



**Call 2020**

# MarTERA Priority Areas

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Maritime and Marine Technologies for a new Era

06.01.2020

	Country										
	BE	BY	DE	ES	FR	MT	NO	PL	RO	TR	ZA
Funding Agency:	VLAIO	NASB	BMWi	CDTI	ANR	MCST	RCN	NCBR	UEFISCDI	TÜBITAK	DSI
Types of organisations eligible for funding*:	1,2,3	2,3	1,2,3,4,5,6	1,2,3	1,2,3,4,5,6	1,2,3,4,5,6	1,2,3,4,5,6	1,2,3,4,5,6	1,2,3,4,5,6	1,2,3,4,5,6	2,3,4,5,6
<b>1. Environmental friendly maritime technologies</b>											
• Emission reduction	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Energy efficiency	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Noise and vibration reduction	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Innovative propulsion and powering systems (e.g. fully electric ships)	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Technologies for sensitive regions	ID		ID	ID		ID	FID	ID	ID	FID	FID
<b>2. Innovative concepts for ships and offshore structures</b>											
• Novel materials	ID	ID	ID	ID		ID	FID	ID	ID	FID	FID
• Biofouling and corrosion prevention	ID		ID	ID		ID	FID	ID	ID	FID	ID
• Structures	ID		ID	ID		ID	FID	ID	ID	FID	ID
• New vessel design incl. inland water vessels	ID		ID	ID		ID	FID	ID	ID	FID	ID
• Improved models for marine vehicles and structures behaviour	ID		ID	ID		ID	FID	ID	ID	FID	ID
• Oil and gas	ID		ID	ID		ID	FID	ID	ID	FID	ID
• Deep sea mining	ID		ID	ID		ID	FID (vessels)	ID	ID	FID	FID
<b>3. Automation, sensors, monitoring and observations</b>											
• Technologies for detection and removal of munition	ID		ID	ID		ID	FID (vessels)	ID	ID	FID	FID
• Intelligent predictive maintenance systems	ID	ID	ID	ID	FI	ID	FID	ID	ID	FID	FID
• Sensor development	ID	ID	ID	ID	FI	ID	FID	ID	ID	FID	FID
• Underwater technology	ID		ID	ID	FI	ID	FID	ID	ID	FID	FID
<b>4. Advanced manufacturing and production</b>											
• Digitalisation and automation of production	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Optimisation of production: improved and novel production technologies for flexible manufacturing, with focus on organization and networking along the value chain	ID		ID	ID		ID	FID	ID	ID	FID	FID

	Country										
	BE	BY	DE	ES	FR	MT	NO	PL	RO	TR	ZA
• Circular economy concepts	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Intelligent/innovative interacting components	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Human machine interaction, Augmented and Virtual Reality	ID		ID	ID		ID	FID	ID	ID	FID	FID
<b>5. Safety and security</b>											
• Individual safety concepts harmonized with navigational requirements	ID		ID	ID		ID	FID	ID	ID	FID	FID
• ICT tools for monitoring and optimization of maritime operations (e.g. routing following best weather conditions)	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Hinterland connection through inland waterways	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Early warning and accident management systems	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Evacuation and rescue concepts	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Decision support systems	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Improved operations	ID		ID	ID		ID	FID	ID	ID	FID	FID
• Applications for increased fire safety	ID		ID	ID		ID	FID	ID	ID	FID	FID
<b>COMMITTED FUNDING in million €:</b>	<b>2</b>	<b>0,07</b>	<b>5</b>	<b>0,5</b>	<b>1</b>	<b>0,3</b>	<b>2</b>	<b>0,6</b>	<b>0,5</b>	<b>0,75</b>	<b>0,4</b>

\*) The numbers below a funding agency indicate **the types of organisations that are eligible** for funding via the funding agency:

- |                        |                 |                            |
|------------------------|-----------------|----------------------------|
| 1. Start-ups           | 2. SME          | 3. Large scale enterprises |
| 4. Research institutes | 5. Universities | 6. Other                   |

The initials “FID” are used to indicate the supported types of R&D of an agency’s programme:

- |                         |                        |                             |
|-------------------------|------------------------|-----------------------------|
| F: Fundamental research | I: Industrial research | D: Experimental development |
|-------------------------|------------------------|-----------------------------|

**For further information and additional descriptions of the supported types of R&D for a specific funding agency, please read carefully the respective National Guidelines.**

## MarTERA Priority Areas

- **PA1: Environmental friendly maritime technologies**

- Emission reduction:
  - Exhaust gas treatment (CO<sub>2</sub>, SOX, NOX, black carbon etc.)
  - Waste and ballast water management
  - Response to marine pollutions (e.g. oil spills, micro- and nano plastics)
  - Reducing greenhouse gases at oil and gas platforms (Norway)
- Energy efficiency:
  - Voyage optimisation, on-board power, vessel efficiency and energy management,
  - Advanced technologies for the use of new fuels
  - Improving energy efficiency at oil and gas platforms (Norway)
- Noise and vibration reduction
- Innovative propulsion and powering systems (e.g. fully electric ships)
- Technologies for sensitive regions

- **PA2: Innovative concepts for ships and offshore structures**

- Novel materials:
  - Light, robust and resistant materials
  - Environmental impact assessment (material testing)
  - Joining technologies
  - Intelligent materials and metamaterials
- Biofouling and corrosion prevention:
  - Coatings
  - Advanced technologies
- Structures:
  - Development, monitoring, maintenance and dismantling of maritime structures
  - Development of technologies for economic and environmental sustainable renewable energy from sea;
  - Sustainable and cost-efficient platforms for offshore technologies, including multi-purpose offshore platforms and deep-sea structures
- New vessel design incl. inland water vessels
- Improved models for marine vehicles and structures behaviour
  - Software and simulation tools
  - Advanced model testing procedures incl. hybrid testing
  - Full scale measurements
- Oil and Gas (Technologies for extraction of oil and gas in rough and ice-covered areas as well as extreme water depths, autonomous underwater production and extraction systems for oil and gas)  
Norway:
  - Exploration and recovery technologies
  - Drilling, completion and intervention technology

- Top-side and subsea production technology, processing and transport of hydrocarbons
- Deep Sea Mining:
  - Environmentally friendly technologies for exploitation, exploration and monitoring of deep sea resources
- **PA3: Automation, sensors, monitoring and observations**
  - Technologies for detection and removal of munition
  - Intelligent predictive maintenance systems
  - Sensor development:
    - Detection of marine pollutions (e.g. oil spills, micro- and nano plastics)
    - Robust and efficient technologies for detection, monitoring and observation (physical, geological, chemical and biological measurements, including remote sensing)
    - Sensor fusion technologies covering observation systems, condition monitoring
    - Miniaturisation of sensors
    - Data transmission, E-infrastructure and telemetry for data transfer. Remote control platforms and systems, including satellite and land based control systems
  - Underwater technology:
    - For inspection, intervention, monitoring and control (Robotics)
    - Development of intelligent and cost efficient systems and devices
    - Path planning, guidance, navigation (e-navigation) and control methodologies for ships and other marine vehicles, including multiple cooperative vehicles (incl. swarm technologies)
    - Innovative, robust and reliable power supply for automated sub-marine technologies
    - Underwater navigation and communication
- **PA4: Advanced manufacturing and production**
  - Digitalisation and automation of production
  - Optimisation of production: improved and novel production technologies for flexible manufacturing, with focus on organization and networking along the value chain
  - Circular economy concepts:
    - Life cycle management
  - Intelligent/innovative interacting components
  - Human machine interaction, Augmented and Virtual Reality
- **PA5: Safety and security**
  - Individual safety concepts harmonized with navigational requirements
  - ICT tools for monitoring and optimization of maritime operations (e.g. routing following best weather conditions)
  - Hinterland connection through inland waterways
  - Early warning and accident management systems
  - Evacuation and rescue concepts
  - Decision support systems
  - Improved operations:
    - Automation of processes
    - Dynamic positioning

- Docking and mooring
- Handling of goods
- Subsea intervention
- Applications for increased fire safety
  - Risk reduction of major accidents from offshore activities (Norway)