Supporting the navy of the future

MARIN combines its defence expertise in new department

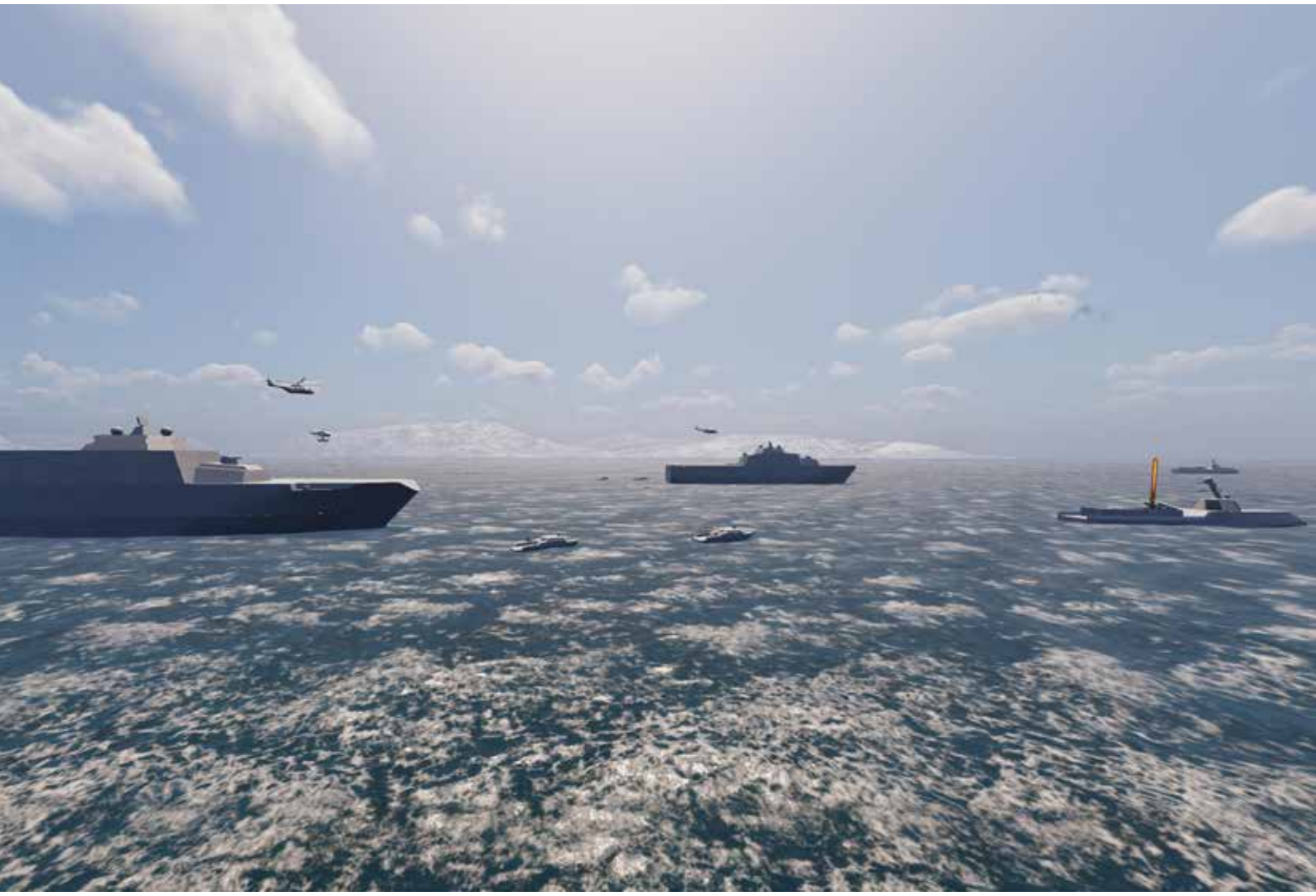
MARIN opened a dedicated Defence Department in July, which combines all of its defence-related expertise in one central location. The aim is to properly coordinate defence activities MARIN-wide, with Dutch, NATO and EU partners, to optimally contribute MARIN's vast knowledge and experience to an effective navy of the future.

Pepijn de Jong, heading up the new Defence department

Pepijn de Jong was Team Lead Navy and now as Defence Department Manager he is heading up the new and growing department. He explains why MARIN decided to create a dedicated department. 'We wanted to change the organisation to better help the defence sector both nationally and internationally, and this also fits in with our mission and strategy. The Royal Netherlands Navy was one of the founders of MARIN, so we have been involved in defence research from its foundation.'

A free, safe and clean sea of the future is still MARIN's vision, adds Bas Buchner, President of MARIN. This vision does not only include zero-emission ships, sustainable energy and food at sea, smart digital ships and innovative infrastructure, but also ships for a safe and freely navigable sea. 'The world depends on free and open sea routes, while the development of sustainable energy at sea is an important component in the energy transition and it is vulnerable to aggression. Free and sustainable use of the sea requires protection and defence when necessary. That is what the Royal Netherlands Navy and the Netherlands Coastguard stand for, and we want to contribute to that with our knowledge.'

Contributing to the navy of the future Pepijn agrees: 'We want to contribute to the maximum maritime-operational deployment of the navy of the future. That is broader than hydrodynamics, it is about how ships can be used effectively and safely in operations on, in and from the sea, in both blue waters and the littoral zone.' To achieve this MARIN will combine its hydrodynamic knowledge base with its expertise in the field of emission-free sailing, human factors, numerical and digital methods, data science and new concepts, such as autonomous underwater and above water systems. This includes complex platform interactions and littoral operations and of course, a keen



focus on the impact these developments have on marines.

With new facilities such as the Zero Emission Lab and the Seven Ocean Simulator centre, fresh opportunities are being created to support the Royal Netherlands Navy, defence partner organisations and the wider defence market with applied research aimed at this optimal operational deployment, he emphasises. 'With the new Defence Department, we are an unambiguous point of contact that is well prepared for the specific challenges of the Royal Netherlands Navy and within the broader defence sector.'

And the initiative has come just at the right time, they point out, with the deteriorating security situation worldwide leading to many navies investing in their defence capacity. The European NATO members are working hard to bring their defence budgets to the norm set by the NATO and there are emerging threats posed by new weapon and sensor systems which need to be countered.

Emerging technologies Additionally, emerging technologies such as maritime AI, data science and unmanned vessels and autonomy may be used to reduce exposure and vulnerability, while increasing operational efficiency. The latter is important in relation to the current scarcity of personnel, Pepijn adds. 'On top of this, the defence sector faces other issues such as dealing with the energy transition and the dependence on fossil fuels. Not only does society require the defence sector to contribute to the reduction of emissions, also the availability of fuel may be affected by the transition in the broader maritime sector and by strategic actions of adversaries.'

MARIN wants to be prepared to answer these questions for and together with our partners, he says. This requires close cooperation between external partners, MARIN's experts in the fields of naval architecture and hydrodynamics, and its expertise regarding maritime operations, energy systems, autonomy and decision support, on board monitoring, human performance, simulation and training. The Defence Department will coordinate these activities within MARIN and serve as an interface to defence organisations and contractors, ranging from the Netherlands Ministry of Defence, colleague knowledge institutes and international defence organisations and contractors.

Pepijn concludes: 'Besides governments of various partner countries from the EU, NATO and beyond, we work for many shipyards and design offices that are developing and building naval platforms and operational concepts with desk studies, simulations and model tests. We highly value these clients and look forward to continuing to help them optimise their designs for safe and efficient operations, while also paying careful attention to information security requirements and export controls.' ⌐