Making Japan one of the world's leading ocean resources powers

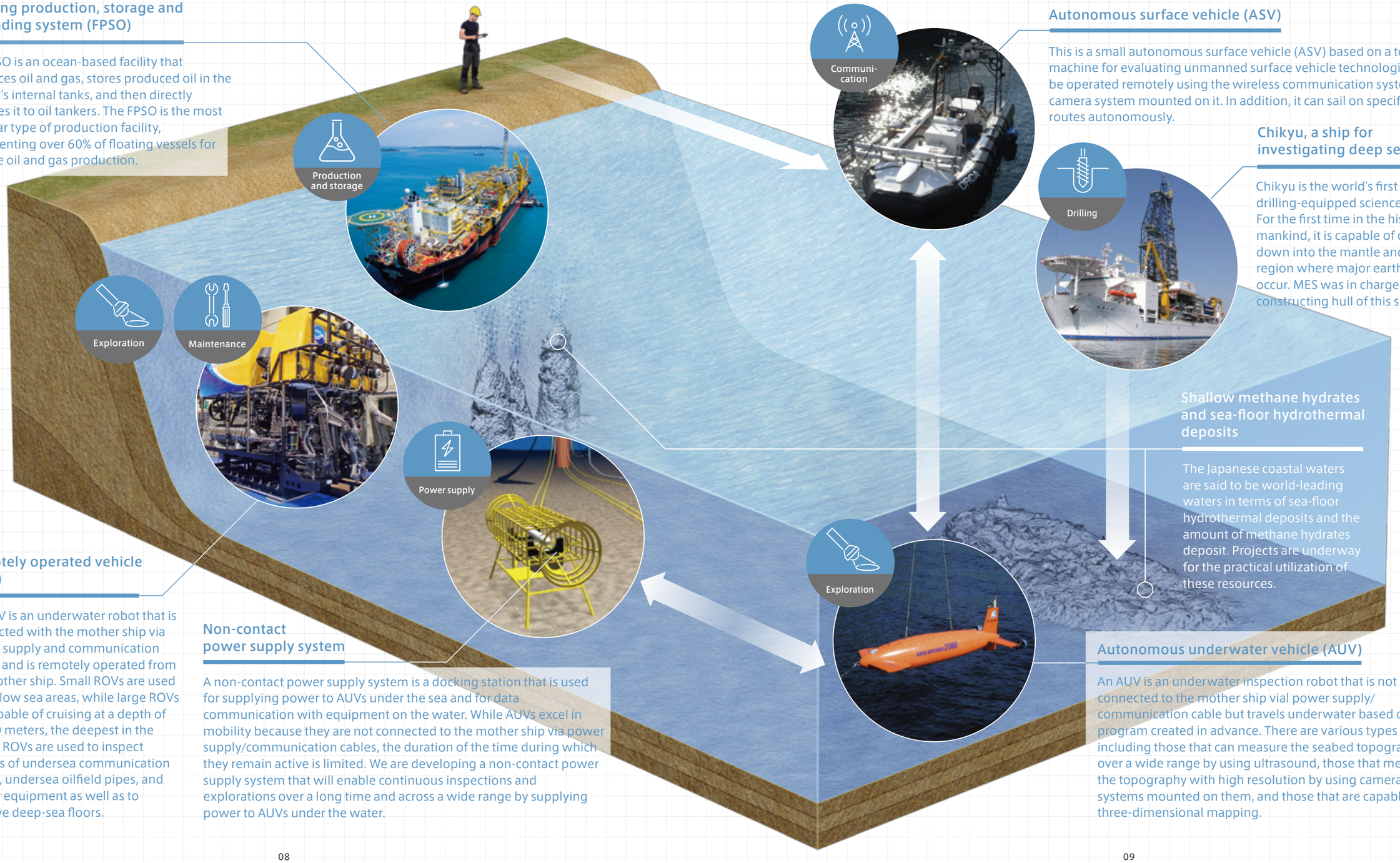
【Creating next-generation ocean resource development systems】

Japan is a great marine nation with the world's sixth largest exclusive economic zone (EEZ) with territorial water. Energy resources and mineral resources in the bottom of its seas will be highly valuable for economic security and industrial development if they are mined and secured as domestically produced resources. The MES Group is one of world's leading players in the domain of offshore oilfield development and also has a leading role in the development of shallow methane hydrates harvesting technology. In 2016, we began to partner with MHWirth GmbH, a German company that provides offshore drilling technologies and services around the world. We aim to establish and commercialize shallow methane hydrates harvesting technology by combining technologies of the two companies.

Concerning the development and practical application of underwater robots that are essential for searching for offshore resources, we have a proven track record in the production of robots designed for different kinds of surveys, ranging from small underwater robots used in shallow sea areas to a large remotely operated vehicle (ROV) that is capable of travelling at a depth of 11,000 meters, the deepest in the world. We thus make a major contribution to the marine resource development of Japan.

Floating production, storage and offloading system (FPSO)

An FPSO is an ocean-based facility that produces oil and gas, stores produced oil in the facility's internal tanks, and then directly supplies it to oil tankers. The FPSO is the most popular type of production facility, representing over 60% of floating vessels for marine oil and gas production.



Autonomous surface vehicle (ASV)

This is a small autonomous surface vehicle (ASV) based on a test machine for evaluating unmanned surface vehicle technologies. It can be operated remotely using the wireless communication system and camera system mounted on it. In addition, it can sail on specified routes autonomously.

Chikyu, a ship for investigating deep seabed

Chikyu is the world's first riser drilling-equipped science vessel. For the first time in the history of mankind, it is capable of drilling down into the mantle and the region where major earthquakes occur. MES was in charge of constructing hull of this ship.

Shallow methane hydrates and sea-floor hydrothermal deposits

The Japanese coastal waters are said to be world-leading waters in terms of sea-floor hydrothermal deposits and the amount of methane hydrates deposit. Projects are underway for the practical utilization of these resources.

Remotely operated vehicle (ROV)

An ROV is an underwater robot that is connected with the mother ship via power supply and communication cables and is remotely operated from the mother ship. Small ROVs are used in shallow sea areas, while large ROVs are capable of cruising at a depth of 11,000 meters, the deepest in the world. ROVs are used to inspect failures of undersea communication cables, undersea oilfield pipes, and similar equipment as well as to observe deep-sea floors.

Non-contact power supply system

A non-contact power supply system is a docking station that is used for supplying power to AUVs under the sea and for data communication with equipment on the water. While AUVs excel in mobility because they are not connected to the mother ship via power supply/communication cables, the duration of the time during which they remain active is limited. We are developing a non-contact power supply system that will enable continuous inspections and explorations over a long time and across a wide range by supplying power to AUVs under the water.

Autonomous underwater vehicle (AUV)

An AUV is an underwater inspection robot that is not connected to the mother ship vial power supply/communication cable but travels underwater based on a program created in advance. There are various types of AUV, including those that can measure the seabed topography over a wide range by using ultrasound, those that measure the topography with high resolution by using camera systems mounted on them, and those that are capable of three-dimensional mapping.