

ACCURACY MATTERS

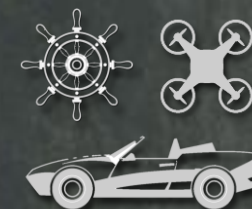
GNSS & TELECOMMUNICATION IOT SOLUTIONS



PERSONAL
TRACKING



LAND &
INFRASTRUCTURES



MOBILITY

spac  xe

Spaceexe è una PMI italiana costituita nel 2013 e specializzata nella progettazione e sviluppo di soluzioni IoT basate su **dispositivi GNSS e tecnologie di telecomunicazione**. La nostra chiave di innovazione è l'accuratezza nel posizionamento, l'affidabilità nelle telecomunicazioni ed il basso consumo energetico.

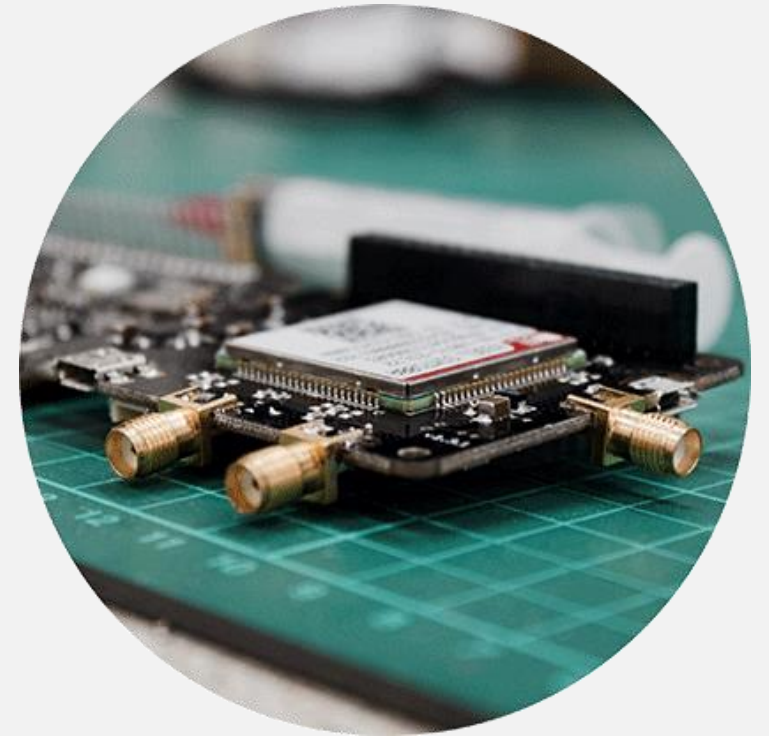
Le soluzioni Spaceexe sono rivolte ai settori della mobilità, del monitoraggio di territorio e infrastrutture e del personal tracking. Offriamo soluzioni progettate sulle esigenze dei clienti, competitive ed in grado di funzionare anche in situazioni ambientali critiche.

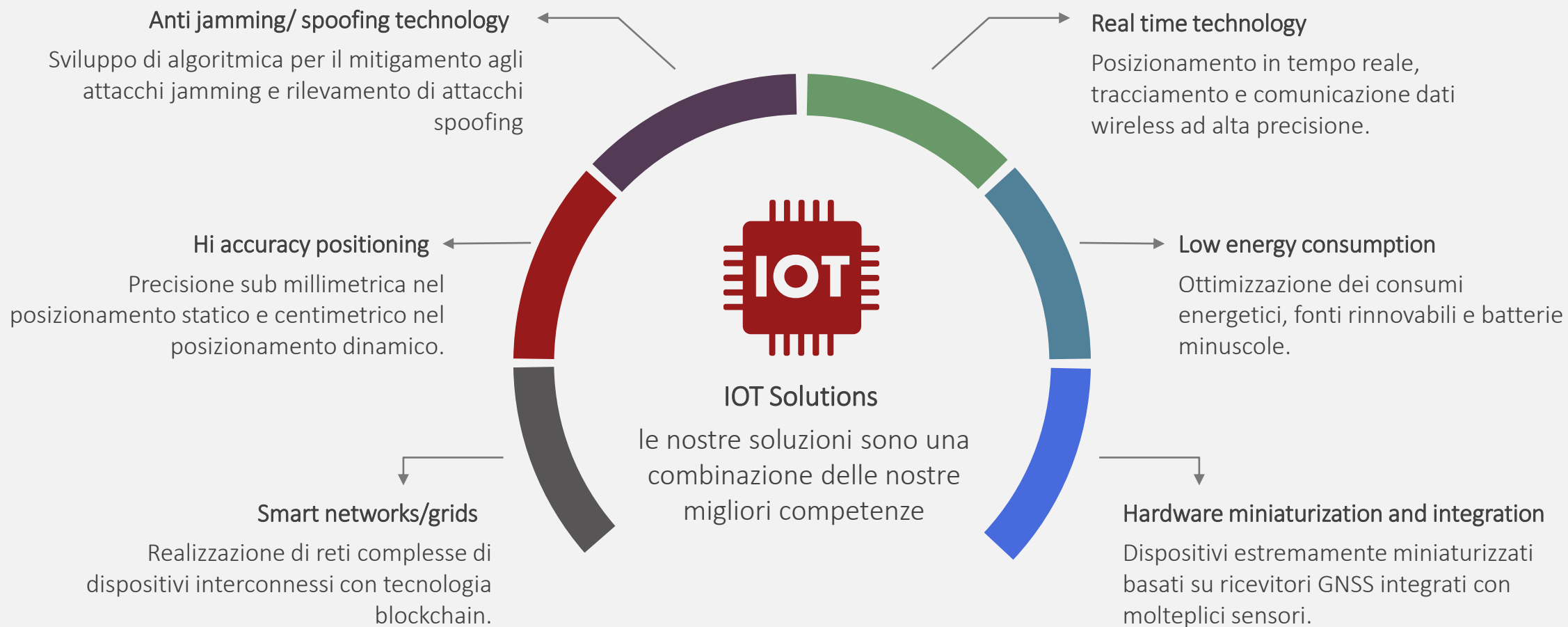
L'eccellenza tecnologica di Spaceexe è garantita dal suo forte e continuo impegno nell'innovazione, sostenuta da **attività di R&D** specialmente nel settore spazio.

Spaceexe detiene partecipazione azionarie nelle società:

Yet It Moves srl	https://www.yetitmoves.it/
Gisky srl	https://www.giskysrl.com/
Metricup srl	https://www.metricup.it/

che integrano e completano l'offerta di Spaceexe portando sul mercato soluzioni nel contesto della space economy.







Project team:

- CNR-INM (Prime)



- SpaceX



- Engineering



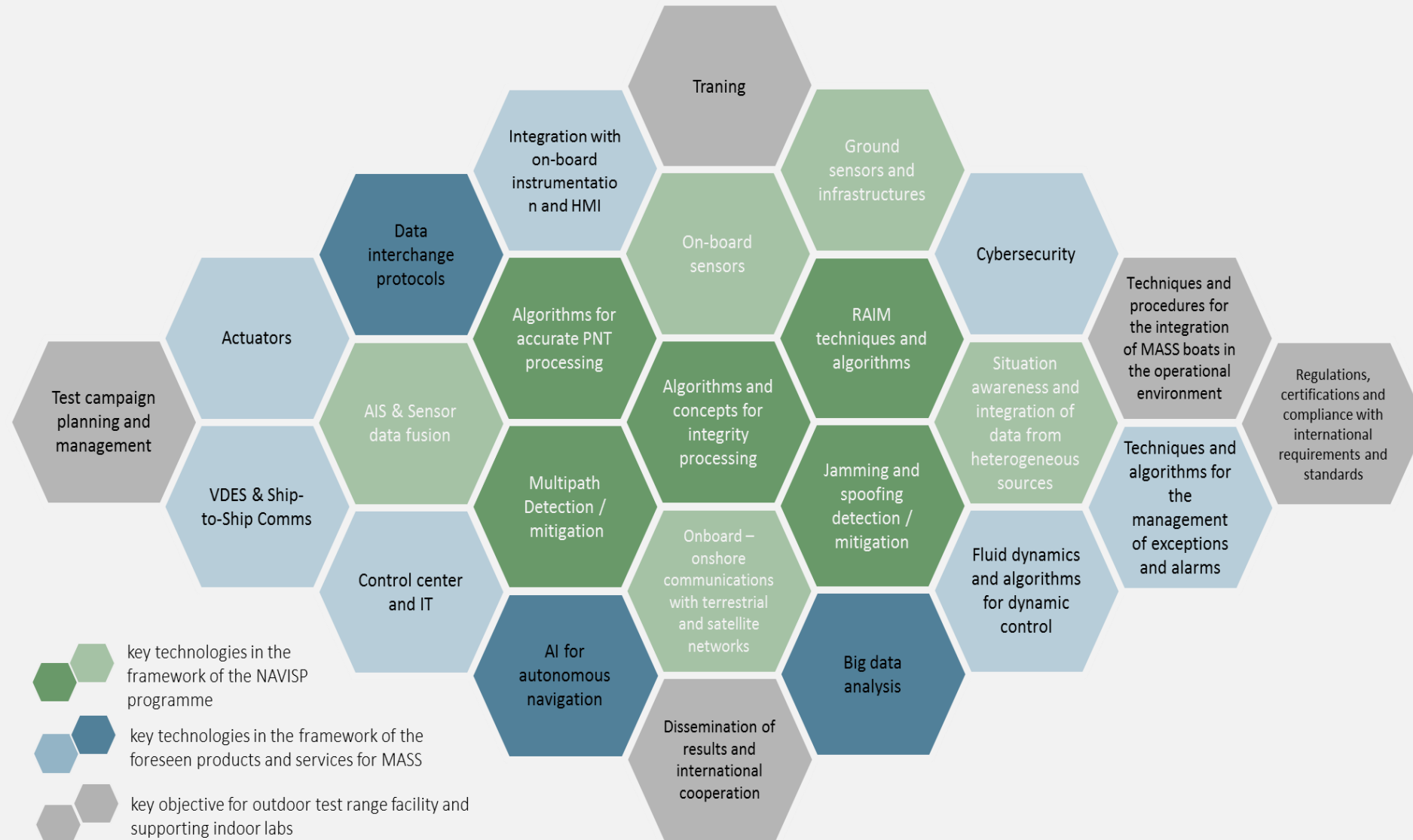
- YETITMOVES



NAVISP Element 3

ESA Contract No. 4000143254/23/NL/GP/dg

KO – 6th March 2024



The I-MASTER aims to design and develop a test range environment to validate technologies and functionalities in a MASS scenario which can be explained as follows:

A vessel enabled for Mass 4 or Mass 3 navigation is a vessel equipped with some devices which, operating functionally and in terms of performance, each cooperate in its part by providing pertinent data to a data fusion and artificial intelligence system which can interpret the data and control the vessel actuators (i.e. the vessel's engines and rudders).

- **Collect/consolidate** from the potential stakeholder community (institutions, scientific key actors, market players, etc.) **detailed requirements for the MASS Test Range functions**
- Develop the **algorithms required for supporting the infrastructure and MASS demonstrations** (accurate PNT, integrity monitoring, interference mitigation, data fusion, AI, etc.) also contributing to related standards
- Perform a **detailed design of the Test Range** including the I&V Plan
- **Set-up all the necessary infrastructure**, including vessel models to support MASS 3 & 4 demonstrations
- **Perform at least a MASS 3 demonstration**

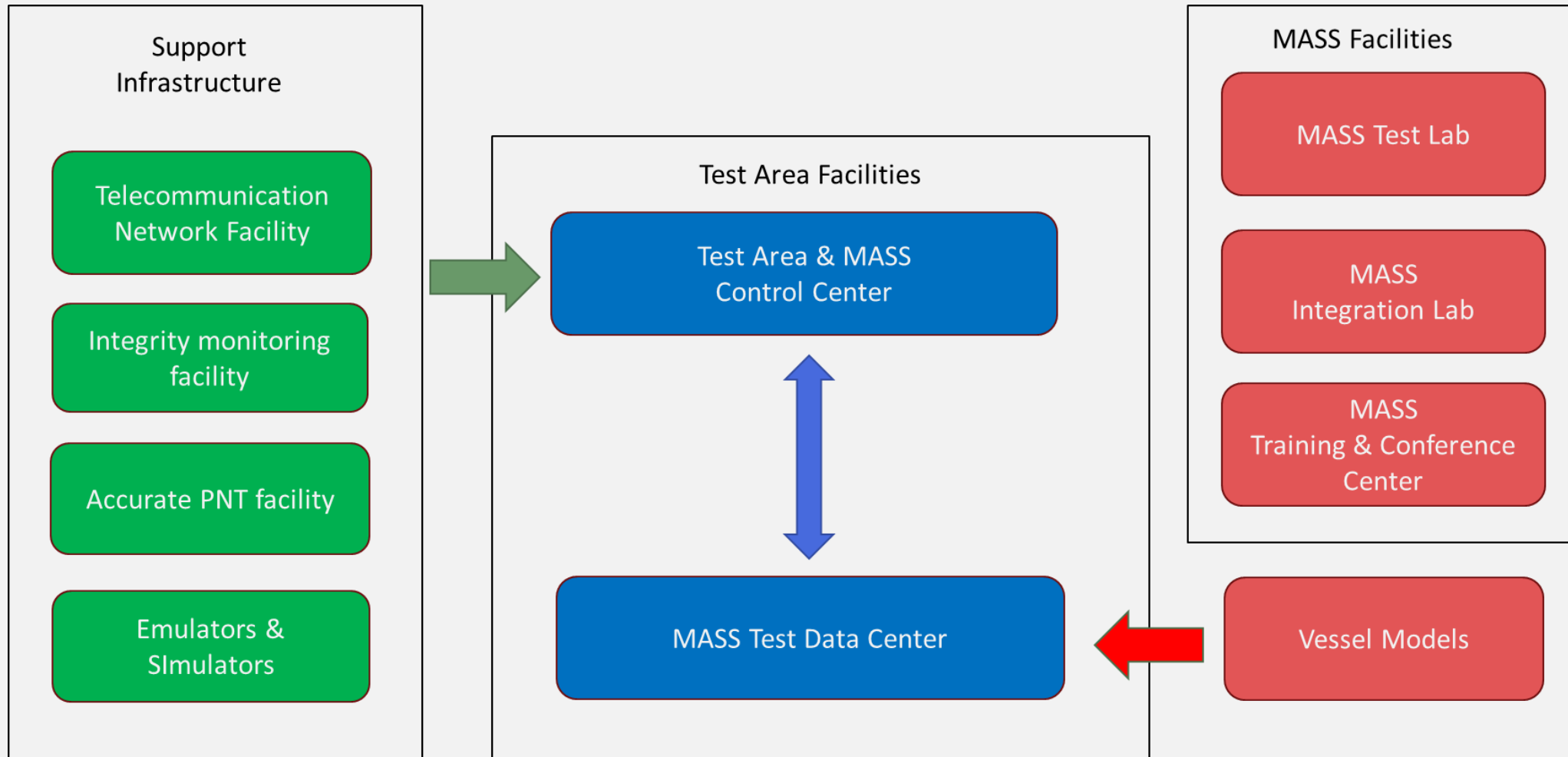
The I-MASTER project is expected also to support the Italian scientific and industrial community in providing contribution to the proposition in international context of requirements, procedures, and certifications for MASS and to support the national industrial expertise related to the shipbuilding, aerospace, naval, electronic and telecommunications sectors in the development of new products and skills for MASS.

Additional objectives of the project will be:

- Investigate the cooperation with other entities (i. e. Italian Navy and Coast Guard) to extend future demonstrations in “offshore” controlled areas.
- Start international cooperation with other entities involved in MASS activities and perform dissemination of results (workshops, seminars, etc.).
- Prepare Training material on MASS operations in order to allow training of the ground and on-board personnel.



- Test and validate new vessels, devices, subsystems, apparatuses, and procedures for the MASS
- Contribute to the certification of boats, devices, subsystems, apparatuses and procedures to be used and implemented at sea at every MASS > 2 level, according to present and future international regulations
- Train ground personnel for MASS>2 operations
- Create new professional figures and lines of research in the MASS sector
- Increase the contribution of the Italian scientific and industrial community to the proposition in international context of requirements, standard, procedures and certifications for the MASS
- Support the expansion of European industrial expertise related to the shipbuilding, aerospace, naval, electronic and telecommunications sectors in the development of new products and skills for MASS
- Activate international cooperation and contribute to the dissemination of best practices and national technologies in the MASS sector
- Develop multiple technological items with high performance capabilities to face several maritime navigation scenarios



Experiment In-the-Loop



I MASTER APPROACH

12 months

Phase 1

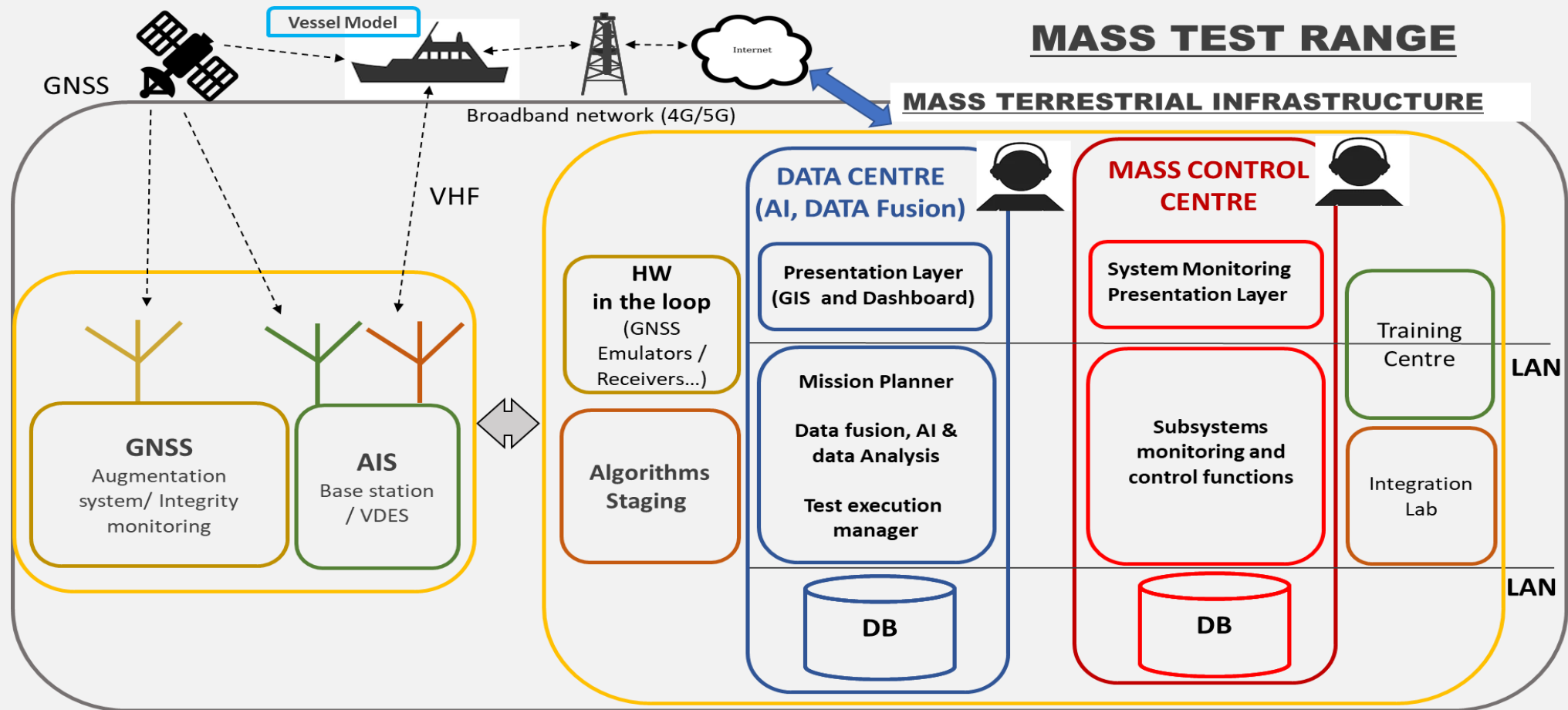
- Requirements
- Architectural Design
- Preliminary Setup

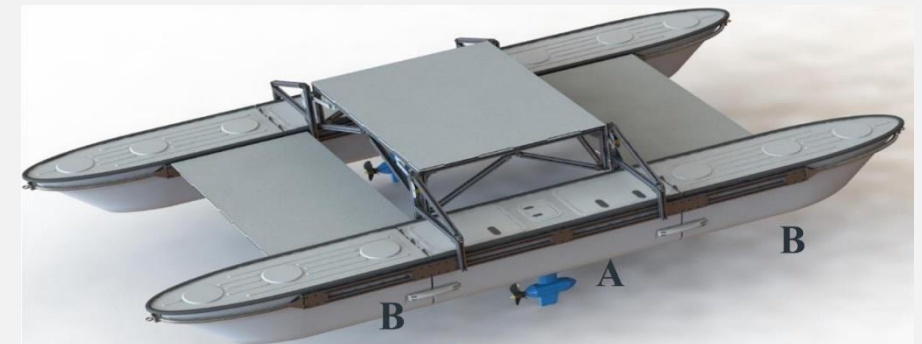
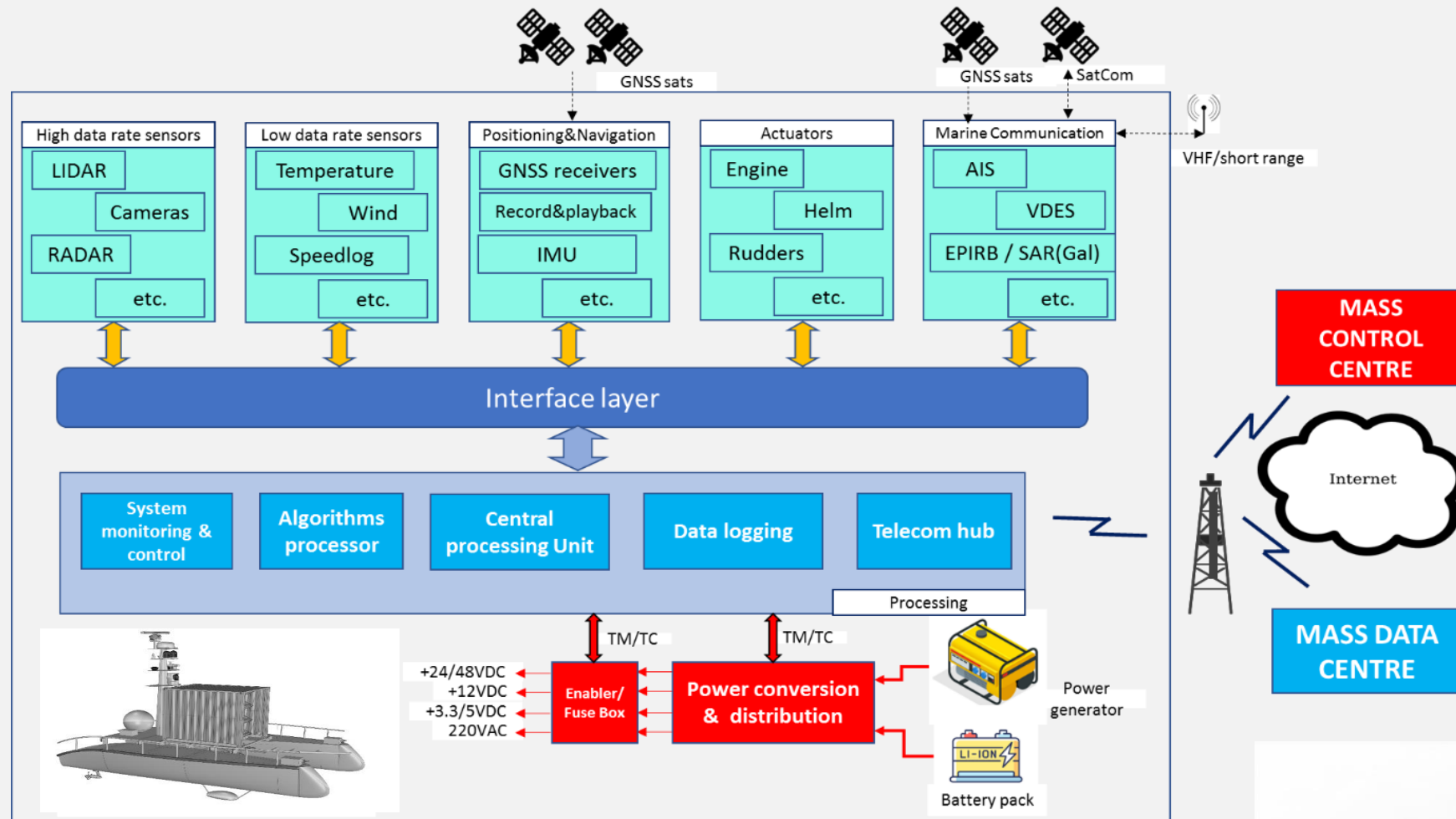
24 months

Phase 2

- Detailed Design
- Test Range Infrastructure
- S/S Developments
- I&V
- MASS Operations
- Regulations & Standards

Management
Clustering & Dissemination







PERSONAL
TRACKING



LAND &
INFRASTRUCTURE



MOBILITY

