



NATO-ACCREDITED CENTRES OF EXCELLENCE 2021 CATALOGUE



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ORGANISATION

SUPREME ALLIED COMMANDER TRANSFORMATION



I am pleased to present the 2021 NATO-accredited Centres of Excellence (COE) Catalogue. This catalogue offers information on the growing NATO COE enterprise, which now consists of 26 accredited COEs, with another two under development. The catalogue provides insights into their efforts and is intended to facilitate contacts for those seeking additional information.

NATO-accredited COEs play an important role in furthering innovation, lessons learned, education and training, doctrine, concept and capability development, through experimentation and recommendations. In their respective domains or areas of expertise, the COEs function as hubs that contribute significantly to enhancing interoperability with Allies and Partners. Under the framework of the NATO-EU Joint Declaration, they also act as Alliance forerunners in NATO-EU cooperation, "from the bottom".

In 2020, they proved their usefulness to NATO and Nations by providing support, analysis and advice to the Alliance as it responded to the challenges associated with the COVID-19 pandemic. Due to their unique status, they also provided a bridge with non-NATO organizations and entities, thus expanding the Alliance understanding of the international medical and technological environments.

NATO COEs are centrepieces of our network of expertise and have proven to be a successful model for effective multinational solutions. Their abilities are invaluable to our transformational Warfare Development efforts; they support the adaptation of our military capabilities. Their ability to deliver innovative ideas, products, and support make them critical stakeholders in addressing the current and future posture of the Alliance and maintaining our warfighting advantage. As such, I highly recommend that members of the Alliance - at all levels - reach out to COEs to leverage these incredible resources.

HQ SACT (especially the CPD Branch) will continue to work with COEs to ensure that NATO continues to make advantageous use of COEs. This will help ensure the highest level of contribution to warfare development and to the support of NATO operations and exercises.

Once again, I would like to thank all the NATO and Partner nations that contributed to the growing and continued success of the COEs by committing personnel and/or resources.

I look forward to another productive year working with all the COEs to derive the full benefit of these national contributions.

André Lanata General, French Air Force Supreme Allied Commander Transformation



What is a NATO-accredited COE?

Definition

A NATO-accredited Centre of Excellence (COE) is a multi-nationally or nationally established and sponsored entity, which offers recognized expertise and experience within a defined subject matter area to the benefit of the Alliance within the four pillars of NATO's COE program. A COE is not a part of the NATO Command Structure (NCS) or of other NATO entities, but forms part of the wider framework that contributes to the functioning of the Alliance.

Background

The idea for NATO-accredited COEs originated in MC 324/1, "The NATO Military Command Structure," dated 14 May 2003. The Military Committee (MC) refined this idea into the MCM-236-03; "MC Concept for Centres of Excellence (COE)" dated 04 December 2003. Once the idea and the concept were firmly established, the accreditation criteria was defined. In 2004, IMSM-0416-04, "NATO COE Accreditation Criteria" was agreed on and the first NATO COE was formally accredited on 01 June 2005. MCM-236-03 has been superseded by MC 0685 (Military Committee Policy For Centres Of Excellence) dated 04 December 2019; the NATO COE Accreditation Criteria policy is currently under review.

Principles

- No cost to NATO;
- Conform to NATO procedures, doctrines and standards;
- No duplication with existing assets;
- Relationships with Strategic Commands through Memorandum of Understanding agreements;
- Relationships with partners are supported and encouraged.

Pillars

Not every organization can become a NATO-accredited COE. In order to become a COE, expertise must be demonstrated in at least three of the four transformation pillars:

- Education and Training;
- Analysis and Lessons Learned;
- Concept Development and Experimentation;
- Doctrine Development and Standards.

Concept Development & Education & Analysis & Lessons Learned The four pillars

Bottom Line

There are many reasons why a nation or nations, as Framework Nation, decide to offer a Centre of Excellence to NATO. One of the most common reasons is to contribute to NATO whilst at the same time directly benefiting one or more Nations. The number of NATO COEs is growing. Through the MC Concept and the NATO accreditation criteria, COEs have proven to be a successful and enduring model for strong multinational solutions. As a result, the NATO Command and Force Structures are supported by a robust network of COEs, which are nationally or multi-nationally managed and funded and open for participation by NATO and Partner Nations.



HQ SACT Coordination with COEs

Although there are many key documents when it comes to working with COEs (several of which are summarized later in the catalogue), HQ SACT Directive 80-03 – HQ SACT Coordination of NATO COEs (30 September 2020) perhaps has the greatest influence in shaping the day-to-day interactions between HQ SACT and NATO-accredited COEs. This directive provides the policy, guidance and responsibilities for the coordination of NATO COEs in HQ SACT.

HQ SACT Directive 80-03 defines the responsibilities of:

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DCOS	ACOS CAP	DCOS	OCOS SPP	000s BAM
CCD	CSW	CWO	CMDR	SP
C2	NMW	M&S	DAT	SFA
JAPCC	CJOS	AO		
ACOS REGS	MARSEC DACOS CAP	ACOS SED	ACOS SPP	nikose ne
MP	MILMED	EOD	JCBRN-D	CCOE
CI	MILENG	MW	ENSEC	IAMD
HUMINT	STRATCOM	C-IED		75
MGEOMETOC				

- Deputy SACT assigned as HQ SACT's strategic Focal Point of Contact (FPOC) for all COEs and SACT's direct supervisor for the assigned ACT COE Flag Officer/General Officer (FOGO) Champions;
- Chief of Staff (COS) who provides overall governance in accordance with BI-SC Dir 080-001, and is assigned as HQ SACT's strategic level coordinator for COE output in balance with HQ SACT's Programme of Work;
- COE FOGO Champions who act as the strategic POC to their allocated COEs, and provide direction and guidance as required and ensure their COEs' activities remain in line with ACT's Warfare Development agenda;
- Subject Matter Experts (SMEs) a staff officer, preferably with subject matter expertise in the specialty of the COE, assigned
 to support the FOGO Champion and liaise directly with their COE and provide functional coordination of the COE's
 products and services;
- COE Programme Development (CPD) Branch responsible, on behalf of SACT, for the coordination of all NATO-accredited COEs, the initial accreditation process and subsequent periodic assessments of NATO COEs;
- Legal Advisor provide legal support to CPD in the process of developing Memoranda of Understanding (MOUs) and Notes of Joining (NOJs), providing certified copies maintaining a library of all official legal documents pertaining to the NATO COEs.

More information about these responsibilities, including the reference document, are available on TRANSNET's COE Community of Interest portal (page 10).

The COEs' unique expertise and their value to our Alliance were fully demonstrated and unanimously recognized during 2020.

After the already successful achievements of 2019, culminating also with the approval of a new MC Policy for COEs, I looked forward to 2020 as the "year of transition" to further increase this interaction and productive cooperation. Instead, we were forced to face a tragic worldwide pandemic that is still affecting most of our countries. Our Alliance has made great efforts to manage and adapt its response to COVID-19. Despite this unprecedented emergency, we have been able to take opportunities to improve our organization. As a tangible result, the connection with all COEs has provided many occasions to discuss and promote possible responses to the crisis, especially in the collection and sharing of Lessons Identified. COEs have once more demonstrated the outstanding level of expertise they provide to the Alliance, and together we have strengthened our relationships and cooperation as never before.

In thanking all the Directors and their Staff for their outstanding support, my recommendation for 2021 is to continue to enhance the visibility of the COE Community achieved during this difficult time. Let's never cease to consider how your Centres may valuably contribute to our great Alliance.



Paolo Ruggiero General, Italian Army

Deputy Supreme Allied Commander Transformation





COE Programme Development Branch in 2020

In 2020, the CPD Branch's Programme of Work (POW) has been impacted by COVID-19 and the branch has been drawn to adapt to the situation. Activities have been cancelled or postponed (e.g., Directors' Conference, Periodic Assessments), but new ones have been organized such as the three DSACT online meetings with Directors (in May, June and July) or the virtual briefing and discussion regarding the NATO Warfighting Capstone Concept in September.

The renewal of key documents regarding COEs, initiated in 2019, continued with the replacement of the former MCM 236-03 (Concept for COEs) by the new MC 0685 (MC Policy for COEs) and subsequent updates of Bi-SC DIR 80-1 and HQ SACT DIR 80-3. You can see some highlights in the key references section of this Catalogue. Other important works have also been recently initiated such as a review of IMSM 0416 (COE Accreditation and Assessment Criteria) and the revision of the Accreditation/Periodic Assessment questionnaire.

The Coordination Section, created in 2019, developed successfully during its first year of activity with its efforts under the four Pillars of COE Support. At the same time, the enhanced coordination by the HQ SACT FOGO Champions and SMEs with the COEs has not only improved mutual knowledge and understanding, but has also greatly improved information flow and allows the COEs to maximize their efficiency and dedication in support of the Alliance's needs.

After the completion of Montenegro's military integration to the Alliance in July 2019, the CPD Branch is now following a similar process for the Republic of North Macedonia. Despite some delays and restrictions due to COVID-19, the process to complete North Macedonia's military integration remains on track to complete by late 2021.

In summary, and despite the effects of the pandemic, 2020 has proved to be another busy but fruitful year. The connection between HQ SACT and the NATO-accredited COEs remains strong, and helps to ensure that the COEs remain highly effective key elements of the wider framework that contribute directly to the successful functioning of the Alliance.

COE Accreditation and Periodic Assessment

Despite the COVID-19 effect to the Programme of Work execution, in 2020 CPD provided advice and assistance throughout the establishment and accreditation process of the Maritime Security (MARSEC) COE, Integrated Air Missile Defense (IAMD) COE and Maritime Geospatial, Meteorological and Oceanographic (MGEOMETOC) COE. CPD also continued to conduct Periodic Assessments of already accredited NATO COEs. These assessments are needed to ensure that the products and services provided by NATO COEs remain consistent with the quality standards, practices and procedures within NATO.





NATO Centres Of Excellence – Key Documents

MC 0685 - Military Committee Policy For Centres Of Excellence (04 December 2019)

- This fundamental policy document, agreed by the Nations in December 2019, replaced the original MC Concept from 2003 that describes the arrangements for NATO-accredited COEs.
- It covers the definitions, principles, accreditation, further development, relationships, interactions, and legal arrangements that apply to the Military Committee Policy for COEs.
- The Policy confirms that, in accordance with MC 0324/3 The NATO Military Command Structure, the Supreme Allied Commander Transformation (SACT) is the coordinating authority for the NATO COEs.

IMSM-0416-04 -NATO Centres Of Excellence Accreditation Criteria (11 June 2004)

Based upon the original MC Concept for NATO COEs (2003), this International Military Staff Memorandum defines the criteria to be used in the assessment of a COE for accreditation within the NATO COE network.

- It describes the criteria to be applied during the initial accreditation of a COE, and thereafter during periodic assessments, in terms of mandatory and highly desirable categories.
- It further describes the assessment process to be employed in accordance with these criteria.
- With the publication of MC 0685, a review of the criteria is currently underway with a revision to this key document expected in 2021.

BI-SC DIR 080-001 – Bi-Strategic Command Directive For The Coordination Of NATO Centres Of Excellence (18 June 2020)

This directive, revised in early 2020 to reflect MC 0685, describes the relationship between HQ SACT (supported Command) and SHAPE (supporting Command) in their interaction with the NATO COEs.

- It defines responsibilities with regard to the COEs and the management processes used to maximise the benefits provided by the COEs to the Alliance.
- It further sets out the key processes and battle rhythms used to manage and synchronise all COE coordination activities along with roles and responsibilities.

HQ SACT Directive 80-05 - NATO Centres Of Excellence Establishment And Accreditation Process (24 January 2020)

- This directive describes the establishment and accreditation process of a NATO Centre of Excellence (COE) for HQ SACT.
- It defines the roles and responsibilities of HQ SACT staff for each stage of the COE establishment and accreditation process.
- It also identifies the anticipated interactions between HQ SACT staff and other COE stakeholders within NATO and NATO related entities, including National Liaison Representatives (NLRs) to HQ SACT.
- It sets out the COE establishment and accreditation process that consists of nine formal steps with the responsibilities of the involved HQ SACT branches explained within each.
- Additional steps, related to the coordination and validation of the COE Concept or MOUs, may be initiated by HQ SACT in coordination with SHAPE and/or the NATO HQ International Staff (IS) / International Military Staff (IMS) as necessary.



COE Frequently Asked Questions

Are COEs part of NATO? The Military Committee (MC) Policy MC 0685 (Military Committee Policy for Centres of Excellence) states, "A COE is a multi-nationally or nationally established and sponsored entity, which offers recognized expertise and experience within a defined subject matter area to the benefit of the Alliance within the four pillars of NATO's COE program." We may say that NATO-accredited COEs have one foot within NATO (because they are "part of the wider framework that contributes to the functioning of the Alliance") and they have one foot outside NATO (because they are "not part of the NATO Command Structure or of other NATO entities"). This gives COEs greater flexibility in the relationships with other international and civilian entities.

Where does the COE idea come from? Can NATO "initiate" a COE? As per MC 0685, "A NATO Nation may decide to offer a COE to NATO by formally presenting the offer to the [Chairman of the Military Committee]. That could either be in response to an MC endorsed list or by its own initiative. The MC may, based upon SACT's advice coordinated with SACEUR, accept the offer and task ACT accordingly to proceed with the development as set forth in this Policy."

What is the difference between a NATO-accredited COE and any other COE? As per MC 0685, a NATO-accredited COE (also referred to as a "NATO COE") is a COE that has been established by SACT, has received MC endorsement, and has received subsequent North Atlantic Council (NAC) approval. Only when these steps are complete can a COE be called a 'NATO-accredited COE'. Further, "Once accredited, the NAC may grant a COE international status under the Paris Protocol." If NAC approval has not been granted, then it is not a NATO-accredited COE.

Can NATO task the COEs? No, NATO cannot task the COEs, because they are not under command authority of SACT. However, in accordance with MC 0685, "COEs have a functional relationship with HQ SACT and are, consistent with their accreditation, expected to prioritize NATO requests, act as a primary advisor to the NCS in their area of expertise when applicable and have responsibility to support within their means and capabilities, subject to the approval and allocation of resources by their Steering Committee.

How does NATO request COE products and services? NATO can request support from a COE by submitting a Request for Support (RfS) through the Program of Work (POW) tool. This is a process within the COE POW Development Cycle (page 11).

Can Nations join/withdraw from a COE after it is NATO-accredited? Yes, they can. The addition of any new Sponsoring Nation to a COE is done through a Note of Joining, to be signed by the joining Nation and the already participating Sponsoring Nation(s). Unless otherwise specified, the Note of Joining will come into effect on the date of the last signature. Any Sponsoring Nation may withdraw from the COE giving the twelve months written notice to all other Sponsoring Nations and by informing the Director and Steering Committee in writing.

Are NATO-accredited COEs eligible for Common Funding? As per MC 0685, "COE infrastructure, operating and maintenance costs are the responsibility of the Sponsoring Nations...Exceptional eligibility for Common Funding may be established by the appropriate NATO resourcing authority..."

Can Partner Nations join COEs? Yes, they can. Partner Nations can join NATO-accredited COEs as Contributing Partners, which means that they will be able to provide inputs and have access to COE's products and services; however, they will not have voting rights in the Steering Committee. These relationships should be managed by the COEs on a case by case basis, taking security aspects into account.

Can COEs engage with non-military entities, such as industry and academia? Yes they can, moreover they are encouraged to do so. These relationships are managed by the COEs on a case by case basis, taking security aspects into account.

Where can I find more information about the COEs? There are multiple sources available, depending on exactly what you are looking for:

- COE-specific Each COE has its own homepage listed in this catalogue.
- COEs in general ACT's website for COEs is https://www.act.nato.int/centres-of-excellence.
- COEs detailed information. This is contained in HQ SACT's information portal called TRANSNET (more information on page 10).



COE Management Framework

COE Steering Committee

The Steering Committee (SC) is the highest decision making level within a COE. It is the main body for guidance, oversight and decisions on all matters concerning the administration, policies and operation of a NATO-accredited COE. The SC is responsible for the direction, guidance and supervision of the COE. It approves the Program of Work (POW) and the budget, and supervises their execution. The Terms of Reference of each NATO-accredited COE's SC are laid down in their Operational Memorandum of Understanding (MOU).

The SC consists of one representative from each Sponsoring Nation. The SC Chair comes from the Framework Nation (FN), and is not identical with the representative of the FN. Routine meetings of the SC take place at least once a year, and the Chairman of the SC may call additional meetings. Normally, the SC makes decisions by consensus of the representatives. During these meetings, several individuals and groups may be present, but do not have a vote:

- The SC Chair:
- The COE Director (defined below);
- HQ SACT's assigned Subject Matter Expert (SME) is invited to participate, normally to advise the SC on NATO entities' requirements and priorities;
- Other representatives as invited by the SC may attend in an advisory capacity.

The responsibilities and tasks of the SC may include:

- The consideration and approval of additional in-year requests for the POW and possible amendments to the budget;
- Review the budget report and approve the annual Financial Statement;
- Provide guidance on the functional relationships of the COE with other organisations and nations;
- Review and amend the Concept of the COE;
- Propose changes to the MOU and its Annexes.

COE Director

The Director of a NATO-accredited COE is responsible to the SC for the fulfilment of the mission, the tasks and the operation as well as administration of the COE. Taking into account the requests of HQ SACT, Sponsoring Nations, Contributing Partners, and others, the COE Director prepares and submits a draft POW to the SC for the following calendar year. The SC considers all requests for services and products, including associated costs, and then approves the POW for the COE.

Chairman of the COE Director's Conference

COE Directors meet in person, on an annual basis, during the COE Directors' Conference. Although not a formal position within individual COEs, one Director is selected amongst his/her peers to be the conference Chairman for a period of one or two years (according to his/her availability). Tasks conducted by the Chairman include:

- To call representatives and/or specialists to attend the conference, once attendance is approved by COEs' Directors;
- To set the conference topics and agenda;
- To chair the conference in accordance with the respective agenda;
- To promote and foster open discussions amongst members;
- To facilitate negotiation in order to achieve consensus;
- To communicate the Conference results;
- To represent the Directors collectively to relevant authorities when requested and agreed by all of them.



Requesting COE products and services

HQ SACT coordinates the submission of NATO Requests for Support (RfS) to the COE Programmes of Work (POW). This process is called the "RfS Process". The overall aim of the process (managed by the COE Programme Development (CPD) Branch) is to optimize the use of the COEs, and to prioritize requests when required. In an effort to streamline the process and better use the resources available to the COEs, requestors (including the NATO Command Structure) should primarily use the "RfS Tool" that is available 24/7 on TRANSNET.

TRANSNET (including access to COEs)

TRANSNET is an unclassified restricted access site available via the internet. The aim of the NATO TRANSNET Portal is to foster collaboration and create an internet accessible forum for Communities of Interest (COI) to come together and share knowledge and expertise. Access to TRANSNET is for individuals from NATO, NATO nations, MOD/DOD, NATO Partners, commercial/industry entities and others that have a standing business case with NATO. The TRANSNET Portal is password protected, so an account must be created. Please follow the steps below to sign up for TRANSNET and request access to the COE COI:

- 1. Go to https://transnetportal.act.nato.int/Pages/home.aspx;
- 2. Click on "Register" and provide your information. Commercial email accounts like Gmail, Yahoo, Hotmail or AOL will not be accepted. Only official military/government/organizational email addresses containing the requestor's name will be accepted. After providing your personal information, at the end please write your justification for asking access to the TRANSNET Portal;
- 3. Once your sign up request is approved by the TRANSNET administrator, login and go to your home page;
- 4. Click on the "Request Community Access" button;
- 5. From the list of available COIs, you can find Centre of Excellence (COE) COI;
- 6. Click on the "Request Access" button;
- 7. In the "COIs Requested" part, find "READ COE" and add it to your wish list. Please provide justification for joining this COI;
- 8. Click on "Save" and your request will be sent to CPD Branch for approval.

Once your request is approved you will be able to view the content in the COE COI, including COE POWs and the RfS Tool.





Centres of Excellence Community of Interest

One of the major advantages of joining the COE COI is that it is intended to be a "one-stop shop" for NATO-accredited COEs. Some of the content includes links to all of the COEs (and their POW if classification permits), key events, contacts, documents, and references. If an organization is considering becoming a NATO-accredited COE, there is a section on the requirements for establishment. One of the greatest benefits, however, is the ability to submit requests for support from NATO-accredited COEs. This resource is found under the "COE POW and RfS Tool" tile.

Requests for Support

The RfS tool is meant to serve as a constantly available coordination tool between two or more stakeholders. It identifies the requesting organization, the COE(s) requested to support, a high-level description of the request, and associated timeline. Although requests should usually be entered before June for work to be carried out in the subsequent year (based on the COE POW cycle), out-of-cycle requests may be carried out if sufficient capacity/resources exist. Users unfamiliar with the RfS Tool should contact the CPD Branch for assistance, but in general, the following steps are required in order to request support from NATO-accredited COEs:

- 1. The requestor submits the request in the RfS Tool (note: prior discussions with the COE(s) via phone or email can be helpful in determining specific resource requirements and for crafting the request);
- 2. The COE(s) evaluates the request to determine appropriate expertise and available resources;
- 3. COE(s) provide feedback via the RfS Tool response;
- 4. HQ SACT provides validation and prioritization (if required) of the RfS and coordinates with the potentially affected stakeholders;
- 5. The COE SC either accepts or rejects the RfS for the COE POW;
- 6. If the RfS is accepted, the COE POW is updated;
- 7. The COE develops the product, and formally closes the loop with the requestor;
- 8. Once the request is complete, the requestor informs the HQ SACT RfS Manager; the RfS Manager will update the RfS tool accordingly.



Impact of COVID-19

The NATO-accredited Centres of Excellence 2021 Catalogue is a key instrument for external communication, and HQ SACT is taking this opportunity to highlight the significant efforts made by all the COEs during the pandemic. It is worth mentioning and recognizing that these NATO-affiliated multinational entities, which operate under the direction of their Sponsoring Nations through their Steering Committees, have been providing direct support to the Alliance's fight against this deadly virus since its onset. The Directors, ably supported by the Sponsoring Nations', Framework Nations', and Contributing Partners' personnel, have strived to assist NATO wherever possible to tackle this unprecedented challenge. HQ SACT has received weekly updates of their COVID-19 current actions and crisis posture, allowing for timely response and adaptation.

This crisis has significantly changed our Strategic Environment, and raised further questions regarding NATO's role in a non-military crisis that, at its core, has been a medical and public health issue. Nevertheless, the COEs have been able to provide major contributions from across a wide spectrum of areas of expertise.

In addition to the COEs' weekly reports, HQ SACT has maintained regular contact with the centres through its network of ACT Flag and General Officer (FOGO) Champions and staff Subject Matter Experts (SMEs). Furthermore, HQ SACT has adapted to the situation and employed regular videoconferencing to communicate directly with the COEs, with DSACT hosting several online conferences with the Directors. Additionally, all COEs have been requested to identify and capture any lessons from their experiences during the COVID-19 crisis, and many have already contributed directly to the NATO Lessons Learned portal that is hosted by the Joint Analysis and Lessons Learned Centre (JALLC). Clearly, once the crisis has passed, there will be a significant focus on analysing detailed actions across the Alliance, and it is fully expected that the COEs will provide their strong support to this vital work.

Some COEs, due to their more specialized or niche expertise subject areas, may not be able to provide such a direct contribution to the Alliance's fight against this unprecedented threat. However, they continue to offer support through their Framework Nations by assisting local government with military manpower or security, supplying extra personnel or vehicles to transport patients or equipment, or assist with the building of emergency care facilities.

In summary, HQ SACT remains entirely assured and appreciative that the NATO COEs, with their outstanding personnel, continue to stand ready and willing to assist in any way they can. The Nations, who sponsor these centres through, the provision of personnel and funding, should be rightly proud of their dedicated support to the Alliance.



COEs Undergoing the NATO Establishment and Accreditation Process



Integrated Air & Missile Defence (IAMD)

Integrated Air and Missile Defence Centre of Excellence (IAMD COE), located in Chania, Greece, was established on 8 April 2020, in order to accomplish one of the most complex and challenging NATO missions: supporting the development of NATO IAMD capabilities, with coherent up to date expertise, keeping up with technological advancements in the IAMD area (eg. hypersonic missiles, surveillance system integration and Counter - Unmanned Aerial Systems) and overcoming the interoperability deficiencies of existing Air Defence Systems. At this time, Greece as a Framework Nation (FN) and Bulgaria, Czech

Republic, Romania and Turkey as Sponsoring Nations (SNs), offer to the Alliance fourteen (14) highly educated, skilled and motivated Subject Matter Experts (SMEs), drawn from Land, Maritime and Air Commands of the respective NATO Nations.

For the upcoming year, IAMD COE, led by a sense of duty and responsibility, will focus its efforts on broadening, at the greatest extend possible, the IAMD related field of knowledge, along with avoiding duplication of effort. This goal will be achieved by IAMD COE's steady presence and participation in relevant trainings, exercises, conferences, Working Groups and Committees, combined with the development of relationships with other entities (NCS entities, IOs, academia and industry). In this way it aspires to utilize all available think tanks and resources (both in manpower and material), in order to create opportunities for comprehensive research and experimentation, doctrine and concept development and analysis as part of the lessons learned process, in support of IAMD COE's mission.



www.iamd-coe.org



Maritime Geospatial, Meteorological & Oceanographic (MGEOMETOC)

Environmental awareness is crucial to the success of any maritime operation. Within the framework of NATO, the expression Geospatial, Meteorological and Oceanographic (GEOMETOC) brings together geospatial, weather-related and ocean-related information, contributing to generate an enhanced Common Operational Picture (COP) and providing situational awareness to improve decision support for commanders.

The MGEOMETOC COE, with Portugal as Framework Nation, Romania, Spain and Turkey as Sponsoring Nations, intends to provide a linkage between Geospatial information (GEO) and Meteorological and Oceanographic (METOC) areas and to mitigate shortfalls in GEO and METOC expertise within the Maritime Domain. Therefore, MGEOMETOC COE is aimed to:

- Research, develop, evaluate and test through experimentation, Maritime GEOMETOC concepts, doctrine, procedures, standards and other relevant documents;
- Support the development of appropriate Maritime GEOMETOC capabilities, using the analysis and lessons learned from operations and exercises, NATO policy and standards;
- Train military and civilian personnel, including those in preparation for deployment to operations;
- Support and enhance the development of Recognised Environmental Picture (REP) and Rapid Environmental Assessment (REA) concepts; and
- Support building enhanced capabilities for information sharing, to improve preparation and delivery of Maritime GEOMETOC information in support of planning and execution of maritime operations and activities.

In order to support the implementation of the abovementioned requirements, the MGEOMETOC COE will:

- Follow and recommend necessary improvements to the relevant GEO and METOC NATO policies, concepts and standards;
- Provide a hub for development and management of common and shared knowledge, expertise and capabilities; and
- Serve as a focal point for the analysis and lessons learned process in the METOC area.



www.mgeometoc-coe.org





NATO AIR OPERATIONS CENTRE OF EXCELLENCE (AO COE) - CASPOA

Director's Message

While I have just arrived and taken charge of the Air Operations CoE, CASPOA, in the midst of a global pandemic, I have observed the excellence provided by this unit and its personnel for many years. I know that we support political end states with joint military effects by leading and evolving to understand and dominate in Air Operations (AO), which truly encompasses a vast domain. I have watched and truly understand the continuing excellence of this accomplished, professional Centre and its peerless cadre as they have faced multiple NATO challenges: day-to-day maintenance of Air C2 courses, development of Air C2 systems, analysis of lessons from recent air operations, support of Joint Air Power doctrine development and visions of the future in multi-domain ops and AI integration. No matter how COVID-19 and future challenges shape the world, the Air Operations CoE will continue using its robust, eclectic Programme of Work, 20+-years of organisational experience and deep operational background to support NATO and its partners. Now and into the future, technically and operationally, we will provide premier capabilities across the Air Operations domain.





Mission Statement

To enhance air operations effectiveness across NATO Command Structure (NCS), NATO Force Structure, with NATO partners and to support development of air operations capabilities, concepts and doctrine.

Who We Are / What We Do

The Air Operations CoE, a multi-national manned, French funded organization, draws on experience and skills within air operations, technical simulation and Air C2 systems domains. AO CoE manning includes highly-trained resident officers from the French Air Force, Army and Navy, as well as Italy and the United States, in order to provide a diverse, joint air operations perspective to all AO CoE activities.

Vision

By continually reflecting on, improving, and even evolving our Air Operations focused mindset, the center aspires to provide NATO with primary tactical training and expertise in the Air Operations domain and to cover the full-spectrum of NATO's Air Operations discipline through courses listed in NATO's Education and Training Opportunities Catalog (ETOC). Working closely with ACO and ACT, AO CoE provides world-class education and training to joint, multi-national warfighters who plan, task, command and control air operations. These warfighters contribute to C2 experimentation in the technical realm as well as concept and doctrine development, shaping the future of the Air Operations domain.



In support of education and training, AO CoE provides state-of-the-art courses including Current ops room simulation capabilities. This room is capable of training up to 35 students with large-scale, 250-sortie CAX scenarios, and can host complex air operations exercises with up to 100 Current ops positions.

In line with HQ AIRCOM requirements, AO CoE will continue to execute the responsibilities of Air C2 systems Department Head with the support of a dedicated IT department and technical infrastructure. Seeking to continually enhance its products, AO CoE works closely with NFS JFACs, international militaries, industry, governmental and non-governmental agencies.



2020 / 2021

Major products and Activities in 2020

Major activities carried out in 2020 by the Air Operations CoE:

- delivered over then 53 training events and welcomed roughly 600 students in the midst of a global Pandemic;
- designed, planed and implemented a multi-nation 10-day Air C2 JFAC theatre level computer assisted exercise;
- designed, planed and implemented a multi-nation Air Operations Planning Group to prepare for the Air C2 JFAC theatre level computer assisted exercise;
- continued to seek to understand and document Air C2 beyond 2022, the tools, structure and capabilities, as well as possible roadblocks and pitfalls as AO CoE progresses towards that point;
- contributed to future Air C2 systems development, test and evaluation;
- focused on the integration of multi-domain strategy and thinking into all AO CoE courses;
- provided guidance for the Allied Command Operations joint targeting community both as an SME and training provider;
- contributed to planning and testing of the E-JFAC concept/integration of Al within the JFAC/ETEE, specifically hosting a
 Canadian Simulation company, CAE, who observed current ExCon tasks in order to find the most profitable ideas for Al
 integration;
- continued to collaborate with the NATO Scientific Technology Organisation (STO) through membership in the NMSG;
- supported SHAPE and AIRCOM in capturing training requirements, offering optimal training opportunities and cooperating with NCIA, the NCS and ACT.

Major products and activities in 2021

As for major activities scheduled for 2020, AO CoE will:

- deliver over than 70 training events and welcome roughly 800 students;
- design, plan and implement a new multi-nation 10-day Air C2 JFAC theatre level computer assisted exercise, directly targeted towards NRF 2022 preparation;
- research, document and validate the Air C2 tools and capabilities of tomorrow. The near-term goal is to identify where
 AO CoE should use its capabilities and resources to accelerate their adoption. This includes contributing to the testing and
 evaluation of future Air C2 systems and structures;
- experiment with and assess the impact of Multi-Domain Operational thinking on the current Air C2 paradigm;
- provide guidance for the Allied Command Operations joint targeting community both as an SME and training provider;
- proceed with testing and further concept development of the E-JFAC concept/integration of AI within the JFAC/ETEE;
- continue to collaborate with the NATO Scientific Technology Organisation (STO) through membership in the NMSG;
- continue support SHAPE and AIRCOM in capturing training requirements, offering optimal training opportunities and cooperating with NCIA, the NCS and ACT.



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CIVIL-MILITARY COOPERATION CENTRE OF EXCELLENCE (CCOE)

Director's Message

The 2020 COVID-19 crisis demonstrated the need to respond to emergencies with a comprehensive approach (whole-of-government and whole-of-society effort) where the military is only part of the overall response but is nonetheless vital. As NATO continues to adapt to the changing strategic / security environment, Civil-Military Cooperation (CIMIC) as a military joint function, and Civil-Military Interaction (CMI) in general, remain an essential part of today's multidimensional operations. To ensure that the alliance is ready to react quickly and safely to security challenges, we support the transformation and operational requirements of NATO as a matter of priority. This requires an up-to-date expert assessment of the relevant trends at CIMIC and CMI in the broadest sense. For this reason, the CCOE strongly advocates comprehensiveness, resulting in integrated efficient and effective solutions. The CCOE is your partner for CIMIC and CMI!



COL Frank van BOXMEER, MS

Mission Statement

The CCOE provides subject matter expertise in the field of NATO CIMIC and CMI, to support the transformational and operational requests of the Strategic Commands, Sponsoring Nations, NATO Customers and other Customers.

Who We Are / What We Do



On July 31, 2007 the CCOE was activated as a NATO accredited Centre of Excellence, now located in The Hague, Netherlands. The CCOE is the recognised asset to assure NATO Nations' and Partners' access to up-to-date knowledge and expertise in the field of CIMIC and CMI and to promote NATO's role in the area of transformation and innovation to external audiences. The CCOE is NATO Department Head for CIMIC and CMI (including Civil Preparedness), and a NATO accredited Education & Training Facility. Based on the NATO-EU joint declarations regarding intensifying cooperation, the CCOE became the European Union Discipline Leader (EU DL) for CIMIC in 2017 and member of the European Security Defence College in 2020. CCOE's program of work, coordinated and consistent with NATO efforts, is guided by 1. Education, Training, Exercise and Evaluation, 2. Analysis and Lessons Learned,

3. Doctrine Development and Standardisation, and 4. Concept Development and Experimentation.

Vision

The CCOE acts as the recognized hub of knowledge and expertise in CIMIC and CMI and a unique platform for cooperation and partnership. Therefore the CCOE is the preferred network campus to connect people, share collective knowledge and gain unity of purpose in the field of Civil-Military Cooperation and Interaction.

2020 / 2021

Education and Training

The Training and Education Branch (T&E) functions as the COE's accredited education & training facility for CIMIC and CMI. It uniquely combines expertise with training and education. This setting facilitates immediate alignment of CIMIC and CMI courses to NATO's training requirements, its operational environment and present-day security challenges.

In 2020, T&E quickly adjusted to COVID-19 by developing online CIMIC and CMI courses and by conducting this year's CIMIC and CMI Annual Discipline Conference online. In 2021, T&E will advance and expand its online capabilities to ensure the continuity of high quality, modern and upto-date training. Moreover, the CCOE will expand its course catalogue based on developments and assessment of a combined NATO-EU training solution.







Lessons Learned and Analysis

CCOE implemented a comprehensive Lessons Learned (LL) concept that supports the CIMIC community by providing observations and lessons which foster capability improvement, thus enabling transformation. The focus for 2020 was capturing lessons and best practices from the COVID-19 crisis and assessing the consequences and the resulting adaptation requirements for NATO's CIMIC capability, the Resilience through Civil Preparedness concept and the alliance overall.

In 2021 CCOE's LL capability will widen the focus of its Lessons Management Concept and will make use of operational/strategic level NATO exercises to collect observations and lessons. In support of these efforts, the analysis and assessment capability will be enhanced to draw the right conclusions and provide relevant recommendations. Furthermore, CCOE will closely monitor the implementation of lessons identified during the COVID-19 crisis.

Concept Development and Experimentation

The CCOE supports the continuously evolving, adapting and innovating CIMIC capability, which includes academic studies, concept development, process development and doctrine/document development. Actual topics include resilience, civil preparedness, urbanisation, preparation, planning, conduct and assessment of operations.

Besides the continuous support to the strategic commands in their concept developments (NWCC, DDA...) the current main effort in concept development with CCOE being in lead is the "CIMIC Analysis and Assessment Concept and Capability" in direct support of a SHAPE J9 strategic initiative.

Doctrine Development and Standards

The CCOE is the custodian for NATO CIMIC and CMI doctrine as well as NATO doctrine and contributes to the development of NATO doctrine at all levels. The portfolio includes the MC 411, the AJP 3.19 and the CIMIC perspective and elements in other NATO Allied Joint Publications. Furthermore, the CIMIC Functional Planning Guide as well as the more practical applications of CIMIC tactics, technics and procedures and the CIMIC Handbook (https://www.handbook.cimic-coe.org/) and other semi-formal publications (handbooks, Makes-Sense-booklet publications and fact sheets).

Most recent and prominent standardisation project is the "US Civil Affairs Euro-NATO CIMIC Synchronisation project" which aims to be the nucleus for a long term interoperability initiative.



Furthermore, the CCOE ensures the appropriate inclusion of CIMIC aspects to Cross-Cutting Topics (Protection of Civilians, Building Integrity, Cultural Property Protection, Children in Armed Conflicts and Women Peace and Security) and emerging topics (Trafficking of Human Beings, Youth, Human Security) and vice versa – which means the inclusion of those topics in CIMIC.

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CENTRE OF EXCELLENCE COLD WEATHER OPERATIONS (COE CWO)

Director's Message

Recent years have brought changes in the security situation and we see global climate changes also in the high north. An increase in interest in the northern hemisphere from several important nations brings new challenges. The need for NATO to be able to operate under cold weather conditions has, as a consequence, increased considerably. Therefore, there must be cold weather- and winter competence within the Alliance, and suitable places to train and prepare forces in such environment. The COE CWO will serve as the provider for expertise in the field of CWO by utilizing a joint military and civilian-supported network organization. Several nations, in NATO and others, possess cold weather and winter capabilities and are relevant for contributions. The COE CWO will through recognized expertise and experience support NATO within cold weather related skills for ongoing and future operations.



Mission Statement

The COE CWO mission is to support SACT in his efforts of transforming NATO in the field of cold weather operations. COE CWO will serve as the main provider and coordinator of expertise in the area of cold weather operations in NATO. COE CWO will provide NATO- and Partner nations the necessary competence in order to operate under these environment specific conditions.



Who We Are / What We Do

The NATO COE CWO is a nationally sponsored entity, which is located at Elverum in Norway. The organisation is manned by experienced personnel with unique competence and experience from different Norwegian military units where cold weather operations are a natural part of the service. The Director of the COE CWO will be a principal advisor for cold weather operations related expertise to SACT.

COE CWO is supporting NATO and Partner joint forces operating in a cold weather environment by contributions through the defined centre of excellence four pillars.

The ambition is to make the COE a multinational Military Organisation in order to further consolidate an international network.

As a recognized expert for NATO's Transformation in the field of CWO, the COE CWO will offer CWO expertise in the whole spectrum of the Alliances on-going and possible future operations. The Centre will further develop competence by means of a well-developed network of military and civilian as well as national and international competence-units and organisations. This in order to continuously improve on all CWO related knowledge and developments.

Vision

The COE CWO vision is to be NATO and Partner Nations preferred provider of the full spectrum of Cold Weather Operations competence.

2020 / 2021

Key Products and Activities 2020-2021

 COE CWO has contributed to NATO Warfighting Capstone Concept (NWCC). Priority will be given for further support to ACT NWCC process.





- COE CWO is custodian for development of ATP-3.2.1.5 CONDUCT OF LAND TACTICAL OPERATIONS IN COLD WEATHER ENVIRONMENTS with start in 2021.
- COE CWO supported ACT Joint Warfare Centre (JWC) Exercise Trident Jupiter in 2020.
- Lessons Learned concept is established in 2020. Contributions to NATO Lessons Learned Portal (NLLP) will increase in 2021. COE CWO will utilize established national and Allied network for relevant contributions.
- Support to Mountain Warfare COE in concept development process.
- COE CWO is Working Group (WG) lead for Joint Expeditionary Force (JEF) WG Cold Weather Operations. Support to JEF is expected to increase in 2021.
- NATO cold weather exercises in Norway are supported in both planning and execution. This includes Exercise Cold Response every second year.
- Avalanche Warning and Safety Group support to cold weather exercises at battalion level or higher.
- Support to cold weather capable units advanced courses and training.
- Cooperation with Norwegian Defense Research Establishment project Human Performance in Cold Weather Operations. Continues in 2021.
- Cooperation with Norwegian Joint Medical Service for research on Cold Weather Injuries and treatment.
- NATO Cold Weather Operations Conference 2021 (NCWOC). The conference will be planned for November 2021.

• Curriculum for NATO Basic Cold Weather Unit Training, up to battalion level has been established. This four-week program aims at reaching an interoperable level with other cold weather trained units. The Curriculum

program has been the preferred approach for NATO units as pre exercise training and preparations for NATO cold weather exercises. US Marine Corps units have been using the Curriculum program in 2020 (also planned in 2021)

Annual Education & Training activities include

- NATO Winter Instructor Course. Basic course for personnel with instructor role in home unit.
- NATO Staff Officer Winter Course. Part 1, introduction to basic soldiering skills for cold weather operations.
 Part 2, theme is planning considerations for cold weather operations. Primary group is staff officers up to brigade level.
- NATO Avalanche Warning Course. Course for OF/OR with responsibilities within planning and execution of operations in and around avalanche terrain.



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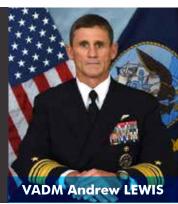




COMBINED JOINT OPERATIONS FROM THE SEA CENTRE OF EXCELLENCE (CJOS COE)

Director's Message

The NATO Centre of Excellence is dedicated to expanding Alliance maritime warfare capability. CJOS COE thinks forward and brings a military maritime focus to innovative ideas and acts as the conceptual transatlantic bridge to achieve Alliance strategic and operational objectives. We amplify the mission of "Ready to Fight and Win in the North Atlantic" through rapid development of concepts across all areas that influence the maritime domain. Next year's ambitious program tackles maritime C2, Alliance amphibious capability, unmanned systems, and analysis of competitor capabilities in support of the Alliance's warfare development priorities. Alliance interoperability and integration is our operational imperative. Aligning CJOS COE with JFC Norfolk and US SECOND Fleet under one Commander creates a powerful nexus of personnel, processes, and technology, focused on enabling our operational forces today and into the future. Our partnerships with MARCOM and ACT sustains progress toward "Turning Allied Maritime Potential into Reality." If you have a challenge to solve in the maritime domain, we have the strategic and operational expertise to solve it.



Mission Statement



To support the Sponsoring Nations (SNs) and NATO in improving their ability to conduct Allied combined joint operations from the sea in order to counter current and emerging maritime global security challenges.

Who We Are / What We Do

CJOS COE is a small but dynamic and well-connected Centre of Excellence based in Norfolk, Virginia, that provides a maritime focus for Alliance warfare development, acts as a conceptual trans-Atlantic bridge for the Alliance Maritime Enterprise, drives maritime interoperability and integration, and supports the four pillars of NATO transformation. Independent of the NATO command structure, the Centre draws on knowledge and capabilities of Sponsoring Nations, Allied Command Transformation (ACT), United States Fleet Forces Command (USFFC), and other neighboring U.S. commands, to drive maritime warfare

development. CJOS COE thrives on being at the heart of the Alliance's maritime thinking and enjoys particularly close cooperation with Allied Maritime Command (MARCOM), other NATO commands, fellow maritime COEs, and national commands.

Vision

Working closely with partners and stakeholders from international militaries, governments, non-governmental agencies, industry, and academic communities of interest, CJOS COE aims to be the Alliance's source of expertise in the conduct of combined and joint operations in the maritime environment.

2020 / 2021

The 2020 CJOS COE Programme of Work encompasses the following five Lines of Effort:

- LOE 1 Integration of Maritime Command & Control in the Joint/ Combined Space
- LOE 2 Support the Alliance's Development of Amphibious Capability
- LOE 3 Support the Alliance's Development of Unmanned Systems Capability
- LOE 4 Deepening Our Understanding of Our Competitors in the Maritime Domain
- LOE 5 Contributing to Interoperability and Integration





As part of those Lines of Effort, CJOS COE developed and enhanced Projects and participated in Activities within the COE Pillars:

Education and Training

- Allied Interoperability and Integration Guide, developed with and for Allied maritime units conducting combined training and operations;
- Educational support on interoperability to US CSGs and ESGs, SNMG Commander, Staff, and flag ships, and to cooperative deploying units joining US CSGs;
- Support the continued development of U.S. Second Fleet and Joint Force Command Norfolk;
- Annual publication of 'Cutting the Bow Wave' compendium of CJOS work.

Analysis and Lessons Learned

- Joint Exercise analysis and lessons (focused on the 'Trident' exercise series, STEADFAST DEFENDER, and US Navy Cooperative Deployments);
- Maritime contribution to ACT's Strategic Foresight Analysis and Framework of Future Allied Operations;
- Maritime Security Regimes Roundtable, which while conducted virtually, attracted participants from around the globe, to be repeated in 2021;
- Maritime Big Data Analysis.

Concept Development and Experimentation

- Expeditionary Operations Amphibious Task Force (ATG) Concept;
- Unmanned Surface Vehicles (USV) in Sea Control activities paper;
- A2AD in the Joint Environment, Bastion Defence paper;
- Russian Maritime Priorities paper;
- Maritime Capacity Building Concept;
- Integrated Maritime Logistics Concept;
- NATO Amphibious Leadership Expeditionary Symposium (NALES) Initiative, including the development of war-game scenarios and a concept on the aggregation of NATO amphibious capabilities;
- NATO Maritime Surveillance Concept.

Doctrine Development and Standards

- Chair of the NATO Maritime Operations Working Group and maritime support to all relevant NATO WGs;
- Support development of NATO Amphibious Doctrine (ATP 8) through permanent membership in the Amphibious Operations Working Group;
- Custodian of Maritime ISR Doctrine (ATP 102);
- Chair for Interoperability and Integration Action Group (I2AG).

The 2021 CJOS COE Programme of Work will expand upon and be built within the five Lines of Effort from the 2020 body of work.



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COMMAND AND CONTROL CENTRE OF EXCELLENCE (NATO C2COE)

Director's Message

Command and Control enables NATO to orchestrate its international capabilities. How does it work? Which are the best practices within the Alliance? How to adapt? At the NATO Command and Control Centre of Excellence we work on answering these questions. We are "Catalysing C2", which means that we research, experiment, evaluate and publish specific C2 topics. At the NATO C2COE we are "Agents of Change". We support ACT with NATO transformation, specifically on Command and Control.



Mission Statement

The NATO C2COE will support NATO, nations and international institutions/organisations with applicable knowledge on Command and Control at the operational level.

Who We Are / What We Do

We are a small, highly motivated organisation with a "can do" mentality. We are entrepreneurs in a situation with room for initiative and we are always looking for new initiatives for improvement, taking on challenges that hide in the future.

The Netherlands is the so called "Framework Nation" of the NATO C2COE, providing the centre with infrastructure, support resources and the main manning body. On top of that the NATO C2COE is reinforced by six "Supporting Nations": Germany, Estonia, Slovakia, Spain, Turkey and the United States. Our Subject Matter Experts are staff officers from various military backgrounds. All service branches are represented. This international, joint and combined staff combines a unique combination of experience, maturity and knowledge in all aspects of C2.

Vision

NATO C2COE catalyses C2 by capturing, creating, assessing and distributing C2 knowledge. The joint and multinational capacity of NATO C2COE and its partners will lead to robust and applicable knowledge.

2020 / 2021

In the NATO C2COE, seven nations invest in gathering, generating and disseminating knowledge on Command and Control with the focus is on the operational level of warfare. In NATO this is the level on which campaigns and major operations are planned, conducted and sustained to accomplish strategic objectives within theatres or areas of operations. Our scope includes the interfacing of the Operational Level with the Military-Strategic and the (higher) Tactical Level as this is often the pinnacle in C2 relations. Being aware that the topic C2 can be very broad and that the own manning is modest, the NATO C2COE limits itself to three areas: human factors including leadership, information management and Command & Control structures and processes. Its' opinions might not always reflect the official NATO or members' view. NATO-politeness and following NATO rules and procedures do not always solve issues: COEs can address that!





A glimpse of our 2020 products:

• Department Head: the NATO C2COE has become the NATO E&T Department Head (DH) for Operations Planning, Operations Assessment and Alternative Analysis Discipline as of 1st September 2019. This role requires the NATO C2COE to be an active coordinator between E&T Requirement Authorities and Education & Training Facilities as solution providers. The NATO C2COE has intently worked on implementing the DH function into its structure. This process required and will require heavy planning and investment on time, personnel, and legal procedures.



- Multi-Domain Operations (MDO) C2 Demonstrator (MDOC2D): Building on its two 2019 Future of the Command Post studies, the NATO C2COE developed the 'MDO C2 Demonstrator'. It provides an experimental platform to evaluate available solutions to cope with the challenges future HQs will face and to build trust in decision augmentation by non-human intelligent collaborators. Its' intent is to ignite and continuously support a discussion to bridge the gap in C2 between technology and operators (at the tactical and operational level), academia and the military with their applied and tacit knowledge. We have created a virtual environment which shows the potential of several applications for decision-making based on up-to-date information, thereby facilitating dispersed operations.
- Multi-Domain C2: The Operational Assessment Section focuses on the theory and hierarchy of Multi-Domain C2 and related terms and concepts which will enhance their performance during the decision-making process (DMP) while helping procurement officials to define the requirements.
- Seminar: Due to COVID-19 the NATO C2COE Annual Command and Control Seminar 2020 was cancelled. The NATO C2COE organized a webinar instead. The webinar focused on Multi-Domain Operations and its impact on C2. Its' aim was to challenge participants' preconceived notions of MDO by providing the latest insights and perspectives on C2 and a changing Operational Environment. Documents on the website provided a thorough pre-read opportunity.
- NATO Innovation Challenge: The Innovation Challenge aims to give NATO new, creative and efficient ways to respond to security challenges. The successful 2020 event was organized in close coordination with ACT, the NLD MOD and the NLD Military Innovation Centre ('MIND').



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CENTRE OF EXCELLENCE FOR OPERATIONS IN CONFINED AND SHALLOW WATERS (COE CSW)

Director's Message

Without doubt, confined and shallow waters are a highly relevant part of the global commons in many aspects. They are affecting a majority of the world's population as hubs of transport, trade, livelihood, and nutrition source, to name just a few. Addressing such challenges, COE CSW supports the Alliance's mission efforts and interoperability, utilising knowledge gained through the plethora of our activities and projects. We are engaged in a wide range of actions from developing warfare capabilities and discussing operational maritime law issues through to the level of supporting strategic decision making. It is my firm intention to continue in progress with my team in 2021, and to deliver tangible high-quality products and relevant service to our customers within NATO and beyond.



Mission Statement

The COE CSW mission is to provide joint and combined subject matter expertise in the range of operations in CSW in order to support the Alliance, our participating nations and other customers thus contributing to NATO transformation and enhancing the interoperability amongst the allies and partners.



Who We Are / What We Do

The COE CSW was established in 2007 and accredited by NATO in 2009. Drawing upon navy's experience in confined and shallow waters operations, bringing together this unique expertise from different nations and thus creating synergy in a relevant field of competence is an excellent way to advance NATO's transformational efforts in areas such as the unique and extremely demanding operational environment of CSW. Our multinational team of subject matter experts covers the pertinent warfare areas and supports NATO in the entire COE work spectrum to support transformation in general, and warfare capability development in particular.

Vision

As the very hub of knowledge, the COE CSW is recognised as an essential provider of competence and a tangible supporter to the Alliance, the participating nations, and other customers.

- We are an indispensable element of NATO Transformation by generating synergies and sharing best practices in a multinational environment.
- We are playing the key role in advancing the joint and combined understanding of specific challenges related to operations
 in CSW, as well as in driving forward the development of high standard warfare capabilities and skills.

2020 / 2021

- Having finished the project on the Employment of Autonomous Underwater Vehicles in covert-REA and covert Naval Mine Counter Measure Operations in support of Amphibious Operations;
- Having supported Georgia within the framework of the Substantial NATO-Georgia Package (SNGP) in the area of harbour protection in accordance with a request by NATO's International Staff;
- Working on projects like "Impact of Offshore Facilities on Maritime Situational Awareness", support to MARCOM on a Submarine White Paper and the Study on "Maritime Chokepoints and SLOCs";
- Leading the NATO Smart Defence Project 1.1044 "FIT FOR CSW" (Flexible and Interoperable Toolbox meeting the Future Operational Requirements in Confined and Shallow Waters);





- Promoting global Maritime Security by organising side events within the Munich Security Conference (MSC), by actively supporting the MSC Arctic Security Series, and through related project work;
- Working in a range of the NATO working-groups, e.g. the Maritime Operations WG (MAROPS WG), the Allied Joint Operational Doctrine WG (AJOD WG), Force Protection WG (FP WG), Counter-Improvised Explosive Devices Working Group (C-IED WG), NATO Electronic Warfare WG (NEWWG), Amphibious Operations Working Group (AMPHIBOPS WG), Naval Mine Warfare Working Group (NMWWG), NATO Specialist Team on Mission Modularity (ST-MM), NATO Joint Capability Group Unmanned Aerial Systems (JCGUAS), NATO Counter-Unmanned Aircraft Systems WG (C-UAS WG); acting as official liaison between AJOD WG and MAROPS WG;



- Contributing to ACT led initiative to provide a C-UAS handbook for NATO C-UAS WG;
- Supporting the NATO Maritime Unmanned Systems (MUS) Initiative as part of the Staff Advisory Groups (SAG) inside
 the Steering Board;
- Supporting the NATO's Industrial Advisory Group (NIAG) study on "Industrial perspective on NATO's military digital underwater communications capability and new fields of applications";
- Developing updated 2nd edition of the COE CSW Study Paper "Prospective Operations in Confined and Shallow Waters";
- Fostering a common understanding and the development of Operational Maritime Law, e.g. by our annual "Conference on Operational Maritime Law";
- Supporting the development and execution of major NATO and maritime exercises including Exercise Control work and conduct of Harbour Protection and Force Protection trials;
- Providing Subject Matter Expertise and Education and Training support to NATO Headquarters and NATO and national schools;
- Developing Live Virtual Constructive Training (LVC-T) in the Maritime Domain, collaborating with MARCOM and the NATO Modelling and Simulation Group and the affiliated Research Task Group to exploit related options;
- Supporting the NATO maritime Lessons Learned and Analysis process as well as the evaluation process of NATO Maritime Forces and NATO Response Forces (M) Headquarters;
- Acting as Department Head of the Maritime Operations discipline, translating NATO's maritime training requirements into individual and collective Education & Training solutions;
- Acting as Vice-Chairman in the Above Water Warfare- and Under Water Warfare Capability Group (NATO Naval Armaments Group);
- Acting as Deputy Chairman of the CME-Panel under the NATO C-IED WG and as official Liaison Element between C-IED WG, FP WG and MAROPS WG.

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COOPERATIVE CYBER DEFENCE CENTRE OF EXCELLENCE (CCDCOE)

Director's Message

The importance of cyberspace for our societies will only grow. At the same time, threats and vulnerabilities in cyberspace are becoming more sophisticated and complex. As NATO-accredited cyber defence hub, the CCDCOE continues to expand its reach and pool of expertise to provide added value to the militaries of our member nations and NATO as an alliance from strategic to tactical level. The unique flagships of CCDCOE have helped to build trust and collaboration in the cyber defence community, and these efforts must continue. It is our firm belief that the challenges in the cyber domain can only be tackled with an interdisciplinary approach, through cooperation among like-minded nations, engaging military, academia, government and industry.



Mission Statement

The mission of the NATO CCDCOE is to support NATO and the Centre's member nations in the fields of cyber defence research, training and exercises by providing cyber defence expertise within the focus areas of technology, strategy, operations and law.

Who We Are / What We Do

The NATO Cooperative Cyber Defence Centre of Excellence (CCDCOE) is a NATO-accredited knowledge hub offering a unique interdisciplinary approach to the most relevant issues in cyber defence. The heart of the Centre is a diverse group of international experts from military, government, academia and industry, representing currently 29 member nations.



We

- ... help NATO and nations to understand and utilise cyberspace as a domain of operations.
- ... research, train and exercise cyberspace defence and operations from all angles.
- ... are the fundamental resource with a view on strategic, legal, operational and technical aspects on cyberspace operations and defence.

Vision

CCDCOE maintains its position as an internationally recognised cyber defence hub, a premier subject matter expert and a fundamental resource in strategic, legal, operational and technical aspects of cyber defence. The Centre offers thought leadership on the cutting edge of all aspects of cyber defence and provides a 360-degree view of the sector. The Centre encourages and supports the process of mainstreaming cybersecurity into NATO and national governance and capability, within its focus areas of technology, strategy, operations and law.

2020 / 2021

The unique field of expertise of the NATO Cooperative Cyber Defence Centre of Excellence (CCDCOE) in the NATO framework of centres' of excellence is in cyber defence, cyber security, and cyberspace operations. It rests on three main pillars: research, training and exercises. These are the core activities we carry out in our focus areas – technology, strategy, operations and law. All these pillars and areas are closely connected – the research in different Branches gives input for trainings and exercises, the trainings and exercises enable to test out and practice new theories and practical tool. Exercises







again also give input to further research topics.

The NATO Cooperative Cyber Defence Centre of Excellence was established in May 2008 by 7 founding nations in the aftermath of the 2007 cyberattacks on Estonia. It received its full accreditation by NATO in October 2008. Since founding, the CCDCOE has proven to be an internationally recognised cyber defence hub offering research, training and exercise in technology, operations, strategy and law.

With the annual cyber exercises Locked Shields and Crossed Swords CCDCOE provides an internationally recognised platform for intense training for cyber defenders and cyber operators. Locked Shields has grown since its beginnings in 2010 into the largest live fire cyber defence exercise worldwide. It not only is a technical exercise, it also trains strategic decision

makers, legal experts, and media professionals. Crossed Swords is in contrast an exercise, where operational aspects of cyberspace are trained and evaluated. Beside the technical challenges, an operational command and control element is incorporated to conduct the exercise mission. In 2020, both exercises were suffering from the restrictions during the COVID-19 crisis but the planning for the 2021 iteration are on track.

CyCon, the International Conference on Cyber Conflict, is the annual key event of the CCDCOE since 2009. The conference attracts every year more than 600 participants to come to Tallinn. High level military, strategic, and academic invited speakers and panellists, presenting their insights in political, legal, and technical views give the international frame for the conference and the peer-reviewed academic paper presentations are the core. In 2020, CyCon had to be cancelled due to the pandemic emergency and the academic papers were presented in a virtual book launch. CyCon will continue in 2021 from 25. – 28. May. More information can be found at https://www.cycon.org/

Tallinn Manual, the legal view of international experts on the applicability of international law to cyber operations will be continue to discuss cyber operations in the context

of international law.

As of January 2018, CCDCOE is responsible for identifying and coordinating education and training solutions in cyber defence for all NATO bodies across the Alliance. CCDCOE took on these new responsibilities with the status of Department Head for Cyber Defence Operations Education and Training Discipline, granted by the Supreme Allied Commander Transformation (SACT).

CCDCOE also provides a range of strategic, technical, operational, and legal training. Detailed information and the course schedule can be found at our website.



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NATO COUNTER - IMPROVISED EXPLOSIVE DEVICES **CENTRE OF EXCELLENCE** (C-IED COE)

Director's Message

Other than providing C-IED support to NATO and Sponsoring Nations on a daily basis, the main focus of the C-IED CoE in 2021 is to continue with the institutionalization of C-IED within International community and making our analysis and studies to have impact in current scenarios and AOOs.



COL José A. CRUZ MORO

Mission Statement

The mission of the C-IED CoE is to provide subject matter expertise in order to support the Alliance, its partners, and the International Community in the fight against IEDs and to facilitate increased security of Allied Nations and all of the troops deployed in theatres of operations by reducing or eliminating the threats from improvised explosive devices used by terrorists or insurgents.



Who We Are / What We Do

The C-IED CoE is organized into three pillars: Attack the Network, Defeat the Device and Prepare the Force, and has a staff over 60 people, of which more than 40 are Subject Matter Experts in the field of C-IED. The C-IED CoE is the natural venue for all C-IED issues within NATO area. Its director chairs and participates in related working groups of both NATO and the European Defense Agency (EDA), in order to create synergies between both organizations.

Vision

Our vision is to use a comprehensive and synergistic interagency approach fusing support from military personnel, law enforcement, police, the intelligence community as well as civilians from academia, and the research and technology industry to defeat both terrorist and insurgent networks that

use IEDs as well as the IEDs themselves. Further, we want to ensure the IED environment is considered as an inherent part of future hybrid warfare scenarios and included in future planning processes at all levels.

2020 / 2021

1-Support to Concepts, Doctrine and Standardization Development

- Custodianship for STANAG 2294, STANAG 2295 and STANAG 2637.
- Keep on supporting the NATO Technical Exploitation Concepts development.
- Support Partner Nations in their CIED doctrine development process.
- Provide support to NATO Defence Against Terrorism Program of Work (DAT POW).
- Support the NATO Warfighting Capstone Concept.
- Support the NATO C-UAS POW under Air and missile defence committee.
- Keep on supporting NATO Human Network Analysis in support of Targeting (HNAT) development.

2-Support to Lessons Learned and Analysis Activities

- Act as C-IED Community of Interest content manager on NATO Lessons Learned Portal (NLLP).
- Maintain and improve C-IED Lessons Learned process.



- Conduct a Lessons Learned workshop.
- Supervise the "out-of-the-theatre C-IED Lessons Learned process" and incorporate results of TTP analysis and LL in NATO training activities/solutions.
- Analyse new threats, trends, along with Tactics Techniques and Procedures (TTPs).
- Conduct technical and intelligence analysis in support of C-IED Community of Interest.
- Provide anticipatory analysis regarding Global IED threats and related Threat Networks.
- Conduct a C-IED Interagency Workshop.

3-Support to Technologies, Experiments and Information Management

- Assess technological developments to defeat the IED.
- Analyse current and emerging IED trends to identify potential solutions.
- Support C-IED enablers' concept of employment development and technical exploitation.
- Provide technical advice on explosive threat and C-IED technologies.
- Support NATO initiatives and work strands (RTO SCI 243, SCI 233, SCI 256).
- Collaborate with other organizations in R&D projects as industries and university.
- Collect / assess / analyse information regarding C-IED to develop and maintain a C-IED Equipment Database.
- Conduct a Technological Workshop.

4-Support to Education & Individual Training

- Conduct the related tasks of Department Head for C-IED training within NATO.
- Develop, conduct and support courses in collaboration with NATO and other organizations.
- Develop and conduct C-IED courses in support for partners (Non Classified, e.g. Defence Capacity Building activities).
- Organize and conduct C-IED related Mobile Training and Advisory Teams (MTT & MAT).
- Conduct Senior Leadership Seminars and / or Engagement (SLS & SLE) for NATO.
- Support NATO Command Structure (NCS) / NATO Force Structure (main) exercises.
- Develop Advanced Distributed Learning (ADL) tools in support of C-IED and courses.
- SupportdevelopmentelectronicMilitaryTrainingandExerciseProgramme (E-MTEP), support and maintain Education & Training Opportunities Catalogue (ETOC) and Partnership Real-time Information, Management and Exchange System (ePRIME).
- Be the reference body for the training and education subject matter experts (SME's) for C-IED related activities.



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NATO COUNTER INTELLIGENCE CENTRE OF EXCELLENCE (NATO CI COE)

Director's Message

Today, more and more countries face complex and evolving security challenges. Extremist organizations employ radical tactics, and persistent and aggressive regimes leverage intelligence services to further their nefarious activities. These are just some of today's threats. One of the pillars of geopolitical stability is NATO, which works to prevent the effects of such threats on a global scale. Counteracting them requires precise long-term planning, highly qualified human resources, and appropriate preventive actions. In this context, counterintelligence is an essential component of NATO's response, with the ability to swiftly detect and neutralize a variety of threats. However, only "modern" counterintelligence capabilities, ready to operate in a rapidly changing environment – including the virtual realm – will effectively face off against current and future threats. The NATO CI COE is an essential component of the Alliance's efforts to limit the destructive influence of enemy intelligence services. It serves as a force-multiplier for the counterintelligence measures used in NATO operations, exercises, policies, concepts, and strategies, and serves as a hub of resources, experts, and innovation to counter ongoing hostile actions and emerging cyber and hybrid threats.



Mission Statement

The NATO Counter Intelligence Center of Excellence enhances counter-intelligence capabilities, fosters interoperability, and provides comprehensive expertise to the Alliance and its Nations to increase overall global stability and reduce the impact and scope of hostile intelligence efforts.



Who We Are / What We Do

NATO CI COE is currently staffed by subject matter experts from eleven countries: Poland, Slovakia, Croatia, Czech Republic, Germany, Hungary, Italy, Lithuania, Romania, Slovenia, and the United States. France also participates as an observer nation. The Centre is headquartered in Kraków, Poland, and additionally has full access to the military training center in Lešt', Slovakia.

The NATO CI COE undertakes efforts to harmonize NATO CI publications, integrate best practices, and serve as a hub for CI expertise, thereby enabling

NATO forces to achieve the highest levels of interoperability and integration. A substantial part of the Centre's portfolio resides in education and training, as it provides a variety of CI-focused courses, seminars, conferences, and workshops. The intent is to establish a CI Community of Interest within the NATO Command Structure, NATO Force Structure, and NATO Nations.

Vision

The NATO CI COE acts as a catalyst for NATO adaptation and operations by supporting the development, promotion, and implementation of new policies, concepts, strategies, and doctrine that transform and enhance NATO counter-intelligence capabilities and interoperability.

2020 / 2021

The NATO CI COE presently delivers three NATO Selected courses: The NATO Counter Intelligence (CI) Course, NATO Source Operations Course, and NATO CI Analyst Course. The Centre also conducts several Mobile Education and Training Team (METT) events and seminars throughout the year. The Centre recently delivered its first e-learning module via the Internet, and is pending Quality Assurance (QA) accreditation by Allied Command Transformation (ACT) as a NATO approved education and training facility.







The Centre aims to conduct regular iterations of the residential courses, as well as METTs and seminars, based on requests from NATO Nations; support the NATO CI Exercise STEADFAST INTEREST (STIN) 2021 with an expert Training Team; and continue cooperation with academia, other intelligence-related COEs, and NATO CI entities.

The Centre also started working on new projects, such as a Predeployment Seminar for the "enhanced forward presence" (eFP) and "tailored forward presence" (tFP) operations, and a Pre-deployment CI Course focused on operational NATO environments.

The NATO CI COE developed a completely new NATO CI publication, Allied Intelligence Publication (AIntP) 19. As a result of a multi-year

joint effort, the definitive version of the document was released to the Nations for ratification and was formally approved in October 2020. The Centre has also been nominated to assume custodianship of Allied Joint Publication (AJP) 2.2.

An essential aspect of the Center's activities is enhancing NATO and National CI lessons learned (LL) capabilities and multinational interoperability by exchanging information, best practices, and sharing analytical products. The NATO CI COE provides subject matter expertise in CI courses and exercises and advice on NATO member requests for support. The Centre also provides a repository for International, National, and NATO shared counterintelligence information, analysis, and LL in close cooperation with the Joint Analysis and Lessons Learned Centre (JALLC). As a part of cooperation with this institution, the Centre facilitates training and educational opportunities for the NATO CI LL Community of Interest.

The multidimensional nature of the military environment has developed significantly and is expected to grow even faster in the future. Traditional methods by which CI operators execute their tasks must be integrated with the latest technological innovations. The NATO CI COE identifies those advances that may support or disrupt NATO activities.

The Centre also establishes and maintains liaison with other NATO COE entities to facilitate cross-domain concepts. To implement all identified unique solutions, the NATO CI COE organizes and conducts Innovation Workshops and Forums according to the expressed interests and requests from sponsoring nations and NATO.

The NATO CI COE, in cooperation with the non-profit think tank Kosciuszko Institute, is the coorganizer of the annual CYBERSEC conference dedicated to strategic security aspects of the global technological revolution. The Centre organizes the conference's Defense Stream, which focuses on the military sector's technological development and international security.



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NATO CRISIS MANAGEMENT AND DISASTER RESPONSE CENTRE OF EXCELLENCE

(CMDR COE)

Director's Message

Proudly forming part of the wider network of NATO Centres of Excellent (COE), the CMDR COE contributes to the Alliance's transformation and adaptation serving as a hub of expertise and a platform for information, knowledge, and good practices exchange in the Crisis Management and Disaster Response (CMDR) domain. Exceeding at CMDR requires both a deep insight in what is already at hand and a keen foresight in what lies ahead. Undoubtedly, in a complex security environment, collaboration is key to success and the CMDR COE exerts dedicated efforts at establishing constructive partnerships and at nourishing a keen community of interest. For we believe in an inclusive, transformative and capable CMDR and strive to provide the necessary conditions enabling such a collaborative collective approach to CMDR!

Meet Challenges, Seize Opportunities, Anticipate the Future



Mission Statement

Taking fully into account and aligning to the imperatives of the current security reality, the Centre's objective is to act as a catalyst for the improvement of NATO's, NATO Nations' and Partners' capabilities in CMDR operations placing utmost importance on the principles of the Comprehensive approach and on enhancing collaborative partnerships.

Who We Are / What We Do



The CMDR COE is a multi-national NATO military body sponsored by the Hellenic Republic, the Republic of Poland and the Republic of Bulgaria (Framework Nation). The Centre, located in Sofia, Bulgaria, currently has a 40-strong team of both civilian and military experts working on a wide range of CMDR-related issues, all with the ultimate goal of supporting NATO's standardisation and transformation.

Strong partnerships and effective collaboration are critical in achieving the aforementioned goal and hence, the Centre has forged excellent partnerships and enhanced cooperation with key NATO and EU bodies, institutions and agencies. For instance, the CMDR COE works closely with NATO HQ HQ SACT and SHAPE and contributes to various NATO initiatives.

As a hub of expertise in CMDR, the Centre has generated a wealth of information and expertise and has also been a home for a number of key NATO events and of a variety of CMDR-related conferences, workshops, and trainings.

Vision

The Centre is determined to firmly establish and further sustain its position as an internationally recognised and respected

body which provides value-added E&T products, research and analysis, strategic policy recommendations and advice by means of concept experimentation and doctrine development.

2020 / 2021

As the security environment changes at a rapid pace and demands maximum flexibility and adaptive capacity, what remains constant is our will and the continuous efforts to cement and sustain the Centre's position as a primary source of expertise, education and training opportunities, and a pool of good practices and lessons-learned in the crisis management and disaster response (CMDR) domain.

Now that we are faced with an increased demand for remote, i.e. online, alternatives and solutions for interaction in line with COVID-19 prevention and control requirements,







our goal is to continue generating and communicating knowledge and good practices on CMDR and related fields. A key priority in 2020 was the initiation and smooth finalisation of the transfer of our activities to an online environment, while preserving the same high standards for quality and performance which had thus far enabled us to firmly position ourselves as a key stakeholder within the CMDR domain.

In order to fulfil the above-mention transfer in a seamless manner, we initiated a rigorous research into tools enabling the conduct of different types of online learning solutions and also embarked on improving our existing IT and technical capabilities. It was significant to us to ensure that E&T needs and requirements we have identified are met and we provide our training audience with a rewarding online learning experience. Simultaneously, we significantly revamped and calibrated our E&T curriculum to ensure that our trainings remain

relevant and abiding by the principle of actively engaging the training audience in the creation and transfer of knowledge, irrespective of the medium for delivery.

We tested our improved IT capabilities in May with the first online Annual Conference on CMDR – an event which gathered a wide variety of participants from across the globe with the aim of deliberating on critical developments within the field.

By the end of the first half of 2020 we had developed two Advanced Distribute Learnings (ADL) on Crisis Management and Disaster Response Exercise Planners and on Crisis Management and Disaster Response. The ADLs serve as a prerequisite for the online iterations including the CMDR COE certified e-courses. Furthermore, we developed an ADL specifically tailored to the requirements of the CMDR COE's Gender Focal Point (GFP) course.

We also continue to expand our thematic portfolio. After embarking on studying the implications of climate change on military activities, particularly on the planning and execution of operations and missions in the CMDR domain, we also initiated a project on supporting building integrity in the security and defence sector and have initiated planning on developing a specialised course on the subject in 2021. We are open, and we would be happy to receive your requests for participation in our online tailored trainings for NATO and for partner structures and organisations. More detailed information is available on our website: https://www.cmdrcoe.org/menu.php?m_id=40.





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NATO CENTRE OF EXCELLENCE DEFENSE AGAINST TERRORISM (COE-DAT)

Director's Message

Terrorism will continue to be a significant threat to humanity, nations, NATO, and its partners for the foreseeable future that will challenge our way of life, behaviours, and psychology. Combating terrorism to solve this problem requires a deep and comprehensive understanding of the situation, causes, and ability to develop measures and actions by using all available capabilities and assets. Complexity of the terrorism problem requires collaboration and cooperation among organizations, institutions, nations, and societies. A holistic whole of government/society approach, which also includes military forces, should be flexible enough to adapt to changing situations and emerging threats. Over the next year, COE-DAT will sponsor several activities to share a comprehensive understanding of terrorism and counter-terrorism and offer potential solutions for these challenges.



Mission Statement

Provide key decision-makers with a comprehensive understanding to terrorism (T) and Counter-Terrorism (CT) challenges, in order to transform NATO and Nations of interest to meet future security challenges. This transformation is embedded into NATO's three declared core task of Collective Defence, Crisis Management, and Cooperative Security.



Who We Are / What We Do

COE-DAT is a NATO accredited multi-national sponsored entity located in Ankara, Turkey. The Centre is composed of 62 multi-national billets with representatives from eight nations focused on providing key decision-makers with realistic solutions to terrorism and counterterrorism (CT) challenges. COE-DAT is NATO's hub for all Terrorism, Counter-Terrorism, and Defence Against Terrorism education and training. COE-DAT provides three main services to NATO: the Department Head for T/CT/DAT Education and Training solutions, an Education and Training Facility (focusing on both Alliance and Partner Nation needs), and as a think tank supporting and feeding the other two roles and NATO leadership. You can find more information about COE-DAT on our website http://www.coedat.nato.int.

Vision

An internationally recognized and respected resource for Defence Against Terrorism expertise for NATO, the hub of a wide network of international military, government, non-government, industry and academic communities of interest.

2020 / 2021

Key Products and Activities for 2020 Education & Training:

Courses:

- Defence Against Suicide Attack Course, 10-14 February 2020
- Terrorist Use of Cyberspace Course, 09-13 March 2020
- Defence Against Terrorism Course (Online), 14-18 September 2020
- Terrorism and Media Course (Online), 19-23 October 2020
- Border Security, Refugees, and Counter Terrorism Course (Online), 07-11 December 2020

Transformation (Concept and Doctrine Development):

- Gender in Counter Terrorism: Enhancing Women's Role and Empowering Women Workshop, 22-24 September 2020 with an anticipated report in late 2020
- 42D AJOD Working Group
- Combined Terrorism Experts Conference and Defence Against Terrorism Executive Level 03-04 November 2020
- Development of a Best Practices in Counter-Terrorism Handbook with anticipated publication in 2021
- Contributed to the revision of the Military Concept for Counter-Terrorism
- Contributed to the development of a draft Battlefield Evidence policy



Knowledge (Analysis and Lessons Learned):

- Development of a Critical Infrastructure Security and Resilience book with the US Army War College with an anticipated publication in 2021
- Development of Border Security in Contested Environments "Good Practices" with United Nations Centre for Counter Terrorism with an anticipated publication in 2021
- Africa: A Hybrid Battleground study Submit to HQ SACT SPP branch on 14 August 2020.
- The Role of Irregular Forces in Russian Hybrid Warfare study Submitted to HQ SACT SPP branch on 06 July 2020.
- NATO in the COVID-19 Environment and the Threat of Terrorism study Submitted to HQ SACT SPP branch on 31 August 2020.

6-Key Products and Activities for 2021 Education & Training:

Courses:

- Counter Terrorism / Attacking the Network Course (Online), 08-12 February 2021
- Defence Against Suicide Attack Course (Online), 15-19 March 2021
- Critical Infrastructure Protection from Terrorist Attacks Course (Online), 12-16 April 2021
- NATO's Role in Efficient Crisis Management to Mitigate the Effects of Terrorist Activities Course (Online), 24-28 May 2021
- Annual CT Discipline Conference, 08-09 June 2021
- Terrorism and Media Course, 20-24 September 2021
- Border Security, CT, and Refugees Course, 27 September 01 October 2021
- Defence Against Terrorism Course, 25-29 October 2021
- Terrorist Use of Cyberspace Course, 15-19 November 2021

Mobile Training Teams and Advanced Training Courses:

- African Union, date TBD
- Jordan, date TBD
- Kuwait, date TBD
- NRDC-Turkey, February 2021

Seminar:

- Defence Against Terrorism Executive Level Seminar, date TBD
- Transformation (Concept and Doctrine Development)
- Development of a Best Practices in Counter Terrorism Handbook Volume 2
- Terrorism Experts Conference 2021, date TBD
- Gender / Women in Terrorism and Counter Terrorism Workshop, date TBD
- Contribute to Battlefield Evidence concept development
- Contribute to doctrine development/review processes within our areas of interest

Knowledge (Analysis and Lessons Learned):

- Critical Infrastructure Security and Resilience book with US Army War College with an anticipated publication in the end
 of 2021.
- Border Security in Contested Environments "Good Practices" with United Nations Centre for Counter Terrorism Workshop series with an anticipated outcome of comprehensive Lessons Identified report to JALLC.
- Terrorism Threats during Peer to Peer Conventional Warfare study with an anticipated publication in 2021.
- Support to NWCC and SFA by developing studies on different subjects upon request of HQ SACT SPP branch.

The complete Event and Course Calendar can be found at our Website and Knowledge Portal at (www.coedat.nato.int)

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NATO ENERGY SECURITY CENTRE OF EXCELLENCE (NATO ENSEC COE)

Director's Message

The world of energy changes rapidly and unpredictably. Topics ranging from the renewable energy revolution, conflicts in oil-producing regions, adversary strategies to grab energy resources, and COVID crisis disruptions on energy production and logistics, these factors all challenge the status quo on energy policies and strategies. In response to this, I want the NATO Energy Security Centre of Excellence to remain an invaluable resource for our Sponsor Nations, NATO Allies and Partners. The studies and research that we conduct must help shed light on the future in order to provide respective leaders the data necessary to make informed decisions. The courses we organize must make all NATO actors even more aware of the fundamental issues on Energy Security. The experiments we conduct must allow us to assess the potential of new technologies. Finally, the international exercises that we organize must make it possible to increase the energy resilience of our organizations, countries and NATO in general.



COL Romualdas PETKEVIČIUS

Mission Statement

The mission of the NATO ENSEC COE is to assist NATO and our partners by supporting NATO's capability development process, mission effectiveness, and interoperability by providing comprehensive and timely expertise on all aspects of energy security and in particular in the three following domains:

- Awareness of energy developments having security implications for NATO;
- Improve the energy efficiency of NATO military forces by proposing common standards, reducing dependence of fossil fuels, and demonstrating energy-efficient solutions for the military;
- Support national authorities in protecting critical energy infrastructure, as well as enhancing their resilience against energy supply distributions.



Who We Are / What We Do



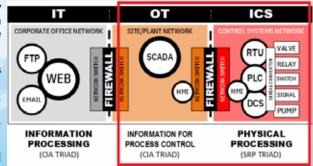
NATO ENSEC COE is a recognized international military organization that strives to provide qualified and appropriate expertise on issues related to operational energy security. We offer technical, scientific and academic competence on energy security that contributes to:

- Analysis of the geopolitical situation and risk assessment;
- The development of a doctrine, concepts and standards for a better understanding of the subject by the NATO countries;
- The evaluation of new technical solutions through the field experiments that we conduct;
- Better understanding of NATO actor issues through the organization of international exercises and courses on energy security topic.

Vision

To be the hub of expertise in the field of Energy Security and Resiliency for the NATO, NATO Nations and partners, and to provide a platform for military, government, industry and academic cooperation. To achieve this vision we aim to:

- Extend our area of knowledge and establish a network of experts and institutions;
- Foster exchange between experts through exercises, workshops, conferences and exhibitions;
- Deliver high quality courses and exercises that reach a wide audience;
- Associate fellows, specialists and recognized researchers;
- Ensure an attractive workplace that is dedicated to professional growth;
- Produce high quality studies and publications.





2020 / 2021

The NATO Energy Security Centre of Excellence concentrates on all dimensions of Energy Security topic. The NATO ENSEC COE conducts research, studies, and experiments, develops concepts and standards. Also organizes international courses, tabletop exercises and other trainings. To find out more, please visit our website: www.enseccoe.org, section of "events and projects".

Examples of our completed and ongoing projects:

Concept and Doctrine Development on Energy

- To anticipate the forthcoming changes in the field of energy, the NATO ENSEC COE will provide an "explorative study" on the opportunity to develop a NATO concept on "Operational Energy".
- The results of the Energy Management case studies has been used to develop an Energy Management Handbook based on the publication of the International Standard Organization: ISO 50001 (Energy Management Systems). The deliverables will be submitted to the NATO Standardization Office for the development of a new Energy Efficiency Standard for deployed military units.



- Energy supply developments for military mobility until 2050 using synthetic and carbon free fuels.
- Challenges and risks of wind-farms for energy and military security.
- Climate change consequence studies on NATO and partner nation's energy politics and technological developments.
- Energy Efficiency and Renewable Energy solutions in NATO and PfP countries' Military Operations" (EERES).

Strategic Analyses

- Strategic Analysis Support of Fuel Supply Chain. Risk assessment of the Host Nation Support for the enhanced NATO Response Force.
- Analysis on NATO Nations Dependency on Russian Crude Oil and Gas. The analysis will be focused on potential impact on Baltic-Nordic region's security (economic, civil and military).
- Impact of COVID-19 on NATO Energy Security view on fuels, gas and renewable energy. How the COVID-19
 and its economic consequences could affect the world oil, fuel and gas market and therefore the Energy Security of
 NATO countries.

Tests and Experiments

NATO ENSEC COE is conducting experiments with Hybrid Power Generation Management Systems (HPGS) and an electric two wheels based transportation vehicles.

International Exercise

In 2021, NATO ENSEC COE will conduct three Coherent Resilience Table Top Exercises (TTX) supporting Ukraine, Baltics and Georgia. The aim of these exercises is to assess and improve the contingency plans of participating countries and to increase their energy resiliency and collective defense.

Education and Training

We design and provide different courses related to Energy security. The main ones are the following:

- Energy Security Strategic Awareness Course (NATO School Oberammergau);
- Baltic Defense College Operational Level Energy Security Course;
- Turkish PfP Training Centre Operational Level Energy Security Course;
- Energy Efficiency in Military Operations Course (with US NPS);
- Energy Security Awareness Course (ADL/e-learning).

Publications

The NATO ENSEC COE subject matter experts produce and publish series of journals "Operational Highlights: Energy Security" consisting of high quality articles on topics of Energy Security, energy innovations for military applications, and energy efficiency with security implications. Latest magazine topics were: "Beyond the era of fossil fuels"; "Disruptive Technologies" and "Energy and Climate Change". Nearest future volume will cover the topic of "The Role of Renewables in Energy Use in the Coming Decades".

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NATO EXPLOSIVE ORDNANCE DISPOSAL CENTRE OF EXCELLENCE (EOD COE)

Director's Message

Despite the COVID-19 crisis, the NATO EOD COE's contribution is still in high demand. The number of applicants for COE courses, amount of standardisation tasks and project assignments are a sign of rising interest. As consequences of the COVID-19 crisis lead to rising use of e-learning tools, the EOD COE has increased its offer for online learning and training via web-based conferencing tools.

COL Róbert CSÁSZÁR

Mission Statement

The EOD COE mission is to support and enhance the NATO transformation and operational efforts in the field of EOD.



Who We Are / What We Do

The EOD COE is recognised as the leader in its specialised field of EOD providing NATO, Sponsoring Nations and other military and civilian institutions with operational and transformational expertise. We represent a highly professional and very well established capability to influence across the NATO MILENG and EOD domain, as well as a broader range of NATO programmes. With NATO as our primary customer, the COE already delivers valuable warfare development expertise, especially in the areas of doctrine development and experimentation, education, training and exercises, and lessons learned.

In 2016, the EOD COE gained unconditional accreditation as a NATO Education and Training Facility and in 2019, based on the results of the Periodic Assessment, it was reaccredited as a NATO Centre of Excellence.

Vision

To be NATO's catalyst for improvement and transformation of EOD.

2020 / 2021

The year 2020 was significantly influenced by COVID-19 crises which presented challenges to people and organisations around the globe. The changes impacted also preparation & execution of COE tasks and the majority of the activities had to be cancelled or postponed.

In 2020 Programme of Work, besides EOD COE's regular educational and individual training activities, there are three important events:







NATO EOD Demonstrations and Trials 2020

This biennial activity, taking place in even-numbered years, consists of a conference, static exhibitions and live demonstrations. NATO EOD Demonstrations and Trials is an event organised by the Centre within the overarching the Defence against Terrorism (DAT) POW from its very establishment and it should have been its sixth iteration with a leading theme "Technological Innovations Influencing Future EOD Capabilities". Due to several restrictions in order to protect public health and allow proper preparation, the event is postponed to autumn 2021.

Homemade Explosive Course – Basic in Romania

The Centre succeeded in developing a standardised course organised in one of Sponsoring Nations. The Romanian EOD Training Base in Ramnicu Valcea hosted and conducted, under the supervision of the EOD COE team, the Homemade Explosive Course – Basic. The Centre carried out a course under this type of outsourcing for the first time and it is a milestone in the Centre's training activities in building o Sponsoring Nations own education capabilities.

Data Fusion Workshop for the revision of AJP-3.18

After becoming the custodian of Allied Joint Doctrine for EOD Support to Operations (AJP-3.18), the EOD COE started to actively engage all stakeholders for the revision of one out of 55 Allied Joint Doctrines. Request for feedback to this doctrine was distributed in May 2020 in order to receive inputs from Nations and NATO entities by mid-September 2020. The received feedbacks provide the fundamental core for the Data Fusion Workshop agenda scheduled for October 2020.

The year 2021 will be, without any doubt, influenced by consequences of COVID-19 crisis. Besides the regular activities, the Centre organises:

Website: www.eodcoe.org

- NATO EOD Demonstrations and Trials 2021 (the event postponed from 2020)
- Three writing sessions to progress in a revision of the AJP-3.18

The main aim of the writing sessions is to produce several working drafts to reach the promulgation of AJP-3.18 within the established time frame from 2021 to 2022.

EOD Workshop

This biennial activity, organised in odd-numbered years, consists of presentations and expert contribution, followed by the particular topic oriented syndicates. The main goal of this event is to share experience and lessons from the EOD specialised area and to stimulate thinking about future EOD challenges, opportunities and capabilities.



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NATO HUMAN INTELLIGENCE CENTRE OF EXCELLENCE (HUMINT COE)

Director's Message

HUMINT Centre of Excellence celebrated in 2020 a decade of active contribution to NATO and I can assess that during these ten years, HUMINT COE succeeded to shape important landmarks in the HUMINT capability development. After having successfully completed in 2019 the reaccreditation process as NATO affiliated, Memorandum of Understanding-based organization, I confidently look forward to the next decade, when we intend bringing new dimensions to our working standards and providing enhanced support to the transformation of HUMINT in NATO. In this respect, our overall focus is directed towards superior, fit for purpose capacities, and an increased level of interoperability promoted by standardization, as well as individual and collective education and training. Moreover, we will continue bringing our contribution to promoting NATO's core principles and values in relation with the general public and Academia.



Mission Statement

HUMINT COE provides the highest quality services and products in response to the requirements and needs of the NATO Command Structure, NATO Force Structure, NATO Nations and, when feasible, Partner Nations.



Who We Are / What We Do

The epicentre of HUMINT knowledge, our experienced professionals endeavour to transform the NATO HUMINT Enterprise into a more interoperable and capable force that better supports NATO missions and operations. HUMINT COE chairs the NATO HUMINT working groups, is an accredited NATO Education and Training Facility, and Department Head for HUMINT Education and Individual Training in NATO.

Vision

HUMINT COE is the focal point of HUMINT expertise within NATO and spearhead for all major HUMINT projects and initiatives within the Alliance.

2020 / 2021

The 10th Anniversary of the NATO Human Intelligence Centre of Excellence (HUMINT COE) in 2020 represented an opportunity to highlight past achievements and a perfect time to focus on the future of HUMINT in NATO. Since the Centre's accreditation as a NATO Centre of Excellence and its activation as an International Military Organization on the 29th of July 2010,

HUMINT COE highly contributed to NATO transformational efforts in close coordination with NATO HQ, Allied Command Transformation and Allied Command Operations.

Fully understanding the critical role of transformation, HUMINT COE aligned its activities and deliverables with its mission, profiling itself as a champion in standardization, concepts development, lessons learned management, and education and training in the HUMINT domain.

COVID-19 pandemic was the perfect example of a disrupting episode that triggered adaptation of 2020 HUMINT COE overall activities and prompted for rapid measures and activities, in order to ensure the same high-quality level of performance. Moreover, HUMINT COE addressed tailored questionnaires to NATO Command Structures, KFOR, RSM and NATO HUMINT Stakeholders for collecting relevant observations, lessons







identified and best practices regarding the impact of COVID-19 crisis on NATO HUMINT capability. The relevant observations were submitted to ACT and SHAPE J2.

The HUMINT COE's central position in the NATO HUMINT Enterprise and its contribution in the Doctrine and Standards, CD&E, LL/BP, and E&T domains as NATO accredited Education and Training facility and HUMINT Department Head, demonstrate our steadfast commitment and prove that HUMINT COE is fit more than ever to get involved in new programmes and projects aiming to transform the Human Intelligence in line with Alliance's priorities and the emerging challenges of a constantly evolving and unpredictable geostrategic environment.

HUMINT COE looks forward to the next decade, planning to bring new dimensions to its working standards, in order to support the NATO HUMINT Enterprise adaptation to address emergent threats, while assuring continued readiness and responsiveness.



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JOINT AIR POWER COMPETENCE CENTRE (JAPCC)

Director's Message

The Joint Air Power Competence Centre, established as the first NATO-accredited Centre of Excellence in 2005, provides subject matter expertise across a broad range of Joint Air and Space Power mission areas and leads the development of NATO Concepts and Doctrine, Capability Development, Education and Training, Exercise Development and Execution, and Lessons Learned in accordance with NATO MC 0685. Within this framework, the JAPCC contributes to the transformation of Alliance Joint Air and Space Power. We are NATO's Air Warfare Centre.



Mission Statement

The JAPCC, as a team of multinational experts, is to provide key decision-makers effective solutions on Air and Space Power challenges, in order to safeguard NATO and the Nations' interests.



Who We Are / What We Do

The JAPCC is based on a Memorandum of Understanding (MOU) and sponsored by 16 NATO nations who provide a variety of experienced Subject Matter Experts (SMEs) from Air, Space, Land and Maritime services. Presence in the JAPCC provides access to a unique network of experts in the Air and Space domains and allows members to contribute to work that influences decision-making at the highest levels in our Alliance.

Vision

Be NATO's catalyst for the improvement and transformation of Joint Air & Space Power; delivering effective solutions through independent thought and analysis.

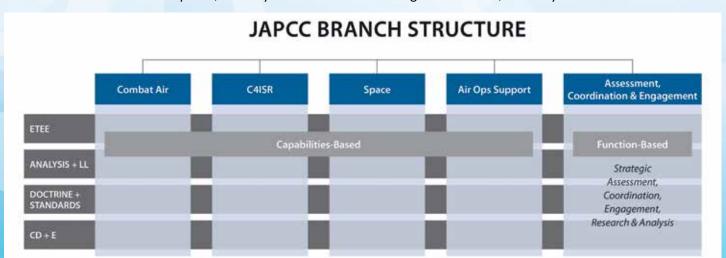
2020 / 2021

"You Can't Build a Reputation On What You're Going to Do."

This Henry Ford quote reminds us that in the eyes of others, plans are just a means to an end.

Plans are wonderful, and necessary for success—but only if you fulfill them.

The JAPCC makes all of its plans, which you can find in our Program of Work, a reality.







The JAPCC's Programme of Work (PoW) is comprised of Projects, Activities and Tasks which drive the organization's Battle Rhythm and delivers the output. The PoW is dynamic in nature and can be adjusted monthly based upon the receipt and endorsement of a Request for Support. The complete PoW and the products and engagements of the JAPCC in support of the Alliance and our Nations is too extensive to cover in detail in the space available here. If you want to learn more about the work of the JAPCC in general, or any particular area in our Joint Air & Space portfolio, we kindly invite you to visit our website www.japcc.org where you can find a wealth of information in our Annual Reports, White Papers, Journals and Conference publications.

Ultimately, we're all measured by what we've done and for more than 15 years the JAPCC PoW has influenced the transformation of NATO Joint Air and Space Power. Because of this, the JAPCC enjoys a superb reputation in NATO's Joint Air and Space Power Community.

In order to remain NATO's Air and Space Power Champion and continue to shape Alliance doctrine and thought in the future, the JAPCC adheres to the following guiding principles:

- Contribute Joint Air and Space Power expertise to Alliance decisionmaking processes through active leadership of and participation in NATO committees, Working Groups and fora;
- Promote and showcase the effectiveness and relevance of Joint Air and Space Power as critical elements in Joint All-Domain Operations;
- Partner with relevant NATO entities and nations to promote and synchronize our output and products.

The JAPCC possesses unique, central and strategic-level competencies in all areas of Joint Air and Space Power, and is positioned and empowered to join the efforts and capabilities of ACT and ACO. Through our dynamic team, the opportunity exists achieve milestone advancements of Air and Space Power for the benefit of the entire alliance in combined and joint operations, and most significantly in multidomain campaigns.



JAPCC SUBJECT MATTER AREAS:

Space – Air to Air Refueling – Air Battle Management – Air C2 – Air Operational Planning – Air Transport – Close Air Support & JTAC Cyber – Training & Exercise Support – Electronic Warfare & SEAD – Force Protection – SBAMD & BMD – ISR – Logistics – Manned Air – Fixed & Rotary Wing Maritime Air - Plans & Concepts - Development & Vision - Rotary Wing & Special Air Operations - Maritime Patrol Aircraft - Unmanned Aerial Systems - Air-Land Integration - Precision Munitions - Research, Analysis & Intelligence Support

JAPCC FOCUS AREAS:

Space & Cyber Integration - Multi-Domain Operations & C2 - Rotary Wing/Vertical Lift Transformation - Joint ISR & Big Data Management – Integrated Air & Missile Defence – Electromagnetic Spectrum Operations – Logistics Support to Air Operations – Unmanned Air Systems/Countering Unmanned Systems - Force Protection - Resilient Basing - Emerging Technologies

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JOINT CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR DEFENCE CENTRE OF EXCELLENCE (JCBRN DEFENCE COE)

Director's Message

The JCBRN Defence COE continues to support NATO, its Nations and its Partners through an approved Programme of Work by leading institutional and operational efforts to support NATO capability development, mission effectiveness, and interoperability; and striving to promote adaptive and innovative methods for preventing proliferation of Weapon of mass destruction (WMD) and protecting against CBRN incidents.



Mission Statement

Our Centre assists NATO, Participants and Partners by supporting NATO's capability development process, mission effectiveness, interoperability, and transformation by providing comprehensive and timely expertise and experience on CBRN Defence.

Who We Are / What We Do

The Centre combines skills and expertise from more than 70 personnel from fourteen nations in the areas of CBRN concept and doctrine, capabilities development, defence planning, experimentation, training, exercises, education, lessons learned, CBRN reachback, modelling & simulation and operations planning support; acts as NATO Department Head for WMD/CBRND training and education; and forms the core of the NATO CBRN reachback capability. We are also expanding our outreach beyond purely military focus to civil-military interaction with the European Union (EU) and other international organizations and industries. In addition, as a part of the EU – NATO cooperation for common security similarities between the EU – NATO Discipline Leader responsibilities and models, the Centre assumed the EU WMD CBRN Defence Military Training Discipline Leader responsibilities.

Vision

The JCBRN Defence COE is and will continue to be the Centre of Gravity for all CBRN defence related issues within the Alliance, and a focal point for CBRN defence cooperation with NATO Partners.

2020 / 2021

2020

- Supported NATO's COVID-19 crisis response through CBRN reachback, operational-level planning, lessons learned support and MILMED COE collaboration,
- Preparing comprehensive report for NATO to address CBRN defence capabilities within the biological defence domain based on COVID-19 lessons learned,
- Supported JCBRND-CDG and working panels,
- Supported NATO CBRN defence doctrine and terminology development including Allied joint doctrine on WMD disablement, and Joint NATO urban, urban littoral and megacity doctrine,
- Provided custodian for AJP-3.8 (Allied Joint Doctrine for Comprehensive CBRN Defence),
- Contributed to revision of CBRN defence requirements, concept development, planning documents and tactical procedures,
- Began CBRN reachback enhancement project with completion in 2021,
- Provided support to development of CBRN Reachback CONOPS,
- Developed additional CBRN modelling and simulation capabilities including epidemiology,
- Acted as Department Head for NATO WMD/CBRND Education and Training (E&T) discipline,



- Assumed role as EU Discipline Leader for WMD/CBRN defence,
- Supported SACEUR's Annual Guidance (SAGE) on education, training, exercises and evaluation development; and major exercises,
- Conducted JCBRN Defence COE courses,
- Continued and enhance outreach to EU DG DEVCO CBRN Risk Mitigation CoE initiative, EU DG HOME Community of Users (CoU) on Secure, Safe and Resilient Societies; and remained consortium member in EU HORIZON 2020 eNOTICE project by supporting joint activities,
- Established an accredited classified VTC capability.

2021

- Conducting training and education quality assurance re-accreditation,
- Complete the strategic gap analysis (SGA) as part of the COE's 15-year anniversary in 2021,
- Organize Annual JCBRN Defence COE Conference focusing on the Civ-Mil Cooperation in the large scale CBRN Incident (Defence Ministers Tasker),
- Support JCBRND-CDG and working panels,
- Support NATO CBRN defence doctrine and terminology development including Allied joint doctrine on WMD disablement; and joint NATO urban, urban littoral and megacity doctrine,
- Complete CBRN reachback enhancement project,
- Provide support to development of CBRN Reachback CONOPS,
- Support SACEUR's Annual Guidance (SAGE) on education, training, exercises and evaluation development; and major exercises,
- Contribute to revision of CBRN defence requirements, concept development, planning documents and tactical procedures,
- Continue and enhance outreach to EU DG DEVCO CBRN Risk Mitigation CoE initiative, EU DG HOME Community of Users (CoU) on Secure, Safe and Resilient Societies; and EU HORIZON 2020 eNOTICE project by supporting joint activities,
- Act as Department Head for NATO WMD/CBRND Education and Training (E&T) discipline,
- Act as EU Discipline Leader for WMD/CBRN Defence,
- Support to lessons learned process in the CBRN domain,
- Celebrate the JCBRN Defence COE 15-year anniversary,
- Conduct JCBRN Defence COE courses.

Scan QR code to see JCBRN Defence COE Courses in 2021.



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NATO MARITIME SECURITY CENTRE OF EXCELLENCE (NATO MARSEC COE)

Director's Message

Security of our global commons, which are land, air, space, cyber, and maritime, affects all nations and people. Maritime commons makes nations neighbours. However maritime security issues are persistent and refuse to disappear, especially those affecting the movement of goods and people on the world's oceans. "The Alliance Maritime Strategy" includes Maritime Security as one of the fourth dimension. The NATO MARSEC COE's concept is based on Maritime Security Operations (MSO) tasks stated in MC 0588. In order to overcome all maritime security issues, NATO MARSEC COE is to expand the capabilities of NATO and Partner Nations by providing comprehensive, innovative, and timely expertise. Moreover, NATO MARSEC COE makes cooperation agreements with several academic and industrial entities from all over the world and also contributes to the efforts of NFS/NCS bodies, partners and operations such as the ongoing NATO Maritime Security Operation Sea Guardian (OSG) within the context of our motto- working together for maritime security.



Mission Statement

The mission of the NATO Maritime Security Centre of Excellence (NATO MARSEC COE) is to expand the capabilities of NATO and Partner Nations by providing comprehensive, innovative, and timely expertise in the field of Maritime Security Operations (MSO).

Who We Are / What We Do



NATO MARSEC COE is a multinational, joint, military organization, established on October 18, 2019, by the Operational Memorandum of Understanding (MOU) among Turkey (as the Framework Nation) as well as Greece and Romania (as Sponsoring Nations). With the aim of being both a regional and global venue that addresses maritime security related challenges, and training requirements, the centre became the 26th NATO-accredited COE on June 8, 2020.

Substantive focus areas for cooperation include Protection of Critical Infrastructure (CI), Maritime Counter Terrorism (MCT), Counter Proliferation of WMD, Maritime Security Capacity Building (MSCB), Maritime Situational Awareness (MSA), Freedom of Navigation (FoN), Maritime Interdiction Operations (MIO), crisis management/whole-of-government coordination and maritime security issues such as piracy, drug trafficking, and illegal fishing, as well as undersea cable protection, cyber threats, pandemic responses, terrorist threats, and pandemic challenges.

Vision

NATO MARSEC COE is to become an internationally well recognized focal point as well as comprehensive expertise and knowledge provider in the area of Maritime Security, thus expanding capabilities of NATO and Partner Nations.

2020 / 2021

From the opening of the centre in 2012, as NATO MARSEC COE, organized many courses, workshops, seminars, conferences, and maritime security exercises. In addition to these activities, as part of capacity building, NATO MARSEC COE mobile training teams provided maritime security trainings in different countries. NATO MARSEC COE has been cooperating closely with academic institutions, military and governmental agencies in order to obtain their







support in strategic analysis and research related to Maritime Security.

NATO MARSEC COE will lead international military maritime security projects especially within the NATO platforms, within the framework of NATO Alliance and responsibilities, and NATO MARSEC COE will continue to contribute to maritime security efforts and NATO transformation in this area.

NATO MARSEC COE is and will become a better centre of attraction in the field of Maritime Security with a considerable contribution as a maritime organization of Alliance. NATO MARSEC COE is a centre that provides innovative and comprehensive solutions in every aspect of MSO, and as an International Military Organization acting as a gateway which opens to the international community.

In this regard, NATO MARSEC COE will continue to:

- Provide technical and academic expertise. NATO MARSEC COE intends to contribute to HQ SACT Programme on Autonomy, Strategic Foresight Analysis, Maritime Mapping, etc. in the field of MSO Tasks that might contribute to risk assessment and analysis;
- Provide recommendations and proposals for NATO Maritime Security Related Policies;

· Contribute to the efforts of doctrine development and experimentation for NATO's transformational activities,

maritime security activities with inter-agency cooperation and maritime security stakeholders;

 Contribute to NATO's MSO Tasks, in close cooperation with other stakeholders, and standardization activities among NATO and Partner Nations;

- Support NATO in the process of identifying and implementing Lessons Learned regarding maritime security activities;
- Provide Subject Matter Expertise on Maritime Security activities, Education, Training and Exercises in close cooperation with the existing facilities;
- Support NATO Maritime Security Operations, such
 as Operation Sea Guardian (OSG), taking into
 consideration that NATO MARSEC COE is co-located with SOCCE (Special Operations Command and Control
 Element) and has been providing personnel support (with 2 NCOs).



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NATO MILITARY ENGINEERING CENTRE OF EXCELLENCE (MILENG COE)

Director's Message

The MILENG COE is the principle interlocutor and facilitator for Military Engineering interoperability within NATO. The COE is the main hub for information exchange between NATO and partner nations engineers and forms the principle conduit for face to face interaction from OR-6 to OF-6 level. We are dedicated to enhancing interoperability through standardisation, to deliver the required effects to the benefit of NATO. The organisation has been in existence since 1977, initially as the Euro NATO Training Engineering Centre (ENTEC) and since 2009 as the Military Engineering Centre of Excellence. We are based in Ingolstadt Germany and collocated with the German Military's Engineer Training Centre. Germany is the host nation, with 16 other sponsoring nations.



Mission Statement

MILENG COE provides a significant contribution with joint combined subject matter expertise to the various aspects of military engineering. This includes concepts, materiel, doctrine and capability development, education and training and the lessons learned process in order to support NATO's military transformation, the participants and other partners. Thus, enhancing the Alliance's military engineering capability and interoperability in order to improve the effectiveness of military engineering support to NATO's missions.



Who We Are / What We Do

The Military Engineering Centre of Excellence facilitates interoperability and standardisation within NATO's Military Engineering community. We achieve this via:

- Being the focus for NATO MILENG Doctrine development and assisting NATO in Concept and Policy development.
- Providing a hub for MILENG information and lessons exchange.
- Coordinating multi-national MILENG projects experimentation on behalf of NATO.
- Delivering individual MILENG interoperability training to NATO staff and nations.
- Facilitating MILENG engagement within NATO.

The MILENG COE is the Department Head for MILENG Training and Education within NATO. It also has a leading role as the working body for the NATO MILENG Working Group. The MILENG COE acts as custodian of Military Engineering related policies and doctrine, and provides essential SME support to staff ACT, ACO, NATO-HQ's, nations and numerous Standardisation Working Groups in regards with Military Engineering.

The MILENG COE is a NATO Accredited Education and Training Facility and delivers NATO approved and listed courses meeting NCS requirements. It can also provide a one-week Mobile Training Teams (MTT) tailored to the HN requirements, once per year.





Vision

The Military Engineer Centre of Excellence is to sustain and improve on its already excellent reputation amongst NATO's military engineer community and beyond. Innovation is to be at the heart of everything we do. 'Continuous improvement' must be seen as normal business.

Our training should be at the cutting edge meeting the exacting requirements of our customers. In doing so I would expect our already strong course attendance rate to improve to 90% and beyond. We need to be seen as the first port of call for all NATO engineering interoperability RFIs. In addition, we must ensure that this information hub extends to our industry and academic partners.



I want to see the MILENG COE grow beyond its already impressive 17 sponsoring nations to eventually have representation from all those NATO nations that have Military Engineer Capability and principle partner nations.

2020 / 2021

Despite the impact of COVID-19 in 2020, the MILENG COE has been able to maintain the majority of its outputs. Looking forward to the later period of 2020 and into 2021, our aim is to run as normal a training programme as possible whilst continuing to facilitate NATO MILENG Meetings and conferences, both in person and via remote means. The following major activities are planned for this period:

Training:

A full review has been conducted on our NATO listed courses this summer (Military Engineering Multinational Basic Course & Military Engineering Multinational Advisor's Course). We will run two trial bridge assessment courses during the period to refine our training to deliver the outputs of the NATO Bridge Assessment Project. We intend to run as full a set of training as is possible

working within the German Federal and Bavarian COVID-19 restrictions. Details of our training courses can be found at the following link:

http://milengcoe.org/course/Pages/default.aspx



NATO Event Facilitation:

21st Military Engineering Working Group – Ingolstadt, Germany - 18-22 Jan 2021 22nd Military Engineering Working Group – Loutraki, Greece – 14-18 Jun 2021 NATO Senior Joint Engineer Conference (NSJEC) 2021– Canada – 20-21 Oct 2021 MILENG Information Exchange Seminar and Industry Day 2021 - Ingolstadt, Germany – 7-9 Dec 2021

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NATO MILITARY MEDICINE CENTRE OF EXCELLENCE (MILMED COE)

Director's Message

The NATO Centre of Excellence for Military Medicine (MILMED COE) is an international military organization with the core task of enhancing interoperability between military medical services in NATO. It was accredited by NATO on 12 October 2009. The MILMED COE consists of the founding Framework Nation (Hungary) and 11 Sponsoring Nations: Belgium, Czech Republic, France, Germany, Italy, The Netherlands, Poland, Romania, Slovakia, the United Kingdom and the United States of America. The Centre, located in Budapest, Hungary – with one satellite branch in Munich, Germany – is composed of four medical branches (Deployment Health Surveillance Capability Branch, Training Branch, Lessons Learned Branch and Interoperability Branch) as well as the Department Head function.



BGEN Dr. Dirk-Friedrich KLAGGES

Mission Statement

The mission of the NATO MILMED COE is to support and assist the Strategic Commands, other NATO bodies, nations and other civil and military organizations by supporting the transformation of the Alliance and thereby improving medical support to operations and to provide subject matter expertise in the following areas:

- Medical training, exercises and evaluation leading to certification
- Medical Lessons Learned
- Standards development and custodianship
- Deployment related health surveillance





Who We Are / What We Do

NATO MILMED COE is a hub of military medical a reliably accessible knowledge, buildina Community of Interest within its areas of expertise. MILMED COE is an essential part of NATO's transformation efforts by being a medical knowledge centre to the benefit of the entire Alliance. NATO MILMED COE, as a knowledge centre, remains an open institution that links military and civilian medicine together by collecting up-to-date medical knowledge and expertise from both communities, continuing to cooperate with the widest possible range of partners. NATO MILMED COE develops and implements projects to empower superior and effective medical support services across NATO, during missions abroad and in their home

countries. NATO MILMED COE unites highly experienced medical professionals and it is composed of 5 branches: Support, Training, Lessons Learned and Innovation, Interoperability, Force Health Protection



(FHP) Branch – a satellite branch located in a country other than the Framework Nation.

Vision

Further development of NATO medical support by innovation, experience, creating and sharing best practices. NATO MILMED COE aims to remain a hub of military medical expertise and a focal point of knowledge, providing invaluable training, education and deployment health surveillance capabilities, lessons learned databases and concept development support.



2020 / 2021

In 2020, the COE's biggest achievement was the fast and enduring support of NATO in terms of its struggle against the COVID-19 pandemic. MILMED COE remained effective and provided an accessible online platform for communication for NATO's highest medical leadership and a regular videoconference-series for the various subject-matter experts dealing with the pandemic, with topics like stockpiling, vaccine research, psychological effects of the pandemic or testing strategies. The MILMED COE also produced regular updates, analyses and guidelines related to the pandemic. This experience also supported our commitment to strengthen our FHP-related capabilities, making it a priority area for the near future.



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NATO MILITARY POLICE CENTRE OF EXCELLENCE (NATO MP COE)

Director's Message

The NATO MP COE is a unique NATO Military Body, which provides complex and effective work on all Military Police (MP) aspects across the full spectrum of NATO operations. With the armed forces as well as civilian organizations heavily engaged throughout the world, the need to prepare efficient military police officers and non-commissioned officers for multinational cooperation is becoming increasingly important. Therefore, the Centre not only offers a variety of MP-related courses and events to fulfil those requirements but also prepares high quality products and provides additional opportunity to enrich knowledge of the worldwide MP Community of Interest.



Mission Statement

The NATO Military Police Centre of Excellence enhances capabilities of NATO MP, fosters interoperability, and provides subject matter expertise on MP activities, in accordance with the alliance's strategic concept.

Who We Are / What We Do

The NATO MP COE is an international military organisation which develops and provides subject matter expertise by support of, or in cooperation with, other military and civil actors for further evolution of MP standards and capabilities in order to enhance cooperation and interoperability of NATO nations and military police and gendarmeries in their role in the development



of future capability in accordance with the NATO Strategic Concept across the full spectrum of operations.

The NATO MP COE focuses on but does not limit its activities to the cooperative aspects of MP in support of the NATO Strategic Concept, and current or future operations in the following core areas:

- Doctrine, Concept Development and Experimentation
- Education and Training
- Research and Development
- · Analysis and Lessons Learned
- Consultation

Vision

As a Military Police think tank and motor for innovation, we build bridges between nations, organisations and institutions for further evolution of MP standards and capabilities to support cooperation and interoperability of NATO and partners.

2020 / 2021

The 2020 was an extraordinary year for the Centre. It took a lot of effort to adjust our activities to the pandemic, and we decided to avoid cancellation of events and continue our support of MP COI as it had been before.

We understood that only our proactivity could bring valuable lessons. That is why, the MP LL research regarding COVID-19 pandemic has been initiated. The large-scale research has gathered lessons, which were analysed. Not only was the above-mentioned feedback shared with MP customers, but also with other NATO LL stakeholders – the NATO MP COE LL staff presented outcomes and way-forward during the online webinars and newsletters. Moreover, subsequent steps are







planned to be taken, namely the analysed input will be included on the NATO Lessons Learned Portal.

The circumstances forced our Education and Training Branch to switch all of our residential courses to an online mode. Additionally, the NATO MP COE ADL (Advanced Distributed Learning) courses are available which are highly appreciated among the Military Police COI. What is more, support and coordination of development of the first Military Police Close Protection Handbook has been finalised. Lastly, we are heavily engaged in the Global Programming as Department Head for Military Policing.

In Standardization and Transformation field, we continued support of the COI by reviewing and commenting NATO doctrinal documents. We prioritised the ATP 3.7.2 – MP Guidance and Procedures revision, contribution to the NATO Warfighting Capstone Concept and support of the Ukrainian Military Police Operational Doctrine development.

Besides that, the branch supported provost marshals from different NATO structures in doctrinal issues and by organizing Provost Marshal Forum.

In 2021, we are not going to slow down the pace and in addition to the previous offer we provide our COI with two newly developed events. In order to support the Future Capability Development Writing Team, we are going to organize the "MP in 2040 Workshop". The main idea of the event is to bring inputs from outside the MP Community of Interest and to contribute to the effort. Moreover, the NATO MP COE Cyber Crime Investigation course has been established. The aim of this newly developed event is to provide knowledge and skills required for proper extraction and triage of media devices, continuing the evidence collection and examination.

To sum up, the NATO MP COE has planned the following core events for 2021:

- NATO Military Police Lessons Learned Staff Officer Course;
- NATO Military Police Senior Officer Course;
- NATO Military Police Senior Non-Commissioned Officer Course;
- NATO Military Police Junior Officer Course;
- NATO Military Police Cyber Crime Investigation Course;
- Annual MP Lessons Learned Conference;
- Provost Marshall Forum;
- Military Police Close Protection Forum;
- Military Police in 2040 Workshop;
- MP Lessons Learned Workshop/Forum/Webinar.

More details can be found in the NATO MP COE Event Catalogue 2021 available on our web page:

https://www.mpcoe.org/event-catalogue.



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NATO MODELLING AND SIMULATION CENTRE OF EXCELLENCE (M&S COE)

Director's Message

The NATO M&S COE is an international source of expertise and a catalyst for transformation, connecting NATO, government, academia, industry, and operational/training entities. The NATO M&S COE improves NATO and national M&S professionals through education and training; promotes cooperation and sharing between Nations and organizations; and contributes to the development of new M&S concepts and standards.



Mission Statement

To support NATO, its Nations and Partner Nations by providing leadership, subject matter expertise, technological capability in all aspects of M&S activities.



Who We Are / What We Do

An organization of experienced military leaders and "digital generation" talents from 4 NATO Nations, representing all domains (sea, land, air, space & cyberspace) with expertise in both combat and combat support roles, and in the application of modelling and simulations in support of military activities.

Vision

To contribute to NATO Transformation by enhancing operational effectiveness and resource management.

2020 / 2021

Major Products and Activities for 2020

EXPERIMENTATION

- Cloud-based simulation further developed M&S as a Service (MSaaS) concepts
- Research and development created a M&S prototype for Autonomous System experimentation
- Warfighter Interoperability led the M&S focus area in CWIX
- Cyber researching the demand for simulation of cyber effects for training
- Concept Development activities

OPERATIONAL SUPPORT

- Wargaming, Decision Support and Analysis research the tools and technologies to support this expanding field; research
 Data Farming Services and operational simulation capability
- Establish an interoperability verification and certification process for NATO M&S
- Use M&S and Wargaming for concept validation activities in cooperation with other CoE
- Establish the interoperability verification and certification process for NATO M&S
- Start to build up Al competences for future decision making support activities
- Consolidation of WISDOM (Wargame Interactive Scenario Digitally Overlay Model) platform and completion of open source migration

EVENTS AND EDUCATION TO PROFESSIONALIZE NATO M&S

 NATO CA2X2 Forum 2020 – led NATO's annual M&S event for hundreds of Military, Academia and Industry experts from more than 20 nations, promoting the exchange of information and best practices among NATO nations





- MESAS 2020 led the annual conference focused on the application of M&S in the autonomous systems domain, to promote better use of M&S in tomorrow's operating environment
- NATO Basic M&S Course. Fundamentals of M&S theory, applications in defense and the role of M&S in military activities
- Provided M&S Courses from the beginner to intermediate levels to over 80 participants from 10 Nations
- Developing a NATO M&S E&T Roadmap as part of a multi-national effort to establish the necessary knowledge for a NATO M&S professional.

Major Products and Activities for 2021 EXPERIMENTATION

- Use of M&S as key technology to implement "disruptive emerging technologies"
- Cloud-based simulation develop and test architecture and operational concept for cloud-based M&S services
- Research and developments in support of the ACT Autonomy Programme and Robotics with application of M&S
- Cyber develop the method to implement simulation of cyber effects
- Expand the M&S experimentation capabilities to support NATO's interoperability efforts for exercise and activities (CWIX, CMX, JCSE, Locked Shield, Viking)

OPERATIONAL SUPPORT

- Wargaming, Decision Support and Analysis building a wargaming capability to use for experimentation, decision support, analysis, concept validation, etc; experimentation with Data Farming Services and its value in decision support
- Provide supporting analysis using M&S for NATO deployments
- Support the simulation of cyber events in exercises through work with Nations and other COEs
- Establish the interoperability verification and certification process for NATO M&S
- Support test an experimentation of new NATO concepts (NINCC, MWCOE)
- Further development of wargaming capabilities and wargaming support for NATO organizations and high level activities
- Further development of simulation based analysis support capabilities for decision makers
- Execute and refine the interoperability verification and certification process for NATO M&S
- Use of WISDOM platform for NATO Exercise (CMX 2021) and NATO MAJOR Project MDUO (Multi Domain Operations in the Urban Environment)

EVENTS AND EDUCATION TO PROFESSIONALIZE NATO M&S

- Work with M&S Community of Interest to develop, enhance and promote standardization and certification for the NATO M&S professionals
- Provide M&S Courses and expand our catalogue to include a M&S Leader Seminar and an Advanced M&S Course
- Lead, Manage and Host Conferences, Workshops and Fora, including:
 - NATO CA2X2 Forum 2021 (Computer Assisted Analyses, eXperimentation and eXercises)
 - MESAS 2021 (Modeling and Simulation for Autonomous Systems)
- International Outreach and Professional Development: Participate in M&S related professional fora to share and maintain knowledge of current technology, enhance partnerships, and promote the NATO M&S COE.

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NATO MOUNTAIN WARFARE CENTRE OF EXCELLENCE (NATO MW COE)

Director's Message

The visibility of the NATO MW COE as a NATO institution, which can contribute to strengthening the resilience of the Alliance, is crucial target area of the COE. In this light, it is very important that the Centre is recognized as a leading institution in the area of MW: its basic task is to provide standards, manuals and training activities that are necessary to enable the establishment of MW capabilities at Alliance level. As part of this goal, it is very important that Member States recognize the centre as an added value and an institution whose success can contribute to the achievement of the Alliance's common goal.

A very challenging period is ahead of us, as due to the COVID-19 consequences, it was necessary to postpone certain activities or change the way of implementation. In addition, certain health restrictions had to be taken into account that have changed the current working methods. In this context, it is expected that the number of remote activities increase requiring the use of the latest advanced technology, which in addition must be robust and powerful enough to make this possible.



Mission Statement



The mission of the NATO MW COE is to assist NATO member countries, partners, other countries and international organizations to enhance mountain warfare capabilities through the following core areas:

- Development of mountain warfare-specific doctrine and tactics;
- Concept development and experimentation;
- Mountain warfare lessons learned process;
- Education and training;
- Support for capability development.

Who We Are / What We Do

The NATO MW COE is a multi-nationally sponsored entity which offers recognized expertise and experience to the benefit of the Alliance, especially in support of its transformation endeavours. One mandatory purpose of the NATO MW COE is to provide tangible improvement in NATO's capabilities, thereby adding value.

It incorporates a professional core that ensures and develops the subject matter expertise to meet the requirements of mountain warfare challenges. This enhances the ability of individuals and military units to engage in mountain warfare, as well as the Alliance's readiness to operate in the mountain environment.

Vision

The vision of the NATO MW COE is to be the hub for mountain warfare expertise in the NATO community.

2020 / 2021

Major Products and Activities

2020

- Ratification and Promulgation of the STANAG 6525 Mountain Warfare Education and Training - ATrainP-6;
- Continuation of the Concept Development Process with WS4-DOTMLPFI analyses;





- Development of the Mountain Warfare Allied Tactical Publication ATP 3.2.1.3 (former ATP 114), as a custodian, tasked by the NSO;
- Continuation of the development of MW-related terminology;
- Acting as a MW LL hub (Collecting Observations, Best Practice, LI, LL from the MW-related events, permanent building of the LL COI);
- Provision of MW COE NATO-listed courses dedicated to small units (winter conditions);
- Design, development and publishing of the first NATO Mountain Warfare e-learning course, namely Basic Mountain Environment Characteristics.



2021

- Development of the Mountain Warfare Allied Tactical Publication ATP 3.2.1.3 (former ATP 114), as a custodian, tasked by the NSO;
- Conduct of the MW Concept Development Experimentation Exercise;
- Development of the NATO Mountain Warfare Concept version 0.9;
- Organization of the annual MW COE Congress 2021 with the topic "Joint Personal Recovery in Mountainous Terrain", including an industry day;
- Continuation of the development of MW-related terminology;
- Provision of MW Operations Seminars on different combat functions (C2, Manoeuvre and Movement in Mountain Warfare), which are designed to provide a general understanding of the mountain operations specifics;
- MW Small Unit Leaders Courses (summer/winter) with the aim to provide mountain light infantry/light infantry platoon/company commanders with specific knowledge of movement, surviving and planning of operations on mountain terrain in summer/winter conditions;
- MW Small Units Leader Course (METT), which is designed for NATO and Partner members requiring the particular knowledge and skills necessary to safely and efficiently operate in the complex terrain and climatic conditions of the mountain environment;
- Provision of a MW Staff Officer Course as the second level of progressive light infantry officer education preparing students to carry out staff duties in mountain operations.

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NATO NAVAL MINE WARFARE CENTRE OF EXCELLENCE (NATO NMW COE)

Director's Message

Naval Mine Warfare is as relevant as ever. Modern sea mines are becoming more and more complex and sophisticated. At the same time, the threat of maritime improvised explosive devices has to be taken into account. Meanwhile, the Allies sea mining capabilities receive limited attention.

The present generation of mine countermeasure vessels will largely be replaced over the course of the next 10 to 15 years. Implementing the use of new innovative technologies, these capabilities will differ significantly from the current means and will include remote controlled or autonomous vehicles, and other revolutionary systems to be deployed.

These new capabilities require new doctrine and tactics, planning and evaluation algorithms, tools, education and training of personnel. The NATO Naval Mine Warfare Centre of Excellence aims to guide and support the development of all that which is essential to take NATO's Naval Mine Warfare capabilities into the next era.



Mission Statement

To assist NATO, Nations, Partners and other bodies by supporting the NATO transformation and operational efforts; NATO's capability development process; mission effectiveness and interoperability by providing comprehensive expertise on Naval Mine Warfare.





Who We Are / What We Do

NMW has some specific characteristics that makes it an atypical warfare area, very different from the other warfare's. The two main reasons for this are the operating environment and the characteristics of the threat.

Even in modern ages, sea mines remain a threat for naval warfare. Their impact is exponential in comparison to the minelaying effort, reaching far more targets then only military.

The NATO NMW COE emerged from the Belgian-Netherlands Naval Mine Warfare School EGUERMIN, which has been recognised and respected by many NATO countries as an institution in the field of NMW since the mid-1960s.

The NATO NMW COE is not build on experiences only, but is at the forefront of the developments in the NMW domain. Our focus is on Concept Development and Experimentation, Doctrine and Standardisation, Lessons Learned and Analysis and finally Education and Training.

Vision

The NATO Naval Mine Warfare Centre of Excellence is the recognised hub of knowledge and expertise in Naval Mine Warfare for NATO, Allied and Partner nations and their associated research institutes in support of NATO transformation.



2020 / 2021

The COVID-19 has heavily perturbed our activities in 2020, i.e. the BI-SC NATO Naval Mine Warfare Conference was unfortunately cancelled but the NMW COE has nevertheless continued to:

- Support and augment Allied Maritime Command Exercise DYNAMIC MOVE during preparation and execution.
- Participate in Concept Development and Experimentation initiatives and campaigns for future Naval Mine Warfare capabilities.
- Support NCIA in modernization of the legacy Planning and Evaluation software MCM EXPERT, and provide masterclasses to train the trainers.
- Requests for support from NATO Command and Force Structure: NATO Defence Planning Process (NDPP),
 Support to Allied Command Transformation's Focus Areas, NATO Warfighting Capstone Concept.
- Contribute to the Maritime Observation Team for Lessons Learned and Analysis during Exercises, and support SNMCMG evaluations.
- Continue to be NATO's central hub leading and supporting various activities related to adapting the legacy MCM Planning and Evaluation process with regard to modern systems.
- Actively contribute to the NATO Doctrine and Standardisation process, by participating in or leading various working groups.
- Supported the NATO NMW Principle Warfare and Staff Officers' courses at EGUERMIN.

All these activities will continue in 2021.

Making best use of modern communications possibilities and opportunities, the NMW COE Staff remains accessible and is actively involved in sharing scarce NMW knowledge and expertise.



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NATO SECURITY FORCE ASSISTANCE CENTRE OF EXCELLENCE (SFA COE)

Director's Message

Relying on its highly professional and talented military staff and civilian collaborators, the NATO Security Force Assistance COE intends to increase its cooperation with other academic and international organisations with a view to becoming a point of reference for NATO members and partners engaging in SFA to promote stability in crisis zones.

In order to promote stability, the SFA COE emphasizes the importance of the linkage between SFA activities and the NATO recognized Cross Cutting Topics (CCTs), such as the Protection of Civilians, Children and Armed Conflict, Sexual and Gender Based Violence, Cultural Property Protection, Building Integrity and Women, Peace and Security. The SFA holistic approach thus encompasses topics that, even though falling outside of the primary military's area of responsibility, are relevant for the success of NATO missions and operations in creating security and stability.



Mission Statement

The mission of the Security Force Assistance Centre of Excellence (SFA COE) is to improve the effectiveness of the Alliance in promoting stability and reconstruction efforts for conflict and post-conflict scenarios through research, education, training and doctrine activities, as well as to provide a unique capability to the Alliance, NATO Nations, NATO Partners and International Organizations in the field of SFA.



Who We Are / What We Do

The NATO SFA COE is a multinational organization sponsored by Albania, Italy (FN), and Slovenia. It is committed to providing a unique capability to the Alliance, NATO Nations and NATO Partners in the field of Security Force Assistance through the sharing of expertise and knowledge, while cementing the varied skills required to accomplish the numerous tasks, missions and challenges that the COE faces as a team.

The strength of the Centre is based on the inseparable connection established with a heterogeneous domain consisting of an academic sphere, NCS and NFS, IOs, COEs, think tanks and research institutes. The COE's comprehensiveness is the critical aspect of the approach in developing

projects and related activities carried out along three lines of effort: Policy, Human Capital, and Support to the Operations.

Those multiple connections guarantee an out-of-the-box perspective in analysis and research and in the development of the Program of Work (POW).

Vision

The SFA COE is to be an internationally recognized focal point to expand the capabilities of NATO, Nations, and other partners by providing comprehensive expertise and support in the area of Security Force Assistance.

2020 / 2021

In 2020 The NATO SFA COE focused its attention on the Human Capital (HC) recognized as a relevant "tool" to conduct SFA activities and asserted its role as the SFA focal point by contributing to the revision of the most relevant Joint Publications. It also established strong relationships with NATO Commands to increase their knowledge on SFA through its participation in several events.







In this perspective, the Centre has been working to draft a study paper with recommendations to effectively implement SFA capability within NCS and NFS and is contributing to the Interoperable Multinational Resident Advisory Capacity (IMRAC) project in order to create a SFA course for institutional advisors. Moreover, through comprehensive information and analysis, the COE is focussing on the SFA Operator's profile definition within the LL Community of Interest (COI).

Along with the E&T pillar, the Centre delivered the first NATO SFA pilot course, the "SFA Operators course", which was subsequently certified and, thanks to a solid relationship established with the NATO HQ, the Centre is cooperating with the NATO HQ's DICB Directorate to provide the "Building Integrity in Operations course". In the last two years the Centre strengthened the cooperation with the JFTC (Bydgoszcz – POL), supporting its Training Event with SMEs and optimizing the exchange of expertise and experience.

From an interdisciplinary perspective, the lack of legal consistency of the SFA training activities triggered the need to create a "Law Training Programme" aimed at developing exercises, models, courses and manuals to promote a legal framework of the missions in line with the SFA doctrine.

Although COVID-19 heavily affected 2020 by freezing many projects, the SFA COE has made huge efforts to support the COI in compliance with current regulations by maximizing the use of virtual tools. Keenly aware of a new world order arising from the pandemic, the Centre focused its attention on the impact COVID-19 has had on Crisis Areas and highlighted the importance of SFA as one of the most relevant solutions to foster stabilization. During the lockdown period, the Centre hosted several interviews with authoritative researchers, collecting insights for a deeper comprehension and analysis.

In 2021, the NATO SFA COE will keep developing the projects that have been interrupted due to COVID-19 and will face new challenges to ever improve its support of NATO in the field

of SFA.

The Centre is aiming to become the reference point in the education and training for the entire SFA dimension, from the tactical to the strategic/institutional level, having created ADL courses and by organizing and/or supporting 3 different courses: the "SFA Operators course", the "Institutional Advisor course" and the "NATO Advisory course".

As part of the project aimed at defining a standardized and agreed profile of the SFA Operator, the LL Branch will point out future developments and expand its research field in the Air and Maritime domain, seeking, at the same time, to involve and possibly enlarge the COI.



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NATO STABILITY POLICING CENTRE OF EXCELLENCE (SP COE)

Director's Message

Despite COVID-19 pandemic, the NATO Stability Policing Centre of Excellence (NSPCoE) managed to keep running business as usual, reinforcing its role as the undisputed NATO authority in the speciality. Thanks to the strict safety measures implemented, the Coronavirus did not hinder the NSPCoE from providing a solid platform of expertise for contributing to the development of doctrine and standards, training and best practices in the subject matter, and from engaging in numerous projects with partners within and beyond NATO, such as the European Union, Interpol, the Special Inspector General for Afghanistan Reconstruction (SIGAR) and the African Union. In 2021, NSPCoE will continue to engage with NATO Partners and Member States as well as with International Organizations to pursue the Strategic Goal 2019-2021: "...to be acknowledged as a modern, adaptive, cooperative and supportive organization and to be the Alliance's interface with International Organizations and non-NATO institutions in the SP area".



Mission Statement

The mission of the NSPCoE is to be an internationally recognized focal point and a hub of expertise for a Community of Interest in the field of SP, which is a set of police related activities intended to reinforce or temporarily replace the indigenous police forces of an unstable area in order to contribute to the restoration and/or upholding of the public order and security, rule of law, and the protection of human rights (AJP 3-22).

Who We Are / What We Do

The NSPCoE was formally established on 9 April 2015, upon the entry into force of the two Memorandums of Understanding ruling the internal functioning of the NATO SP COE, the chain of command, the external relations and the functional relationship with ACT. The early Parties were Italy, as the Framework Nation, and the Czech Republic, France, Netherlands, Poland, Romania, Spain, Turkey, as the Sponsoring Nations, as well as the Allied Command Transformation (ACT). On 4 October 2018, Greece joined the Centre.



Vision

The vision of the NATO SP COE: a. to operate as a prime mover to increase contribution to NATO stabilization and reconstruction efforts in

conflict and post-conflict scenarios; b. to provide an unique capability to the Alliance and its member States, as well as NATO partners and International Organizations in the area of SP.

2020 / 2021

Major Products and Activities for 2020

Despite COVID-19, the NSPCoE safely functioned, working on shifts and smart working, making the best use of VTC tools. At

the pandemic's peak, the Centre supported the local Municipality donating in-storage protective masks and blood donations and deployed to the local Carabinieri Headquarters a piloted-drone for lockdown-policing services purposes.

Inter alia, NSPCoE, under pillar:

Concept Development&Experimentation, supported:

- Warfighting Capstone Concept's development;
- Counter Terrorism Concept's revision;

Standardization & Doctrine Development:

 Drafted ATP-103-Part II (Replacement & Reinforcement of Indigenous Police Forces);





- Contributed to the development of:
 - eight NATO doctrinal publications;
 - two NATO policies (Technical Exploitation and Battlefield Evidence Policies);
 - RSM's Afghan National Police Post Peace Policing Paper;

Education & Training (E&T):

- Adapted its six residential courses for on-line/synchronous delivery;
- Launched a third JADL e-learning course (Crowd and Riot Control awareness in NATO Operations) and updated ADL 353 (Introduction to SP);
- Proposed SP modules for two NATO School Oberammergau's courses and, through JFC-B, for JFTC-RSM Pre-deployment Training;
- Contributed to Exercise STJU-JA20 (supporting both the EXCON at JWC and the Training Audience at JFC-N), SAGE-2021 & NATO 2021 Exercises;
- Recommended SP scenarios to JWC wargaming;

LL&Analysis:

- Supported ACT&JALLC to develop the new NATO LL-Toolset and ACT COVID-19 LL-Coordination, providing 28 SP-related Observations, Discussions, Conclusions & Recommendations;
- Published October 2019 ACT-sponsored Spoiler Threats Assessment Conference and Workshop's summary report, the basis for the November 2020 forum aimed to develop relevant, common and sharable methodology.

Finally, in his capacity as Chairman of the CoE Directors' Conference, NSPCoE's Director successfully proposed the establishment of a network of fellow Directors aimed at improving cooperation, info-sharing, deliverables and support from peers.

Major Products and Activities for 2021

In 2021, the NSPCoE will keep supporting NATO and NATO partners as well as further ongoing projects. Due to COVID-19, extra efforts will be made to engage with NATO Partners and Member States as well as International Organizations, focusing on the following:

- Revision of the AJP-3.22 "Stability Policing";
- Continue to develop the ATP-103 (SP activities and tasks);
- Support the main ACT projects involving SP aspects;
- Development of a common method for the assessment of spoiler threats;
- Organizing and delivering the domestic SP training portfolio;
- Support the planning process and execution of the main NATO Exercises;
- Organize and host an annual conference/workshop;
- Cooperation with the United States Special Inspector General for Afghanistan Reconstruction (SIGAR);
- Invest and enlarge the SP Lessons Learned Community interest.

Lastly, NSPCoE Director will hold for the second year in a row the Chairmanship of the COE Directors' Conference.

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NATO STRATEGIC COMMUNICATIONS CENTRE OF EXCELLENCE (STRATCOM COE)

Director's Message

We live in a new information environment. Information spreads at high speed and volumes, empowering different actors to use social media for information collection, propaganda, disinformation, deception and recruitment. It is more important than ever for our Allies to be in the know about these new capabilities and threats and to be able to counter them in a truthful and timely way. Our Centre is at the forefront of these efforts, bringing its trainings, experimentation and research to those who work in the area of Strategic Communications. We see our Riga-based centre as a hub where people working in both government sector and private sector, as well as academia come together to share their knowledge and expertise.



Mission Statement

The Centre's mission is to support NATO's Strategic Communications capability and contribute to the Alliance's communication processes by providing comprehensive analysis, timely advice, and practical support.

The Centre's aim is to contribute substantially to the improvement of NATO, NATO Allies' and NATO Partners' strategic communications capabilities through research, analysis, concept development, experimentation, doctrine development, standardisation and the "Lessons Learned" process, furthermore investing into the continuing development of strategic communications education and training.

Who We Are / What We Do



During its first 5 years of full operational capability the NATO StratCom COE has established itself as one of the primary research and fusion hubs on the subjects of strategic communications, countering disinformation, revealing trends in digital security and understanding hostile actor strategies, tactics, methodologies and techniques in the transatlantic area. Our international team of experts conducts research in response to the needs of NATO and the governments of participating nations, designs programmes to advance the development of NATO military doctrine, and provides comprehensive analyses and practical support for decision-makers in the Alliance. We are the COE for StratCom and all its core communication capabilities and functions: Information Operations, Psychological Operations, Public Diplomacy, Public Affairs and Military Public Affairs.

Vision

The Centre helps to address identified shortfalls and provide modern solutions to emerging challenges in the field of Strategic Communications. This is done by pooling resources, sharing the best practices, experimentation, building networks of experts, and providing platforms for debate, as well as by monitoring and evaluating the revolution in the current information environment driven by a rapid expansion of technology that has substantial impact on the cognitive domain.

At the NATO StratCom COE, military specialists and civilian experts from academia and the private sector have joined forces to develop a collaborative multi-national response to the challenges of our day in the field of strategic communications.



2020 / 2021

Due to the COVID-19 pandemic in 2020, the NATO Stratcom COE was forced to reorganize its working mode and battle rhythm because from the second quarter of 2020, events and travel were extremely limited.

The COE organized and conducted altogether 11 webinars on the COE's Facebook and YouTube channels with the main goal



of exploiting media engagements and its own social media channels to support global efforts in countering disinformation and misinformation as well as maintaining contacts and cooperation with crucial stakeholders. The Centre's main effort was to build general resilience and to improve digital hygiene by sharing and promoting reports, case studies, and reactions to disinformation campaigns, promoting critical thinking, media literacy and fact checking.

The Centre was collecting identified cases of disinformation and misinformation in order to use them for ongoing and future projects. The Centre was carrying out a number of research projects that took into account cases of COVID-19 disinformation, misinformation and other hostile activities in the Digital Domain. The Centre contributed to the implementation of the NATO Integrated Communication Plan for NATO's Response to COVID-19 (ICP).

The NATO StratCom COE was taking part in a weekly analyst level meeting organized by the G7 Rapid Response Mechanism (RRM) in order to coordinate countering disinformation around COVID-19. The COE provided an update on identified patterns in disinformation activities and systems.

The Centre's subject matter experts were fully committed and involved in numerous projects designated for the development of the NATO StratCom mindset, processes, and related functions and capabilities, such as the US-led Multinational Capability Development Campaign (MCDC), the German-led Multinational InfoOps Experiment (MNIOE), as well as events organised by the StratCom, Military PA, PSYOPS, and InfoOps communities of interest.

The Centre has been supporting NATO major exercises STEADFAST JUPITER/JACKAL20 and supported NSO courses in the first quarter of 2020.

Performing the role of the Department Head for the NATO StratCom Discipline Education and Training StratCom, the Centre contributed to the first ever NATO STANAG on StratCom training and education.

Being the custodian of the Allied Joint Doctrine for Strategic Communications (AStratComP10), the Centre developed the first study draft of the doctrine and is contributing to the development of other doctrines incl. AJP-1.

The NATO StratCom COE has been conducting three joint projects with the European External Action Service East StratCom Task Force.

The Centre has been contributing to the:

- NATO Warfighting Capstone Concept
- NATO Information Environment Assessment Capability Development
- Long Term Military Transformation -SFA/FFAO
- Operating Concept for Multi-Domain Urban Operations
- Development and implementation of IEA prototype at NATO HQ
- Semi-automatic identification of proxies for early warning at NATO HQ

In 2020, the Centre published more than 25 reports.

The NATO StratCom COE in 2021 will continue to deliver direct support to NATO HQ, NATO Command Structure, NATO Force Structure, NATO Allied and Partner Nations with special focus on experimentation and possible solutions. The COE will organise StratCom, Information Environment Assessment, Al and social media courses as well as provide expertise to NATO Member and Partner Nations. We are planning to publish over 20 reports on research projects conducted within 2021 and continue to issue the only StratCom academic journal - "Defence Strategic Communications".

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Current COE Status & Location



Centre of Excellence (COE)	FN	Sponsoring/ Partner Nations	Location	Accreditation Date
Air Operations (AO)	FRA	FRA	Lyon Mont Verdun, FRA	18-Feb-08
Civil-Military Cooperation (CCOE)	NLD & DEU	DEU, DNK (until 31 Jan 21), HUN, ITA*, LVA,NLD, POL, SVN	The Hague, NLD	31-Jul-07
Cold Weather Operations (CWO)	NOR	NOR	Elverum, NOR	31-Jul-07
Combined Joint Operations from the Sea (CJOS)	USA	CAN, DEU, ESP, FRA, GBR, GRC, ITA, NLD, NOR, PRT, ROU, TUR, USA	Norfolk, USA	14-Dec-06
Command and Control (C2)	NLD	DEU, ESP, EST, NLD, SVK, TUR, USA	Utrecht, NLD	04-Apr-08
Confined and Shallow Waters (Operations In) (CSW)	DEU	DEU, DNK, EST, GRC, ITA, LTU, NLD, POL, TUR	Kiel, DEU	03-Mar-09
Cooperative Cyber Defence (CCD)	EST	BEL, BGR, CZE, DEU, DNK, ESP, EST, FRA, GBR, GRC, HRV, HUN, ITA, LTU, LVA, MNE, NLD, NOR, POL, PRT, ROU, SVK, SVN, TUR, USA, AUT, CHE, FIN, SWE	Tallinn, EST	28-Oct-08
Counter Improvised Explosive Devices (C-IED)	ESP	CZE, DEU, ESP, FRA, GRC, HUN, NLD, PRT, ROU, TUR, USA, SWE	Madrid, ESP	14-Nov-10
Counter-Intelligence (CI)	POL & SVK	CZE, DEU, HRV, HUN, ITA, LTU, POL, ROU, SVK, SVN, USA	Krakow, POL	22-Feb-17
Crisis Management and Disaster Response (CMDR)	BGR	BGR, GRC, POL	Sofia, BGR	31-Mar-15
Defence Against Terrorism (DAT)	TUR	ALB, BGR, DEU, GBR, HUN, ITA, NLD, ROU, TUR, USA	Ankara, TUR	14-Aug-06
Energy Security (ENSEC)	LTU	DEU, EST, FRA, GBR, ITA, LTU, LVA, POL, TUR, USA, FIN, GEO	Vilnius, LTU	12-Oct-12
Explosive Ordnance Disposal (EOD)	SVK	CZE, HUN, POL, ROU, SVK	Trencin, SVK	28-Apr-11
Human Intelligence (HUMINT)	ROU	CZE, GRC, HUN, POL, ROU, SVK, SVN, TUR, USA	Oradea, ROU	29-Jul-10
Integrated Air & Missile Defence (IAMD)	GRC	BGR, CZE, GRC, ROU, TUR	Chania, GRC	Established, awaiting Accreditation

In Red: Partner Nations

*: In Process of Joining



Current COE Status & Location

Centre of Excellence (COE)	FN	Sponsoring/ Partner Nations	Location	Accreditation Date
Joint Air Power Competence Centre (JAPCC)	DEU	BEL, CAN, CZE, DEU, DNK, ESP, GBR, GRC, HUN, ITA, NLD, NOR, POL, ROU, TUR, USA	Kalkar, DEU	01-Jan-05
Joint Chemical, Biological, Radiological and Nuclear Defence (JCBRN Defence)	CZE	CAN, CZE, DEU, FRA, GBR, GRC, HUN, ITA, POL, ROU, SVK, SVN, USA, AUT	Vyškov, CZE	31-Jul-07
Maritime Geospatial, Meteorological & Oceanographic (MGEOMETOC)	PRT	ESP, PRT, ROU, TUR	Lisbon, PRT	Undergoing Accreditation process
Maritime Security (MARSEC)	TUR	GRC, ROU, TUR	Istanbul, TUR	08-Jun-20
Military Engineering (MILENG)	DEU	BEL, CAN, CZE, DEU, DNK, ESP, FRA, GBR, GRC, HUN, ITA, NLD, NOR, POL, ROU, TUR, USA	Ingolstadt, DEU	09-Mar-09
Military Medicine (MILMED)	HUN	BEL,CZE, DEU, FRA, GBR, HUN, ITA, NLD, POL*, ROU, SVK, USA	Budapest, HUN & Munich, DEU	12-Oct-09
Military Police (MP)	POL	BGR, CZE, DEU, GRC, HRV, HUN, ITA, NLD, POL, ROU, SVK	Bydgoszcz, POL	28-May-14
Modelling & Simulation (M&S)	ITA	CZE, DEU, ITA, USA	Rome, ITA	18-Jul-12
Mountain Warfare (MW)	SVN	DEU, HRV, ITA, POL, ROU, SVN, AUT	Begunje na Gorenjskem, SVN	27-Nov-15
Naval Mine Warfare (NMW)	BEL & NLD	BEL, ITA, NLD, POL	Oostende, BEL	17-Nov-06
Security Force Assistance (SFA)	ITA	ALB, ITA, SVN	Roma, ITA	30-Nov-18
Stability Policing COE (SP)	ITA	CZE, ESP, FRA, GRC, ITA, NLD, POL, ROU, TUR	Vicenza, ITA	09-Dec-15
Strategic Communications (STRATCOM)	LVA	CAN, DNK, DEU, EST, GBR, ITA, LTU, LVA, NLD, POL, SVK, USA, FIN, SWE	Riga, LVA	01-Sep-14

In Red: Partner Nations *: In Process of Joining

Nations Participating in COEs



	Country	Sponsoring Nation of	Framework Nation of
	ALB	DAT, SFA	
	BEL	CCD, JAPCC, MILENG, MILMED, NMW	NMW
	BGR	CCD, CMDR, DAT, IAMD, MP	CMDR
*	CAN	CJOS, JAPCC, JCBRN Defence, MILENG, STRATCOM	
	CZE	CCD, CI, C-IED, EOD, HUMINT, IAMD, JAPCC, JCBRN Defence, MILENG, MILMED, M&S, MP, SP	JCBRD Defence
	DEU	C2, CCD, CCOE, CI, C-IED, CJOS, CSW, DAT, ENSEC, JAPCC, JCBRN Defence, M&S, MILENG, MILMED, MP, MW, STRATCOM	CCOE, CSW, JAPCC, MILENG
+	DNK	CCD, CCOE (until 31 Jan 21), CSW, JAPCC, MILENG, STRATCOM	
in the second	ESP	C2, CCD, C-IED, CJOS, JAPCC, MGEOMETOC, MILENG, SP	C-IED
	EST	C2, CCD, CSW, ENSEC, STRATCOM	CCD
	FRA	AO, CCD, C-IED, CJOS, ENSEC, JCBRN Defence, MILENG, MILMED, SP	AO
	GBR	CCD, CJOS, DAT, ENSEC, JAPCC, JCBRN Defence, MILENG, MILMED, STRATCOM	
彗	GRC	CCD, C-IED, CJOS, CMDR, CSW, HUMINT, IAMD, JAPCC, JCBRN Defence, MARSEC, MILENG, MP, SP	IAMD
\$ MR:	HRV	CCD, CI, MP, MW	
	HUN	CCD, CCOE, CI, C-IED, DAT, EOD, HUMINT, JAPCC, JCBRN Defence, MILENG, MILMED, MP	MILMED
П	ITA	CCD, CCOE*, CI, CJOS, CSW, DAT, ENSEC, JAPCC, JCBRN Defence, M&S, MILENG, MILMED, MP, MW, NMW, SFA, SP, STRATCOM	M&S, SFA, SP

Nations Participating in COEs

	Country	Sponsoring Nation of	Framework Nation of
	LTU	CCD, CI, CSW, ENSEC, STRATCOM	ENSEC
	LVA	CCD, CCOE, ENSEC, STRATCOM	STRATCOM
*	MNE	CCD	
	NLD	C2, CCD, CCOE, C-IED, CJOS, CSW, DAT, JAPCC, MILENG, MILMED, MP, NMW, SP, STRATCOM	C2, CCOE, NMW
	NOR	CCD, CJOS, CWO, JAPCC, MILENG	CWO
	POL	CCD, CCOE, CI, CMDR, CSW, ENSEC, EOD, HUMINT, JAPCC, JCBRN Defence, MILENG, MILMED*, MP, MW, NMW, SP, STRATCOM	CI, MP
•	PRT	CCD, C-IED, CJOS, MGEOMETOC	MGEOMETOC
	ROU	CCD, CI, C-IED, CJOS, DAT, EOD, HUMINT, IAMD, JAPCC, JCBRN Defence, MARSEC, MGEOMETOC, MILENG, MILMED, MP, MW, SP	HUMINT
#	SVK	C2, CCD, CI, EOD, HUMINT, JCBRN Defence, MILMED, MP, STRATCOM	CI, EOD
•	SVN	CCD, CCOE, CI, HUMINT, JCBRN Defence, MW, SFA	MW
C*	TUR	C2, CCD, C-IED, CJOS, CSW, DAT, ENSEC, HUMINT, IAMD, JAPCC, MARSEC, MGEOMETOC, MILENG, SP	DAT, MARSEC
	USA	C2, CCD, CI, C-IED, CJOS, DAT, ENSEC, HUMINT, JAPCC, JCBRN Defence, M&S, MILENG, MILMED, STRATCOM	CJOS
	Country	Partner Nation of	
	AUT	CCD, JCBRN Defence, MW	
豆	CHE	CCD	
	FIN	CCD, ENSEC, STRATCOM	
+ +	GEO	ENSEC	/4
+	SWE	CCD, C-IED, STRATCOM	71



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