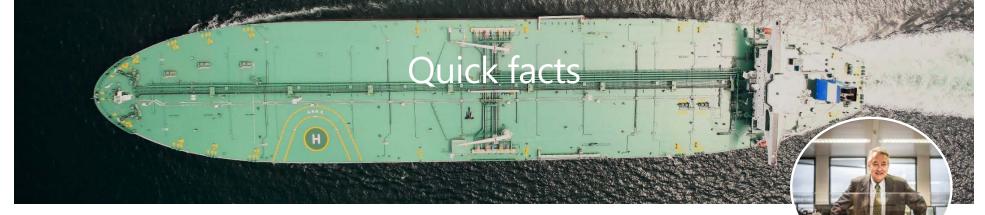


Rudi Vander Eyken, Head IT & Innovation





NYSE

The world's largest, independent quoted crude tanker platform

71 VESSELS*



2 FSO 3 million barrels



2 V-Plus 3 million barrels



42 VLCC 2 million barrels



*Average age on 30 June 2019: 8.5 years

International company Founded by the Saverys family Headquarters in Antwerp EVENENT EV

2,900 EMPLOYEES

- Approx. 2,700 seafarers of many different nationalities
- Approx. 200 shore employees



"DIGITAL TRANSFORMATION" 2020

Euronav has the ambition to invest in Digital Transformation :

- And become the leader (front runner) in adopting/embracing digitization within the "Maritime Industry"
- So "Digital Transformation" and "Innovation" becomes part of our DNA

Our future challenges & opportunities in the market

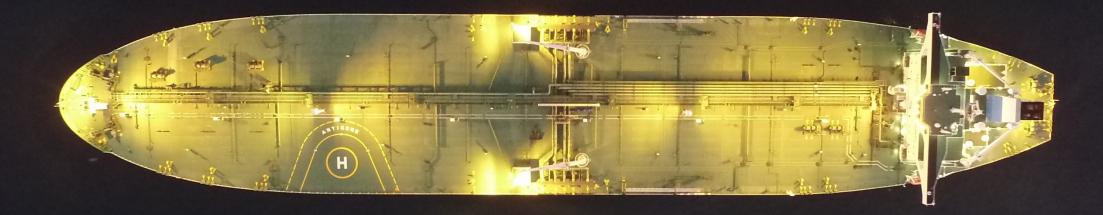
- IMO 2020 & Zero Emission targets by 2050
- Fuel prices (LFSO)
- Reduce Fleet OPEX
- Improve overall efficiency



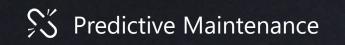


Euronav embarks for the future of data intelligence through optimized IoT connectivity ...

FAST (Fleet Automatic Statistics & Tracking) Why?





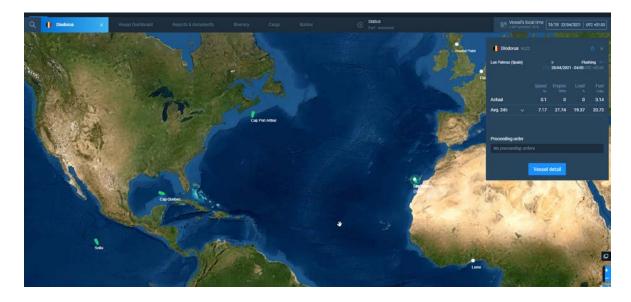




Claims Management



FAST Platform

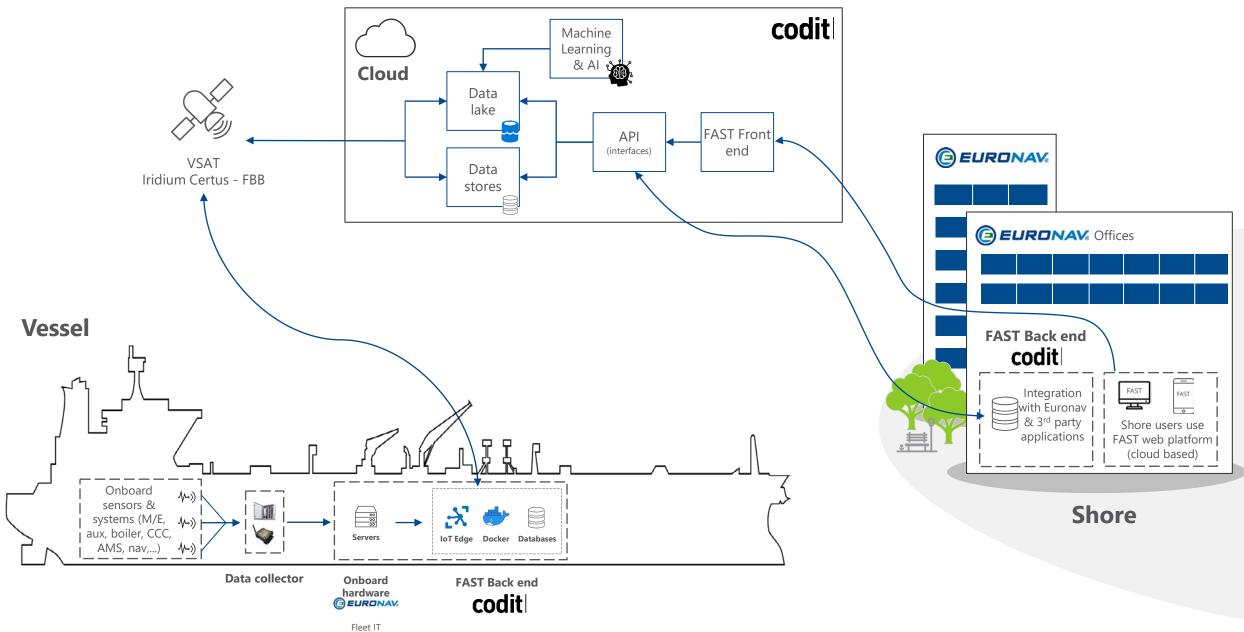


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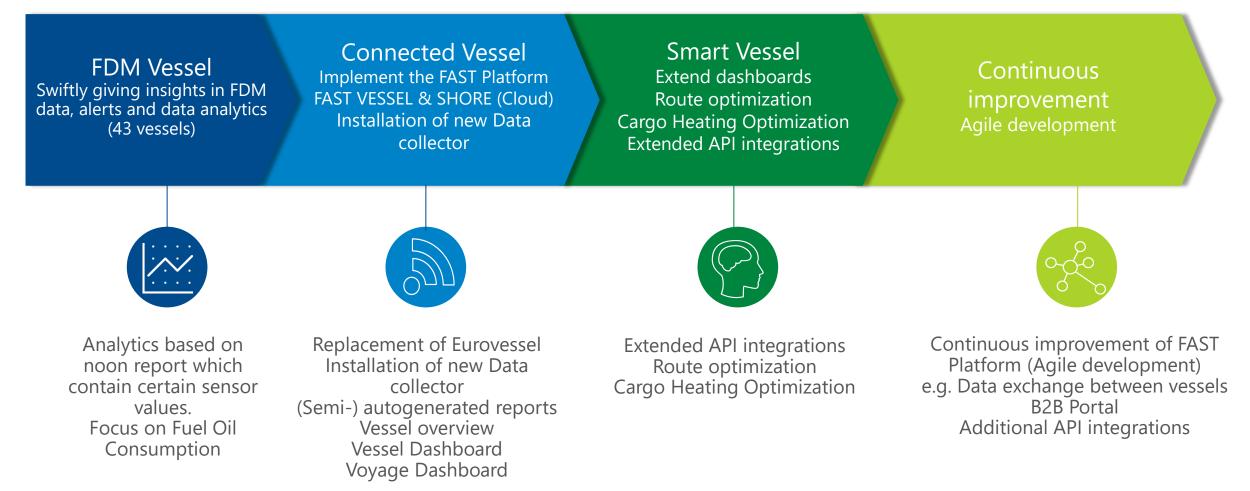






Phased strategy

with full focus on generating insights on Fuel Oil Consumption



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Technological Risks & Resilience Cybersecurity OT/IT Network

- Network Segmentation
- Firewalling

Onboard

sensors &

systems (M/E,

aux, boiler,

CCC, AMS,

nav,...)

-**∕**~)

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Data collector

- Secured Access Control
- Improve overall efficiency



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Servers

Onboard

hardware

IoT Edge Docker Databases

FAST Back

codit

Technological Risks Limited Internet Capabilities



- VSAT Internet capacity is very expensive
- All vessel applications and innovation runs over 1 pipeline
- 1GB office line vs 2Mbps/500kbps internet is a big difference



- Backup systems (Iridium/FBB) have less capacity i.e. 128 Kbps
- On backup only e-mail / voice active



Euronav's Resilience Projects that enable innovation

- Cybersecurity is top priority !!
- Data / File Compression techniques
- Quality of Service on the internet line
- Optimized Secure remote connectivity for Support
- Segmentation IT/OT network environment
- A professional D/R process needs to be in place ... as last solution !!
- Close collaboration with our peers to find appropriate solutions





