SETEL AND MAR PRESENTATION

50

1973
2023

SeTeL

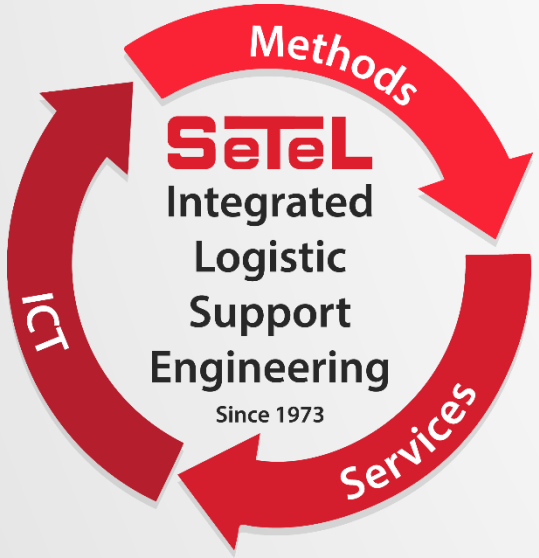
Defence

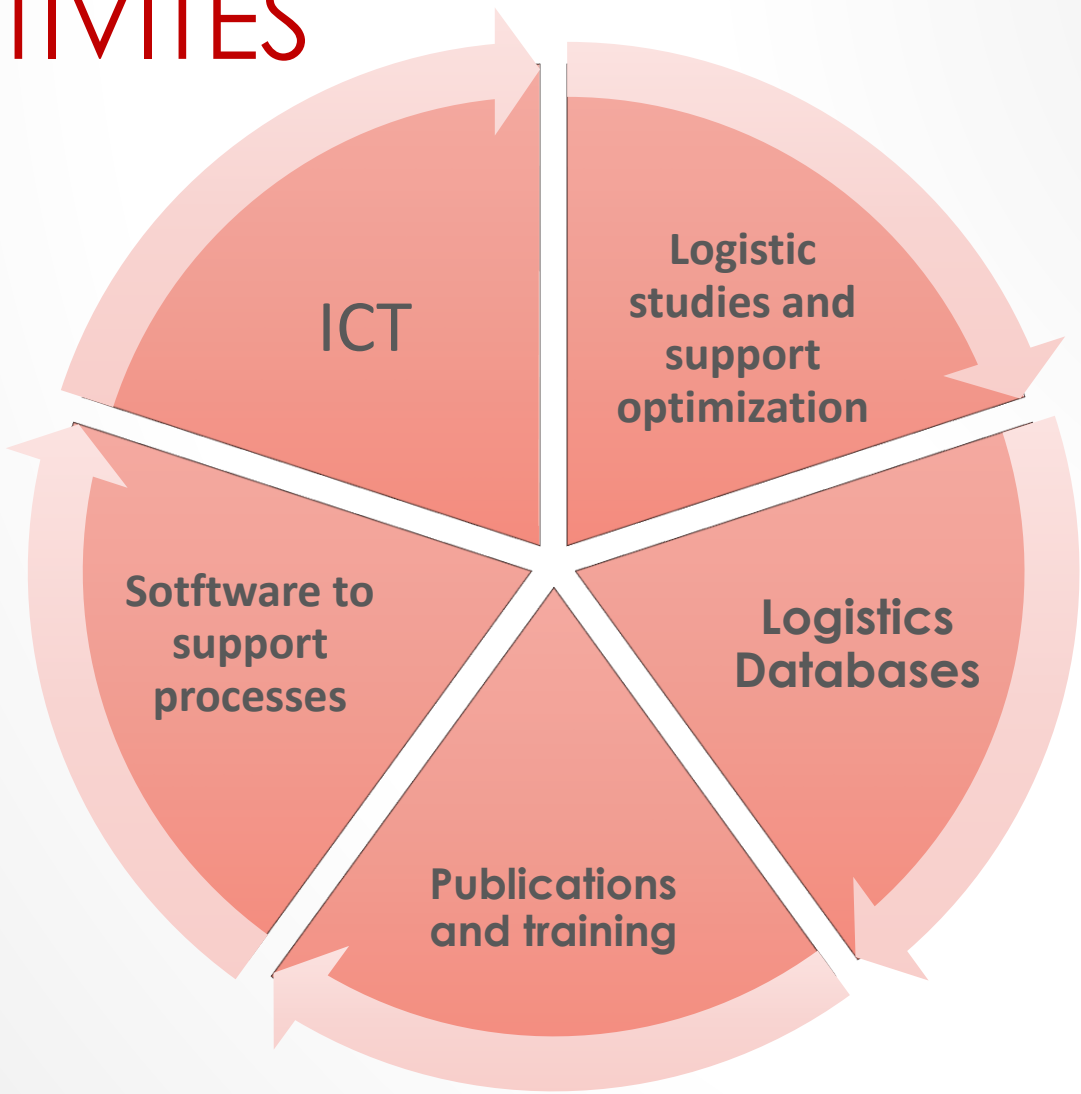
Aerospace

Transportation

Communication
& Surveillance

SE.TE.L. – OUR ACTIVITES





ALWAYS MAINTINING A CONSTANT COMMITMENT TO RESEARCH AND DEVELOPMENT

SeTeL

- **R&D activities**
- MAR concept and features
- Capabilities and advantages
- Opportunities

MAR
(MULTIPURPOSE AMPHIBIOUS ROVER)

Unione europea

REGIONE LAZIO

FESR FONDO EUROPEO DI SVILUPPO REGIONALE 2014 2020 POR PROGRAMMA OPERATIVO REGIONE LAZIO

ecomar

Fast Deployment and Early Warning

FAST DEPLOYMENT:

- The vehicle can start from land and autonomously navigate up to 1 km offshore in calm waters.

EARLY WARNING:

- The onboard lab measures temperature, salinity, and oxygen levels in real time.
- It collects water samples automatically when the analysis system detects an anomaly.

SETEL

Finanziato dall'Unione europea NextGenerationEU

Ministero delle Imprese e del Made in Italy

START4.0

Hydromar

Critical Infrastructures Robotic Safety Inspector

Hydromar adds an underwater ROV to the Ecomar project for the inspection of critical infrastructure.

ROV² = Underwater ROV operated by a surface vehicle, which is also autonomous.

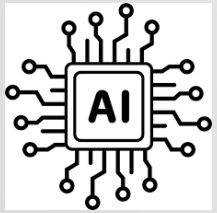
SeTeL

Finanziato dall'Unione europea NextGenerationEU
Ministero dell'Università e della Ricerca
Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA
Consiglio Nazionale delle Ricerche

BioValvia 4.0

Smart Farming and Alien Sentinel

- The project combines the enabling technology of the MAR (Multipurpose Amphibious Rover) with a tethered underwater ROV for:
  - Monitoring
  - Inspection
  - Maintenance
  - Sampling activities in the aquaculture sector, with a specific focus on shellfish farming.
- It is proposed as a Key Enabling Technology (KET) equipped with a sensing component.
- It enables the assessment of product maturity to optimize production.
- It studies the presence of alien species using artificial intelligence techniques.
- It introduces an innovative, low environmental impact farming method.



Smart Farming and Alien Sentinel

Methods
Integrated Logistic Support Engineering
Since 1973
ICT
Services

- R&D activities
- **MAR concept and features**
- Capabilities and advantages
- Opportunities

SeTeL

THE MAR CONCEPT

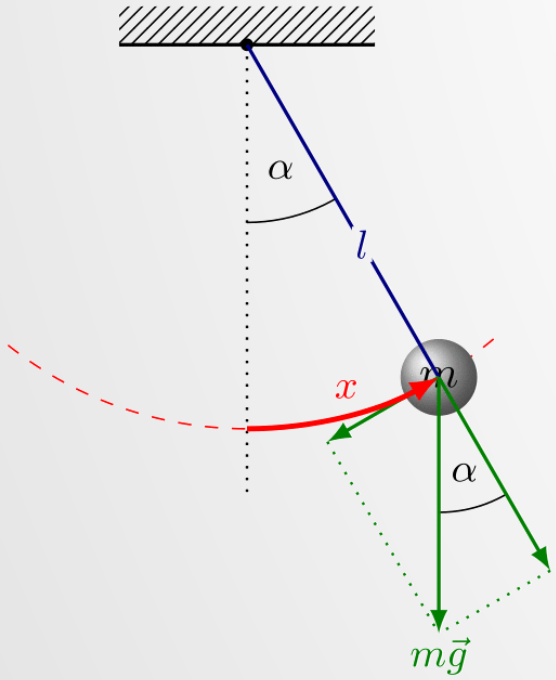
The MAR system (Multipurpose Amphibious Rover), is composed by a platform, the Rover and a Ground Station

MAR

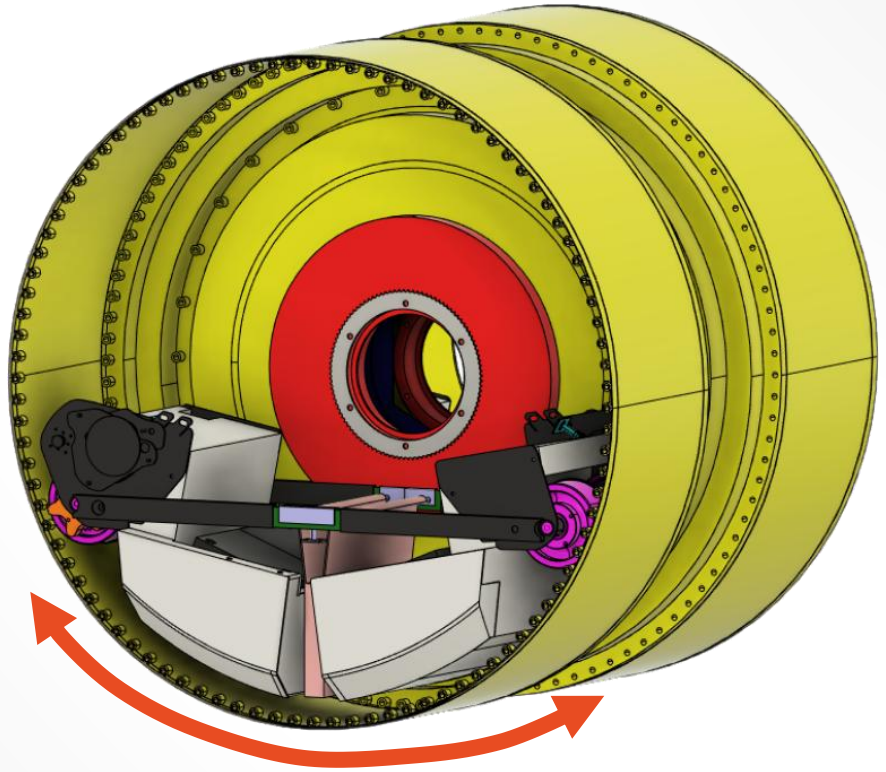
Groung Station

OPERATING PRINCIPLE

This vehicle exploits the physical principle of the pendulum.



The cradle inside the wheel performs exactly this movement

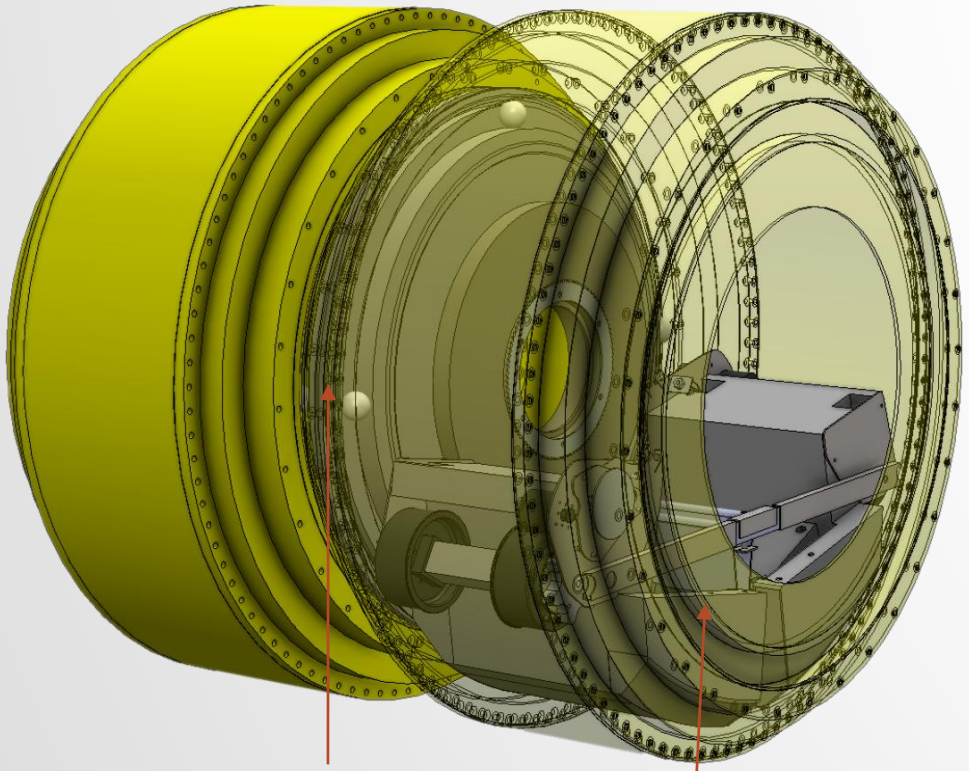


Cradle inside the wheel

PANTENTED EU/USA/CINA

SeTeL

PAYLOADS



MAR can carry payloads in two areas:

- The cradle (payload weight contributes to propulsion)
- The central body to house the visual sensor (multispectral, IR) and the active arms.

All metal parts can be placed below the float level, reducing the radar cross section.

Low energy consumption; consequent reduction of IR emissions.

SENSORS

MAR is the ideal platform for various types of sensors.

Standard sensors:

- Multispectral cameras
- Thermal camera
- Hyperspectral sensor

Other sensors:

- Far and near infrared
- Bioluminescence
- Georadar
- Multilevel resistive sensors
- Temperature, humidity pressure
- Brix hydrometer

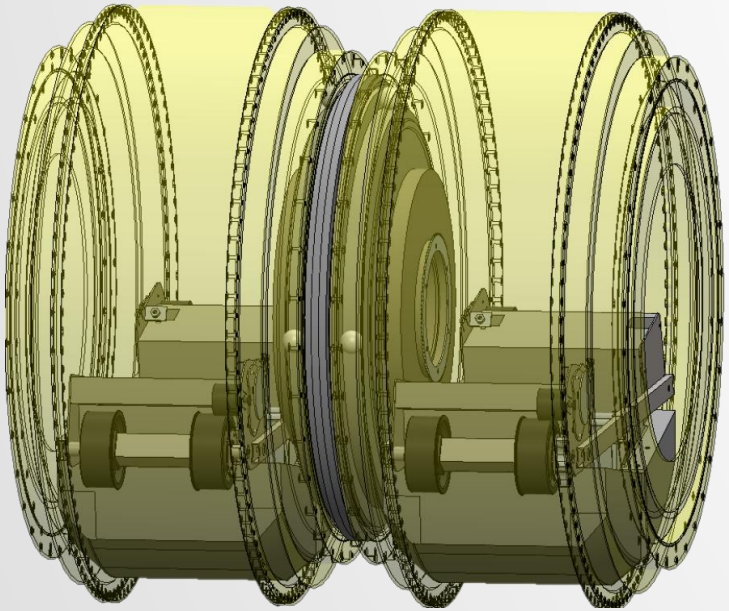
Positioning devices:

- GPS RTK
- Lidar
- IMU’s

- R&D activities
- MAR concept and features
- **Capabilities and advantages**
- Opportunities

FEATURES AND PERFORMANCES

Unmanned and amphibious, it can operate on sand, mud and liquid surfaces without changing shape or configuration.



High mobility maneuvers in complex environments (rivers, lagoons, ports or mixed ambients). Intrinsically stable.

Ready to be customized in different sizes (decimeters to meters).

It is a natural radome: it houses and protects chemical sensors, electronic devices, processing capabilities, antennas etc.

Electric driven, low pollution, low energy consumption.

It can perform accurate geolocalized operations, such as monitoring or actions such as spraying, sample collection, electromagnetic actions and potentially perform real-time analysis on site.

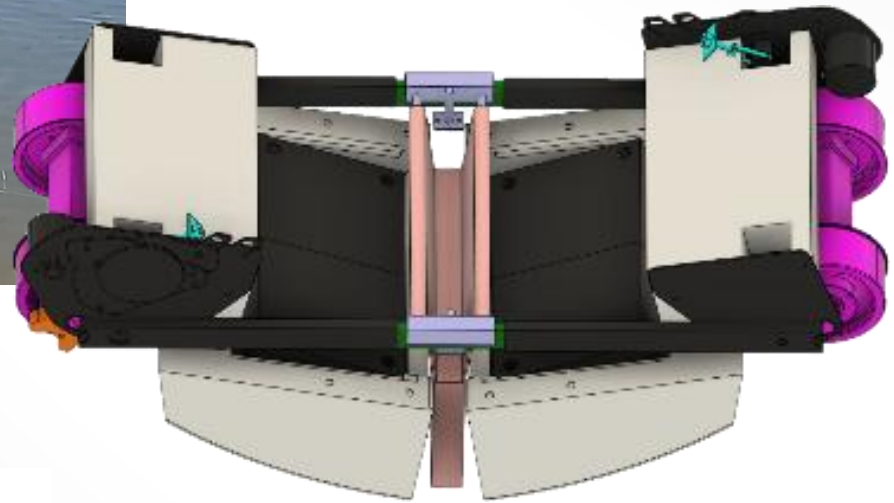
Battery + motor = Low Central Gravity

SeTeL

MULTIPURPOSE

TIRE ASSY

PADDLE ASSY



BATTERY PACK

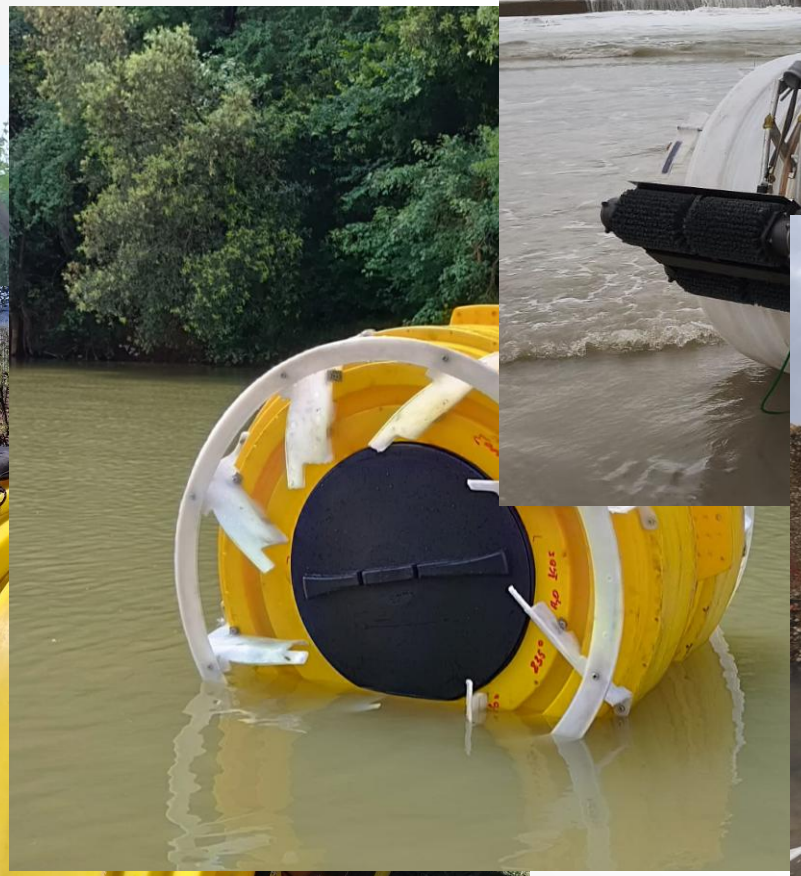
Tire Assy, Paddle Assy and Battery Pack can be selected according to mission

DATA FUSION

- Data Bases
- Thematic maps
- Algorithms for the analysis of vegetative indexes
- AI
- Communications (5G)
- Block Chain
- Big Data
- etc…

Source: Omnia Precision Agronomy, 2018

MAR EVOLUTION



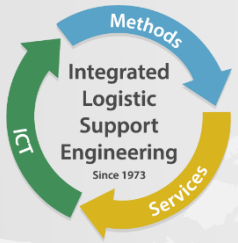
SeTeL

- R&D activities
- MAR concept and features
- Capabilities and advantages
- **Opportunities**

MAR
Multipurpose
Amphibious Rover

An amphibious vehicle to carry sensors in critical environments

MORE ABOUT OPPORTUNITIES



THANKS FOR THE ATTENTION

www.eco-mar.it
www.setelgroup.com

SeTeL