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# SYROCO

EFFICIENTSHIP

INNOVATION THROUGH  
PIONEERING ACHIEVEMENTS



# At the helm of Syroco

2 times **world sailing speed record**

4 times **kite speed world champion**

First man to reach **100 km/h on water**, propelled by the wind

**150**  
KM/H

**107.36**  
KM/H

**121.1**  
KM/H

**98.89**  
KM/H

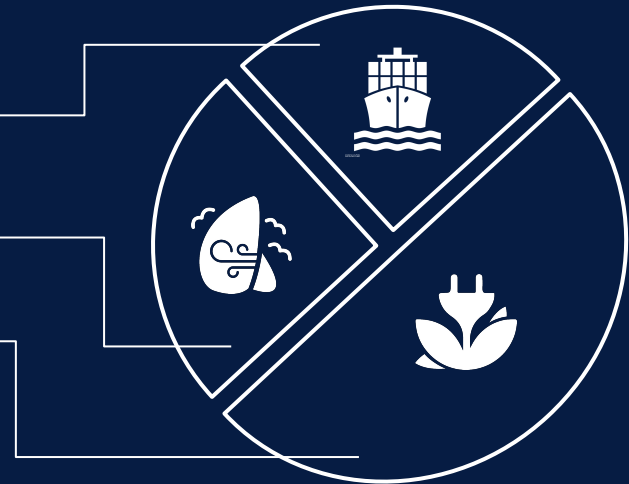
**95.11**  
KM/H

**86.15**  
KM/H



## Combine technology & best practices

- Improve ship & fleet operations with smart ship technologies
- Leverage wind propulsion
- Use new types of fuel or energy

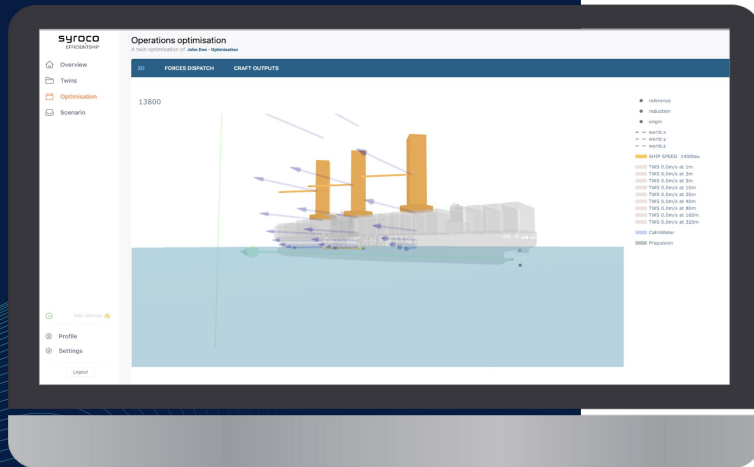


Syroco is a **Climate Tech startup** that supports the **energy transition** of maritime transportation.

It provides ship owners and managers, naval architects & shipyards a platform to **evaluate & improve** the efficiency of ships.

## WHAT SYROCO EFFICIENTSHIP IS

**Decision making platform** for optimizing the **efficiency and impact** of ships, driven by a **Digital Twin** of ship and propulsion systems (engine, sails, wings, hydrogen, etc.)

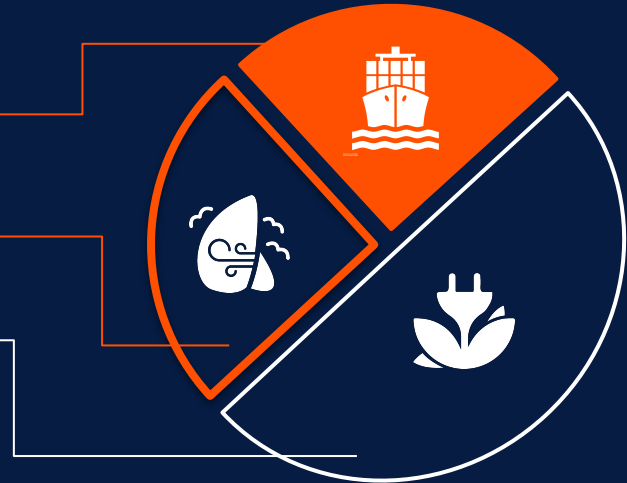


- Leverages physics modelling, data and AI
- Core applications include optimisation of operational and energy efficiency, fuel consumption, carbon emissions, CII calculation, etc.

**SAVE 10% FUEL** (OR MORE)  
& REDUCE CARBON EMISSIONS

## Syroco EfficientShip use cases

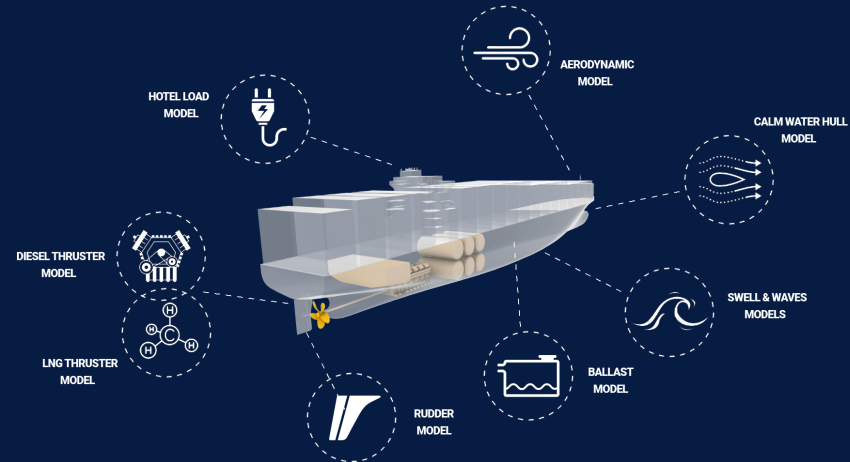
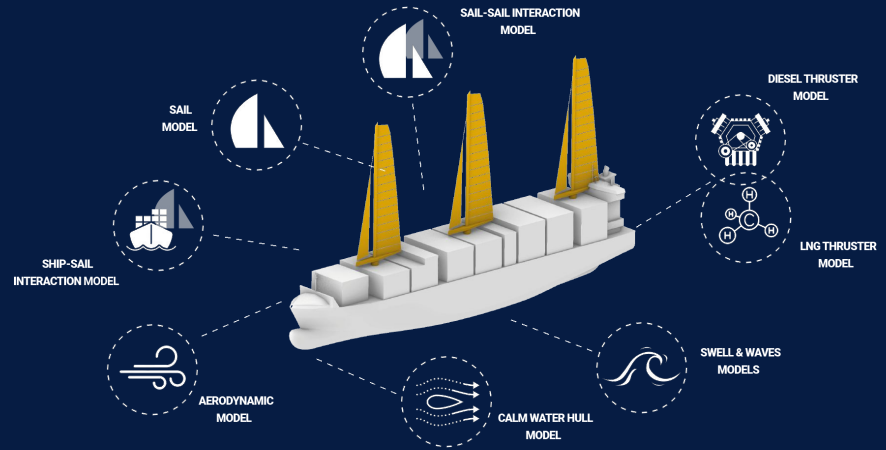
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## THE DIGITAL TWIN

A virtual representation of a real-world ship

Built through the **assembly of models**, each of them representing the physics & data-driven behaviour of an element of the ship





**10% fuel  
savings  
today!**

## **SHIP COMPANION**

Build baseline and track performance for onboard efficiency and safety advisory



## **FLEET PERFORMANCE**

Predict and track fleet performance in select scenarios, routes and operating conditions



## **DESIGN OPTIMISATION**

Optimise ship design, test operating scenarios and select configuration for new build or refit





The digital twin sails in parallel with the actual ship, providing baselines of historical & expected performance

Provide guidance and advice:

- Track the ship and her performance
- Compare actual data to baselines
- Improve efficiency and performance for each voyage

Tests scenarios to update operating profile based on actual conditions

## Digital twin evaluates performance of scenarios

Create scenarios of operating conditions:

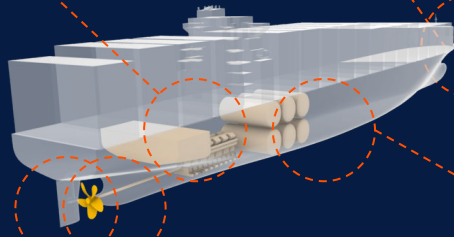
- Maritime routes
- Operating schedule
- Forecasted or historical weather
- Variable operating parameters



Using advanced scenario simulation capabilities, the digital twin sails on any number of routes, using any combination of configurations and parameters to compare efficiency and compute actual savings.

Multi objective  
weather routing  
& speed profile

Engine RPM



Rudder  
angle

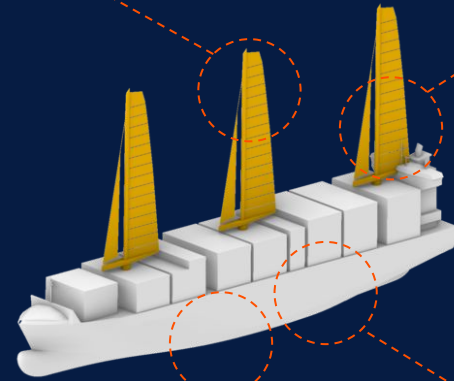
Propeller  
pitch

Trim / Draft

## OPTIMISATION POINTS

Sail usage

Sail trim



Fouling

Leeway

### **RO-RO CARGO SHIP**

Optimise efficiency of ship, with conventional propulsion and in hybrid mode (fuel & wind).

Build and track operational baseline on-board ship, for crew & fleet center.

### **WIND PROPULSION FOR CONTAINERSHIPS**

Compare efficiency and impact of several wind propulsion technologies on different ships.

Simulate scenarios: 4 billion nautical miles sailed virtually by 29 digital twins on 17 maritime routes.

### **CRUISE SAILBOAT**

Compare performance and efficiency of different hull designs and rigging configurations.

Simulate scenarios: 25 configurations, 50 operational profiles and maritime routes.

### **HIGH SPEED CREW TRANSPORT VESSEL**

Simulate impact of hull optimisation and foil addition on vessel speed, seaworthiness & fuel consumption.

Build operational baselines for optimal use.





**4021**

merchant ships  
(100 m or more)



**37 million**

tons of fuel

**24 billion €**

(per year)

**SAVE**  
**10%**  
**FUEL**

**2.4 billion €**



**12 million**

tons of carbon

(per year)



**SYROCO**  
EFFICIENTSHIP

[alex@syro.co](mailto:alex@syro.co)

