NABLAWAVE

Advanced Engineering

Confidential – 2022

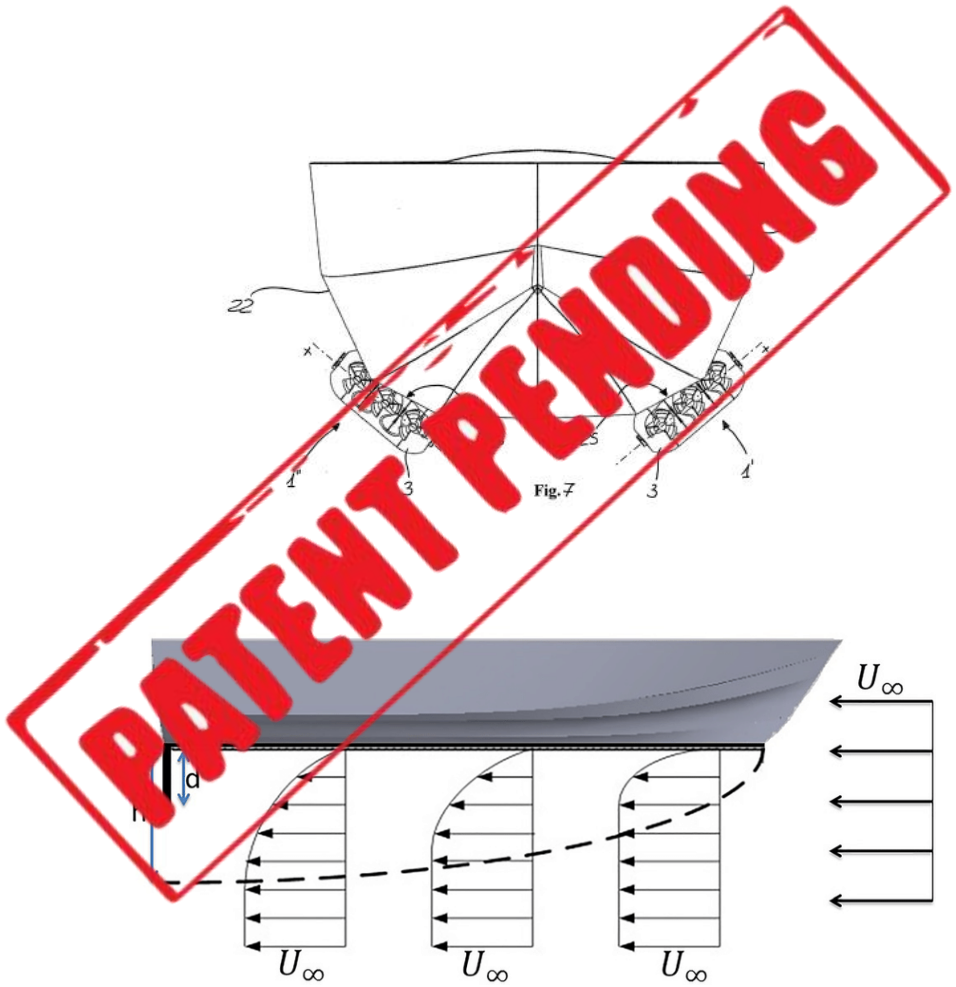
PROBLEM

- Boats and ships cause up to 40% of the air pollution in coastal towns in the Mediterranean: **there is a need for new green marine propulsion systems**

- **Marine electric propulsion** is a great solution. However, to obtain a **boat range** similar to diesel boats, **very high volumes of batteries** (or fuel cells) are needed – **cost increases linearly with battery size or range**

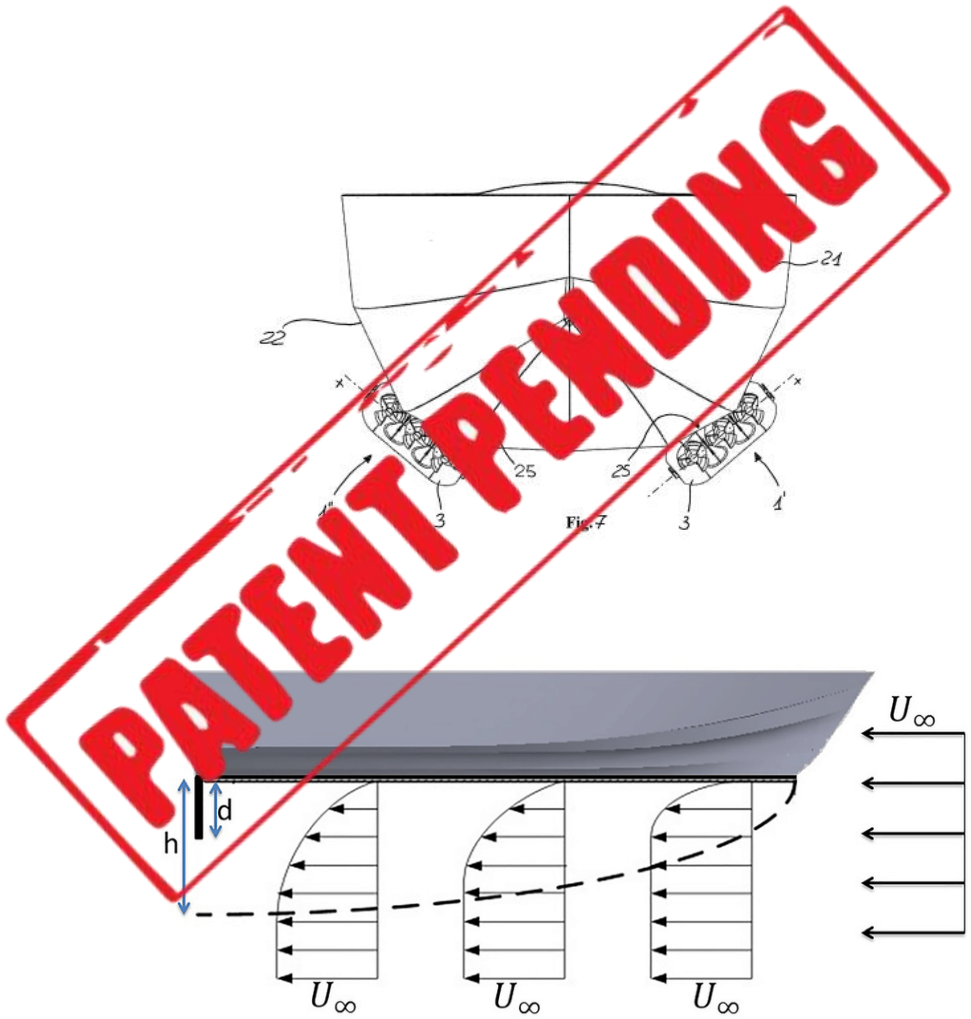
- To reduce the cost and space occupied by batteries two ways are possible:
  1. increase battery energy density
  2. **decrease power consumption**

SOLUTION



- Nablawave wants to develop an innovative, modular, marine propulsion system able to **fully exploit the flexibility of electric motors**.
- In contrast to current electric propulsion solutions, which simply replace a diesel engine with an electric motor, our solution **distributes the thrust more uniformly** near the hull
- Producing thrust near the hull **will reduce hull drag – more than 20% drag reduction** is expected from preliminary fluid–dynamic calculations
- The physical principle behind this technology is the capability of the propulsion system to ingest the incoming hull boundary layer, whose benefits are also known **in aeronautics**

SOLUTION



Less Hull Drag

↓

Less Electrical required Power

↓

Less Batteries needed for the same travelled distance

↓

Less weight on the boat

Nablawave **filed a patent** in July 2021 and applied for an **International PCT** in July 2022

INNOVATION

In addition to **energy savings**, there are also additional advantages:

1. **increased thrust efficiency at lower speeds**
2. **increase in manoeuverability**
3. **decreased propeller draught**, particularly important in shallow waters
4. easy installation on **hydrofoils,** which represent the future of low consumption **high–speed boats**
5. **increased safety** for people and fish fauna
6. **lower water turbulence** for a lower impact on the marine environment.

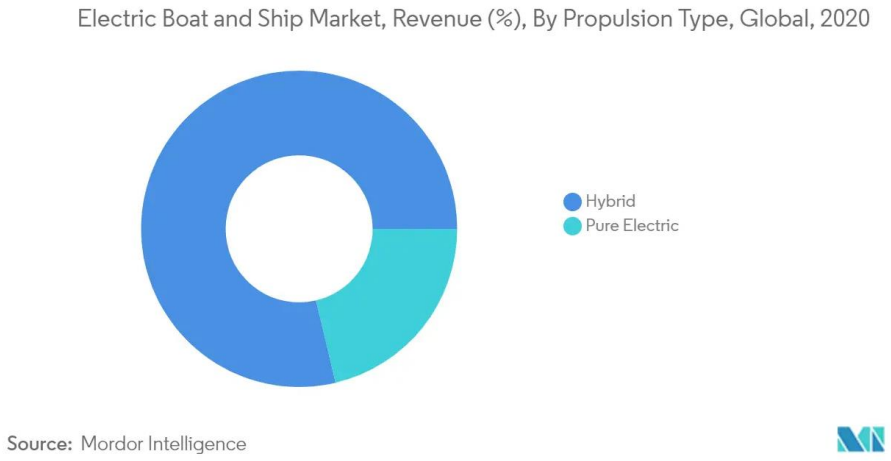
BUSINESS MODEL

1. **Production and direct sale of the propulsion system** to boat manufacturers and shipyards

2. **Partnership** with a boat manufacturer

3. **Partnership** with an old player in the marine propulsion industry (reconversion of diesel propulsion to electric propulsion)

MARKET



- The global electric boat and ship market was valued at USD 4.58 billion in 2020 and is expected to reach **USD 9.01 billion by 2026 – 12.65% per year growth**
- Electric boats represent ~2% market share in the industry as of 2021 – **big market potential**
- **Hybrid market makes up to 80%** of the electric boat and ship market
- The major growth driver is **recreational boating**, in top markets – Western Europe and North America, and the increase in demand for freshwater fishing and sailing enthusiasts.

NABLAWAVE®

MARKET

Our propulsion system in principle can be applied to:

- Big ships
- Small boats

Considerable benefits are expected in both:

- high–speed planing boats
- low speed displacement boats and ships

We decide, at first, to tackle the **small boat market** for two reasons:

1. **Reduced prototype development cost**
2. **Currently fastest growing market**

THE FOUNDERS

Giovanni Venturelli, CEO

M. Sc. Aerospace Eng., Ph.D.

+6 years exp. in aerodynamics and turbomachinery optimization

+4 years exp. in rocket motor design, simulation and testing: 10 kN–thrust hybrid rocket engine successful tests

Gianluigi Misté, CCO

M. Sc. Aerospace Eng., Ph.D.

+6 years exp. in engineering code development, gas turbine simulation and helicopter modelling

+5 years exp. in EU funding, project management and commercial activity

Andrea Dal Monte, CTO

M. Sc. Mechanical Eng., Ph.D.

+7 years exp. in wind turbine design, fluid–structure interaction, using advanced coding and AI

+4 years exp. in HVAC simulations, naval CFD and nautical propulsion

Davide Papale, CTIO

M. Sc. Aerospace Eng., Ph.D.

+4 years exp. in industrial project management

+6 years exp. in marine propulsion design and simulation, turbomachinery, hydropower

OUR COMPANY

We are an Advanced Engineering Company founded by 4 research fellows of the University of Padova in 2019

We are a growing, innovative Start–up that still has strong links with the University of Padova

7 persons currently employed
2 external collaborators

CONTACT US

HEADQUARTERS

Viale dell'industria, 23
35129 Padova
Italy
Tel. +39 333 810 4232

CONTACT

Gianluigi Misté
g.miste@nablawave.com
www.nablawave.com
Tel. +39 349 353 2646