mtu NautIQ Foresight
Fleet & Health Management System

HOW CONNECTIONS REDUCE THE ENVIRONMENTAL IMPACT OF A FAST FERRY FLEET WITH HYBRID PROPULSION

A Case Study

A Rolls-Royce solution

CONNECTIONS IN SHIPPING

1980s - Szczecin Radio is Calling

1990s – first Emails

2020s – 20MB/hour

The Rolls-Royce Vision

Powering, protecting and connecting the modern world

ROLLS-ROYCE GROUP

A world-class technology company, built on three strong and complimentary business units.

Civil aviation

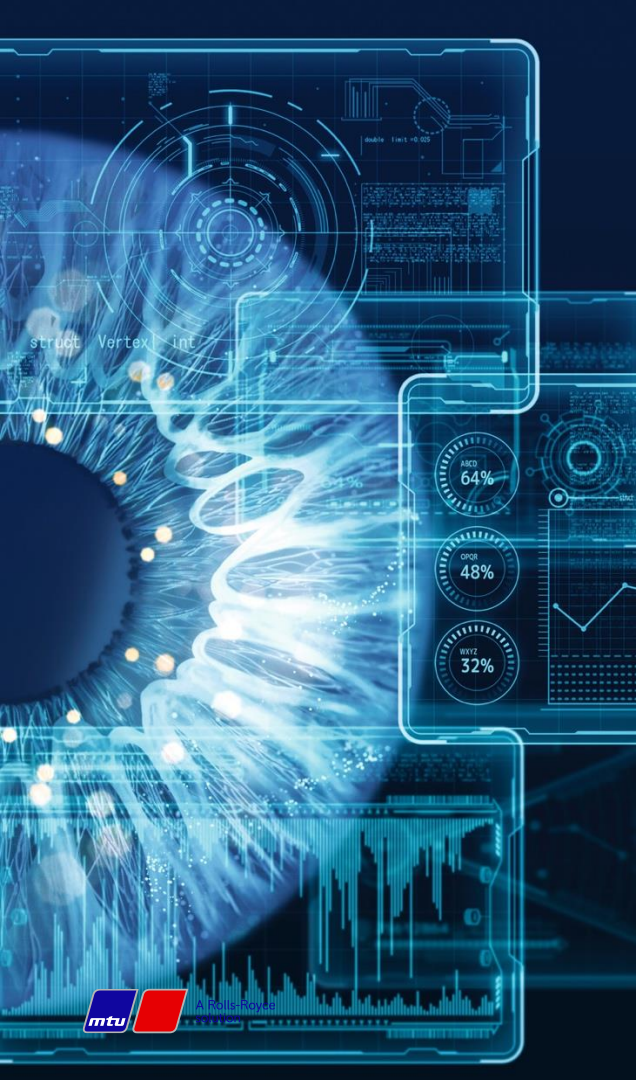
- **35** types of commercial aircraft powered by us
- **13,000** engines in service around the world
- **18,300** total employees
- **9.04 billion (€ 10.69 billion)** underlying revenue

Defence

- **160** customers in over 100 countries
- **16,000** engines in service around the world
- **12,000** total employees
- **4.5 billion (€ 5.32 billion)** underlying revenue

Power Systems

- **> 40,000** customers in 13 different industries
- **8,000** engines sold per year
- [7] **> 10,350** total employees
- **4.27 billion (€ 5.05 billion)** underlying revenue



THE VALUE OF CONNECTIONS

1 kilobyte (KB) = 1,024 bytes

1 megabyte (MB) = 1,024 KB

1 gigabyte (GB) = 1,024 MB

1 GB = 1,024 x 1,024 x 1,024 bytes = 1,073,741,824 bytes

And since each byte is 8 bits:

1 GB = 1,073,741,824 bytes x 8 bits/bytes = 8,589,934,592 bits

256 bits = 20 cents

1GB ~ $ 6.000.000,-

CHALLANGES FOR FLEET OPERATORS

- High number of ships to be operated
- Different ship types / hull types / sizes
- Different routes, coastal or seagoing
- Different propulsion systems, diesel-mechanic, hybrid
- Different TBO / maintenance schedules
- Different crew

- High effort to collect all data from various sources
- High complexity of interplaying data, especially for different vessels and scenarios
- Static analysis with past / present view

32 Vessels

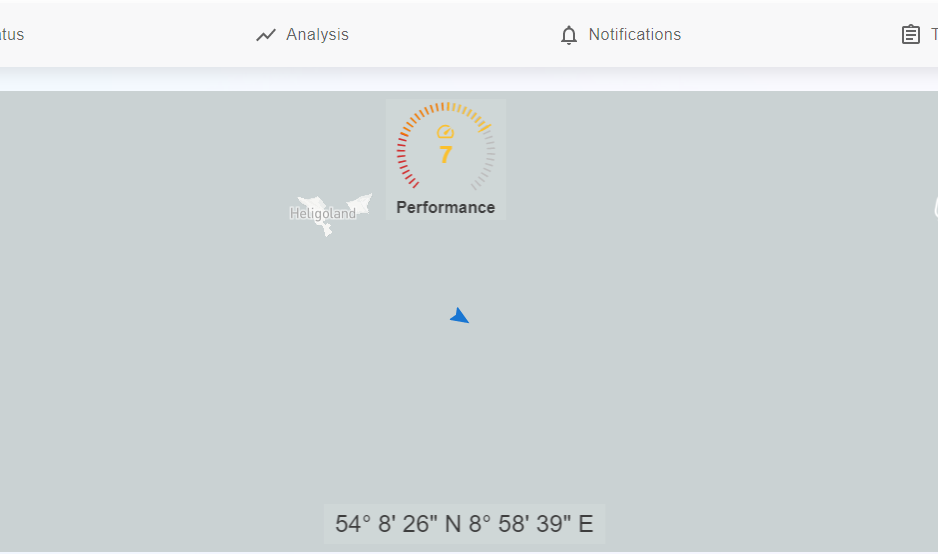
100 000
departures

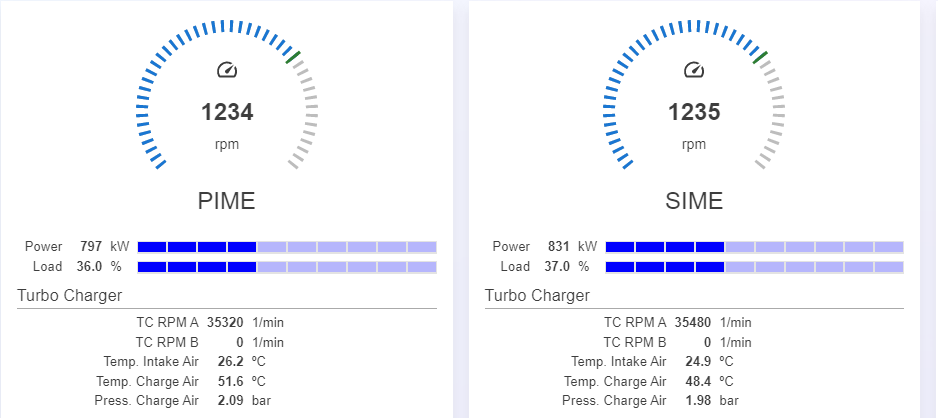
33 national & international
ports

3,5 Mio
passengers/year

650
employees

LIBERTY lines
30 ANNI DI NAVIGAZIONE VELOCE
A Rolls-Royce solution





mtu NautIQ Foresight

Fleet & Health Management System

Live Data

Real-Time Analytics

Seamless Integration

For fleet managers, who want to run their ships for thousands of hours without downtime, we will digitize the maintenance strategy and combine it with data driven predictions.

***mtu* NautIQ Foresight** will provide system status on one-click and will make availability management easier than ever before.

REDUCING ENVIRONMENTAL IMPACT

Reducing Local Air Pollution: Impact on Communities

Lowering air pollution levels can significantly enhance the quality of life for local residents

Minimizing Noise Pollution in Ports

Noise reduction in port areas can create a more peaceful environment for nearby communities

Higher Overall System Efficiency

Solutions like the ECO Mode for hybrid systems enhances system efficiency, leading to more sustainable operations

Optimized System Utilization

Reducing the operational hours of certain components decreases maintenance needs and extends their lifespan

Progress in Development of Land Charging Infrastructure

Developing land charging infrastructure can substantially reduce emissions, such as CO2, thereby minimizing global environmental impact

Hybrid Fleets: Present and Future

Current and future fleets will continue to be hybrid, with data analytics and AI playing a crucial role in optimizing fleet utilization and reducing operational efforts.

CONNECTING PEOPLE

Operational

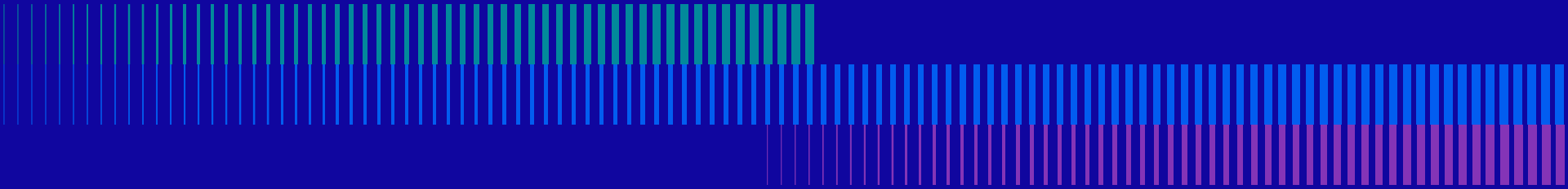
Linking Liberty Lines' fleet managers with captains and crews to ensure seamless operations

Strategic

Enabling direct communication between fleet managers and product developers to align technological advancements with customer needs

Technical

Facilitating collaboration between Liberty Lines and Rolls-Royce Solutions service and development teams for agile feature development



A Rolls-Royce
solution