Fachbereich WD 2

About the NATO Centres of Excellence located in Germany

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Aktenzeichen:	WD 2 - 3000 - 003/25
Abschluss der Arbeit:	3. Februar 2025
Fachbereich:	WD 2: Auswärtiges, Völkerrecht, wirtschaftliche Zusammenarbeit und Entwicklung, Verteidigung, Menschenrechte und humanitäre Hilfe

Inhaltsverzeichnis

1. Introduction

The following *Sachstand*[1] takes a closer look at the NATO centres of excellence (COEs) based in Germany. These are

- the COE "Operations in Confined and Shallow Waters" (COE CSW) in the city of Kiel,
- the "Joint Air Power Competence Centre" (JAPCC) in the city of Kalkar, and finally
- the COE "Military Engineering" (COE MILENG) in the city of Ingolstadt.

This *information paper* will first address the tasks, activities, personnel strength and structure as well as the organisational design of these three NATO centres of excellence.[2] Then, and this is the particular objective of this paper, it will look at the **costs incurred in establishing these institutions and the annual costs required for their operation**. As NATO itself does not fund establishment and operation of COEs[3], this reply will therefore answer the question of whether, in addition to Germany as framework nation (FN), the other sponsoring nations (SN) and contributing partners (CP)[4] have financially contributed to the establishment of above mentioned CoEs and/or to the costs of operating them and, if so, to what extent.

With regard to the costs of the COEs based in Germany, it should be noted that the budget figures in the following sections include neither personnel nor real estate costs. This is because, firstly, personnel costs are not laid down in the memoranda of understanding (MoU) that govern the establishment and operation of the COEs (the costs for the personnel are always borne by the respective SN), and secondly, because the real estate required for establishing the COEs has been

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1 Sachstand, in English: information paper.

2 A general COE design has been proposed by Allied Command Transformation in 2015. *Figure 1* on page 5 of this information paper shows an illustration of this design that has been taken from following dissertation:
Corbe, Marian (2018): *NATO Centres of Excellence: A New Organisational Model and Vehicle for Multinational Knowledge Exchange*, p. 92, retrievable at: https://openhsu.ub.hsu-hh.de/server/api/core/bitstreams/ea3c76c9-739a-45c5-8e4c-8bf4fe7440f9/content (last access: 31 January 2025).

3 "No cost to NATO," see *NATO-Accredited Centres of Excellence: 2025 Catalogue*, Allied Command Transformation, December 2024, p. 5, retrievable at: https://www.act.nato.int/wp-content/uploads/2024/12/2025-COE-CATALOGUE-Final-v2.pdf (last access: 31 January 2025).

4 According to NATO's website *Centres of Excellence* which was last updated on 15 January 2025 and is retrievable at https://www.nato.int/cps/ru/natohq/topics_68372.htm?selectedLocale=en (last access: 31 January 2025), there are three different types of participating nations for COEs: framework nations, sponsoring nations and contributing partners:

- Generally, a **framework nation** (FN) agrees to take on the responsibility of developing the concept and implementation of the COE. In addition, it agrees to provide physical space for the operation of the COE, as well as personnel to run the institution. In most cases, there is a single framework nation for each COE, although multiple NATO allies can agree to share the responsibility of framework nations;
- **sponsoring nations** (SN) contribute financially to the COE and also provide personnel,
- **contributing partners** (CP) provide financial support or some other service that is of use to the functioning of the COE.

NATO allies can be either framework nations or sponsoring nations. Contributing partners are non-NATO countries that contribute to the functioning of a COE.

provided free of charge by the government of the Federal Republic of Germany.[5] Regarding the number of German personnel at the CoEs with Germany as FN, it should be noted that this may not exceed 45 percent in accordance with national regulations.

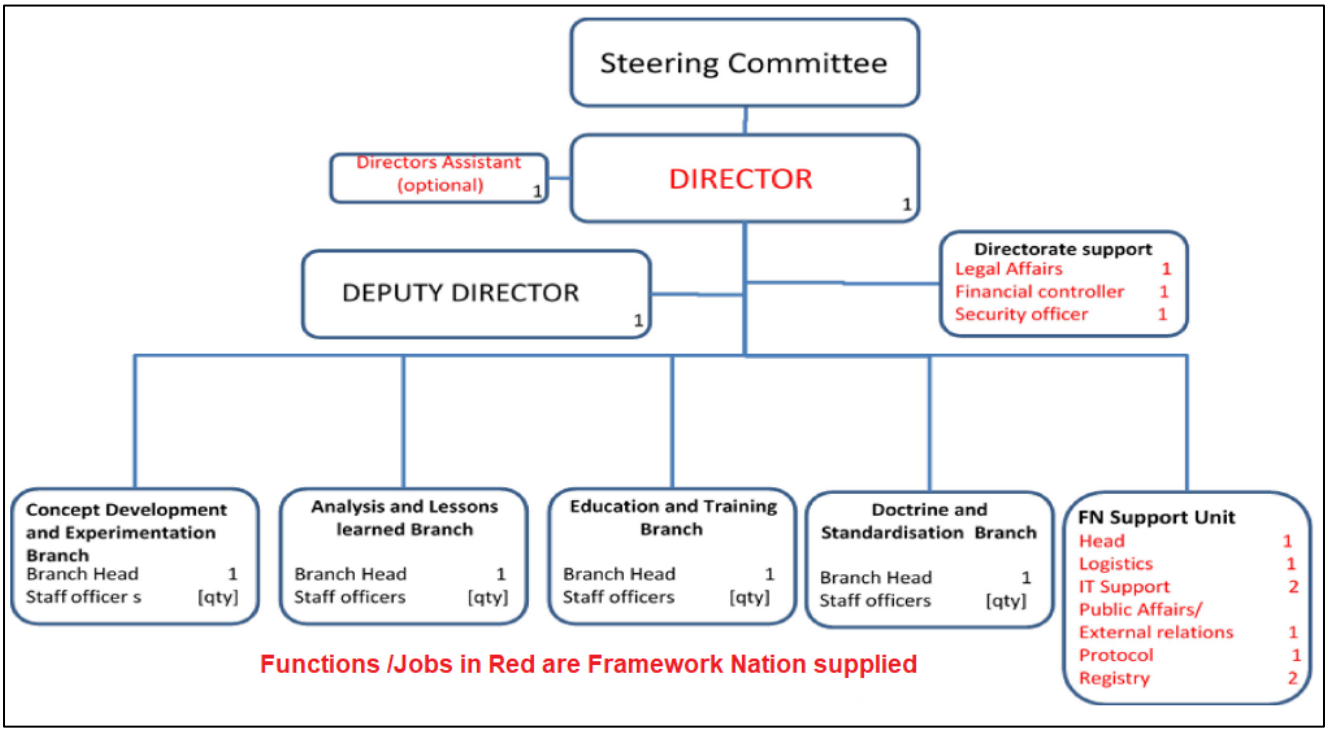

Figure 1: **COE Organisational Chart** (as proposed in 2015 by Allied Command Transformation in its *NATO COE Concept Template*)

2. Centre of Excellence for Operations in Confined and Shallow Waters

2.1. Tasks and Activities

The *Centre of Excellence for Operations in Confined and Shallow Waters* (COE CSW) was established in 2007 and accredited by NATO on 3 March 2009. Its mission is to provide joint and combined subject matter expertise in confined and shallow waters (CSW) operations in order to support the Alliance, participating nations and other customers thus contributing to NATO transformation and enhancing the interoperability amongst the allies and partners. Drawing upon navies' experiences in confined and shallow waters operations, bringing together this unique expertise from different nations and thus creating synergy in a relevant field of competence, the COE CSW contributes to NATO's transformational efforts in areas such as the unique and extremely demanding operational environment of CSW. The multinational team of subject matter experts (SMEs) of the COE CSW covers the pertinent warfare areas and supports NATO in the entire centre's work spectrum to support transformation in general, and the warfare capability development in particular.

5 Schwitanski; Christopher (2016): *NATO-Exzellenzzentren – Planen für den nächsten Krieg* [NATO Centres of Excellence – Planning for the next war], IMI-Studie 6/2016 (only available in German language), edited by Informationsstelle Militarisierung e.V., p. 7, retrievable at: https://www.imi-online.de/download/IMI-Analyse2016_6.pdf (last access: 31. January 2025).

Recent and current activities of the COE CSW include:

- participating in a range of NATO Working Groups,
- promoting global maritime security by organising side events within the Munich Security Conference (MSC) and through related project work,
- contributing to Allied Command Transformation's *Smart Defence* initiative "Deployable ASW[6] Barrier Operations",
- supporting the implementation of *NATO Maritime Synthetic Collective Training*, including the implementation of exercise *Dynamic Mirage* (2024),
- advocating the crucial role of the electro-magnetic spectrum (EMS) in maritime operations, supporting MARCOM and custodians in developing respective publications and fostering experimentation, education and training,
- supporting the *NATO Maritime Unmanned Systems Initiative* as part of the staff advisory groups (SAG) inside the steering board,
- co-sponsoring the *NATO's Industrial Advisory Group (NIAG)* study on "Industrial perspective on NATO's military digital underwater communications capability and new fields of applications",
- offering a computer-assisted wargaming capability to train maritime staffs at the tactical level and to support concept and warfare development in an analytical context,
- supporting REP(MUS), the series of *Robotic Experimentation and Prototyping Exercise* augmented by *Maritime Unmanned Systems*, and the *Dynamic Messenger* exercise series,
- starting a *Critical Maritime Infrastructure Protection* (CMIP) table-top exercise series (RUBIKON) focussing on cross-national and cross-directory governance issues, first iteration in 2024 in cooperation with the European Defence Agency (EDA) and participating nations,
- fostering maritime situational awareness from seabed-to-space through the development of a Multi Sensor Data Fusion Cell, utilizing space-based assets for operations in confined and shallow waters, and
- fostering a common understanding and the development of operational maritime law, e.g. by the annual "Conference on Operational Maritime Law".

2.2. Organisation

The *Centre of Excellence for Operations in Confined and Shallow Waters* is headed by a German rear admiral (OF-6) who – double-hatted – is Commander of the Federal German Navy's Flotilla 1 and **Director COE CSW** at the same time. Day-to-day operations are managed by a German **Executive Director**. This naval captain (OF-5) is supported by three branches, as *figure 2* shows.

The **Concepts and Doctrine Branch (CD Branch)** supports NATO's transformation needs to meet modern and emerging security challenges on the maritime domain, with emphasis on operations in CSW. It provides subject matter expertise on researching, addressing capability gaps and risks, offering guidelines for potential solutions and developing studies, concepts, and NATO doctrines. Concepts developed by the CD Branch serve as vehicles for the development of doctrine which then define how the Alliance's armed forces operate and utilize maritime power and naval assets.

6 ASW: Anti Submarine Warfare.

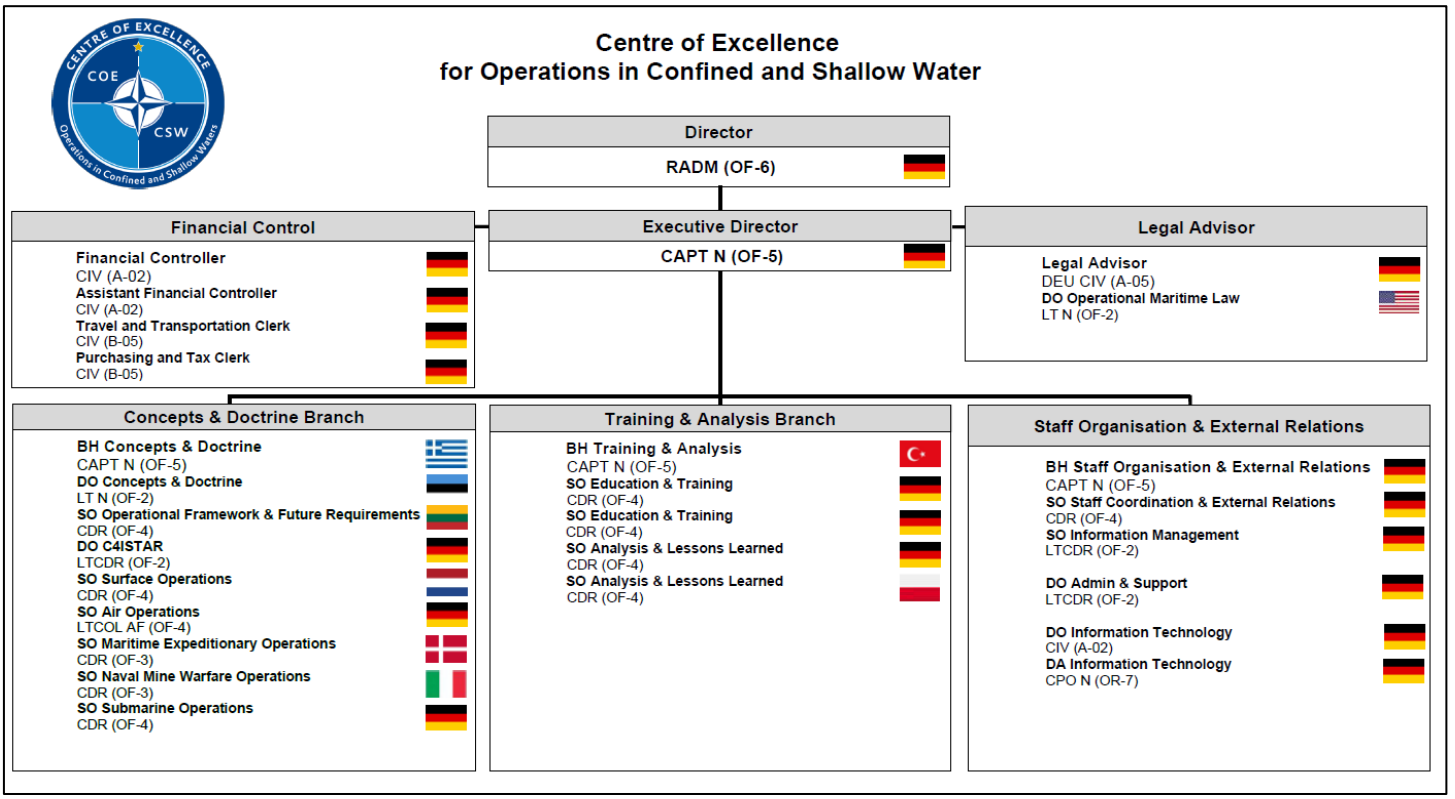

Figure 2: **COE CSW Organisational Structure** as of 1 December 2024[7]

The COE CSW's **Training & Analysis Branch (TA Branch)** provides joint and combined subject matter expertise in the field of *Education and Training, Exercises, Evaluation* (ETEE), as well as *Analysis & Lessons Learned* (A&LL) in order to support NATO's military transformation, the sponsoring nations and contributing partners as well as other customers, thereby enhancing NATO's inter-operability in the field of operations in CSW.

Within the spectrum of NATO ETEE, it contributes to and complements efforts by offering conceptual workings, workshops, conferences, virtual collective trainings, wargames, tangible support to NATO and multinational exercises and evaluation of headquarters/task groups.

Since 2016, the COE CSW is the NATO Department Head (DH) for the *Maritime Operations* discipline functioned by the TA Branch. As such, the COE CSW translates NATO's training requirements for maritime operations into education and training (E&T) solutions and coordinates all efforts to overcome identified gaps in individual and collective training issues.

As A&LL is an important trigger for improving NATO doctrines and capabilities, the TA Branch assists NATO headquarters and NATO member states in executing the *NATO Lessons Learned Process* by gathering observations and working on tailored solutions.

7 Source: Centre of Excellence on Operations in Confined and Shallow Waters (COE CSW).

The **Staff Organisation & External Relations Branch (SE Branch)** is integral to COE CSW, providing administrative and IT support. It manages event coordination, programme of work development, and external contacts. The *Admin & Support Cell* handles personnel matters, correspondence, office supplies, and the staff car-pool. The *Information Technology Cell* ensures smooth operation of networks and maintains technical links and websites. In addition to these administrative tasks, the SE Branch supports the other branches with specialist expertise. The SE Branch is also responsible for cooperation with prominent external entities and organisations, like the *Munich Security Conference* (MSC). In this context, special events are planned and conducted, e.g. the *Maritime Security Side Event* for high-ranking participants at the MSC.

2.3. Personnel Strength and Structure

According to the Federal Ministry of Defence of Germany (FMoD), the peacetime establishment of the COE CSW as set out in the relevant MoU comprises 39 posts. 28 of these posts are currently manned by the 10 sponsoring nations (see *figure 2*). These are Denmark, Estonia, Germany (FN), Greece, Italy, Lithuania, the Netherlands, Poland, Türkiye, and the U.S.A. Germany is currently filling 19 positions: 13 military personnel and 6 civilians.[8]

2.4. Funding

The level of the COE CSW's expenses varied only marginally over the years. A total budget of EUR 409,100 is planned for the COE in 2025, of which Germany will contribute EUR 296,245. This corresponds to a German share of 72 percent of the COE CSW's total expenditure.[9] The German budget funds for the COE CSW are provided from Chapter 1401 Title 678 02 of "Einzelplan 14" which is the German defence budget plan.

3. Joint Air Power Competence Centre

3.1. Tasks and Activities

The *Joint Air Power Competence Centre* (JAPCC) was set up on a German initiative on 1 January 2005 to become the strategic-level knowledge and innovation hub for Joint *Air and Space (*A&S), that was missing in NATO so far. Soon thereafter, JAPCC was accredited as NATO's first COE and, as such, is tasked with the development of innovative concepts and solutions required for the transformation of *A&S Power* within the Alliance and the Nations.

For these tasks, the JAPCC has a variety of experienced subject matter experts at its disposal from all services. They support both NATO headquarters and all allies and partners. They conduct collaborative research by leveraging their independent thoughts and a global network of experts across military, academia, and industry. Their focus areas are:

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8 Source: Centre of Excellence on Operations in Confined and Shallow Waters (COE CSW).

9 Source: Federal Ministry of Defence of Germany (FMoD).

- Joint All-Domain Operations and Command & Control (C2),
- Cyberspace Integration,
- Rotary Wing / Vertical Lift Transformation,
- Joint ISR and Big Data Management,
- Integrated Air and Missile Defence,
- Electromagnetic Spectrum Operations,
- Logistics Support to Air Operations,
- Force Protection,
- Unmanned Air Systems (UAS) / Countering UAS,
- Emerging Technologies,
- Resilient Basing, and
- Space Support in Operations.

By covering these focus areas, the JAPCC has developed into NATO's Air and Space Power Think Tank. It continues to lead NATO in developing of concepts and doctrine, capability development, ETEE, and lessons learned. Current activities of the JAPCC include:

- organising the **JAPCC Conference** which attracts senior representatives from the military, industry and academia, with attendance of more than 200 flag officers in the last three years. The JAPCC Conference is usually held each autumn. The topic is always up-to-date and derived from strategic military and political guidance;
- establishing two annual events, the **Think Tank Forum** and the **Joint Air and Space Power Network (JASPN) Meeting**. These meetings bring together national air warfare centres and similar Air and Space think tanks, respectively NATO, EU and MoU organizations, to identify areas of common concern and opportunities to improve collaboration in developing concrete solutions to real problems;
- supporting NATO doctrine development and working groups. The JAPCC is active across the spectrum of Joint Air and Space Power to ensure NATO doctrine is updated and provides subject matter expertise to numerous **NATO working groups and committees**. As examples, publications as the "Allied Joint Doctrine for Air and Space Operations" (AJP-3.3) and the Allied Tactical Publication "Use of Helicopters in Land Operations" (ATP 49G) are both managed at the JAPCC, as are numerous others;
- delivering exercise support. The JAPCC provides A&S power expertise to the Joint Warfare Centre and AIRCOM Ramstein during **exercises**. The role of the JAPCC is to provide highly dynamic and realistic opposing forces (OPFOR) air, space and cyber play in support of OPFOR's concept of operations and exercise training objectives by building and executing an OPFOR Air Tasking Order and injecting incidents through the Joint Exercise Management Module;
- publishing the **JAPCC Journal**. The JAPCC Journal is the COE's flagship publication reflecting key A&S topics. Deliberately considering busy readers, the Journal publishes pertinent, short (2,000–2,500 words) articles from contributors across the Joint A&S Power community; and
- publishing an **Annual Report**. The Annual Report is a retrospective report, summarizing JAPCC's work of the last year. JAPCC usually sends it to its sponsoring nations in February. It offers an overview about what the JAPCC has achieved in the year before and it also previews the coming year.

3.2. Organisation

The Joint Air Power Competence Centre is headed by a U.S. four-star general who – multi-hatted – is Commander U.S. Air Forces in Europe, Commander U.S. Air Forces Africa, Commander Allied Air Command and **Director JAPCC** at the same time. He is supported by a German lieutenant general, who – double-hatted – serves not only as JAPCC's **Executive Director** but also as Commander of the German Air Operations Command. The command group is completed by an **Assistant Director** who is alternately appointed by the Netherlands and Italy, and a **Chief of Staff** who is a U.S. colonel (see *figure 3*).

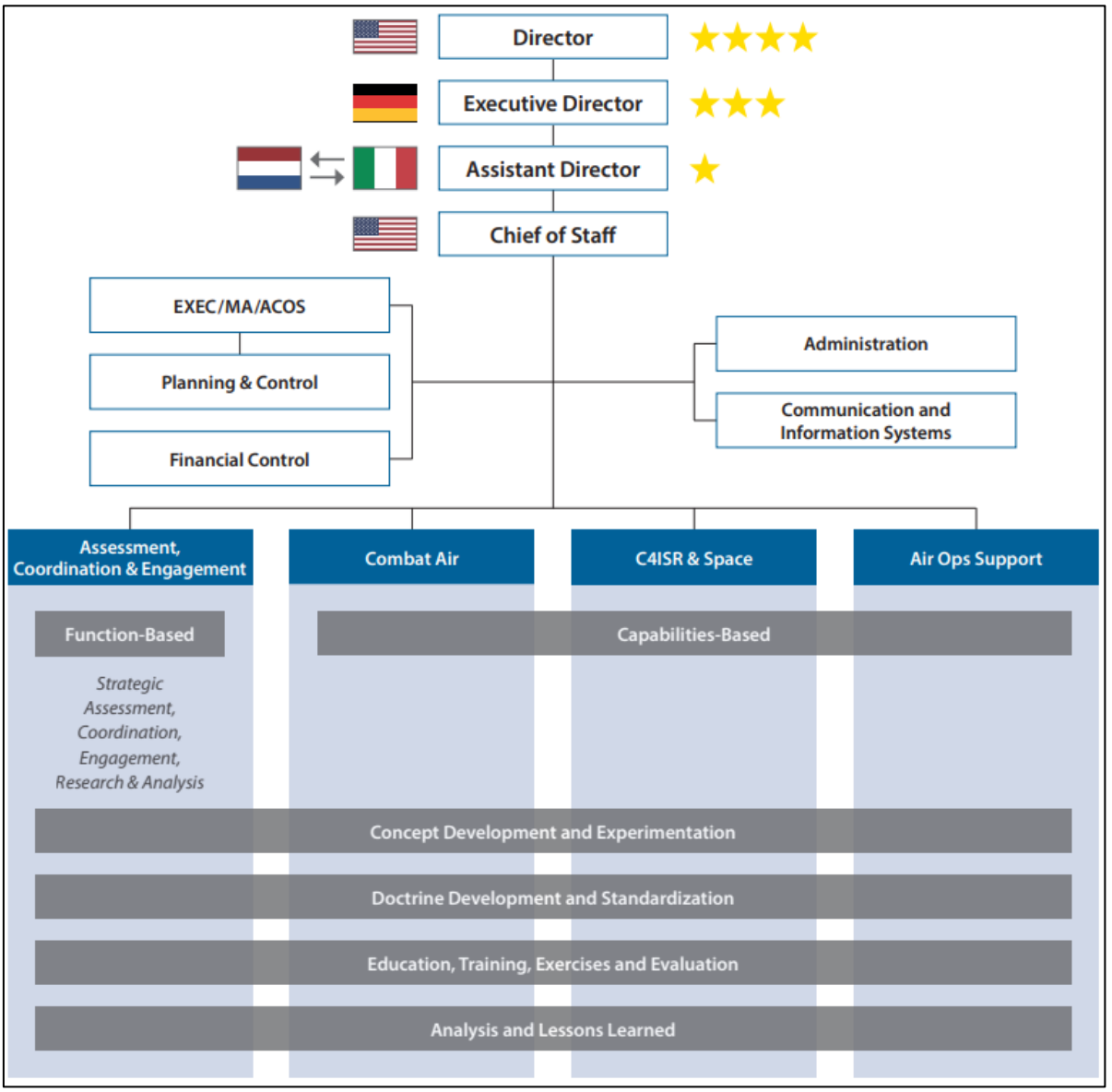

Figure 3: **JAPCC Organisational Structure**[10]

10 Source: Joint Air Power Competence Centre (JAPCC): *annual REPORT 2022*, published in April 2023, p. 8, retrievable at: https://www.japcc.org/wp-content/uploads/JAPCC-Annual-Report-2022.pdf (last access: 31. January 2025).

Below the director level, there are **four specialist branches** dealing with the topics of Assessment, Coordination, and Engagement (ACE), Combat Air (CA), Air Operations Support (AOS) and Command and Control, Communication, Computer, Intelligence, Surveillance, Reconnaissance and Space (C5ISR&S).

The **Assessment, Coordination and Engagement Branch** (ACE Branch) provides cross-functional capabilities and expertise in concept development, doctrine, and vision in support of the JAPCC's activities and projects. The branch's SMEs coordinate support to training and exercises, provide information and assessments available in the *NATO Lessons Learned Process*, as well as focused analysis of INTEL products. Additionally, they make sure that the newest developments in capabilities and defence planning related to NATO's warfare development agenda are considered in the JAPCC's programme of work. The ACE Branch also supports planning and organisation of the JAPCC's main engagement events (the annual Joint Air & Space Power Conference, the Think Tank Forum, and the Joint Air & Space Power Network Meeting) and manages the process to draft, layout and distribute the JAPCC's publications.

Combat Air (CA) is at the heart of Joint Air Power. NATO's ability to deter and defend relies on the freedom of manoeuvre throughout all domains. Combat Air contributes to that freedom by providing Air Superiority, Suppression of Enemy Air Defences, Air Interdiction, Electromagnetic Operations, Close Air Support, Integrated Air and Missile Defence, NATO Ballistic Missile Defence, and Personnel Recovery. The **Combat Air Branch** (CA Branch) incorporates manned and unmanned platforms, with fixed and rotary-wing aircraft, and draws from all components within Alliance air and space forces.

The **Air Operations Support Branch** (AOS Branch) amalgamates Combat Support (CS) and Combat Service Support (CSS) functions into a single entity that is the JAPCC's 'one-stop-shop' for all functions that enable A&S power projection. Areas of specific focus include but are not limited to Air Mobility (Air Transport and Air to Air Refuelling), Joint Personnel Recovery (JPR), Joint Rotary Wing Operations, Electronic Warfare (EW), Force Protection (FP), and Logistics. These activities are fundamental to the effective and resource-efficient delivery of NATO Air and Space Power.

Command, Control, Communication, Computers, Cyber, Intelligence, Surveillance, Reconnaissance, and Space (C5ISR&S) are key enablers for Air Power and its integration with the other domains. This combination of information-driven C2 encompasses all air activities and provides seamless integration of information across all domains to gain a shared understanding of the operational environment in support of decision-making while securing the network from attack or compromise. C5ISR&S's relevance and criticality are only increasing as NATO embraces the concept of *Multi-Domain Operations* to deliver Air Power integrated and synchronized with other military and non-military instruments of power. To that end, the **C5ISR&S Branch** embraces a large diversity of competencies thanks to a multinational team of SMEs constantly supporting NATO's future force and capability development; this includes NATO's newest operational domains, Cyberspace and Space.

3.3. Personnel Strength and Structure

The peacetime establishment (PE) defined in the MoU for the JAPCC comprises 90 posts[11], which Belgium, Canada, the Czech Republic, Germany (FN), Spain, the United Kingdom, Greece, Hungary, Italy, the Netherlands, Poland, Romania, Türkiye, Hungary, and the U.S.A. as JAPCC's 17 sponsoring nations[12] are in principle obliged to fill. Out of these 90 positions, 21 are permanently assigned to Germany and 62 to the other MoU nations.[13] With its numbers of sponsoring nations and PE posts, the JAPCC is among the COEs' top three.

All of the above-mentioned sponsoring nations reliably contribute to the funding of the JAPCC according to the MoU, i.e. they finance the COE in an amount corresponding to the posts allocated to them by the MoU. However, some of them do not fully meet their personnel obligations. Thus, the JAPCC team currently comprises only 52 (of 90) staff members.[14] With its current manning of only 58 percent, the JAPCC has the highest number of post vacancies of all COEs. The level of manned subject matter experts posts reaches even only roughly 50 percent.[15]

Germany currently provides 20 staff members for the JAPCC. 17 of them are military and 3 are civilian personnel (1 civil servant and 2 clerks).

3.4. Funding

In recent years, the JAPCC's budgets have always been under the 1 million euro mark. Thus, a EUR 848,700 budget was approved for the financial year of 2025. As described in the JAPCC MoU, the sponsoring nations mentioned in para. 3.3. are contributing to JAPCC's budget according to the number of staff officers in their bid. The budget is expended primarily on travel, supplies and services (55 percent), personnel-related expenditures (31 percent), and replacement of furniture, as well as hard- and software upgrades for automated information systems (14 percent).[16]

The German budget funds for the JAPCC are provided from Chapter 1401 Title 678 02 of "Einzelplan 14". In 2025, Germany plans to contribute EUR 224,185 to the financing of the JAPCC which corresponds to a share of about 26 percent.[17]

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11 Source: Federal Ministry of Defence of Germany (FMoD).

12 Allied Command Transformation (ACT): *NATO Accredited Centres Of Excellence 2016*, printed in December 2015, p. 30, retrievable at: https://cmdrcoe.org/fls/pubs/2016_Catalogue_Final_1_Dec_2015_v2.pdf (last access: 31. January 2025).

13 Source: Joint Air Power Competence Centre (JAPCC).

14 Source: Joint Air Power Competence Centre (JAPCC).

15 Joint Air Power Competence Centre (JAPCC): *annual REPORT 2023*, published in January 2024, p. 7, retrievable at: https://www.japcc.org/wp-content/uploads/JAPCC-2023-Annual-Report-Web.pdf (last access: 31. January 2025).

16 Joint Air Power Competence Centre (JAPCC): *annual REPORT 2021*, published in March 2022, p. 4, retrievable at: https://www.japcc.org/wp-content/uploads/JAPCC_Annual_Report_2021.pdf (last access: 31. January 2025).

17 Source: Federal Ministry of Defence of Germany (FMoD).

4. Military Engineering Centre of Excellence

4.1. Tasks and Activities

The *Military Engineering Centre of Excellence* (MILENG COE) emerged from the *Euro NATO Training Engineer Centre* (ENTEC) which was founded in 1977. As ENTEC no longer suited the requirements for training and information exchange, the ENTAC member nations agreed in 2006 to transform this centre into the MILENG COE which was set up immediately afterwards and finally accredited by NATO on 9 July 2008.

The MILENG COE's purpose is to provide recognised MILENG expertise and experience to enable the continued development of sponsoring nations and Alliance military engineering capability and interoperability. Against the background of the Russian attack on Ukraine, which has had a significant impact on MILENG related topics especially mobility (e.g. bridging) and counter-mobility (e.g. barriers), the COE captures the essential observations from warfighting activities and staffed them into the panels of MILENG working groups. This ensures that the MILENG community remains current and prepared to support the collective defence for NATO from a MILENG capability. The independent nature of the MILENG COE ensures that the key MILENG gaps are identified and highlighted to the senior MILENG advisors across the NATO Command and Force Structure.

In order to provide NATO and its partners a military engineering knowledge hub, the COE is engaged in

- delivering **the secretariat function** to the **NATO MILENG WG panels** and the **NATO Senior Joint Engineer Conference**,
- delivering three **Community Updates** a year but also sharing routine updates via the MILENG COE portal where the *MILENG Ukraine Observations* page is available which provides space to pull MILENG observations and analysis – all observations gained from open-source material,
- supporting **NATO doctrine development** and several working groups. The MILENG COE manages publications as
  - AJP-3.12 (B) "Allied Joint Publication for Military Engineering" – STANAG 2238,
  - ATP-3.12.1 "Allied Tactical Publication for Military Engineering" – STANAG 2394,
  - ATP-3.12.1.1 "Allied Tactical Publication for Military Search" – STANAG 2283,
  - AEngrP-3.12.1.2 "Allied Engineer Publication for Military Search Training Requirements" – STANAG 2626, and
  - ATP-3.12.1.3 "Route Clearance" – STANAG 2625,
- providing **education & training (E&T)**: As an accredited NATO E&T facility, the MILENG COE delivered a mobile training team to Italy in 2024 and conducted 13 courses at the home location in Ingolstadt. In total, 370 students were trained in 2024 covering MILENG areas from the tactical to operational level. In addition to this, the courses have supported a number of partner nations which have included personnel from the Ukraine.

  The high demand for MILENG subject matter expertise will probably continue in 2025. Specific support for MILENG in the areas of targeting, force protection software development, mobile training teams in Türkiye and the United States of America, instructor support, and support to wider collective training events in a broader sense are on the agenda for 2025.

4.2. Organisation

The mission of the MILENG COE is reflected by its organisational structure (see *figure 4*). It consists of a **Command Group** and two specialist branches, the **Policies, Concepts & Doctrine Branch** and the **Training & Education Branch**. They are supported by the **Support Branch**.

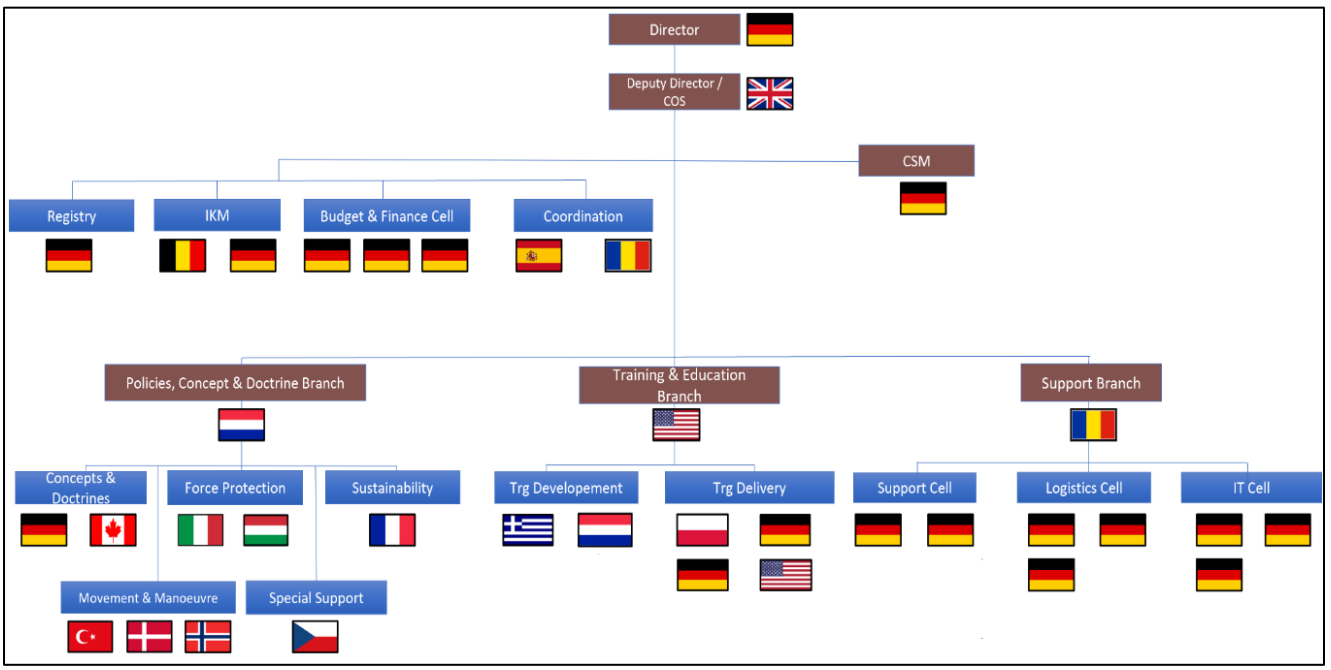

Figure 4: **MILENG COE Organisational Structure**[18]

The **Director MILENG COE** is provided by the framework nation Germany. This colonel (OF-5) reports directly to the MILENG COE Steering Committee, which is established by the sponsoring nations for guidance, oversight and decisions on all matters concerning the administration, policy, and operation of the MILENG COE. He is assisted by a British **Deputy Director** who additionally performs the **Chief of Staff** duties.

As all COES, the MILENG COE is part of Allied Command Transformation's *transformation network* coordinated by the Headquarters of Supreme Allied Commander Transformation (HQ SACT). Among many other tasks, HQ SACT is responsible for coordinating the efforts of the COE MILENG within NATO.

18 Source: Military Engineering Centre of Excellence, *MILENG COE Organisation*, retrievable at: https://milengcoe.org/milengcoe/Pages/Organisation.aspx (last access: 31. January 2025).

4.3. Personnel Strength and Structure

The peacetime establishment of the MILENG COE as set out in the relevant MoU comprises 50 posts[19], of which 18 are allocated to Germany. These posts are manned by military and civilian personnel from Belgium, Canada, the Czech Republic, Germany (FN), Denmark, Spain, France, the United Kingdom, Greece, Hungary, Italy, the Netherlands, Norway, Poland, Romania, Türkiye, and the U.S.A.[20] With regard to its 17 sponsoring nations, MILENG COE is the second biggest centre of excellence.

Below director level, the MILENG COE team currently comprises 35 staff members from all 17 SN.[21] Germany itself is currently filling 100 percent of its allocated 18 posts.

4.4. Funding

The MILENG COE's sponsoring nations contribute to the budget according to the number of staff officers in their bid. In 2025, a total budget of EUR 422,906 is planned for the COE.[22]

The German budget funds for the MILENG COE are provided from Chapter 1401 Title 678 02 of "Einzelplan 14". In 2025, Germany plans to contribute EUR 115,338 to the financing of this COE which corresponds to a share of about 27 percent. [23]

Germany not only contributes its share to the financing of this COE, but also provides the infrastructure (one building in the engineer barracks of Ingolstadt).

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19 Source: Federal Ministry of Defence of Germany (FMoD).

20 Allied Command Transformation (ACT): *NATO Accredited Centres Of Excellence 2016*, printed in December 2015, p. 34, retrievable at: https://cmdrcoe.org/fls/pubs/2016_Catalogue_Final_1_Dec_2015_v2.pdf (last access: 31. January 2025).

21 See *figure 4* and *MILENG COE Mission* poster at the NATO EOD Demonstrations and Trials on 11-12 October 2023 in Bratislava. A photo of this poster is retrievable from MILENG COE's facebook page at: https://www.facebook.com/photo/?fbid=650612400509073&set=pb.100066809571255.-2207520000&locale=de_DE (last access: 31. January 2025).

22 Source: Federal Ministry of Defence of Germany (FMoD).

23 Source: Federal Ministry of Defence of Germany (FMoD).