

TRANSAS

FLEET OPERATIONS SOLUTION

The future of Safe Navigation in the Smart Marine Ecosystem

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Facts





More than **3000000** of electronic charts sold worldwide

Transas collection includes 17000 electronic charts Marine onboard equipment is used on more than

13000 commercial vessels and patrol boats of naval and Coast Guard fleets from over 100 nations.

More than 5500 marine simulation systems in

)1 countries

More than **10000**

electronic chart systems and several millions of electronic charts supplied

45%

world's marine simulation market

35% Electronic Chart Systems world's market share



Ship Traffic Control Solution

River Information Services / Inland VTS



Over 25% of the global market of Port & Vessel Traffic Management Solutions

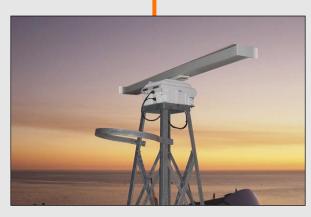


Automatic Identification System





Coastal Surveillance Systems



Vessel Traffic Monitoring Systems



Offshore Monitoring Solution



Transas Simulation



WHO IS TRANSAS



CUSTOMERS



VISION

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.

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

Environment

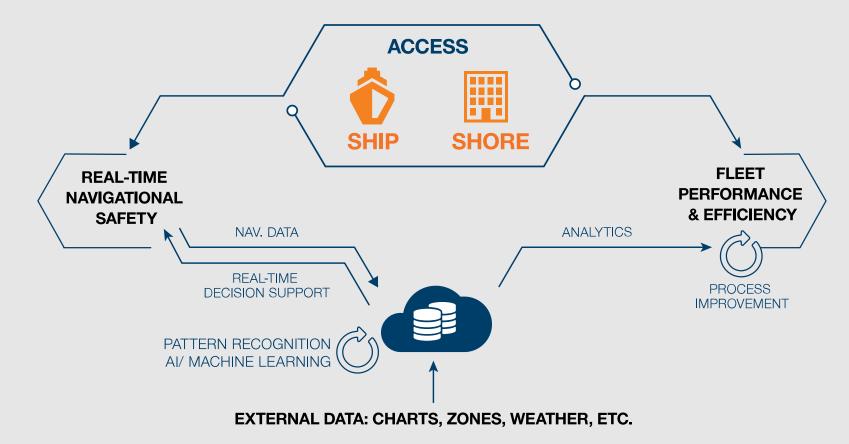
Efficiency

Safety



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.



Far Beyond Vessel Tracking Solution



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



Ship

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



Fleet operations center

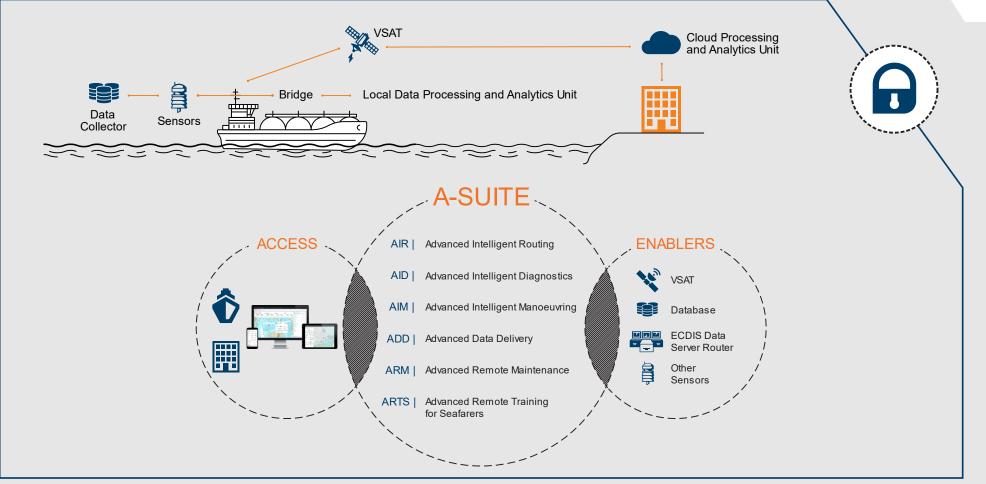
- Real-time monitoring and post voyage analytics
- Data collection
- Real-time decision support
- Reporting & benchmarking
- Voyage planning
- Training



- Centralized access via web interface or on tablets and smartphones
- Deployment on a local datacentre at the customer's office
- Crews access ECDIS, Radar and the planning station with the FOS interface

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.

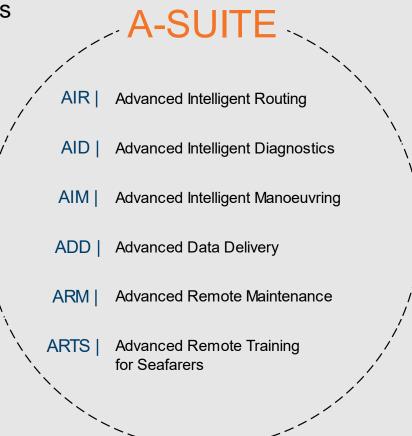


A set of connected intelligent applications inside FOS

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

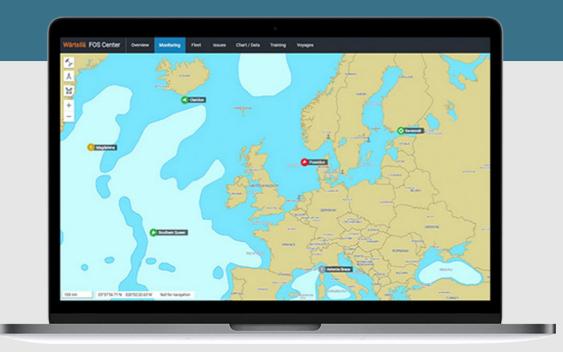
A-Suite uses artificial intelligence to improve situational awareness and decision support on bridge and ashore.

- Analytics
- Decision Support
- Artificial Intelligence
- Planning
- Maneuvering
- Situational Awareness





Web-based SSAS-Tracking service that provides processing and distribution of SSAS Alerts and displays your vessel's position anywhere in the world anytime.



- Fleet tracking in accordance with SOLAS XI-2 Regulation 6
- Vessel tracking using a selection of terrestrial or space-based AIS services, or a combination of both options for improved accuracy
- Multiple connection options:
 - ShipGuard ISAT M2M/IsatData Pro terminals
 - Wide range of Inmarsat C and Inmarsat mini-C terminals
 - Fleet BroadBand terminals

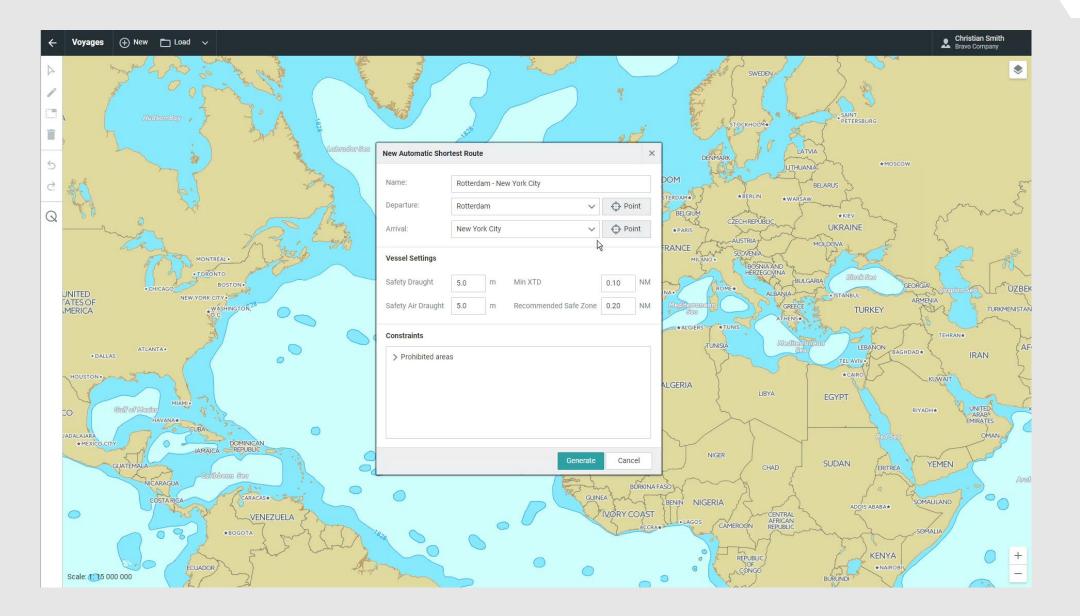


AIR optimizes vessel route according to a variety of metocean data, as well as traffic separation schemes and regional regulations on acceptable fuel types, using artificial Intelligence technologies.

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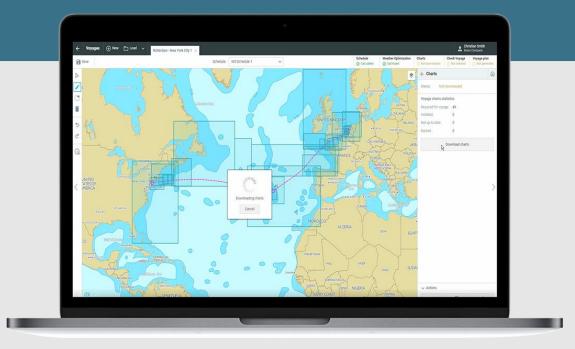
- Automated fastest and safe route generation and update
- Geometric and weather optimization
- Reduced bridge crew workload
- Efficient fuel consumption
- ECDIS integration
- Safety check and Voyage plan documentation.







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



- Information is always available in the ECDIS notification centre
- Easy way to deliver official charts and data for the voyage
- All charts are available in the package and are paid with the same invoice



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.

Wärtsilä FOS Center	Overview Monitoring Fleet Issues Poseidon Silver	Chart / Data Training Voyages	Christian Rasmussen Maersk
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	IMO number 1586574		

- Automatic anomaly detection and alerts
- Allows to foresee and prevent dangerous situations, including
 - Excessive / extreme manoeuvring
 - 'Near miss' collisions / grounding cases
 - Potential loss of ship stability and cargo shift problems
 - Dangerous hull / machinery loads
 - Ignoring critical navigational alarms

ADD - ADVANCED INTELLIGENT DIAGNOSTICS



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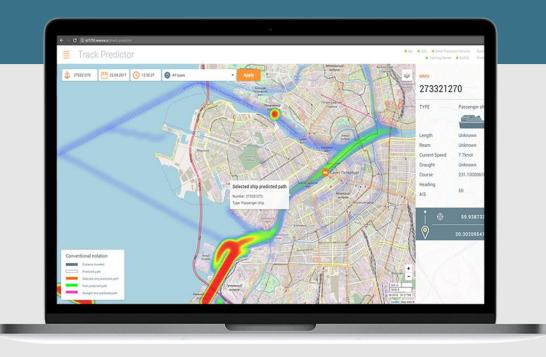
ARM provides remote support, diagnostics and preventive maintenance for the navigational bridge and satellite communication equipment.

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- 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



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







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

WARTSILA	(b) Egery date: 14 Jul 2018 (c) Self-practice sessions left: 5
Navi-Sailor 4000 Equipment (Type) Specific Training	unfinished exercises expiry date self-practice sessions left 0 14 Jul 2018 5
Description This is the Transas online Navi-Salor 4000 Equipment (type) Specific Training, which is compliant with SOLAS, incorporating the ISM code, and numerous informational Flag State requirements. This course provides you with information on how to openate the Transas ECDIS system safely, and covers the most important system features.	COURSE CONTENTS Introduction to the Course Chapter 1 - Basic Operations With Navi-Salior 4000 Chapter 2 - Presentation of Own Ship on the Chart Chapter 3 - Control Panel and Toolbar - Basic Functions Chapter 4 - Sensors Chapter 6 - Presentation of ENC Data Chapter 7 - Route Planning

- Includes theoretical and practical sessions
- Manufacturer approved type-specific certificate confirming familiarization with the Navi-Sailor ECDIS and equipment
- Produced in accordance with the provisions, requirements and/ or guidance of:
 - 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.

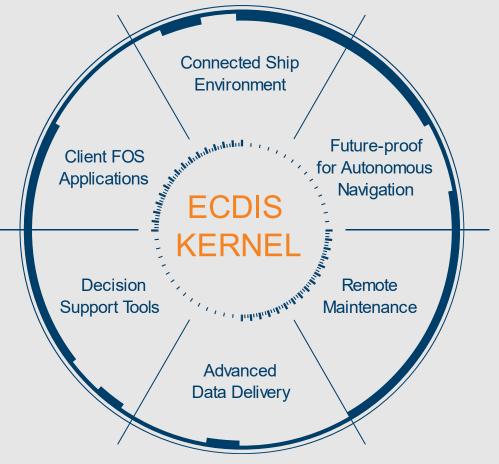




ECDIS

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

- Data Control Unit (DCU) enables connection between the navigation system and data sensors.
- Data Management Server (DMS) built-in on board data processing and storage solution.
- Telemetric Sensor (TMS) built-in sensor providing smart collection of dynamic motion parameters for extended diagnostics and behaviour analytical services.



ENABLERS





VSAT Network

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.

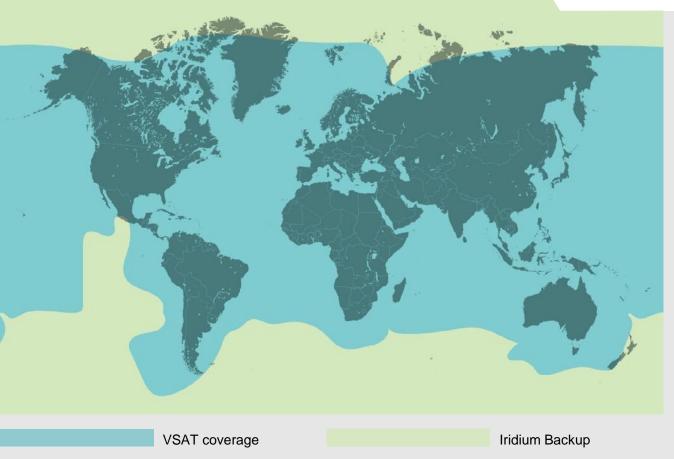
The network is future proof allowing higher bandwidth from HTS (High Throughput Satellites) to be included.



Back Up Solution

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.

Due to the nature of the service and availability, there is a high preference for Iridium or Fleet Broadband back up.



Other Sensors

Whilst FOS will collect (initially) vessel navigational and behavior (movement) sensor data, through our UNINAV interface you can collect multiple sensor data from other on-board systems and integrated this data into your Fleet Operations Centre or mobile device.



The best possible protection against cyber attacks

Sophisticated security compliant cloud platform

- Identity control
- Secure infrastructure
- Security applications
- Compliant to the General Data Protection Regulation coming in force May 2018

VPN

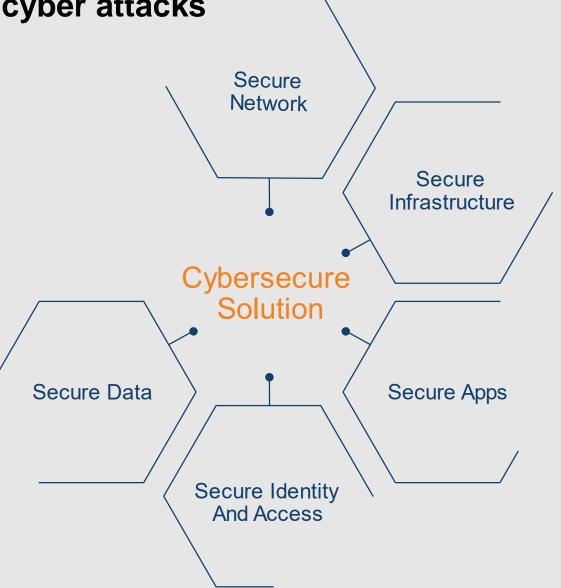
 Firewall IEC 61162-460 standard approved

LAN business segmentation

 Business and private network segmentation with the traffic priority control

Data security validation

Data integrity and validity checks.



FOS

Future developments





HOW

ENIRAM Entry (MVP)	ENIRAM Advanced
 Modelling of instantaneous fuel flow Reporting package C/P 	 Continuous fuel consumption benchmarking & calibration (in AIR) Awareness (PPD modelling, industry KPIs)
 Speed MRV 	 Technical Efficiency (fleet KPIs, Speed-fuel curves, Hull & propeller performance, engine SFOC) Voyage Efficiency (operational benchmarking, consumption analysis, performance analysis) Custom analytics Advanced will require integration to ship systems!





Roadmap – high level

MVP

- Joint concept for marketing / showcase
 - AIR Fuel Benchmarking (Entry)
 - Reporting package
 - C/P reporting
 - Speed reporting
 - MRV reporting
- Technical feasibility confirmation for ENIRAM with Transas hardwarefunctionality

ENTRY

- Offering MVP as joint commercial package
- Only Transas hardware
- FOS w AIR Entry
- Eniram Reporting package Entry

ADVANCED

- Offering FOS + ENIRAM as commercially and technically integrated packages
 - o FOS w AIR Advanced
 - Eniram Advanced services

SMM Concept