



What you should
know about

Shipping & MOL

**Feature: The Role of the Marine Transport Industry
and MOL's Value Creation**

This year's special feature is dedicated to explaining the marine transport industry. Globally, seaborne trade exceeded 1.4 tons per person in 2013. Despite the indispensable role it plays in everyday life, many people don't understand marine shipping that well. We hope the five questions and answers in this section will prove helpful, providing shareholders, investors and all our other stakeholders with a deeper understanding of the significance of the marine transport industry in society and how MOL creates value.

- Q1. What is marine transport?**
- Q2. What are the important types of ships?**
- Q3. Is marine transport a cyclical industry?**
- Q4. Is bigger always better?**
- Q5. Besides overall market conditions, what other risks confront the industry?**

Question

What is marine transport ?



The social significance of the marine transport industry and MOL

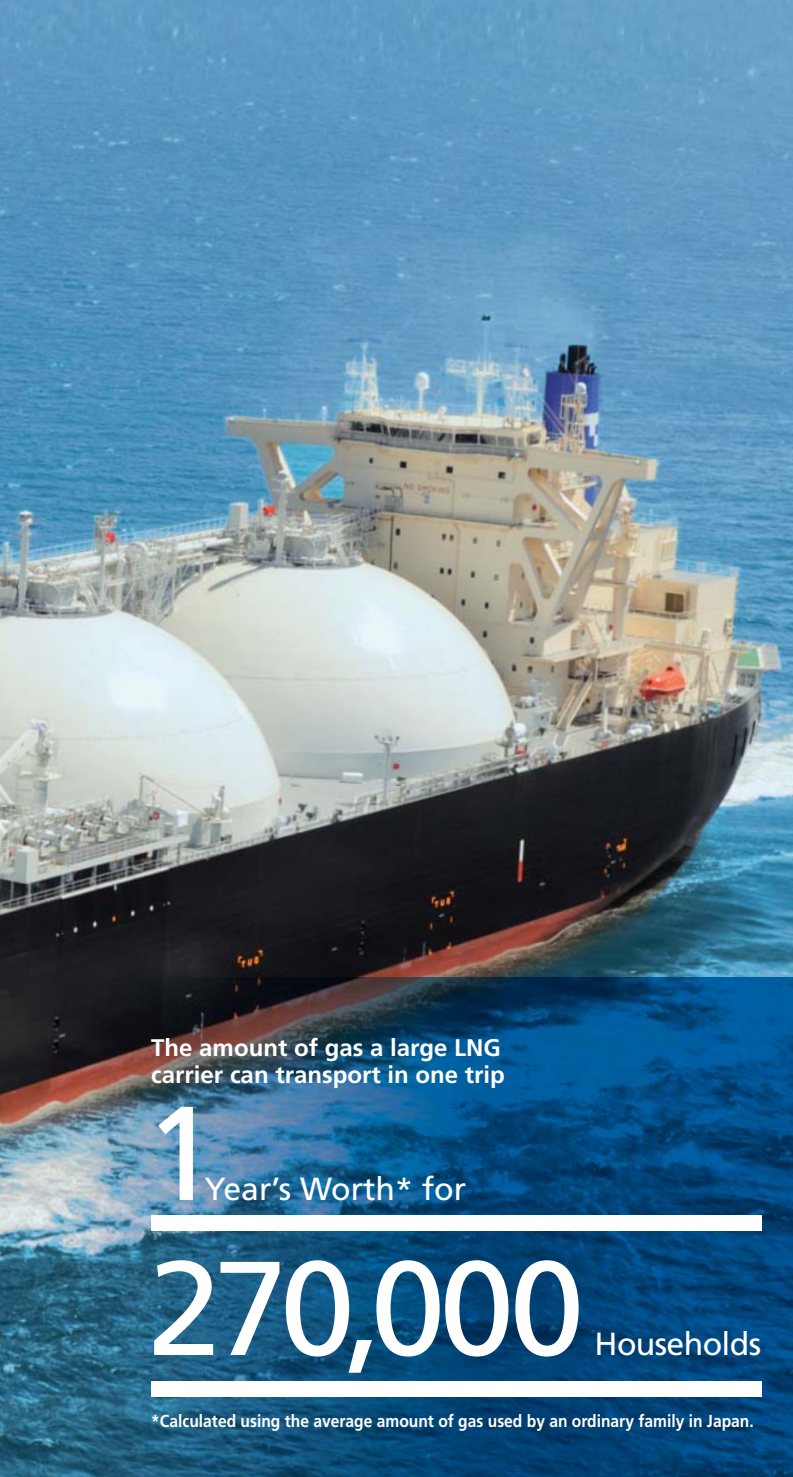
Answer 1

Look around. A surprising amount of what you see—from the food and clothes inside the store where you're standing to the cars outside in the parking lot, the oil that fuels them, and the coal and natural gas that provide the electricity to keep the lights on overhead—was transported by ship. Marine transport has long been recognized as essential to bulk transport over great distances. Compared with the alternatives, shipping is especially cost effective for bulk, long-distance cargo. Indeed, most natural resources and energy sources are transported by ship as producers need to transport items like petroleum, coal, LPG, iron ore

and wood chips in bulk volumes at low cost.

Modern container shipping was introduced in the 1950s to facilitate the trade of food, electric appliances and other consumer goods. Loading cargo into standardized metal boxes for shipping proved revolutionary. Container shipping mechanized the loading and unloading of cargo, which had previously relied heavily on manual labor, and enabled a streamlined transport system spanning sea and land. As a result, shipping was able to reliably connect production sites with consumers separated by vast distances at lower cost. Beginning in 1970, container shipping began expanding at a rate greatly in excess of global economic growth, accelerating the development of global supply chains.

Though largely invisible—ships don't need tracks or roads—marine transport serves as indispensable

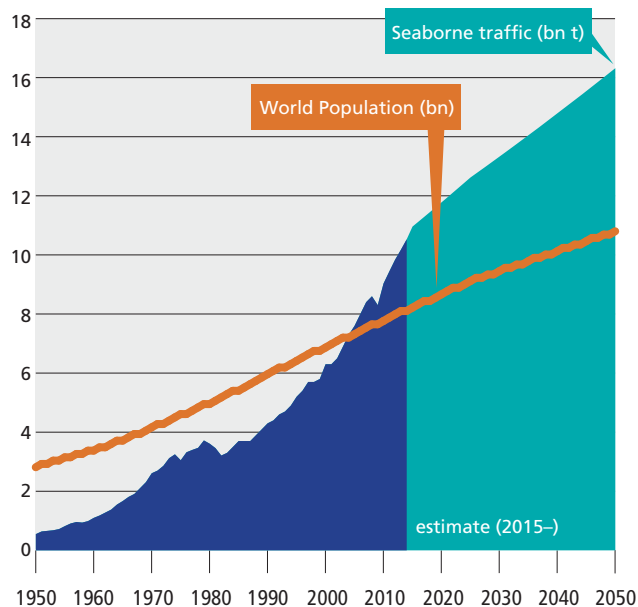


The amount of gas a large LNG carrier can transport in one trip

1 Year's Worth* for
270,000 Households

*Calculated using the average amount of gas used by an ordinary family in Japan.

World Population & Global Seaborne Traffic



Source: World population=UN, Seaborne traffic=Fearnley/ Clarkson (-2014), MOL estimation based on assumption that the trend of traffic per capita in the past continues in the future (2015-)

infrastructure supporting the global economy. The world's manufacturing base has shifted from the United States and Japan, to Southeast Asia, China and Latin America. This is expanding and diversifying the trade flows of materials, components and finished products. More and more countries, and the people living in them, have begun participating in the rich bounty of global trade. Fifty years ago in 1965, the global population was 3.3 billion and global seaborne trade was 1.7 billion tons, which means there was around half a ton of cargo per person. Seaborne trade has since outpaced population growth. In 2000, the population increased to 6.1 billion, but seaborne trade grew even faster to 6.3 billion tons, surpassing one ton per person. In 2013, seaborne trade exceeded 1.4 tons per person, and the gap is only continuing to widen.

MOL's more than 130 years of history is the history of modern marine transport. We transport cargo in step with expanding seaborne trade to contribute to the development of the global economy and support people's lives. While advancing by adapting our businesses to the changing business environment, MOL fulfills the social responsibility of marine transport. As we continue to do this, we will further enhance the tangible and intangible assets MOL has accumulated, including our diverse fleet of vessels, the human resources supporting safe operations, our ability to anticipate transport demand and customer needs, the trust placed in us by stakeholders, our solid financial foundation and earnings power. This is MOL's value creation model. We will continue to create new value by continuing to transport cargo globally for the next 130 years.

Types of commercial vessels and MOL's portfolio

Answer 2

Ships have evolved to transport a wide variety of cargo efficiently. Through innovation, conventional designs for multipurpose cargo ships have been adapted with structures optimized to transport specific types of cargo. Adaptation has resulted in crude oil tankers; bulk carriers for iron ore, coal, wood chips and other dry bulk cargoes; container ships to transport clothes, household goods, appliances and other manufactured goods; and car carriers for completed vehicles. LNG carriers, which transport natural gas that has been cooled to minus 162 degrees Celsius to liquefy it, are a relatively recent arrival. Of

course, there are also ships that transport passengers and MOL's fleet includes ferries that can simultaneously transport automobiles and trucks, as well as a cruise ship featuring an array of facilities, from a pool to a movie theater, to make voyages more enjoyable.

As a full-line marine transport group, MOL currently operates a wide range of ships. This is an upshot of the strong link between our business and the growth of the Japanese economy. Shipping was vital for resource-poor Japan to become a major trading country, importing resources from overseas and manufacturing value added products for export. MOL drew upon the growth of the Japanese economy and grew in tandem by supporting imports and exports. For example, we readied dry bulkers to

Question

What are the important types of ships ?



import iron ore and coal, and expanded our tanker fleet to transport crude oil in the economic boom period following WWII. When the Japanese auto industry expanded exports, we readied car carriers and supported the industry's bulk transport.

Since then, with the overseas shift of our client companies and the rise of emerging countries, the global level of trade to and from Japan has been in relative decline. Simultaneously, we have allocated more vessels to countries and regions outside of Japan. The knowhow and fleet composition attained through trade with Japanese companies over many years is also perfectly suited to the transport demands of emerging countries. At present, as trade structures diversify, we provide a broad spectrum of services to meet marine transport needs around the

world. In addition, as a full-line marine transport group active around the globe, MOL is able to diversify its risk. Should the trade volume of one type of cargo temporarily drop due to economic conditions or global events, we are better able to mitigate the impact on the Company's overall earnings and financial strength.

MOL has a diverse portfolio comprising 411 dry bulkers, the world's largest dry bulker fleet; 176 tankers to transport crude oil and petroleum products; 67 LNG carriers; 127 car carriers; 118 container-ships; and 48 other vessels, such as ferries, domestic transport vessels and a cruise ship. This constitutes the world's largest fleet for a full-line marine transport group.

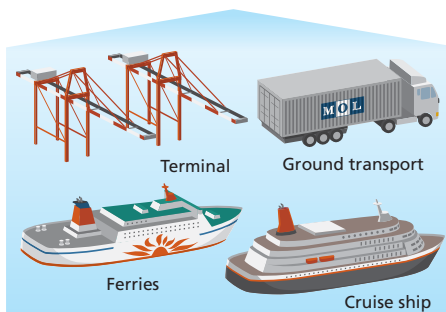
MOL's fleet

947 Vessels

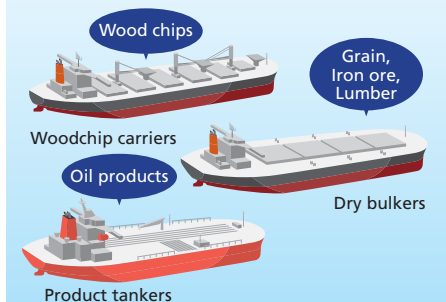
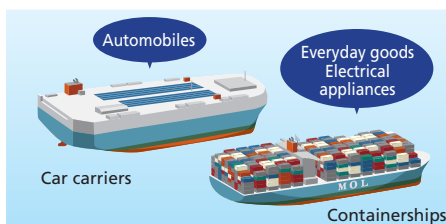
As of March 31, 2015

MOL's Fleet Portfolio

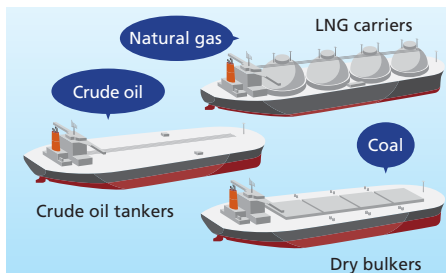
Products/
passengers



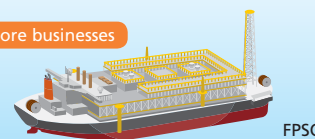
Raw
materials



Energy



Offshore businesses





Question

Is marine transport a cyclical industry ?

Characteristics of the marine transport industry and MOL's business model

Answer 3

One noteworthy characteristic of the international marine transport industry is that it conducts business on a single global market. Unlike real estate or other fixed assets, vessels can move freely across oceans. They're globally mobile and fairly liquid. In addition, due to the principle of freedom of the seas, there are virtually no barriers to entry in terms of national regulations. Accordingly, the industry is market driven toward reestablishing equilibrium. When global cargo flows outpace the supply of ves-

sels, freight and charter rates soar; but when cargo flows decline or fail to keep pace with vessel supply, freight and charter rates fall. This is why the marine transport industry is considered a cyclical industry. It is governed by economic principles and strongly influenced by the various factors that cause the global economy to fluctuate. To generate profits in this kind of industry, companies need to possess the foresight to procure vessels one step ahead of market surges as well as the ability to improve profitability under the complete range of market conditions. MOL makes full use of the business intelligence base it cultivates as a full-line marine transport group, optimizes the duration of vessel procurement and service, and has the knowhow to realize efficient operations.

Highly Stable Profits

¥55 Billion*

*Outlook for Fiscal 2015 (as of April 30, 2015)
 Outlook for Ordinary Income in Fiscal 2015: ¥60 billion
 (Highly Stable Profits of ¥55 billion + Other Income of ¥5 billion)



On the other hand, it is because marine transport is a cyclical industry that both customers and marine transport companies want to limit the risks from market volatility associated with freight and charter rates. Customers want to conclude long-term transport contracts at steady prices with reliable marine transport companies. Marine transport companies can expect, with certainty, to recover their expensive asset investments in vessels by concluding contracts that generate stable profits over the long-term. Connecting both these aims, MOL's strength lies in its ability to offer services and optimally sized vessels aligned with customer needs, its solid financial standing, and its track record of safe operations. Globally, it is actually rare for a marine transport company to have as many long-term contracts as MOL has secured.

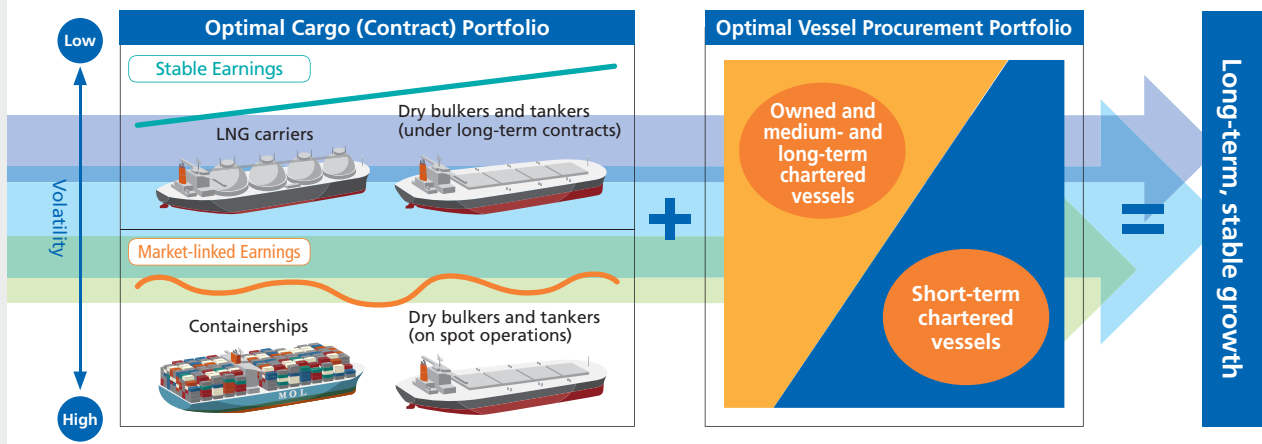
In the mid 2000s, thanks to the vessels it had ordered in advance, MOL was able to take advantage of bullish market conditions as China rapidly expanded its imports of natural resources. Subsequently, however, a sudden turn in the supply-demand environment left us exposed to spot market conditions and restrained by an oversupply of vessels in operation. We are currently correcting this by further shifting investments to accumulate stable profits through medium- to long-term contracts and reducing MOL's market exposure.

Over its more-than-130-year history, MOL has frequently experienced the undulations of the market. In marine transport, which is both a cyclical industry and a growth industry, we continue to aim for sustainable growth while mitigating the impact of market fluctuations by securing an appropriate contract portfolio.



Underlined words are explained in the Glossary on page 74.

A portfolio to achieve long-term, stable growth



Question

Is bigger always better ?



The pursuit of economies of scale in bulk transport and MOL's strategy

Answer 4

The history of marine transport is also the history of bigger and bigger ships. This is understandable. The lower operating costs per weight unit and distance unit achieved by large-volume shipping are beneficial for both marine transport companies and their customers. In terms of economic efficiency, bigger ships are better in many respects. Marine transport is the most economical and environmentally friendly mode of transport, considering CO₂ emissions and fuel consumption in terms of weight of cargo transported and distance traveled. Larger ships further enhance this advantage. Nearly every type of cargo ship has gotten larger over time. Ships traveling through transport

routes like the Panama and Suez canals, which restrict the maximum length and draft of a ship, have increased to the very limit in size. Most other ships have gotten even larger.

MOL has decided to launch six of the world's largest containerships, which are each capable of carrying 20,000 containers of twenty-foot equivalent units (TEU), on the Asia-Europe route in 2017. Our aim is clear: to lower transport costs per container by increasing the size of the ship. Although many ultra-large containerships of 18,000 TEU or more have recently been launched on the same route, MOL's new containerships will be highly competitive with expanded carrying capacity and more efficient engines. As for further increasing the size of containerships, it seems that we have reached the upper limit with these vessels due to the transit restrictions of the Suez Canal.

On the other hand, larger vessels are not always

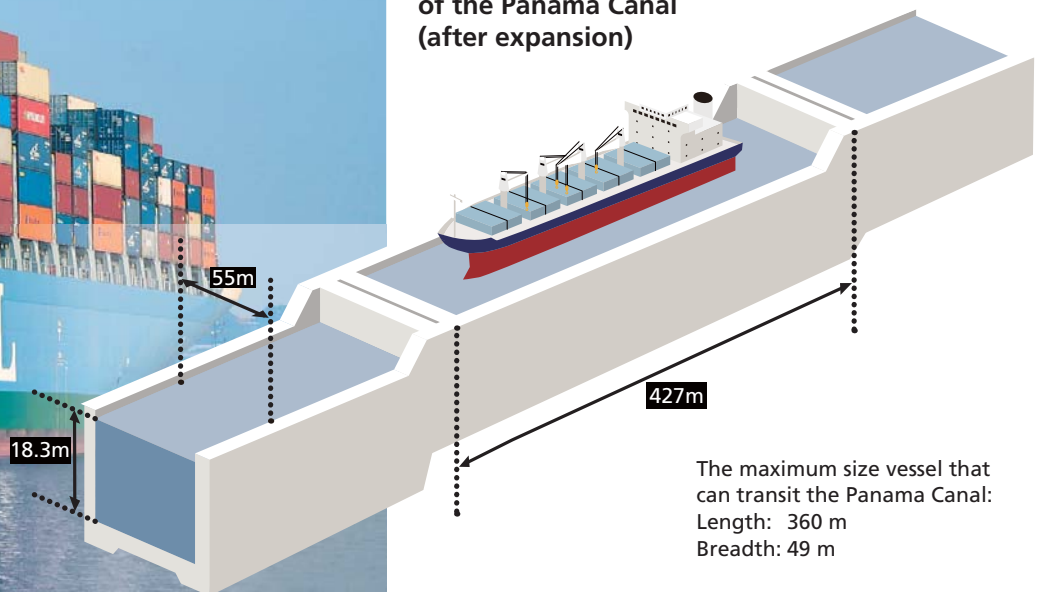
20,000 Containers*

120 km**

*Capacity of the world's largest containerships, which MOL is currently building, in twenty-foot equivalent unit (TEU) containers.
**The total length of a ship's containers when aligned in a row



The transit restriction of the Panama Canal (after expansion)



the most logical choice. Crude oil tankers were at the forefront of the trend toward larger vessels and some decades ago saw the appearance of what were known as ultra-large crude carriers (ULCCs) capable of transporting 400,000 to 500,000 deadweight tons (DWT). However, ULCCs have since faded away. Currently the largest vessel size is the 300,000-DWT class very large crude carrier (VLCC). The reason lies in versatility. Companies need to decide on vessel size by carefully weighing the benefits afforded by larger size against greater compatibility in various sea lanes and ports across the globe. The size of potential ports and the ability to transit straits must always be taken into account, something which applies to other vessel types as well.

There are also other considerations. In car carriers, the overall trend in increasing size is continuing with the planned expansion of the Panama Canal in 2016.

Yet, we decided to construct new vessels with roughly the same external dimensions as our existing standard size vessels that hold 6,400 vehicles, though we found ways to increase actual capacity to 6,800 vehicles on the new vessels. In light of how automakers are trying to optimally site production around the world, we prioritized the flexibility provided by a standard-size fleet.

Customer convenience can also be a factor in the decision not to choose larger vessels. We develop iron ore carriers customized for each customer's port, with the intention of providing optimal solutions that balance carrying capacity and convenience.

The MOL Group Corporate Principles reflect this need to optimize flexibility, convenience and the economic efficiency of larger vessels as the Company strives to meet and respond to customers' needs and to this new era.



Question

Besides overall market conditions, what other risks confront the industry ?

Other risks and MOL's safe operation system

Answer 5

Other market risks facing the marine transport industry include fluctuations in exchange rates, interest rates and bunker prices. These market risks directly impact profitability, but other risks related to vessel operations can affect not only profitability but also the trust gained from customers and society. Ocean-faring vessels must always be on guard against the risk of a marine incident, which might lead to ocean pollution, arising from adverse weather or other unforeseen circumstances. Ships may also be exposed to geopolitical risks, such as encountering war zones, terrorists, and pirates among other threats.

For example, it takes roughly three weeks to

transport crude oil in a VLCC from the Middle East to Japan or another Asian country. Depending on the loading port, the VLCC departs from the Persian Gulf and transits the Strait of Hormuz, or departs from the Red Sea and passes through the Gulf of Aden. After traversing the Indian Ocean, she then must transit the Strait of Malacca between the Malay Peninsula and the island of Sumatra. The Middle East is fraught with political instability, and the Gulf of Aden, Indian Ocean and Strait of Malacca are treacherous areas plagued with pirates. Moreover, there are also encounters with adverse weather, super typhoons and other abnormal weather phenomena that seem to be increasing in intensity each year. Amid this challenging environment, to safely transport cargo and live up to the trust placed in us by customers and the rest of society, we need to be more vigilant than ever.



The number of tropical storm alerts sent out to ships (Results in 2014)

17,349 Alerts

View a video introducing MOL's measures to enhance safe operation.



FOUR ZEROES

This is MOL's unwavering goal of achieving the world's safest operations.

4 ZEROES

Forge ahead to become "the world leader in safe operation"

zero
fatal
accidents

zero
serious
marine
incidents

zero
oil
pollution

zero
cargo
damage

MOL

MOL is committed to ensuring thoroughly safe operations through various initiatives, beginning with the recruitment and training of excellent seafarers. (See the special feature on p. 52.) But what makes MOL stand out in its response to the hazards of marine transport, including the aforementioned risks, is its Safety Operation Supporting Center (SOSC). The center monitors the position and movement of MOL-operated vessels as well as weather and ocean conditions in real time, supplying invaluable information to relevant personnel onboard and on land. The SOSC is staffed at all times by two marine technical specialists, including an experienced MOL captain, and supports the safe navigation of about 900 MOL Group-affiliated vessels around the clock 365 days a year. They provide assistance from the captain's perspective, supplying information gathered on weather and

ocean conditions (including abnormal weather and tsunamis) and security threats (including piracy and terrorism) to the relevant personnel. As onboard equipment becomes increasingly sophisticated, engineers may during operations encounter situations not described in the manuals. Captains and navigators may encounter unexpected weather phenomena. In these instances, the knowledge and judgment of an experienced MOL captain is invaluable. Recently, as political instability, abnormal weather conditions and other uncertainties intensify, transport technology continues to increase in sophistication, with LNG carriers being the most representative example. The slogan of the SOSC is: "The captain must never feel alone" The center provides robust support for seafarers working on the open ocean and underpins the safe operations of MOL-operated vessels day and night.