PLANNING

SNAV’S Onboard planning tool optimizes ship operations through improved fuel efficiency and route optimization. This is achieved by integrating various data sources, including real-time global weather information and detailed ship models. The algorithm dynamically adjusts the ship’s course and speed to ensure efficient fuel consumption and optimal voyage performance. Crew members are supported by real-time monitoring and guidance, ensuring safe navigation and reducing fuel costs.

Route Optimization
- Route optimization with adjusted ship speeds for fuel savings
- Estimation of speed and fuel consumption considering weather forecasts

Trim Optimization
- Guidance on optimum trim for fuel savings
- Real-time monitoring of optimum trim under operating conditions
**SVESEL® Onboard**

**MONITORING**

SVESEL® offers real-time monitoring capability on diverse aspects of the vessel operation. The actual traveled route is compared to the SVESEL® recommended route to evaluate its economy. A separate monitoring tool is provided for convenient access and review of data collected in HMI. Also, detailed monitoring solutions are available for fuel consumptions, emissions, and machinery performance databases.

**Monitoring Overview**

- Includes voyage status, current weather, fuel consumption, gas emission, etc.
- Comprehensive monitoring solution with intuitive UI.

**Fuel / Emission**

- Comprehensive visualization of fuel consumption for MIE, GE, Boiler.
- Providing data in terms of mass and volume.

**Route Monitoring**

- Current position, reference route, optimized route, and voyage information such as ‘distance to travel’ & actual fuel consumption.

**Machinery**

- Monitoring MIE, GE, Boiler operating status.
- Displaying detailed system configuration and data.
MONITORING

SwedeFleet monitors propulsion performance in real-time and evaluates achievable performance improvement from dry-docking. Also, MUTRAV and HP-1 data can be utilized for safer operation of the vessel, vessel emission, and ship structure integrity are monitored using IM and strain gauges sensor data along with weather data and simulation results.

- Overview
  - Fuel (Total): 3.0 Million
  - Emission (CO2): 8.3 Million

- Route Monitoring
  - Machinery: 18,263 kW
  - Motion: 1,258.5 kNm

SPMS
- Monitoring of ship status, draft, AIS performance, fuel consumption
- Displaying ship performance curves for the last 24 hours

HSMS - Option
- Monitoring real-time stresses by strain gauges and estimating accumulated fatigue damages

Motion
- Guidance on safe ship-handling for speed and heading control
- Risk assessment by measuring or predicting ship motions

SPA
- SPA (Ship Performance Analyzer) compliant with IEC 60861
- Change in hull and propeller performance after dry-docking

ONBOARD SOLUTION MONITORING
Vision is one of the most valuable features of VESSEL™. It enables real-time visual monitoring of the extremely告知 areas that are often invisible or hard to see directly using conventional monitoring systems (e.g., radar or AIS) or hard to be seen directly.

Using multi-camera fusion and AIS information visualization, Vision delivers the situation intuitively and helps the user detect future collision risks. Vision also helps safely store the recent video captures and navigational information data in a normal server for future references.

**Video-Based Monitoring**

- Real-time and off-line video monitoring of the environment including blind areas from the bridge
- Integrated imagery of multiple video sources, which expands the user's situational awareness
- Automatic creation and management of video logs
- Automatic switching between normal and infrared image by lighting conditions

**Information Augmentation**

- Emphasis on nearby moving (dangerous) obstacles
- Provision of detailed information on the ship's position
  (Interface to AIS is required)
- User-configurable distance lines
SWEBEL offers specialized LNG solutions for safer and more efficient LNG operations. Real-time monitoring and control systems are available for cargo handling, fuel gas supply systems, re-liquefaction, and others. Notably, the BOG formation estimation function is an effective tool for economic vessel operation.

**LNG Status Monitoring**
- Monitoring cargo handling system, fuel gas supply system, cargo tank operating status
- Displaying detailed LNG system configuration and data

**LNG Cargo Tank**
- Monitoring LNT, LQ, TD temperature and pressure
- Predicting BOG temperature and pressure of each tank based on a process model

**Re-liquefaction**
- Monitoring operating status of re-liquefaction system
- Displaying detailed re-liquefaction system configuration and data

**F-BOG Monitoring**
- Monitoring forward-BOG related equipment operating status
- Displaying detailed forward-BOG system configuration and data
**REPORTING**

The EU MRV and IMO DCS regulations, which came into effect in January of 2013 and January of 2019 respectively, are important regulations in the shipping industry for meeting its carbon reduction goal. Joon SNESSEL® EU MRV and IMO DCS solutions have been approved by classification society. Also, it provides daily report based on real-time voyage data to meet the vessel's automated reporting (MRV).

**IMO DCS/ EU MRV**

- Automatic reporting of CO2 emissions by fuel type, voyage, and voyage distance per EU MRV and IMO DCS regulations
- Approved solution by class society

**Daily Report**

- Automatic generation of "Standard Daily Report"
**Vessel & Fleet Tracking**

- Real-time vessel & dangerous cargo control to support safe operation
- Voyage history by date & search with map

**Voyage Analysis**

- Provides vessel operation trend of main equipment
- Comparison of trends in operations status by vessel in the same route

**Warranty Management**

- Current claim status management
- Download service for claim report & shipping document

**Collaborative Maintenance**

- Trouble-shooting with partners during warranty period
- Web API Service support
We are leading the transition of the technological advancement of vessels into the future.

The revolutionary advances in information and communication technologies with artificial intelligence have accelerated our endeavor in the latest smart ship solution. SVESSEL™ focuses on complete digitization of ship and its applications to efficiently and safely assist operation. The ship, which embodies philosophy and technology from the digital age, restructures the building specifications design knowledge, new recipes, etc., into Digital Twin, serving as the technological embodiment of SVESSEL™. A remote operation system that includes semi-autonomous capabilities to fulfill the rigorous requirements of a maritime control center is under development. It will lead to a dramatic reduction in preventable losses due to human errors. Our ultimate goal is to bring the most innovative changes to the maritime industry with comprehensive ship.