



## Route optimisation project

In response to the need for enhanced navigational efficiency, d'Amico has leveraged big data to optimize routing and vessel speed on each voyage. The **Route Optimization Project**, initiated in 2020, employs big data analysis to evaluate the impact of CO<sub>2</sub>-saving devices, validate the ship's performance model by factoring in weather conditions, and assess the hydrodynamic efficiency of its vessels.

The project aims to **define optimal voyage plans with the goals of saving fuel, reducing emissions, and ensuring navigational safety**. The optimization process unfolds in three steps. First, the route is simulated to assess environmental factors like wind, waves, and currents, and their impact on speed and fuel consumption. Next, the simulation is adjusted to reflect the actual departure and arrival times, ensuring alignment between modelled and reported fuel consumption. Lastly, a final simulation checks the optimized route against actual voyage conditions to confirm the accuracy of the optimization. This process allows for fine-tuning future route to achieve improved fuel efficiency and performance. In 2024, the **Route Optimisation procedure was applied to 103<sup>48</sup> transoceanic voyages, resulting in a significant fuel saving of approximately 82 metric tons.**

### Before Voyage

Business Planning Support



Charterer

Prepare business plan based on weather data, ship specific

- Sea Margin
- Fleet Allocation
- Voyage Estimate

### Pre Voyage

Voyage Planning Support



Operator

To confirm business plan before departure.

- Voyage Priority / KPI Setting
- Route Comparisons
- Distance, Time Fuel, Calcs
- Heavy Weather Risks
- Target ETA Details
- Least cost route and engine setting
- Estimate Fuel Savings

### After Voyage

Evaluation Support

- Confirm Validity of Vessels Description
- Good Weather Performance Assessment
- Performance Claims Support
- All Weather-Based Fleet Rankings



Fleet Manager and Performance Analysts

### En Route

Safety Management  
Voyage Optimization



Operator / Trader

- Fleet Monitoring (Safety+Efficiency)
- Voyage Plan Updates (Route + RPM)
- Dynamic Model Calibration
- Risks Alerts (Safety, Schedule, Cost)
- Fine-Tuning to Optimize Fuel Saving
- Disport Change for Max Profit



Risk Communicator



Ship Master