

Fleet Operations Solution



Environment

Efficiency

Safety

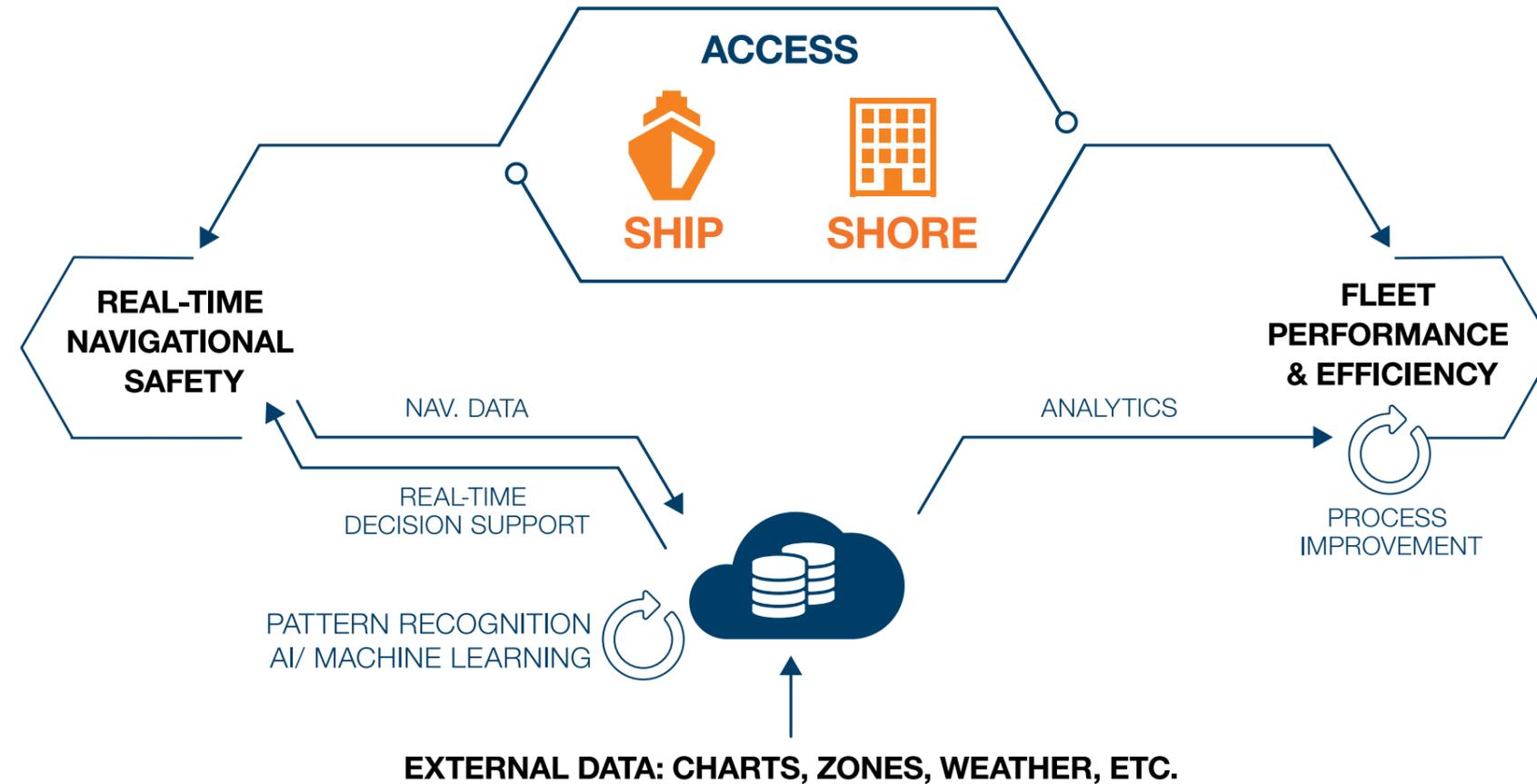
Safety and Efficiency

Fleet Operations Solution (FOS) is designed to achieve the highest level of safety at sea, increase fleet efficiency and simplify everyday tasks both ashore and on board.

FOS unites all navigational processes and voyage data on a single platform making the crew and the operations center work as one.

Along the entire route, vessel and shore are exchanging the information in a secure environment to make sure that the ship arrives to the destination point safely, in time and with maximum fuel efficiency.

With FOS, the operations are processed seamlessly, the compliance is guaranteed and the workload and costs are optimized.



Advanced software applications facilitate routine tasks and decrease the workload allowing people to focus on their main objectives.

With FOS it is possible to:

- Track the fleet in real-time mode and receive detailed information on each vessel
- Access the operational data anytime from anywhere on multiple devices
- Track operational performance with flexible KPIs
- Select the most efficient route optimized automatically in accordance with weather conditions
- Always have the latest and most recent charts and voyage data at hand for planning
- Ensure uptime of the navigational equipment and get timely support
- Get alarms and quickly respond to unusual ship behaviour and anomalies
- Help the crew to perform safe manoeuvres in situation of high stress or overwhelming traffic
- Constantly maintain the competence of the crew

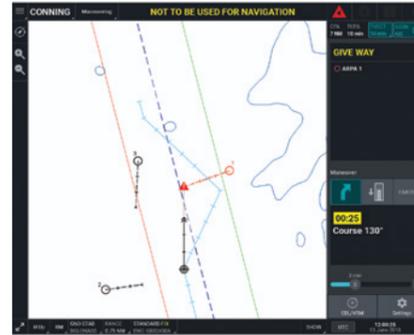
One Solution for Ship and Shore

FOS provides centralised access for decision support, notifications and planning processes onshore and on-board.

The shore part of the solution can be accessed via a web interface or on tablets and smartphones, as well as deployed on a local datacentre at the customer's office. On the bridge crews access ECDIS, Radar and our planning station with the FOS interface.

SHIP

- Real-time decision support for maneuvering
- Voyage planning
- Voyage anomaly detection
- Training

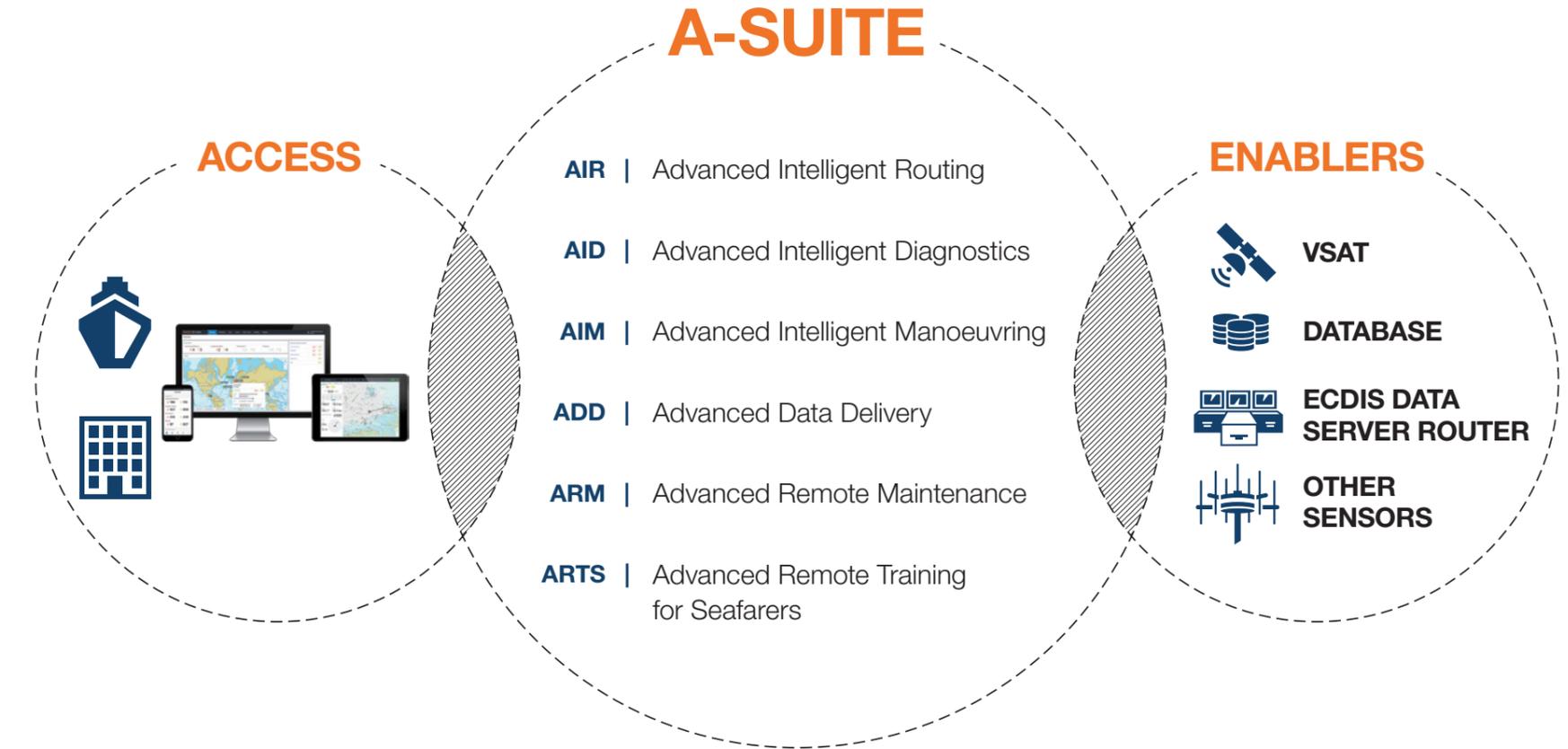


FLEET OPERATIONS CENTER

- Real-time monitoring and post voyage analytics
- Data collection
- Real-time decision support
- Reporting & benchmarking
- Voyage planning
- Training



Building Blocks of the Fleet Operations Solution



All tools and data are connected in one operating system with the ECDIS kernel at its core, building the basis for improved operational efficiency and safe processes, with all stakeholders having access to and relying on the same information.

A-Suite

- a set of connected intelligent applications inside FOS using artificial intelligence to improve situational awareness and provide decision support on bridge and ashore.

ADVANCED INTELLIGENT ROUTING (AIR)

AIR optimizes vessel route according to a variety of metocean data, as well as traffic separation schemes and regional regulations on acceptable fuel types, using artificial intelligence technologies.

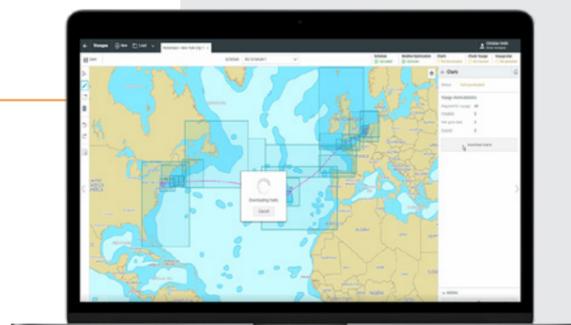
- Automated fastest and safe route generation and update
- Geometric and weather optimization
- Reduced bridge crew workload
- Efficient fuel consumption



ADVANCED DATA DELIVERY (ADD)

ADD automatically keeps the charts and planning tools updated and therefore compliant.

- Information is always available in the ECDIS notification centre
- Easy way to get official charts and data for the voyage
- All charts are available within the same invoice



ADVANCED INTELLIGENT DIAGNOSTICS (AID)

AID detects anomalies, i.e. abnormal, unusual and/or dangerous patterns in ship behaviour, real-time and post voyage, in order to increase situational awareness, eliminate the possibility of human error and eventually, reduce risk.

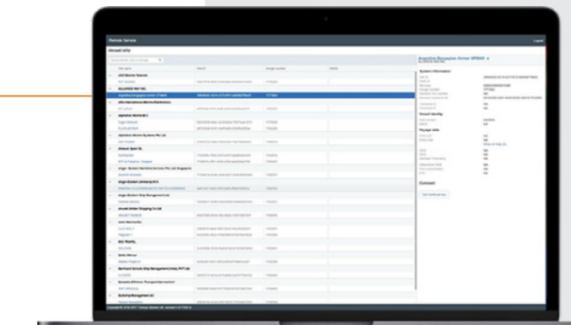
- Increased situational awareness
- Automatic anomaly detection and alerts
- Eliminated human error



ADVANCED REMOTE MAINTENANCE (ARM)

ARM provides remote support, diagnostics and preventive maintenance for the navigational bridge and satellite communication equipment.

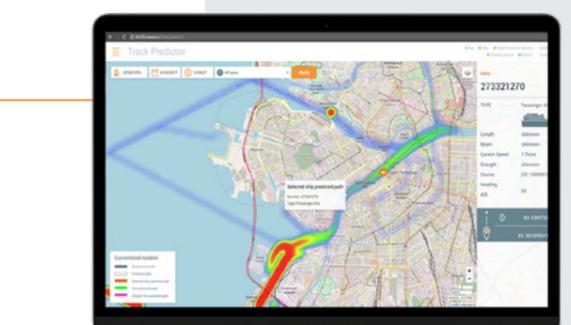
- Remote support, diagnostics, performance analytics and preventive maintenance for the navigational bridge and satellite communication equipment
- Automatic software updates and fixes
- Service Desk access via Client FOS Application



ADVANCED INTELLIGENT MANOEUVRING (AIM)

AIM is a track prediction designed to improve situational awareness and reduce the probability of officer in-attention or poor judgment leading to an incident.

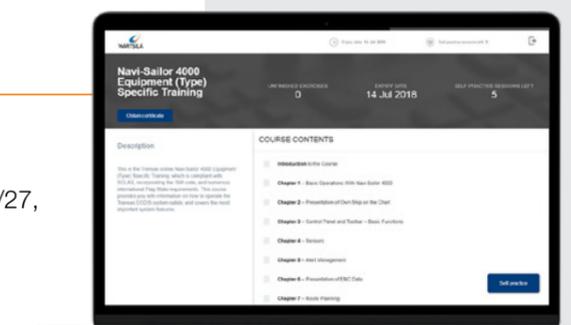
- 15-20 minutes reliable ship trajectory prediction for the area (98.5% accuracy)
- Recommendations of safe & efficient maneuvers to avoid collisions
- Prediction of potential collision and grounding events
- Identification of safety distance parameters applicable for the area



ADVANCED REMOTE TRAINING FOR SEAFARERS (ARTS)

ARTS is an advanced e-learning solution. It provides online access to manufacturer approved type-specific training course featuring the original Navi-Sailor 4000 ECDIS software.

- Includes theoretical and practical sessions
- Manufacturer approved type-specific certificate confirming familiarization with the Navi-Sailor 4000 ECDIS and equipment
- Compliant with
 - SOLAS V/13, I/12, V/16, V/19.2.1.4-19.2.10, V/27, V/28, as amended
 - IMO MSC.1/Circ.1503/Rev.1
 - SOLAS IX/4-6, as amended
 - ISM Code clause 6, as amended
 - IMO STCW.7/Circ.24.



Enablers

■ ECDIS

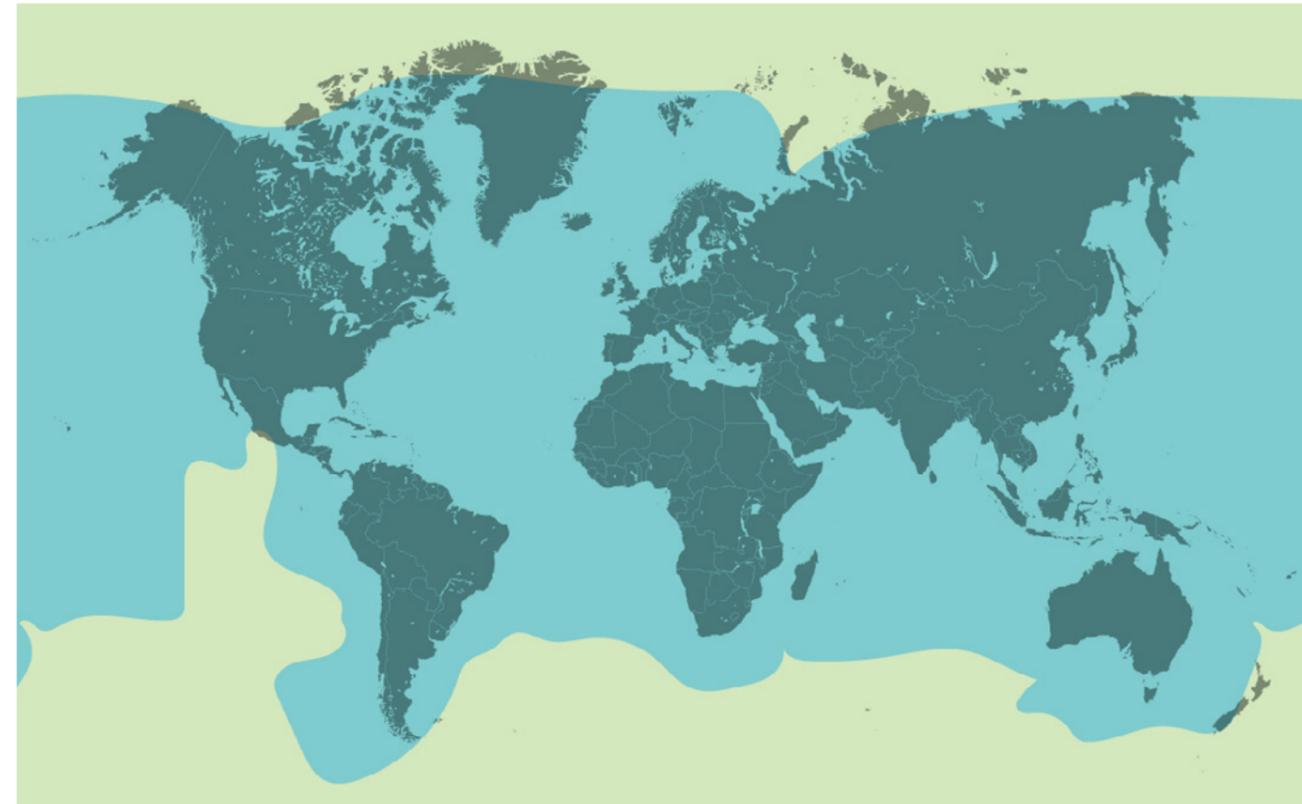
A complete connected Dual ECDIS solution as required by the IMO regulations compliant with the latest requirements.

■ COMPREHENSIVE VSAT NETWORK COVERAGE WITH RELIABLE BACKUP

The VSAT network coverage within the ASAT is comprehensive and supports a selection of carefully chosen global MIR and CIR plans.

The coverage is build-up with 20+ satellites within the Ku-band, highly decreasing the effects of blockage zones (funnel, masts) and increasing the VSAT uptime on the vessel.

The VSAT service requires a backup solution in case the VSAT is not available (blockage, interference or other reasons). It will ensure that the vessel can continue its business-critical applications and communications and call to shore.



Cyber Security

■ Sophisticated security compliant cloud platform

- Identity control
- Secure infrastructure
- Security applications
- Compliant to the General Data Protection Regulation (GDPR)

■ VPN

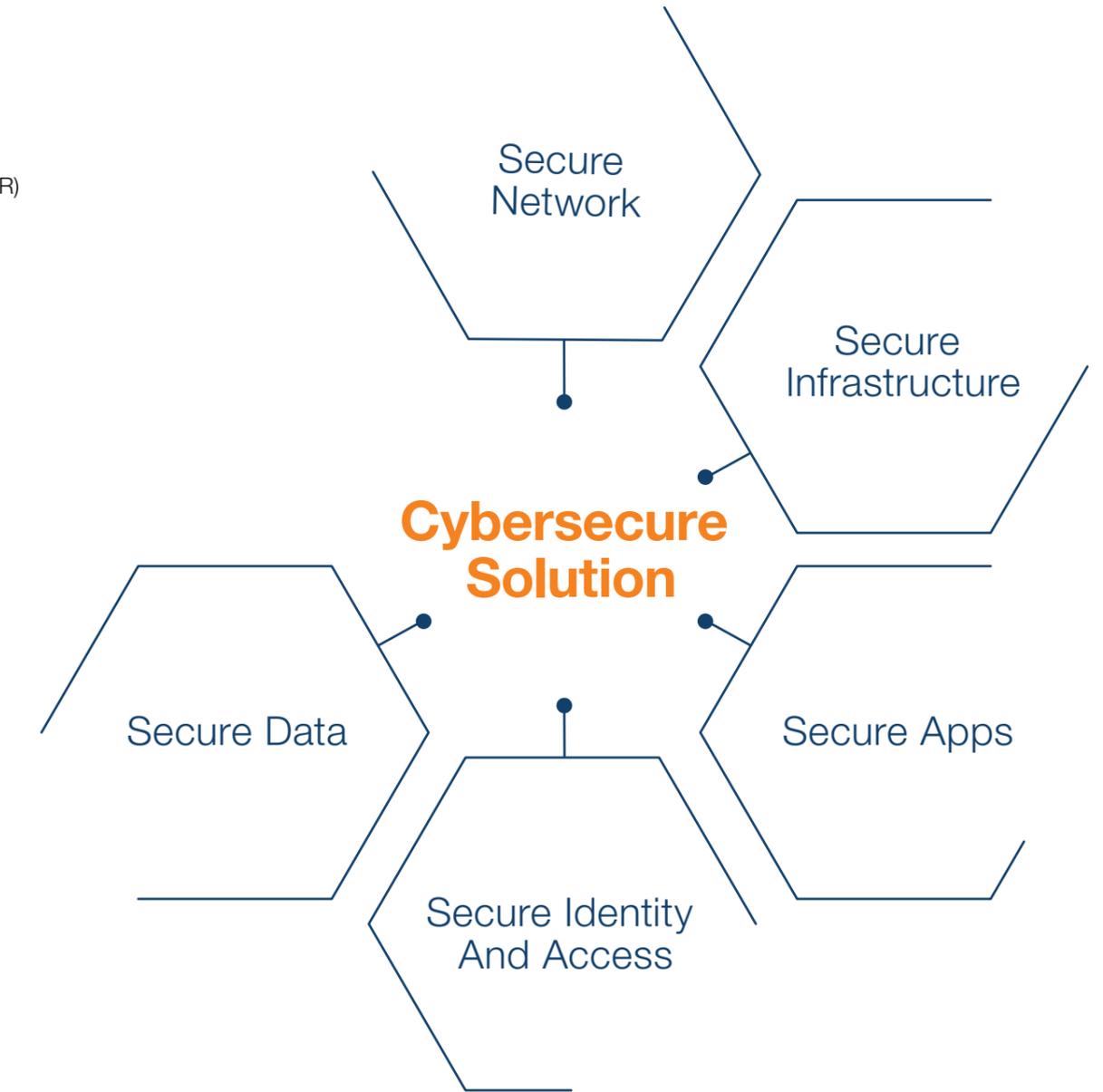
- Firewall IEC 61162-460 standard approved

■ LAN business segmentation

- Business and private network segmentation with the traffic priority control

■ Data security validation

- Data integrity and validity checks



FOS package includes

- Fleet tracking
- Route planning, weather optimization and monitoring
- Charts and data delivery
- Remote maintenance
- Safety and performance data analysis
- Automatic detection of anomalies and notifications
- Traffic forecasting and maneuver support
- Online training
- Fleet Operations Center dashboard
- Mobile application
- Dual ECDIS
- Optional chart radar
- VSAT flat rate

SMART MARINE ECOSYSTEM

FOS Gold is supplied as a managed service meaning that after you implement it once, you can focus on the main competences while we are taking care of all the background processes. One invoice from a single supplier gives a full control over the operational costs and allows for predictable and transparent budget planning.



Wärtsilä is a global leader in smart technologies and complete lifecycle solutions for the marine and energy markets. By emphasising sustainable innovation, total efficiency and data analytics, Wärtsilä maximises the environmental and economic performance of the vessels and power plants of its customers.

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