth through a fair and objective evaluation. In addition to the evaluation on safety, quality, production and management capabilities, DSME incorporated indicators essential for shared growth such as credit rating and evaluation criteria for ethical management and evaluation is conducted regularly two time a year. Excellent partner companies selected through evaluation receive incentives as well as award and partner companies with poor grade are provided with support for improvement.



Giving award to excellent external partner companies



Giving award to excellent in-house partner companies

Strengthening the criteria for registration/ cancellation of partner companies

In order to enhance fairness and minimize risk in relation to registration and cancellation of partner companies, we are applying strengthened criteria. DSME adopted the system of qualified partner company pool screened through regular review upon registration of partner companies and increases fairness and transparency by disclosing information at our website and company-wide notification. System has been changed to make sure that contract cancellation can be processed through fair process by going through Deliberation Committee (Partner Company Evaluation Committee, HSE Accident Deliberation Committee and Contract Cancellation Deliberation Committee) depending on the reasons for cancellation.

Establishment of the process to improve subcontracting risk

DSME conducts self diagnosis to find out if there is illegal elements in the process of making subcontracting contract or operating partner companies in DSME under the laws related to subcontracting and makes continuous improvement.

2021 implementation plan In 2021, DSME will conduct making pledge, education and promotion, establishment of monitoring system and standardization of improvement activities to upgrade the subcontracting risk management system.

Shared growth support performance

[Support for Labor Welfare Joint Fund for partner companies]

Subcontracting risk improvement process

Process	Identify tasks	conduct improvement activities	share status information	manage core tasks	make improvement tasks take root
Major activities	- Item classification - Task selection - Individual task (task at organizational level)	- Improvement period setting considering the difficulty of each task	- Share progress at the unit and division level - Discuss ways for improvement and present opinion - Identify potential risk	- Internal reporting - Decision-making on key tasks	- Check implementation - Diagnosis and monitoring - Risk assessment - Improvement plan identification and execution - Change management (education/ advertisement)

DSME decided to support Labor Welfare Joint Fund for shared growth in the shipbuilding industry together with Gyeongsangnam-do and Geoje-si. The fund is intended to support the financing of house purchase for partner companies' workers, school fee support, scholarship, disaster relief fund, physical and cultural activities, events on the day of workers, and fund to stabilize life and other welfare projects. (Agreed, contribution to the fund will start from 2021).



Promotion of equipment localization

DSME continues to promote equipment localization policy to improve the competitiveness of domestic companies and

Localization ratio(%)	As of 2020	2021 target
LNGC	70.8	74
FSRU	70.1	73
LPGC	71.2	75
CONT	80.9	85
COT	75.0	79
Total	73	77

overcome risk such as reduced transaction volume of partner companies due to delay in economic recovery and COVID-19.

Early payment before national holidays

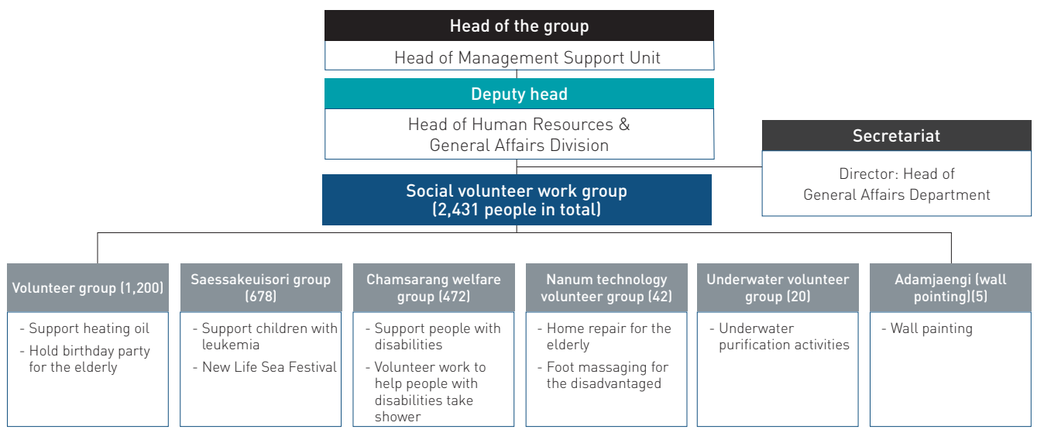
DSME is boosting morale and stabilizing business of partner companies with early payment of the delivery price and donations to the material supply partners of small and medium-sized companies with sales of less than 300 billion won before the holidays (Lunar New Year's Day, Chuseok) in 2018. In 2020, DSME paid about KRW 45.3 billion in early payments twice before the Lunar New Year and Chuseok holidays.

Localization items (number)	2018	2019	2020
Development completed	5	9	7
Development underway	6	15	11
Applied to actual ships	4	2	3

2021 Plan for Support

DSME is planning various regional-specific education support programs with the goal of stabilizing partner companies in 2021 and plans to make efforts for foreign workforce to adapt to the local environment by re-employment of foreign workers of partner companies which close their business and supporting external activities. In addition, in order to support partner companies' stable labor management, workshop for partner company representatives and management agents will be conducted to provide training on labor-management relations and labor management practices, revised labor-related laws and government policy changes to support partner companies to manage labor stably. In addition, we plan to implement various support policies, such as holding a monthly win-win cooperation meeting to increase communication channels with partner companies. In addition, DSME plans to implement a joint project guarantee by the Korea Credit Guarantee Fund in connection with a special guarantee program for shared growth with partners in Busan and Gyeongsangnam-do in 2021 based on the system planned in 2020.

DSME Social Volunteer Group Organizational Chart



CSR activities

- **Education:** Establishment and operation of Koje University, operation of DSME Heavy Industries Academy
- **DSME social volunteer group:** Community clean-up activities, support for social welfare facilities, drawing competition for the families of employees
- **Donation:** Donation by employees, leading by example
- **Others:** Operation/management of CSR calendar

Koje University



- **Founder:** DSME
- **Acquisition of the right to operate the university:** 2007
- **Contribution of the founder:** KRW 38.5 billion (operation support: KRW 1 billion/2020)

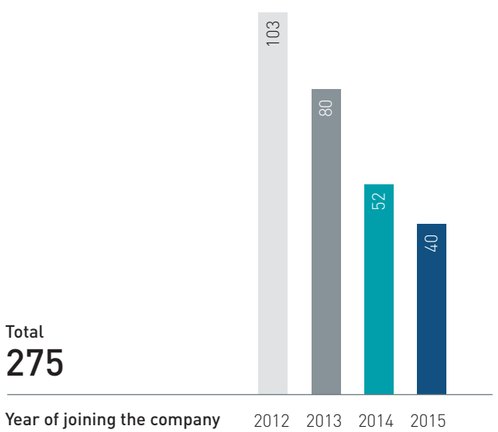
Facility and operation status

Category		Details
Facility	Site	83,205 pyeong(275,058m²)
	Building	12 buildings(9,047m²)
Operation	Capacity	1,240
	No. of students	1,000
	Faculty	190(including instructors)

Operation of DSME Heavy Industries Academy and in-house universities

DSME operated DSME Heavy Industries Academy, which is a recruitment program for high school graduates for the office technician position from 2012 to 2015 in order to nurture good talents in the community and provide customized practical training. In addition, in-house university was operated, which is college degree program for students of DSME Heavy Industries Academy from 2013 to 2019. The students of DSME Heavy Industries can take classes and get degree like other university student at Department of Contract (Pusan National University, 4 semesters, 70 credits) since 2019 based on contract between DSME and general university.

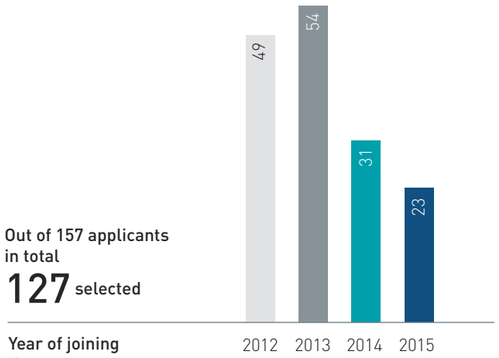
Status of selecting students at DSME Heavy Industries Academy



Status of students at the Contract Department
(as of April 30, 2021)

Category	Total (Year of joining the company)	1st (2012)	2nd (2013)	3rd (2014)	4th (2015)
Applicants	157	49	54	31	23
Selected	127	46	38	24	20
Graduates	41	41			In progress

Status of students at the Contract Department

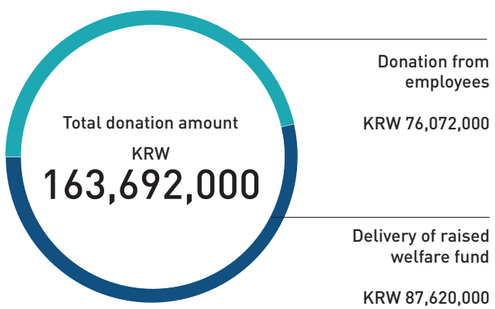


Out of 157 applicants in total
127 selected

Year of joining the company

Donation by employees

Category	Details
Donation from employees (as of 2020)	KRW 76,072,000 - Donation from employee 1004 :KRW 69,614,000 - Leading by example : KRW 6,458 (Donation to) - Donation to: Hope Welfare Foundation in Geoje
Delivery of raised welfare fund (deduction from monthly salary)	KRW 87,620,000 - Donation to: Social welfare facilities Yegwangwon in Geoje and 9 places.



Donation from employees
KRW 76,072,000

Delivery of raised welfare fund
KRW 87,620,000

Voluntary CSR

Classification	2018	2019	2020
Environmental preservation activities (including local purification activities, etc.)	Participants: 7,057 people/289 cases	Participants: 2,864 people/141 cases	Participants: 721 people/36 cases
	Accumulated time: 10,029 hours	Accumulated time: 4,116 hours	Accumulated time: 874 hours
Other social welfare activities (volunteer work for those with disabilities)	Participants: 4,375 people/230 cases	Participants: 3,624 people/236 cases	Participants: 2,111 people/171 cases
	Accumulated time: 19,089 hours	Accumulated time: 17,060 hours	Accumulated time: 8,719 hours











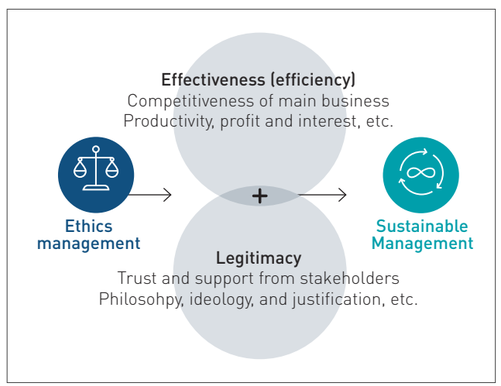
1. Event for the elderly
2. Shore/underwater purification
3. Volunteer work to fix roof for the elderly who are living alone
4. Wall painting
5. Panting on a facility of an elementary school within the community



07

Ethics And Compliance

DSME establishes an effective and transparent systems, regulations and organizations to promote ethics management to meet the reasonable expectations and requests by stakeholders and to achieve shared growth and development. In addition, DSME improves the awareness on compliance and prevents the legal risk through the systems and diagnosis programs for compliance management. For the key elements of ethics management are the voluntary participation and consensus among the employees, we have various activities and supports such as checking Ethics Self-Assessment, sending the ethics letters to the employees and sharing the cases of violation on the Code of Ethics. The corporations, in general, have an obligation to generate the profit through business activities, but the purpose, methods, and tools of their businesses should be legitimate. DSME is being trusted by the stakeholders and our society by securing such legitimacy through ethics management.



Ethics Mangement Implementation System

Ethics Management implementation system (3C)

Code of conduct
Establish the basis for judgement on ethical behavior of employees

Compliance Check Organization
Establish organizations and institutions to conduct ethics management

Consensus by Ethics education
Form consensus among stakeholders and employees on the practice of ethics

5 work ethics

① **Commitment to Duty:** To commit to one's duty and to perform faithifully.

② **Improvement on Expertise**: To continue one's efforts in obtaining expertise in order to be competitive.

③ **Avoidance of conflicts of interest:** In case where the interest of the company and personal interest conflict, interest of the company should be regarded as priority and one should make the best effort for the legitimate profit of the company.

④ **Compliance**: Mandatory to comply with the applicable laws and corporate policies

⑤ **Respect to Stakeholders**: To preserve the legitimate interest of the stakeholders and to respect their stance

Regulations

Code of ethics

The Code of Ethics is an ethical standard that the company must adhere to in its business activities and is a promise with stakeholders. The Code of Ethics consists of a total of five categories: customer-oriented, shareholder respect, co-prosperity with partner companies, contribution to national and social development, and mutual development between employees and the company.

Code of Ethics Implementation Guidelines

Efforts are being made to protect employees and stakeholders from various risk of unethical behavior by establishing the guideline to practice code of ethics as an ethical standard to be followed while employees conduct duties. The guidelines for practice include prohibition of receiving and providing money, entertainment, and convenience, restrictions on golf/overseas travel with partner companies, restrictions on notification of congratulations and condolences, prohibition of monetary transactions, prohibition of interference with interests/improper solicitation, prohibition of unfair instructions, classification of public/private, etc. and provides basis for ethical decision-making and judgement for action to executives and employees and stakeholders. The guideline to practice the code of ethics is posted on the business portal and the company website so that anyone can easily check the content.

Ethics Management Organizations

Legal Division	Duty Diagnosis Division		Audit Committee
Legal Planning Department	Duty Diagnosis Department 1	Duty Diagnosis Department 2	Corporate Auditing & Consulting Division
-Planning on Ethics Management -Establishing Code of Ethics and policies -Conducting training and promoting on ethics awareness -Oraganizing Ethics Management programs	-Diagnose and improve duty -Plan duty diagnosis -Diagnose subsidiaries -Diagnose the appropriateness of organization management	-Investigate and prevent corruption -Run reporting system -Operate duty diagnosis system -Operate e-monitoring system	-Evaluate the status of operating Internal accounting control system -Evaluate internal monitoring system -Operate the accounting audit and prevent accoungting fraud - Audit on the execution of work of directors

Institutes

Pledge to comply with code of ethics

- All employees sign on the pledge to comply with code of ethics on the first day of every month (electronic signature through internal portal)
- Pledge to reaffirm commitment to compliance with laws and regulations in the execution of work and internalization of the ethics into daily life.

Ethics counseling center

- Counter where people can raise questions on corporate ethics norms and policies or get counseling on ethics dilemma
- At the internal portal ethics counseling center, people can select real name, anonymous, open or non-disclosure

Self reporting of receiving gift/request

- In case of receiving inappropriate gift/request, return/reject it and report the fact voluntarily
- The self-reported information can be utilized for prevention activities for problem identification and weakness management

Unethical matters reporting system

- System to report unethical behavior and corruption related to company duty
- Protect the reporter and operate compensation system to encourage the proper and mature reporting/whistleblowing culture

Workplace harassment, sexual harassment reporting center

- Operate the center where counseling, case registration, investigation are conducted in relation to workplace harassment and sexual harassment
- Take actions to protect victims, disciplinary actions against attackers and proceed procedures necessary for recurrence prevention and preventive measures

Ethics compliance obligation contract system

- To promote the implementation of ethics management together with partner companies, the compliance obligation is incorporated into contract terms and conditions
- Promote the company's ethics standards and policies to partner companies and ask for cooperation

System to put sanction on partner companies engaged in corruption

- Take actions to restrict the activities of partner companies engaged in corruption which violate the obligation to comply with ethics management
- Decide the level of disciplinary action through deliberation at Review Committee for Partner Companies Engaged in Corruption
- Different level of action depending on the significance of the problem such as warning, transaction suspension (1 year, 3 years, 5 years)

E-monitoring system

- Monitoring system for high risk items to prevent unethical and corruption behaviors in advance
- System to extract/check abnormal symptoms even by simple error in the work process in real time.
- Various scenarios are applied in major areas and new scenarios will continue to be developed, if necessary

[Ex]
- HR: working hour monitoring, use of ID monitoring, etc.
- Finance: corporate card monitoring, use of expenses monitoring, etc.
- Procurement: verification of unit price contract, etc.
- Security: asset leakage monitoring, etc.
- Daily monitoring, etc.

- If new scenario is stabilized, it is transferred to each leading organization so that monitoring can be conducted together with duty diagnosis group
- Strengthen risk control activities by conducting regular inspection and improvement measures based on monitoring results

Legal system and duty diagnosis program

Legal system



Address overall legal matters such as legal review and litigation proceedings in the DSME legal system

Legal review process

Request for legal review by operational department → Designate the reviewer and discuss with operational department → Proceed review → Respond with final review

Litigation process

Request for litigation process by Operational Department → Designate the Reviewer and its representative (attorney) → Respond to litigation → Report its Litigation Completion

Duty diagnosis program

Category		Diagnosis details
General work diagnosis	Project	• Work process (design/procurement/production) diagnosis and improvement to secure cost competitiveness and transparency
	Project/outcome	• Analyze the cause of projects in deficit and identify/apply measures to prevent recurrence. • Review the link between projects underway and policies and improve
	Organization (including subsidiaries)	• Review/improve overall organizational operation including indicators, budget, standards and manpower management
Implementation		• Check whether the business implements the areas for improvement identified through duty diagnosis and encourage it to implement
Specially ordered task		• Duty diagnosis in addition to annual plan at the request of the management, Audit Committee and Business Management Group

Performance of ethical management

Compliance support

Completed

877 legal reviews in 2020

Pledge to Practice Ethical Compliance

Pledge to Practice Ethical Compliance

I, hereby, pledge to recognize the corporate core values and ethical compliance policy and comply with the following guidelines while performing my duty as an employee of DSME.

1. I agree to understand and comply with domestic and overseas laws and regulations as well as corporate policies including the Improper Solicitation and Graft Act, and will not perform, assist or neglect any violation of these laws and regulations or instruct others to do so.
2. I will perform my duty based on the principle of good faith, and if my personal interests and the corporate interest are in conflict, I will give priority to the corporate interest first.
3. I will not provide any money or unreasonable entertainment to stakeholders including domestic and overseas government officials and customers in my interest or in the interest of the company's business.
4. I will not take or demand any tangible or intangible benefits such as money, gift, support, entertainment or convenience, and will not take part, directly or indirectly, in such money transaction or solicitation.
5. I will respect the personality and human rights of individual employees, and will not spread rumors related to the company or individuals. In addition, I will not speak anything that may tarnish the company's reputation.
6. I will not leak or use important information, trade secrets, business data or personnel information pertaining to the company without permission or use them for other purposes.
7. I will actively participate in and cooperate with the policies, guidelines, training and programs conducted by the company to reinforce ethical compliance in the company.
8. I will notify the company (duty diagnosis organization or other relevant organization) immediately if I recognize corrupt acts by other employees, or if employees or other stakeholders ask me to take part in a corrupt act.
9. I will do my best to cooperate with any investigations on the violation of the code of ethics and implementation guideline or behavior suspected of violation by submitting relevant documents and presenting my opinion.
10. In case of violating the pledge above, I will accept any reasonable sanctions based on the applicable laws or company policy and will not raise any objection.

January 7, 2021
Manager Hong Gil Dong,
000 Department, 000 Division
[Pledge completed]

2020 Pledge to Practice Ethical Compliance

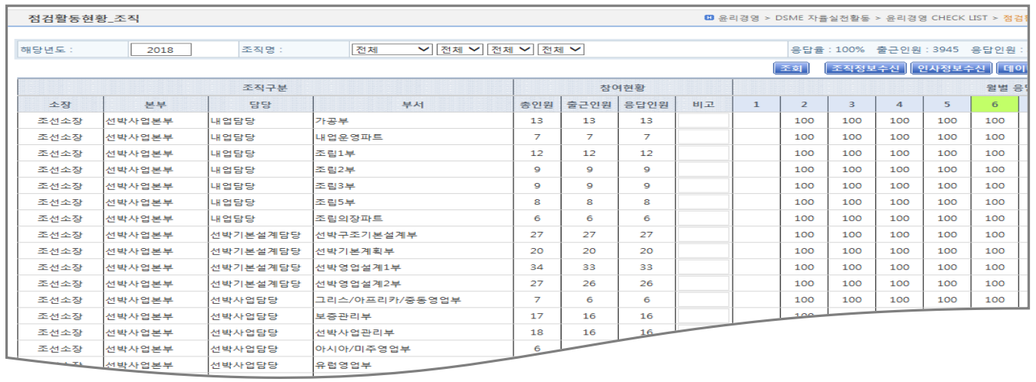
4,210 employees signed (99.6%)

Activities to create consensus among employees

Checklist- questions are changed randomly every month

◆CHECK LIST ◆	예	아니오
아래 문항을 천천히 읽어보시고, 체크하시기 바랍니다. (※ 윤리규범 실천지침 ▶바로가기)		
-. 아래 항목 중, 윤리규범 실천지침 제5조 금품·접대·편의의 수수 및 제공 금지의 2항에서 예외항목으로 규정한 것은 "예", 아닌 것은 "아니오"에 표기하시오.	◉	○
-. 상급자 또는 고객(주문주)이 격려, 감사, 표상의 목적으로 제공하는 통상적 수준 이내의 선물·접대·편의	◉	○
-. 이해관계자가 주관하는 행사에서 참석자에게 일률적으로 제공하는 기념품, 이해관계자의 회사 로고가 표시된 기념품 중 5만원을 초과하지 않는 것	○	◉
-. 3만원을 초과하지 않는 식사 및 편의는 사전에 상위권자에게 보고없이 가능함	○	◉
-. 이해관계자로부터 초청받은 업무 목적의 세미나, 박람회 등의 공식행사에서 일률적으로 제공되는 접대(식사, 교통, 숙박). 다만 공식행사 참석 가능여부를 사전에 본부장 이상 서면 승인을 득하고 법무기획부의 확인을 득하여야 함	◉	○
상기의 문항에 답변하고 **완료버튼**을 클릭해야 자율점검활동이 완료됩니다.		완료

Monthly department-specific inspection outcome monitoring



Ethics Management Letter

Ethics letter for heads of divisions



Integrated/Structure Design Division



Energy Plant Business Management Division



Production Operations Division



Business Unit



Engineering & Technology Unit

Ethics letter for person in charge of each function



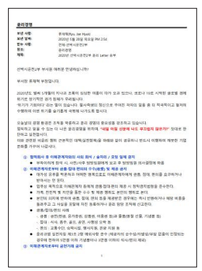
Duty Diagnosis Department 1



Strategy Planning Department



Materials Quality Management Department



Sea Trial Department 2



DSME R&D Institute

Ethical education for employees

Ethics training for members of department



Facility & Raw Materials Procurement Department



LNG Containment Design Department



Energy Plant Piping Design Department



Production Budget Department

Date		Training course	Number of trainees	Hours
Compliance training	01/10	Training on subcontracting act	28	2H
	05/27	Training on international arbitration	14	2H
	05/28	Training on HR/ labor affairs/ industrial safety act	20	2H
	05/29	Training on naval & special ships/ subcontracting act	28	2H

* Due to COVID-19, offline training was limited.

90 employees completed compliance training

Ethical promotion

Hae-Oleum-Teo (in-house media)

Ethical management special article



Ethical management Q&A (series),



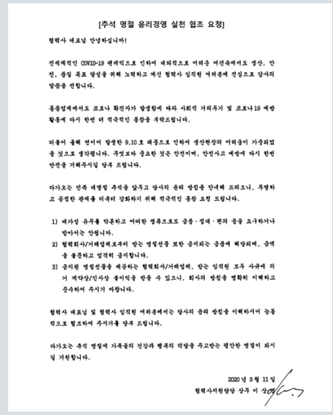
Serial article (Hey, Ethics!)





Ethical campaign



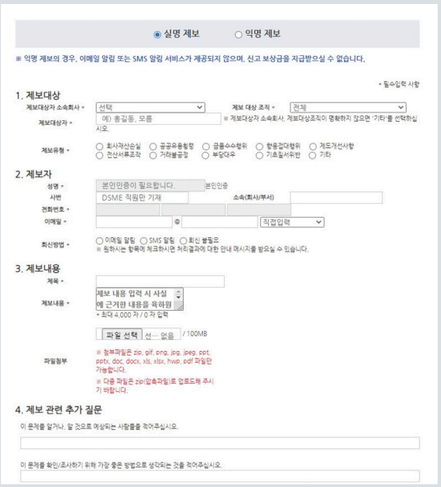


Operate the system to report unethical behavior



Unethical cases reported in 2020

91 cases were handled.





08

Risk Management

DSME conducts sustainable management to prepare against potential risks by identifying risk in business and work and remove risk factors based on analysis of internal and external issues and communication with stakeholders. In addition, DSME establishes and implements effective risk prevention measures optimized for individual business and value chain of the company to deal with wide range of risk and its impact including global macroeconomic changes and responsibilities as a member of community.

Status of major risk management

Marketing and project management

The risk (impact) of the project at marketing stage is analyzed at the level of cost, schedule and operation and it is classified into 9 grades based on the possibility of occurrence. If the project is expected to have risk in pre-order stage, we hold 'risk review session' or 'Contract Risk Management Committee' meeting to respond to risk.

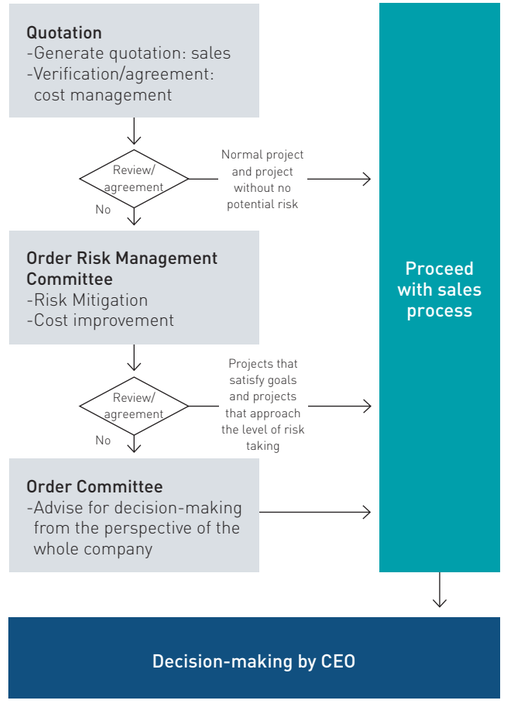
In addition, risk that may arise in the process of building ships is managed preemptively based on knowhow and data accumulated while executing various projects and system to prevent the recurrence of the same event has been established. If major defects are found during shipbuilding or after delivery, the defects are reported immediately to the management and risk is managed through two-way feedback among marketing, project management and warranty departments. By holding a quarterly quality management meeting and management discussion, we are finding ways to make an improvement actively.

Risk two-way feedback system

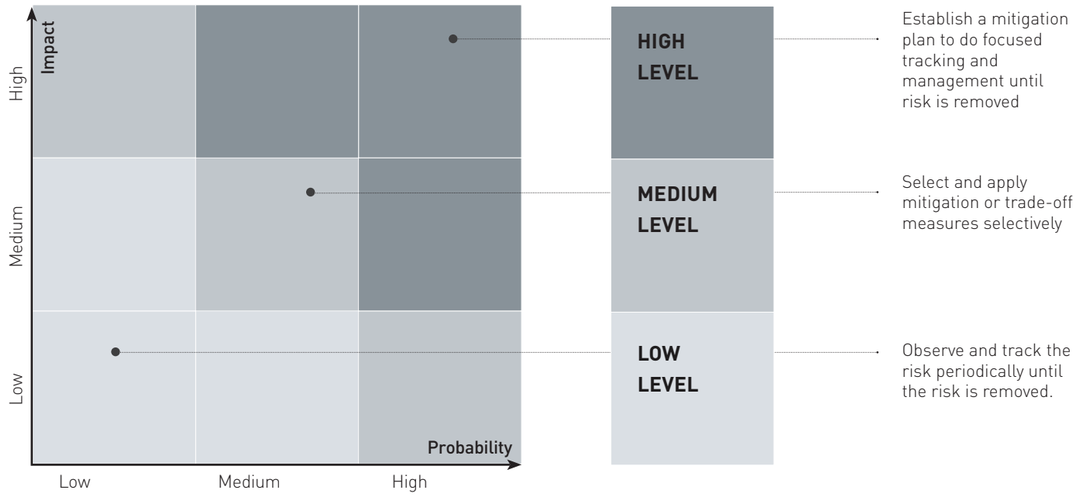
① Project management organization: feedback on risk that occurs during ship building (marketing)

② Warranty organization: feedback on risk that occurs after delivery (marketing)

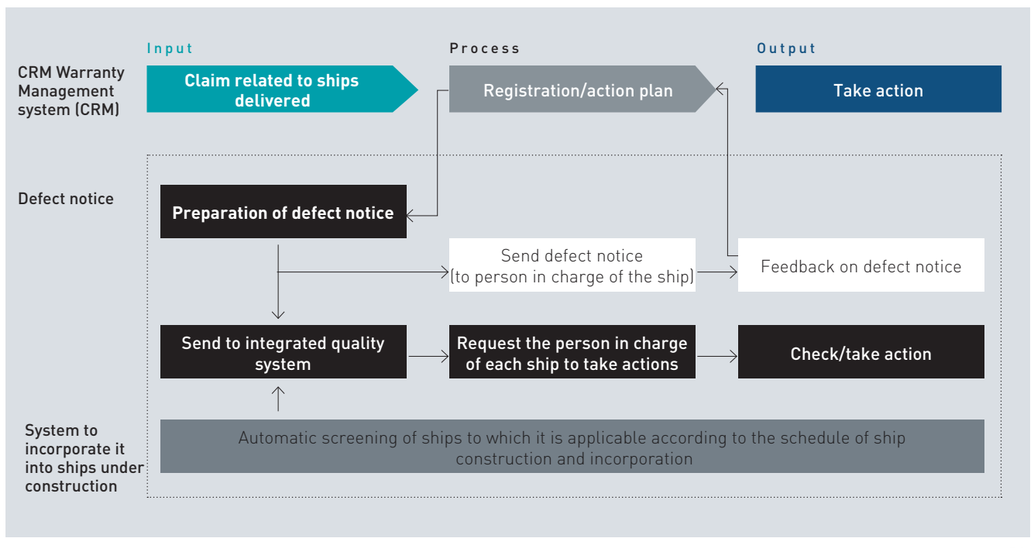
Procedure to verify order risk



Ways to manage major risk



System to prevent the recurrence of major defects in ships delivered



Design and procurement

In the area of design and procurement, DSME focuses on preemptive response to risk related to newly ordered type of ships and specifications in addition to general risk management. In collaboration with external experts in the initial stage, we conducted pre-review on key risk which is not reviewed for general ships to minimize the risk in the later stages of design and production. In case of newly adopted equipment and systems related to new types of ships, application of technology developed inhouse and equipment localization, DSME runs an Agile execution organization called 'One-Team' to secure quality and supply it timely, overcoming the limitation of collaboration among regular organizations.

Internal accounting

DSME has clarified the roles and responsibilities of CEO, Audit Committee and operating organizations in relation to operation of internal accounting control system after re-establishing internal accounting management policies according to Act on External Audit of Stock Companies which was implemented in November, 2018. In addition, it has an independent organization dedicated to internal accounting as required by the Act on External Audit of Stock Companies, promoting accounting reform continuously by reshaping the existing internal accounting control and operating system and upgrading company accounting processes and systems.

The validity of internal accounting control is important as accounting information should be handled properly to prevent risk such as error in financial statements and distortion, DSME identifies factors with an impact on the validity of internal accounting control such as changes in company regulations, work process, operating system, accounting standards and applicable laws and conducts change management more than 2 times a year based on change management system that incorporates changes in internal accounting control.

In addition, review on internal accounting control system operation is conducted more than 2 times a year and the results of such review are evaluated by external auditors. If shortcomings are found related to internal accounting control, such shortcomings are reported to CEO and Audit Committee. The final results of internal accounting control operation status check are reported to shareholders' meeting and disclosed.

Information protection and security

DSME is conducting various policies and activities to protect major information including National core technology and comply with international standards and domestic and overseas laws. It has obtained and maintained ISO/IEC 27001, an international standard for Information Security Management System(ISMS) and has Chief Information Security Officer(CISO) and Information Protection Committee. In addition, it shares information assets to be protected and security policy with employees clearly through DSME security declaration. In addition, DSME hosts a company wide security campaign every month. Along with education program at the company level by putting security posters in major buildings, it runs a strengthened training program for those vulnerable to security such as new employees.

Major content of security declaration

Assets subject to protection

A. Company's confidential information and personal information

B. Major information related to work, generated and managed through the execution of work

C. Facility, media and equipment of information system to support work

D. Physical place related to the execution of work and working environment related to equipment

Asset protection policy

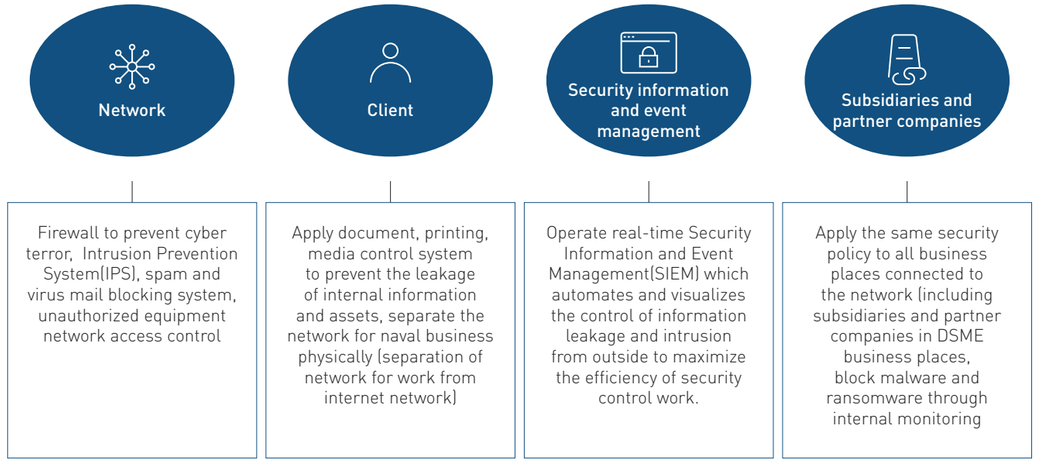
A. Establish and execute security management system to protect tangible and intangible assets

B. Establish and execute administrative, physical and technical security policies to protect tangible and intangible assets

C. Establish and implement training plans to improve all employees' capability to execute security policy

D. Establish and implement basic measures to manage security incidents, business continuity (accident prevention) and enforcement of law

ICT security system status



Future plan

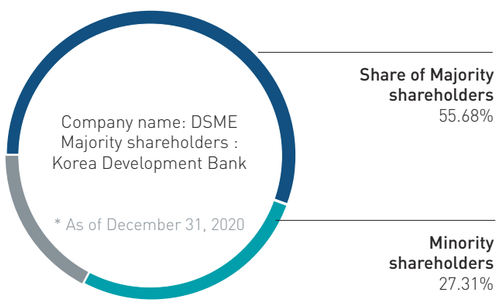
DSME will strengthen activities that protect the future value of the company by operating an integrated risk management system that covers not only business and financial risks such as market, investment, finance and operation but also non-financial and non-business elements in relation to ESG management such as environment, society and governance through the establishment of integrated risk regulations and control tower. DSME will increase the future value of a company and sustainable management possibility of sustainable management through active communication with internal and external stakeholders, analyzing macro indicators and internal and external environment regularly, providing the basis for judgement based on latest system and data and developing and monitoring risk indicators.



09
GOVERNANCE STRUCTURE

DSME pursues sustainable management activities that protect the interests of shareholders and stakeholders and enhance the ultimate value of a company by securing sound governance and running the board of directors (BOD) transparently. The BOD consists of a total of 7 directors, 3 inside and 4 outside directors, and more than half of the members are made up of outside directors. Outside directors are appointed by reviewing candidates who have professional knowledge and experience in management, finance, law and shipbuilding and marine industries, considering their career and expertise at the external director candidate recommendation committee and decided through the resolution at shareholders' meeting. The Audit Committee conducts audits on the performance and accounting of directors and management. In addition, evaluation and compensation for the directors and executives within the BOD are managed in a fair and transparent manner through an Independent Reward Committee.

Company overview



BOD Composition

Committee	Major roles
Audit Committee	Audit on the execution of work of directors/ management and accounting , selection of external auditors, and other matters defined in appricable laws/ articles of incorporation/internal policy related to audit work
Outside Director Candidate Recommendation Committee	Recommending candidates for external directors to be selected at the shareholders meeting, regular management of outside director candidate group and verification of canditates' credentials
Compensation Committee	Evaluating the process, operation and appropriateness of decision-making procedure and compensation system to reward directors/executives.

Classification	Name	Gender	Position	Current position	Committee	Initial appointment date
Inside directors	Sung Geun Lee	Male	Chairman	CEO	External Director Candidate Recommendation Committee	2019.03.29
	Du Seon Park	Male	Director	Shipyard General Manager		2020.03.25
	Yong Seok Choe	Male	Director	Head of Finance & Economy Unit	Compensation Committee	2019.03.29
Outside directors	Tae Seok Yoon	Male	Director	Professor, Yeonsei University Law School	- Audit Committee -External Director Candidate Recommendation Committee	2017.05.17
	Young Kee Chung	Male	Director	Professor, Hongik University Business School	- Audit Committee, - External Director Candidate Recommendation Committee	2017.03.30
	Dae Seung Cho	Male	Director	Professor, Department of Naval Architecture and Ocean Engineering, Pusan National University	- External Director Candidate Recommendation Committee - Compensation Committee	2019.03.29
	Jae Ho Choi	Male	Director	Non-executive auditor, Korea Credit Bureau	- Audit Committee, - External Director Candidate Recommendation Committee - Compensation Committee	2018.05.29

Operation of BOD

Items	Year			Remarks
	2018	2019	2020	
Number of BOD meetings held	19	14	12	Including special BOD meeting
Number of agenda decided	38	27	23	
Outside director attendance (%)	89.6	91.1	97.9	

Evaluation and compensation of BOD

Classification (KRW 1 million)	Number of directors	Total remuneration	Average remuneration per person	Remarks
Executive director (excluding members of Audit Committee)	3	1,030	343	Based on business report as of late 2020
Outside director(Without members of audit Committee)	1	44	44	
Outside director (Members of audit Committee)	3	169	56	

Dividend policy

DSME has a basic principle of returning the company's profits to shareholders through dividends share buybacks, and other possible options. Despite internal and external difficulties such as the slump in the shipbuilding industry that has continued since 2015 and a sharp drop in order volume, we are continuously improving our fundamentals to normalize our business. As a result of these efforts, we have achieved results, such as recording an operating profit surplus for four consecutive years from 2017 to 2020, but it is still too early to rest assured that stable profits will be achieved, because of a sharp drop in operation again in 2021. DSME believes that achieving business normalization is the cornerstone for realizing the shareholder return policy, and the long-term shareholder return policy will be reviewed as a priority item as soon as external factors such as market status are settled and business normalization is achieved and then will be shared with stakeholders.



APPENDIX

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107 Major Associations And Societies To Which DSME Belongs

108 Departments Which Contributed To The Preparation Of This Report

Information On Shares

Domestic stock market in 2020

KOSPI index in 2020 closed at 2,873.47, increased by 30.75% from the previous year. It is the increase by 675.8 point from the closing value in 2019 (2.197.67). The day with the highest KOSPI index in 2020 was December 30 at 2,873.47 and on March 19, it dropped to 1,439.43 due to COVID-19 but achieved a record high value with rapid rebound. KOSDAQ index closed at 968.42 point, increase by 44.58% from 2019 (669.83).

DSME's share trend

While oil prices dropped significantly in the aftermath of COVID-19, new building orders decreased (about -29%) significantly compared to 2019 due to a drop in global freight volume and a sharp drop in freight rates. Our stock price continued to decline until the third quarter due to slowdown in new building orders and a plunge in oil prices. From the 4th quarter, the stock price recovered to the level at the beginning of the year (27,350 won) as new building orders increased due to the economic recovery forecast and demand for eco-friendly ships.

Classification		2018	2019	2020
Face value		5,000	5,000	5,000
Total number of common stock issued (unit: shares)		107,205,752	107,205,752	107,290,669
Stock price (based on closing price)	Highest throughout the year	37,850	37,000	29,350
	Lowest throughout the year	15,350	23,950	11,200
	Closing date	34,150	27,850	27,400
Foreign ownership rate* (%)		10.89	12.44	8.99

* SOURCE: KOREA EXCHANGE (www.krx.co.kr)

Financial Statements

Classification(KRW)		19th period	20th period	21st period
Summary of consolidated financial statements		As of December 31, 2018	As of December 31, 2019	As of December 31, 2020
Assets	Current assets	7,350,036,433,186	6,871,061,134,451	5,953,237,429,075
	Cash and cash equivalents	351,189,667,631	2,012,238,821,503	1,343,559,258,347
	Trade and other receivables	706,860,654,231	369,428,201,126	675,748,812,902
	Contract assets	4,372,351,838,852	2,210,899,261,583	2,175,885,782,235
	Inventories	1,345,634,251,171	1,159,031,229,805	963,311,053,440
	Short-term financial instruments	74,778,237,847	417,252,295,834	69,893,554,199
	Others	499,221,783,454	702,211,324,600	724,838,967,952
	Non-current assets	4,568,485,087,866	4,405,017,665,738	4,367,537,424,720
	Long-term financial instruments	415,987,056,665	419,350,979,434	398,691,182,430
	Long-term trade and other receivables	195,914,774,336	91,716,759,584	77,524,312,305
	Tangible assets	3,822,851,871,102	3,694,459,007,133	3,667,874,699,831
	Intangible assets	39,774,021,246	24,722,096,776	895,560,066
	Others	93,957,364,517	174,768,822,811	222,551,670,088
	Total assets	11,918,521,521,052	11,276,078,800,189	10,320,774,853,795
Liabilities	Current liabilities	5,356,772,734,337	4,807,538,069,313	5,162,708,937,003
	Non-current liabilities	2,721,527,214,620	2,713,644,182,335	1,289,095,255,838
	Total liabilities	8,078,299,948,957	7,521,182,251,648	6,451,804,192,841
Equity	Equity attributable to owners of the parent	3,840,221,572,095	3,754,896,548,541	3,868,970,660,954
	Capital Stock	541,028,760,000	541,028,760,000	541,453,345,000
	Other paid-in capital	17,386,408,848	17,386,408,848	16,929,207,575
	Hybrid bonds	2,332,832,256,181	2,332,832,256,181	2,332,832,256,181
	Components of other capital	301,970,110,176	305,238,079,158	302,488,535,110
	Earned surplus	647,004,036,890	558,411,044,354	675,267,317,088
	Non-controlling interest			
	Total equity	3,840,221,572,095	3,754,896,548,541	3,868,970,660,954
	Total liabilities and shareholders' equity	11,918,521,521,052	11,276,078,800,189	10,320,774,853,795
Summary of consolidated statements of income				
Sales		9,644,383,546,545	8,358,744,818,823	7,030,175,197,162
Operating profit (loss)		1,024,831,703,646	292,760,934,105	153,437,091,215
Net income (loss)		320,051,707,063	(46,485,191,069)	86,572,614,374
Attribution to net income				
Equity attributable to owners of the parent		344,721,579,646	(46,485,191,069)	86,572,614,374
Non-controlling interests		(24,669,872,583)		
Earnings (loss) per share				
Basic earnings (loss) per share		2,998	(655)	583
Diluted earnings (loss) per share		2,094	(655)	524

Auditors' Report

To the Shareholders and Board of Directors of Daewoo Shipbuilding & Marine Engineering Co., Ltd.

Opinion

We have audited the consolidated financial statements of Daewoo Shipbuilding & Marine Engineering Co., Ltd. and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statement of financial position as of December 31, 2020, and the consolidated statement of income, consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2020, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS").

Basis for Opinion

We conducted our audit in accordance with Korean Standards on Auditing ("KSAs"). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with Korean IFRS and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KSAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Joo Dae-hyeon, Certified Public Accountant.

Samil PwC
CEO Hoonsoo Yoon
March 17, 2021

This report is effective as of March 17, 2021, the auditors' report date. Accordingly, certain subsequent events or circumstances may have occurred between the auditors' report date and the time this audit report is read. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

GRI Standard Index

Topic	Disclosure	Description	Reporting Page	Remark
GRI Universal Standards(GRI 100)				
Organizational Profile	102-1	Name of the organization	18	
	102-2	Activities, brands, products, and services	18, 23	
	102-3	Location of headquarters	18	
	102-4	Location of operations	20-21	
	102-5	Ownership and legal form	94	
	102-6	Markets served	20-21	
	102-7	Scale of the organization	18-19, 26-27	
	102-8	Information on employees and other workers	54	Gender/regional distribution is not reported
	102-9	Supply chain	20-21, 77~78	
	102-10	Significant changes to the organization and its supply chain	N/A	
	102-11	Precautionary Principle or approach	90-93	
	102-12	External initiatives	32-33	
	102-13	Membership of associations	107	
Strategy	102-14	Statement from senior decision-maker	6-7	
	102-15	Key impacts, risks, and opportunities	22-25	
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	82-89	
	102-17	Mechanisms for advice and concerns about ethics	83-84	
Governance	102-18	Governance structure	94-95	ESG Implementation Group has been in operation since 2021 and the ESG Committee will be established within the BOD in 2022.
	102-21	Consulting stakeholders on economic, environmental, and social topics	31	ESG Implementation Group has been in operation since 2021 and the ESG Committee will be established within the BOD in 2022.
	102-22	Composition of the highest governance body and its committees	95	
	102-23	Chair of the highest governance body	95	
	102-24	Nominating and selecting the highest governance body	95	
	102-30	Effectiveness of risk management processes	91-92	
	102-33	Communicating critical concerns	95	
	102-34	Nature and total number of critical concerns	95	
	102-35	Remuneration policies	95	
Stakeholder Engagement	102-40	List of stakeholder groups	31	
	102-41	Collective argaining agreements	59	
	102-42	Identifying and selecting stakeholders	31	
	102-43	Approach to stakeholder engagement	31, 34	
	102-44	Key topics and concerns raised	31, 34	
Reporting Practice	102-45	Entities included in the consolidated financial statements	20-21	
	102-46	Defining report content and topic Boundaries	2	
	102-47	List of material topics	34-35	
	102-48	Restatements of information	N/A	
	102-49	Changes in reporting	N/A	
	102-50	Reporting period	2	
	102-51	Date of most recent report	2	
Reporting Practice	102-52	Reporting cycle	2	
	102-53	Contact point for questions regarding the report	2	
	102-54	Claims of reporting in accordance with the GRI Standards	2	
	102-55	GRI content index	102-103	
	102-56	External assurance	104-105	
Economic Performance(GRI 200)				
Economic Performance	201-1	Direct economic value generated and distributed	18-19	
	201-2	Financial implications and other risks and opportunities due to climate change	72-75	
Indirect Economic Impacts	203-1	Infrastructure investments and services supported	79-81	
	203-2	Significant indirect economic impacts	26-27, 79-81	
Procurement Practices	204-1	Proportion of spending on local suppliers	18-19, 78	
Anti-corruption	205-2	Communication and training about anti-corruption policies and procedures	87-89	
Environmental Performance(GRI 300)				
Energy	302-1	Energy consumption within the organization	74	
Water and Effluents	303-5	water consumption	74	
Emissions	305-1	Direct (Scope 1) GHG emissions	74	
	305-2	Energy indirect (Scope 2) GHG emissions	74	
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	74	
Waste	306-1	Waste generation and significant waste-related impacts	74	
Social Performance(GRI 400)				
Employment	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	58	
Occupational Health and Safety	403-1	Workers representation in formal joint management–worker health and safety committees	66-71	
	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	67	
	403-3	Occupational health services	68	
	403-4	Worker participation, consultation, and communication on occupational health and safety	68	
	403-5	Worker training on occupational health and safety	68	
	403-6	Promotion of worker health	68	
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	68-69	
	403-8	Workers covered by the Occupational Health and Safety Management System	68-71	
Management Approach	103-1	Explanation of the material topic and its Boundary	34-35	
	103-2	The management approach and its components	36-43	
	103-3	Evaluation of the management approach	36-43	
Training and Education	404-1	Average hours of training per year per employee	55	
	404-2	Programs for upgrading employee skills and transition assistance programs	56-57	
	404-3	Percentage of employees receiving regular performance and career development reviews	57	
Local Communities	413–1	Operations with local community engagement, impact assessments, and development programs	79-81	

Independent Assurance Statement

Introduction Daewoo Shipbuilding & Marine Engineering Co., Ltd. ("DSME") commissioned DNV Business Assurance Korea Ltd. ("DNV"), part of DNV Group, to undertake independent assurance of the DSME Integrated Report 2021 (the "Report"). The directors of DSME have the sole responsibility for the preparation of the Report. The responsibility of DNV in performing the assurance work is to the management of DSME in accordance with the terms of reference. DNV's assurance engagements are based on the assumption that the data and information provided by the client to us as part of our review have been provided in good faith.

Scope and Basis of assurance Based on non-financial data, sustainability activities and performance data of 2020 generated from DSME, we have evaluated the adherence to the Reporting Principles for defining report content set forth in the GRI (Global Reporting Initiative) Sustainability Reporting Standards 2020 and assessed the quality of sustainability performance information. We have reviewed that the Topic-specific disclosures of GRI Standards which are identified in the materiality assessment process;

No.	Material Topics	GRI Topic Specific Disclosure
1	R&D and Innovation	-[1]
2	Talent Management	404-1, 404-2, 404-3
3	Customer and Quality	-
4	Safety and Health	403-8

We performed our work using DNV's assurance methodology VeriSustainTM , which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000). We applied the limited level and assurance on reporting principles in the assurance engagement. The verification was carried out from May to June 2021. The site visits were made to DSME's Head Office in Okpo Shipyard. We undertook the following activities as part of the assurance process:

- challenged the sustainability-related statements and claims made in the Report and assessed the robustness of the underlying data management system, information flow and controls;
- interviewed representatives from the various departments;
- conducted document reviews, data sampling and interrogation of supporting databases and associated reporting systems as they relate to selected content and performance data;
- reviewed the materiality assessment report.

Limitations The engagement excludes the Sustainable Management, performance and reporting practices of DSME's subsidiaries except DSME, associated companies, suppliers, contractors and any third-parties mentioned in the Report. We did not interview external stakeholders as part of this Assurance Engagement. Economic performance based on the financial data is cross-checked with internal documents, the audited consolidated financial statements and the announcement disclosed at the website of Korea Financial Supervisory Service (http://dart.fss.or.kr) as well as DSME's website (www.DSME.co.kr). These documents, financial statements and the announcements are not included in this Assurance Engagement. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied. The baseline data for environmental and social performance are not verified, while the aggregated data at the corporate level are used for the verification. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

Conclusion On the basis of the work undertaken, nothing comes to our attention to suggest that the Report does not properly describe the adherence to the Reporting Principles for defining report content defined in GRI Standards 2020. Further opinions with regards to the adherence to the following Principles are made below;

Stakeholder Inclusiveness DSME has identified internal and external stakeholder groups such as Customers, Shareholders/Investors, Employees, Partners/Suppliers, Government/Industry, and Local community. DSME engages with the stakeholders at the company and business unit levels through various communication channels and relevant issues raised from the stakeholders strives to reflect the results in its management activities. The activities to engage with selected stakeholders and relevant issues are described in the report. DSME expresses its commitment to the responsibilities of stakeholders through a message from management level.

Sustainability Context Based on the company's vision of 'As a leading shipbuilder, we pursue technological excellence to lead the market and achieve sustainable growth', DSME has established an ESG dedicated organization in 2021 to maximize the value of stakeholders and implement ESG management. DSME introduces the sustainability activities in aligned with the UN Sustainable Development Goals (SDGs) connected to the business area and shows the Creation and Distribution of Economic, Social and Environmental values resulting from corporate activities in the report. DSME could report measurable targets for med- and long-term sustainability aspects in the future reporting and the progress. The assurance team recommends that the company's sustainability issues identified from the value chain analysis and materiality assessment will be managed in conjunction with company's sustainability key tasks.

Materiality DSME has conducted the materiality assessment to prepare the Report. The relevant 24 issue pool has been derived by analysing the Material topics from the global sustainability initiatives and standards, benchmarking in the same industry, the analysis of internal and external ESG-related issues. The issue pools are evaluated by the internal and external stakeholders' survey and internal review and subsequently 5 prioritized issues are reported as 4 Material topics. The assurance team has reviewed the materiality assessment process and confirmed relevant Material topics prioritized from the process are addressed in the Report. In addition, the Report helps readers understand DSME's Sustainable Management by reporting key stakeholder impacts from the perspectives of Sales, Cost, Risk and Reputation that are linked to Material topics.

Completeness DSME provides stakeholders with a background on selection of Material topics, Sustainable Management approach, 2020 major outcome and future implementation plan. The reporting boundary is set to include sustainability activities and outcomes from all business sites in Korea such as head office (Okpo shipyard), Seoul office and Siheung R&D campus. The assurance team confirmed that the Material topics selected through the materiality assessment are not missed in terms of the spatial and time boundaries.

Further opinions with the principles of report quality of GRI Standards as follows;

Report quality: Accuracy, Balance, Clarity, Comparability, Reliability and Timeliness DNV has sampled data and tested accuracy and reliability. The assurance team interviewed the data owners and reviewed the data gathering process with the supporting documents and records. The depth of data verification is limited to the aggregated data level. Based on the test, the intentional error or misstatement is not noted from the data and information disclosed in the Report. Data owners were able to demonstrate the origin and interpretation of the data in a reliable manner. The data was identifiable and traceable. In addition, the Report provides the last three years performance on Material topics, which helps stakeholders understand the changes over years in organizational performance. DSME could issue the Report yearly to provide stakeholders with material sustainability information timely.

Competence and Independence

DNV applies its own management standards and compliance policies for quality control, in accordance with ISO/IEC 17021:2015 - Conformity Assessment Requirements for bodies providing audit and certification of management systems, and accordingly maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. We have complied with the DNV Code of Conduct during the assurance engagement and maintain independence where required by relevant ethical requirements. This engagement work was carried out by an independent team of sustainability assurance professionals. DNV was not involved in the preparation of statements or data included in the Report except for this Assurance Statement. DNV maintains complete impartiality toward stakeholders interviewed during the assurance process. DNV did not provide any services to DSME in 2020 that could compromise the independence or impartiality of our work.

June 2021
Seoul, Korea

DNV

Jang Sup Lee
Country Representative
DNV Business Assurance Korea Ltd.

1) '-' means Non-GRI
2) The VeriSustain protocol is available upon request at DNV GL website. (www.dnvgl.com/assurance/reporting/verification.html)

Greenhouse Gas Emissions Verification Statement

Verification Statement on 2020 Greenhouse Gas Emisson Report

Verification Target

Korean Foundation for Quality (hereinafter "KFQ") has conducted the verification of "2020 Report on Quantity of emitted Greenhouse gas and Energy Consumption (hereinafter 'Inventory Report") for DSME CO., Ltd. (hereinafter 'the Company')

Verification Scope

KFQ's verification was focused on all the facilities which emitted the greenhouse gas during the year of 2020 under the Company's operational control and organizational boundary.

Verification Criteria

The Verification is based on 'Rule for emission reporting and certification of greenhouse gas emission tranding Scheme (Notification No. 2018-70 of Ministry of Environment)'

Verification Procedure

The Verification has been planned and conducted as the 'Rules for verification of operating the greenhouse gas emission trading scheme', and the level of assurance for verification shall be satisfied as reasonable level of assurance. And it confirmed through the internal review whether the process before the verification conducted effectively.

Verification Limitation

The verification shall contain the potential inherent limitation in the process of application of the verification criteria and methodology.

Verification Opinions

Regarding to the data of the Greenhouse Gas Emission and Energy Consumption from the report through the verification, KFQ provides our verification opinions as below;

1) The Inventory Report has been stated in accordance with 'Rule for emission reporting and certification of greenhouse gas emission tranding Scheme'
2) The result of Material discrepancy satisfied the criteria for an organization that emits more than 500,000 tCO_2eq shall not exceed 5% from total emission as per "Greenhouse Gas and Energy Target Management Scheme"
3) Thus, KFQ conclude that the Greenhouse Gas Emissions and Energy Consumption of the Company in 2020 is correctly calculated and stated in accordance with 'Rules for verification of operating the greenhouse gas emission trading scheme'.

Report Year(ton CO_2eq)	**Emission of Scope 1**	**Emission of Scope 2**	**Total Annual Emission**
2020	128,236	232,167	360,403

June 2th, 2021

CEO Ji-Young Song
Korean Foundation for Quality (KFQ)

Ji Young Song

Major Associations And Societies To Which DSME Belongs

Korea Offshore & Shipbuilding Association	The Society of Naval Architects of Korea	Korea Defense Industry Association
KEF Corporate Safety and Health Committee	Korea LNG Bunkering Industry Association	The Korea Gas Union
Korea Listed Companies Association	Korea AEO Association	Korea Industrial Technology Association
The Korea Association for Industrial Technology Security	Korea Project Management Association	The Korean Welding and Joining Society
Korea Association of Robot Industry	Korea Customs Logistics Association	The Korean Society of Ocean Engineers
Korea Hydrogen Industry Association	WGC2022 Organizing Committee	

Departments Which Contributed To The Preparation Of This Report

Contributed to the preparation of this report	Business Management Department
	Utility & Equipment Support Department
	Facility & Construction Department
	Environmental & Health Management Department
	Naval & Special Ship Business Planning Department
	Business Planning Department
	Quality Planning Part
	Technology Planning Department
	Design Operations Management Department
	Safety Management Planning Department
	Human Resources Department 1
	Human Resources Department 2
	Production Strategy Department
	Production Operations Department
	General Affairs Department
	Legal Planning Department
	Co-prosperity Planning Department
	Duty Diagnosis Department 2
	Security Management Department
	Procurement Planning Department
	Corporate Auditing & Consulting Division
	Seoul Accounting Part
	Finance Planning Department
	Investment & Planning Department
	Tax Accounting & Property Management Department
	Strategic Planning Department
Cooperation with the preparation of this report	Corporate Culture Department
	Public Relations Department
Planning the report, leading	ESG Office









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