Call 2020

MarTERA Priority Areas

Maritime and Marine Technologies for a new Era

06.01.2020
### Types of organisations eligible for funding:

<table>
<thead>
<tr>
<th>1. Environmental friendly maritime technologies</th>
<th>Country</th>
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<tbody>
<tr>
<td>Emission reduction</td>
<td>BE</td>
</tr>
<tr>
<td>Energy efficiency</td>
<td>BY</td>
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<tr>
<td>Noise and vibration reduction</td>
<td>DE</td>
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<tr>
<td>Innovative propulsion and powering systems</td>
<td>ES</td>
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<tr>
<td>Technologies for sensitive regions</td>
<td>FR</td>
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</tbody>
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<table>
<thead>
<tr>
<th>2. Innovative concepts for ships and offshore structures</th>
<th>Country</th>
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<tbody>
<tr>
<td>Novel materials</td>
<td>ID</td>
</tr>
<tr>
<td>Biofouling and corrosion prevention</td>
<td>ID</td>
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<tr>
<td>Structures</td>
<td>ID</td>
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<tr>
<td>New vessel design incl. inland water vessels</td>
<td>ID</td>
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<tr>
<td>Improved models for marine vehicles and structures</td>
<td>ID</td>
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<tr>
<td>Oil and gas</td>
<td>ID</td>
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<tr>
<td>Deep sea mining</td>
<td>ID</td>
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<table>
<thead>
<tr>
<th>3. Automation, sensors, monitoring and observations</th>
<th>Country</th>
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<tbody>
<tr>
<td>Technologies for detection and removal of munition</td>
<td>ID</td>
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<tr>
<td>Intelligent predictive maintenance systems</td>
<td>ID</td>
</tr>
<tr>
<td>Sensor development</td>
<td>ID</td>
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<tr>
<td>Underwater technology</td>
<td>ID</td>
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<thead>
<tr>
<th>4. Advanced manufacturing and production</th>
<th>Country</th>
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<tbody>
<tr>
<td>Digitalisation and automation of production</td>
<td>ID</td>
</tr>
<tr>
<td>Optimisation of production: improved and novel</td>
<td>ID</td>
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<tr>
<td>production technologies for flexible manufacturing,</td>
<td>ID</td>
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<tr>
<td>with focus on organization and networking along the</td>
<td>ID</td>
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<tr>
<td>value chain</td>
<td>ID</td>
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</tbody>
</table>
## Circular economy concepts
- ID

## Intelligent/innovative interacting components
- ID

## Human machine interaction, Augmented and Virtual Reality
- ID

### Safety and security

<table>
<thead>
<tr>
<th>Country</th>
<th>BE</th>
<th>BY</th>
<th>DE</th>
<th>ES</th>
<th>FR</th>
<th>MT</th>
<th>NO</th>
<th>PL</th>
<th>RO</th>
<th>TR</th>
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### Individual safety concepts harmonized with navigational requirements
- ID

### ICT tools for monitoring and optimization of maritime operations (e.g. routing following best weather conditions)
- ID

### Hinterland connection through inland waterways
- ID

### Early warning and accident management systems
- ID

### Evacuation and rescue concepts
- ID

### Decision support systems
- ID

### Improved operations
- ID

### Applications for increased fire safety
- ID

### COMMITTED FUNDING in million €:

<table>
<thead>
<tr>
<th>Country</th>
<th>BE</th>
<th>BY</th>
<th>DE</th>
<th>ES</th>
<th>FR</th>
<th>MT</th>
<th>NO</th>
<th>PL</th>
<th>RO</th>
<th>TR</th>
<th>ZA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0,07</td>
<td>5</td>
<td>0,5</td>
<td>1</td>
<td>0,3</td>
<td>2</td>
<td>0,6</td>
<td>0,5</td>
<td>0,75</td>
<td>0,4</td>
<td>FID</td>
</tr>
</tbody>
</table>

*) 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 (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 at 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 at 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 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
    - 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