

The NYK Group ESG Story

February 3, 2021



Bringing Value To Life.

Bringing value to life.

Delivering products and services
when and where they are needed
Remaining essential to society



Remaining Essential to Society



Addressing social issues through our businesses to create new value

Sustainable Solution Provider



ESG yardsticks

E
Environment

S
Society

G
Governance

Initiatives and foundations the NYK Group has developed

What Will the NYK Group's ESG Management Look Like?

Advancement of business management, Increase in value creation

Existing yardsticks

Maximization of earnings

- Economic efficiency
- Business scale
- Market



New yardsticks

Sustainability of society and the environment

- The global environment
- Local communities
- Job satisfaction
- Stakeholders

Advancement of business management, Increase in value creation

Bringing value to life.

ESG management

Acceleration of ESG management

Governance

Materiality
(safety, the environment, and human resources)

The Approach of ESG Management

Remaining Essential to Society

Becoming the preferred choice of clients and partners/
Enhancing employee satisfaction

Creating new value

Differentiating
existing businesses

Expanding
business fields

Addressing social and
environmental issues

Sustainable
Solution Provider

Using ESG
yardsticks



Investing
management
resources

⟨talent, assets, investments, and data⟩

The Road Map for Becoming a Sustainable Solution Provider

1

New Value Creation
to Realize the NYK Group of Tomorrow

2

Bolstering of Human Resources and Organizations
to Advance New Value Creation

3

Strengthening of the Management Base
to Support ESG Management



1.

New Value Creation

to Realize the NYK Group of Tomorrow

Value the NYK Group Will Create Going Forward

Maximization of earnings



Sustainability of society and the environment

Expansion and advancement of logistics field

Keeping logistics lifelines operational

Inclusiveness

Facilitation of efficient ship operations

Environmental burden reduction

Climate change countermeasures

Fostering and cooperation of partners

Collaborative creation with stakeholders

Clean energy

Job satisfaction

Development of new businesses

Evolution of businesses

High-quality education

Global partnerships

Industrial and technological innovation

Pursuit of Goals in New and Existing Fields

Value the NYK Group Will Create Going Forward

Maximization of earnings



Sustainability of society and the environment

Priority Goals

Existing Fields

1 Ensuring Safe Ship Operations

2 Reducing GHG Emissions

New Fields

3 Taking On Ambitious Initiatives in the Energy Field

4 Addressing Social Issues

Digitalization and Green

Medium-term management plan

Data analysis application development

- Streamline methods for collecting ship data and establish a cleansing and storage environment
- Develop applications for optimal ship operations

Enhancement of ship operation technologies

Optimization of the supply chain

- Research and introduce practical utilization of digital twin and automation technologies

Fuel conversion

Green business

- Unearth new businesses directly and indirectly linked to renewable energy

Technological innovation



1-1

Ensuring Safe Ship Operations

A priority social responsibility

**People create safety, and safety
protects people and the ocean.**

Given that people create value, we believe safety is at the very base of value creation.

Capabilities We Have Developed



Advancement structure



Protect Crew Members' Lives and the Environment through Safe Ship Operations



People create safety, and safety protects and fosters people.

Initiative 1

Enhancing the Safety of People and Ships

⟨rules, systems, and campaigns⟩



Initiative 2

Enhancing Capabilities That Produce Safety

⟨using people and digital technologies in combination⟩

[Causes of maritime shipping incidents]

Procedural violations

Lack of experience

Lack of education
or training

Lack of supervision

Communication errors

Implementation of rules and regulations and understanding of safety concerns

NAV9000

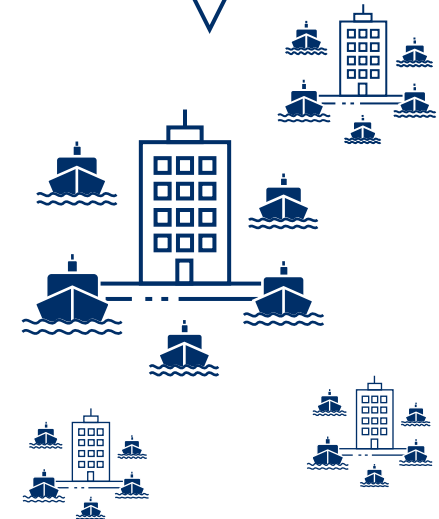
NYK NAV9000 checklist of approximately 1,500 items aimed at safe ship operations and environmental preservation

Request ship safety assessment or improvement

Covering the entire fleet, **approximately 750 ships**, including owned and chartered ships
Conducting safety assessments of **approximately 250 ships and 30 companies** per year



Request
Report



- ✓ Sharing information on current status of safety standards on board ships
- ✓ Pointing out areas to be improved
- ✓ Providing advice on ship operations and ship-management

External events

Countermeasures to incidents, revisions to rules and regulations, revisions to industry standards and guidelines, etc.

Submit corrective action plan

Forming safety DNA rapidly and embedding behavior

Crew member education and campaigns

Establishing safety DNA

Practicing and embedding safety

Company entry

Third officers and third engineers

Captains and chief engineers

NYK-operated maritime academy

NTMA (Philippines)

NYK-TDG Maritime Academy

Cultivating **high levels of safety awareness and loyalty** through a curriculum developed based on more than 10 years of experience since establishment



NYK Maritime College

Forming a **unified safety culture among all seafarers**, regardless of their academic backgrounds or nationalities

Providing experience of **advanced safety training close to actual operational conditions** through the use of independently developed STARS educational software, on-the-job training, and simulators

Acquiring additional skills required for each elevation in class



Activities for promoting safety

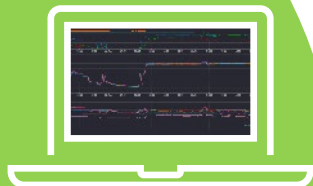
- Safety campaigns
- Near Miss 3000 (DEVIL Hunting!)
- *Calm Sea*
- Seamanship calendar
- NYK AWARE, etc.



Utilizing big data to avoid danger

SIMS Ship Information Management System

LIVE for Shipmanager



A viewer application that allows users to compile and process various data on ship operations for engine performance analysis, reduction of GHG emissions, early prediction of latent system/machinery failure, condition-based maintenance, etc.



Sharing of data on ship operations, fuel efficiency, and sea conditions

SIMS

Measuring ship operation status and fuel efficiency data

Utilizing weather data to calculate efficient routes

NYK / Ship-management companies



Introduced on approximately 200 ships

Toward higher safety levels

Remote Diagnostic Center (Manila, Philippines)

DQMS

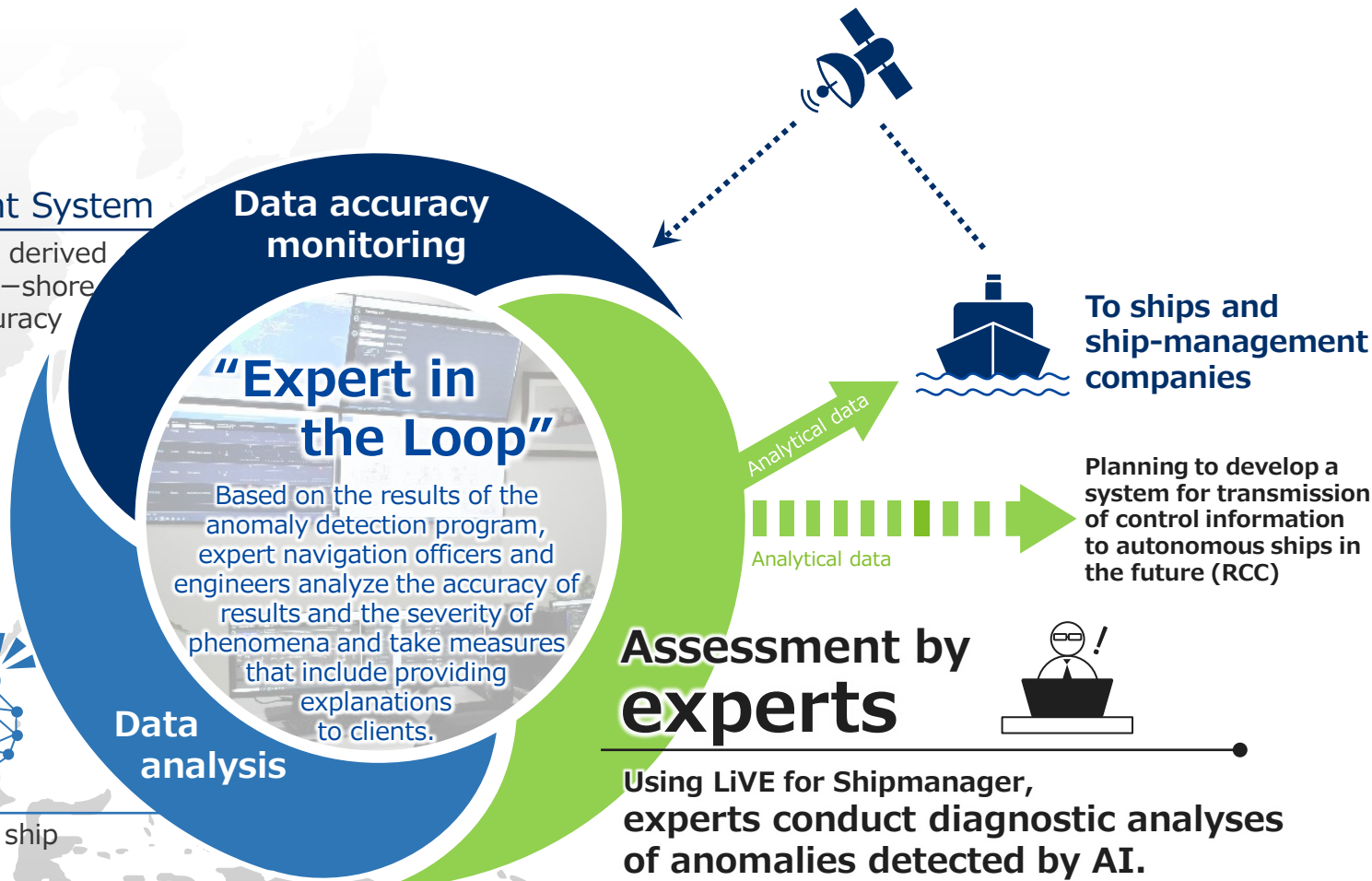
Data Quality Management System

Monitoring data loss/delay ratio derived from quality fluctuations in ship–shore communication and sensor accuracy

Maintaining data quality at an acceptable level for big-data analysis

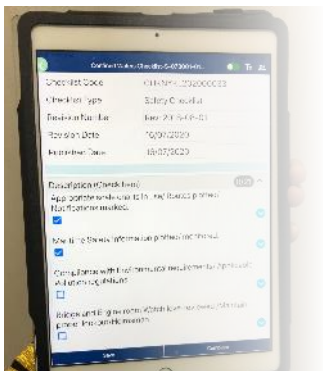
Anomaly detection program

Using AI to detect anomalies in ship engine plants



Lightening workloads through common work platforms

NiBiKi



Lightening workloads through data sharing

Accumulating accurate data through automatic recording



Benefits

- Heightening the quality of ship-operations work and **reducing the risk of accidents and environmental pollution**
- **More-accurate data analysis**
- **Utilization in crew member education and training**

Aiming for more-advanced analysis through combination with SIMS data

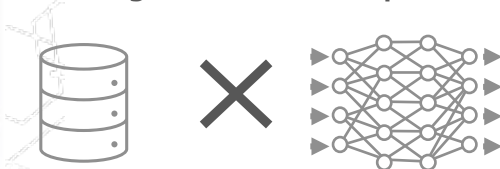
Utilizing research on manned autonomous ships in decision-making on safe ship operations

APEXS Action Planning and Execution System



30 years of ship-handling data

Algorithms based on experience



Research underway

- Reduction of accidents through **automatic collision avoidance functions**
- Efficient ship operations through **support from onshore facility**
- **Remote operation in emergencies**

Aiming to realize the operation of manned autonomous ships from onshore facility (RCC: Remote Control Center)

1-2

Reducing GHG Emissions

**A task that we must tackle for
business continuity**

**We will simultaneously realize GHG
emission reductions and business
strategies.**

In addressing this pressing task, we will not only focus on our operations but also work with clients and partners to take on measures spanning the entire value chain.

Growing Awareness of Environmental Preservation

1997

Adoption of the Kyoto Protocol

2013

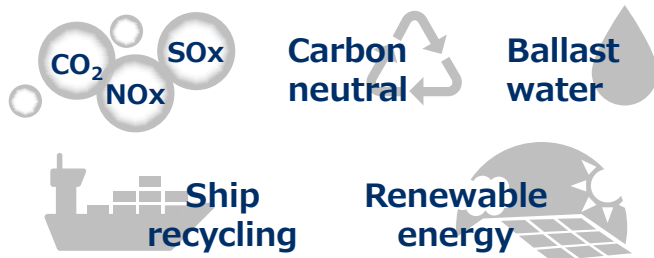
Adoption of conventions related to energy efficiency (EEDI and SEEMP)

2015

Adoption of the Paris Agreement

2018

Initial IMO GHG Strategy
of the International Maritime Organization (IMO)



Oct.
2020

“Pledge to reduce Japan’s GHG emissions to net zero by 2050”
in a policy speech by Japan’s prime minister Yoshihide Suga

GHG Reduction Targets of the IMO

Average fuel consumption per unit of transportation compared with 2008

2030 **40% less**

2050 **70% less**

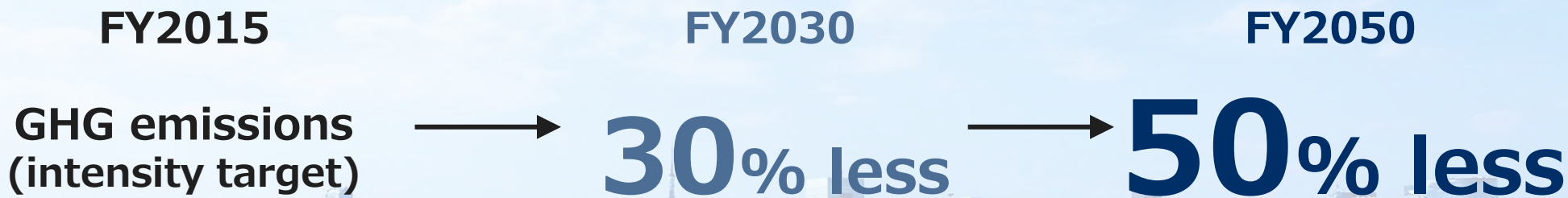
Total emissions **50% less**

Phase out GHG
as soon as possible in this century

Reduction of GHG emissions a prerequisite for business continuity

Growing Awareness of Environmental Preservation

The NYK Group's reduction targets for GHG emissions [Science Based Targets certification acquired]

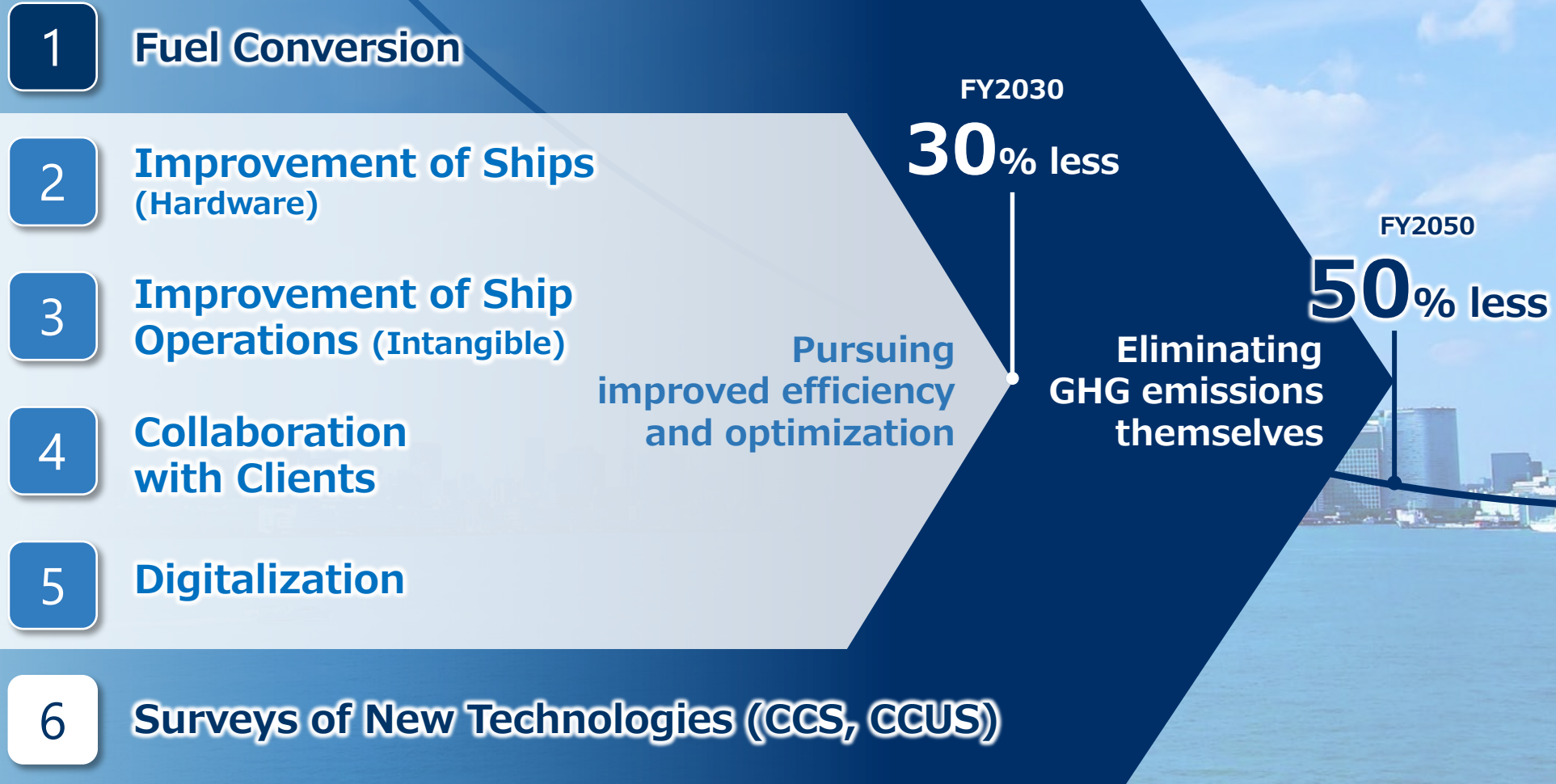


GHG emissions 

Transportation volume 
× Transportation distance

Working with various clients and partners to acquire a competitive advantage through an **environment-friendly value chain**

Process for Achieving Environmental Targets



For details on "3 Improvement of Ship Operations (Intangible)" and "6 Surveys of New Technologies (CCS, CCUS)," please see the booklet.

Aiming to introduce zero-emission ships early to reach 2050 target

2030

2050

STEP 1 : Converting to LNG fuel

Training crew members for LNG-fueled ships

- ▷ Training crew members at NTMA



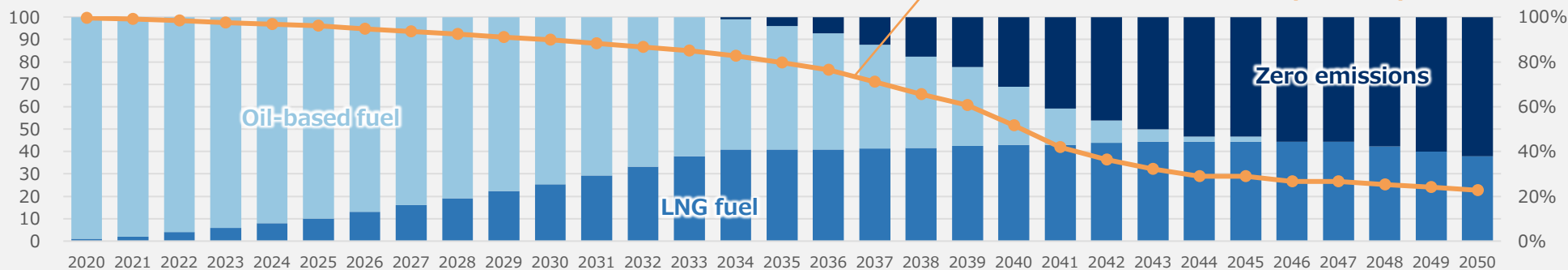
STEP 2 : zero emissions

Conducting R&D on zero-emission ships

- ▷ Researching alternative energy



Example: Outline of long-distance car carrier portfolio if zero-emission ships are viable by 2034



NYK SUPER ECO SHIP 2050

Weight reduction and stability



Hull optimization and new materials



Pontoons and gyrostabilizers

Propulsion efficiency



Propulsion: Flapping foils

Friction reduction: Air-lubrication system and hull-cleaning robots

Alternative-fuel equipment

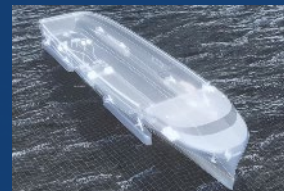


Solar panels

Hydrogen fuel cells and exhaust heat utilization

Optimizing voyage plans

Digital twins and AI analytics



Hardware Innovation

Intangible Innovation

Advancing joint development through open innovation

Industry collaboration

Example:
Getting to Zero Coalition

Advancing R&D for the introduction of zero-emission ships

Improving
propulsion
performance of
the entire fleet

Pursuing fuel
efficiency for the
entire fleet

Technology development

Example:
The Maersk Mc-Kinney
Moller Center for Zero
Carbon Shipping

Marine industry collaboration

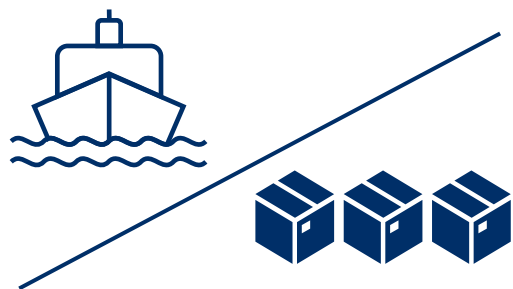
Example:
International Shipping GHG Zero
Emissions Project

Building deeper collaborative relationships by offering solutions that help solve clients' issues

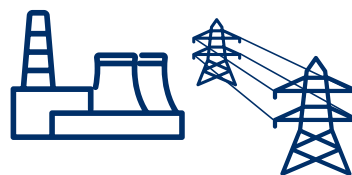
Increasing the efficiency of route and cargo-handling plans

Carbon credits

Sustainability marketing



Offering to all clients



Purchasing and utilizing based on client requests



Conducting exploratory interviews with various clients

Solution examples

Commutating and standardizing ship data

Integrating/Sharing/Analyzing

Collecting data

SIMS
NiBiKi
IBIS
RDC

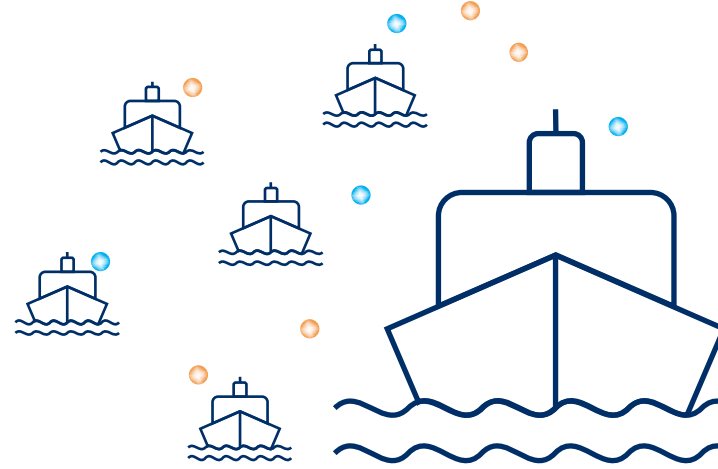
- DQMS
- Anomaly detection program

ROSE

Intensifying the utilization of ship performance monitoring

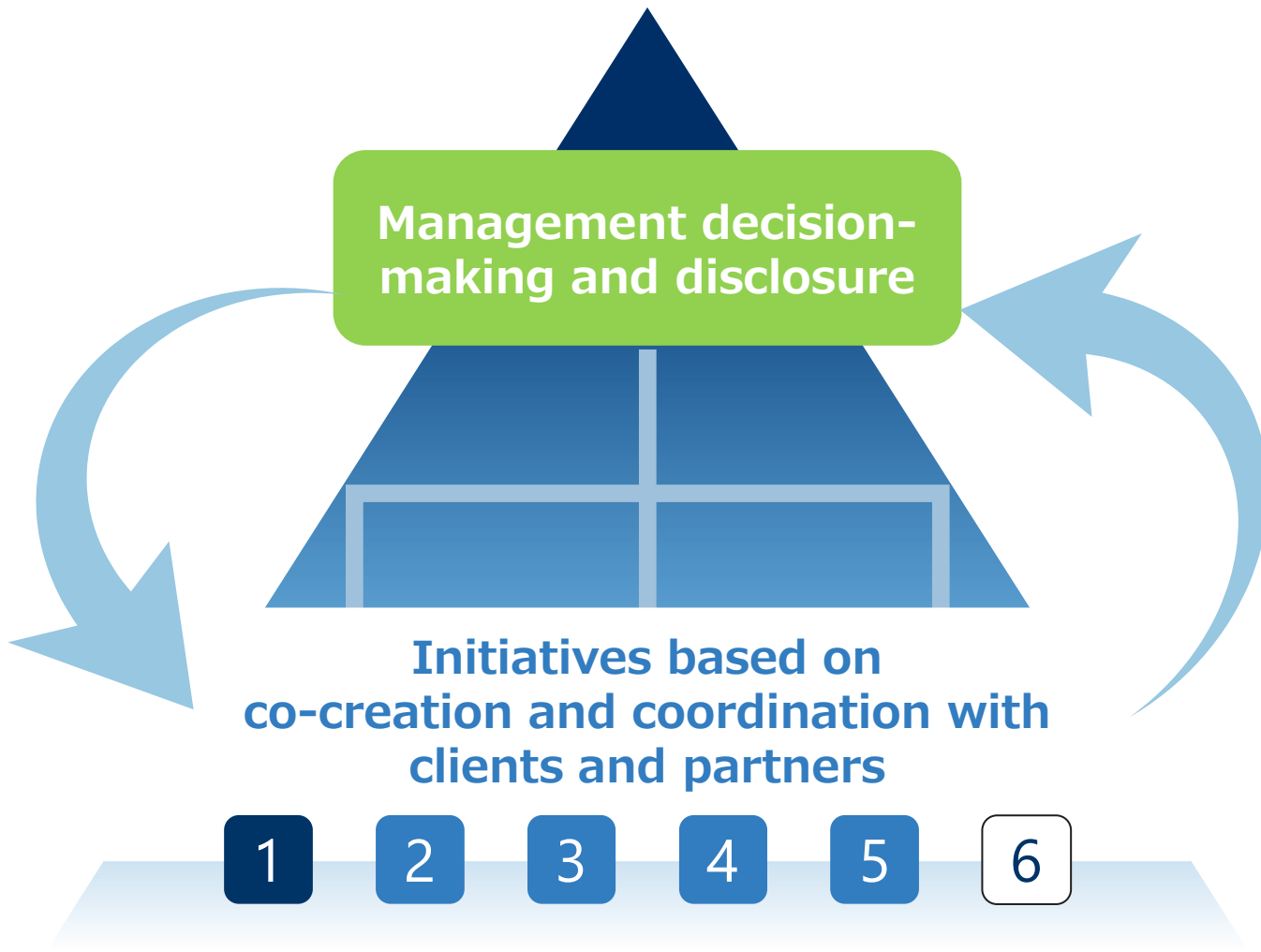
Developing a user-friendly database

Advancing analytic methods and technologies



Utilizing to improve ships and ship operations

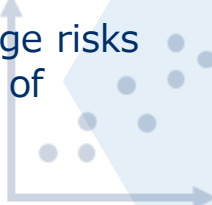
Building trust with stakeholders



Supervision performed by the Board of Directors

Ensuring rigorous risk management

- Identifying climate change risks
- Monitoring the progress of measures



Utilizing ESG indicators in investment and funding activities

- Introducing ICP
- Sustainability-linked finance



Monitoring and disclosure based on TCFD



Governance

Structure and examination methods



Strategies

Short-term, medium-term, and long-term corporate management



Risk management

Methods of identifying, evaluating, and reducing risks



Indicators and goals

Evaluation indicators for risks and opportunities and progress toward goal attainment

1-3

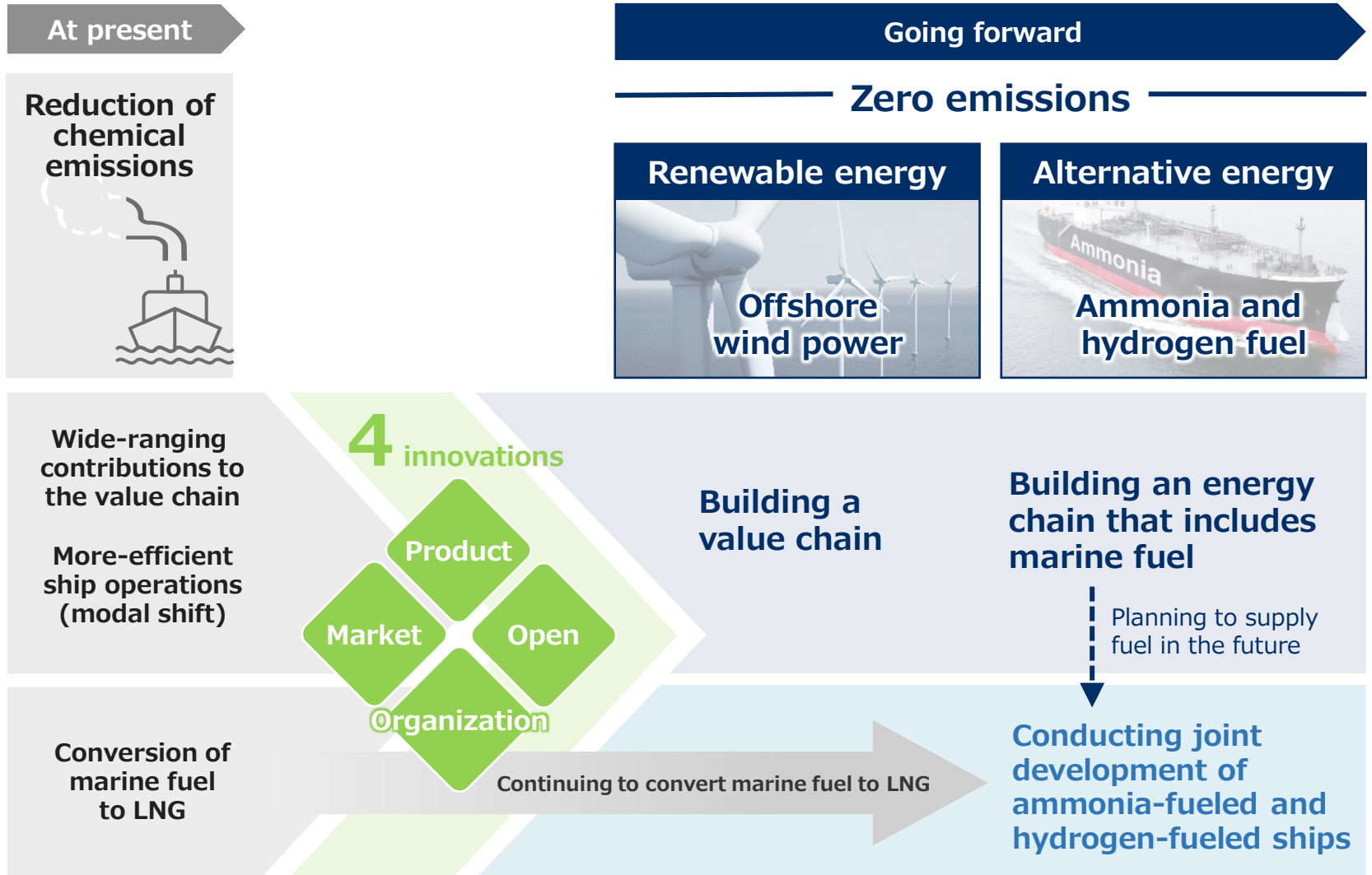
Taking On Ambitious Initiatives in the Energy Field

Creating new core businesses

Energy is essential for daily life.

By changing our business model, we will contribute to energy conversion in society as a whole.

Taking On Ambitious Initiatives in the Energy Field



Target profile > **Contributing to the development of Japan's offshore wind power**

Supplying **Building the value chain**

European partners

- Strong connections with offshore wind power-related companies
- Conversant with the business model

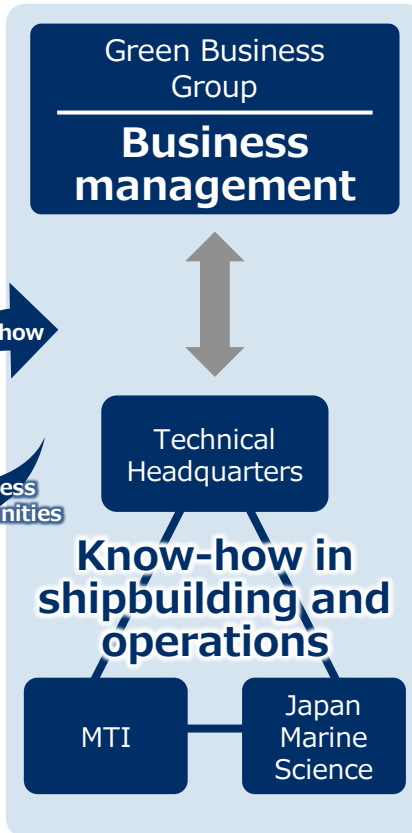
Business

Track record and expertise in offshore wind power

Technology

- Installation
- Technologies for self-elevated platform (SEP) vessel operations
- Crew transfer vessel (CTV) design and operations

The NYK Group



Know-how
Business opportunities



Marine consulting



Module ships



Heavy-lift ships



Logistics

Logistics

Ammonia Fuel

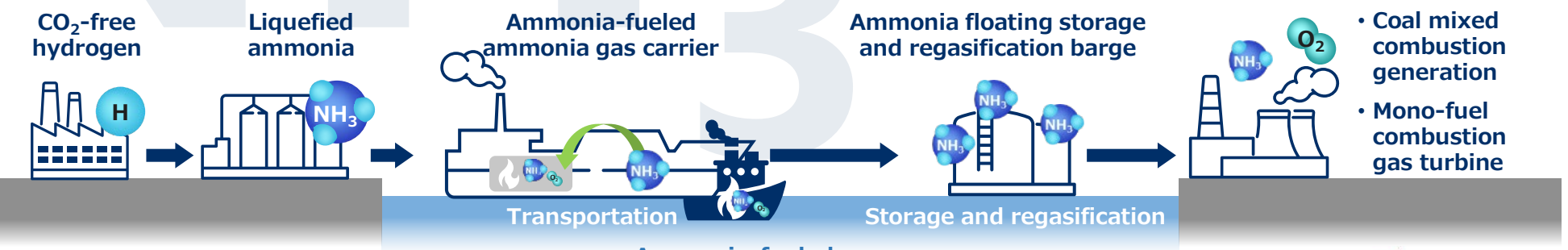
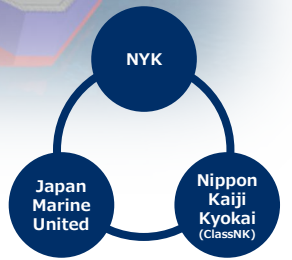


Target profile ➤ **Leveraging the partnerships and know-how we have developed to realize early commercialization and to build an energy chain**

Supplying Building an energy chain that includes marine fuel

Consuming Developing ammonia-fueled ships

August 2020
Agreement on joint development with a view to practical application
 We will leverage a range of expertise to advance R&D aimed at increasing marine transportation infrastructure.



September 2020
Development of technologies and ship operations with a view to practical application
 We aim to realize early practical application by drawing on our knowledge of LNG-fueled tugboats.



Target profile > **With research on transportation and marine fuel utilization as main focuses, creating a global energy chain to realize a hydrogen energy-based society**

Supplying Building an energy chain that includes marine fuel

June 2020



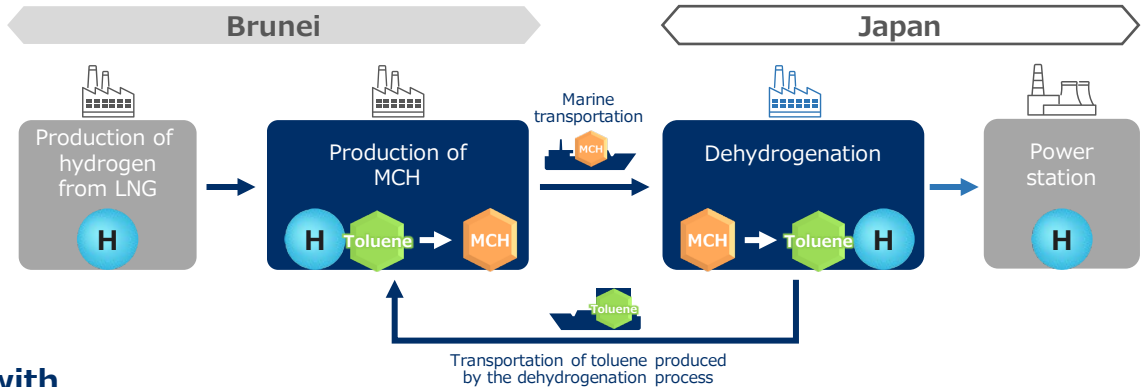
Beginning of demonstration of the world's first international hydrogen supply chain
 We will conduct further examinations with the aim of building a supply chain going forward.

Consuming Developing ammonia-fueled ships

September 2020



Demonstration project for the commercialization of ships equipped with high-power hydrogen fuel cells
 We are planning to begin proving tests at Yokohama Port in 2024.



ENEOS
 • Supply of hydrogen fuel

NYK
 Ship development, building, and operation

Toshiba Energy Systems & Solutions Corporation
 • High-power fuel cell modules

Kawasaki Heavy Industries
 • Onboard fuel supply system
 • Energy management system

Nippon Kaiji Kyokai (ClassNK)
 • Verification of ship safety

2020 2030 2050

Supplying

Offshore wind power

- Began onshore wind power business at a car carrier terminal in Belgium
- Begin operations of an offshore geotechnical investigation vessel
- Begin ownership and operation of self-elevated platform (SEP) vessel
- Begin ownership and operation of crew transfer vessels (CTVs)
- Participate in offshore wind power business
- Participate in entire offshore wind power value chain

Grow into mainstay business that contributes to Company earnings

Hydrogen supply chain

- Demonstration of hydrogen supply chain
- Begin demonstration to supply hydrogen to ships
- Supply hydrogen as fuel to ships

Participate in hydrogen supply chain
Develop into profit-making business

Ammonia supply chain

- Began joint development with external partners
- Supply ammonia-fuel mixed combustion for coal-fired thermal power generation

Participate in the ammonia supply chain
Develop into profit-making business

Consuming

Ammonia and hydrogen

- Began joint R&D on ships with external partners
 - Begin demonstration of the operation of ships equipped with hydrogen fuel cells
- Introduce our own ammonia-fueled and hydrogen-fueled ships**

LNG

Heavy oil



More Than 40 Projects Currently Underway





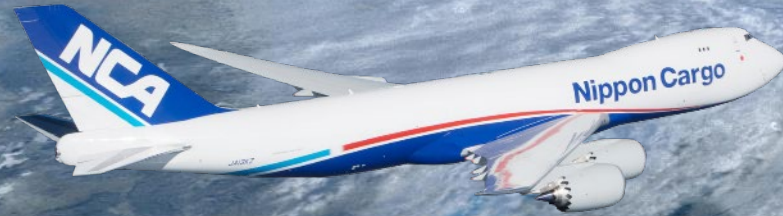
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Addressing Social Issues

Developing social issue-driven initiatives

**There are social issues that no one
has been able to solve.**

Drawing on its resources and adopting a fresh perspective, the NYK Group will do everything it can both internally and externally.



**With the natural environment as its stage,
the NYK Group will take on new challenges
that its global operations make possible.**



Aiming to enrich the quality of life of 1.5 million seafarers worldwide

MarCoPay



Challenges seafarers are facing

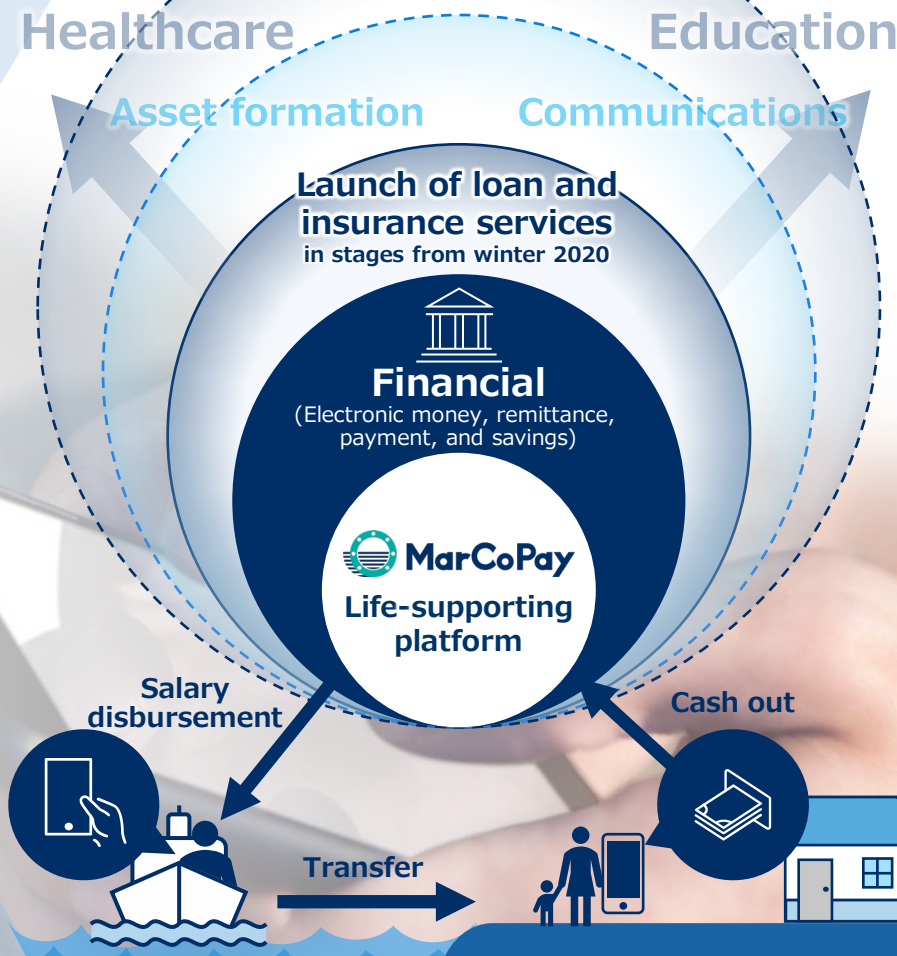
- Fixed-term employment contracts (2-9 months)
- Financial infrastructure in some seafarers' home countries is not yet well developed



Difficulty in acquiring credit commensurate with income
due to underdeveloped credit systems (credit issue)

Lack of financial literacy and services
(financing, insurance, and asset formation)

Difficulty in contacting families while on board ships
(communications issue)



Contributing to sustainable oceans is our role as a leading shipping company

Collecting microplastics to map and highlight the issue of plastic ocean pollution



The microplastics issue

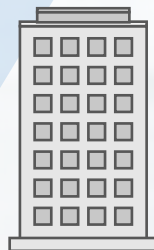
More than 8 million tons of plastic waste ends up in oceans each year.



Microplastics have diameters of 5 mm or less.
No data available to grasp the extent of microplastic pollution.



It is said that microplastics may penetrate living organisms and end up affecting the entire ecosystem.



Using our fleet of approximately 750 ships to collect microplastics

The NYK Group



Chiba Institute of Technology
Conducting analyses and creating a worldwide microplastic map that shows the sizes, types, distribution densities, etc., of microplastics in oceans

Seawater collection



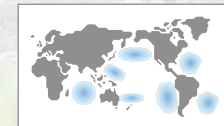
Onboard filtration



Analysis



Microplastic map



2.

Bolstering of Human Resources and Organizations to Advance New Value Creation

The Creation of New Value

Bolstering of Human Resources and Organizations to Advance New Value Creation

1

Fostering
Personnel
Who Drive
Transformation

2

Building an Organization That
Fully Leverages the Diversity
among Our Approximately
35,000 Employees

3

Developing the Skills of
Each Individual, Creating
Systems That Evaluate
Personnel Appropriately,
and Realizing New Work-
styles



The Creation of New Value



External factors that are strongly related to personnel development



Personnel who drive transformation

Sensitive to social issues, attentive to the opinions of diverse personnel in the Group

Tolerance and flexibility

Incorporating different cultures and different ways of thinking and being able to respond to all kinds of changes

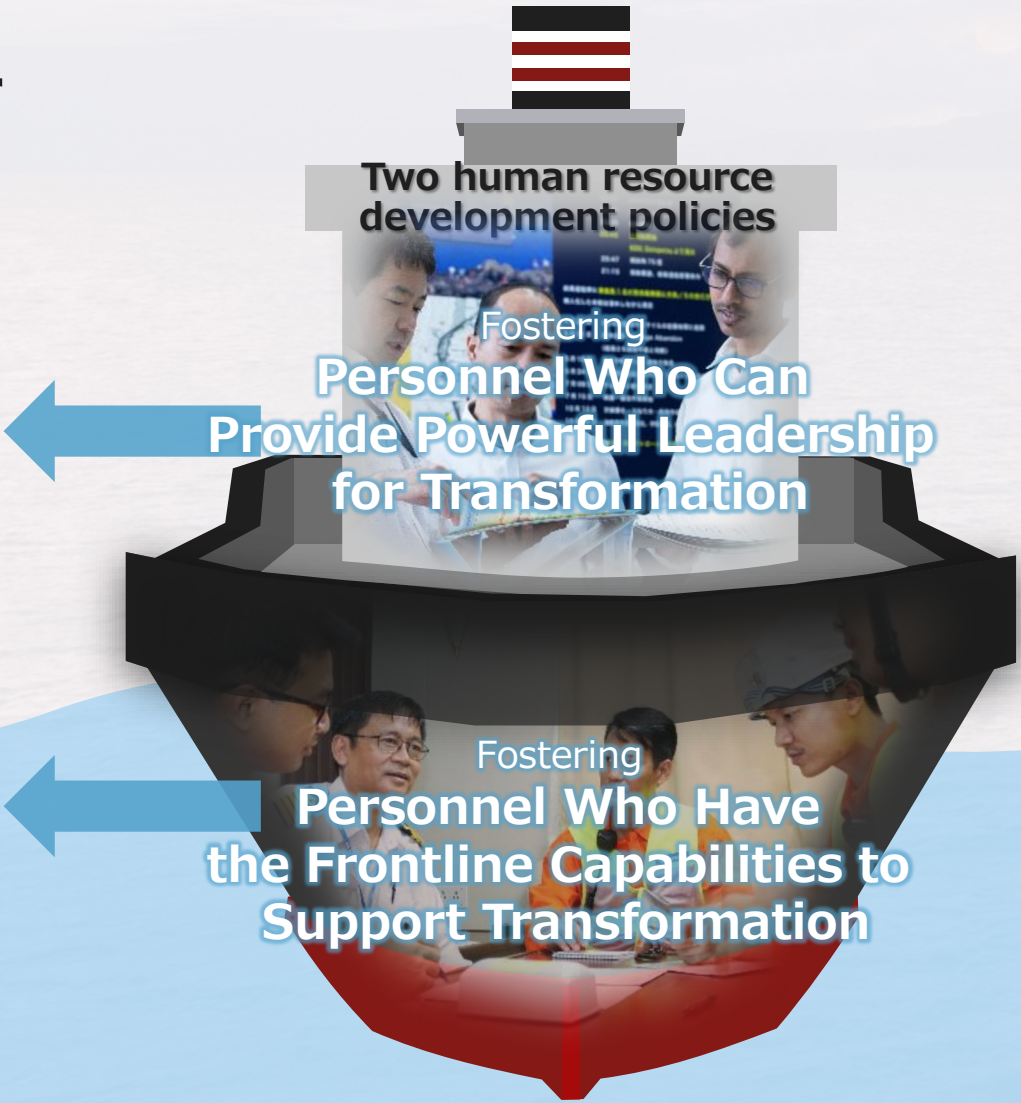
Leadership

Taking the initiative in setting clear targets and motivating coworkers through communication

Management skills

Having a broad perspective and high level of expertise and being able to mobilize one's own organization

Creating New Value as a Sustainable Solution Provider



Fostering Personnel Who Can Provide Powerful Leadership for Transformation

NYK Digital Academy

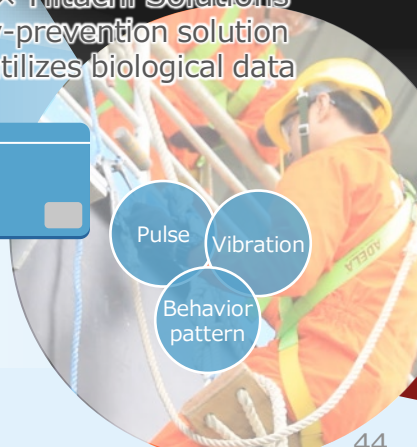
Developing business leaders with entrepreneurial mindsets and skills who can create new value and open up markets

The incorporation of wisdom from beyond the maritime shipping industry



- Financial and non-financial knowledge
- Applied statistical analysis

- Preparation of business plans
- Strategy stories



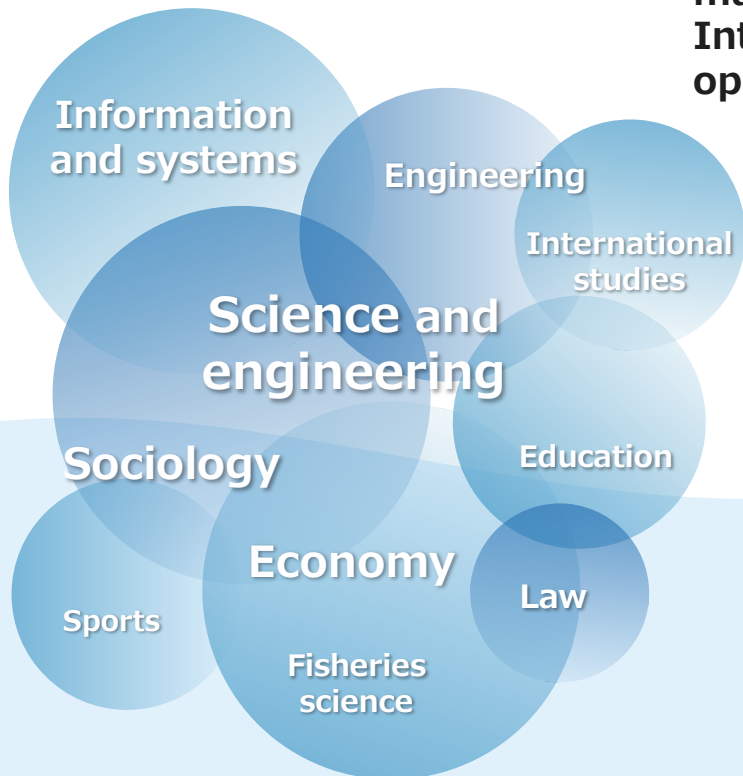
1 Fostering Personnel Who Drive Transformation



Fostering Personnel Who Can Provide Powerful Leadership for Transformation

Training navigation officers and engineers in-house

An in-house training system that began in 2006 to develop graduates of non-maritime four-year universities or non-maritime technical colleges as senior management candidates. Introducing diverse viewpoints to frontline operations



Training navigation officers and engineers in-house over two years

Assigning navigation officers and engineers with diverse viewpoints

Currently **one-sixth** of the Company's Japanese officers and engineers have been trained in-house

In 2020, **our first in-house trained captain educated at a non-maritime university**

1 Fostering Personnel Who Drive Transformation



Fostering Personnel Who Have the Frontline Capabilities to Support Transformation

NTMA

Securing and developing crew members with the qualities NYK requires

- Internalizing the NYK Group Values—Integrity, Innovation, and Intensity—along with technical skills
- Studying for four years at a facility that integrates classroom learning, hands-on practice, training, and drilling and being able to contribute to operations immediately



1,100 graduates to date

- Working on board tankers and other high-risk ships as senior crew members
- All have passed the Philippine national exam for navigation officers and engineers

Job-specific training

Unified transnational training that enables the implementation of transformation in lockstep



Enhancing overall capabilities as businesspeople

- Stratified training and training on **more than 60 general business skills** (finance, etc.)
- Participation of **more than 7,000 employees** in e-learning in Japan and overseas each year



Acquiring advanced skills for the respective duties of navigation officers and engineers

- Learning the knowledge and skills needed for each position—from **third officer and third engineer** through to captain and chief engineer—based on on-the-job training, advanced simulators, and e-learning
- **Approximately 6,000** participants in fiscal 2019

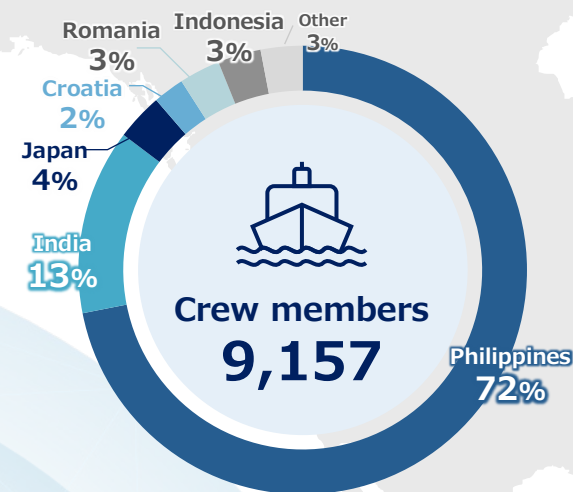
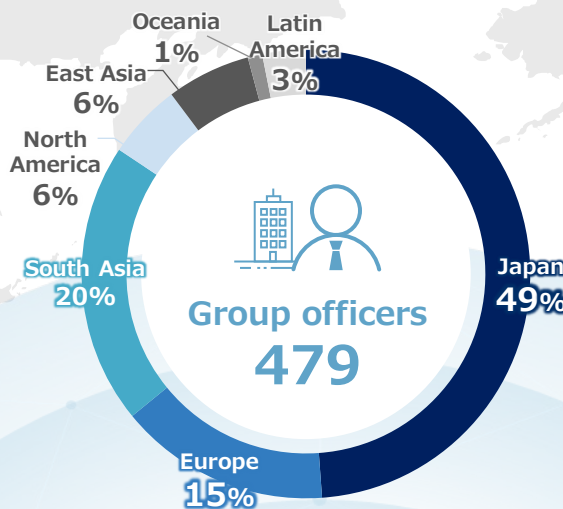
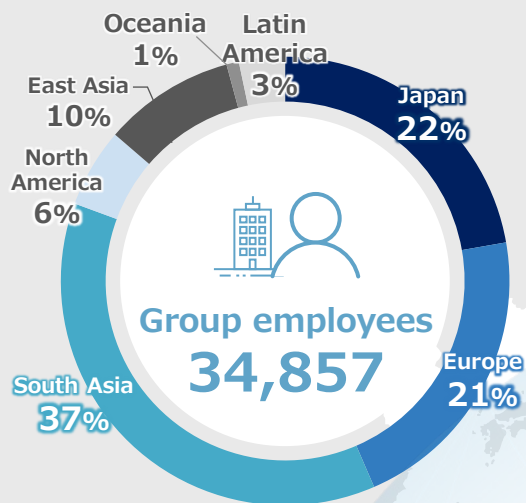
Diversity

Human resource philosophy

Continually develop diverse talent at all Group companies across global fields

The NYK Group Values
The 3I's

Integrity
Innovation
Intensity

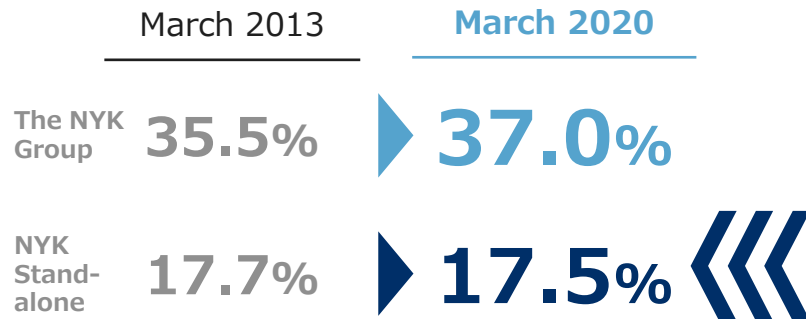


Seeking from them a more-active involvement in management decisions

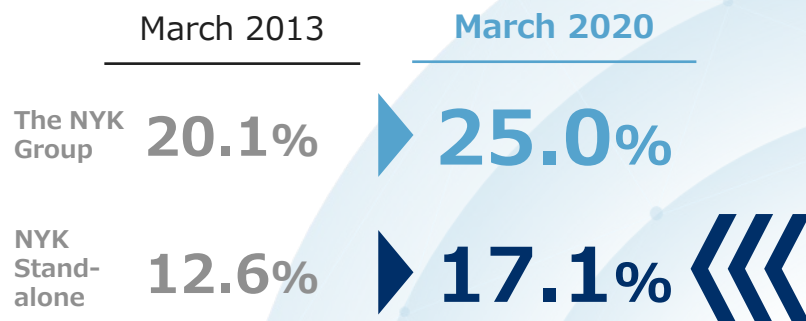
Evaluating them as candidates for the headquarters management team

Empowering Women

Percentage of female employees



Percentage of female managers



A variety of programs and support measures designed for life events

Leave system

- Parental and family care leave
- Short-term paternity leave (Iku-papa Plus)
- Spouse transfer leave

Time and place

- Flextime system
- Shorter working hours
- Working from home

Raising awareness in-house

- Iku-boss seminars
- Iku-papa seminars
- Nursing-care seminars
- Distribution of nursing-care handbooks



From October 2020 onward

Support for returning to work

Strengthening equal opportunities and follow-up capabilities to create a system in which **periods away from work are not a disadvantage**

[NYK head office]
Establishing clear goals that link organizations and individuals

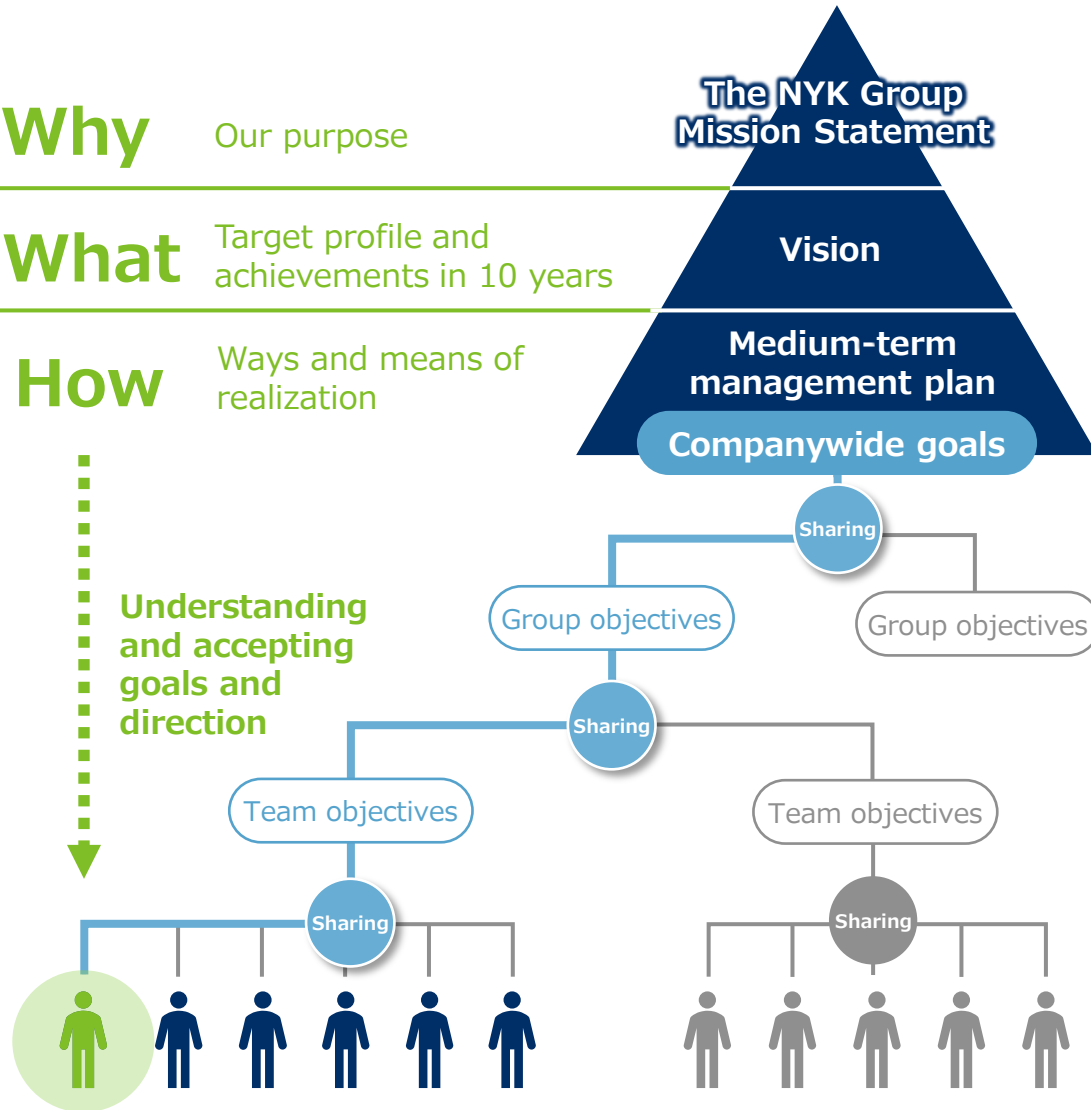
Objective tree

Ensuring each employee works based on an understanding of the Company's ambitious goal, thereby leveraging the combined capabilities of the entire organization and accelerating transformation into a **Sustainable Solution Provider**

Why Our purpose

What Target profile and achievements in 10 years

How Ways and means of realization





[NYK head office]

Developing a human resource system that evaluates contributions to transformation

NEW

Making “My Contribution”

Thinking about whether individual goals have been reached and whether the achievement thereof contributes to the goals of the team and group



Doing day-to-day work / Putting ESG management into practice / Correctness of decisions / Time management / Work improvement / Management and visualization of “My Job”

Companywide goals

NEW

Creativity, adaptability, and the ability to stay “half a step” ahead

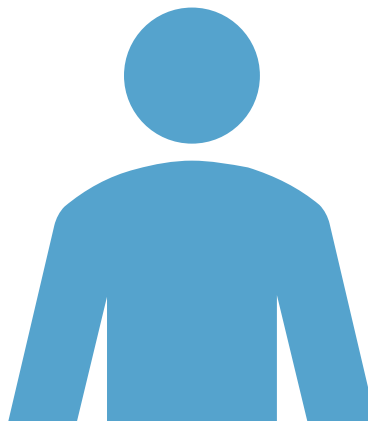



Far-sighted actions

Efforts to change


Responding without fixation on precedent

Awareness of promising innovations outside the Group





Establishing clear goals that link organizations and individuals



Developing a human resource system that evaluates contributions to transformation



Promoting expert personnel proactively

Evolving work-styles

Setting clearer tasks based on the organization's goals

Diversifying work-styles

Utilizing IT to manage duties

3.

Strengthening of the Management Base to Support ESG Management

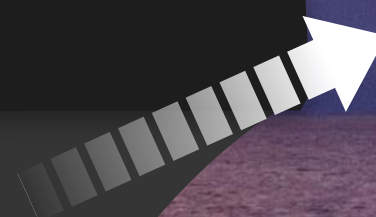
In What Ways Does the Management Base Need Strengthening?

Supervising ship-handling
(personnel and organization)



Management base

Communicating
with those outside
the Company



Checking the direction
of ESG management

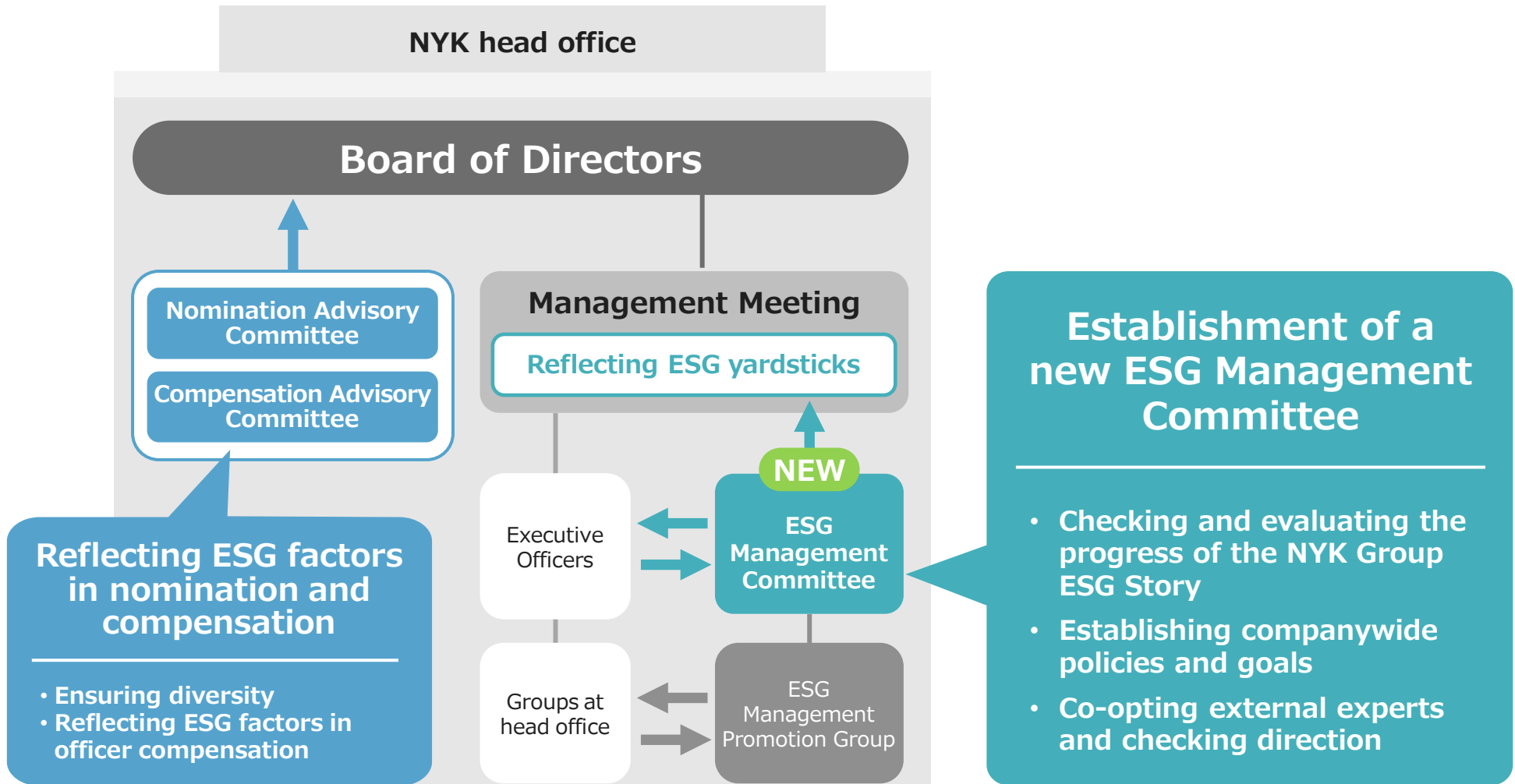


1 Establishing
Support Systems
for ESG
Management

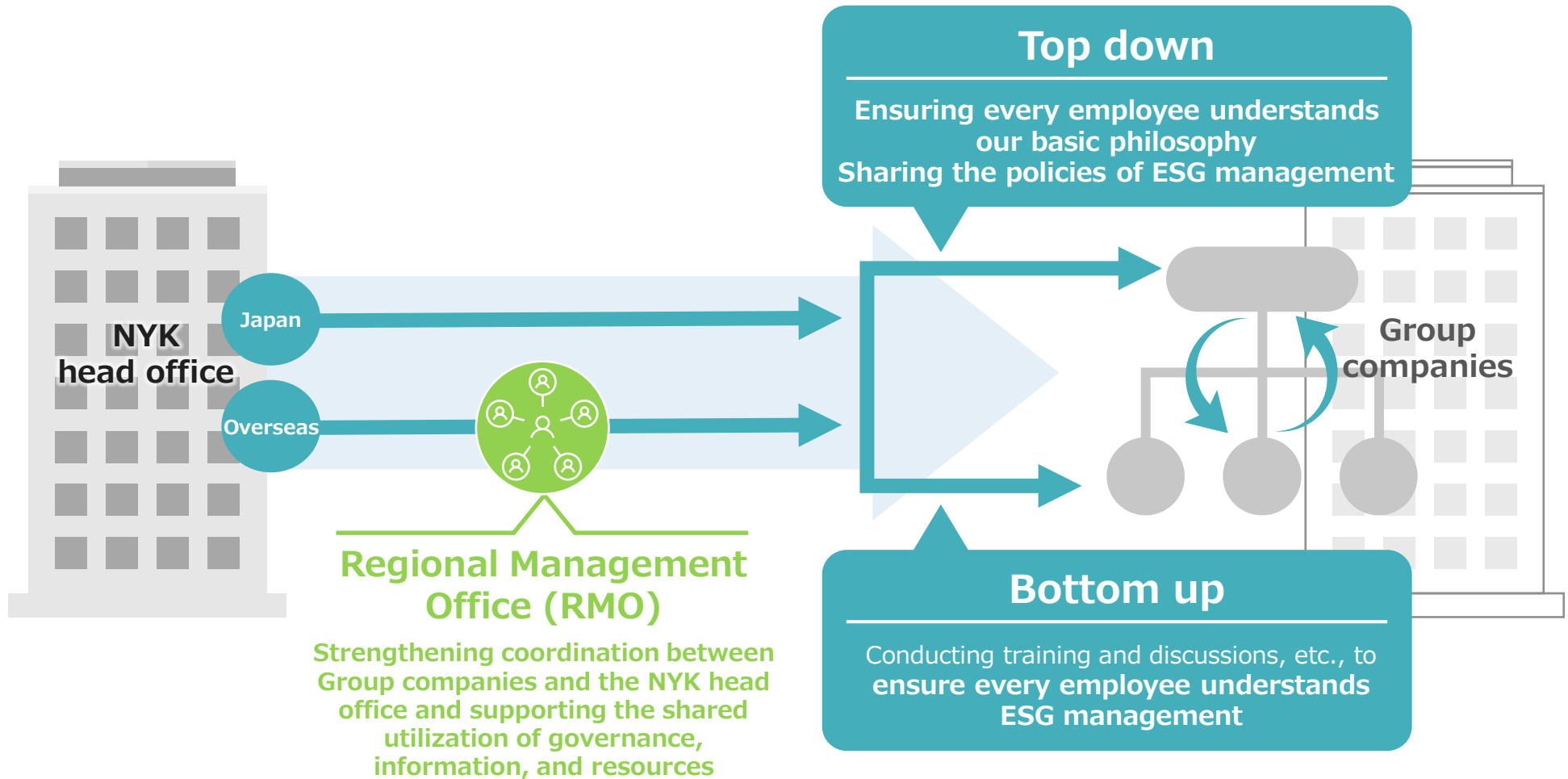
2 Ensuring Sound
Governance
Groupwide

3 Reconfirming
Human Rights
Compliance

Steady implementation of ESG management through the establishment of a new committee



Through approaches both from the top and the bottom, we will ensure the penetration of ESG management throughout the Group



Respecting the human rights of all Group employees and stakeholders and helping everyone to have fulfilling lifestyles

The NYK Business Credo

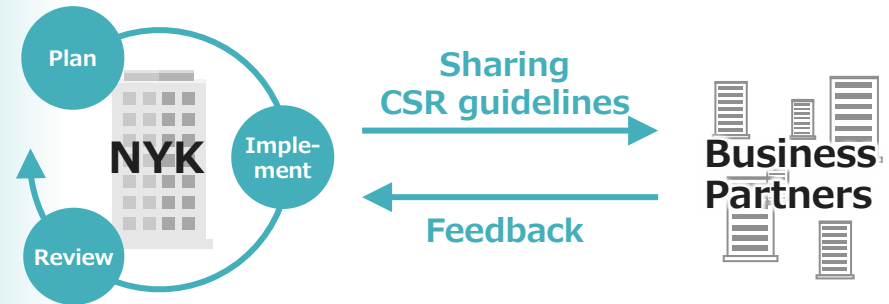
4. Compliance with laws and ordinances, respect for human rights (excerpt)

We recognize our role in society and act in a manner that is fair and just by **complying with national laws and ordinances and international norms**. We believe that corporate activities should **adhere to social mores, respect human rights, honor local customs and practices, and address the concerns and interests of stakeholders**.

- Respect for Human Rights, Prohibition of Discrimination
- Prohibition of Harassment
- Respect for Cultures of Countries and Regions
- Prohibition of Forced Labor or Child Labor
- Establishment and Operation of Fair Personnel Treatment System

Nippon Yusen Kabushiki Kaisha Code of Conduct
Chapter 4 Respect for Human Rights and Diversity of Cultures (excerpts)

Supply chain management



Heightening awareness of human rights

- Human rights due diligence activities
- Human resource fact-finding surveys
- Establishment of an employee help desk
- E-learning



Stakeholder Engagement Program, organized by Caux Round Table (CRT) Japan ©2020 Caux Round Table Japan

Megatrends

Energy

The NYK Group's Value

- Ships
- Weather and sea conditions data
- Global network
- Technologies
- Sales
- Safety

**Aiming to create
a new future through
collaborative creation
with other industries**

Sustainability
Marketing

Science

Technology

We will update the NYK Group ESG Story annually, and its preparation is part of a long-term growth strategy.

Schedule Going Forward

Review and report on progress annually

Incorporate the Story into the activities of Group companies in Japan and overseas

Establish quantitative targets

Return On Earth

—— Giving back to the oceans, earth, and people ——

The NYK Group Sustainability Initiatives

Total of
¥1 billion/year



Maritime education field

- Hikawa Maru
- NYK Maritime Museum
- NTMA



Taking on the Challenge of Establishing Solutions Businesses That Create the Norms of the Future



Example:

Ocean regeneration × Industry-academia partnership

Collection and reduction of ocean plastic waste

Alliances with external partners

- Donations, subscriptions
- Transportation cooperation
- Volunteering
- Support related to natural disasters, etc.



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