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Global Marine Technology Trends 2030: Available Here.

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Future maritime technologies

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This study used publicly available information, proprietary data and horizon scanning to examine future maritime technologies. It identified key transformational technologies in the commercial shipping, naval and ocean space sectors by 2030.

Maritime technology is developing at a rapid pace and will play a different role in each sector. For example, autonomous technology is poised to reshape the maritime sector with crewless vessels; small craft are already developed and in service with larger vessels under development.

The early identification of emerging technologies can benefit policy- and decision-makers in making investment decisions and identifying risks and opportunities.

The study examined more than 56 critical technologies that could be developed and implemented by by 2030 in there key sectors: commercial shipping, naval, and ocean space sectors.

Out of the critical technologies examined, a total of eighteen technologies were analysed. These scored high on net assessment combining technical feasibility on a commercial basis, potential marketability, and, most importantly, their transformational impact on the respective sectors.

The eighteen technologies were: robotics, sensors, big data analytics, propulsion and powering, advanced materials, smart ship, autonomous systems, advanced manufacturing, sustainable energy generation, shipbuilding, carbon capture and storage, energy management, cyber and electronic warfare, marine biotechnology, human–computer interaction, deep ocean mining, human augmentation, and communication.

For each of the three sectors, eight technologies were identified for their transformational effects when used individually and in combination with other technologies. These technologies were assessed for their sector-wide impact.

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DIGEST

TRIMIS

The Transport and Research and Innovation Monitoring and Information System (TRIMIS) supports the implementation and monitoring of the Strategic Transport Research and Innovation Agenda (STRIA) and its seven roadmaps.

TRIMIS is an open-access information system to map and analyse technology trends, research and innovation capacities, as well as monitor progress in all transport sectors.

TRIMIS is developed and managed by the Joint Research Centre on behalf of the European Commission.

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Future maritime technologies

Commercial shipping Sector
In the commercial shipping sector the study evaluated robotics, sensors, big data analytics, propulsion and powering, advanced materials, smart ship, shipbuilding, and communication technologies.

These eight technologies are expected to be implemented differently from ship type to ship type. These ships will be called TechnoMax Ships as technology implementation will be at the optimal level in 2030. TechnoMax Ships are expected to be smarter, data driven, greener, with flexible powering options, fully connected wirelessly on-board, digitally connected through global satellites. TechnoMax Ships will require fundamental changes in terms of design, construction, operation and supply chain management.

Naval Sector
For the naval sector, big data analytics, advanced materials, autonomous systems, advanced manufacturing, energy management, cyber and electronic warfare, human–computer interaction and human augmentation technologies.

Use of such technologies can increase a navy's ability to project military power, which is dependent on gaining full-spectrum battle space access, including cyberspace, and on the capacity to coerce, deter and intervene in its warfighting role to protect national interests.

Ocean Sector
In the ocean space sector, big data analytics, advanced materials, autonomous systems, sensors and communication, sustainable energy generation, carbon capture and storage, marine biotechnology and deep ocean mining are transformational.

These technologies can provide a deep understanding of the ocean space which may be used to help address the effects of climate change, the reduction of land-based resources, and the increasing population. The use of such technologies, can better protect people living in coastal areas from extreme natural forces such as hurricanes and tsunamis.

Conclusion

The study calls for debate and discussion of the eight technologies identified for each sector to determine their true significance, encouraging investment to make them resilient, affordable and safely implementable. In addition, the study highlights the need for parallel investment in infrastructure, such as logistics support and regulatory framework development. As well as the need to invest in capacity building, such as the education and training of people working in these sectors.