IM/C4: Cross-Functional, Innovation-minded, and Fit for Future

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For managers today there can be some confusion around the concepts of information technology (IT) and information management (IM). Both are important, but what is the difference between the two, how are they related, and how can they both be executed effectively? The Joint Warfare Centre (JWC) has been able to develop a critical capability and establish a synergy, which combines both and even more: the Information Management and Command, Control, Computer and Communications (IM/C4) Branch!

Exercise Information Management, CIS Planning

The role of the planning teams in IM/C4 is to lead, oversee, and manage IM and communications and information systems (CIS) implementation to support the JWC's operational- and strategic-level exercises. These exercises provide unique challenges that require planning, preparation, and operation of dynamic and smart solutions for portals, information sharing platforms, tools, and services in multi-classification domains. The planning teams must ensure that all user requirements are understood, from headquarters-level information exchange requirements down to individual needs, and that all stakeholders have the information they need to make timely and informed decisions. Throughout the planning and execution of an event, the team provides senior leadership advice on any issue affecting the cyber domain. The IM planner provides training to the exercise community, demonstrating how CIS/IM tools can support their decision-making processes while providing guidance on information policies and practices. Following any loss or reduction of services, recovery strategies are developed, or mitigation put in place, to ensure the operational community is able to complete its mission.

Why is the JWC's EXCON IM/C4 Unique?

An operational headquarters is divided into two IM teams: the business information management (BIM) team, which focuses on the management

of portals, document centres, and the JWC's internal tasking tool; and the J33 (current operations) team, which focuses on staff access to functional services. Both teams also liaise independently with the NATO J6 (cyberspace) CIS support organizations. The unique aspect of the JWC is that IM/C4 has established truly cross-functional teams capable of fully representing the BIM, J33, and J6 roles within the exercise control (EXCON) realm. This expertise does not merely come together temporarily to fulfil this role but is permanently retained within IM/C4 to ensure that effective coordination takes place on a daily basis. This significant pillar of training and exercise planning expertise has a proven track record of success since its implementation in 2015 and continues to mature as we strive to maintain pace with high-technology domains and the long-term IT ambitions of NATO.

Due to the increased complexity of the events, our teams have had to reach out more than ever to coordinate high-level technical preparation of NATO's major joint operation and small joint operation exercises, whilst continuing to plan solely from the JWC. Today distributed exercises are a reality and IM/C4 is at the heart of finding new, innovative ways of preparing NATO forces for operations while all units remain at their own headquarters. Our capable and experienced teams are planning and introducing the increased use of collaborative platforms to support smart, fast, dynamic information sharing, both within NATO and beyond. Additionally, exercises directed by the JWC have contributed significantly to NATO's lessons learned programme regarding interoperability capabilities both within the Alliance, nations, and with partners.

"Smart, fast, dynamic information sharing, both within NATO and beyond."

These lessons are now even more critical with NATO in its transition from the current mission network philosophy to a new, more collaborative "operational network" (OPNET) and a high focus on data-centric security.

Emerging technologies such as artificial intelligence are currently being tested within Headquarters Allied Commander Transformation (HQ SACT), providing near real-time analysis and tracking of official tasking, optimizing resources and management, and furnishing key stakeholders with the information that is pertinent to their role. Implementation of these emerging technologies into the JWC will be tested and proven during exercises and will transform the way NATO conducts its operations. With an innovative mindset and a forward-leaning data-centric capability development approach, the IM/C4 team, including the cross-functional planning teams, Education, Training, Exercise and Evaluation Functional Services (ETEE FS) management, and webmaster will continue to support in the JWC's future-focused journey.

The Role of the ET&I Webmaster

The key role of the Exercise, Training and Innovation (ET&I) Directorate webmaster within IM/C4 is to support all information environment needs for operational-level training events, from conception to implementation, for all web-based tools and services required by the EXCON. With the increased complexity of the information environment, the webmaster role has evolved from being primarily focused on exercise web design to becoming an integral part of the JWC's ETEE FS initiatives and a major support for the JWC users. With this advancement in tools and technology requirements, the webmaster has utilized the best of their technical expertise and skills to develop and design the information environments to support the operational team's needs.

Off-the-shelf web-based solutions have become a thing of the past and the webmaster's day-to-day business requires them to gather exercise user requirements, then analyse, design, and implement bespoke solutions that are fit for purpose, meet the needs of the customer and allow the exercise staff to work easily within the environment. Additional webmaster tasks (outside of operational exercises and ETEE FS) include provision of JWC staff training on evolving technologies, such as NATO's Enterprise Document Management System (EDMS), Microsoft SharePoint and other NATO functional services.

RIGHT
(From top) The IM/C4 staff, Tobias Mueller, Taylor Erickson and Darren Gildert

BELOW
(From left) Phillip Rozon and Bogdan Sosnowski, IM/C4 planners, during a discussion; joint CIS/IM meeting during STEADFAST JUPITER-JACKAL 2020

The webmaster is constantly researching, investigating and sandbox testing all technologies newly available to the JWC, such as Advanced Distributed Learning and SharePoint communication hubs, all aimed towards improving EXCON training within exercises.

Functional Service Management

Improving and modifying tools and services tailored to our requirements, especially for modelling, simulation, scenario, and content processes, is essential for flexible and agile functionalities in the future. The ability to influence and steer capability development efforts, in order to provision the right tools and services, is of vital interest to the JWC as the main stakeholder in the ETEE community of interest. As an example, the new Functional Service Support and Management Team was established in 2017. Our aim is to transform enterprise towards a new capability development, innovation, and integration function. Amongst other things, this will require close coordination with ACT's ETEE FS, NATO Communications and Information (NCI) Agency, and other partners through robust programme management.

A New Paradigm of Data-centric Training and Exercise Information Platforms

Data has become one of the most valuable assets for any organization, and in a NATO training centre focusing on the joint operational and strategic levels, cyberspace teams, communities of interest and operational authorities must make changes, both culturally and technically, to ensure their strategy is fit for purpose. As NATO training and exercise levels of ambition generate greater complexity than ever before, we must be able to accommodate increasingly complex and data-intensive workloads. At first glance this calls for much faster networks and all-flash storage arrays, involving data-centric architectures. The recently agreed strategic collaboration partnership between the Commander JWC and the Director of the NCI Agency Academy will play an important role in future capability development and innovation initiatives, especially for the synthetic environment, which have to be effect- and process-based. IM/C4, with its mandate to plan, prepare, and operate NATO training and exercise information environments, will place greater focus on innovation in this context, primarily through its new Functional Services Support and Management Team. ✦

Lieutenant Colonel Dieter Heumueller has been the IM/C4 Branch Head since 2015. He was involved in the JWC's optimization process, helped design the new IM and C4 functional areas, drawing on his ISAF and NRF experience.