

Enhancement of after-sales service business

We are promoting innovation to make the shift from the previous business model focused on selling finished products to a system that enables us to provide life cycle engineering, with which we are involved in the entire life cycle of products and respond to all customer needs.

We will be actively involved in domains which we have never worked on, while also enhancing our existing after-sales service business, and switching to a business model in which we continue supporting customers' businesses.

02

Ships

MES-KHI Yura Dock Co., Ltd. was established in April 2015 at the Ship Repair Department in Yura Town, Wakayama with an investment from Kawasaki Heavy Industries, Ltd. We will respond to demand for repairs and retrofits, focusing primarily on LNG carriers for transporting shale gas from North America, a commodity for which demand is expected to grow.

Diesel engines and industrial machinery

MES Technoservice Co., Ltd. and overseas subsidiaries provide after-sales services for diesel engines, plant machinery, cranes, gas turbine cogeneration systems, and other types of equipment.

Power plants

Burmeister & Wain Scandinavian Contractor A/S (BWSC) provides total services for entire power plants. In addition to the supply and construction of plants, it offers operation and maintenance services throughout the entire life cycle period of plants.



Environmental plants

Mitsui Zosen Environment Engineering Corporation provides engineering, procurement, construction, and operation and maintenance services for various water treatment facilities and waste treatment facilities.

FPSO / FSO

MODEC, Inc. provides operation and maintenance services for floating production storage and offloading system (FPSO) vessels and Floating Storage and Offloading (FSO) systems, which are used in the production of oil and gas in the ocean.

Testing, inspection, and analysis services

MES Testing & Research Center Co., Ltd. provides testing, inspection, and analysis services. It also offers inspection services in the field of social infrastructure, including the use of radar and other technology to inspect bridges.

Topics 01

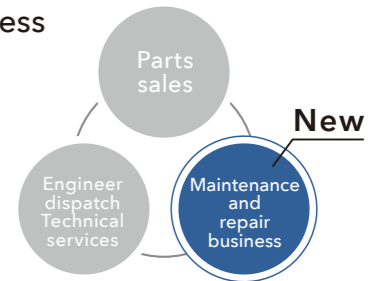
In 2015, major progress was made in our after-sales service business in the field of machinery.

Action 01

Diesel engine field

Making our way into the maintenance and repair business

Our after-sales services for marine diesel engines used to focus primarily on parts sales, the dispatching of engineers, and retrofitting. However, our business model lacked a maintenance and repair business. Thus, we have decided to establish bases for maintenance and repairs in important areas in Japan and other countries, where we will be involved in the entire life cycle of marine diesel engines by providing services such as the overhaul of fuel valves and pumps of engines, as well as the welding repair of engine exhaust valves, pistons, and other parts.



April 2015, Onomichi City, Hiroshima Prefecture

Establishment of mother factory for maintenance business

We established Azuma Machinery Co., Ltd., a joint venture, by joining up with Azuma Kako Co., Ltd., which runs a business for repairing and recycling marine engine parts in Japan and other countries. It is located on the premises of the Onomichi plant of Azuma Kako in Setouchi area, which is one of the centers of the repair business in Japan. We will increase our shares in the maintenance business in Japan and make this company a mother factory as the base for overseas expansion.

April 2015, Singapore

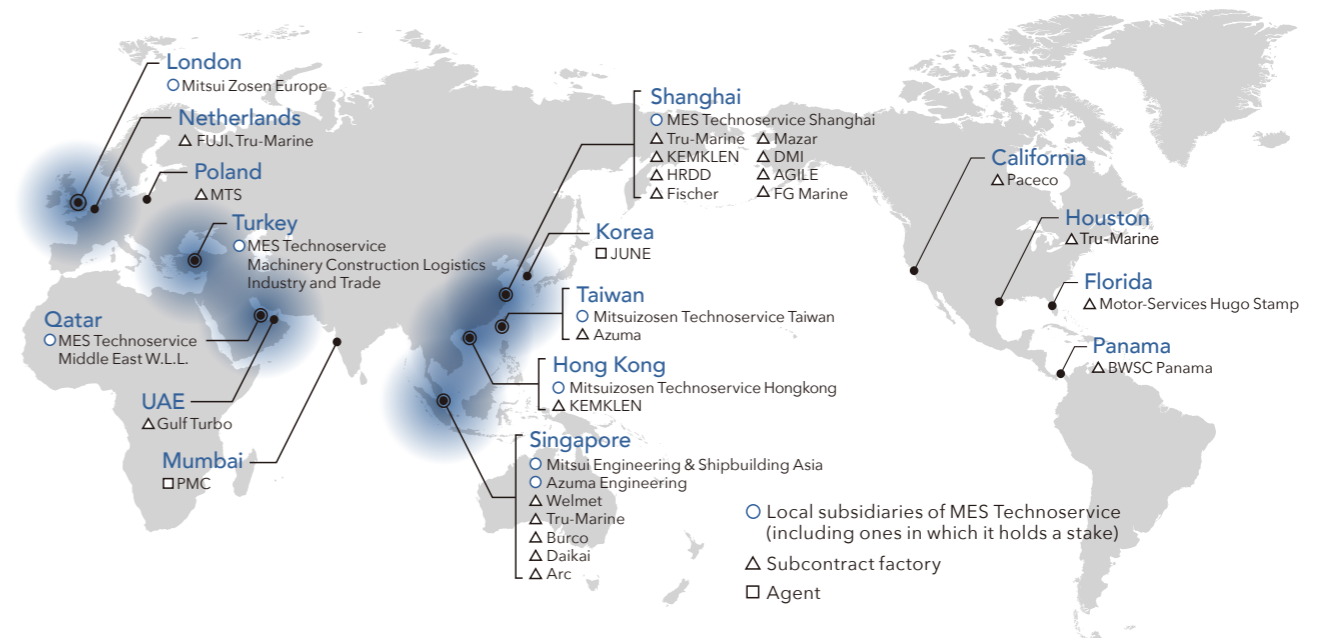
Capital participation in a main factory for maintenance and welding repair

We acquired a stake in Azuma Engineering (S) Pte Ltd, which provides maintenance and welding repair services in Singapore, the global center of shipping and the marine shipping industry. We will increase the level of synergy with Mitsui Engineering & Shipbuilding Asia Pte Ltd (MES Asia), which is also the MES Group's base for after-sales services, and operate it as the main factory for maintenance and welding repair.

Action 02

Expansion of overseas bases for after-sales services

We are developing a system for the global operation of the after-sales service business by implementing various measures, such as establishing a subsidiary for plant machinery maintenance in Qatar and a joint venture in Turkey. We are also expanding factories for the repair of marine diesel engines. We will build upon the enhancement of our after-sales services to win new orders.



New business models are created beyond the existing framework of after-sales services.

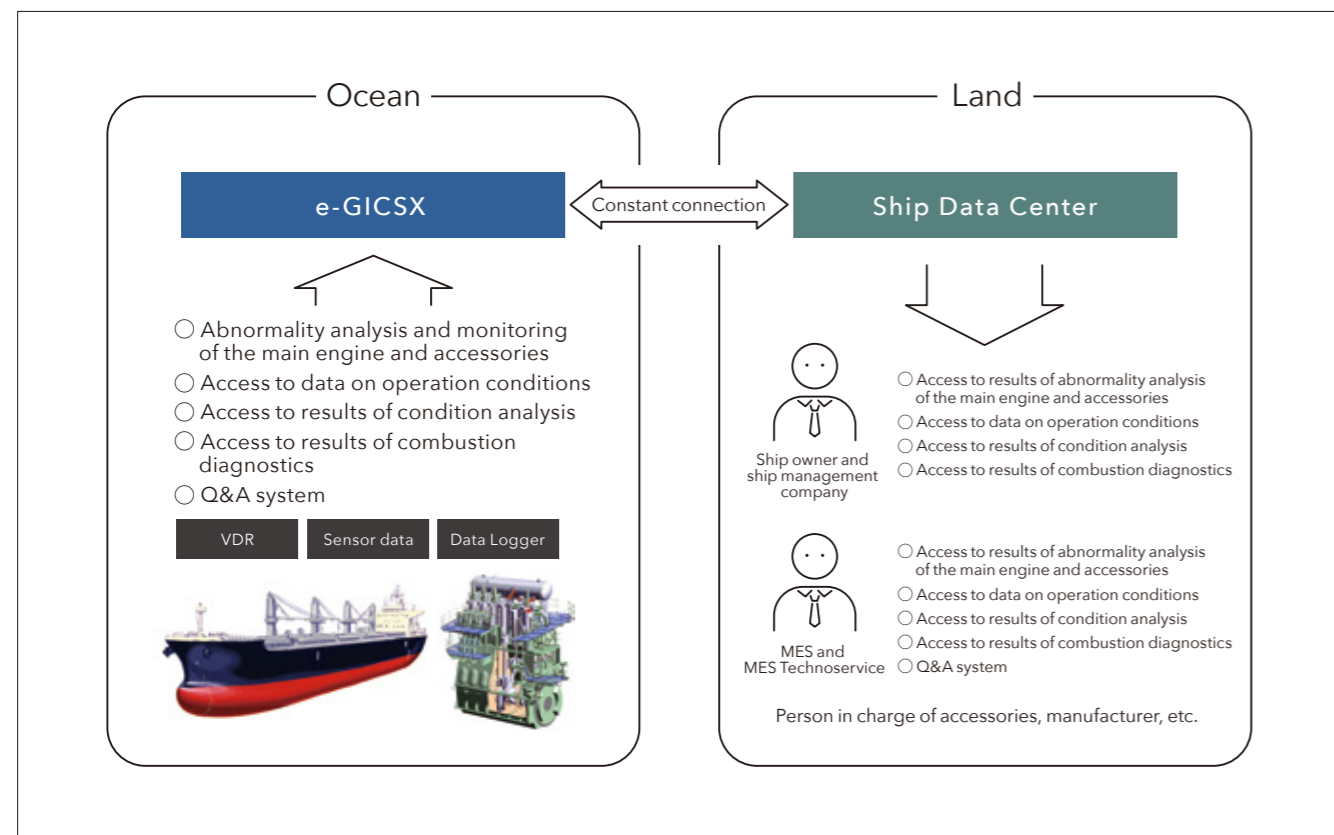
Action 01

CMAXS e-GICSX, a next generation condition-based engine monitoring system

Preventive maintenance through the use of big data

MES, its subsidiary, MES Technoservice Co., Ltd. and Nippon Kaiji Kyokai have been working on a joint research project to develop the "Next Generation Condition-Based Engine Monitoring System, called CMAXS e-GICSX" for Mitsui-MAN B&W diesel engines starting from April 2016.

The CMAXS e-GICSX system ensures the early, accurate detection of abnormalities by using sophisticated algorithms that are capable of conducting onboard analysis and monitoring of the big data collected from not only multiple main engine sensors but also navigation data, such as weather and sea conditions. By merging the onboard monitoring results with performance analysis conducted on land, the CMAXS e-GICSX system ensures a higher level of accuracy of performance analysis than ever before.



Action 02

Retrofitting

Transforming existing port cranes into energy-saving cranes

MES and MES Technoservice Co., Ltd. are committed to transform operating cranes into energy-saving cranes, improving their economic efficiency and reducing their environmental impact. For example, we retrofitted five Transtainers at Leam Chabang Port in Thailand and made them Hybrid Transtainers. We were rated highly for this project because we quickly finished the retrofitting work, which produced an energy savings of 50%, within only two months of fieldwork.

Moving forward, we will continue working to reduce Fuel Consumption and Carbon Footprint up to 60% compared to existing levels. The key to achieve this is our owned Engine Variable Speed Control (EVSC) technology which combined with high spec Lithium Ion Batteries and downsized Engine bring to life a new concept in Crane green technology, the MES Hybrid Transtainer.



Past projects

- Leam Chabang Port, Thailand/ Retrofitting of 6 Transtainers into Hybrid units
- Manila Port, Philippines/ Retrofitting of 3 Transtainers into Hybrid units
- Manila Port, Philippines/ Retrofitting of 5 Transtainers into EVSC units
- Buenos Aires Port, Argentina/ Retrofitting of 7 Transtainers into EVSC units

Action 03

Life cycle solutions

Services for retrofitting port cranes into larger cranes, and services for relocating, removing, and dismantling them

A large quantity of container cranes were delivered in the 1980s and 1990s, which was the initial period of container transport. These cranes now need to be replaced, and thus there is a rising demand for replacements for aging cranes. This coincides with the rise in demand for retrofitting existing cranes into larger cranes as the size of container ships becomes bigger.

At MES, we are aiming to be the One-Stop service provider for our customers. Our team is capable to provide maintenance to existing cranes, modify and retrofit to match the market needs (Crane Rise-up, boom extension), relocate, remove and dismantle cranes, as well as manufacture New Cranes. We offer life cycle solutions that provide for the care of products throughout their life cycle. This means that we support our customers' terminal operations, which in turn enables us to better understand our customers' needs. As a result, we have created a virtuous circle in which our understanding of their needs leads to new orders.



Action 04

Business engagement

Engagement in terminal operation

Playing a more active role in the Container Terminal Sector will allow us to better understand the market needs and to prepare ourselves to be a better service provider and an even better crane manufacturer.

