



NATO Science & Technology Organization (STO)

at a glance



In brief

NATO Science & Technology Organization (STO)

The STO is NATO's hub for collaborative research for defence purposes.

We are chartered by the North Atlantic Council to deliver innovation, evidence-based advice, and scientific solutions that meet the Alliance's needs in an ever-changing security environment.

Our work ensures that NATO maintains its military and technological edge to face current and future security challenges.

We gather the world's largest research network in defence and security, and encourage Nations to collaborate within a trusted NATO framework.

- The world's largest research network in defence and security
- Multinational collaboration among scientists, engineers and analysts from Allied and Partner Nations
- Involving government, industry, academia, and NATO operational communities

Our mission and goals

We generate, share and exploit advanced scientific knowledge, technological developments and innovation in order to maintain the Alliance's technological edge in support of its core tasks.

The rapidly evolving and increasingly complex global security environment requires a strategic approach to push the boundaries of knowledge to create science and technology (S&T)-based capability advantages for the defence and security of Allies and Partner Nations.

We focus on accelerating the development and delivery of military capabilities, delivering timely advice to inform political and military planning and decision-making, and building capacity and interoperability through partnerships.

We strive to stay at the forefront of S&T, forge and nurture partnerships, enhance Alliance decision-making, focus on Alliance needs in order to boost impact, and promote technology demonstrations.

We invest in enhancing the network of experts, intensifying our strategic communications, continuously improving our programmes of work, and promoting coherence across the Nations' S&T programmes and capacities.



What we deliver

To fulfil our mission, we generate two leading-edge research programmes: the Collaborative Programme of Work (CPoW) and the Centre for Maritime Research and Experimentation Programme of Work (CMRE PoW). Building on these programmes as well as other sources, we deliver timely, evidence-based advice to senior planners and decision makers in the Nations and in NATO.



Collaborative Programme of Work (CPoW)



Centre for Maritime Research and Experimentation Programme of Work (CMRE PoW)



Advice to planners and military decision makers

Collaborative Programme of Work (CPoW)

The CPoW is planned and executed by the STO's Scientific and Technical Committees (STCs), which represent a network of more than 5,000 national subject matter experts. These scientists, researchers, engineers and analysts collectively cover all aspects of defence- and security-relevant S&T.

These experts are directly funded by national employers and work on national priorities related to defence and security. Together, they carry out over 400 projects per year under the CPoW.

The international collaboration and sharing of results enhances the Nations' defence and security knowledge base.

The individual researchers and experts benefit from expanding their knowledge; the participating

Nations benefit from leveraging their resources and de-risking their investments; and NATO benefits from the enhanced collective knowledge base for the technological advantage of the Alliance.

The CPoW is supported by the Collaboration Support Office (CSO).

Centre for Maritime Research & Experimentation Programme of Work (CMRE PoW)

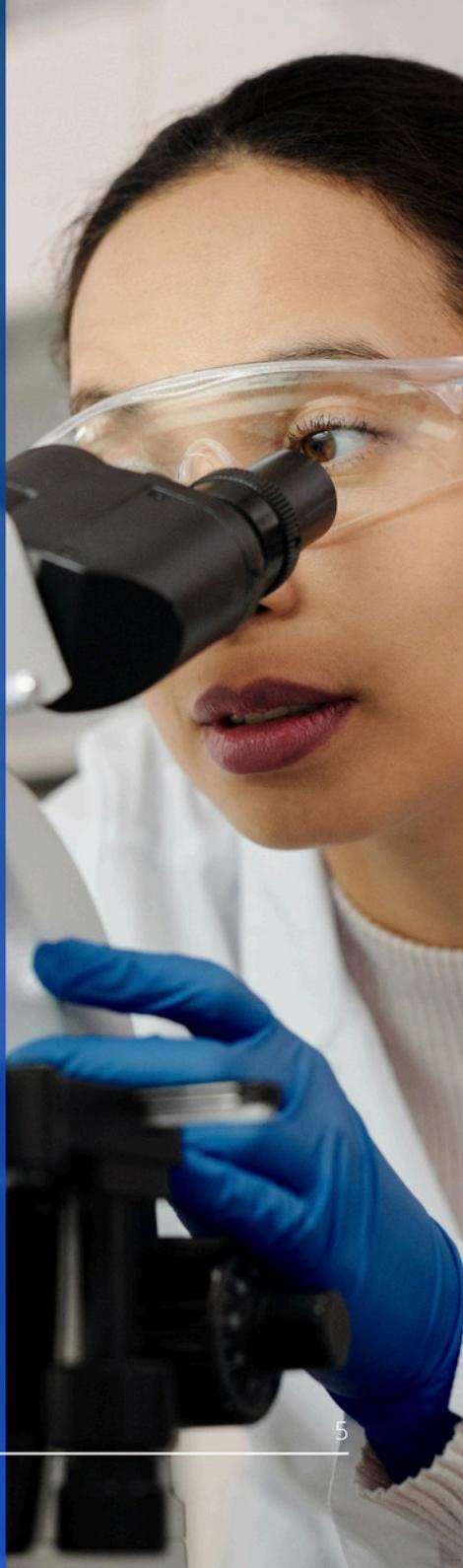
The CMRE PoW is an entirely customer-funded programme. It is planned together with paying customers and executed by the CMRE, which organises and conducts scientific research and technology development to deliver research-driven, innovative, and field-tested solutions to address the defence and security needs of the Alliance.

The biggest customer of CMRE to date is Allied Command Transformation. Other customers of the CMRE include Ministries of Defence, industry, and academia from Allied and Partner Nations and the European Union.

Advice to planners and decision makers

The STO generates and delivers evidence-based advice on significant S&T issues —including identifying Emerging and Disruptive Technologies (EDTs) and their impact on security and defence— while leading the delivery of S&T and promoting its exploitation throughout the NATO defence enterprise.

Building upon the STO network and research programmes, the NATO Chief Scientist, supported by an advisory section in NATO HQ, provides S&T based advice to senior-level political and military decision-makers.



The Collaborative Programme of Work (CPoW)

The CPoW comprises the **full range of S&T areas** that are relevant to defence and security.

The CPoW is structured in eight topical domains, each of which is managed by a dedicated committee of national programme managers and subject matter experts.

These Scientific and Technical Committees (STCs) are the powerhouse that delivers the CPoW.



Applied Vehicle Technology (AVT)

Ensuring platform and weapons superiority for force protection, surveillance, and deployment



Human Factors & Medicine (HFM)

Optimizing health, human protection, well-being and performance of the human in operational environments



Information Systems Technology (IST)

Improving consultation, command, control & information systems, and enhancing information



NATO Modelling & Simulation Group (NMSG)

Exploiting modelling and simulation to its full potential to enhance both operational and cost effectiveness



Systems Concepts & Integration (SCI)

Advancing knowledge concerning systems engineering, counter-threat and interoperability



Sensing Technology (SET)

Advancing SET for intelligence, surveillance, target acquisition, reconnaissance, electronic warfare and navigation



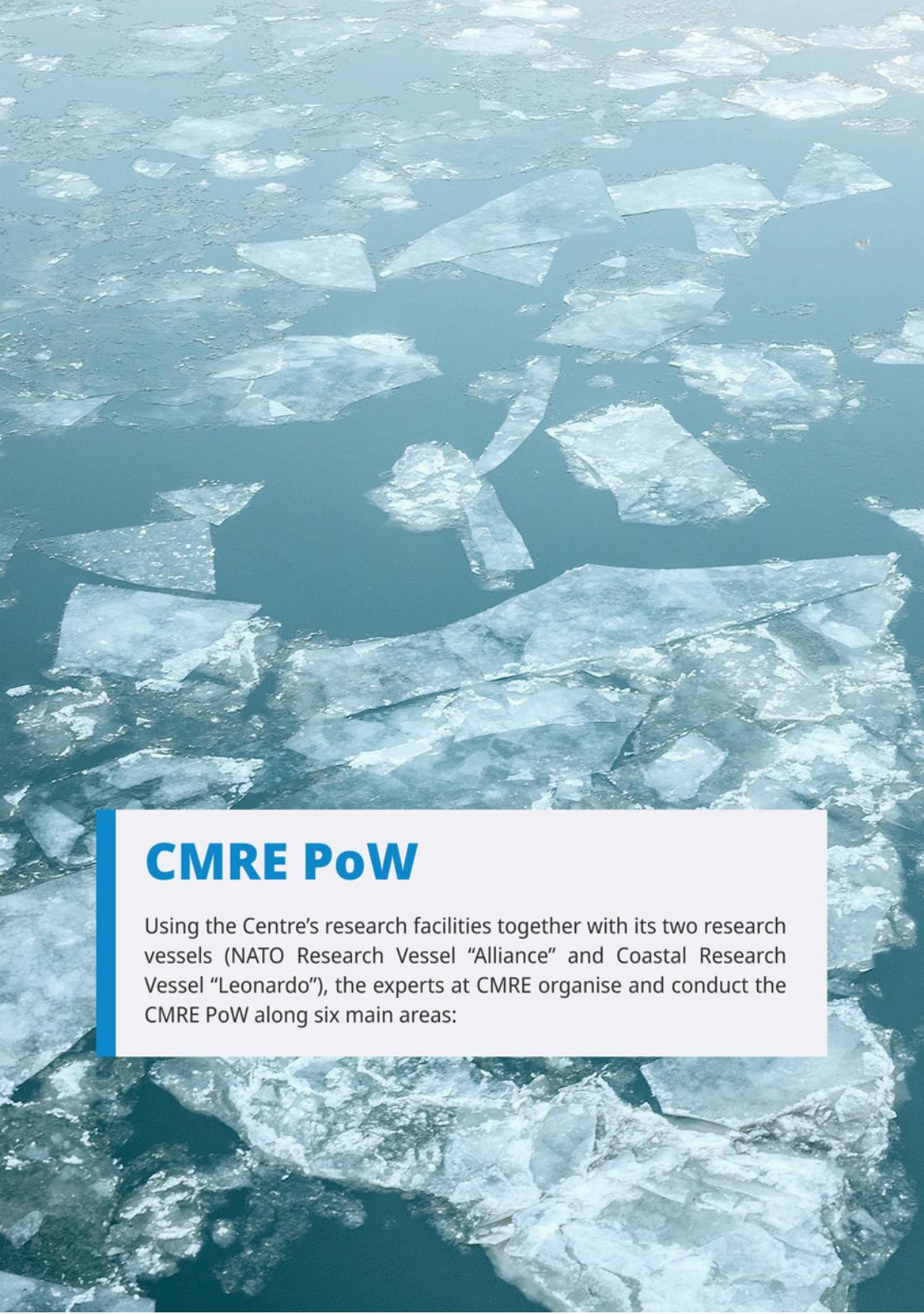
System Analysis & Studies (SAS)

Providing expert analytical support for better decisions in NATO operations and capability development



Technology & Science Incubation (TSI)

Drives collaboration on emerging and disruptive technologies, tackling emerging challenges not covered sufficiently in the CPoW



CMRE PoW

Using the Centre's research facilities together with its two research vessels (NATO Research Vessel "Alliance" and Coastal Research Vessel "Leonardo"), the experts at CMRE organise and conduct the CMRE PoW along six main areas:



Autonomous Naval Mine Countermeasures (ANMCM)

Use of real time data acquisition for autonomous vehicles



Climate Change & Security (CC&S)

Analysis of climatic change impacts in the maritime domain and Arctic transformation studies



Autonomy for Anti-Submarine Warfare (ASW)

Secure interoperable and scalable systems with reduced risks



Maritime Unmanned Systems Enablers (MUSE)

Real-time intelligence & surveillance in restricted environments



Environmental Knowledge & Operational Effectiveness (EKOE)

Decision support through maritime analytics & behavioural analysis



Data Knowledge & Operational Effectiveness(DKOE)

Decision support methodologies for manned and unmanned ASW operations

How we work

At its core, the STO is NATO's hub for defence research collaboration amongst like-minded Nations, employing several different mechanisms to achieve its mission.

CPoW

The Collaborative Programme of Work (CPoW) is planned and executed by national experts, who bring in their own national resources to address commonly agreed research objectives.

CMRE PoW

The CMRE Programme of Work (CMRE PoW) is planned and conducted by NATO experts and staff to meet the needs of paying customers in Nations and NATO.

Advice

The advice is generated from CMRE PoW, CPoW, and other sources to inform planners and decision-makers in Nations and NATO.

Who we are

The NATO Science & Technology Board (STB) is a senior NATO committee that reports to the North Atlantic Council and governs our organisation.

As the governance body of the STO, the STB oversees and directs the work of the STCs as well as the three Executive Bodies:

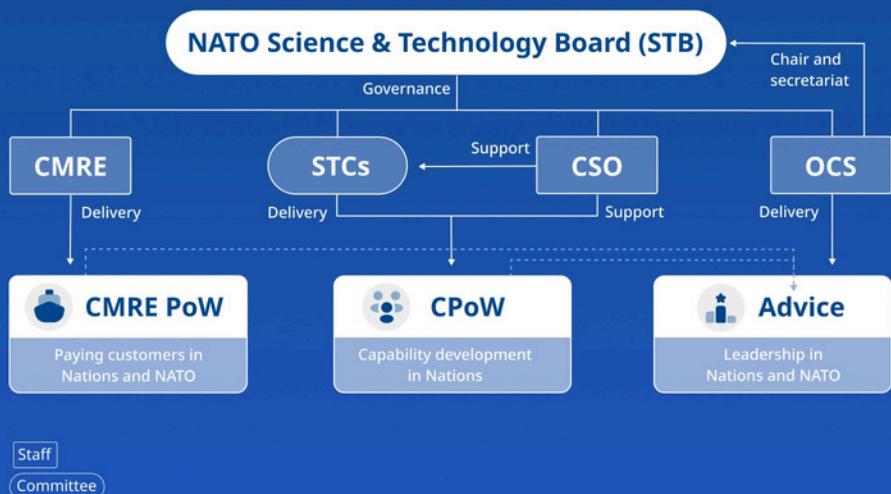
- Centre for Maritime Research and Experimentation (CMRE);
- Collaboration Support Office (CSO); and,
- Office of the Chief Scientist (OCS).

The STB is composed of Members from the Allied Nations, who typically are responsible for the national defence research budgets and programmes. They hold the decision-making authority in the STB. In addition, the STB includes representatives from other NATO bodies that are part of the wider NATO S&T community. The STB is chaired by the NATO Chief Scientist.

Collectively, we are the STO: The NATO Science & Technology Board (STB); the eight STCs; and the three STO Executive Bodies.



Our structure



The graph above illustrates the **principal organisational structure within the STO**.

The STB is presented at the top, as it oversees the entire organisation. In the middle are the Panels / Group and the three Executive Bodies that execute the STO programmes and generate the advice to decision-makers. At the bottom are the main products the STO delivers to its customers in Nations and in NATO.



STO Executive Bodies



Centre for Maritime Research & Experimentation (CMRE)

 *La Spezia, Italy*

The **CMRE** is a customer-funded research centre that employs its facilities ashore and afloat to deliver innovative, field-tested solutions to address defence and security challenges in the maritime domain.



Collaborative Support Office (CSO)

 *Paris, France*

The **CSO** supports the STO Collaborative Programme of Work (CPoW), in which Allied and Partner Nations contribute their national resources to define and promote cooperative research and information exchange.



Office of the Chief Scientist (OCS)

 *Brussels, Belgium*

The **OCS** provides executive and administrative support to the NATO Chief Scientist as the chairperson of the STB and as the senior scientific advisor to NATO leadership.

How to join

Government representatives, members of the armed forces, industry specialists and academics are all welcomed to join our activities.

Below is the **way forward** you must follow in order to become a part of the CPoW activities:

- 1 Visit our website**
If you are looking for more information, browse our website to find out what STCs do.
- 2 Engage with the STCs**
If you know which STC you are interested in, you can directly reach out to them.
- 3 Reach out to your national coordinator**
If you are ready to join, contact details for national coordinators can be found on our website. National coordinators will guide you on further steps.

Visit our website for more information:

- STO: sto.nato.int
- CMRE: cmre.nato.int
- NATO: nato.int/sto

Follow us on social media!



