Call 2021

MarTERA Priority Areas

Maritime and Marine Technologies for a new Era

17.12.2020

	COUNTRY								
	BE	**BY**	**DE**	**MT**	**NO**	**PL**	**RO**	**TR**	**ZA**
Funding Agency:	**VLAIO**	**NASB**	**BMWi**	**MCST**	**RCN**	**NCBR**	**UEFISCDI**	**TÜBITAK**	**DSI**
Types of organisations eligible for funding*:	**1,2,3**	**4**	**1,2,3,4,5,6**	**1,2,3,4,5,6**	**1,2,3,4,5**	**1,2,3,4,5,6**	**1,2,3,4,5,6**	**1,2,3,4,5,6**	**2,3,4,5,6**
1. Environmentally friendly maritime technologies									
• Emission reduction	ID		ID	ID	FID	ID	ID	FID	FID
• Energy efficiency	ID		ID	ID	FID	ID	ID	FID	FID
• Noise and vibration reduction	ID		ID	ID	FID	ID	ID	FID	FID
• Innovative propulsion and powering systems (e.g. fully electric ships)	ID		ID	ID	FID	ID	ID	FID	FID
• Technologies for sensitive regions	ID		ID	ID	FID	ID	ID	FID	FID
2. Innovative concepts for ships and offshore structures									
• Novel materials	ID	FID	ID	ID	FID	ID	ID	FID	FID
• Biofouling and corrosion prevention	ID		ID	ID	FID	ID	ID	FID	ID
• Structures	ID		ID	ID	FID	ID	ID	FID	ID
• New vessel design incl. inland water vessels	ID		ID	ID	FID	ID	ID	FID	ID
• Improved models for marine vehicles and structures behaviour	ID		ID	ID	FID	ID	ID	FID	ID
• Deep sea mining	ID		ID	ID	FID (only ships)	ID	ID	FID	FID
3. Automation, sensors, monitoring and observations									
• Technologies for detection and removal of dumped munition	ID		ID	ID	FID (only ships)	ID	ID	FID	FID
• Intelligent predictive maintenance systems	ID	FID	ID	ID	FID	ID	ID	FID	FID
• Sensor development	ID	FID	ID	ID	FID	ID	ID	FID	FID
• Underwater technology	ID		ID	ID	FID	ID	ID	FID	FID
4. Advanced manufacturing and production									
• Digitalisation and automation of production	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	FID	ID	ID	FID	ID	ID	FID	FID
• Circular economy concepts	ID		ID	ID	FID	ID	ID	FID	FID
• Intelligent/innovative interacting components	ID		ID	ID	FID	ID	ID	FID	FID
• Human machine interaction, Augmented and Virtual Reality	ID		ID	ID	FID	ID	ID	FID	FID

	COUNTRY								
	BE	**BY**	**DE**	**MT**	**NO**	**PL**	**RO**	**TR**	**ZA**
5. Safety and security									
• Individual safety concepts harmonized with navigational requirements	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	FID	ID	ID	FID	ID	ID	FID	FID
• Hinterland connection through inland waterways	ID		ID	ID	FID	ID	ID	FID	FID
• Early warning and accident management systems	ID		ID	ID	FID	ID	ID	FID	FID
• Evacuation and rescue concepts	ID		ID	ID	FID	ID	ID	FID	FID
• Decision support systems	ID	FID	ID	ID	FID	ID	ID	FID	FID
• Improved operations	ID	FID	ID	ID	FID	ID	ID	FID	FID
• Applications for increased fire safety	ID		ID	ID	FID	ID	ID	FID	FID
COMMITTED FUNDING in million €:	**1,0**	**0,07**	**3,0**	**0,3**	**1,5**	**1,0**	**0,5**	**0,75**	**0,4**

*) The numbers below each funding agency indicate **the types of entities that are eligible** for funding:

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

The initials "F I D" are used to indicate the supported types of R&D of a funding 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.

Overview of Priority Areas and associated Subtopics for Call 2021

- **PA1: Environmentally friendly maritime technologies**
  - Emission reduction
    - Exhaust gas treatment (CO2, 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 from oil and gas platforms
  - Energy efficiency
    - Voyage optimisation, on-board power, vessel efficiency and energy management
    - Advanced technologies for the use of new fuels
    - Improving energy efficiency of oil and gas platforms
  - 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 environmentally 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
  - 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 dumped 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