



NATO's Training Focal Point for Full-Spectrum Joint Operational- and Strategic-Level Warfare

JOINT WARFARE CENTRE

Joint Warfare Centre

Training NATO. Advancing Doctrine.
Integrating Concepts.

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**Joint Warfare Centre
Public Affairs Office (PAO)**

Lieutenant Colonel Stefan Kühling
German Army
Chief Public Affairs Officer

Major Marcus Lund
Norwegian Air Force
Deputy Chief Public Affairs Officer

Inci Kucukaksoy
NATO International Civilian
Public Affairs Officer

Editors

Lieutenant Colonel Stefan Kühling

Inci Kucukaksoy

Ruby Morrigan
NATO International Civilian
Linguistic Support

Sonia Bjerke Abdelmaguid

Design

Inci Kucukaksoy

Cover Photo

Yrjan Johansen
NATO International Civilian
Multimedia Specialist

Print

Bodoni



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H.E. Bjørn Arild Gram

Minister of Defence
Norway

The establishment of the Joint Warfare Centre (JWC) in 2003 coincided with the emergence of threats from outside of NATO's traditional area. These threats changed the Alliance's approach to security. The JWC responded and adapted to these challenges and made a substantial contribution to prepare both the Alliance and Allied forces for the challenges.

NATO faces a broad spectrum of challenges and threats. In Europe, the threshold for the use of military force has been lowered. Hybrid threats challenge how we traditionally think about peace, conflict and war. Terrorist attacks often originate in the arc of instability from Afghanistan to the Middle East and North Africa. The Russian attack of Ukraine in 2014 heralded the return of interstate military conflict to the Euro-Atlantic area. With the Russian attack on Ukraine on February 24, 2022, we have witnessed a full-scale war in Europe.

We have not allowed these threats and challenges to undermine Alliance cohesion and resolve. On the contrary, the Alliance has risen to the challenges and stands united to defend and protect all Allies. We are dealing with a Russia that is very different from the Russia we hoped would emerge with the dissolution of the Soviet Union. Rather than emerging as a partner for NATO, Russia has taken a path that sets it further apart from the West and the community of democracies.

The major changes in our security environment were triggered by Russia's illegal aggression against Ukraine. The world before this attack is not the same as the world we now face. Russia is asserting itself as a major power, based on spheres of influence. Recent developments represent a resurfacing of state-based threats with the potential to threaten European and transatlantic security.



Bjørn Arild Gram
Photo by Norwegian
Ministry of Defence

Norway remains committed to all the foundational principles underpinning European security, including that each country has the inherent right to choose its own security arrangements. Norway reaffirms its unwavering support for the independence, sovereignty, and territorial integrity of Ukraine within its internationally recognized borders.

We are fully committed to the mutual defence clause and security guarantees in NATO. We will defend every inch of NATO territory based on NATO's collective defence guarantees. We will defend Alliance territory as we will defend ourselves. Norway has already expanded its force contributions in Eastern Europe.

What capabilities does Putin have, and what capabilities do we need to counter this threat today and in the future? NATO's most important task after the end of the post-Cold War era is to defend our democracy, our freedom, and our prosperity. The JWC plays a key role in enabling NATO to carry out this task. NATO has strengthened its deterrence and defence posture. The Alliance must continue to strengthen its collective defence and deterrence capabilities. Allied Command Transformation (ACT), and within it the JWC, is leading the efforts in adapting NATO to a new security environment. It is imperative that ACT continues to play a key role in the continuous evolution of NATO. With Putin's war, there is a new urgency facing the Alliance. I am confident that ACT and the JWC will do what needs to be done in the years ahead.

More than 30,000 personnel from 27 Allied and partner countries deployed to Northern Norway as part of COLD RESPONSE 2022. The exercise schedule follows a predictable programmed cycle, taking place in even years. The JWC deserves credit for supporting the exercise; providing facilities, communications and information systems, and personnel. The exercise tested our ability to receive troops and equipment, with an emphasis on air and maritime forces. In addition to being a test, the exercise successfully demonstrated Alliance capability to generate relevant and flexible forces to our collective defence. The JWC will continue to play a key role in providing NATO forces with the strength, readiness, and the ability and agility necessary to face the very real challenges we are facing today and in the years to come.

Keep up the good work! ✦

"NATO's most important task after the end of the post-Cold War era is to defend our democracy, our freedom, and our prosperity. The Joint Warfare Centre plays a key role in enabling NATO to carry out this task."



General Philippe Lavigne

French Air Force
Supreme Allied Commander Transformation

I see the most important aspect of NATO's transformation, and its main objective, in collectively ensuring NATO's decisive advantage. This is critical for maintaining our relevance and ensuring we preserve the status of the most successful Alliance in history. We owe it to the one billion people we protect and secure. To do that, we have to take into consideration all the challenges we face, in order to adapt our military instrument of power at the right pace.

The critical milestone to achieve this vision will be the implementation of the Concept for the Deterrence and Defence of the Euro-Atlantic Area (DDA) and the NATO Warfighting Capstone Concept (NWCC), and through the Warfare Development Agenda and NATO Defence Planning Process.

In addition, to increase our readiness, we need to train together and be able to operate together. Interoperability is at the heart of our capability development. Our core task is the transformation of the military capacity of the Alliance, which is accomplished by taking the lead in improving the military capabilities of Allied and partner forces and adapting them to the changing security environment. Here, the Joint Warfare Centre (JWC) has a unique role.

Ever since the JWC was established in 2003, it has been an essential force of transformation throughout NATO. Today, the JWC is the Alliance's active link between warfighting effectiveness and warfare development, providing NATO with the best collective training at the operational and strategic levels.

NATO's defence posture requires this high level of training that the JWC provides, and it is the JWC's mission to take into account emerging threats so that NATO is ready and relevant to the full range of missions. This is a huge task and involves the cultivation of a "multi-domain mindset" to ensure our military transformation encompasses all five operational domains: land, sea, air, space and cyberspace.



General Philippe Lavigne
Photo by Headquarters Supreme
Allied Commander Transformation

The JWC's robust exercise programme is a clear and visible demonstration of our ability to maintain a high state of readiness across a full mission spectrum, and it serves as the cornerstone of the Alliance's credible deterrence. This is precisely why the JWC's work is so important and contributes immensely to the core tasks of the Alliance.

The JWC houses some of the most complex capabilities in the NATO Command Structure, such as modelling and simulation technologies to provide realistic training environments, 360-degree synthetic scenario generation, high-end media simulation capabilities, an adaptive advisory team and subject matter experts, and recently, wargaming. There is no better example than the JWC that highlights such a great fusion of training, conceptual advances, new ways of thinking, experimentation, doctrine, and wargaming — all contributing to the Alliance's strength and safety. Or as the JWC team likes to say it: to make NATO better!

The Russian aggression in Ukraine and the consequences that war has produced for the security of the Euro-Atlantic area is an additional trigger to accelerate the path of transformation. Facing an unprecedented range of threats, the NATO Alliance has shown that it is capable of changing its posture swiftly and effectively.

The JWC is NATO's main provider of multi-domain, realistic and challenging command post exercises at the operational and strategic levels. Moreover, operationalizing warfare development is core to the JWC's mission, which the Centre accomplishes with an unwavering commitment to Allied Command Transformation and the transatlantic security bond that links both sides of the Atlantic. The work of the JWC allows us to Win as a Team! ✦

"The Joint Warfare Centre houses some of the most complex capabilities in the NATO Command Structure, such as modelling and simulation technologies, 360-degree synthetic scenario generation, high-end media simulation capabilities, an adaptive advisory team and subject matter experts, and recently, wargaming."



General Eirik Kristoffersen

Norwegian Army
Chief of Defence
Norway

The North Atlantic Treaty Organization (NATO) is the most successful military alliance in history. Norway's membership in NATO has been the cornerstone of a credible defence of our nation since 1949. The Norwegian Armed Forces are closely integrated with NATO. Our standing defence plans are aligned with NATO's plans; we exercise and train often within the framework of NATO and we contribute to NATO military operations. It is important to the Norwegian Armed Forces that new capabilities and forces are as interoperable with NATO and Allies as possible.

Ever since the Joint Warfare Centre (JWC) was established in 2003, it has been a valuable and highly appreciated partner to the Norwegian Armed Forces. The bond with the Norwegian Joint Headquarters (NJHQ) is especially strong. Our national exercises are for the most part fully integrated with NATO exercises. The JWC is considered among the best organizations within NATO to use computer-assisted exercises (CAX). There is no doubt that Norway has benefitted greatly from the fruitful collaboration between the NJHQ and the JWC, especially on conducting command post exercises.

The skillful work of the dedicated women and men of the Joint Warfare Centre is much appreciated within NATO and by the Norwegian Armed Forces. Norway is grateful that NATO chose to establish the JWC in Norway, and this well-established cooperation will continue to expand in the years to come. ✦



General Eirik Kristoffersen
Photo by Norwegian
Ministry of Defence



ABOVE

Major General Piotr Malinowski, Commander JWC, with General Eirik Kristoffersen and Vice Admiral Elisabeth Natvig, Chief of the Norwegian Defence Staff, February 14, 2022. Photo by Forsvaret



Major General Piotr Malinowski

Polish Army
Commander Joint Warfare Centre

I felt honoured to assume command of the Joint Warfare Centre (JWC) on October 8, 2021. The JWC is a unique organization focused on making NATO better by delivering high-intensity and high-value training at the operational and strategic levels, as well as warfare development to keep and hone our military edge.

The JWC's broad record of achievement is an output of its One Team, who ensures every day that the Centre remains fit for the future in the continuously changing, challenging, and competitive security environment we face. We ensure this not only through our existing mission strands, but also by identifying new initiatives to serve the Alliance.

The JWC's internal optimization programme has resulted in a new vision and a new set of innovative capabilities for NATO, such as wargaming design, which achieved full operational capability in early 2022.

The aim of the JWC's organizational approach is clear: As NATO's premier training establishment at the operational and strategic levels, the JWC is determined to ensure that NATO forces are well-trained and ready to meet all the requirements of the Alliance, providing 360-degree protection of NATO territory in an era of increased uncertainty.

This is especially important since we have all observed how the world has changed over the past decade.

The key is that NATO is ready and prepared: The Alliance will always firmly respond to any deterioration of our security environment, including through strengthening our deterrence and collective defence to prevent conflict and preserve peace.

As you will read in this book, the JWC has been one of the key contributors to the rapidly deployable NATO Response Force (NRF): The JWC's first exercise took place in February 2004 for the NRF, mere months after the Centre's activation on October 23, 2003.



Major General
Piotr Malinowski

Almost 20 years later, through its operational- and strategic-level collective training, the JWC continues to test Allied forces' readiness and preparedness, thus making the Alliance even stronger — in all warfare domains.

Computer-assisted command post exercises remain the JWC's top priority; however, we are an organization focused on innovation, and so our output is multifaceted. As the Alliance evolves to meet the challenges that lie ahead, we must monitor and acknowledge these challenges to ensure that we deliver the high-quality outputs that are required from us.

The JWC is keen to support the delivery and implementation of Allied Command Transformation's (ACT) Warfare Development Agenda (WDA), as well as the NATO Warfighting Capstone Concept (NWCC) — a cornerstone of our military adaptation. Together, both initiatives describe the near- and long-term operational and transformational intent of the Alliance at the strategic level. As NATO's trusted advisor bridging the worlds of Operations and Transformation, we have an exciting task ahead of us in assisting our strategic headquarters to test many of the new concepts brought forth by these initiatives. I am especially keen on further integrating cyberspace and space support to operations into our operational-level exercises and supporting a new flow of experimental activities now and in the future.

We also aim to establish a link between the Concept for the Deterrence and Defence of the Euro-Atlantic Area (DDA) and the WDA, focusing particularly on our new wargaming enterprise. The JWC's Wargaming Branch is indeed Headquarters Supreme Allied Commander Transformation's (HQ SACT) premier wargaming spoke, able to deliver up to four large wargames per year to satisfy the needs of NATO and the member and partner nations.

All this comes in addition to the JWC's delivery of NATO's most complex computer-assisted command post exercises — no small feat altogether, especially considering the approximately 20-month planning process for each exercise, which requires meticulous attention to detail.

The JWC is home to a diverse, flexible, creative and innovative workforce from 17 NATO nations. Our One Team ethos is key in our achievements; not only to prove that warfare is our business, but to display that we are the best at it!

In closing, I would like to thank our Norwegian partners. I greatly appreciate Norway's outstanding host nation support for the JWC, built on trust, close cooperation and open dialogue. We are all proud to serve NATO here in Stavanger, ensuring our common security for present and future generations.

Together, we make NATO better. ✦

"Our One Team ethos is the key in our broad record of achievement; not only to prove that warfare is our business, but to display that we are the best at it!"

Introduction

NATO's Joint Warfare Centre (JWC) is a unique organization that brings together staff members from a large number of NATO nations — 17 as of this writing. This book aims not only to provide an insight into where we are today and how we got there, but also to show how important the Centre is for NATO and its transformation.

The JWC was inaugurated on October 23, 2003, at Jåttå, Stavanger, Norway, as part of NATO's then newly established strategic command Allied Command Transformation, subordinate to Headquarters Supreme Allied Commander Transformation in Norfolk, Virginia, United States. The Centre was established as a means of taking the NATO transformation capability many steps further through the provision of operational-level joint and combined training for Alliance and partner forces, as mandated by our heads of state and government at the 2002 Prague Summit.

By continuously adapting its training construct to new levels of ambition, the JWC pursued its primary mission of preparing NATO operational leaders and their staffs for real-world operations. Training driven by a concept, doctrine and experimental basis and the construction of its new training facility in Jåttå defined the JWC's first decade. Through the delivery of transformational training — involving new concepts and supporting doctrine — combined with traditional elements of collective training, the Centre was able to present NATO with innovative solutions, test new ideas and operationalize concepts. Thanks to the JWC's training construct and approach, lessons identified became lessons learned, accessible to the entire organization.

The JWC has undergone several structural changes since then, especially following the completion of the International Security Assistance Force (ISAF) mission in 2014. Today the JWC is the principal operational- and strategic-level command post exercise facilitator in NATO, with a highly qualified and skilled workforce to meet NATO's current and future demands. In addition, the Centre's wargaming design capability, which achieved its full operational capability status on January 31, 2022, strives to accelerate Alliance learning as our new training and education enterprise.

As the Public Affairs team, we have been telling the JWC's story ever since our inception, helping to bring command information to audiences on and off the premises and further their understanding of the Centre's mission. We are hugely grateful to all our contributors who have helped us in piecing together our unique story over the years. We are all proud to have played our part in delivering transformation to NATO through training. If transformation means world-class training as well as doctrinal, cultural, organizational and technological advancements, new capabilities, constant innovation and stronger partnerships, then the first two decades of the Joint Warfare Centre have certainly been transformational. ✦

Lieutenant Colonel Stefan Kühling
German Army
Chief Public Affairs Officer and
Public Affairs Office/Media Simulation Branch Head

RIGHT

Top: The JWC's activation ceremony on October 23, 2003 (from back to front): General Sir Jack Deverell (Retired), former Commander Allied Forces North; General James Jones (Retired), former Supreme Allied Commander Europe (SACEUR); Kristin Krohn Devold, the former Norwegian Minister of Defence; Admiral Edmund P. Giambastiani, Jr. (Retired), NATO's first Supreme Allied Commander Transformation (SACT), and Lieutenant General Thorstein Skiaker (Retired), the first Director of the JWC

Bottom: Major General Piotr Malinowski speaking at the JWC Change of Command ceremony on October 8, 2021



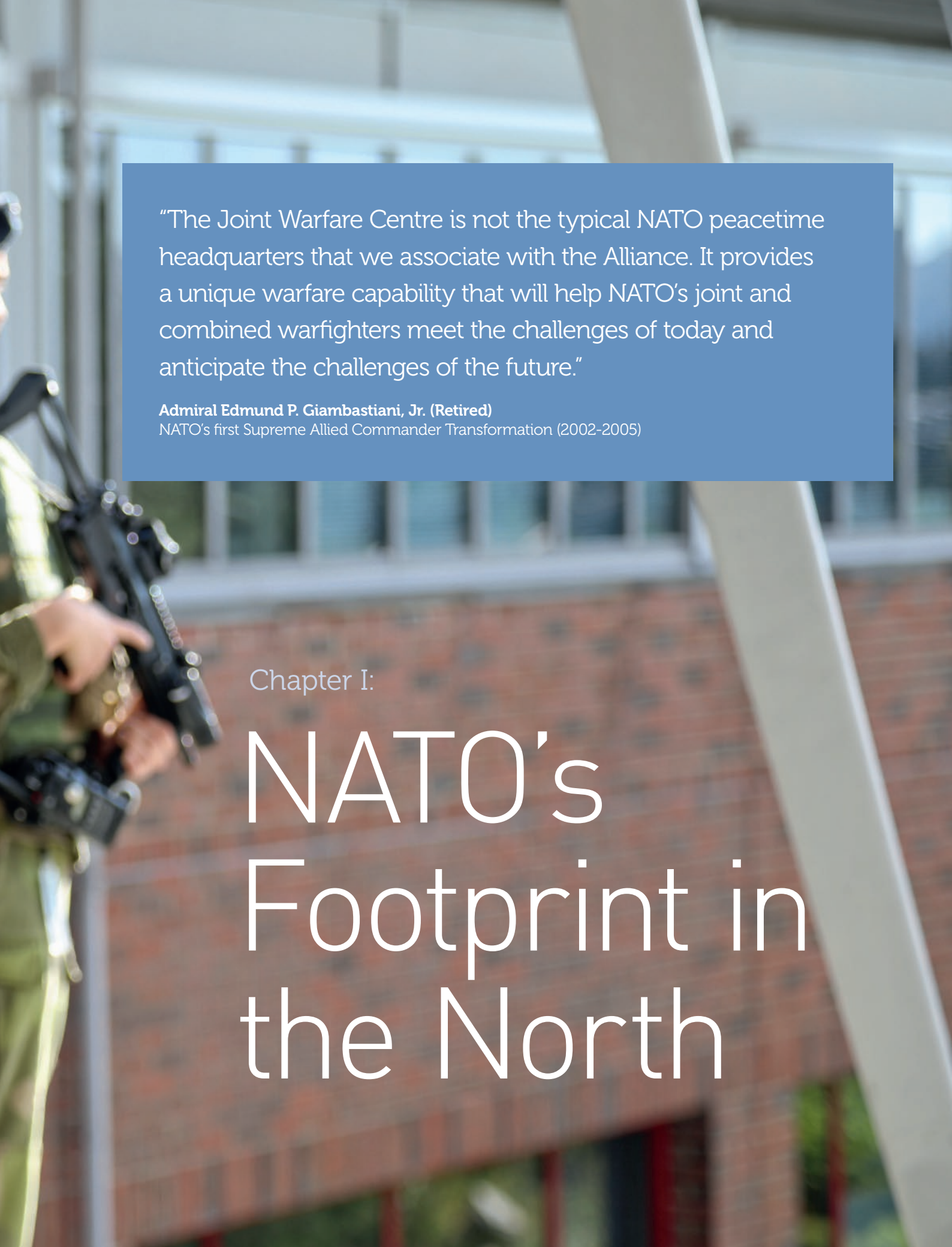
2003



2021







"The Joint Warfare Centre is not the typical NATO peacetime headquarters that we associate with the Alliance. It provides a unique warfare capability that will help NATO's joint and combined warfighters meet the challenges of today and anticipate the challenges of the future."

Admiral Edmund P. Giambastiani, Jr. (Retired)

NATO's first Supreme Allied Commander Transformation (2002-2005)

Chapter I:

NATO's Footprint in the North



ON OCTOBER 23, 2003, Kristin Krohn Devold, the then Norwegian Minister of Defence; Admiral Edmund P. Giambastiani, Jr. (Retired), NATO's first Supreme Allied Commander Transformation (SACT); General James Jones (Retired), the then Supreme Allied Commander Europe (SACEUR); local authorities and military representatives assembled in Stavanger, Norway, to celebrate the activation of NATO's new training establishment: the Joint Warfare Centre (JWC).

In his keynote speech SACT stated: "This is the new NATO that we will need in the 21st century. Keeping our focus on delivering products today, not years from now, is exactly why the activation of the Joint Warfare Centre is so important for NATO. Let the spirit of innovation become a new northern light for our Alliance here in Stavanger."

Lieutenant General Thorstein Skiaker (Retired), who previously led NATO Kosovo Force 5 (KFOR 5), was appointed as the first Director of the JWC.

Almost 20 years later, "the Jewel in the Crown of Allied Command Transformation", as described by the SACT during a press conference following its activation, the JWC remains one of the most groundbreaking organizations within NATO, and a lead contributor to its 360-degree readiness at the operational and strategic levels of warfare.

ABOVE

The signing of the Transfer of Tasking Authority from Supreme Headquarters Allied Powers Europe (SHAPE) to Headquarters Supreme Allied Commander Transformation (HQ SACT) on July 17, 2003, to establish the JWC in Stavanger, Norway. Admiral Edmund P. Giambastiani Jr. (Retired); General Harald Kujat (Retired), centre, the former Chairman of the NATO Military Committee, and Admiral Rainer Feist (1945-2007), then Deputy Supreme Allied Commander Europe. Photo by Alf Ove Hansen

By Inci Kucukaksoy
NATO International Civilian
Public Affairs Officer
Joint Warfare Centre

A New Northern Light for NATO

The tragic events on September 11, 2001 (9/11 attacks) invoked Article 5 of NATO's Washington Treaty for the first time. At the Prague Summit in 2002, NATO introduced the concept of "Transformation". These two events provided the background for one of the biggest changes to NATO's military command structure in history.

At the heart of NATO's reorganization was the closure of the two former strategic commands, Allied Command Europe (ACE) and Allied Command Atlantic (ACLANT), which were both established at the onset of the 1950s. The new strategic commands reflected the fundamental shift in Alliance thinking: Allied Command Operations (ACO) would be responsible for all NATO military operations, while Allied Command Transformation (ACT) would be responsible for leading continuous transformation within NATO.

On June 19, 2003, ACLANT was decommissioned, and the Headquarters Supreme Allied Commander Transformation (HQ SACT) was established in its place with U.S. Navy Admiral Giambastiani, Jr. (Retired) appointed as NATO's first SACT. Under HQ SACT, NATO stood up three subordinate centres (commonly known as the "Triple J"): the JWC in Stavanger, Norway; the Joint Force Training Centre (JFTC) in Bydgoszcz, Poland; and the Joint Analysis and Lessons Learned Centre (JALLC) in Lisbon, Portugal.

During this time, the JFTC and the JALLC were subordinate to the JWC and all three were directly associated with two of the five NATO transformational processes provided in the NATO Military Committee document MC 324/1, dated May 16, 2003. These were: (1) Training and Education, (2) Joint and Combined Concept Development, Experimentation, Assessment, and Doctrine. With the addition of the lessons learned, the Triple J had a highly significant role to play in supporting NATO's military transformation.

1949

Norway becomes one of the founding members of NATO

1951

The northernmost NATO command, Headquarters Allied Forces Northern Europe (HQ AFNORTH), is set up in Norway and moves to Kolsås in 1954

1994

NATO's Headquarters North is established in Jåttå, Stavanger, Norway

2000

Headquarters North is replaced by Joint Headquarters North

2003

NATO stands up the Joint Warfare Centre in Jåttå



The JWC was established with the mission to conduct joint and combined training in support of NATO's operational-level commanders and staff, and to advance military transformation through experimentation, doctrine development, and lessons learned. Back then, the Centre was staffed at about 55 percent of what was authorized as its peacetime establishment. Due to lack of a training facility in Jättå, it started using a former Norwegian naval hub in Ulsnes to conduct NATO exercises and training events.

This was the beginning of a decade marked by the member states' preparedness to act outside of the Euro-Atlantic area of responsibility. It was during this time that the NATO Response Force (NRF) was born — a concept created by the Alliance's chiefs of defence, with the aim of advancing NATO forces' readiness and deployability. The first NRF live field exercise was held in Izmir, Türkiye, in November 2003.

The JWC's first exercise took place in February 2004 for the NRF, with Allied Forces Southern Europe, NATO's first Deployable Joint Task Force Headquarters (DJTF HQ), serving as the first training audience. Dubbed "Operation STAVANGER", the vignette-driven exercise was followed by ALLIED ACTION 2004, the first NRF certification exercise, which tested the activation of the DJTF HQ. The exercise was based on a fictitious scenario called JEWELLERY — the first of many developed by the JWC in the years to come.

In the beginning, the Centre's primary mission was to plan and execute the International Security Assistance Force (ISAF) pre-deployment training events for real-world operations in Afghanistan. The first ISAF Mission Rehearsal Training (MRT) was conducted in June 2004 for ISAF VI, led by Eurocorps. To replicate a realistic exercise environment, the MRT was supported by near real-time operational information and data collected from the ISAF Headquarters in Kabul, Afghanistan, a few weeks prior to the training event.

On June 28, 2004, NATO heads of state and government agreed to support a request from the Iraqi Interim Government to help train Iraqi security forces in accordance with UN Resolution 1546. By August 2004, the initial NATO Training Implementation Mission Advance Party, which also included personnel from the JWC, arrived in Baghdad, Iraq.

PREVIOUS PAGE

Left: The unveiling of the JWC's crest by Supreme Allied Commander Transformation (SACT), October 23, 2003

Right: The activation day press conference, October 23, 2003.

Photo by Alf Ove Hansen

BELOW

Left: Major General James Short (Retired), then Chief of Staff (later the JWC Director)

Right: The Centre's first exercise was named OPERATION STAVANGER. It was followed by ALLIED ACTION 2004, which tested the Deployable Joint Task Force Headquarters concept for the NATO Response Force.





Soon thereafter, the mission was renamed the NATO Training Mission-Iraq (NTM-I) and placed under the umbrella of the Multinational Security Transition Command-Iraq (MNSTC-I). The JWC was tasked with developing and hosting Iraqi Key Leader Training (IKLT) for senior members of the Iraqi Ministry of Defence and Iraqi Ministry of the Interior. In November 2004, the Centre hosted its first iteration of the IKLT, which served as a pilot project for the follow-on training held in March 2005.

In 2005, the JWC started planning for NATO STEADFAST series of exercises. The fictitious ZORAN SEA CRISIS scenario was developed, providing a credible and comprehensive background for all three STEADFAST exercises conducted in 2006. This same year, at the 2006 Riga Summit, the NRF was declared fully operational and the JWC also achieved its full operational capability.

On June 21, 2006, the JWC reached another milestone by signing a new Memorandum of Agreement with its host nation partners. With this ceremony, the Joint Headquarters North was officially disestablished.

ABOVE

The signing of the Memorandum of Agreement with Norway, June 21, 2006: Anne-Grete Strøm-Erichsen, then Norwegian Minister of Defence, and the late Air Marshal Peter B. Walker CB CBE BA (1949–2015), the former Director of the JWC

BELOW

Arrival for the ISAF Mission Rehearsal Training at the JWC

Train As You Fight!

By 2008, the exercise schedule for the JWC encompassed three major NRF certification exercises per year within the bounds of the STEADFAST series — one exercise for each Joint Force Command, in addition to the biannual ISAF pre-deployment training events.

As with the ISAF training, the NRF training continued to evolve. A new scenario was developed for STEADFAST JUNCTURE 2008. Set in the Horn of Africa, CERASIA would become NATO's new out-of-area training scenario, which efficiently incorporated non-governmental and international organizations into the JWC-directed exercises.



In 2009, NATO restructured ISAF to face up to the expansion of military operations to the whole of Afghanistan. NATO's new combatant command, which was named Headquarters ISAF Joint Command, would be responsible for executing the full spectrum of tactical operations throughout the country. The JWC expanded its training model, which resulted in its first in-theatre exercise in Kabul in October 2009.

In 2010, the Centre started conducting the Individual Augmentee Pre-Deployment Training (IAPDT) for those who were unable to attend the ISAF MRT. IAPDT was built on first-hand, on-the-ground experience incorporated into the training scenario, aiming to present an extensive overview of the NATO mission both at the HQ ISAF and HQ IJC level.

Meanwhile, the heads of state and government participating in the 2010 NATO Lisbon Summit agreed on a framework for a new military command structure. NATO adopted a new strategic concept called "Active Engagement, Modern Defence". Although the ISAF mission remained NATO's key priority, the Lisbon Summit underlined that in 2014 Afghan forces would assume full responsibility for security throughout the whole country.

Closely tied to the decisions of the Lisbon Summit, NATO's 2012 Command Structure saw a reduction from over 13,000 NATO-wide peacetime establishment posts to approximately 8,800. Following the reform, the JWC saw an 8.5 percent cut, which led to reorganization on March 11, 2013.

RIGHT

Top, left: Iraqi Key Leader Training opening remarks by Lieutenant General Karl Eikenberry (Retired), then Deputy Chairman of the NATO Military Committee, October 22, 2007

Top, right: Exercise STEADFAST JUNCTURE 2008

Bottom: ISAF Mission Rehearsal Training Event

BELOW

The construction of the JWC's training facility, October 26, 2007.
Photo by Hugo Bergsaker, Scanpix





In the period between 2004 and 2012, the Centre hosted all training events at Ulsnes. That said, the facility infrastructure and equipment needed modernization, which necessitated two major capability uplifts, one in 2006 and the other in 2009.

Meanwhile, under the leadership of HQ SACT, the JWC had already started to develop a capability package for a new training facility as early as 2004. Funded by NATO, the installation of the state-of-the-art facilities in Jåttå was a groundbreaking investment. The five-level, 13,390-square-metre building was a milestone for the JWC: It cost almost 100 million euros and was equipped with cutting-edge automated information systems infrastructure and virtualization technology. The foundation stone for the new training facility was laid on October 23, 2008.

On May 14, 2012, His Majesty King Harald V of Norway paid a visit to the JWC during STEADFAST JOIST 2012, the very first exercise held at the Centre's new training facility.

The period from 2006 to 2012 saw an accelerated rate of development in the JWC's simulation environment. Computer and information systems and information management (CIS/IM) expertise was also growing, leading to the installation of seven training networks and associated CIS/IM infrastructure by 2013. One of the highlights in the world of simulations was the ACT-led "Snow Leopard" initiative, which aimed to create a training and education network, including the NATO Training Federation (NTF), specifically relating to distributed, multi-resolution simulation environments. The NTF initial operational capability was achieved during Exercise STEADFAST JOINER 2008. NATO was now able to rapidly generate a computer-assisted exercise (CAX), utilizing both aggregate and entity high-resolution simulations that were distributed to multiple sites. NATO's main desire was to federate varied components of the operational environment through a networking and information infrastructure, which eventually paved the way for the Federated Mission Networking (FMN) — a key contribution to the Connected Forces Initiative (CFI), helping Allied and partner forces to better communicate, train and operate together.

In 2006, the JWC stood up exercise media simulation capability, setting the new NATO standard. The simulated television news programme "World News Today" made its debut during the "ISAF-10" MRT.

On October 19, 2011, the Centre concluded its final IKLT course. In total, 256 Iraqi key leaders participated in this unique training programme.

NATO's Warfare Centre

As the ISAF operational mission was drawing to a close with security gradually transitioning to the Afghan forces in the country, an extensive interdisciplinary mission analysis was initiated at the JWC in early 2012. A process dubbed "2014 and Beyond" focused on the Centre's future strategic direction and how it could retool to best support NATO, managing escalating expectations on training and exercises. During this time, HQ SACT assumed the overall responsibility for all exercises, collective training and military education from SHAPE.

In 2012, the SKOLKAN scenario was exercised for the first time during Exercise STEADFAST JUNCTURE 2012. Developed by the JWC in a period



ABOVE

The former Norwegian Minister of Defence, Anne Grete Strøm-Erichsen, at the foundation stone laying ceremony for the JWC's new training facility on October 23, 2008



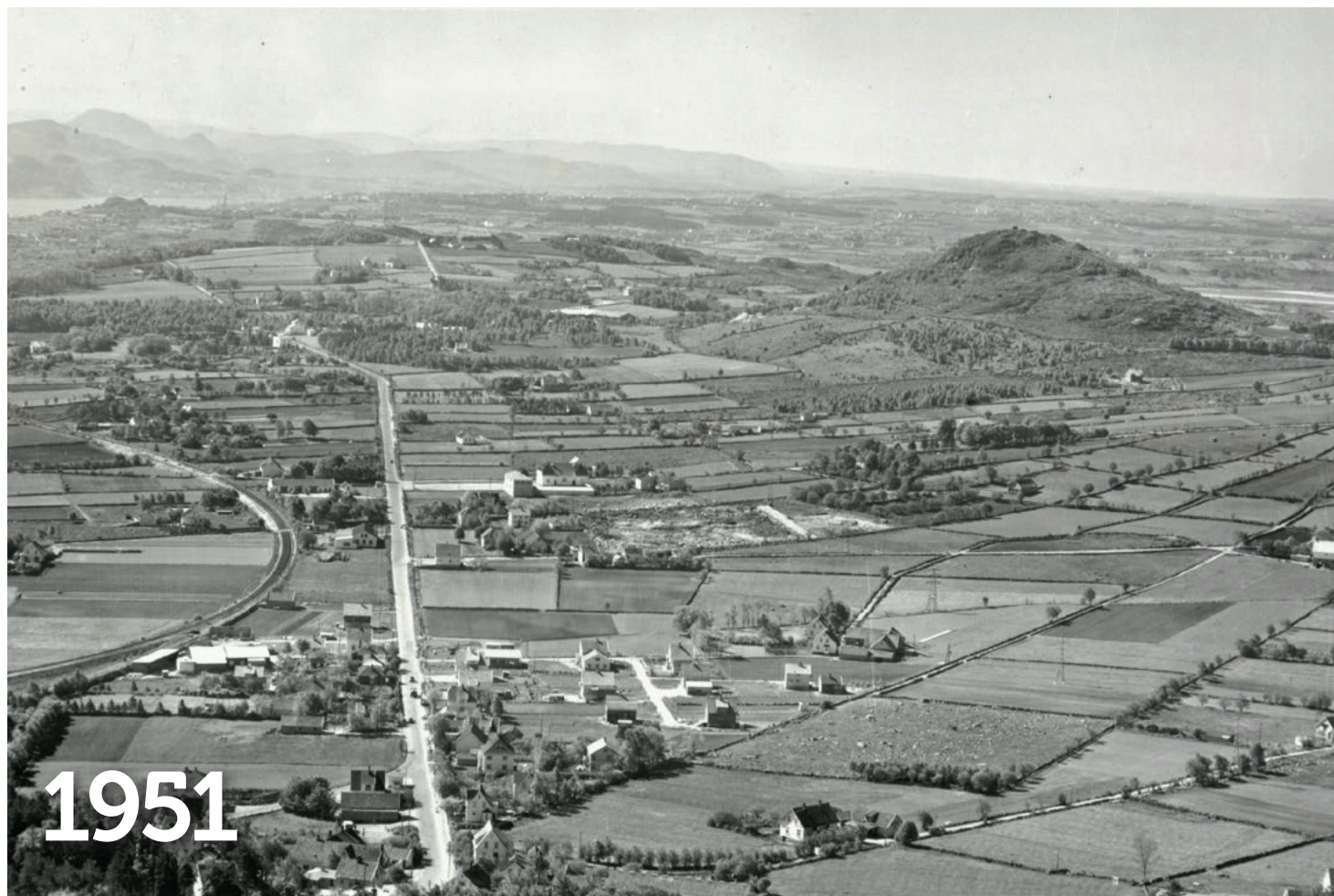
of two years, SKOLKAN marked a revolutionary change to the way NATO conducted exercises. The first version of the scenario was aimed at testing an Article 5 operation in the Baltic Sea region, involving both fictitious countries and real NATO nations, enabling an unprecedented amount of host nation coordination at all echelons. In terms of the geographic setting, the focus was now on the High North and Scandinavia. The exercise also demonstrated how the JWC's new Opposing Force (OPFOR) Cell would become an integral part of future exercises.

Meanwhile, two ground-breaking programmes, namely the Smart Defence Initiative and the Connected Forces Initiative (CFI), were introduced to achieve the "NATO Forces 2020" goal, which aimed at improving interoperability as well as having a coherent set of deployable and sustainable forces that were equipped, trained, exercised, and commanded to operate together, and with NATO partners, in any environment. The JWC's contribution to the CFI was through planning, preparation, and execution of world-class exercises for the NRF as the Alliance continued its transition from a heavy military footprint in Afghanistan to a renewed focus on contingency operations and military mobility.

The security environment became highly complicated in 2014 following Russia's illegal annexation of Ukraine's sovereign territory. During this time, ensuring collective defence became a prime consideration, in addition to the needs of projecting stability and countering terrorism.

ABOVE

His Majesty King Harald V of Norway visited the JWC on May 14, 2012, during Exercise STEADFAST JOIST 2012



As reflected in Secretary General Jens Stoltenberg's 2014 Annual Report, the illegal and illegitimate annexation of Crimea, Ukraine, fundamentally challenged the vision of a Europe whole, free, and at peace. The Secretary General described the ensuing developments in NATO as "the biggest reinforcement to our collective defence since the end of the Cold War."¹

To address the Russian aggression, NATO laid out its new Readiness Action Plan at the 2014 Wales Summit, which included the "Assurance Measures" comprising a series of land, sea and air activities in Central and Eastern Europe, as well as a series of defensive exercises focusing on collective defence and crisis management. Additionally, the Very High Readiness Joint Task Force (VJTF) was created for the NRF, rendering several thousand rotating troops ready to deploy on short notice, particularly within Europe.

On June 13, 2014, the JWC concluded its decade-long pre-deployment training for ISAF. At its height, the ISAF mission oversaw more than 130,000 troops from 51 NATO member and partner nations. To date, ISAF remains the biggest coalition in NATO's history — a coalition where the JWC-led MRTs played a pivotal role, delivering combined, up to four-tier UNIFIED ENDEAVOR (U.S.-led)/ISAF training events, contributing to this crucial real-world mission.

In October 2013, the JWC started planning for the command post exercise (CPX) phase of TRIDENT JUNCTURE 2015, which involved the two phases, the CPX and the live exercise (LIVEX). The CPX was designed to address some of the most important security challenges of modern warfare, from hybrid and conventional warfare, terrorism and ballistic missile defence to cyber threats. With the JWC's new fictitious training scenario, named SOROTAN, Exercise TRIDENT JUNCTURE 2015 successfully played out a high-intensity, out-of-area, and non-Article 5 crisis response operation. It involved more than 4,000 military and civilian personnel for the CPX, and more than 36,000 for the LIVEX.

OPPOSITE PAGE

Top: Aerial view of Hinna, 1951. Photo by Widerøe (via Stavanger Kommune)

Bottom: Aerial view of Hinna district and the JWC, 2015

Did you know?

The Jättå mountain top is 138 metres above sea level.

BELOW

NATO Secretary General Jens Stoltenberg visited the JWC during Exercise TRIDENT JUNCTURE 2015 and was welcomed by Major General Reinhard Wolski (Retired), then the JWC Commander. The command post exercise (CPX) part of the exercise brought together more than 4,000 civilian and military personnel in various locations across Europe.



During this time, the Centre implemented its new trial organization based upon delivery and support structures. Above all, the aim of the new matrix organization was to realign the JWC's structure with its dynamic training programme, making it possible to plan more than four exercises per year. With the increased focus on organizational culture, more time and resources were dedicated to developing the One Team programme. This programme was one of the first human capital initiatives in NATO. "Although the JWC mission remains relatively the same, the depth and complexity of the exercises continue to evolve. Balancing this requirement, therefore, requires a workforce that is able to adapt to these needs," explained Paul Sewell, who has been responsible for the programme since 2013. TRIDENT JUNCTURE 2016 would be the first exercise that the JWC delivered from its optimized structure. The exercise also provided a new training platform for integrating space support to NATO operations as a new transformational capability.

In October 2017, the workshop for ACT's Framework for Future Alliance Operations (FFAO) was held at the JWC to support development of the FFAO 2018. Updated on a four-year cycle, the FFAO provides an informed perspective of the challenges and opportunities facing the Alliance in the decades to come, focusing on, amongst others, NATO defence planning; capability development; concept development; and doctrine, training, exercises, and education. TRIDENT JAVELIN 2017, which followed, was the first CPX in many years where the majority of the NATO Command Structure trained together in a complex Article 5 major joint operation-plus scenario, which encompassed high-intensity warfare against a realistic peer competitor across all domains and in contested environments. The exercise was executed in several locations across Europe, providing the last step in the certification process for the NRF18.

Celebrating the JWC's 15th Anniversary

As of 2018, the JWC found itself even more drawn towards transformational activities (TACT). The Centre's contribution to TACT was through the multinational capability development campaign designed to collaboratively develop and assess concepts and capabilities that addressed the challenges associated with conducting joint, multinational, and coalition operations. The JWC remained committed to improving NATO's military capabilities through the ACT-led Strategic Foresight Analysis, the FFAO, and also by contributing to the development of NATO's joint operational doctrine.

In 2018, the JWC celebrated its 15th anniversary in Stavanger, which brought together many flag and general officers, honoured guests, the Centre's international staff and family members. Major General Andrzej Reudowicz, the then Commander JWC, provided welcoming remarks spotlighting the Centre's important role in training the NATO Command and Force Structure Headquarters. Reflecting on NATO's 360-degree approach to security, Reudowicz noted that the NATO Alliance was facing a broader range of threats than in a long time. The keynote speakers included H.E. Frank Bakke-Jensen, the former Norwegian Minister of Defence, and the former Norwegian Chief of Defence Admiral Haakon Bruun-Hanssen (Retired), who said: "The Norwegian Armed Forces has gained many benefits from hosting the Joint Warfare Centre in our country. The cooperation and friendship with the JWC are highly



The Crest

The JWC crest combines three distinctive swords pointing upwards and the NATO compass on a blue background. The swords symbolize the Centre's unique mission capabilities — one for training; one for doctrine, concept integration and experimentation; and one for analysis and lessons learned. While the shield is symbolic of NATO's traditional collective defence mission, the swords also represent readiness in the face of any challenge.

Sverd i Fjell

The Crest is also linked with the history of Norway. The "Sverd i Fjell" monument in Hafrsfjord is the most iconic landmark in Stavanger and consists of three enormous bronze swords, designed by the artist Fritz Røed (1928–2002). It was erected to commemorate the unification of Norway in 872, following the Battle of Hafrsfjord.



appreciated and we hope to see it grow further in the years to come.”

For NATO, the highlight of the year was the LIVEX/CPX TRIDENT JUNCTURE 2018 — then recognized as the Alliance’s biggest exercise in recent years. The LIVEX part involved more than 50,000 military and civilian personnel from 31 NATO and partner countries, in addition to the 250 aircraft, 65 vessels, and up to 10,000 vehicles both in Norway and in the neighboring areas of the North Atlantic and the Baltic Sea. Directed by the JWC, the CPX part of TRIDENT JUNCTURE 2018 took place from November 14 to 22 at nine different exercise locations throughout Europe, including Italy, Norway, Belgium, Germany, and on board the Italian ship ETNA. Close to 3,500 military and civilian personnel participated in the CPX to train and certify Allied Joint Force Command Naples to assume the operational command of the NRF in 2019.

BELOW

Top: The after action review for the command post exercise portion of TRIDENT JUNCTURE 2018, directed by then Commander JWC, Major General Andrzej Reudowicz (Retired)

Bottom: Frank Bakke-Jensen, then Norwegian Minister of Defence, delivering the welcoming remarks at the JWC’s 15th anniversary ceremony





Managing 360-Degree Complexity

Defensive in nature, NATO exercises focus on collective defence and deterrence, improved interoperability, and higher state of readiness around the 360-degree approach to security. To be fit for purpose, it is necessary to continue to study today's volatile and increasingly complex geostrategic environment and be prepared through capability development, experimentation, doctrine and exercises, lessons learned and analysis. The exercises directed by the JWC continued to offer unique opportunities to make NATO better, that is making the Alliance forces more ready and more interoperable.

In 2019, the JWC conducted one of NATO's largest and most complex CAX/CPXs to date: TRIDENT JUPITER 2019-1. This first iteration of NATO's groundbreaking TRIDENT JUPITER 2019 exercise campaign ran from November 4 to 14 at ten different locations across Europe, including aboard USS Mount Whitney and the Spanish ship Castilla. More than 3,000 civilian and military personnel participated in the exercise to test and evaluate the land, maritime, air, and special operations component commands of NRF20. The exercise successfully demonstrated the Alliance's deterrence and defence capabilities, as well as the shared commitment between the Allies to the security of Europe. During this time, the JWC also keenly focused on professional development programmes and developing a powerful vision. On February 11, 2020, the Centre's new vision was launched:

"The Joint Warfare Centre drives the delivery of collective training and warfare development at the operational and strategic levels of warfare. We are NATO's trusted advisor bridging 'Operations' and 'Transformation', underpinning NATO readiness and future capability development. The Joint Warfare Centre attracts and develops the most capable staff, both permanent and augmented, based on a reputation for excellence built on a culture of professionalism, curiosity, innovation and cooperation."

OPPOSITE PAGE

Top: The command post exercise part of TRIDENT JUNCTURE 2018

Bottom: Exercise TRIDENT JUPITER 2019-1

BELOW

The JWC's vision workshop in 2020



Today's Continuous Improvement programme (then named Vision 2025), which is a result of the workshops, aims to institutionalize an organizational culture committed to change. The programme is designed to allow the staff to develop short- and long-term goals based on the JWC's four project lines: collective training and exercises, warfare development, organization, and professional development.

In early March 2020, the JWC hosted the NATO Military Committee's annual visit to HQ SACT. Led by the former Chairman of the Military Committee, Air Chief Marshal Sir Stuart Peach (Retired), the committee was updated on ACT's ongoing work on NATO adaptation with a particular focus on warfare development, the transatlantic bond, Allied deterrence and defence, and the strong commitment to the Alliance's three core tasks: collective defence, crisis management and cooperative security. Discussions focused on the NATO Warfighting Capstone Concept as well as the integrated development of the Alliance's military instrument of power. General André Lanata, the then SACT, explained that the NATO Military Committee visit to ACT was "an opportunity to shift our mindsets from a reactive mode to a proactive mode, and to pull the future into the present, in order to anticipate the right strategy for NATO".

During this time, the JWC also sought to reinforce working partnerships with the Norwegian organizations to gain deeper insight into the Norwegian Total Defence concept and civil emergency response.

RIGHT

The NATO Military Committee visit to HQ SACT was hosted by Vice Admiral Jan C. Kaack, then Commander JWC, in early 2020.

#OneTeamTogether Campaign

Due to the COVID-19 pandemic, 2020 was a very different year full of unexpected events and challenges. From the beginning, NATO and Allied military personnel have remained on the frontlines and continued to support civilian efforts to save lives by providing military airlift, organizing flights to deliver critical supplies, setting up field hospitals, sharing medical expertise, and helping to develop innovative responses. Over half a million military personnel supported civilian authorities during the first wave of COVID-19.²

The global pandemic had a major impact on military exercises due to public health measures, serious restrictions on travel, and mandatory quarantine. Consequently, in 2020, many NATO exercises were changed, reduced in size, or cancelled. During this unprecedented crisis across the globe, the JWC's focus was on safeguarding its staff, families and communities, whilst continuing its important mission. The crisis helped harness the community aspect of the Centre's One Team as well as online collaboration leveraging technology, both internally and externally. Despite the shift to remote working, including online conferencing and meetings, the JWC maintained business continuity, introduced new capabilities to better serve NATO, such as wargaming, and continued to maintain excellent relations with local authorities throughout the pandemic.

Innovation Never Stops

On April 1, 2020, the JWC announced the establishment of a new position within its organizational structure: the Command Senior Enlisted Leader (CSEL). Senior Chief Petty Officer Lars Raabe became the first CSEL to serve as the Commander's principal advisor on matters affecting the Centre's non-





commissioned officers (NCOs) and to lead NCO professional development programmes at the JWC.

Although the year was defined by many fundamental changes stimulated by the pandemic, the Centre continued to innovate and extend the scope of its training enterprise. The execution phase of the JWC's new wargaming design capability was initiated on June 2, 2020. The aim was to complement the JWC's large-scale CPXs by expanding on the wide spectrum of political, military, economic, social, infrastructure, and information variables, and sharpening decision-making skills. During a two-week course offered by the U.S. Naval Postgraduate School, the Centre's core planning team set out to examine analytic wargaming techniques through presentations, group discussions, and practical exercises. The JWC concluded the year with Exercise STEADFAST JUPITER-JACKAL 2020, NATO's largest CPX that year and a resounding success, providing unique training opportunities to train and evaluate NRF21. Due to COVID-19 restrictions, the exercise was executed in the form of battle staff exercise, a blend of battle staff training and CPX, based on the JWC's new scenario FIKSO.

In early 2021, the JWC's two new initiatives, namely the wargame design capability and the Joint Operations Planning Group (JOPG) Leaders' Workshop, gained momentum. These initiatives have been the culmination of efforts to further operationalize warfare development and oversee growing exercise complexity. The latter was designed specifically to address and resolve challenges observed by the JWC during the crisis response planning, a key phase within NATO's overall exercise programme.

The JWC achieved initial operational capability status in wargame design in February 2021 following a matrix-style pilot wargame played out with the Civil-Military Cooperation Centre of Excellence (CIMIC COE), focusing on the impact of operational-level civil-military interaction on national resilience.

In May, following a 19-month preparation phase, the JWC conducted the CPX portion of Exercise STEADFAST DEFENDER 2021. The exercise provided

ABOVE

A meeting of the JWC non-commissioned officers led by the JWC's Command Senior Enlisted Leader, Senior Chief Petty Officer Lars Raabe

RIGHT

The JWC's Advisory Team in Germany during Exercise STEADFAST DEFENDER 2021

an invaluable opportunity for NATO's new Joint Support and Enabling Command (JSEC) to test military mobility of 15,000 simulated troops and their sustainment across Europe. The CPX covered a broad range of high-readiness and military mobility operations across European borders based on OCCASUS scenario created by the JWC, involving movement control, security coordination, force protection, and liaison between Allied forces, the nations, and other stakeholders. The CPX was also a key milestone for JSEC on achieving full operational capability.

On October 8, 2021, Polish Army Major General Piotr Malinowski assumed command of the JWC during which French Air Force General Philippe Lavigne, NATO's then newly appointed SACT, presided over the ceremony. In his remarks, General Lavigne spoke about the importance of the JWC's mission to maintain readiness and adaptation of NATO Command and Force Structure Headquarters through the delivery of "NATO's most complex command post exercises and continuous innovation in warfare development".

Eleven days after taking command of the JWC, Major General Malinowski served as the Officer Directing the Exercise (ODE) for NATO's largest and most challenging command post exercise in 2021: STEADFAST JUPITER 2021. "This exercise is NATO's capstone training at the strategic, operational, and tactical levels to address the challenges of deterrence, from hybrid threats to real combat capabilities in a major joint operation, where an operational-level

NATO's Warfare Centre

Warfare development focuses on the modernization of military structures, capabilities and doctrine to improve the military effectiveness of the Alliance.

As part of its warfare development enterprise, the JWC supports NATO's evolving warfare development through analysis and doctrine development processes; integration of new concepts and doctrine; experimentation; and collecting, analyzing, and sharing lessons processes.





joint headquarters and SHAPE's engagement tested NATO's responsiveness, command and control agility, and deterrence posture to strengthen our collective defence," Major General Malinowski said.

STEADFAST JUPITER 2021 was designed to train and evaluate the NRF22 under the lead of Allied Joint Force Command Brunssum, as well as several other NATO entities. It involved approximately 5,000 participants from 26 NATO and two partner countries.

As the year drew to a close, the JWC also conducted Exercise STEADFAST JACKAL 2021, which trained and evaluated NATO Rapid Deployable Corps – Italy (NRDC-ITA) as a joint task force headquarters in planning and conducting a non-Article 5 small joint operation under NATO, focusing on the Alliance's Strategic Direction South. The exercise fully supported the 360-degree approach to the Concept for the Deterrence and Defence of the Euro-Atlantic Area and the NATO 2030 initiative, using a complex political setting and an unusually challenging geographical environment.

ABOVE

Major General Piotr Malinowski assumes command of the JWC, October 8, 2021.

Lower left: Ms Kari Nessa Nordtun, the Mayor of Stavanger, shakes hands with Major General Malinowski. Photos by Andre Meling

The year concluded with the Alliance Warfare Development Conference (AWDC) in Norfolk, Virginia, United States, from December 7 to 9. The 2021 AWDC, which replaced the former Chiefs of Transformation Conference, is ACT's annual meeting for NATO's highest echelon involved in the ongoing development and future implementation of NATO's Warfare Development Agenda, which is derived from the NATO Warfighting Capstone Concept. During the event, staff members from the JWC's new Wargaming Branch delivered one of the four syndicates to provide key insights on how the Centre aimed to accelerate Alliance learning through wargame design. The JWC's wargame design capability celebrated its full operational capability status on January 31, 2022.



ABOVE

The former Commander of Allied Joint Force Command Brunssum, General Jörg Vollmer (Retired), at a simulated press conference during Exercise STEADFAST JUPITER 2021

Why is the JWC Different?

The JWC is NATO's footprint in the Northern European region, which includes Scandinavia, the North Sea and the Baltic. The Centre's motto "Training NATO. Advancing Doctrine. Integrating Concepts" reflects its mission and warfare capacity, which is unparalleled in NATO. The JWC's operational-level training in synthetic environments has now extended to include the strategic level as well, adding a new dimension to the complexity of the exercises it delivers.



The JWC-directed exercises encompass ten in-house competencies to ensure the best possible outcomes for any training experience. Together, they encourage cross-organizational cooperation among various NATO commands and establishments on both sides of the Atlantic, collaboration with the NATO centres of excellence, national training centres in member and partner nations, as well as partner organizations.

- **Scenario and Scripting Teams** ensure that realistic exercises across multiple warfare domains can be played out with a 360-degree approach to current and emerging threats.
- **Exercise Control and Advisory Teams** ensure that exercises stay on course, while helping the training audience meet each objective of the exercise.
- **Higher Control and Grey Cell Teams** replicate all non-military partners, organizations, and political and strategic processes.
- **Computer-Assisted Exercise Team** provides the birds-eye details of all the troops on the ground, in the air, and at sea.
- **Opposing Forces Team** creates the simulated adversarial picture designed to challenge the training audience.
- **Media Team** provides the backbone for a complex and ever-changing information battle space, covering all aspects of the conflict.
- **Computer and Information Systems Teams** bring it all together, providing seamless communication between all parties.

The JWC is NATO's only establishment that is chartered to create synthetic training scenarios. Designated as one of NATO's keystone warfare development establishments, it directly supports ACT's warfare development efforts through exercise delivery, experiment integration, doctrine validation, best practices, and scenario generation with a 360-degree approach, making it NATO's key venue for the warfare development agenda in Europe. Additionally, with the inclusion of its fully mission capable wargame design capability in 2022, the JWC is now able to design, develop, and deliver four 40-player wargames per year to the Alliance.

Under the leadership of Major General Malinowski, the JWC's priorities in 2022 include a forward-looking collective training enterprise to NATO Command and Force Structure Headquarters, cultivating a multi-domain mindset with a particular focus on the cyber and space domains, as well as warfare development, wargaming, and the professional development of the JWC's workforce through comprehensive organizational culture programmes.

Conclusion

The NRF was announced at the Prague Summit in 2002. In 2003, NATO took over command of ISAF in Afghanistan, marking its first mission beyond the Euro-Atlantic area. The JWC was born amidst such big changes and innovations in NATO. Today, the Centre is one of NATO's unique organizations with a diverse portfolio of tasks and expertise.

Since its inception, the Centre has been using every organizational function to great effect as the premier collective training establishment of the NATO

PREVIOUS PAGE

The JWC's pilot wargame with the CIMIC COE focused on the impact of operational-level civil-military interaction on national resilience



2022

Alliance at the operational level of warfare whose mission has now extended to also include the strategic level. Through this mission, the JWC engages with national training and command organizations, governmental and non-governmental organizations, as well as regional security organizations and partners, in accordance with established policy and principles.

Today the JWC comprises almost 270 military and civilian multinational posts representing 17 NATO member states, including Canada, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Romania, Türkiye, the United Kingdom and the United States. Strengthened by Norway's partnership and excellent host nation support, the unique combination of high-quality training, innovation, warfare development, and scenario generation continue to bestow the JWC with one of the most imperative missions within the NATO Alliance. ✦

ABOVE

Major General Piotr Malinowski visiting KNM Harald Haarfagre (Camp Madla) on January 26, 2022. He was welcomed by Navy Captain Frode E. Staurset, the Commanding Officer at Camp Madla. Photo by Andre Meling

ENDNOTES

- 1 Remarks by NATO Secretary General Jens Stoltenberg on NATO 2030 at https://www.nato.int/cps/en/natohq/opinions_181208.htm
- 2 The Secretary General's Annual Report 2020 at https://www.nato.int/cps/en/natohq/opinions_182236.htm

A TIMELINE OF THE HISTORY OF KEY EVENTS AND EXERCISES

2003	2004	2005	2006
	<p>FEBRUARY 2004 The JWC conducts its first exercise for the NATO Response Force (NRF)</p> 		<p>JUNE 2006 The Memorandum of Agreement is signed between Norway and the JWC</p> 
<p>JUNE 2003 The new and more flexible NATO Military Command Structure, better aimed at dealing with the security challenges of the 21st century, is approved</p> 		<p>FEBRUARY 2005 The JWC hosts ALLIED REACH 2005 for the NRF</p> 	
	<p>JUNE 2004 The JWC conducts its first ISAF Mission Rehearsal Training</p> 	<p>NOVEMBER 2004 The JWC conducts its first Iraqi Key Leader Training event</p> 	
<p>OCTOBER 23, 2003 NATO stands up the Joint Warfare Centre (JWC) in Stavanger, Norway</p> 	<p>DECEMBER 2004 NATO approves the capability package for the new training facility in Jåttå</p> 		<p>OCTOBER 2006 The JWC conducts the ISAF X Mission Rehearsal Training, following NATO's move to the composite headquarters model</p> 

F THE JOINT WARFARE CENTRE

2007

FEBRUARY 2007

The contract for the construction of the new training facility is signed



JUNE 2007

The JWC conducts STEADFAST JACKPOT 2007 and creates a robust White Cell organization bringing non-military role-players into the scenario

2008



APRIL 2008

The JWC conducts STEADFAST JOIST 2008, NATO's first-ever four-level combined joint task force exercise



MAY 2008

The JWC conducts STEADFAST JUNCTURE 2008 and launches the CERASIA scenario encompassing a geographically diverse, multicultural environment



2009

2009

Norway decides to replace two operational headquarters, the Jåttå-based Norwegian Joint Headquarters and its subordinate Regional Headquarters North Norway, with one operational headquarters in Bodø

DECEMBER 2009

The JWC conducts the first training based on the new split structure for the 2010 rotations in Afghanistan

2010

OCTOBER 2010

The JWC conducts its first civilian development initiative programme, a precursor for future culture programmes



DECEMBER 2010

The JWC conducts STEADFAST JUNO 2010, for which NATO implements its first robust strategic communications framework in a STEADFAST series exercise. NATO called upon the training audience from Allied Joint Force Command Naples to lead the real-world operation "UNIFIED PROTECTOR", over Libya and off its coast, under the command of Lieutenant General Charles Bouchard (Retired)

A TIMELINE OF THE HISTORY OF KEY EVENTS AND EXERCISES

2011	2012	2013	2014
JUNE 2011 Former State Secretary of the Norwegian Ministry of Defence, Mr Roger Ingebrigtsen, officially hands over the new training facility to the JWC	 JANUARY 2012 Joint Declaration of Cooperation is signed between the City of Stavanger and the JWC		MAY 2014 The JWC conducts TRIDENT JAGUAR 2014, the first exercise in the TRIDENT series training the NATO Force Structure for conducting small joint operations
OCTOBER 2011 The JWC concludes its final Iraqi Key Leader Training course		APRIL 2013 The JWC hosts TIDE Sprint (Technology for Information, Decision and Execution Superiority) for the C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) community	JUNE 2014 The JWC concludes its decade-long Afghanistan pre-deployment mission rehearsal training
	MAY 2012 The JWC conducts STEADFAST JOIST 2012 in its brand-new training facilities and launches its new live media simulation capability	APRIL 2013 The JWC conducts a warfare conference under the theme "Warfare Founded on Common Doctrine – the Baseline for Transformation"	
NOVEMBER 2011 With Exercise STEADFAST JUNCTURE 2011, the JWC launches cyber defence training	NOVEMBER 2012 The JWC conducts STEADFAST JUNCTURE 2012, in which the SKOLKAN scenario is fully tested for the first time		JUNE 2014 The JWC hosts the NATO Training Centres' Conference on Collaboration for Settings, Scenarios and Simulation (TS3)
	DECEMBER 2012 The JWC conducts ISAF TE 12/02 – UE 13-1, its largest US/ NATO joint Afghanistan pre-deployment mission rehearsal training event	NOVEMBER 2013 STEADFAST JAZZ 2013, the first STEADFAST series LIVEX since 2006, is conducted based upon a collective defence scenario developed by the JWC	

OF THE JOINT WARFARE CENTRE

2015	2016	2017	2018
<p>AUGUST 2015 The JWC implements the optimization trial structure</p>			<p>MAY 2018 The JWC implements its current peacetime establishment</p>
	<p>OCTOBER 2016 The JWC conducts TRIDENT JUNCTURE 2016 and includes the space domain in an exercise for the first time</p>	<p>NOVEMBER 2017 The JWC conducts TRIDENT JAVELIN 2017, in which most of the NATO Command Structure trains together for a high-intensity major joint operation and NATO's collective defence</p>	
			<p>2018 The JWC conducts the CAX/CPX part of Exercise TRIDENT JUNCTURE 2018. It is NATO's largest exercise since 2002 and uses the JWC's new OCCASUS scenario</p>
<p>OCTOBER 2015 The JWC conducts CAX/CPX part of Exercise TRIDENT JUNCTURE 2015, during which NATO Secretary General Jens Stoltenberg visits the JWC to observe the exercise</p>			

TIMELINE (CONTINUED)

KEY EVENTS AND EXERCISES

2019	2020	2021	2022
MARCH 2019 The JWC hosts the ACT-led Human Capital Development Workshop to generate a stronger human capital focus through innovation, training and the application of technology	FEBRUARY 2020 The JWC announces its vision statement and conducts two related workshops	FEBRUARY 2021 The JWC declares initial operational capability for wargame design	JANUARY 2022 The JWC declares full operational capability for wargame design
	MARCH 2020 The JWC hosts the NATO Military Committee visit to Allied Command Transformation, focusing on the development of the NATO Warfighting Capstone Concept		
	MAY 2021 The JWC conducts the CPX portion of STEADFAST DEFENDER 2021, based on six vignettes, using a fictitious Article 5 (collective defence) scenario		
NOVEMBER 2019 The JWC conducts TRIDENT JUPITER 19-1, the first exercise of the three-part TRIDENT JUPITER 19 Exercise Campaign	JUNE 2020 The JWC starts the execution phase for its new wargame capability development initiative	OCTOBER 2021 The JWC conducts STEADFAST JUPITER 2021, addressing challenges of deterrence in all domains	
	DECEMBER 2020 The JWC conducts NATO's largest CPX in 2020, STEADFAST JUPITER-JACKAL, using a battle staff exercise construct due to COVID-19		



ABOVE

General Philippe Lavigne, Supreme Allied Commander Transformation (SACT), is welcomed by then inbound Commander JWC, Major General Piotr Malinowski, October 7, 2021

KEY ROLES OF THE JOINT WARFARE CENTRE:

- To strengthen NATO's capabilities, readiness and interoperability through training joint and combined staffs of the NATO Command and Force Structure Headquarters at the strategic and operational levels;
- To support NATO warfare development to address current and emerging security challenges and threats as NATO's trusted advisor, bridging operations and transformation;
- To support the development and integration of transformational activities into exercises and training events, encouraging innovative thinking;
- To support concept and doctrine development, contribute to the NATO lessons learned process, and coordinate integration of experimentation, concepts and doctrine into exercises;
- To assist Allied Command Transformation's developmental work on new technologies and modelling and simulation;
- To create, develop, and maintain realistic settings and scenarios to meet NATO's 360-degree approach to security;
- To accelerate Alliance learning through wargaming and wargaming design capability.

Commanders* of the Joint Warfare Centre



**Lieutenant General
Thorstein Skiaker (Ret.)**

Norwegian Army
October 2003 – September 2004



**Major General
James Short OBE¹ (Ret.)**

British Army
September 2004 – February 2005



**Air Marshal
Peter Walker CB CBE²**

British Air Force
February 2005 – July 2007



**Lieutenant General
Wolfgang Korte (Ret.)**

German Army
July 2007 – June 2011



**Major General
Jean-Fred Berger (Ret.)**

French Army
June 2011 – June 2013

*The official title of this position was "Director" from 2003 to 2008.

¹ Major General James Short also served as Deputy Director and Chief of Staff, respectively, in 2003.

² Air Marshal Peter Walker passed away on September 6, 2015.



**General
Erhard Buehler³ (Ret.)**
German Army
June 2013 – September 2014



**Major General
Reinhard Wolski (Ret.)**
German Army
September 2014 – July 2016



**Major General
Andrzej Reudowicz (Ret.)**
Polish Army
July 2016 – July 2019



**Vice Admiral
Jan C. Kaack⁴**
German Navy
July 2019 – October 2021



**Major General
Piotr Malinowski**
Polish Army
October 2021 – Present

³ General Erhard Buehler served at the rank of Major General during his tenure at the Joint Warfare Centre.

⁴ Vice Admiral Jan C. Kaack served at the rank of Rear Admiral during his tenure at the Joint Warfare Centre.

Deputy Commanders* of the Joint Warfare Centre



**Lieutenant General
Stephen Mueller¹ (Ret.)**
U.S. Air Force
August 2004-August 2006



**Brigadier General
Philip Ruhlman (Ret.)**
U.S. Air Force
August 2006-August 2008



**Major General
Scott West² (Ret.)**
U.S. Air Force
August 2008-August 2010



**Brigadier General
Steven DePalmer (Ret.)**
U.S. Air Force
August 2010-July 2012



**Brigadier General
John Doucette (Ret.)**
U.S. Air Force
July 2012-July 2014



**Brigadier General
Roger Watkins (Ret.)**
U.S. Air Force
July 2014-July 2016



**Rear Admiral
John Skillman**
U.S. Navy
August 2016-February 2018



**Rear Admiral
James A. Kirk**
U.S. Navy
May 2018-April 2020



**Brigadier General
Douglas K. Clark**
U.S. Marine Corps
August 2020-June 2022

*Since 2011, this position is dual-hatted as Deputy Commander and Chief of Staff.

¹ Lieutenant General Mueller served at the rank of Brigadier General.

² Major General West served at the rank of Brigadier General.

In Brief

The Joint Warfare Centre is the premier collective training establishment of the NATO Alliance at the operational and strategic levels of warfare. The Centre delivers NATO's highest-quality and most complex computer-assisted joint command post exercises to ensure Allied forces are interoperable and maintain "tip of the spear" readiness to meet every challenge.

Established

2003, subordinate to Headquarters Supreme Allied Commander Transformation, as part of a NATO-wide reorganization in order to cope with 21st century threats and challenges.

Vision

The Joint Warfare Centre drives the delivery of collective training and warfare development at the operational and strategic levels of warfare. We are NATO's trusted advisor bridging Operations and Transformation, underpinning NATO readiness and future capability development. The Joint Warfare Centre attracts and develops the most capable staff, both permanent and augmented, based on a reputation for excellence built on a culture of professionalism, curiosity, innovation and cooperation.

Mission

As part of the NATO Command Structure, the Centre plans, prepares and executes static and distributed joint operational- and strategic-level training in support of warfare development and warfighting readiness. It supports concept development and the maintenance of joint operational-level doctrine and standards, and coordinates the integration of experimentation and capability development, including wargaming, to maximize transformational efforts to improve NATO's interoperability, capabilities and operational effectiveness.



Continuous Improvement

The JWC's Vision Aims to Make NATO Better

By Colonel Adam Lackey

United States Army
Programme Director 1,
Joint Warfare Centre

Organizational change is easy to talk about, but hard to do. That is why, in 2020, the Joint Warfare Centre (JWC) adopted a long-lasting programme to enable internal change. Initially labelled “Fit for Future”, the programme was initiated by the former Commander, Vice Admiral Jan C. Kaack, inviting two change management experts from the German Navy to work with a small, diverse representation of the JWC team members.

Through workshops, this group developed an implementation strategy that employed change management principles from renowned experts such as John Kotter¹ and Kurt Lewin². The programme, now renamed Continuous Improvement, created the Centre’s vision statement for 2025, which stated that the Centre was NATO’s “trusted advisor bridging Operations and Transformation, underpinning NATO readiness and future capability development”. Based on this, the implementation strategy would centre on an annual workshop involving all members of the JWC, with the purpose to harvest input from all levels to create an actionable list of quick wins and longer-term goals to work towards, for both annual and multi-year time horizons. The core team that enabled this process was Amul Waraich, Paul Sewell, and Lieutenant Colonel Michael Kraus, with Colonel Marcus Jones providing leadership for the programme.

In February 2020, the core team organized the first annual workshop, which was designed to solicit bottom-up inputs, drive organization-wide “buy-in”, and to bring to life the great ideas for “themes for action”. Four themes rose to the top in 2020, each for their potential to progress substantial change while complementing ongoing work strands. Those themes were organized along the following enduring project lines: collective training, warfare development, professional development, and organization.

Collective Training is the JWC's Core Mission

“Together! We make NATO better!” is the JWC’s strapline because the Centre exists to improve the readiness of the Alliance’s strategic, operational and tactical headquarters through large-scale, collective training events.

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The JWC’s
**Continuous
Improvement**
vision strategy
centres on
an annual
workshop
involving **all
members of
the JWC.**”

OPPOSITE PAGE
The annual JWC
vision workshop

The question for how to better deliver collective training resulted in a new capability in 2020 with the creation of a wargaming design concept. This concept, which was born out of a collaboration during the first workshop, is an alternative method for the JWC to help deliver much detailed and advanced training. Additionally, the collective training project line adopted processes for standardization of recurring outputs, such as exercise webpages, training objectives, and exercise content/storyline development (i.e. scripting).

Warfare Development is Inseparable from the JWC's Core Mission

By bridging transformation and operational readiness, the JWC creates the environment to implement doctrinal and procedural changes, as well as to experiment with new operational concepts. With transformation inherent in the work of this project line, the workshops have focused on three questions for consideration since 2020. Aligned with competitor-centric functions, the core team asks how to out-think, out-fight, and out-last to ensure that the JWC remains fit for purpose. Based on this, "out-think" mindset gave rise to the concept of integrating design thinking into training material to give the planning teams in NATO additional tools to counter complex problems. "Out-fight" mindset resulted in the drafting and publication of the NATO Advisory Team Handbook and the Warfare Development Handbook in 2020. Finally, "out-last" mindset produced a study on methods to improve resiliency training both in and out of exercises.

Professional Development is Necessitated by the Core Mission

The JWC's One Team demonstrates their professional acumen every day in NATO. While each team member arrives with exceptional skills and experience, the vision workshops are aimed at uplifting the processes used to ensure continued growth. In 2020, for instance, this resulted in the publication of the JWC Professional Development Directive, which established a framework and plan for a continuous cycle of education aimed at individuals, branches, and the Centre as an organization.

Organization Enables the Core Mission

The JWC is already a uniquely structured establishment because it employs a blended matrix rather than a purely hierarchical organizational chart. This empowers team members across multiple programmes, while depending heavily on personal leadership and influence rather than position and rank. The workshops illuminate the need to better understand the whole organization. This has driven a comprehensive critical look at internal processes, including review of the many formalized policies and procedures employed to deliver our core outputs.

In 2020, a key output was the request for, and initiation of, the Allied Command Transformation (ACT)-led Future Exercise Support Capability Study, detailed in

RIGHT

Left: The professional development project line during the workshop in 2021, which involved the Centre's entire One Team

Right: Colonel Fide Schönrade, the Deputy Chief of Staff for Support



the October 2021 edition of the JWC's The Three Swords magazine.³ Extending into 2022, this study will build understanding of the future opportunities to improve the ends, ways, and means of the NATO exercise environment.

Both workshops in 2020 and 2021 were tremendously successful, as they built a series of internal tasks that were independent of the JWC's core mission of exercise delivery. Additionally, due to their collaborative spirit, they empowered the whole of the team to become part of the change process. Not driven by a top-down push for change, the workshops set the tone and expectation in terms of change efforts and how these result in improvements in the day-to-day performance of duties.

Over the course of 2020, the programme added strategic communications as a support line. As the JWC's staff completed tasks and reached project milestones, the core team continued to update the Commander on the programme's progress. The allocation of organizational resources to the JWC's Continuous Improvement Programme produced tangible returns on investment in 2020 and throughout 2021. The real value creation, however, is expected in the years to come. ✦

ENDNOTES

- 1 <https://www.kotterinc.com/8-steps-process-for-leading-change/>
- 2 https://www.change-management-coach.com/kurt_lewin.html
- 3 https://jwc.nato.int/application/files/6116/3280/7994/issue37_04.pdf



Colonel Adam Lackey is a Programme Director at the JWC. He arrived in July 2020 from the U.S. National Defense University and has previously served multiple tours in Europe, most recently at the U.S. Army Europe and Africa Headquarters.

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By bridging **transformation** and **operational readiness**, the JWC creates the environment to implement **doctrinal** and **procedural changes.**”



Chapter II:

Exercises, Warfare Development and Key Competencies

Looking to the Future: Exercises, Training and Innovation

Whilst the Joint Warfare Centre delivers higher command and staff collective training for three- and four-star NATO headquarters, it can also harvest a huge dividend in warfare development and innovation. Exercises may be the most conspicuous aspect of what we do, yet it is our role in joint and combined warfare development at the operational and strategic levels that offers enduring benefit to the Alliance.

By Colonel Neil Wright

British Army

Former Deputy Chief of Staff Exercise, Training and
Innovation Directorate (DCOS ET&I)

Joint Warfare Centre

Nobody could have predicted world events in the nearly twenty years since the Joint Warfare Centre's (JWC) early days of 2003. The unfolding geopolitical circumstances seem remarkable and just as fascinating is the Centre's leading role in transforming NATO's warfare development agenda to meet global challenges.

Reflecting on that history, and with the benefit of hindsight, it is notable how swift and significant change has been. Such evolution has required an innovative and adaptable attitude by our teams towards warfare development. For instance, the seismic shift brought by the Wales and Warsaw Summits of 2014 and 2016 initiated a change in emphasis from crisis management and cooperative security back to assurance, deterrence and collective defence as well as the challenges of facing a large and capable opponent.

Despite a return to collective defence, there is much in our past two decades of experience that remains relevant. So, it is as well that we continue to reflect on those elements of the "war on terror" years that persist in the character of warfare; complex networks, insurgency to achieve political ends and the continuing need for capacity building, to name only three aspects which endure, albeit with marked evolution.

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Despite a return to collective defence, there is much in the JWC's past two decades' of experience that remains relevant.”

To that end, the focus on “conventional” major combat operations acknowledges that asymmetric warfare is very much alive and well, only its character continues to morph and change. So our analysis considers not just what has changed, but also looks for the continuities; where traditional rivals employ new tactics, honed through study of conflict in the early years of the twenty first century.

Consider for a moment real-world hybrid strategies employed by our adversaries with a complex and adaptive mix of conventional and unconventional means, designed to complicate and delay decision making — this is what our Scenario Branch writers seek to reflect in their work. Think of the prevalence of narrative distortion, cyber threats, organized crime, corruption, denial, deception, the use of proxies as well as conventional forces — this is what occupies our Content Branch. Manipulation of social media by opposing forces to influence and shape attitudes and behaviour is also presented as operational dilemmas for NATO’s Joint Headquarters to work through on the exercises. Such realistic and credible scenario and content material is vital to exercise delivery and warfare development work, not to mention deterrent messaging by the Alliance.

Challenges for the Joint Operational Level

In the present day, to paraphrase Mark Twain, “if history is not exactly repeating itself, it certainly is rhyming”. At the Joint Headquarters level, we find ourselves addressing once familiar aspects of major combat operations, like how to integrate joint actions to overcome layered defences associated with anti-access/area denial, anti-submarine warfare, operating in contested airspace, massing logistics, speed of assembly, freedom of movement, deception, concealment, electronic warfare and emissions control, to name only a few challenges resurfacing from the Cold War era.

Still, newer considerations have arisen, such as the extent to which military commanders should wage information war to counter an adversary’s narrative, thrusting leaders into far more public roles, not to mention highlighting contentious normative, ethical and legal considerations. These are the challenges faced by staff in the Exercises, Training and Innovation Directorate. Our exercises are helping to frame and conceptualize this new era of major joint operations. If scenario opens the door to interoperability, then our developing suite of sophisticated Article 5 scenarios represents a quantum step forward to ensure Alliance preparedness for collective defence.

Seizing Opportunities in Warfare Development

So, whilst the JWC delivers higher command and staff collective training for three- and four-star NATO headquarters, we can also harvest a huge dividend in warfare development and innovation. Exercises may be the most conspicuous aspect of what we do, yet it is our role in joint and combined warfare development at the operational level that offers enduring benefit to the Alliance. Indeed, our role in this is greater than ever as we refocus NATO’s agenda for experimentation, interoperability and doctrine development against collective defence and Article 5 scenarios.

RIGHT, CLOCKWISE

Situational update briefing during Exercise STEADFAST JUPITER-JACKAL 2020; the author, Colonel Neil Wright; Major General Piotr Malinowski, Commander JWC; Commander Sveinung Wersland during an exercise planning meeting; the space response cell during Exercise TRIDENT JUPITER 2019-1

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Manipulation of social media by opposing forces to influence and shape attitudes and behaviour is also presented as operational dilemmas.”



Judging by present security dilemmas and trends in geopolitics, this will be the trajectory of our work for the foreseeable future, whilst maintaining capacity to conduct small joint operations and out-of-area operations.

To the Next Twenty Years

Analysts view this fast-changing geopolitical landscape as perhaps the most consequential for European security since the end of the Cold War. This makes for challenging and interesting warfare development work in NATO's "warfare centre". Our exercises give us a unique and privileged view of Generalship, and how higher commanders and staff within NATO practice operational art.

We see talented commanders and staff operating in challenging and stressful conditions and it would be impossible not to be humbled and impressed by this. Yet the privilege comes with responsibility, which is to offer valid observations from training back into warfare development; the *raison d'être* of training and innovation in NATO. That linkage plays to the very heart of interdependence and interoperability within the Alliance.

So, it is safe to assume that the next twenty years will be just as unpredictable as those that have passed. In these accelerated times there seems little prospect of respite or let up, and our history and experience are likely to offer the best handrail to the future. Those first twenty years in exercises, training and innovation have been of huge importance in shaping our approach to warfare development and have ensured we are well poised to take on the challenges that lie ahead.

The role of the JWC's Exercise, Training and Innovation Directorate is to harness innovation and transformational thinking in our people and shape NATO's approach to future challenges. As the articles that follow demonstrate, we have talented and capable people working within the Directorate, at the forefront of innovation, adaptation and warfare development—and the team works! Professional life continues to be just as fascinating, varied and rewarding as ever and we are limited only by our own imagination. ✦

Did you know?

The JWC-directed command post exercises may involve up to 5,000 military and civilian personnel.

"Our exercises give us a unique and privileged view of Generalship, and how higher commanders and staff within NATO practice operational art."



Colonel Neil Wright is the JWC's former DCOS ET&I. Previously, he was assigned to Capability and Force Development Directorate in British Army Headquarters and served as Head Training Development with the U.S. Marine Corps in Afghanistan.

Warfare Development: Making NATO Better — Now and Tomorrow

In the rapidly changing global security environment, ensuring NATO's operational relevance and readiness has become critical. The Joint Warfare Centre upholds its responsibility to keep warfare development at the forefront of its activities.

By Colonel Jean-Michel Millet

French Army
Head of the Transformation Delivery Division
Joint Warfare Centre

The world's military history is replete with the failures of splendid military forces unable to adapt to changing strategic and operational environments and new technological advances. Perhaps now, more than ever, the NATO Alliance requires a deliberate and permanent effort to ensure that conceptual developments are translated into tangible initiatives tested and implemented at the operational level.

A Key Driver of Change

The Joint Warfare Centre's (JWC) motto says it all: "Training NATO. Advancing Doctrine. Integrating Concepts." From its inception, the JWC was organized to ensure that conceptual developments and new doctrines were tested and validated throughout the exercise process. Indeed, training and warfare development are inextricably linked to the transformational role the JWC has within NATO. The Centre's world-class exercises are renowned for their realism, providing the perfect platform for testing new concepts and ideas, and for implementing new doctrines at the operational level of war.

Warfare development at the JWC is thus defined as "all the actions taken to educate, train, and develop NATO commanders and staff, whilst implementing doctrine, facilitating experimentation, and highlighting lessons learned".

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The JWC's **world-class exercises** are renowned for their **realism**, providing the perfect platform for **testing new concepts and ideas.**”

Warfare development considerations are included throughout the JWC's 20-month exercise process. It starts with identifying the challenges of operational-level headquarters and the best practices in solving those challenges. Moreover, new operational concepts developed by the Allied nations are incorporated into the Centre's exercise planning activities. Using the exercises to host their experiments, the Operational Experimentation Branch at Headquarters Supreme Allied Commander Transformation (HQ SACT) also feeds the exercises with new concepts and capabilities. The final step is for the nations to validate doctrinal documents, present them to the training audience headquarters, fine-tune them to fit the exercises, and, finally, implement them for official use. This cycle mobilizes not only the JWC's Transformation Delivery Division, but all members of the programme, as well as external stakeholders and experts, such as NATO centres of excellence, member and partner nations' academia, and doctrinal research centres. All of this makes the JWC-directed exercises the petri dish of transformation for the Alliance.

BELOW

The JWC situation centre during Exercise STEADFAST JUPITER-JACKAL 2020

“Warfare development is all the actions taken to educate, train, and develop NATO commanders and staff, whilst **implementing doctrine, facilitating experimentation, and highlighting lessons learned.”**





A New Strategic Impulse

Following emerging threats over the past decade, NATO adjusted its focus from crisis management back to the challenges of facing a large and capable opponent. The NATO Military Strategy document of 2017 clearly sets the path for renewed efforts to enable the Alliance to wage high-intensity warfare in the Euro-Atlantic area against potential peer or near-peer adversaries.

Over the following years, both NATO strategic commands, Allied Command Operations (ACO) and Allied Command Transformation (ACT), translated this orientation into relevant strategic concepts. ACO's Concept for Deterrence and Defence of the Euro-Atlantic Area (DDA) aimed at optimizing the employment of forces. The ACT-led NATO Warfighting Capstone Concept (NWCC), meanwhile, focused on the development of NATO's military instrument of power (MloP) for the next 20 years. More specifically, the goal of the NWCC is to shape the warfare development trajectory and to inform the development of the Alliance's MloP, while ensuring its effectiveness and employability by SACEUR in order to maintain the military edge.

These new concepts together bring more emphasis on warfare development as part of the Alliance's operational-level training. The JWC Transformation Delivery Division's efforts have been in operationalizing strategic-level concepts. All this led the JWC to identify four central tenets to improve collective decision-making:

1. How to think better and understand faster the operational problems during planning and execution of military training and operations, through new planning methodologies to even better fit the complex and ambiguous environment we are faced with;

ABOVE

Left: The JWC's Advisory Team during Exercise STEADFAST JUPITER-JACKAL 2020

Right: The author, Colonel Jean-Michel Millet

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The JWC has a central role in bridging the gap between **conceptual advances** and **NATO readiness.**”



2. How to ensure NATO forces fight better through a better joint integration of all domains, including the relatively new cyberspace and space, and by increasingly empowering the JWC's Advisory Team to support training audiences and enforce lessons learned;
3. How to improve NATO resilience at the operational level by finding novel ways to incorporate resilience into training;
4. How to improve the value of training by ensuring NATO Command and Force Structure Headquarters are learning by employing more innovative training tools, such as wargaming.

ABOVE

The JWC's Advisory Team in Italy during Exercise STEADFAST JACKAL 2021

In what marks a new era for NATO, the ability to adapt and react quickly to dynamic operational environments is critical. Thanks to the warfare development initiatives, the JWC has a central role in bridging the gap between conceptual advances and NATO readiness. ✦



Colonel Jean-Michel Millet has been the Head of the JWC's Transformation Delivery Division since 2018. His previous assignment was Head of the Asia-Pacific Department at the French Ministry of Defence Directorate for International Relations and Strategy.

Developing Warfare at NATO's Warfare Centre

By Peter M. Hutson

NATO International Civilian
Capability Integration and Experimentation Analyst
Concepts, Capability Integration and Experimentation Branch
Joint Warfare Centre

NATO operates in the context of a constantly changing global security environment, requiring the Alliance to continuously rethink, reprioritize, and transform in response to new risks and opportunities. Central to NATO's strategy is the ability to adapt to the future, and particularly to the increasingly complex and amorphous nature of conflict and warfare.

At the operational level, the Joint Warfare Centre's (JWC) task and responsibility is to ultimately translate key strategic concepts and subsequent guidance down to the level of the warfighter, to skillfully discern potential impact to operations, and to adapt training venues and exercises. The Concepts, Capability Integration and Experimentation (CCI&E) Branch has been instrumental to this effort, seizing opportunities to support warfare development through the integration of new concepts, maturing capabilities, and other experimental activities into the JWC-directed exercises and innovative training venues.

The challenges of transformation for NATO at the operational level were first highlighted in the Alliance Strategic Concept of 1999 and the Military Committee's implementation strategy. As put forth in the Alliance Strategic Concept of 1999, whilst the possibility of large-scale conventional aggression could not be disregarded, the Alliance needed to also take into account the wider risks beyond the periphery of the Alliance to include acts of terrorism, ethnic conflict, organized crime, disruption of the flow of vital resources, the uncontrolled movement of large numbers of people, and the proliferation of nuclear, biological and chemical weapons.

In addition, new fundamental tasks of crisis response operations, partnership, and peace support were added to those of security, consultation, deterrence, and defence. The 9/11 terrorist attacks against the United States further brought the risk of terrorism to the fore. This unprecedented event soon drove major internal reforms to modify military structures and capabilities for new tasks to include the UN-mandated International Security Assistance Force (ISAF) in Afghanistan.

These new strategies led to the implementation of a new NATO Command Structure, and Allied Command Transformation (ACT), within which the JWC was required to adjust and translate the new guidance into a framework suitable to its mission and programme of work. For the JWC, this meant

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The JWC's task and responsibility is to ultimately translate **key strategic concepts** and subsequent **guidance** down to the level of the **warfighter.**”

careful adaptation of its training environment, development of relevant exercise scenarios, and judicious inclusion of experimental opportunities. The earliest requirements for integration of new or maturing concepts and experimentation into exercises included the effects-based approach to operations (EBAO), comprehensive approach, knowledge development, system of systems analysis (SoSA), counter-improvised explosive device operations, and adaptation of the Comprehensive Operations Planning Directive (COPD).

For both the JWC and its training audiences, the introduction of new concepts and experimental activities has been the stimulus for change and adoption of a different mindset — one that involved accepting risks and opportunities, and recognition that transformation requires action as a “present activity” and not as a future event. Importantly, this also means constant and close coordination and interaction with key stakeholders, including the development of programme management of capabilities at Headquarters Supreme Allied Commander Transformation (HQ SACT), requirement owners and operators at Supreme Headquarters Allied Powers Europe (SHAPE), NATO Command and Force Structure Headquarters, centres of excellence, nations, industry, and academia.

In 2010 at the Lisbon Summit, NATO again revised its Strategic Concept (accompanied by the MC Guidance 400/3, March 2012), endorsing an updated understanding of NATO’s core purpose to reflect on the evolving geopolitical and strategic landscape. Collective defence, of course, received continued emphasis as a core task for NATO. This time crisis management and cooperative security were also elevated to core tasks, reflecting the requirement that NATO must not only protect and defend Alliance territory, but also defend against global, transnational, or non-traditional threats that transcend fixed, conventional boundaries, while also engaging with an international array of actors and partners.

Guided by the 2010 Strategic Concept and lessons learned from both the Balkans and Afghanistan, HQ SACT and the JWC also promptly shifted gears to address new major themes and develop new initiatives to adapt and transform. One example was closer scrutiny and experimentation with NATO’s ballistic missile defence (BMD) capability and related capability integration in multiple exercises to inform doctrine development and operational frameworks.

Cyber defence also received a high level of attention. To challenge the operational level with a cyber-contested environment, the Centre provides dynamic and robust scenarios and Advisory Team support to facilitate cyber training within its collective exercise programme. As such, the JWC facilitates the development of doctrine, organization, training, materiel, leadership, education, and interoperability capability strands with regards to cyberspace.

Strategic communications was another key focus area that quickly evolved as a core function in NATO policies and operations. Derived from lessons identified from ISAF and the Ukrainian crisis, particular challenges included how to integrate the concept of strategic narratives at the operational level and how to assess the information environment and its influence on populations.

Over the past decade, ACT continued to persistently monitor the dynamic geopolitical landscape and to address evolving security implications and the evolving nature of warfare.

RIGHT, CLOCKWISE

NATO Brussels Summit 2021; the author, Peter Hutson, during a vision workshop presentation; the NATO Military Committee visit to Allied Command Transformation (ACT) was hosted by the JWC in early March 2020; the JWC exercise situation centre (SITCEN) during STEADFAST JUPITER 2021



Besides the continued development of cyberspace as a domain of operations, ACT also focused on the NATO operational dependencies related to the space domain resulting in a successful three-year campaign within major JWC-directed exercises. In coordination with NATO's spacefaring nations, this high-visibility project yielded rapid doctrinal, organizational, training, and interoperability developments and changes for the Alliance.

Hybrid threats was another area that the JWC successfully integrated into its warfare development and training processes. After the Ukraine crisis in 2014 and increased tensions with Russia, NATO rapidly focused on the challenges of confronting and countering hybrid threats and asymmetric warfare, including propaganda and disinformation, cyber disruption and destabilization, economic and energy pressures, movement of conventional forces, and blurring the distinction between civilians and combatants. The JWC-directed exercises actively challenged training audiences with such threats, while offering those training audiences the opportunity to develop doctrinal, capability, and operational countermeasures.

Other projects that the JWC has supported over the years were related to disablement of weapons of mass destruction, joint intelligence surveillance and reconnaissance experimentation to include the tasking and employment of the NATO Alliance Ground Surveillance Force, operations logistics chain management capability development, information environment studies and experimentation, and numerous technology projects to assist with development of medical, logistical, and operational information systems.

Developed to support the 2019 NATO Military Strategy (MC 0400/4), the NATO Warfighting Capstone Concept (NWCC) represents HQ SACT's vision on how the Alliance should approach the future of warfare, and how the Alliance will coherently deliver the military instrument of power over the next 20 years. In essence, the NWCC creates a vision for Alliance warfare development up to 2040 to protect NATO's core interests.

In collaboration with HQ SACT, the JWC is also conducting a consolidated review of how it will contribute to meeting chiefs of defence priorities in response to new "warfare development imperatives" that include cognitive superiority, cross-domain command, influence and power projection, integrated multi-domain defence, and layered resilience. The CCI&E Branch has also been integral in contributing to this effort, including the development of an initial JWC wargaming capability, and ensuring that the complexities of resilience are appropriately represented in exercises.

As NATO continues to evolve in response to both complex threats and a dynamic geopolitical landscape, transformation and warfare development will remain central to enhancing Alliance readiness, relevance, and credibility. HQ SACT and the JWC have been committed to supporting and delivering the ongoing transformation necessary to fight and win in the future. ✦



Peter M. Hutson specializes in experimentation and integration of new concepts and capabilities into the JWC-exercises. He is also a postgraduate research student completing a NATO-sponsored professional doctorate focused on cyber risk.

Training the Next Generation of NATO Commands

Our mission is to provide transformational exercise support for NATO's military headquarters, while ensuring Alliance combat readiness for joint operational- and strategic-level warfare through rotational force certifications.

By Commander George Wright (Retired)

United States Navy
Former Subject Matter Expert (Air)
Advisory Team
Joint Warfare Centre

and Lieutenant Colonel Barrett Burns (Retired)

United States Army
Former Subject Matter Expert (Cyber)
Advisory Team
Joint Warfare Centre

The Joint Warfare Centre (JWC) provides resident subject matter experts (SMEs) for an Advisory Team to advise and assist each respective training audience participating in a supported exercise, regardless of whether the training audience is from the NATO Command Structure or NATO Force Structure. Though most SMEs are permanent staff members within the JWC, members of the Advisory Team can also come from anywhere within the NATO enterprise, such as a respective centre of excellence or component command.

In addition, the Advisory Team will have selected retired NATO generals or flag officers supporting the overall effort as senior mentors, thereby ensuring each participating headquarters staff, including key leaders, are properly assisted through every stage of the exercise life cycle.

The core functional areas typically supported by the Advisory Team in an exercise are command and control, intelligence, manoeuvre and fires, force protection, strategic communications, sustainability, and civil-military cooperation. There can be up to an additional 15 functional domains supported, depending on the needs of the training audience and the complexity of the given exercise.

Though the Advisory Team is available to support each headquarters staff at any time during the exercise process, support to certain phases, such as academics, crisis response planning, and the execution phase is of particular importance. By ensuring that these critical milestones are successfully completed, the Advisory Team also ensures that all identified training objectives are met and that they fulfil NATO standards.



JWC's Additional Domain Support

- Land operations
- Maritime operations
- Air operations
- Special operations
- Space operations
- Assessments
- Operations planning
- Targeting
- Human intelligence
- Chemical, biological, radiological and nuclear defence
- Theatre ballistic missile defence
- Gender perspective
- Law
- Cyber
- Battlespace spectrum management

Supporting Certification

As NATO Command and Force Structure Headquarters progress through the training and certification process, the JWC's Advisory Team members support the headquarters staff with functional expertise from their career within their own national military service. In addition, these individuals also contribute with their experiences from multiple JWC-led NATO exercises and participation in functional and doctrinal NATO forums. Each exercise represents a cooperative effort between the JWC, the training headquarters, and various supporting NATO organizations. During the exercise design and development stages, the Advisory Team supports the JWC Exercise Planning and Exercise Production Divisions. As the exercise progresses into the delivery and execution stages, the Advisory Team forms a partnership with the training audience headquarters' staff that begins during preparation for the formal academic seminars and continues through the post-exercise analysis.

Academic Seminar

During the academics, select SMEs may spend a focused week with the training audience, discussing functional issues and reviewing NATO standards. These discussions incorporate recent operational experiences of the training audience, new functional concepts in development throughout NATO, and functional best practices developed through exercises and operations. The ideas and conversations sparked in academics continue throughout the planning and execution phases of the exercise, and beyond.

In academics, SMEs present and reinforce the common NATO framework processes and procedures for planning and conducting operations. The development of this common framework in each NATO headquarters is critical to interoperability across the force. Common processes and procedures across joint headquarters and component commands ensure seamless planning and execution of Alliance operations. Scenario introduction and exercise framework and execution mechanics are a few of the critical themes reviewed and discussed during academics.

In close coordination with the training audience, the finalized academics programme is approved by the training audience commander, thereby ensuring tailored, relevant training is accomplished throughout the headquarters.

Crisis Response Planning

The most important aspects of the crisis response planning (CRP) are to ensure integration with the NATO crisis response system, application of the collaborative operational planning process, and the production of an executable and complete concept of operations (CONOPS) and the operations plan (OPLAN). The CRP will follow the NATO crisis response process ensuring the application of collaborative, convergent, and parallel planning processes between the strategic, operational, and tactical levels in order to develop effective planning directives and executable operational plans at all levels.

Where the Advisory Team is forward deployed to the supported headquarters, the CRP is typically a two-week intensive joint operational planning effort



JWC Advisory Team Will

- Observe
- Report
- Advise
- Assist
- Provide feedback
- Identify lessons learned and analyse trends

JWC Advisory Team Will Not

- Test
- Examine
- Evaluate
- Execute training audience functions
- Give the answer
- Reveal future script

conducted by the certifying headquarters that begins with a comprehensive mission analysis based on the exercise scenario and concludes with a course of action decision brief. The Advisory Team observes the planning processes and coaches and advises headquarters staff in a cooperative effort to gain the most training value as staff moves through the operations planning process.

The cooperative planning effort continues long after the course of action brief concludes, even after the Advisory Team returns to the JWC. The training headquarters often spend an additional four weeks developing the CONOPS and the OPLAN. The Advisory Team supports this effort remotely, offering advice during the development of each of these documents.

Between the CRP phase and the execution phase of the exercise, the Advisory Team may also support several other exercise events, including but not limited to key leader training, battle staff training, and a pre-execution phase that incorporates force activation and deployment activities. For each of these events, the JWC Advisory Team can deploy a tailored team of SMEs to provide expert advice and assistance as needed.

BELOW

The JWC's Advisory Teams participating in various exercises between 2018 and 2021 at deployed locations



Execution Phase

The execution phase of the exercise, Phase IIIB, is normally the most dynamic part of the exercise. During Phase IIIB, the JWC's Advisory Team will advise and mentor the training audience towards the accomplishment of their training objectives with a focus on the joint staff functions and processes.

The Advisory Team will advise the training audience by sharing their in-depth doctrinal knowledge, personal experiences, lessons identified, and good practices observed in previous exercises. As exercise control (EXCON) forward, the Advisory Team will monitor the training audience to ensure its understanding of the scenario is coherent and aligned with the exercise design. The Advisory Team will also report and share this relevant information with EXCON main, so that the exercise script and appropriate injects continue to be relevant as the execution phase progresses in real time.

Any areas of concern identified in a headquarters can quickly be stress tested with follow-on injects or storylines, commonly referred to as dynamic scripting. As more and more exercises are supported by the JWC team, trends with regards to headquarters' performance can be readily identified through analyses and lessons identified. This provides NATO with a common framework for warfare development progress and feedback from areas that need improvement. The JWC Advisory Team support provided during the execution phase is the culmination of a year-long relationship established during academics and strengthened in CRP.

Developing Expertise

While each staff officer arrives at the JWC with a deep understanding of their functional expertise, that expertise is often framed in the context of national organizations, national capabilities and national processes. Merging these various cultural and organizational ways of thinking into a cohesive, effective military alliance is what NATO is all about.

To learn the ways of NATO, staff officers often begin their tour at the JWC with several courses at the NATO School Oberammergau. At the start of their tour, the SMEs attend class as students, learning NATO processes and procedures within their functional area. By the end of their tour, they are teachers and seminar leaders who assist in training the next generation of NATO staff.

In order to maintain up-to-date functional expertise, the SMEs aggressively pursue professional development between exercise events. Functional workshops and seminars in NATO are ideal forums to discuss lessons learned in exercises and operations. The cycle of exercise execution and the conduct of operations, reflection in workshops and seminars, and updates to doctrine and policy are the transformational engines that keep the JWC Advisory Team current and relevant. ✦

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The **advisory Team** will advise the training audience by sharing their in-depth **doctrinal knowledge, personal experiences, lessons identified, and good practices** observed in previous exercises.”

Commander George Wright (Retired)

was a naval flight officer. His previous assignment before the JWC was at HQ U.S. European Command Joint Reconnaissance Center as Deputy and Branch Chief.

Lieutenant Colonel Barrett Burns

served at the JWC's Concepts, Capability Integration and Experimentation Branch.

"KNOWLEDGE MUST BECOME CAPABILITY."

Carl von Clausewitz

The JWC Doctrine Development Process

By Lieutenant Colonel Stefan Geluk

Royal Netherlands Army
Staff Officer (Land)
Doctrine Support Branch
Joint Warfare Centre

Although perhaps not as old as war itself, military doctrine has a long historical pedigree. In his classic work "The Art of War", probably written in the fourth century BCE, Sun Tzu identifies doctrine as one of the five fundamental factors of war, along with moral influence, weather, terrain and command.

The roots of modern military doctrine can be found in two important developments in late 18th-century Europe: the identification of tactics as a branch of war, and the founding of military academies to give candidate officers a formal education and make them fit for their craft. By the end of the 19th century, the armies of all major powers were devoting much time and attention to doctrine, and since then interest has sharpened.

Today, NATO defines doctrine as "fundamental principles by which the military forces guide their actions in support of objectives. It is authoritative but requires judgement in application" (AAP-06, Edition 2019).

Doctrine provides the military commander with guidance on the "how" for virtually every aspect of military operations, but not on the "what" or "why". In this manner, doctrine provides an ever-evolving structural framework that allows for flexibility of action in a dynamic combat environment.

During the 1990s, NATO recognized the need to revise the existing doctrine. Based on the U.S. approach, a decision was made to create a hierarchy of doctrine publications, namely the Allied Joint Doctrine Hierarchy. At the top is a capstone publication, the Allied Joint Publication Allied Joint Doctrine (AJP)-1, which is the general NATO doctrine. Immediately below that is a series of functional, keystone publications, such as the AJP-2 Intelligence, Counterintelligence and Security; and the AJP-3 Conduct of Operations.

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Doctrine provides the military commander with guidance on the **‘how’** for virtually **every aspect of military operations**, but not on the **‘what’** or **‘why’**.”

The level below comprises publications that support the conduct of joint and multinational operations. These publications describe the contribution of the various components (maritime, land, and air), and also the underlying activities, such as counter-air operations and military police, to name but a few. Today there are more than 50 AJP's in total, and it is more than likely that this number will increase in the future.

The JWC Doctrine Support Branch

To assess and validate the existing doctrine and identify the need for new doctrine, Allied Command Transformation (ACT) uses a process that is directed by the NATO Military Committee's Joint Standardization Board. The doctrine review process aims to ensure that all current AJP's are reviewed every five years.

The AJP's that are up for review are published in the Allied Joint Doctrine Campaign Plan and the respective custodians are then expected to collect feedback throughout the NATO Command Structure. The feedback can be obtained during ongoing operations, but also through training and exercises.

The Joint Warfare Centre's (JWC) Doctrine Support Branch is tasked to support this process and the custodians. It does so by keeping a close relationship with the custodians and introducing them to the relevant counterparts within the training audiences. Furthermore, the branch constantly identifies any doctrinal gaps and shortfalls as well as outdated doctrine and contradictions between the various doctrine publications. This is mostly done during the planning and execution phases of the operational- and strategic-level exercises hosted and directed by the JWC.

Through the close contact with the custodians and the Exercise Planning Division at the JWC, the Doctrine Support Branch is also able to incorporate

BELOW

The JWC's doctrine staff at a meeting

RIGHT

Exercise STEADFAST JUPITER 2021



specific doctrine assessment or doctrine validation-related requests of the custodians into the different workshops that feed the scenario and incidents during the exercise. This way, the doctrine team can provide custodians with the best possible feedback for the assessment or validation.

The Doctrine Support Branch routinely provides specific subject matter expertise during periods of high-intensity training and exercises. The branch works with NATO Response Force (NRF) headquarters, NATO centres of excellence, the Joint Analysis and Lessons Learned Centre (JALLC), as well as non-NATO entities. In addition to this, the Doctrine Support Branch is responsible for the bi-annual update of the NATO Force Structure (NFS) Joint Task Force Headquarters Handbook, which is written in cooperation with the JALLC and the NATO Command and Control Centre of Excellence. Regular participation in different doctrine-related working groups is also part of the workload.

Conclusion

Doctrine consists of a set of beliefs about the nature of war and the keys to success on the battlefield. It is, however, also the product of a complex process of different influences. Allied doctrine requires a consensus of the NATO member states, and therefore brings with it a unified way of planning and carrying out operations, which again strengthens the Alliance. The JWC Doctrine Support Branch is the ideal tool to support the NATO doctrine development process. ✦



Lieutenant Colonel Stefan Geluk is an army infantry officer. His previous assignment was at the Netherlands Defence Academy as a teacher in military operational art and science.

A Digital Battlespace

The Joint Warfare Centre's Computer Assisted Exercise (CAX) Support Branch is responsible for providing a compelling synthetic battlefield. Over the 19 years that the Centre has conducted its core business of exercise delivery, the simulation environment has evolved based on the changing needs of the NATO Alliance.

By Philip Draper

NATO International Civilian
Head of the CAX Support Branch
Joint Warfare Centre

Every exercise the Joint Warfare Centre (JWC) executes requires a compelling and realistic environment in which the training audience operates. Given the scale and complexity of the operational theatres that are necessary to challenge NATO's Command Structure, a unique approach is required: the provision of a virtual battlespace. The role of the CAX Support Branch is to provide that environment through the use of computer-based simulations.

NATO as a whole is a major user of modelling and simulation technology and is continually looking to exploit this key enabling capability driven by the Allied Command Transformation's transformational activities (TACT). What sets the JWC apart is the scale and complexity of the exercises it executes. As the JWC CAX team, the key challenges we face are the requirement to model activity across the complete spectrum of warfare and to present the outcomes of that endeavour directly into the training audiences' command and control (C2) systems in a seamless and transparent way.

If the CAX team executes as intended, the training audience is unaware that CAX support exists; they truly train as they fight. To that end, the JWC employs a range of simulation systems and support tools, but the Centre's vision is actually to keep the technology as simple, agile and flexible as possible.

Delivering a CAX is the mission of the whole of the JWC. The CAX Support Branch is charged with providing modelling and simulation support to the exercise enterprise. A good CAX should highlight organizational and procedural weaknesses, as that is the single best way to identify where we, as an organization need to improve in our core mission, ensuring the safety and security of the Alliance and its members.

The greatest risk for the technical element of a CAX is that the benefits of using simulation support are outweighed by the resources required to prepare and deliver that support during exercise execution. We endeavour to ensure our simulation systems are as current as they can possibly be in terms of



What is a Digital Battlespace?

The richly detailed operational planning environments devised by the JWC staff contain thousands of discrete entities, installations and systems located in a fictitious, yet convincing geopolitical region.

The simulations continually calculate the position and status of all of the thousands of entities that represent (virtually) the aircraft, ships and land forces under the control of the NATO headquarters involved in the exercise event as well as the opposing forces that are employed to test and challenge their plans.

fidelity and data accuracy to ensure we deliver value across all of the domains represented in exercises of the scale and complexity that the JWC provides.

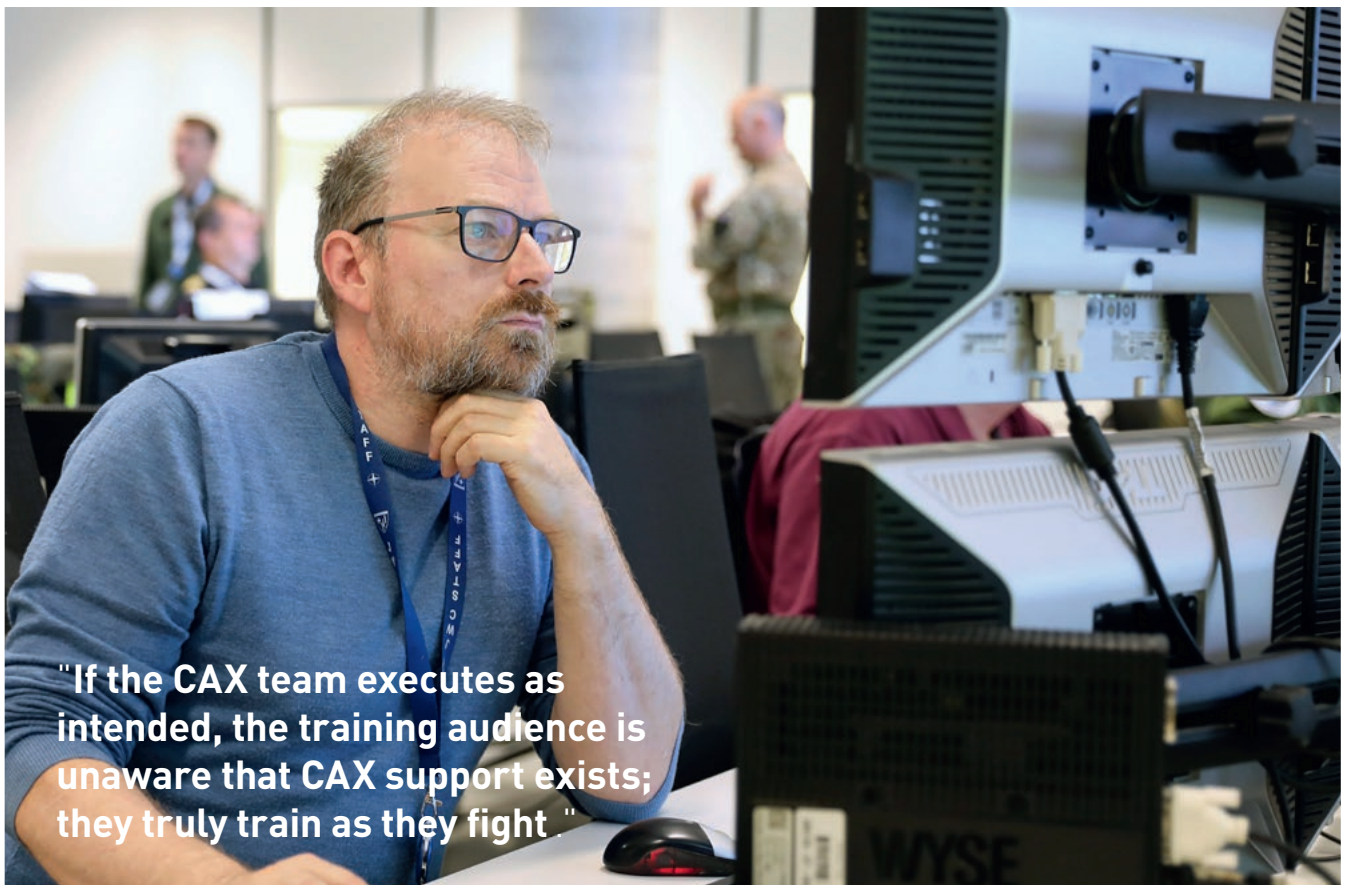
Over the 19 years during which the JWC has conducted its core business of exercise delivery, the simulation environment has evolved based on the changing needs of the NATO Alliance. Recently, the focus has shifted to large-scale, high-intensity warfighting exercises. The major impact of this change is on the effort required to build the simulation databases that represent operations at the scale and complexity demanded, and on the number of personnel required to execute them. This places even more emphasis on the requirement for the CAX Support Branch to ensure that the parametric performance data for weapon systems is correct, and also to understand how changes in doctrine and the operational art can be accurately represented in a synthetic environment. The JWC CAX Support Branch has many challenges to face, but this also makes it a rewarding time to work in this field for NATO. As an example, for the virtual battlespace of one of the JWC-led exercises it was necessary to build a database that represented five corps down to battalion level, and the baseline scenario called for hundreds of ships and aircraft to operate in the battlespace simultaneously.

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What sets the JWC apart is the **scale and complexity of the exercises** it executes.”

BELOW

The author, Phil Draper, during Exercise STEADFAST JUPITER 2021



"If the CAX team executes as intended, the training audience is unaware that CAX support exists; they truly train as they fight."



ABOVE
CAX operators during
various exercises

The Way Ahead

NATO's level of ambition associated with its exercise programme is extremely challenging. The increase in the number of events scheduled for the JWC programme of work since 2020 and onwards is an indication of the faith placed in the organization and its ability to assist in the preparation of the Alliance. To effectively support that continually increasing NATO level of ambition and to sustain professional capability in the future requires a particular focus on simulation technologies and advances in new technologies. If that can be achieved, then the next 19 years should be as successful as the previous. ✦



Philip Draper is a NATO Civilian employed at the JWC since 2011 as a simulation specialist focusing on joint operational-level conflict modelling.

Keeping On Track with the JWC Quality Assurance Branch

The Quality Assurance team has a major role to play in developing the Centre's core business: training NATO on operational- and strategic-level exercises and warfare development, while ensuring superior performance, accountability and durability.

Andrew Eden

NATO International Civilian
Lessons Learned Analyst
Quality Assurance Branch
Joint Warfare Centre

Maintaining the high quality of exercises that come to life at the Joint Warfare Centre (JWC) is central to the mandate of the Quality Assurance (QA) Branch. We are a small team that contributes to the overall exercise process from inception through to the final analysis of the training audience's performance. Each exercise brings with it unique challenges in breadth and depth, such as how to organize exercise control (EXCON) while adapting to different training audience approaches and increasing ambition.

One benefit of the JWC's rapid-fire output has been the opportunity to observe trends and patterns over a succession of exercises, each with distinctions and commonalities. Since 2020, we faced the global COVID-19 pandemic during our busiest months. Nevertheless, we managed to adapt to the situation and conducted the exercises with some highly effective adjustments. The pandemic actually gave us the opportunity to review if we are "doing the right things" as well as "doing things right".

Our Training Analysts

Our training event development (TED) analysts engage closely with the JWC's exercise planners, the headquarters of the officer conducting the exercise (OCE), and the training audiences to develop training objectives for the exercises based on both Supreme Allied Commander Europe's (SACEUR) Annual Guidance, and the articulated exercise objectives.

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Each exercise brings with it **unique challenges** in breadth and depth, such as how to organize exercise control while adapting to different **training audience approaches** and **increasing ambition.**”

During the exercise execution phase, TED analysts work directly with the JWC Transformation Delivery Division's Advisory Team of subject matter experts. Together they closely examine the training audience's achievement of the objectives, as well as how it conducts operations. This is then documented and compiled by the OCE in the Stage 4 publications in the form of the first impression reports and the final exercise report. Thus, the TED analysts enjoy an unrivalled view of the exercise planning, possess a detailed understanding of the high-level requirements of the exercise, actively engage in the entire planning and product delivery processes and play a central role in assessing and analysing the training audience's achievement of the training objectives. Considering the stages involved and the tasks they carry out, the TED analysts are indeed some of the most situationally aware actors in the overall exercise process.

Lessons Learned

The lessons learned purview covers the JWC's performance and practices when producing exercises, and indeed, any corporate business. The core team of two lessons learned staff officers and one lessons learned analyst makes observations and analyses of lessons developed during exercise planning, and, in particular, during Phases II and III, in order to optimize practices and minimize recurring problems or frictions, be they sourced in-house, or caused by external agencies. Lessons are staffed internally or externally, depending on the nature of the problem and how it should be solved.

The lessons learned team is an innovative team that strives to improve the JWC's business processes and NATO's lessons learned process. Recently, the team worked closely with the Information Management/Command,

RIGHT

Left: Quality Assurance staff during exercises STEADFAST JUPITER-JACKAL 2020 (Navy Commander Trond Gleditsch, former TED analyst) and STEADFAST JACKAL 2021 (Lieutenant Colonel Yavuz Satir, Quality Assurance Branch Head)

BELOW

Left: Amul Waraich, TED analyst at the vision workshop

Centre: Andrew Eden, the author

Right: Robert Scheider, TED analyst, during Exercise STEADFAST JACKAL 2021 in Italy





Control, Computer and Communications (IIM/C4) Branch to develop the JWC Observation Reporting Tool (JORT) in order to leverage the experience of exercise participants. Additionally, in the COVID-19 era, the lessons learned team collected the observations regarding the effects of the pandemic on the JWC and NATO using an array of methods such as interviews, online surveys, and observation collection forms to provide essential lessons to the entire NATO community.

Quality Assurance in the Future

As NATO's near-term exercises become more complex in breadth and depth, it is clear that the demands on the JWC as a whole will increase even more. Maintaining high-quality exercises requires a focus on just that: quality. NATO quality standards address three broad areas: leadership and management, education and training, and the contribution to NATO. The Quality Assurance Branch continues to focus on these areas in order to provide the most efficient, effective, and highest-quality service possible.

Finally, the Quality Assurance Branch continues to explore new ways to standardize the JWC's outputs to achieve a leaner organization. Our analysts are dedicated to developing means to achieve more flexible change of roles during exercises as and when required. ✦

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Training event
development
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exercise
process.”



Andrew Eden is a NATO International Civilian employed at the JWC since 2014. He has worked in NATO's lessons learned domain for 17 years.

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

By Lieutenant Colonel Dieter Heumueller

German Air Force

Head of the Information Management and Command, Control,
Computer and Communications Branch
Joint Warfare Centre

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.

RIGHT

The author,
Lieutenant Colonel
Dieter Heumueller,
during a meeting with
the JWC's IM/C4 staff

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.

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**Smart, fast,
dynamic
information
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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.



Sixteen Years of Media Simulation Excellence

By Laura Loflin DuBois

NATO International Civilian
Information Environment Manager
Public Affairs Office/Media Simulation Branch
Joint Warfare Centre

The evolution of the information environment has had considerable implications for NATO's operational- and strategic-level commanders. With the advancement of online and social media, it has become even more relevant for commanders to reach outside their comfort zones and look up from the map into the information space. NATO's adversaries have embraced media as a weapon system, and NATO understands the importance of leveraging this critical tool in its arsenal.

As with any weapon system, training prior to deployment is essential. With this in mind, the Joint Warfare Centre (JWC) established its own organic media simulation capability in August 2006. With an initial focus on simulating television news during the exercise execution phase, the section has evolved to deliver a full-scale media and information environment during the JWC's operational-level exercises, beginning in the planning phase and continuing throughout the exercise lifecycle.

The JWC's exercise media and information environment includes television news, online news and social media simulation. For television news, World News Today (WNT) is the flagship programme, replicating international news outlets such as CNN International or BBC World. For the Centre's more complex exercises, the team also produces adversarial products, replicating the effects of outlets that appear credible, but deliver state-controlled messages. Online news includes content from local, national, regional, and international perspectives, including adversarial content, all delivered digitally via NewsWeb, the JWC's news aggregate website. Social media effects are delivered via Chatter, the JWC's simulated social networking platform.

RIGHT, CLOCKWISE

A simulated press conference during Exercise TRIDENT JUNCTURE 2016; a road-to-crisis newscast displayed at the JWC auditorium; the author, Laura Loflin DuBois during Exercise STEADFAST JUPITER 2021; the live TV studio

"Battles will be fought on land, in the air and at sea. But, the next war will be won in the information battlespace"

General Philip Breedlove (Retired)

Supreme Allied Commander Europe (SACEUR) from May 2013 to May 2016



In addition to delivering news media content, Chatter is also used by key exercise control (EXCON) stakeholders, such as the opposing forces (OPFOR), higher control (HICON), and Grey Cell role-players, to deliver effects to the training audience. These simulation platforms bring the exercise to life, but more importantly they provide the media consequences of operational decision-making. Separately, each of these platforms delivers specific effects, but cumulatively, they provide a realistic replication of the media lifecycle. This provides the training audience with an advance warning system in which they can effectively plan and prepare engagements to shape the narrative in support of their operational objectives.

Every battlefield operation has strategic communications implications — some to be exploited, and some to be mitigated. Engaging with the media to promote operational achievements and/or counter adversarial propaganda is essential to achieving operational success.

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**NATO's
adversaries
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a weapon
system.”**

In addition to providing raw news and social media content, the Media Simulation Cell works with key EXCON stakeholders to provide scripted sentiment analysis and public opinion polls to the training audience. These products help them to better understand the effectiveness of their strategic communications efforts and serve to complement the raw content found in news reports and social media posts. This robust package enables the training audience to conduct their staff-level processes, including analysis and assessment to feed boards and working groups, and ultimately stimulating the decision-making process.

The security environment in Europe shifted in 2014, after Russia invaded and annexed Crimea by executing a modernized form of hybrid warfare. While hybrid warfare was not new, the way in which adversaries leveraged social media to achieve operational objectives changed the battlefield. Whereas previously information effects were used to support operations on the ground, potential adversaries were now using operations on the ground to support their information objectives. With the adversary evolving, NATO's training also needed to evolve to include adversaries with modern and sophisticated information warfare capabilities. With that in mind, the JWC's Media Simulation team has focused on continuously improving to meet the evolving information environment. Recent introductions of strategic hashtags, the adversarial social media trolls, and "bot" activity have proven effective ways to introduce modern information challenges to our training audiences. This has resulted in a more realistic media and information simulation, and ultimately in better-trained NATO headquarters, ready to win on the ground, in the air, at sea, in cyberspace, and in the information battlespace.

The JWC's media simulation capability is unique across NATO. With six NATO civilian staff members and support from external staff such as the U.S. Navy Reservists, the team supports all of the JWC's operational- and strategic-level exercises and some of the NATO Headquarters' exercises in Brussels. In addition to delivering TV, online, and social media simulation, the team also provides one-on-one, on-camera media training to NATO commanders and senior staff. Since its inception, the JWC Media Simulation Team has supported more than 70 major exercises, mission rehearsals, and other training events from Norway to Afghanistan, and in dozens of countries in between. The Media Simulation Team helps to make NATO better. The team is part of the Public Affairs Office/Media Simulation Branch and supports real-world external and internal visual communications with videos and photos. ✦



Laura Loflin DuBois has been assigned to the JWC since 2006. She is currently a postgraduate research student completing a professional doctorate focused on improving NATO's ability to counter disinformation below the threshold of armed conflict.

BELOW

A real world interview with NATO Secretary General Jens Stoltenberg at the JWC in 2015



Wargaming at the JWC: From Idea to Capability

Lieutenant Colonel Frank Ziolkowski

German Army
Wargame Officer of Primary Responsibility and Developer
Wargaming Branch
Joint Warfare Centre

In August 2019, the Joint Warfare Centre (JWC) started on a journey to create a wargame design capability that would offer a flexible and agile training and education tool to the Alliance. The Centre heard a growing demand signal from its customers for quick-turn training events to delve more deeply into emerging concepts and complex problems in the JWC's command post exercises (CPXs). In addition to the demand for more agile training methods, the JWC recognized an increase in exercise complexity owing to more training audiences, more training objectives, larger geographic scope, and larger scale in terms of the totality of conflict. During the JWC's Fit for Future and Vision 2025 workshops in late 2019 and early 2020, the JWC formalized the idea to pursue wargaming as one method to meet both needs of accelerating Alliance learning and reducing exercise complexity.

Initial Operational Capability (IOC)

The first step towards developing a wargame design capability was to train a core team of staff on the basics of wargaming. Staff members with established CPX expertise in the functional areas of project management, warfare development, analysis, scenario, and modelling and simulation conducted internal training by executing a commercial off-the-shelf matrix-format wargame. Based on that experience, the team outlined what would eventually become the JWC's Wargame Process Standing Operating Procedure (SOP).

During this period of internal training, the JWC was awaiting responses to the call of former Commander JWC, Vice Admiral Jan C. Kaack, for wargame topics from interested NATO centres of excellence (COEs). Of the responses received, the wargaming core planning team chose the Civil-Military Cooperation (CIMIC) COE's "Resilience Through Civil Preparedness" topic as the focus for a proof-of-concept wargame. The Centre achieved IOC status in wargame design in February 2021 following delivery of the wargame named WISE AEGIS to the CIMIC COE, which focused on the impact of operational-level civil-military interaction on national resilience.

Critical to the game's success were two rounds of JWC-internal playtesting, allowing fresh perspectives and constructive criticism from the JWC's Transformation Delivery Division to help the game designers spot and fix flaws before execution with the customer.

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The JWC formalized the idea to pursue wargaming as one method to meet both needs of **accelerating Alliance learning** and **reducing exercise complexity.**”

Due to the COVID-19 pandemic, the in-person WISE AEGIS matrix/board game format was modified to allow delivery in a virtual and distributed manner, without the need for co-location of all participants. Twenty-three organizations across 12 NATO nations participated in WISE AEGIS, with players hailing from NATO Headquarters, the NATO Command Structure, the CIMIC COE, industry, a NATO national joint headquarters, and a NATO nation's centre for security.

Full Operational Capability

After IOC, the JWC institutionalized the capability by creating a five-person Wargaming Branch and a 50-person wargame design-trained cadre. The JWC also documented lessons learned, established a robust partnership with other wargaming centres and Headquarters Supreme Allied Commander Transformation's (HQ SACT) Audacious Wargaming Tiger Team.

Brigadier General Douglas K. Clark, the Centre's Deputy Commander and Chief of Staff, signed the JWC's Wargame Process SOP on January 31, 2022, marking another milestone in the rich history of the organization. Named SOP 801, the document describes the scope of the JWC's wargames and how the Centre designs, develops, and delivers wargames. It is a living document that will be updated as required to reflect developments in wargaming techniques.

"With today's signature of the Wargaming SOP, the JWC has now reached full operational capability," the Commander JWC, Major General Piotr Malinowski, said. "Congratulations to the team, and thank you for your past, present, and future efforts to make NATO better. We are excited to offer this capability to the Alliance's organizations, as well as to the Nations."

The JWC's wargame design capability is ready to help sponsors explore a myriad of complex problems such as sustainment and campaign synchronization, and operationalize new strategic concepts such as the Deterrence and Defence of the Euro-Atlantic Area (DDA). With the JWC's Wargaming Branch and wargaming cadre, the Centre will deliver bespoke training and problem exploration wargames at the speed of relevance and work with exercise planning teams to design wargames that increase training value, while reducing exercise complexity. ✦

RIGHT, CLOCKWISE

Ron Lohse, wargame planner, during a presentation at the JWC; Major General Piotr Malinowski, Commander JWC, at the signature ceremony for the JWC's Wargame Process Standing Operating Procedure; the pilot wargame with the CIMIC COE in February 2021; the author, Lieutenant Colonel Frank Ziolkowski; the wargame initiative-kick-off in June 2020; the pilot wargame with the CIMIC COE

"With the JWC's Wargaming Branch and wargaming cadre, the Centre will deliver bespoke training and problem exploration wargames at the speed of relevance."

Lieutenant Colonel Frank Ziolkowski is an artillery officer. In addition to serving in the German artillery, he has also served in NATO's Joint Air Power Competence Centre and deployed to Kuwait and Afghanistan.



Ensuring Information Flow at the JWC

By Atif Rehman

NATO International Civilian
Registry
IKM Branch
Joint Warfare Centre

and Ruby Morrigan

NATO International Civilian
Linguistic Support
IKM Branch
Joint Warfare Centre

The Information and Knowledge Management (IKM) Branch belongs to the JWC Directorate of Management. Under the leadership of a French military branch head, a diverse staff from four NATO countries serve the Command Group, the Director of Management and all JWC personnel including contractors. IKM services are not only information and knowledge management, including information technology (IT) admin support, but also the JWC Registry and Archive. The JWC's Linguistic Support resides within IKM as well.

The branch is responsible for managing the JWC's information repositories and tools, ensuring correct document classification, safeguarding classified data, transferring data between NATO networks, archiving JWC documents and correspondence and, in the case of the linguist, translating, editing and proofreading the JWC's written output. In addition, the IKM Branch designs and conducts staff training sessions on the team's fields of expertise, issues direction and guidance on all IKM matters to JWC staff and leadership, and connects the JWC with the wider IKM and linguistic communities in NATO.

The main purposes of IKM are to give an organization easy and timely access to relevant information and enable knowledge sharing. "The right information to the right person at the right time" is a motto frequently found in the IKM community, and this becomes paramount considering the IKM Branch's responsibility in supporting Command Group decision-making.

Working closely with the Management, Tasking and Coordination Branch, the JWC's IKM Branch ensures a controlled, correct and secure flow of information within and from the Centre. The importance of this role is apparent: When the JWC conducts any business whatsoever, the IKM Branch must be staffed and ready to deliver at all times. ✦

BELOW

(From left): Navy Lieutenant Jean-Michel Maurice, IKM Branch Head; Linguist Ruby Morrigan during a staff training course; Atif Rehman (right), responsible for the JWC Registry



Expert Legal Support

By Wieslaw Gozdiewicz

Legal Advisor
Joint Warfare Centre

and Lieutenant Colonel Michael Lipkin

Legal Advisor
Joint Warfare Centre

Legal advisors (LEGADs) have several important roles regardless of the command to which they are assigned. They are subject matter experts (SMEs), advocates, and counsellors. As an SME, NATO doctrine requires the LEGAD to evaluate the legality of a proposed course of action or the means and methods of how an objective may be accomplished. As an advocate, with regard to legal issues, the LEGAD acts as a spokesperson for the command, presenting information that supports the command position in a zealous but honest and fair manner. In the role of a counsellor, the LEGAD acts as a trusted advisor to commanders and soldiers. In addition to providing legal advice, the LEGAD provides an independent perspective on issues of concern to the commander and importance to the mission of the command.

The Joint Warfare Centre (JWC) Office of Legal Advisor is responsible for providing routine on-site legal advice to the JWC Command Group and its personnel. As the legal SME, LEGADs also perform the role of legal observer/trainer within the JWC's Advisory Team, participating in exercise control (EXCON) and advisor training for all exercises in which JWC is assigned the role of Officer Directing the Exercise (ODE). In this capacity, JWC LEGADs mainly incorporate the principles of operational law (law of armed conflict, NATO/national rules of engagement, targeting, information operations) and national security law (terrorism, maritime interdiction, asylum, and intelligence collection).

During exercises, to stimulate training, JWC LEGADs may replicate LEGADs in higher (HICON), lower (LOCON) or parallel (SIDECON) echelons of command in response to the training audience, but they may also support the representation of non-military actors (IOs, NGOs, governments) replicated by the Grey Cell. Therefore, there is a high level of interaction between the training audiences' LEGADs and the JWC LEGADs during training and exercises.

The JWC Legal Office adheres to the same principles emphasized during interactions with its training audiences' counterparts:

1. Develop strong relationships with all staff elements: LEGADs need to be accessible to all of them and must be proactive team players;
2. Trust in the relationship between commanders and their LEGADs is crucial;
3. Speak truth to power: LEGADs must clearly articulate an objective application of the law, and have the strength to articulate concerns regarding the legality or prudence of proposed actions;
4. LEGADs need to provide clear and concise recommendations and must be "problem solvers", bearing in mind that lawyers make recommendations and commanders make decisions. ✦

“

**LEGADs are
subject matter
experts,
advocates and
counsellors.”**

BELOW

The authors,
Wieslaw
Gozdiewicz
and Lieutenant
Colonel Michael
Lipkin



Supporting the JWC's Communications Infrastructure

Communications and information systems (CIS) are the backbone of all that we do at the Joint Warfare Centre. Much as all of modern life relies heavily on computers and personal electronic devices, NATO's operational-level training hinges on technology.

By Lieutenant Colonel Benjamin White

British Army
Head of the CIS Branch
Joint Warfare Centre

NATO has a large and diverse CIS infrastructure and is moving towards an enterprise approach of common and shared systems. The considerable promises of these future developments are not without challenges in implementation, and the Joint Warfare Centre (JWC) has a number of unique requirements. For its mission of training other organizations through demanding exercises, the JWC has developed a number of highly technical networks and processes for the simulation and global coordination of exercise activity. As the challenges facing NATO continue to diversify in the 21st century, it is necessary to continue to develop these tools. This generates its own challenges for CIS, as the speed and complexity of exercise activity must be supported by ever more capable equipment and networks. These core NATO networks and unique JWC networks are all directly supported by the NATO Communications and Information (NCI) Agency and the local CIS Support Unit in Stavanger (CSU Stavanger).

The JWC's CIS Branch was created in 2015 to work with the NCI Agency as its customer. The idea is to provide a more detailed focus on budget matters and to look at a longer planning horizon. This separation is also to permit a detailed focus on the annual service level agreement (SLA) negotiations with the NCI Agency, which will deliver these requirements.

The SLA process is lengthy and time-consuming, requiring careful forecasting, as every service or item provided to the JWC staff and exercising



CIS Planning

The focus of CIS planning is to get the proper user requirements, to understand the training concepts and to overcome resource limitations. The aim is to provide the JWC's Advisory Team (wherever they may be deployed) with the best possible CIS service support, often in highly demanding distributed exercise environments, spanning different network classifications and information domains.

personnel (from the number of monitors and software licenses through to printers and hours of helpdesk support) has to be captured and costed. To accomplish this, the CIS team, made up of two civilian and six military staff members, handles all change proposals using established information technology processes for service management. More specifically, the team ensures that any proposed changes to our networks and equipment are captured, reviewed, and endorsed before implementation. The aim is to ensure the NCI Agency can maintain the networks and protect our information correctly. This also helps maintain control of the financial aspects of changes to ensure the SLA is updated as required.

The CIS points of contact at the JWC are staff members in other branches appointed as “first contact” for staff who have a new requirement for CIS assistance. CIS then reviews the technical and financial implications of changes with the CSU and works towards procuring or solving this new requirement.

In addition to helping to plan and account for current NCI support to the JWC, the CIS Branch also looks forward in order to forecast future requirements. This will be informed by an understanding of the work of the exercise planning teams and the guidance from NATO Headquarters on the scale and complexity of exercises. Development of our unique exercise simulation networks will then be costed and budgeted to ensure exercises have the correct quality for training audiences undergoing training.

“

The JWC has developed a number of **highly technical networks** for the **simulation** and **global coordination** of exercise activity.”

BELOW

CIS staff at the
JWC Data Centre





ABOVE
Staff members from
NATO Communications
and Information (NCI)
Agency CIS Support
Unit in Stavanger
(CSU Stavanger)

This has to be done in an environment where technology and user expectations are changing rapidly, though some of our equipment and networks are naturally funded and upgraded on more traditional timelines.

Apart from the main CIS duties, there is also a continuous requirement to assist with infrastructure planning and other developments at the JWC site. With great support from our host nation Norway, the JWC has a number of major building projects and refurbishments underway, and the CIS Branch will play a role in ensuring that they are fitted with the necessary communications infrastructure in line with NATO standards. This will permit NATO networks to be installed and used correctly.

As the JWC staff requirements evolves, CIS Branch seeks to support these changes with new services and equipment. With the recent drive for distributed and remote working options, there has naturally been a greater focus on laptops and other mobile devices to make online collaborative working more effective. The importance of maintaining the confidentiality and integrity of NATO's information remains critical and a great challenge as communication networks and equipment develop. CIS has a role in considering the implications of every change and service to help ensure that NATO's information is protected. ✦

Lieutenant Colonel Benjamin White

is the CIS Branch Head since 2020. He has been deeply involved with the implications of NATO's IT modernization on the JWC, making use of his prior experience with contracting and static networks in the United Kingdom.



ABOVE, CLOCKWISE

Lieutenant Colonel Arne Olsen and David Keane, from the Joint Warfare Centre Protocol Office, meticulously plan each official visit to the Joint Warfare Centre.

Royal Norwegian Navy Commodore Knut Rief Armo assumed the position of Special Advisor to the Commander Joint Warfare Centre on February 3, 2020.

The Public Affairs Office advises the Commander Joint Warfare Centre, the Command Group and staff on all matters of corporate communications and strategy, media engagements, visual information and public relations, in addition to planning and executing both internal and external communications. Tomasz Krolkowski, the Chairperson of the Joint Warfare Centre's Civilian Staff Association, represents the Centre's civilian workforce and is also a staff member at the Real Life Support Branch.



360-degree Scenario Design and Development

The Joint Warfare Centre designs and develops training scenarios that provide a fictitious, but realistic political, military, socio-economic, infrastructure, information, and geospatial environment as well as the encompassing narrative on the political, strategic, and operational levels of warfare. These scenarios strengthen NATO readiness and responsiveness and allow the Alliance to practise and exercise its fundamental tasks: collective defence, crisis management and cooperative security.

By Lieutenant Colonel Michael Baur

German Air Force
Scenario Manager and Head of Scenario Development
Joint Warfare Centre

The Joint Warfare Centre (JWC) Scenario Branch provides comprehensive and realistic scenario background and supporting documentation to the JWC-directed exercises, tailored to meet both NATO and national requirements, and covering the Alliance 360 degrees geographically.

The mission of the branch is to support Allied Command Transformation (ACT), one of the two strategic commands at the head of NATO's Military Command Structure, in delivering training and exercise programmes to the Alliance. This is accomplished through designing and developing realistic, high-level exercise scenarios based on NATO's current and future approaches to the changing, complex strategic environment.

The JWC designs and develops training scenarios that provide a fictitious, but realistic political, military, socio-economic, infrastructure, information, and geospatial environment, as well as the encompassing narrative on the political, strategic, and operational levels of warfare. These scenarios strengthen NATO readiness and responsiveness and allow the Alliance to practice and exercise its fundamental tasks: collective defence, crisis management and cooperative security. The narratives are relevant to the particular operational- and strategic-level exercise programme, as each exercise is based on a specific scenario.

Scenario support is one of the cornerstones of the JWC's mission portfolio, funded through a multi-million NOK annual budget within the Centre's overall financial plan. The scope of these scenarios allows for exercises in both Article-5 collective defence and non-Article 5 crisis response operations mode on various levels of effort, from divisional up to multi-corps, and in all domains and dimensions. Within this broad spectrum, and in addition to the conventional spectrum of warfare, the JWC scenarios can also accommodate a wide range of modern warfare threads, such as anti-access/area denial (A2/AD); civil-military interaction; cyber defence; hybrid warfare; and state and non-state actor-sponsored terrorism.

Before each exercise, military and civilian subject matter experts from a wide variety of fields develop the information and documentation needed to support the training audience with the advice and content to replicate key actors and entities during the execution phase. Focus teams for military-political, strategic and operational planning; intelligence; targeting; and geospatial development assist in channeling the information flow in order to create a realistic information environment as the source for the training audience's knowledge development. As a whole, scenario support is coordinated by a small team of scenario managers, who provide the interface to other critical elements and branches of the JWC's overall exercise programme.

The Scenario Branch's first generation of settings and scenarios included two settings that formed the basis for four related scenarios. The SKOLKAN setting was named after a fictitious peer-level adversary located in Scandinavia, whose activities ranged from hybrid through low-intensity, up to full-scale, high-intensity combat campaigns. Since 2010, the JWC has developed different versions of the SKOLKAN scenario, which was first used in 2012.



More Than One Terabyte of Information

A complete setting and scenario can encompass one terabyte (or 1,024 gigabytes) of information, which includes up to 7,500 pages, hundred-plus biographies of key personnel, 7,800 targets, 500 map sheets and hundreds of imagery products.



Setting

The strategic situation related to the regional context, which includes basic geographic, historical, political, military, economic, cultural, humanitarian and legal information on all potential actors involved in the exercise crisis or conflict

Scenario

The background story that describes the historical, political, military, economic, cultural, humanitarian and legal events and circumstances that have led to the current exercise crisis or conflict

The MEL/MIL

The main events list/main incidents list (MEL/MIL) includes storylines, events and incidents designed to trigger training audience decisions and activities connected to the exercise and training objectives.

These JWC scenarios challenge NATO's operational-level commands in both collective defence operations of Norway and the Baltic region, as well as in a non-Article 5 crisis response operation in a fictitious state in southern Scandinavia. As an example, during Exercise TRIDENT JAVELIN 2017, SKOLKAN 3 provided the scenario for one of NATO's largest and most ambitious computer-assisted command post exercises as of this writing. TRIDENT JAVELIN 2017 saw more than 4,000 participants and directing staff exercise command and control in a large-scale conflict spreading from Iceland through the North Atlantic and Norway to the Baltic states.

The SOROTAN setting, meanwhile, addressed NATO's capability to conduct operations not only within or adjacent to its territory, but also in austere conflict and peacebuilding regions in other parts of the world. To enable training and exercises reflecting this ambition, a wide array of fictitious states was created within the geographic contours of North-Western Africa and the Mediterranean. SOROTAN portrayed a combination of state and non-state actors that openly opposed NATO, failed states, states in the process of dissolving, and states seeking NATO's assistance. Tailored to the specific requirements of the training audience, these elements were combined into SOROTAN 1.0, the first scenario based on this setting, which came to life during the high-visibility, non-Article 5 Exercise TRIDENT JUNCTURE 2015.

The Scenario Branch designed the next generation of settings and scenarios in response to NATO's 360-degree approach to current and future challenges. A setting in this context is defined as the geostrategic situation of the respective crisis region and includes a broad spectrum of relevant information on all potential exercise actors. Each setting is capable of "hosting" several scenarios, each of which describes events and circumstances that lead to the respective exercise crisis or conflict. Until 2024, JWC's Scenario Branch will develop three major settings in and around Northern and Eastern Europe, Northern Africa, the Mediterranean and the North Atlantic.

The OCCASUS setting assumes a synthetic geostrategic situation in which a fictitious peer-level opponent challenges NATO on a broad front of political, military, information, and economic storylines. Geographically, this setting will host multiple scenarios in an arc from the North Atlantic to the Black Sea,

RIGHT, CLOCKWISE

Members of the JWC Scenario Branch during a meeting; Lieutenant Colonel Sebastian Pysniak, exercise planner in the Scenario Branch; Lieutenant Colonel Michael Baur, the author, during Exercise TRIDENT JUPITER 2019-1; Exercise STEADFAST JUPITER 2021 training audience at the JWC

"NATO's Military Transformation is driven by the evolving threats and challenges we face — to the east and to the south. Everything we are doing has a 360-degree scope. We do not have the luxury of choosing between different challenges."

Ambassador Alexander Vershbow

Deputy Secretary General of NATO from February 2012 to October 2016
The JWC's *The Three Swords* magazine, October 2016





ABOVE

The main entrance of the Joint Warfare Centre's training facility

allowing the exercising of single, regionally limited scenarios, or a combination of scenarios adding up to a conflict across and around all of Europe. The scenarios will focus primarily on the operational aspects and level of collective defence operations during all stages of a potential campaign, but they will also support training on the strategic and political levels of the Alliance. OCCASUS scenarios are currently planned to be used in the exercises STEADFAST JUPITER 2022 and 2023, as well as STEADFAST DEFENDER 2024.

In addition, the FIKSO setting will specifically reflect NATO's approach to strategic challenges from the south, geographically ranging from the Mediterranean to the Black Sea. In an approach similar to OCCASUS, the FIKSO setting will include a range of various "hot-spots" that the training audience can combine into scenarios as required. The FIKSO setting will concentrate on specific non-Article 5 operation types such as counter-terrorism, disaster relief and peace support. FIKSO scenarios are currently planned to be used in the STEADFAST JACKAL exercises.

In summary, by 2024, the JWC's Scenario Branch will have developed and delivered complex, well-structured and synthetic environments consisting of both existing NATO and non-NATO actors and of fictitious state and non-state actors that cover most of NATO's area of responsibility. Within these environments, the variety and design of challenging "problem sets" and the ability to combine them into a multitude of different scenarios are critical with regard to flexibly tailoring major exercises to existing and emerging requirements. As a key facilitator in this, the JWC's Scenario Branch continues to follow closely geostrategic developments and prognoses in order to allow NATO to exercise not recent, but future conflicts. ✦



Lieutenant Colonel Michael Baur

has been working with JWC's Scenario Branch since 2018. Before joining the JWC, he gained NATO experience during previous tours at NATO Allied Air Command entities in Denmark and Italy.

Delivering Realistic and Credible Exercise Content

Credibility, resilience and legitimacy are inextricably linked with the Joint Warfare Centre's institutional responsibilities to train NATO, advance doctrine and integrate concepts. Guided by these overarching requirements, the Content Branch continues to evolve and adapt to both an increasingly ambitious exercise programme and NATO's wider training requirements.

By Lieutenant Colonel Dave Canavan (Retired)

Canadian Army
Former Content Branch Staff Officer
Joint Warfare Centre

The Content Branch consists of posts from eight NATO nations. These are divided into two teams: the Grey Cell team and the Main Events List/Main Incidents List (MEL/MIL) team. Despite its name, the Content Branch is not the singular focus for content development, as it relies heavily upon the Scenario and Opposing Forces (OPFOR) Branches to develop coherent and synchronized exercise content for the Joint Warfare Centre's (JWC) training audiences.

The MEL/MIL team is responsible for the development and delivery of exercise content during the planning and execution phases of an exercise, the latter known as Phase IIIB. Guided by the MEL/MIL team and scripted by the trusted agents from the training audiences, participating nations and supporting response cells over a series of three developmental workshops, the exercise script is synchronized with the exercise scenario, the training audience's operation and coordination orders, as well as OPFOR actions. The result is an artificial exercise environment in which the training audience is provided the opportunity to achieve its training objectives.

The Grey Cell team consists of staff officers who prepare, activate, and manage a diverse team of contracted subject matter experts (SMEs). During an exercise, these SMEs replicate the complex military and civil aspects of the international and security environments in which the training audience would normally expect to operate.



Operational Dilemma

A multifaceted military theme that represents a set of complex problems that can challenge a commanders' decision-making process at the strategic, operational and tactical levels of warfare, within the context of a specific joint operation

Event

A major occurrence or sequence of related incidents

Incident

Actions or situations that provide greater clarity on an event by the use of injections

Injection

The way of bringing an incident to the attention of the players within the training audience

The SMEs brought into the Grey Cell as part of the exercise control (EXCON) organization within a JWC-directed exercise are often retired senior military officers, civil leaders or diplomats, who contribute to the exercise with their extensive knowledge of political, economic and social matters as well as the infrastructure and information environments. Interacting with the training audience by face-to-face meetings or video conferences, these Grey Cell SMEs represent the JWC “front of house”.

During the execution phase of an exercise, the Grey Cell can generate and replicate key leaders from NATO and non-NATO host nations alongside non-military actors such as the United Nations, the European Union, the International Committee of the Red Cross et al., with whom the training audience would expect to liaise in a theatre of operations, depending on the exercise scenario.

In addition to contributing to all phases of the MEL/MIL development process, the Grey Cell can prepare and provide personnel to participate in the training audience’s operational planning processes to replicate the interactions that would take place during initial reconnaissance and liaison phases of an operation. All of the Grey Cell’s work brings a sense of realism to a training audience, preparing a staff for operating in a complex, multidimensional environment that is typical of the modern operational theatre.

The Content Branch follows an exercise planning process that reflects the corporate experience gained from having dedicated staff focus on exercise content development. Since the Content Branch’s formal inception in 2015, the staff has continuously refined and adjusted procedures and practices to adjust to the varying levels of training audience and exercise ambitions of the assigned TRIDENT and STEADFAST series of exercises. Content development through to 2020 was focused on the staged and structured collective collaboration of the JWC staff, training audience augmentees, contracted SMEs, representatives from international organizations (IO) and non-governmental organizations (NGO), and senior mentors. The branch has always been confident of its collective ability to plan and lead the development of exercise content.

But it was not until 2020 that the Content Branch’s ability to lead the development of a computer-assisted command post exercise (CAX/CPX) script was really put to the test with the development of the STEADFAST JUPITER-JACKAL 2020 CPX (STJU-JA20) — an exercise planned and executed in the midst of the COVID-19 pandemic. Adjustments to the process demonstrated the ability to adapt to fit the modified exercise ambition and reduced planning timeframe. All aims were met, and a credible script was produced.

The STJU-JA20 modifications resulted in a training event similar to the training audience-led battle staff training, but with a volume of injects more akin to a CPX. Moreover, STJU-JA20 also presented the training audiences with the opportunity to engage with real members of the IO/NGO community — a part of the training that had been traditionally developed and guided by the Grey Cell. STJU-JA20, overall, provided a challenging operational exercise and exceeded the expectations of the training audiences.

The Content Branch also contributed to the development of vignette-based exercises and wargaming throughout 2020 and in 2021. The CPX portion of STEADFAST DEFENDER 2021 was one such vignette-based exercise, where



Comprehensive Approach

Military means, although essential, are not enough on their own to meet the many complex challenges to our security. The effective implementation of a comprehensive approach to crisis situations requires nations, international organizations and non-governmental organizations to contribute in a concerted effort. Implementation of the comprehensive approach is integral to many recent and ongoing NATO activities, such as the Alliance’s contributions to the international community’s fight against terrorism and efforts to project stability, and its role in responding to hybrid threats.

RIGHT

The JWC provides the Grey Cell and the MEL/MIL expertise (including the contracted subject matter experts), which together provide core exercise support to the JWC-directed exercises



the ambition of the exercise was focused on the development of vignettes to stimulate and test particular areas and staff processes within a training audience's headquarters. Although this concept is new, it is nevertheless expected to provide another means of delivering an exercise to a training audience for the future.

The JWC next conducted STEADFAST JUPITER 2021, which was NATO's largest CAX/CPX in 2021, designed to train and evaluate the NATO Response Force 2022 and involving approximately 5,000 participants from 26 NATO and two partner countries, Finland and Sweden. Based on a pre-Article 5 scenario, the exercise practiced deterrence against hybrid threats, improved the capability to plan and execute up to a major joint operation, and strengthened Allied interoperability and cooperation with partner nations.

The JWC concluded the year with STEADFAST JACKAL 2021, which involved the participation of nearly 2,500 civilian and military personnel focusing on the Alliance's Strategic Direction South. The exercise used a new setting to present a wide variety of dilemmas for the training audiences, such as countering hybrid threats and supporting the rules-based international order.

The Way Ahead

Wargaming is a developing area of expertise for the JWC. Due to the cost-saving nature of tabletop wargaming, existing scenario materials, proven storylines, and common operational dilemmas should be recycled where possible. As the JWC develops its wargaming capability, it may provide an alternative or supplementary activity to the large-scale CAX/CPX and the newly established Wargaming Branch is well-placed to work with the Content Branch to offer possible solutions.

Since its formation in 2015, the Content Branch has continued to adapt and refine its ability to develop and deliver exercise content in support of CAX/CPX as well as wargaming and vignette-based exercises, with the ultimate aim of maintaining the JWC's credibility, resilience, and legitimacy to train NATO. Like we say at the JWC, as One Team, we make NATO better. ✦

Exercise Content Goals

- Drive the exercise process by delivering the ends, facilitating the ways, and managing the means
- Ensure a successful exercise through vital collaboration between the triad of Chief Scenario, Chief OPFOR and Chief MEL/MIL
- Develop and deliver realistic, flexible and challenging exercise content in the Joint Exercise Management Module (JEMM) programme
- Provide tailored training opportunities in line with the agreed training objectives
- Ensure comprehensive dynamic scripting during an exercise, tailored and adjusted to challenge the training audiences' operations plan (OPLAN)

Lieutenant Colonel Dave Canavan

(Retired) was a former staff officer at the JWC's Content Branch



LEFT

The MEL/MIL Incident Development Workshop for Exercise STEADFAST JACKAL 2022

The Opposing Forces in JWC-directed Exercises: The Realistic Challenge

The Opposing Forces (OPFOR) Branch at the Joint Warfare Centre has matured rapidly in the five years since its formation and is now an integral part of the combined effort to bring NATO exercises to life, simulating a credible, potent and challenging adversary to best enable the training audiences to meet their training needs.

By Colonel Peter Teeuw
Netherlands Army
Head of the OPFOR Branch
Joint Warfare Centre

When you type OPFOR into Google, some of the first search results are for example, “OPFOR makes the difference” and “a strong OPFOR makes a strong army”. These statements can be considered correct and are most likely based on experiences from the U.S. Army’s OPFOR units. Here at the Joint Warfare Centre (JWC) we have our very own OPFOR unit, which is valued for the realism it adds to the Centre’s complex computer-assisted command post exercises (CAX/CPX).

“Without a **professional OPFOR** unit, it will be difficult to simulate and create **realistic representations** of the real world.”

NATO's OPFOR Concept is Born

The NATO Strategic Concept of 2010 highlighted NATO's three essential core tasks, collective defence, crisis management and cooperative security, as the bedrock of Euro-Atlantic security. Based on the evolving set of challenges to the security of NATO's territory and populations, the JWC adapted its exercise focus from expeditionary operations to increased preparedness. For the JWC this meant that the concept of high-intensity warfare had to be implemented into NATO's command post exercises, and, subsequently, a simulated adversary was needed to portray a threat and/or enemy, replicating the most likely and credible threat. Thus, the idea of NATO's OPFOR was born.

The first exercise in which the JWC used the concept of an OPFOR was STEADFAST JUNCTURE 2012. The small group of OPFOR officers came from the Content Branch staff. OPFOR's lead planner at the JWC was Squadron Leader Colin MacPherson. At that time, there was neither an official description of the role, nor guidance or defined experience for working with OPFOR in NATO. MacPherson was responsible for developing the JWC's working definition that is still relevant today:

"OPFOR is the intellectual application of coherent military and political activity designed to create a realistic, dynamic, and challenging opposing force to enable the NATO Force Commander to meet the agreed training objectives in order to demonstrate competence and confidence to undertake the role of the NATO Command Structure and NATO Force Structure deployed operational headquarters. OPFOR is a key element of the comprehensive approach to training and is also an integral part of scenario development."

BELOW

The author, Colonel Peter Teeuw (left), and OPFOR personnel during Exercise STEADFAST JUPITER-JACKAL 2020

RIGHT

Various OPFOR teams during the JWC-directed operational- and strategic-level exercises





By mid-2014, it became clear that a more structured organization element was needed to satisfy the growing need for the OPFOR input to fulfil NATO's most demanding training requirements.

The Way Ahead

Defining OPFOR continued through 2014 and 2015 with the first official Chief OPFOR being appointed to lead the simulated adversary during the command post exercise portion of TRIDENT JUNCTURE 2015. The OPFOR team comprised staff from a variety of JWC branches for the duration of the exercise. However, the JWC was still relying on external support from the Joint Air Power Competence Centre (JAPCC) and Naval Striking and Support Forces NATO (STRIKFORNATO) to ensure OPFOR's relevance and required

The OPFOR Concept

The introduction of the SKOLKAN setting developed by the JWC in 2012 has led to a deeper understanding of the complex issues surrounding operations within the Euro-Atlantic area and identified the need for an intelligent and proactive OPFOR.



ABOVE

The JWC's exercise control (EXCON) situation centre during TRIDENT JUNCTURE 2018

staffing. The first exercise scenarios in which JWC OPFOR was played out were developed mostly like an extended MEL/MIL inject.

As already mentioned, the OPFOR Branch was officially set up in April 2017, making it today the second-youngest branch at the JWC after the Wargaming Branch. Initially an ad hoc unit made up of officers from all JWC branches and supported by other units. From setting conditions in order to enable the training audience to analyse OPFOR correctly during the planning phase of an exercise, to using all instruments of power (diplomatic, information, military, and economic) during the execution, today's OPFOR Branch is fully involved in all exercise phases and supports the Scenario Branch and the Content Branch, together with the CAX Support Branch and the Media Simulation team.

The JWC's OPFOR Branch has personnel originating from nine NATO nations, including Germany, France, Hungary, Italy, the Netherlands, Norway, Türkiye, the United Kingdom, and the United States. Furthermore, the branch is substantially augmented during Phase IIIB executions, often tripling its numbers with augmentees.

In the ideal training and exercise environment, OPFOR should simulate all aspects but allied and host nation forces that are being trained. Simulating all instruments of power that an adversary could potentially use is quite ambitious for a newly established branch. In order to achieve this, it is essential that the JWC OPFOR Branch collaborates with other allied and national units and works closely with all other JWC branches. Only then are we able to bring new ideas and perspectives to the table.

Moreover, and in order to fulfil the complex requirements of this unit, the desired experience and background of each OPFOR officer must be clearly defined in order to create a realistic simulated adversary. Although the Centre's first Chief OPFOR's definition is still valid, we have, after continued development of the OPFOR concept, realized the key importance of the media environment during exercises. One thing is clear, however: Without a professional OPFOR unit, it will be difficult to simulate and create realistic representations of the real world in the JWC-directed exercises. ✦



Colonel Peter Teeuw has been the JWC's Branch Head OPFOR since 2017. Before the JWC, he served at U.S. CENTCOM and as a defence attaché for Norway, Denmark, Sweden and Finland for five years.

The Engine Room of the JWC

By Lieutenant Colonel Jon Gromstad

Royal Norwegian Air Force

Senior Staff Officer

Management, Tasking and Coordination Branch

Joint Warfare Centre

Exercises and warfare development have always been the bread and butter of the Joint Warfare Centre (JWC); they are the main output the Centre's world revolves around. However, behind every successful exercise, there are hours upon hours of work and detailed coordination for different events, more specifically, letters to be answered, reports to be written, information to be disseminated, internal studies to be carried out, and directives and standing operating procedures to be signed. All this is the world of the Management, Tasking and Coordination (MTC) Branch. Our branch is always staffed, all year round, keeping the house humming — and ensuring that everything at the JWC is performed smoothly and efficiently.

As our branch name suggests, we handle tasks, which mainly come from Headquarters Supreme Allied Commander Transformation (HQ SACT), sent to its three satellites in Europe: the JWC, the Joint Analysis and Lessons Learned Centre (JALLC) and the Joint Force Training Centre (JFTC).

BELOW

Left: Lieutenant Colonel Jon Gromstad, the author

Right: Headquarters Allied Rapid Reaction Corps' staff arriving to the JWC for Exercise TRIDENT JAGUAR 2015





ABOVE

Left: Lieutenant Colonel Oguzhan Cuhaci, Resources, Analysis and Planning Branch, at a Director of Management meeting.

Right: Senior Petty Officer Natasha Skramstad, Command Group Administrator

We start the day with quite a high number of email notifications that we have to turn into “Taskers” and distribute to staff. At the same time, we also monitor the tasks sent to other headquarters’ locations. We do this in order to stay informed, and, to a certain extent, it also makes it possible for the branch to foresee how this will impact the JWC’s present and future workload. We then pass on the information we pick up to the relevant staff within the JWC.

All external taskers sent to the JWC are delegated to relevant in-house staff using an internal tasking tool. The tool works across divisions, making it easier to collaborate. In addition, it is a great way for managing timelines, providing a repository for spreadsheets, presentations and other task-related documents. The same tool is also used for managing incoming correspondence and for staff to pass on work to each other through our branch. This means we have to be present and alert for continuous coordination and task solving at all times. All the delegation involved in our job also means that our branch needs to know who is focused on which task at the JWC.

The Campaign Plan

The Commander JWC’s monthly update takes shape through a series of meetings. These are initiated by the Resources, Analysis and Planning (RAP) team. This team is made up of branch heads, exercise leads and other stakeholders, who meet to discuss progress and risks. The output from this meeting is then further refined through the Programme Review Board (PRB), consisting of division heads and programme directors. The content then goes through the Resource Management Board (RMB) led by the JWC Deputy Commander and Chief of Staff.

The outcome of these meetings, in addition to inputs from staff, is then collated by the MTC Branch and incorporated into the Commander’s monthly update. The MTC Branch, together with the RAP team, also updates the ACT



ABOVE

Left: Wing Commander John Rees, Resources, Analysis and Planning Branch Head, at the first JWC Senior Mentor Seminar

Right: Lieutenant Colonel Michael Kraus, Management, Tasking and Coordination Branch Head

annual and biannual reports with the relevant information. Furthermore, the JWC is part of ACT's campaign plan, which has overarching command objectives that can be broken down into directorate objectives. All these objectives support Headquarters Supreme Allied Commander Transformation's (HQ SACT) Vision. As an example, our exercises are part of the objectives within their Joint Force Development (JFD) — HQ SACT's very own "engine room" of warfare development. The MTC Branch and the RAP team ensure that the campaign plan is populated, updated and reported according to milestones and timelines.

The Oracle at the JWC

Although we are a small branch, we do our best to be present when and where we are needed, and to contribute with our knowledge and insights to projects across our divisions and branches. I like to imagine we are the spider at the centre of the web, or the crew in the engine room. In other words, our branch helps ensure that staff are kept occupied; that everyone reports back and meets the timelines. If staff have a question to which they cannot find the answer, they always stop by the MTC Branch, or "the oracle at the JWC", as we call it, knowing that we most probably have the information they need, and if not, we will point them in the right direction. ✦

“

Our branch is always staffed, all year round, keeping the house humming.”



Lieutenant Colonel Jon Gromstad is a senior staff officer, and has been assigned to the JWC since 2019. He has more than 10 years experience from other NATO positions and assignments.

The JWC Human Resources Management

By Lieutenant Colonel Susie G. Lewis (Retired)

United States Army

Former Head of the Human Resources Management Branch

Joint Warfare Centre

The Joint Warfare Centre (JWC) Human Resources Management (HRM) Branch is comprised of civilian and military joint, multinational and multi-service personnel. The branch is divided into four primary functions: Civilian Human Resources, Individual Training, Military Personnel, and Workforce and Organization. In practice, the team crosses functional lines to mitigate the risk of one-deep postings during peak work periods, and to create redundancy that ensures continuation of service during staffing gaps.

At the JWC, under the command of a two-star general, the HRM Branch supports nearly 270 civilian and military personnel assigned to posts representing 17 NATO member nations, including Canada, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Türkiye, the United Kingdom, and the United States. As the HRM team, our relationships with the Commander, Deputy Commander, all levels of directorate and staff agency leadership, and each nation's senior national representative are central to ensuring organizational and staff member administrative requirements are met.

How We Support the Organization

Military Personnel: Provides advice and guidance on, and implements and coordinates, military personnel policy and procedures. It provides oversight for various programmes, processes, and tasks in direct support of our joint, multinational staff. In addition, it also arranges in- and out-processing of new and departing personnel, reports personnel to the Norwegian Ministry of Defence, operates the Automated Personnel Management System, and coordinates international evaluation reports.

Civilian HRM: Provides personnel administration and management of international civilian personnel at the JWC, and a couple of other organizational units. Moreover, it provides advice on implementation of the NATO Civilian Personnel Regulations and develops policy and implementing instructions on HR matters as required, as well as a wide range of other HR duties, including recruitment, life cycle and performance management, payroll, fund management, and execution of salary and allowance budgets.

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Our focus is on providing **HR expertise** and the efficient execution of our tasks in support of the **Commander's priorities.**”

RIGHT

Left: Darren Clarke,
Civilian Human
Resources Manager

Centre: The author,
Lieutenant Colonel Susie
G. Lewis (Retired)

Right: Lieutenant
Commander
Kevin Carter, Head of
Individual Training

Individual Training: Coordinates and provides the JWC individual training programme and is a shared proponent of the organization's Professional Development Programme. It designs individual training programmes for the staff to ensure requirements are satisfied through a combination of internally delivered individual training, NATO School Oberammergau courses, and through Joint Advanced Distributed Learning.

Workforce and Organization: Provides advice and guidance on and implements and coordinates workforce policy and procedures. It is responsible to the Commander for development and maintenance of the JWC peacetime establishment (PE) with our authorized structure and posts, in addition to the personnel continuity plan for day-to-day personnel management. It also manages PE-related workforce documents, such as the JWC's statement of functions and individual-post job descriptions.

Our focus is on providing HR expertise and the efficient execution of our tasks in support of the Commander's priorities. Our intent is to attract and employ rotational and permanent personnel and retain them by investing in their development and maximizing their talent, while helping them to realize their greater potential. Undergirding everything we do are the key principles of diversity, inclusion, transparency, consistency, and non-discrimination. ✦



Organization

The Joint Warfare Centre is a joint-service, multinational NATO organization with a peacetime establishment (PE) of nearly 270 military and civilian personnel.

The Centre's first PE was approved on October, 11, 2004.



Lieutenant Colonel Susie G. Lewis

(Retired) was the HRM Branch Head from 2017 to April 2022. She played a key role in ACT's organizational adaptation and refinement efforts as related to the JWC.

Real Life Support: Event Management at the JWC

Up to three major NATO exercises per year, along with national exercises and other events, bring thousands of participants to the Joint Warfare Centre every year. The Real Life Support Branch facilitates essential services for them.

By Major Annie Viens

Canadian Army
Former Deputy Head Real Life Support
Joint Warfare Centre

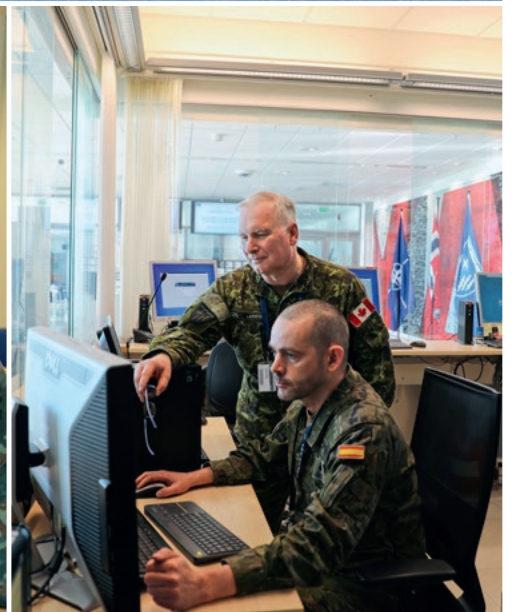
The main tasks of the Real Life Support (RLS) Branch are the planning, coordination and execution of the logistical support for all events hosted by the Joint Warfare Centre (JWC). On average, the JWC hosts 24 events annually with almost 4,000 external participants from all over the world. Events usually range from smaller meetings of 10 to 20 participants over a few days, up to one major exercise with around 1,250 external participants, running for 14 days.

In order to support the JWC's mission, the expertise of dedicated and professional RLS allows to efficiently welcome large numbers of participants from various NATO nations and ensure that all their basic needs are well catered for. The RLS team is the first contact the participants have with the JWC. It is widely known that first impressions matter, and they need to be carefully planned and delivered.

The RLS Branch coordinates a wide range of services provided in close collaboration with other JWC branches, the host nation, and the local commercial community. The support requirements are personalized for each event and group of participants through the event planning process. The branch makes the required arrangements and adapts the services in various areas including catering, accommodation, transportation, medical, in-processing, facility preparation, event helpdesk and database, security, cleaning services, religious service, social events, etc. As such, the RLS Branch is an integral part of all exercises and events at the JWC.

RIGHT, CLOCKWISE

(Top) In-processing on arrival to the JWC (1-3);
RLS staff members;
a meeting with the
Branch Head, Lieutenant
Colonel Thorsten
Schnuer (centre)



The branch itself consists of a diverse team from seven nations. An appointed RLS planner and support assistant is nominated for each exercise. They are involved in the planning process of all events and exercises from the very beginning. The implementation of the support plan is coordinated with the respective stakeholders, both in and outside of the JWC. The same approach is also used for the planning and preparation of smaller and non-exercise related events. In the execution phase of an event, the RLS Branch is supported by additional personnel from the Security Section, the Supply Section, the CIS Branch, and, during larger events, by external augmentees. Thus, RLS is a common effort of the entire Support Directorate.

Preparation of Exercises and In-Processing

After completion of the planning process, the framework conditions of the logistical support are published in the event administrative instructions. Once published, each participant registers their attendance for their specific event via a web-based application and provides any additional important information for further support, such as arrival information, accommodation requirements, and departure dates. In addition, individual needs, such as special dietary requirements, can also be accommodated.

After registration, the RLS team creates a transportation plan, organizes pick-up from the airport, and arranges the hire of rental cars and buses as needed. Simultaneously, the RLS Facility Coordinator ensures that all the

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Only after a
successful
in-
processing,
can the
exercise
begin.”

BELOW

The JWC auditorium
during Exercise TRIDENT
JUNCTURE 2018

RIGHT

Camp Madla



working rooms for the event are prepared and equipped in accordance with the detailed floor plan and specifications. The RLS team also lays out an accommodation plan for the military accommodation provided by the host nation. Finally, upon arrival, the participants are picked up and transferred to the JWC for in-processing. The in-processing of the participants consists of the following steps: in-processing briefing; security authorizations; settling payment; CIS activation. Only after a successful in-processing, can the exercise begin.

Supporting the JWC-led Exercises and Events

The main RLS areas of activity during the operational conduct of a NATO exercise are accommodation, transport, and catering services. In addition to the local hotels, the military accommodation provided by Norway is a popular option for our military and civilian guests, who are always made welcome. The Transportation Cell of the RLS is a very sought-after team, as it also coordinates last-minute requests such as medical transportation and redeployment transport to the airport.

Catering also contributes significantly to the exercises. The JWC operates two canteens, with a maximum serving capacity of 1,500 people within a timeslot of three hours. Together, they both offer excellent quality at a very reasonable price.

In addition to these central tasks, the RLS team is permanently on site to ensure a constant presence at the event helpdesk while also dealing with any issues that the guests may have. This ranges from support in case of illness to the provision of office equipment, to cleaning services and much more.

The RLS team's approach is to make every effort possible to relieve participants of all daily worries and allow them to focus on the essential purpose of their stay. Upon completing an event and dropping off the last participants at the airport, the RLS team clears up, takes a deep breath and starts the preparations for the next event.

Today and Tomorrow

Since the inception of the JWC, the RLS Branch has been a key component of the Support Directorate that allows the Commander to complete his mandate. Sustaining this professionalism in the future is an important incentive and challenge for the branch and its supporting elements. This will require maximum effort, especially with the increasing complexity of NATO exercises, the growing attendance, and the increasing number of non-exercise related events hosted at the JWC. ✦



Major Annie Viens was the Deputy Real Life Support Branch Head from November 2016 to 2021.

Turnkey Facilities

The JWC provides NATO a "ready-to-use" exercise facility so as to avoid:

- The one-time cost and effort of setting up temporary training locations all over Europe for each and every event
- Deploying the support personnel to locations and thus allocating a full team to set up, run and tear down CIS networks
- Expensive commercial accommodation
- Over-committing the scarce NATO deployable CIS resources, since the JWC always has a ready-to-use CIS infrastructure
- The significant host nation support required in a temporary facility



Base Support in Jåttå: A Variety of Support Functions and Services

Alongside its support to NATO exercises, the Base Support Branch, in conjunction with the host nation Norway, provides the Joint Warfare Centre with a comprehensive support structure available 24 hours a day, all year round.

By Lieutenant Colonel Audun Kjelkenes
Norwegian Army
Former Head of the Base Support Branch
Joint Warfare Centre

and Commander (Senior Grade) Jone Iversen
Norwegian Army
Head of the Base Support Branch
Joint Warfare Centre

Variety is a key word for the Base Support Branch, both when it comes to tasks and to the type of personnel — our most valuable resource. In addition to NATO military and civilian personnel, the branch is fortunate to have a number of local wage rate staff employed by Norway. Our personnel represent the continuity and specific know-how essential to any organization and, without doubt, they are the main reason why the branch is capable of delivering such a high level of support and services. The Base Support Branch consists of the following organizational entities that serve to accomplish the Joint Warfare Centre's (JWC) mission:

Security Section: The Security Section is responsible for implementing NATO security policies, advises on security issues, including information assurance and force protection for permanent staff, visitors, and exercise participants. The section maintains close relationships with civilian and military host nation security authorities. The section also cooperates with the Norwegian Guard Force and works closely with Real Life Support and Allied Command Counter-Intelligence (ACCI).

Supply Section: The Supply Section is the main logistics asset for the JWC and ensures the availability of functional furniture, equipment, and office supplies for the permanent staff, the Communications and Information Systems (CIS) Support Unit Stavanger, and Allied Command Operation's (ACO)

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Northern European Command (NEC) Command and Control Information System (CCIS) Systems Support Centre at Kolsås. The section has undergone several structural changes over the years and now includes property accounting, stock management and the warehouse. Upon the establishment of the JWC, the Supply Section was co-located with host nation military units at the Soma compound, but in 2017, the JWC became the sole occupant. As a result of Soma closing, the Supply Section moved temporarily to Sola Air Station in early 2020. A new warehouse is planned inside the Jåttå compound and will be completed in 2023.

Reprographics Office: The Reprographics Office is responsible for all unclassified, classified, and mission essential printouts and graphics designs at the JWC. Books, booklets, pamphlets, business cards, exercise documents, posters, plaques, farewell packages, certificates, cards, name tags, calendars, phone charts, oversized documents, and map symbols are some of the many products. The office is also responsible for developing/designing corporate identities of the JWC-led exercises, as well as community information posters.

Site Management Section: The Site Management Section ensures that the JWC facilities are fit for purpose, meaning that the JWC can meet all NATO training requirements and the set level of ambition, now and in the future. The Centre must be capable of hosting the permanent staff, the visitors, and up to 1,200 exercise participants whenever required.

ABOVE

Left: The Base Support Branch Chief, Commander (SG) Jone Iversen
Right: The Head of the Security Section, Lieutenant Colonel Børge Solberg, with guards

BELOW

Drivers at Camp Madla



One of the main efforts in this is to identify necessary facility upgrades and improvements that specify the JWC's requirements and then closely monitor their realization. Site Management's main partner is the host nation Norway, who is responsible for the overall project management and the practical implementation of all infrastructure projects and maintenance works. In a common effort, Site Management and host nation strive to make sure that the JWC gets what it requires, and that everything is compliant with existing and ever-changing technological and legal demands.

The JWC and Norway are presently in the process of executing several extensive NATO Security Investment Programme (NSIP) projects, which were approved by the North Atlantic Council (NAC). The most important ones are the comprehensive refurbishment and upgrade of the A to D blocks (in-rock training facility), the new G-block (improved in-processing facilities and upgraded media simulation facilities), and the warehouse/office building for the Supply Section. Other projects include the restoration of canteen facilities, one of the two JWC auditoriums, and the midlife update and modernization of existing office buildings. Several of the projects have already started, and the plan is for most of them to be completed in the near future.

Host Nation Support

The JWC depends very much on host nation support, which includes accommodation, transportation, security and safety, facilities support, and morale and welfare support to the JWC.

Through accommodation services, for example, the host nation provides military accommodation at Camp Madla for external exercise participants. Through transportation services, the host nation provides drivers, planners, and vehicles for the JWC's permanent staff, as well as for exercises and other major events. The host nation provides force protection, security and safety control 24 hours a day, and carries out maintenance, renovations, and refurbishment to meet the requirements. In addition, the host nation is responsible for most of the NSIP projects. Finally, through the morale and welfare office, Host Nation contributes to many different areas, including essential support to our staff and their families.

The continued improvements and reorganization of the branch, combined with ongoing and future NSIP projects, will clearly improve the working conditions for the JWC. The realization of these projects will enable the Base Support Branch to provide even better support to everyone at the JWC, and to our training participants. The projects can only be achieved through close cooperation with our great colleagues from the host nation. ✦

Refurbishment and Upgrade of the A to D Blocks

With this project, NATO is investing approximately 40 million euros, or 400 million NOK.

RIGHT, CLOCKWISE

Commander JWC, Major General Piotr Malinowski, with the Commanding Officer at Camp Madla, Navy Captain Frode E. Staurset (photo by Andre Meling); the Base Support team; reprographics staff; the construction site of the new G-block; Jørn Magne Gundersen, Assistant Storekeeping and Distribution

Lieutenant Colonel Audun Kjelkenes

was the former Head of the JWC Base Support Branch. He previously served in the Norwegian National Joint Headquarters and deployed to Lebanon, Syria and Afghanistan.

Commander (SG) Jone Iversen

is the JWC Base Support Branch Head. In his 36-year career he has worked in logistics and as the Head of Morale and Welfare, Housing and Family Services in the Norwegian Armed Forces. He deployed to Lebanon and Iraq.



Devoted to Serving the JWC Community

By May Linn Bie

NATO International Civilian
Head of the Community Services Section
Joint Warfare Centre

The Joint Warfare Centre (JWC) Community Support team is made up of two sections, namely the Community Services Section (CSS) and the Host Nation Support Office (HNS), which both reside in the Base Support Branch of the Support Directorate. Together, CSS and HNS work as one integrated team to provide the entire JWC community of around 1,100 personnel and family members with the best help and support during their time in Norway.

Relocating to a new country can be challenging and involves a lot of change for the whole family. It can entail feelings of uncertainty and stress, but also offers excitement and new experiences. When transferring to Norway and during the stay, the Community Support team is there to guide and support newcomers. More specifically we help the newcomers navigate the special NATO arrangement with Norway when it comes to the healthcare system, taxes, banking, utilities, customs and import regulations, schooling, language barriers and even driving rules. Basically, we provide newcomers with top tips and essential tools to set them up for a good start. We also work in close cooperation with the various national support elements on-site in our joint mission of supporting staff members and their families.

An important part of what we do is to share information with newcomers and existing staff and families on available local community organizations. The CSS has long-established networks and connections with local organizations.

There are also internal JWC clubs for various activities. Their doors are always open to new members. Several events and activities are held on and off the base throughout the year. These are organized by CSS, the library, or the various clubs and associations, such as the Friendship Club, or the Jåttå Community Club, which has a fully equipped bar and function room. In addition, the CSS has a good collaboration with the Morale and Welfare Service provided by the U.S. 426th Air Base Squadron Services. The CSS Activities Programme is very popular and well attended. It is an integral link between the Stavanger community and the JWC, as it provides JWC community members with varied and inclusive activities suitable for everyone.

On average, the CSS activities consist of 20 to 25 events per year, e.g. family bowling, curling, climbing, husky farm trip, ski trips, boat trips, Welcome BBQ, the Egersund Christmas Market trip, the Oktoberfest, and an annual JWC Ball.



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We provide **newcomers** with top tips and essential tools to set them up for a **good start.**”



ABOVE

The JWC Community Services and Host Nation Support staff members

BELOW

Horse riding at Tryggvi Icelandic Horse Farm, and surfing course in Hellestø beach

Additionally, our Welfare and Sports Assistant can help facilitate a healthy lifestyle through administration of gym memberships at one of Norway's largest gym chains, and special arrangements with some of the swimming pools in the area. There is also a small gym facility on the JWC premises and a well-equipped sports centre at the Norwegian naval base, Harald Hårfagre, in Madla. The JWC sports clubs include orienteering, bicycle, chess, football, sailing and fishing. As part of morale and welfare services, the community area includes a commissary called the Central Cellar. The shop caters for the basic needs of our expats, who appreciate a good selection of international brands and products.

Norway is blessed with beautiful scenery, and the Norwegians know how to enjoy what nature has to offer. The passion is contagious: Newcomers soon find themselves joining the rest of the JWC community on outdoor activities and breathing in the fresh air. To take full advantage of the countryside, the JWC Military Cabins Club also has a number of mountain cabins available for hire to club members.

The coastal city of Stavanger has an abundance of historical buildings, museums, and cultural activities. Tracing Vikings in Stavanger is quite fun and interesting. Also known as the "oil capital of Norway", Stavanger is a multiethnic and multicultural melting pot. Offshore drilling in Norway began in 1969 and that is when the Stavanger area became the centre of the new industry. It enriched Stavanger in many ways. In 2008, the Stavanger region was the European Capital of Culture.





ABOVE

An aerial view of Stavanger

BELOW

The JWC International Day and Welcome BBQ

Today, Stavanger has more than 144,000 inhabitants and ranks as the fourth-largest city of Norway. The neighbouring municipality of Sandnes is also close to Stavanger and has a population of around 80,000. It lies at the end of Gandsfjord and is known as Norway's bicycle city due to the old establishment of bicycle manufacturer Øglend DBS. With the smaller municipality being equally close to the JWC, quite a few staff members also choose to live in Sandnes. At CSS, we also facilitate exploring the local area and getting to know its history via ticket sale to local museums, amusement parks and cinemas, to name but a few.

Lastly, CSS continuously stays in touch with the JWC community with news and updates via email, the community support website, and a membership-only social media site. Every year we see members leaving and new ones arriving. Our mission is to make their arrival, stay and departure as seamless and enjoyable as possible. ✦



May Linn Bie has been the Head of the Community Services Section since 2019. Prior to that she worked in the oil and gas industry and carried out humanitarian work in the UN system.



Budget, Finance and Acquisition – Facilitating the Mission of the JWC

By Nils Skarland

Former Financial Controller
Office of Budget and Finance
Joint Warfare Centre

and Lieutenant Colonel Toby Wilson

British Army
Former Internal Review Officer
Office of Budget and Finance
Joint Warfare Centre

The Joint Warfare Centre (JWC) Office of Budget and Finance strives to maintain focus both on the mission and on the people that make up the organization. Our core task is to enable the Commander to accomplish his mission within the resources available by means of timely and effective procurement, budget execution, financial management, compliance, internal audit, as well as sound, comprehensive financial advice in support of JWC management. To get there, we must secure resources when possible and appropriate, to ensure JWC long-term achievements. The key to success is reputation, both in terms of what the JWC provides to NATO and in terms of orderly, compliant management. An excellent reputation is conducive to efficient resourcing. It requires positive attitudes and attention to ethical concerns.

The JWC's resources are more than just financial. In fact, there are several major constituents: personnel, our budget and funding through Allied Command Transformation (ACT) and Allied Command Operations (ACO), the NATO Security Investment Programme, Host Nation Support (on- and off-site, in the form of services, personnel, and facilities), as well as Host Nation billeting, which supports the training audiences at low cost.

The JWC is a resource to all NATO Allies, not only in the form of exercises, services provided, and scenarios released, but also in terms of cost avoidance to the users. By "cost avoidance" we mean that exercise participants and training audiences only need to bring themselves to the JWC, and that accommodation, support personnel, force protection, transportation, cabling, CIS etc. are available here in Stavanger.

Team of Facilitators

In terms of workforce, the JWC is a small establishment, however, in terms of budgetary resources, the JWC compares with that of the NATO Joint Force Commands' core business (excluding operations and missions). This is fairly

Cost-effective Training in Stavanger

The JWC is the default training location from a cost perspective, because one can save significant amounts on accommodation (thanks to the host nation military accommodation at Camp Madla) and ready-to-use, turnkey facilities with the capability to train a training audience of up to 1,200 people.

At the JWC, NATO can conduct a very focused and realistic training, integrating all aspects of operational- and strategic-level planning and execution into the same exercise.



logical, because the Centre's funding and personnel serve external workforce, namely the training audiences.

The JWC Financial Controller, who is the Head of the Office of Budget and Finance (BUDFIN), is supported by an internal review officer. Moreover, there are three functional sections:

The Budget and Disbursing Section runs the JWC financial planning and budget execution, conducts payments (disbursing), and provides ACT-wide financial management system support. This section runs the JWC fund manager structure, i.e. functions assigned to certain posts across the JWC. The fund managers are crucial to resourcing the activities in their area and are part of the JWC financial management and internal control system.

The Purchasing and Contracting Section procures everything that keeps the JWC operating in Norway. This also includes the Travel Office, which is not the usual practice, but there are clear synergies that benefit the JWC by doing it our way.

The Accounting and Treasury Section approves where and how we spend the money allocated and ensures that bills are paid and recorded.

ABOVE
Budget and
Finance
(Budfin) team

RIGHT
(From left)
Helena Potter, the
JWC Financial
Controller;
Kjetil Sand, Section
Head, Purchasing
and Contracting;
BUDFIN staff
discuss updates
before a meeting



BUDFIN also supports ACO Northern European Command (NEC) Command and Control Information System (CCIS) Systems Support Centre at Kolsås, Norway, and endeavours to facilitate training audiences' own financial management when appropriate.

A Cross Section of Allies

The typically diverse background of NATO staff is of particular advantage in resolving matters by understanding different perspectives. This is not an academic endeavour, but we keep a tally of our cultural diversity. As of 2022, we originate from eight NATO nations with six native languages: English, Danish, French, German, Norwegian and Turkish.

Value of Alliance Solidarity

It comes as a surprise to many when they discover that the Allies' expenditure on common funding and NATO workforce is quite modest. It is in the order of three euros per inhabitant of the NATO member states. Over a third of the expenditure is in the form of the nations' own personnel serving in NATO's Command Structure, such as at the JWC, while the remaining expenditure come from common-funded operations, maintenance costs and investments. The overwhelming majority of defence resources that the 30 member nations share remains a national effort and responsibility. The common effort is a force multiplier — an effort that makes Allies useful to each other beyond a sum of individual efforts. With an establishment such as the JWC, all Allies can take part in major joint operational- and strategic-level exercises and warfare development. ✦

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The key to success is **reputation**, both in terms of what the JWC provides to NATO, and in terms of orderly, compliant management.”



Nils Skarland was the former Head of BUDFIN. His former duties included Counsellor for Defence Resources at the Norwegian Delegation to NATO.

Lieutenant Colonel Toby Wilson was the former JWC Internal Review Officer.



Chapter III.

Organizational Culture

#WeAreNATO

The Joint Warfare Centre's One Team programme exposes the staff, in interactive ways, to aspects of organizational culture and ways of working in a multinational environment. The goal is simple: that the Centre be seen as the best possible location to get a comprehensive education in NATO joint operational- and strategic-level training, but also, as a place where staff are given meaningful work, which taps into their unique set of skills and experience.



By Brigadier General Douglas K. Clark

United States Marine Corps
Former Deputy Commander and Chief of Staff
Joint Warfare Centre

Ever wondered what role organizational culture plays for an establishment such as the Joint Warfare Centre (JWC), whose mission is to provide first-class collective training to improve the readiness of NATO's operational- and strategic-level headquarters?

Let me tell you: It is one of our biggest sources of strength. Our organizational culture, or the One Team ethos, is a vital component of the JWC's long-recognized success in making NATO better.

Driven by a shared commitment to NATO's core values of integrity, impartiality, loyalty, accountability, and professionalism, our mission is to prepare the Alliance for the future, while actively embracing diversity as one of our leadership goals, as set out in our vision statement.

I am proud of the fact that the JWC was the first establishment across NATO to initiate a human capital-focused programme built upon our commitment to diversity and inclusion, or, as we say at the JWC, "innovation and leadership at all levels, and all the time". This is because people truly are our most important asset in meeting the JWC's goals and objectives.

As NATO's premier training and warfare development establishment at the operational and strategic levels of warfare, we need to always stay on the cutting edge of NATO's transformational efforts, on both sides of the Atlantic. This demands a pioneering organizational culture, a curious and innovative mindset, and a diverse and motivated workforce. It also demands an agile organization where there is always growth and progress.

To be NATO's trusted advisor, bridging Operations and Transformation, we will continue to set standards that both our workforce and our customers equally require. We continue delivering our mission, as the way of warfare continues to change.

As the saying goes, there is no constant except change, and this is at the heart of NATO's military transformation. Diversity through new and innovative ideas is important and valuable. It gives our organization more opportunities to outwit and dominate, for example, modern battlefield threats, such as information and cyber warfare. Left unattended, such complex threats can place our great Alliance in a precarious position.

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Brigadier General
Douglas K. Clark



By bringing more solutions to the table, we will be in a better position to choose the right one. For the JWC, it equates to better training, better warfare development, and better doctrine.

Home to 17 nations, the JWC is at the heart of NATO's transformation. Together we strengthen NATO's reassurance, demonstrate Alliance cohesion, and provide an immersive world-class learning environment to our training audiences. Together we also anticipate change and focus on creative problem-solving. The Centre has a unique matrix organization that empowers its workforce across multiple programmes and initiatives. We constantly review and adapt our internal processes to be fit for future.

Think of the JWC's wargame design enterprise, which reached its full operational capability early this year. Think of our Joint Operations Planning Group Leaders Workshop, which was launched in 2021 to increase our future operational leaders' proficiencies in operational-level planning. Both are massive success stories that came out in the unsettling COVID-19 world. Together they show how the JWC continually adapts its curriculum to respond to new threats and challenges to best train NATO, even in a time of an unprecedented global health crisis.

It is the commonalities and differences that enable the growth of any organization. In this environment, we do not need diversity. We demand it!

"Together! We make NATO better!", the JWC's maxim, is exactly about our emphasis on diversity. Because this is how we will meet NATO's evolving requirements, holding on to curiosity, innovation, and cooperation.

This is also what the U.S. Marine Corps motto, "Semper Fidelis", which I have held close to my heart since the beginning of my military career, is all about: We keep the faith, and we nurture it for future generations.

Semper Fidelis! ✦

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The One Team Culture at the JWC

To build a culture of excellence, an organization must have a meaningful mission, giving its staff meaningful work.

By Paul Sewell

NATO International Civilian
Organizational Development and Culture
Staff Advisory Group
Joint Warfare Centre

In February 2013, the Joint Warfare Centre (JWC) brought its senior leadership together to conduct a two-day workshop on organizational culture, facilitated by an external leading consulting company. The experiences and discussions which sprung from this small workshop set the scene for the launch of an ambitious organizational culture programme, serving as the foundation for the JWC's unique One Team ethos.

Why Organizational Culture?

Traditionally, organizations focus on a clear strategy before creating the structure to support it. In recent years, however, organizations have begun to focus on what is known as the "third pillar" of organizational effectiveness: culture. Every organization has its own culture, and in the past decade more and more organizations are realizing the impact of a positive work culture, and the detriment of a negative one.

In the military context, personnel rotation is a fact of life. Most military staff, therefore, have plenty of experience working in various military units. As abstract as "culture" may sound, it actually has a direct and tangible effect on not only the strategy and structure, but also on the people who work within it. For this reason, the JWC's senior leadership back in 2013 decided to proactively focus on shaping the Centre's own organizational culture.

How It All Started

In the early days of shaping the programme, many questioned why the JWC should make the effort. The Centre was already a well-established NATO body with a strong reputation for its conduct of joint operational-level exercises. There was no shortage of praise from the various commanders the Centre trained, and more and more headquarters wanted to train with the JWC.

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ABOVE

Left: The author, Paul Sewell.
Right: Staff members at the One Team workshop

RIGHT

The JWC's cultural and organizational development workshops

It began with a survey focusing on the “organizational climate”. The entire organization was invited to participate and there was an encouraging high interest with over 70 percent of the staff responding in the survey, netting more than 75 pages of comments. It was apparent that the staff had clear ideas on how the JWC could be even better. Reviewing the results of the survey, and with the strong endorsement of the Command Group, the rest of the JWC was then given the same two-day introductory cultural workshop. The JWC's One Team workshop differs from most NATO courses in that it exposes the staff, in interactive ways, to aspects of organizational culture and ways of working in a multinational environment. The programme includes over 20 concepts that are still referred to today, such as “Be Here Now”, “Levels of Listening”, “The Mood Elevator”, “Gravity”, “Energy” and the “Accountability Ladder”.

Achieving Success Through Hard Work

As the matrix organization developed and evolved, the leadership deemed it necessary to assign the task of organizational development to one staff member. This was a clear sign that this was no longer just a “nice to have” capability. On the contrary, the leaders had started seeing the One Team ethos as a vital resource in continually shaping the organization and its staff in line with the mission. This work would not only encompass the existing One Team programme work, but also focus more broadly on programmes and initiatives to improve the JWC and its output. A great deal of work has already been done. Some examples from the past include:

- The development of a streamlined online handover/takeover (HOTO) process to capture the knowledge of staff before they leave (which has also been adopted by several other headquarters in NATO);

Why Culture Matters

The impact of culture has a tangible effect on the output and productivity of an organization. Since 2013, the JWC has embarked on a journey of intentionally shaping a healthier, high-performing culture to become even more effective in serving the NATO Alliance.

- An annual climate survey, which taps into the “atmospherics” of the staff, providing invaluable feedback to leaders at all levels and identifying new ideas and areas in need of focus;
- Proactive and bespoke team development programmes for teams at all levels of the organization to find better ways of working;
- A highly comprehensive and integrated two-week newcomers’ training programme aimed at preparing the new staff so that they are able to contribute to the mission more quickly.

One significant change since 2013 is that more of NATO is taking an interest in the JWC’s approach to improving organizational culture. In other words, the JWC continues to be regarded as a well-respected resource for managing and understanding organizational culture and human capital.

Almost a decade later, our own organizational culture efforts have become a solid part of the JWC’s identity. The One Team ethos has indeed become an enabler for strong collaborative and innovative work across the many nations, services, and working styles of our diverse and engaged staff.

In conclusion, the main goal of our organizational development and culture work is simple: that the JWC be seen as the best possible location to get a comprehensive education in NATO joint operational- and strategic-level training. But our goal is also to be a place where staff are given meaningful work, which taps into their unique set of skills and experience, and which ultimately contributes to the safety and security of the Alliance. ✦

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Paul Sewell is the JWC’s lead facilitator of the One Team Programme. He also served as a lessons learned analyst and worked on numerous projects focused on the JWC’s ongoing development.

The Command Senior Enlisted Leader

Senior Chief Petty Officer Lars Raabe was appointed as the Joint Warfare Centre's (JWC) first-ever Command Senior Enlisted Leader (CSEL) on April 1, 2020. The CSEL is at the pinnacle of the non-commissioned officer (NCO) ranks across NATO and serves as the principal advisor to their organization on all matters pertaining to the NCO ranks.

To ensure NCO development, utilization and engagement within the Centre, the JWC CSEL watches over compliance with policies and priorities, encourages diversity and inclusion, and conducts effective NCO professional training programmes. In addition, the JWC CSEL represents the Centre within Allied Command Operations and Allied Command Transformation, and acts as the trusted agent to the training audiences' CSELs and NCOs.

The JWC's enlisted team comprises professionals with a vast array of varied skills and experience with which they contribute to the Centre's important mission every day. "In addition to these various tasks, our major multinational exercises have seen NCOs step up and contribute to always making these events a great success. This was accomplished by teaching, mentoring, demonstration and adapting skills and giving clear recommendations for leaders in their decision-making processes," Raabe said.

In November 2021, the JWC established the Jättå Non-Commissioned Officer Association to support the morale, welfare and professional development of all the Centre's enlisted personnel, enhance the community spirit within its diverse NCO corps, and promote continuous leadership growth. ✦



Senior Chief Petty Officer
Lars Raabe

BELOW

The JWC's enlisted personnel pose with the Commander, Major General Piotr Malinowski



Gender Perspective at the JWC

By Sarah Denieul

NATO International Civilian
Lead Gender Focal Point
Exercise, Training and Innovation Directorate
Joint Warfare Centre

NATO Joint Warfare Centre (JWC) appointed its first Gender Advisor in 2013. Within the framework of the JWC's central goals, this role has evolved, and its title and focus can shift depending on the incumbent, on changing priorities, and on strategic guidance. Today, the responsibilities of the JWC's gender team may be divided into three predominant work strands:

- Guiding the Commander and staff on the implementation of NATO's gender perspective in our internal business;
- Enabling our exercise audience to train on NATO's gender perspective through realistic representation of the human landscape;
- Contributing, through warfare development, to the recognition that applying gender perspective can influence and improve operational art and operational effectiveness.

We bring these ambitious responsibilities down to earth by breaking them into smaller lots and distributing them between people according to their primary functions at the JWC, their experience, competencies, and interests.

BELOW

The JWC gender team representing different functions (from left): real life support, quality assurance and lessons learned, information management, human resources, exercise logistics, linguistic; Sarah Denieul, lead gender focal point; exercise civil-military integration, and public affairs



In this respect, the JWC is fortunate enough to have several civilian and military staff who have completed gender advisor and/or gender focal point (GFP) training with the Nordic Centre for Gender in Military Operations (NCGM), NATO Department Head. From exercises through experimentation to gender-inclusive language, the following examples illustrate the breadth and depth of the JWC gender team's work, and attest to the confidence and endorsement of the Centre's leadership:

With regard to exercises, the Centre's gender team is always available to advise exercise scenario developers on content that could enhance the realism of exercise settings and scenarios from a gender perspective. Since 2015, the JWC GFPs have participated in exercise scripting, where scripted story threads and details add layers to animate the exercise scenario. Two of the JWC's subject matter experts deploy to training audience locations to observe and advise within their functional areas (civil-military interaction; logistics). Their additional gender advisor training enables them to mentor training audiences on integrating gender perspective in all phases of an exercise and operation, from crisis response planning to operations assessment. Similarly, the Office of Budget and Finance (BUDFIN) GFP's gender expertise enables her to augment the NCGM's own exercise support team.

The JWC's civilian legal advisor's GFP training and his encyclopaedic knowledge of the laws governing NATO and international law make him an invaluable asset when reviewing JWC and NATO gender-related directives, policies, and action plans, or recognizing the interplay between the Women, Peace and Security (WPS) Agenda and obligations to protect the most vulnerable groups. The civilian GFPs within the JWC's Human Resources (HR) Branch verifies that all HR documents produced or updated by the JWC are written with a gender perspective. The Real Life Support GFP provides sex-disaggregated data for all events hosted at the JWC. The JWC's linguist ensures the use of gender-inclusive language when editing and translating documents from or for the Centre. And, since 2015, the JWC's Public Affairs Office GFP has made certain that each issue of *The Three Swords*, the Centre's in-house journal, provides an opportunity for a substantial feature related to the WPS Agenda and gender perspective.

All staff at the JWC must complete the NATO Advanced Distributed Learning Module 169, "Improving Operational Effectiveness by Integrating Gender Perspective". Additionally, our JWC Gender Action Plan outlines and monitors how the JWC will continue to support the WPS Agenda internally, and more broadly, across NATO. We update the plan as required and review it every two years. Since the adoption of UN Resolution 1325, NATO's deepening commitment to the principles of the Resolution is clear, not only in the policies the Alliance endorses, but in the people chosen to implement those policies. Together, we make NATO better. ✚



Sarah Denieul has been supporting the integration of gender perspective in the JWC's exercises and daily business since 2015. She was appointed as the JWC's Lead Gender Focal Point in 2020.

RIGHT

The JWC's One Team,
April 1, 2022

UNSCR 1325

In the autumn of 2000, the United Nations Security Council adopted Resolution 1325 on Women, Peace and Security (WPS), in which it recognized the connection between gender equality and international peace and security.

The Resolution was based on four pillars: the role of women in the prevention of conflict, their participation in peace building, the protection of women's rights during and after conflict, and their needs during relief and recovery.

The NATO approach to the WPS Agenda centres around the principles of integration, inclusiveness and integrity, achieved through gender mainstreaming and applying gender perspective throughout its structures and across its missions and operations.

2022

JOINT WARFARE CENTRE



One Team

Photo Credits

The photos in this book are taken by (in alphabetical order): Master Sergeant Raphael Baekler, Chris Hill, Tudor Jelescu, Inci Kucukaksoy, Lieutenant Colonel Stefan Kühling and Major Stephen Olsen. Guest photographers are individually mentioned in related photo captions.

Joint Warfare Centre

Public Affairs Office
PO Box 8080, Eikesetveien
4068 Stavanger, Norway
Tel: +(47) 52 87 9130
Email: pao@jwc.nato.int

Find us

Website: <https://jwc.nato.int/>
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