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Final Exercise Report VIKING 22

(24 ANNEXES and 5 Appendixes)

The Final Exercise Report (FER) is aligned with the NATO directive "Bi-SC Collective Training Exercise Directive 75-3" and the Swedish Armed Forces "Guidelines to Methods in CAX".

EXECUTIVE SUMMARY

The aim of this report, by the Director of EXEVAL to the Officer Scheduling the Exercise (OSE), is to provide conclusions and lessons identified about the planning and execution of the exercise, and to provide recommendations for future similar training events, including the next VIKING training and experimentation event.

The latest in the series of VIKING exercises (the ninth since 1999) took place from Monday 28 March to Thursday 7 April 2022.

VIKING 2022 was conducted in accordance with the OSE Exercise Specification (EXSPEC) and the exercise objectives were met. The overall planning and conduct of VIKING 22 was effective and was appreciated by most participants. It also facilitated important cooperation and networks between participating national, regional, and international actors.

VIKING 22 was an excellent collective training event with a uniquely relevant scenario. It was supported by a well-developed technical infrastructure, which enabled the training audience to focus on operations and tactics in hybrid warfare involving direct engagement, and a comprehensive approach centred on civil-military cooperation. Therefore, it delivered exceptional results for participating organisations, and individual participants increased their personal skills, understanding and knowledge. Continued development of the VIKING concept is crucial for military and civilians in future operations.

VIKING 22 would never have accomplished these results without the many dedicated people with great skills and ambition, who planned and conducted the exercise.

VIKING 22 included some two thousand participants covering mission leadership and various headquarters levels from some 47 nations, 1450 were considered to be part of the primary and secondary training audience. Planned participation was 2500, but due to the war in Ukraine and Covid-19, participation was heavily reduced. The exercise was conducted in six nations at nine sites. The training audience (TA) commanded missions and operations involving more than 50,000 notional personnel represented in a simulated environment. Further specific details of VIKING 22 can be found in the OCE Exercise Plan (EXPLAN March 2022).

The Exercise Evaluation team (EXEVAL) performed an independent evaluation based on observations, interviews, surveys, and reports that constituted the basis for the Post Exercise Discussions (PXD), which took place in Stockholm 14-15 June 2022. The main outcome of the PXD was the final draft of the FER.

The main recommendations are:

- Ensure participation from international organizations and partner nations, and secure their commitment to the development, planning and conduct of the exercise.
- Adapt military/civilian interaction reflecting the lessons of current international conflicts.
- Engage more active regular units and staff, especially in key positions.
- Assure knowledge transfer to the next VIKING exercise planning and execution Core Planning Team.
- Assure a training platform offering a developed environment of realistic systems and constructive simulation in federation.
- Support a more transparent and systematic approach to experimentation.

As my final remark, I am ensured by flag officers, management and participants taking part in VIKING 22, this unique event has a future and fits in to most Nations and Organisations operational requirements. My recommendation is to initiate the Strategic planning for a VIKING 25 as soon as required.

1 July ~~2022,~~ Stockholm

Brigadier General Fredrik Ståhlberg
Director EXEVAL VIKING 22

Please note that the annexes are named in accordance with the EXPLAN of VIKING 22. A few of the listed annexes were not included in the FER, and therefore the list has a few gaps (I, O, P, T, CC).

The annexes and appendixes submitted to EXEVAL have only been formatted and inserted in the FER. The contents of the annexes are the authors own views.

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US Office of the Assistant Secretary of Defense for Readiness	4000 Defense Pentagon, Washington, D.C. 20301-4000 USA
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US EUCOM J6	HQ EUCOM C4 Cyber Kurmacherstrasse Gebaude 2304 70569 STUTTGART GERMANY
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US EUCOM J9	HQ EUCOM Interagency Partnering Kurmacherstrasse Gebaude 2304 70569 STUTTGART GERMANY
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US Army TRADOC	Headquarters, U.S. Army TRADOC Att: Chief Public Affairs 950 Jefferson Ave Fort Eustis, VA 23604-5700
US Army Europe and Africa, J7	HQ Army Europe and Africa Clay Kaserne 65205 Wiesbaden, GERMANY
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US Army War College, Peacekeeping and Stability Operations Institute (PKSOI)	Upton Hall, 22 Ashburn Dr, Carlisle, Pennsylvania 17013, USA

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Swedish National Defence University (FHS)	registrator@fhs.se
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Swedish Government

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INTERNAL Swedish Armed Forces

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SwAF HQ (INSS)
SwAF HQ (INSS J3, Tillståndsenheten) SwAF HQ (INSS J5/7)
SwAF HQ (INSS J9)
SwAF HQ (PROD) (Brigadier General Jonny Lindfors)
SwAF HQ (PROD LEDUND)
SwAF HQ (PROD FPE ÖVN) (Colonel Martin Liander)
SwAF C2 Regiment (LedR)
SwAF Logistics (FMLOG)
SwAF LG/SWEDINT
SwAF Air Combat Training School (LSS)
SwAF Naval Warfare Centre (SSS)

ANNEX B - FER MAIN BODY

Exercise Abstract

1. Identification

Name: VIKING 22
Form: Command Post Exercise
Type: Computer Assisted Exercise
Area: Distributed Sites in Bulgaria, Brazil, Finland, Qatar and Sweden (x4)
Planning and Development phase:
2020-10-01—2022-01-31
Implementation phase:
2022-02-01—2022-04-07

2. Management

OSE: Vice Admiral Jonas Haggren
UN SRSG: Mr. Christopher Coleman
NFOR FC: Lieutenant General Michael Claesson
OCE: Brigadier General Jonny Lindfors
EXDIR: Brigadier General Michael Nilsson
EXEVAL DIR: Brigadier General Fredrik Ståhlberg
UN OPR: Mr. Rafael Barbieri
SAF OPR/CPT: Lieutenant Colonel Carl-Fredrik Kleman

3. Participating entities

Entity	**Type**	**Site**
EXCON	Command Group, SITCEN, OTM	Enköping
SEC	Site Exercise Centre	Brazil
SEC	Site Exercise Centre	Bulgaria
SEC	Site Exercise Centre	Enköping
SEC	Site Exercise Centre	Finland
SEC	Site Exercise Centre	Qatar
UNMIM	Headquarters	Kungsängen
UN Regional Office	Headquarters	Brazil
UN Regional Office	Headquarters	Qatar
UN Sector	Headquarters	Brazil
UN Sector	Headquarters	Qatar
NATO FORCE	Headquarters	Enköping
ACC	Command	Uppsala
CAOC	Operations Centre	Uppsala
MCC	Command	Karlskrona
LCC	Command	Enköping
1. MNB	Headquarters	Bulgaria
2.MNB	Headquarters	Enköping
4.MNB	Headquarters	Finland
JLSG	Headquarters	Enköping

4. Exercise Aim

The aim of VIKING 22 was to train and educate participants – military, police and civilians – to meet the challenges of current and future multidimensional crisis response and peace operations. This includes planning and conducting a UN mandated Chapter VII peace operation, based on a scenario that promotes a comprehensive approach through co-operation and co-ordination between all relevant actors. The VIKING concept facilitates development and experimentation in future capabilities, methods, operational concepts and technological enhancements.

5. Exercise Objectives

A. Promote mutual understanding, confidence, co-operation and interoperability among all contributing and affected forces, organisations, offices and personnel – military as well as civilian (i.e. a comprehensive approach).

B. Understand and apply mission command and management, staff roles and functions, procedures and structures, as well as co-ordinated planning processes.

C. Understand and apply current operational concepts reflecting present as well as future challenges in multinational and multidimensional peace operations.

D. Create an environment that supports and facilitates development and experimentation of methods, operational concepts and technological enhancements for participating organisations and nations.

6. Exercise Description

a) Concept and Setting

The exercises organized under the VIKING concept are multifunctional, multinational, and multidimensional exercises. They are designed to prepare, train, and educate military, police and civilians for deployment to multidimensional crisis response and peace operations. The concept is the flagship event in a 23-year strategic cooperation to build partner capability under the framework of the Swedish and United States bilateral "Memorandum of Understanding" on Partner Training & Simulation Network.

VIKING is a unique venue for coalition training programs to confront a complex hybrid threat environment. It supports training among allies and partners spanning geographic boundaries and across military, governmental, and non-governmental functional areas. This breadth offers deep play from NATO, the UN and a wide variety of civilian and non-governmental participants actively exercising with military organizations. The current threat environment is hybrid, with near-peer opponents capable of executing coordinated and simultaneous operations in multiple theatres, across all warfighting domains, and the full spectrum of conflict. We must

train together as a coalition, to understand, dominate and prevail in this complex multifaceted field of conflict.

The nine exercises in the VIKING series have trained over 25,000 civilian, military and police personnel. The exercise builds readiness and resilience, increase confidence, expand partner capability, and develop distributed simulation training and education methods and technologies.

VIKING 22 was a Computer Assisted Command Post eXercise (CAX[1]/CPX), conducted at the level of mission/force headquarters, component commands, brigade, regional commands and regional offices. It was multinational and distributed to several remote sites. The VIKING exercise was multifunctional with military, police and civilian personnel sharing responsibility for planning, executing, and evaluating the exercise.

b) Scenario

The VIKING 22 scenario was multidimensional and exhibited both traditional peacekeeping operations reflecting current challenges in certain African countries as well as high-intensity direct military action and humanitarian factors, which closely resembles the complexity of the war in Ukraine. The VIKING 22 scenario is based on the" Northern Continent Scenario". The conceptual scenario describes a fictitious historical, political, military, economic, social, infrastructure and information situation. An overview of the scenario is attached at **Appendix B1.**

c) Conduct

The VIKING 22 planning cycle lasted more than 24 months (illustrated below). It was organized according to NATO Collective Training and Exercise Directives (BiSC 75-3) and best practices set out in the Swedish Armed Forces "Guidelines to CAX methods".

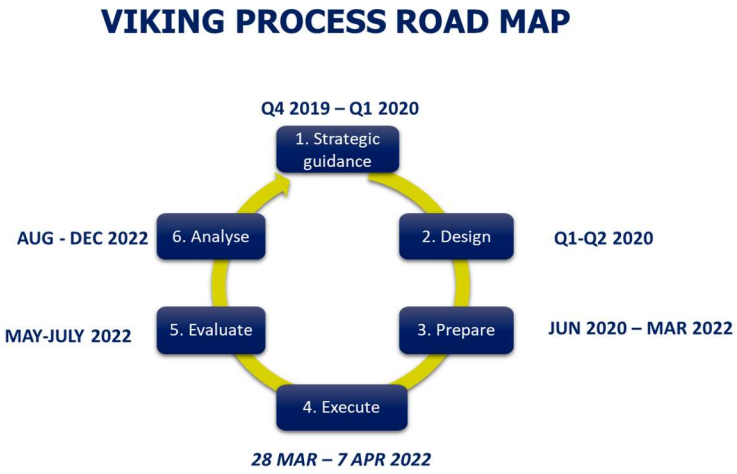


Figure. The process road map of VIKING 22 was initiated already in October 2019 and stretched for two and a half years. The process follows a "Best Practice" model divided in to six phases.

[1] NATO (BiSc 75-3) definition is: Computer Assisted Exercise (CAX) - An exercise using modelling and simulation technology to create an artificial environment, identical to the real-world, that will stimulate decision-making and follow-on command and control actions.

Achievement of Exercise Objectives

All exercise objectives (XOs) were well-covered by the exercise design and scenario. The XOs are relevant but require fine-tuning in line with emerging threats for the next VIKING exercise.

The exercise design and the new scenario facilitated a comprehensive approach (objective one). They also created an interesting and challenging platform and environment that promoted understanding of mission command, leadership, tactical decisions, and staff procedures (objective two).

The new scenario itself was a good example of a multidimensional, complex situation, that reflects the modern battlefield and crisis management (objectives three).

Three main experiments were conducted and reported (objective four):

- A NATO Multinational Concept Development Campaign Operational Cyber experiment (see specific report in Appendix B2)
- A second experiment, was the e-Learning and Analysis platform, conducted by the U.S. DoD ADL Initiative (see report in Appendix B3)
- The third experiment referred to Modelling Simulation as a Service (MSaaS) conducted by the NATO Joint Force Training Centre (see report in Appendix B4)

The XOs provided the Training Audience (TA) with a mission statement that served as a basis both to adapt the conceptual scenario and to develop the Training Objectives (TO). XOs served to ensure that exercise planning, execution, evaluation, analysis, and specific operational requirements were met.

Detailed observations by the participants, for further analysis, are presented in **Appendix B5**.

Related to the main blocks above, these are the comprised recommendations:

- Fine-tune the balance between warfighting and CIV-MIL cooperation (and cross-agency interaction) to allow increased friction between different entities and more challenging decision-making. This could also replicate real-life challenges with information sharing (unclassified to classified). Furthermore, this would give NFOR the opportunity to go further with joint procedures (i. e. Targeting, Fires etc.) and to develop tactics in current operations.
- Preserve and further develop the current scenario.
- Revise, update, de-conflict and promulgate relevant exercise documents at all levels.
- Consider developing learning objectives for the WUST period to develop SOPs and better prepare for staff work.
- Prioritize the manning process early, especially for key personnel.
- Assure a training platform offering a developed environment of realistic systems and constructive simulation in federation.
- Support a more transparent and systematic approach to experimentation.

Subject Area Enclosures

1. Exercise Concept and Development

Key Observations:
The VIKING exercises are computer assisted command post exercises (CPX/CAX), conducted at the level of mission headquarters, component commands, regional commands (brigades) and regional offices. They are multinational with participants from several nations and distributed to several remote sites.

The VIKING exercises are multifunctional with civilian, military and police personnel sharing the responsibility for planning, executing, and evaluating the exercise. The concept design work of the exercise is guided by and refers to, where applicable, the NATO Collective Training and Exercise Directive (Bi-SC-75-3) and the NATO Best Practice for Computer Assisted Exercises (AMSP-5).

The VIKING series of exercises is conducted in the spirit of NATO's Partnership for Peace (PfP). There have been nine exercises in the series to date – 1999, 2001, 2003, 2005, 2008, 2011, 2014, 2018 and 2022. The exercises have progressed from a focus on civil-military relations and co-operation and co-ordination, to the current emphasis on the "comprehensive approach". Military, civilian, and police personnel are now integral parts of the TA and the Exercise Control (EXCON).

The VIKING concept relies on a comprehensive approach to all the phases of the exercise. It assumes that working together will contribute to fulfilling organisational goals, building relationships and increasing operational effectiveness. The Swedish Armed Forces, United States and Swedish Defence University are partners in the VIKING 22 exercises conceptualisation, development, implementation, and evaluation.

VIKING 22 focused on staff work at the operational and tactical level. It was multifunctional and designed to prepare individuals and organisations to meet the challenges of modern international Peace Operations (PO) and Crisis Response Operations (CRO).

The VIKING 22 Training Audience (TA) was multidimensional and included military, police and civilian personnel deployed in the United Nations (UN), North Atlantic Treaty Organisation (NATO), and other International Organisations (IO), Regional Organisations (RO), Governmental Organisations (GO) and Non-Governmental Organisations (NGO). The exercise was conducted at mission headquarters, component command, regional command, regional office, and field office level. The exercise practiced procedures for operational and tactical planning, application and execution of doctrine, central conventions and resolutions, related to UN-led missions, UN mandated, and authorised NATO-led operations. All participants, including UN Agencies, IOs, ROs and NGOs, operate according to their institutional mandates and in accordance with humanitarian principles.

VIKING 22 utilized a rich, newly developed scenario ("Northern continent") that reflected current challenges of international POs and CROs, and applied current operational concepts. The scenario describes a fictitious historical, political, socio-economic, military and humanitarian situation in a failed state, offering challenges and opportunities to be managed through the course of the exercise. The participants' diverse set of professional cultures and a broad range of experiences, provided additional education and training values on the margins of the game play, and the scenario enabled organisations to train their specialty within the framework of the exercise.

The VIKING exercises are unique among such training events due to their size, magnitude, multi-nationality, multidimensionality, high-level participation, number and diversity of organisations represented, amplitude of tactical levels, timeliness of the scenario and protocols used, and true mixture of military, civilians and police in the conceptualisation, planning, implementation and evaluation of the exercise

Detailed observations by the participants, for further analysis, are presented in **Appendix B5**.

Recommendations:

- Maintain the participation of the UN and seek to reengage the EU.
- Incorporate more active units in addition to students, especially in key positions.
- Maintain both the strategic and tactical approaches to gaming.
- Incorporate more civilian and police elements into the strategic and tactical dilemmas.
- Make the frictions between the military and civilian actors more challenging.

2. Exercise Planning

Key Observations:
The commitment to exercise planning and preparation at the operational level was exceptionally high. This is the only way to overcome the frictions and shortcomings associated with such a complex planning process. In this respect, the Core Planning Team (CPT) did an extraordinary job, particularly in view of the disruptions and impact caused by the COVID-19 pandemic.

As a result of the COVID-19 pandemic restrictions, the Initial Planning Conference (IPC) was conducted virtually for the most part. The IPC was considered successful, and conducting the event online provided the additional advantage of avoiding costly travel during the planning process, especially for distant participants. Such virtual involvement of faraway partners could be maintained for planning conferences in future events to realize similar cost and time savings.

The VIKING exercises respond to and anticipate real operational requirements in crisis readiness. Even greater synergies should be exploited to support the VIKING planning process by engaging the existing NATO/PfP future visioning frameworks (i.e., the PfP Consortium of defence academies and security policy institutes, the ACT Multinational Concept Development Campaign (MCDC), and the ACT Federated Mission Network).

Successful planning of a large multinational joint exercise depends upon a core of experienced and dedicated people. It is to be expected that not all knowledgeable planners will be available from one exercise to the next. Steps must be taken to plan for this in order to prevent a consequent loss of institutional memory. In the short term, the current CPT for VIKING 22 must ensure knowledge transfer before the CPT is disbanded. In the mid and long term, a functional plan for knowledge management and best practices must be developed.

The inclusion of representatives from interested and committed partner countries and key organisations would increase the capacity of the CPT and broaden its expertise. This will further develop the concept, increase resources, and share the burden of the main actors.

Participants' first impression of the exercise is the sign-up and registration process. A negative impression reduces participant motivation and the effort they exert in preparing for the exercise – undoubtedly a critical factor in determining exercise success. Priorities for this initial contact with participants should include a sufficiently staffed call/admin centre, a user-friendly electronic registration system to address enquiries, and a timely and orderly administrative process to respond to participants' registration needs.

In comparison to previous VIKING exercises, the VIKING 22 organization and manning of police and civilians were limited. This led to less cooperation in several areas, particularly for tactical level units, including cooperation with IOs, NGOs, and local authorities/ counterparts.

The STARTEX presented a challenge for the capacity of NFOR HQ to reach out to the subordinate units during the first 48 hours of game play, including guidance, order, orientation, information, intel products, and other requirements. This caused a major initial stall at the Component Command and Brigade levels.

<u>Recommendations:</u>

- Ensure the conduct of the Commanders Conference including all TA units, to provide guidance, orders, reports, and templates; to synchronize training objectives; and to relate the scenario to the tactical situation.
- Establish a civilian organization outreach and coordination function in the CPT, led by a representative of a credible civilian organization.
- Consider participation of other nations in the CPT, especially distributed site nations.

- Ensure that the students are properly prepared for the exercise. This could be done though the means of a combined SDU/NDU operations staff training before VIKING or the combined joint staff exercise.
- Engage centres of excellence and other specialist organizations to support maintenance of SOPs and other pre-training materials.
- Develop a divided STARTEX based upon functions and headquarters. NFOR HQ should initiate processes and planning (like targeting) at least two days before STARTEX.
- Consider extending the exercise by at least one day.
- Make the preparation of background materials a clear and realistic division of responsibilities between the units and exercise organizers.
- Start the manning process with key personnel early, to facilitate the preparations.
- Make the battle wheel available by the end of the Main Planning Conference (MPC).
- Develop an online common information platform, available for all participants not later than the IPC, if possible persistent. It will provide essential services, such as online registration.

3. Lessons learned from VIKING 18

Overall, the recommendations from VIKING 18 were well implemented in the planning and conduct of VIKING 22. The recommendations that were not incorporated in VIKING 22 resulted from of changing overall conditions during the planning phase and the complexity of planning and executing the exercise, not from a lack of will or resources. Recommendations from VIKING 18 can be clustered into three principal groups:

1. Recommendations that were implemented and had positive effects:

- Establish a joint program office (OSE/OCE) at an early stage, to coordinate with major stakeholders.
- Establish guidance documents at a high level (e.g., EXSPEC) and Technical Arrangements with distributed site host nations to regulate the roles and responsibilities of the organizations and nations.
- Conceptualize a new scenario, maintaining a high degree of ambition for training.
- Prepare a Guidelines to Methods in CAX -, with guidance for all involved in the exercise process.

2. Recommendations that were implemented, but due to other factors did not achieve the desired outcome:

- Expand the range and commitment of all stakeholders early in the planning process.
- Improve the role and value of the OTTM and define requirements and methods for pre-training (e-Learning) and WUST, in accordance with the profile of the TA.

3. Recommendations that were not implemented due to various factors:
Create a backup system/method for EXCON and the Exercise Director to communicate directly with the training audience at all sites.

Recommendation:

- Continue development of the planning process to ensure the implementation of lessons from VIKING 22.

4. Preparations

Key Observations:
An exercise with many participants from various backgrounds will inevitably include differences in levels of experience and knowledge. Pre-training and Work-Up Staff Training (WUST) phases were very important to prepare participants for the exercise. Surveys indicated that participants were generally prepared for the exercise, self-assessing as “good” or higher. Survey response also indicated higher knowledge of the scenario than of the operational situation.

In the online STARTEX survey, 74% of respondents assessed their preparedness for the exercise as good, very good or excellent. 71% assessed the usefulness of the WUST to be *good*, *very good* or *excellent*. 78% assessed the content of the learning portal to be good, very good or excellent. EXCON survey responses were slightly more positive than those of the training audience. While many participants desired a more structured program for the WUST, some hoped it would concentrate more on establishing a baseline understanding of the operational phase, a basic knowledge of staff procedures, and the responsibilities of different branches. Both the TA and Observer Trainer Mentors (OTMs) assessed TA skills and knowledge of staff work and staff processes to be moderate.

In a complex exercise like VIKING 22, access to related information and training material is a vital part of the participants' ability to prepare. Resources must be accessible and easy to find. An eLearning Platform was created (vikinglearning.org) for VIKING 22, primarily to meet the requirements for pre-training but also as a performance support asset during and after the exercise. The platform should be used both by the TA and EXCON.

Analytics generated from the e-Learning platform offered EXEVAL real-time visibility on individual and unit preparedness and performance but was hampered by challenges in data exchange with EXONAUT. The content of the platform was divided into two main parts: courses and scenario documents. In VIKING 22, there were two mandatory courses about the scenario and road to crisis (one for NATO personnel and one for UN personnel). A total of 752 participants used the eLearning platform.

According to interviews with participants, most were aware of the VIKING 22 eLearning platform, and many used it to some extent, although usage was lower than desired. Overall opinions of the VIKING eLearning platform were very positive, and participants expressed great appreciation for its usefulness and quality.

In the STARTEX survey, participants rated the usefulness of the eLearning platform as good (35.6%), very good (30.5%), and excellent (11.7%).

Many participants requested that the eLearning platform include additional materials such as SOPs, handbooks and booklets, basic courses about staff work, and introductions to the branches. A detailed report of the use of eLearning in VIKING 22 is attached as **Appendix B3.**

The WUST of the exercise is a critical part of the exercise preparation and needs to be maintained on a schedule. Interviews with the participants indicates that the quality of the WUST varied between the entities, but that the WUST was very useful in order to start the gaming phase.

Recommendations from the TA and OTMs were that the WUST should concentrate more on establishing a baseline, common understanding of the operational phase, a basic knowledge of staff work, and responsibilities of different branches.

Many wished for a clear and detailed training program for the WUST. (For example: First, a half-day for general information about the exercise, then a full day for lectures and orientation on the operational situation, and finally a full day for the staff's internal preparations run by ACOS/DCOS).

The TA and OTMs indicated that overall, the operational documents (OPLANs and orders) were good, but they some lacked details and contained conflicting information. In some NFOR units, the TA considered the SOPs outdated or lacking detail. These crucial documents (operational documents and SOPs) need to be cross-checked, coordinated, and synchronized with the new scenario.

One possible limiting factor is commitment. Commitment is two-fold and can be seen either from an organisational or individual perspective. Organisational commitment is shown by giving the participant enough time and resources to get prepared for the exercise. Individual commitment is how well participants use this time and resources. Another possible limiting factor is the fact that some participants got their assignment very late prior the exercise, and they had little or no time to prepare adequately.

Detailed observations by the participants, for further analysis, are presented in **Appendix B5**.

Recommendations:

- Maintain the excellent level of the VIKING eLearning platform and the analytics dashboard. Expand access to the dashboard and develop the platform with additional learning material, and make it available before, during, and after the exercise.
- Define minimum requirements and create clear learning objectives for the pre-training. There should be overall requirements for every participant and organization. These requirements need to be clearly stated in the EXPLAN and in the eLearning platform as mandatory courses and reading lists.
- Maintain the WUST in the exercise at two and a half days. Define clear training objectives for the WUST. Create a more detailed training program for the WUST. Key actors in the WUST need to be committed to their tasks prior to the WUST. Staff members who join at the beginning of the WUST should not be responsible for training the staff.
- Improve the quality of critical documents for the staff (operational documents and SOPs). Documents should be released for the participants' pre-training and preparation well in advance of the exercise.
- Include a short training period for the TA in use of services, applications, and software during the WUST period.
- Develop a persistent e-Learning platform based on the US-Swedish cooperation sharing information and courses.
- Conduct a rehearsal at each site/HQ level during WUST.

5. Conduct of the Exercise

Key Observations:
The scenario was excellent, with built-in multiple mission types under different international organizations (NATO, UN). It has in-depth operational material, regional, and country-specific problems, with the flexibility to put in different mission types ranging from deterrence/shaping operations to UN stability operations.

The VIKING exercise concept is a distributed computer assisted command post exercise (CAX/CPX) that trains and educates military, civilian, and police participants and units. The exercises are expected to be built on methods in which no live troops and field units are deployed. Instead, they should practice their tasks realistically in a simulated, synthetic environment. This structure makes effective use of the available time and provides a realistic operational situation for the training audience to handle and manoeuvre.

In VIKING 22, the gameplay was simplified due to an over emphasis on the incident and injects script. Simulation was rarely used as a support to gaming to realistically represent operations in the field. Furthermore, the gaming offered limited opportunities for dynamic tactical behaviour which led to very simple use of simulation, mainly providing simple movements to feed the common operational picture.

Representation and coordination of SITFOR (OPFOR) was limited. Each site had to gameplay most SITFOR entities and manoeuvring themselves. This created misunderstandings within and between the units, mainly the Brigades.

A scenario overview is described in **Appendix B1.**

Detailed observations by the participants, for further analysis, are presented in **Appendix B5**.

Recommendations:

- Run an early site acceptance test (SAT) for the whole CIX gaming platform, rather than just parts of the system.
- Develop the use and methods of federated and distributed simulation.
- Make the gaming, scenario and injects more dynamic to enhance tactical behaviour and the use of tactics for the TA and Response Cells. This should be developed in close cooperation with partner resources and knowledge.
- Emphasize the importance of a flexible rhythm in gaming and injects supporting training objectives.
- Include a short training period for the TA in the use of services, applications, and software during the WUST period.
- Synchronize Geo-data application versions at distributed sites. Timely and better planning and requirements for the exercise should solve this.
- Establish a separate system/method for EXCON and the Exercise Director to communicate directly with the training audience at all sites. The lack of

such a channel of communication hampered information sharing about technical issues and measures that were initiated. This also made it difficult to relay any clear guidance from the Exercise Director about how to address the technical challenges.

- Leverage the scenario and exercise to its maximum capability throughout the VIKING exercise development cycle. Expansion of stakeholder engagement should expand beyond the VIKING exercise to affiliated military, civil and academic efforts.
- Place the scenario on an accessible website so that the stakeholder community can access the data and use it. The website should include a process to submit feedback, products, and storylines from spin-off events (a wiki-based scenario development). This allows the broader stakeholder community to feed the VIKING storyline and key components (e.g., development and evolution of cyber threat actors to feed operational process development).
- Encourage service schools, academia, and centres to use the scenario in development of course curriculum practical exercises, war games, case studies, etc. This builds continuity and standardization around a common, sharable problem set. The VIKING scenario can provide material for practical exercises, curriculum aligned case studies and other staff exercise events.
- Leverage regional partner hubs to conduct aligned but, separate missions in partnership with regional security efforts.
- Develop an actual SITFOR cell able to act and gameplay in a "tactical situation" within the Brigade's AOR. This requires a developed coordination between main SITFOR and the SECs. Use a red cell that acts as the unified opposing force, enhancing the tactical challenges and manoeuvring of forces.
- Further incorporate civilian and police elements into the strategic and tactical dilemmas and make the frictions between actors more challenging. This also requires an improved synchronisation of the gaming between sites/HQ levels.

6. Military – Civilian Cooperation

Overall, the scenario and exercise design provided an excellent platform for the training audience to practice a "comprehensive approach" and to conduct operations and plans to achieve "operational unity of effort."[2] Continued focus is needed to maintain and update the concept and delivery of a comprehensive approach in future exercises. Nevertheless, VIKING 22 has met its objectives in this area.

The most critical limiting factor was the absence of certain organizations and civilian professionals in the planning and conduct of the exercise, which affected the value and realism of the comprehensive aspect of the exercise. The PMESII Response Cell also suffered from a lack of some subject matter experts – limiting the

[2] *Operational Unity of Effort* is defined as "coordination and cooperation among multiple organizations, working toward common objectives, even if the participants are not part of the same command or organization." The concepts of civ-mil cooperation, comprehensive approach, and unity of effort are closely related.

achievement of exercise objectives. Real-world events reduced crucial civ-mil interaction in VIKING 22 and various IOs and humanitarian structures cancelled participation at the last minute to respond to the crisis in Ukraine. This was unforeseeable and unavoidable. Several EXCON interviewees noted limited buy-in from civilian organizations early in the exercise concept development phase and particularly the MEL/MIL workshops.

The departure of FBA created a void in the civilian coordination of the exercise, including the lack of a civilian exercise director. This cascaded into diminished participation by other civilian organizations. For future exercises stressing civ-mil cooperation, early buy-in from key civilian stakeholders and key advocates is essential. In the absence of a single civilian coordinating organization, a civilian cluster should be considered as part of the core planning team.

Notwithstanding these difficulties, the exercise benefited from certain enabling factors. The updated scenario of the exercise was a major positive driver. Injects in the new scenario prevented a kinetic-only approach by the military training audience and encouraged holistic approaches to solving complex problems in the operational environment. Humanitarian exigencies and the cross-border focus of the scenario forced establishment of coordination mechanisms and encouraged coordination across governmental, non-governmental, military, and civilian agencies.

The exercise forced the NFOR training audience to resolve tension in information sharing and operational security at an early stage. UNMIM was better prepared for this, as key staff from the UN participating in the exercise had begun preparation earlier and were more versed in UN processes.

The development of the joint coordination mechanism between a UN Peacekeeping Mission and a NATO crisis response mission was the result of the particularly unique scenario of VIKING 22, and potentially a major outcome for the exercise. This type of experimentation with the comprehensive approach is an area for potential future development for the exercise, reflecting a need to find new cooperation models in a changing security environment. The experimental aspect of the exercise should be further enhanced.

The new scenario also provides an opportunity for “games within games” as an avenue for future proving of concepts and experimentation in other areas, while maintaining the exercise’s overall pedagogical focus.

Detailed observations by the participants, for further analysis, are presented in **Appendix B5**.

Recommendations:

- Maintain robust civilian participation in the exercise, which is critical to train in CIV/MIL cooperation.
- Cooperate with civilian stakeholders from the beginning of planning.
- Assure civilian actor participation at the MEL/MIL workshops.
- Sufficiently staff the response cells with experienced role players.
- Consider making friction points for CIV/MIL more challenging.
- Develop and synchronize a civilian dimensions plan.
- Consider making friction points for CIV/MIL more challenging.
- Emphasize the importance of a flexible rhythm in gaming and injects supporting training objectives.

7. Technical and Information Platform

Key Observations:
The basic system and network platform Conduct of International eXercises (CIX) are the support systems available to meet the requirements of the training audience and exercise management.

There were a few specific limitations faced by the technical support team during the preparation phase and the start of the exercise, and the subnetwork (DMZ) interface to the distributed sites in Brazil and Poland (NATO JFTC) took time to get working. Connections with other distributed sites were functional from the very beginning of the exercise.

There were no major technical problems which prevented fulfilment of the training objectives. There were issues on the service management side, for the planning and management of data and account preparation before the exercise started.

System surveillance – along with security monitoring and management of security events or incidents – was not implemented to an acceptable level and quality to allow the management of security-related incidents on a real time basis.

A user friendly and efficient electronic sign up/registration system should be a priority.

Based on reports from users and EXEVAL observations, various challenges affected the participants from a technical perspective. The biggest challenge they faced was logging into systems because the login process was too complicated. Comments were generally positive about the use of applications, the portal, the exercise website, and other services once finally accessed.

Detailed observations by the participants, for further analysis, are presented in **Appendix B5**.

Recommendations:

- Maintain the constructive work on the technical platform.
- The CIX gaming platform should have an early site acceptance test (SAT) for the whole system, rather than just parts of the system.
- Keep the CIX platform running having information available between the exercises.
- Develop and implement an efficient electronic sign up/registration system
- During the exercise design phase, develop a strategy for planning and management of data.
- Simplify the login process, such as by using an electronic ID card.
- Timely installation of all necessary parts of the system requires better planning and management of data requests in the planning phase for users, hardware, and configuration.
- Surveillance, through security monitoring and management of incidents should be improved for future exercises.
- An easy-to-access, fast-acting import/export (IMPEX) system is required for basic operations. For better functioning and understanding of this system, an operational procedure for its use is required.
- Synchronize Geo-data application versions at distributed sites is required. Timely planning and requirements for the exercise should solve this.
- Integrate VTC into the CIX system to avoid the use of alternate channels of communication.

8. Simulation environment (CAX[3])

Key Observations:
The VIKING exercise concept aims to train and educate civilian, military and police participants in a distributed computer assisted command post exercise (CAX/CPX) setting. This exercise is to be built on methods in which no live troops and field units are deployed. Instead, they should practice their tasks realistically in a simulated, synthetic environment, which makes effective use of the available time and resources.

The use of distributed constructive simulation in federation was limited. In most cases the models and applications, at the sites, were plain stimulation and/or their own simulation models were used locally and independently. The gameplay was simplified due to an emphasis on the incident and injects script. Simulation was rarely used for realistically representing the operations in the field. Narrowed dynamic tactical behaviours caused a very simple use of simulation, mainly providing plain movements to feed the common operational picture. ¨

Detailed observations by the participants, for further analysis, are presented in **Appendix B5**.

[3] NATO (BiSc 75-3) definition is: Computer Assisted Exercise (CAX) - An exercise using modelling and simulation technology to create an artificial environment, identical to the real-world, that will stimulate decision-making and follow-on command and control actions.

Recommendations:

- Develop the use and methods of federated and distributed simulation.
- Develop methods and techniques regarding federated distributed constructive (and virtual) dynamic simulation.
- Drive the gaming, scenario and injects to be more dynamic and to enhance tactical behaviour and use of tactics for TA and Response Cells. This development should be in close cooperation with partner resources and knowledge.
- Increase general knowledge about use of simulation to enhance game planning and execution.
- Improve coordination between response cells and simulation team, requires management.
- Introduce simulation capabilities at the beginning of the MEL/MIL process.

9. Experimentation

Key Observations:

Fulfilling the fourth Exercise Objective, three main experimentations were conducted during VIKING 22:

1. U.S. CYBERCOM and the Multinational Capability Development Campaign (MCDC) Multinational Integrated Cyber Fusion (MNICF) Project representatives participated in Enköping. USCYBERCOM/MNICF formed a multi-disciplinary team to support education, training, role-player emulation, staff planning and exercise control functions in order to integrate cyberspace planning and execution considerations into the all-domain exercise.
   a. Simultaneously, the team used the event to meet defined objectives with respect to experimentation. These objectives were achieved and, in several cases, exceeded, with measurable progress in developing cyberspace operational concepts.
   b. See detailed summary report in **Appendix B2.**

2. The Advanced Distributed Learning Initiative (ADLI) successfully completed an experiment dedicated to maturing eLearning in exercises as a resource for both pre-training and operational performance support. A dashboard prototype with learning analytics visualizing the relationships between eLearning and performance on training objectives was successfully validated.
   a. See detailed summary report in **Appendix B3**.

3. The NATO Joint Forces Training Centre completed an experimentation on Modelling and Simulation as a Service (MSaaS). The objective was to use the MSaaS concept to augment the existing CAX platform with services that support the generation of operational pictures for the training audiences. The mission of the JFTC was to support the exercise by transforming simulation data into Command and Control (C2) data in a standardized way based on data about red forces from the simulation federation. In addition, KIXS MoD NLD also subscribed to data from the simulation environment and delivered both AIS traffic and Blue Force Tracking to Sitaware HQ.
   a. See detailed summary report in **Appendix B4**.

Recommendations:

- Support a more systematic approach to experimentation with a formal position on the CPT.
- Involve and encourage, in an early stage, Partners and Organisations to be part of operational and technical experimentation.
- Ensure a technical platform covering and allowing test and experimentation.

10. Real Life Support

The Real Life Support of the exercise was excellent, and was a major contributing factor to the overall result of the exercise. An area that could be improved is the registration process, which used email and manual procedures to both inform and register participants. This is something that would be improved by using an on-line tool for registration and information sharing at the different events.

Detailed observations by the participants, for further analysis, are presented in **Appendix B5**.

Recommendations:

- Continue the high level of support.
- Use a coherent on-line solution for information and registration.

11. Analysis and Evaluation

Overall, the analysis and evaluation were successful, and the planned OTM and EXEVAL processes were well suited to the tasks. The different EXEVAL and OTM focus areas could be further clarified in the preparation of the TA, especially to emphasise that it is the exercise and training objectives that are being evaluated, not individual participants.

The OTM has been developed since the last exercise, and the OTTM trackers were separated from the organisation. This change worked well overall, and the OTM teams performed excellently during the exercise. The main issue during the exercise was the lack of OTM in the UN HQ, and this should be added in the next exercise if possible.

EXEVAL used CIX to make observations on a larger scale than during previous exercises; however, the system for using the collected data needs to be developed regarding both presentation and availability to be truly useful for the task. EXEVAL also would have benefitted from earlier preparation and the use of an online solution rather than in the CIX-environment.

EXEVAL collected data in two surveys, using a link to EXONAUT available for all participants and announced publicly on the Sharepoint portal of VIKING 22. The number of surveys submitted were low, with approximately 850 participants

taking part in each survey. Still, the number of comments and observations were comprehensive and contributed value.

Survey results are presented in **Appendix B5**.

EXEVAL executed a Post Exercise Discussions (PXD) workshop at the Swedish Defence University on 14-15 June 2022. Most VIKING 22 entities were represented, including the distributed sites. The main task was to finalize the draft of this Final Exercise Report.

Recommendations:

- Develop the use of OTMs, including representation in all parts of the TA.
- Use the pre-training to prepare EXEVAL surveys and key leader engagement plans.
- Develop a separate online platform outside CIX, to be available for EXEVAL at least three months prior to the exercise.
- Sustain the STARTEX/ENDEX surveys to compare between exercises. Develop the method and tool to design, share, take part in, and analyse the surveys.

ANNEX C - FIRST IMPRESSION REPORT (FIR)

Summary

VIKING 22 was an excellent collective training event with a uniquely relevant scenario, supported by a robust technical infrastructure enabling the training audience to focus on operations and tactics in high intensity hybrid warfare involving direct engagement, with a comprehensive approach centred on civil-military cooperation.

The main cross-cutting recommendations from EXEVAL are to:

- Continue the development of the VIKING concept reflecting the lessons of the war in Ukraine. This is crucial for the relevance of the future exercise concept.
- Emphasize the importance of knowledge transfer to the planning and execution of the next VIKING exercise.

Background

The latest in the series of VIKING exercises took place between Monday 28 March and Thursday 7 April 2022.

The VIKING concept involves multifunctional, multinational, and multidimensional exercises, which are designed to prepare, train, and educate civilians, military, and police for deployment to multidimensional crisis response and peace operations.

VIKING 22 included some 2000 participants covering mission leadership and various headquarters levels from some 47 nations, 1450 considered to be part of the primary and secondary training audience (PTA and STA). Planned participation was 2500, but due to the war in Ukraine and Covid-19, participation was heavily reduced. The exercise was conducted in six nations at nine sites. The training audience (TA) commanded missions and operations involving more than 50,000 notional personnel.

Based on collected data from multiple interviews with experienced participants at all levels, observations, learning analytics, and survey results, the event is considered a significant success by the participating individuals, organisations and nations, and the exercise objectives have been achieved.

The exercise is a direct investment in the implementation of effective mandates and mission leadership that focuses on results. A lesson learned from one mistake during the exercise means one mistake less in the field.

Lessons from VIKING 18 propelled planners to create a new scenario, including higher intensity conflict, to challenge the training audience with elements of friction between civilian and military organizations as they implemented a comprehensive approach and unity of effort in a kinetic operation. These lessons learned were successfully implemented.

Another lesson was to create a strong and robust technical platform with readily available support, both on the main and distributed sites. This recommendation has been fulfilled, except for some minor issues that can be attributed to limited partner support, Covid-19, and the war in Ukraine.

The evaluation team integrated both civilian and military expertise into one single EXEVAL, comprised of 22 experts, with various military, academic, and practitioner backgrounds. It represented 10 nationalities working at eight sites, producing more than 250 documented observations and reports.

This First Impression Report will be followed by a more detailed Final Exercise Report on VIKING 22, after post exercise discussions on June 14-15. It will be delivered by the end of June 2022.

The VIKING concept

The VIKING concept is the flagship event in a 23-year strategic cooperation under the framework of the Swedish and United States bilateral "Memorandum of Understanding" on Partner Training and Simulation.

The nine exercises in the VIKING series have trained over 25,000 civilian, military and police personnel, building readiness and resilience, increasing confidence, building partner capacity, and developing distributed simulation training and education methods and technologies.

The current threat environment is hybrid**,** with near-peer opponents capable of executing coordinated and simultaneous operations in multiple theatres, across all warfighting domains, and the full spectrum of conflict. To prevail, we must train together as a coalition, to understand and to dominate this complex multifaceted field of conflict.

VIKING is a unique venue for coalition training programmes to challenge this complex hybrid threat environment. It supports training among allies and partners spanning geographic boundaries and across military, governmental, and non-governmental functional areas, offering deep play from NATO, the UN, and a wide variety of civilian and non-governmental participants actively exercising with military organizations.

The strategic benefits are evident:

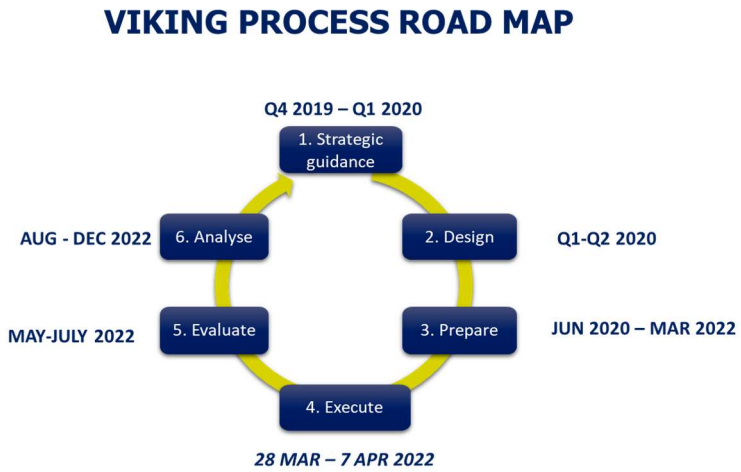
- *Great power deterrence with a demonstration of the integrated deterrence concept.*
- *Increased confidence in partner cooperation and resilience of tactics and techniques.*
- *Exercising a comprehensive approach in complex conditions, including high-intensity hybrid warfare.*
- *Enhancing interoperability and partner capability.*
- *Experimentation, testing, validation, and implementation of innovation in Distributed Simulation, Training, and Learning methods and technologies.*

VIKING 22

VIKING 22 was a Computer Assisted Command Post exercise (CAX[4]/CPX), conducted at the level of mission/force headquarters, component commands, brigade and regional commands and regional offices. It was multinational and distributed to a number of remote sites. The VIKING exercise was multifunctional with civilian, military and police personnel sharing the responsibility for planning, executing, and evaluating the exercise.

The VIKING 22 scenario included both high-intensity direct military action and humanitarian factors, which reflected the complexity of the war in Ukraine.

The planning cycle lasted more than 24 months and was organized according to NATO Collective Training and Exercise Directives (Bi-SC 75-3) and best practices set out in the Swedish Armed Forces "Guidelines to CAX methods".



The aim of VIKING 22 was to train and to educate participants – military, civilian and police – to meet the challenges of current and future multidimensional operations. This included planning and conducting a UN mandated Chapter VII peace operation, based on a scenario that promoted a comprehensive approach through co-operation and coordination between all relevant actors.

The VIKING concept prioritizes interoperability and the development and testing of future capacities, methods, operational concepts, and technological enhancements.

[4] NATO (BiSc 75-3) definition is: Computer Assisted Exercise (CAX) - An exercise using modelling and simulation technology to create an artificial environment, identical to the real-world, that will stimulate decision-making and follow-on command and control actions.

EXEVAL observations and first recommendation

The EXEVAL team focused on eight areas during the exercise. The main observations and recommendations are presented separately below.

A. IMPLEMENTATION OF LESSONS LEARNED FROM VIKING 18

Overall, the recommendations from VIKING 18 were well implemented in the planning and conduct of VIKING 22. However, some recommendations were not incorporated in VIKING 22. This was not due to a lack of will or resources, but rather because of changing overall conditions during the planning phase and the complexity of planning and executing the exercise. Recommendations from VIKING 18 can be clustered into three principal groups:

1. Recommendations that were implemented and had positive effects:

- Establish a joint programme office (OSE/OCE) at an early stage, to coordinate with major stakeholders.
- Establish guidance documents at a high level (e.g. EXSPEC) and Technical Arrangements with distributed site host nations to regulate the roles and responsibilities of the organizations and nations.
- Conceptualize a new scenario, maintaining a high degree of ambition for training.
- Prepare Guidelines to Methods in CAX, with guidance for all involved in the exercise process.

2. Recommendations that were implemented, but due to other factors did not achieve the desired outcome.

- Expand the range and commitment of all stakeholders early in the planning process.
- Improve the role and value of the OTTM, and define requirements and methods for pre-training (e-learning) and WUST, in accordance with the profile of the TA.

3. Recommendations that were not implemented due to various factors.

- Create a backup system/method for EXCON and the Exercise Director to communicate directly with the training audience at all sites.

Recommendations

- Continue development of the planning process to ensure the implementation of lessons from VIKING 22.
- In order to ensure the implementation of recommendations, the core planning team needs to monitor implementation in the years leading up

to the next VIKING. This also includes annual reporting for the attention of political supervision.

B. EXERCISE OBJECTIVES

The Exercise Objectives provided the Training Audience with a mission statement that served as a basis both to adapt the conceptual scenario on one hand, and to develop the Training Objectives on the other. Exercise Objectives served to ensure that exercise planning, execution, evaluation, analysis, and specific operational requirements were met. The VIKING 22 Exercise Objectives were to:

1. Promote mutual understanding, confidence, co-operation, and interoperability among all contributing and affected forces, organizations, offices, and personnel (comprehensive approach).
2. Understand and apply mission command/leadership, staff roles and functions, procedures and structures and coordinated planning processes.
3. Understand and apply current operational concepts reflecting present and future challenges in multinational peace operations.
4. Create an environment that supports and facilitates development and experimentation of methods, operational concepts, and technological enhancements for participating organisations and nations.

All exercise objectives were well-covered by the exercise design and scenario. The exercise objectives are relevant but require fine tuning in line with emerging threats for the next VIKING exercise.

The exercise design and the new scenario facilitated the comprehensive approach (objective one). They also created an interesting and challenging platform and environment that promoted understanding of mission command, leadership, tactical decisions, and staff procedures (objective two).

The new scenario itself (as an experiment) is a good example of a multidimensional, complex situation that reflects the modern battlefield and crisis management (objectives three and four).

Recommendations looking forward include:

- Fine-tune the balance between warfighting and CIV-MIL cooperation (and cross-agency interaction) to allow increased friction between different entities and more challenging decision-making. This could also replicate real-life challenges with information sharing (unclassified - classified). Furthermore, this would give NFOR the opportunity to go further with joint procedures (i. e. Targeting, Fires etc.) and to develop tactics in current operations.
- Preserve and further develop the current scenario.
- Revise, update, deconflict and promulgate relevant exercise documents at all levels.

- Consider developing learning objectives for the WUST period to develop SOPs and better prepare for staff work.
- Prioritize the manning process early, especially for key personnel.
- Develop methods to support experimentation in the exercise, e.g. cyber in decision making processes.

C. TECHNICAL OBJECTIVES

The basic system and network platform (CIX – Conduct of International exercises) are the support systems available to meet the requirements of the training audience and exercise management.

Overall, the technical platform worked well during the exercise. There were a few specific limitations faced by the technical support team during the preparation phase and the start of the exercise, and the subnetwork (DMZ) interface to the distributed sites in Brazil and Poland (NATO JFTC) took time to get working. Connections with other distributed sites were functional from the very beginning of the exercise.

There were no major technical problems which prevented fulfilment of the training objectives. There were issues on the service management side, for the planning and management of data and account preparation before the exercise started.

System surveillance – along with security monitoring and management of security events or incidents – was not implemented to an acceptable level and quality to allow the management of security-related incidents in real time.

A user friendly and efficient electronic sign up/registration system should be a priority.

Based on reports from users and EXEVAL observations, various challenges affected the participants from a technical perspective. The biggest challenge they faced was logging into systems because the login process is too complicated. Comments were generally positive about the use of applications, the portal, the exercise website, and other services once finally accessed.

Recommendations

- Maintain the constructive work on the technical platform.
- Develop methods and techniques regarding federated distributed constructive (and virtual) dynamic simulation.
- Keep the CIX platform running between exercises.
- During the exercise design phase, develop a strategy for the planning and management of data.
- Streamline the participant electronic registration experience.
- Simplify the login process, e.g. by using an electronic ID card.

- Timely installation of all necessary parts of the system requires better planning and management of data requests in the planning phase for users, hardware, and configuration.
- Surveillance, through security monitoring and management of incidents should be radically improved for future exercises.
- An easy-to-access, fast-acting import/export (IMPEX) system is required for basic operations. For better functioning and understanding of this system, an SOP for its use is required.

D. PRE-TRAINING AND PREPARATION[5]

An exercise with many participants from various backgrounds will inevitably include differences in the level of experience and knowledge. Pre-training and Work-Up Staff Training (WUST) phases were very important in preparing participants for the exercise. Surveys indicated that participants were generally prepared for the exercise, self-assessing as *"good"* or higher. Knowledge of the scenario was at a higher level than knowledge of the operational situation. Both the TA and Observer Trainer Mentors (OTMs) assessed TA skills and knowledge of staff work and staff processes to be moderate.

The VIKING eLearning platform is very important for preparation. According to interviews with participants, most were aware of the VIKING eLearning platform and used it to some extent, although usage was lower than desired. The overall opinions of the VIKING eLearning platform were very positive, and its usefulness and quality were highly appreciated. Participants hoped to have more content in the platform, and clearer guidance on what courses to take, and what documents to read.

The two surveys (STARTEX and ENDEX) and interviews highlighted the importance and usefulness of the WUST. While many participants desired a more structured programme for the WUST, some hoped it would concentrate more on establishing a baseline understanding of the operational phase, a basic knowledge of staff procedures, and the responsibilities of different branches.

The TA and OTMs indicated that, overall, the operational documents (OPLANs and orders) were good, but some lacked details and had conflicting information. In some NFOR units, the SOPs were outdated or not detailed enough.

In a complex exercise like VIKING 22, access to related information and training material is a vital part of the participants' ability to prepare. Resources must be accessible and easy to find. For VIKING 22, a Learning Platform was created (vikinglearning.org), primarily to meet the requirements for pre-training but also as an asset during and after the exercise. The platform should be used both by the TA and EXCON.

[5] Here the term "*preparation"* is limited to the preparation of individuals for the exercise.

Analytics generated from the platform offered EXEVAL real-time visibility on individual and unit preparedness and performance but was hampered by challenges in data exchange with EXONAUT.

The content of the platform was divided into two main parts: courses and scenario documents. In VIKING 22, there were two mandatory courses about the scenario and road to crisis (one for NATO personnel and one for UN personnel). The total number of users in the eLearning platform was 752.

STARTEX survey results indicate that the participants rate the usefulness of the eLearning platform as *Good* (35.6%), *Very Good* (30.5%) and *Excellent* (11.7). Many participants requested that the platform include additional learning materials e.g. SOPs, handbooks and booklets, basic courses about staff work and introductions to the branches.

Recommendations

- Maintain the excellent level of the VIKING eLearning platform and the analytics dashboard. Expand access to the dashboard and develop the platform with additional learning material.
- Define minimum requirements and create clear learning objectives for the pre-training. There should be overall requirements for every participant and organization. These requirements need to be clearly stated in the EXPLAN and in the eLearning platform as mandatory courses and reading lists.
- Keep the WUST in the exercise at two and a half days. Define clear training objectives for the WUST. Create a more detailed training programme for the WUST. Key actors in the WUST need to be committed to their tasks prior to the WUST. Staff members who join the exercise at the beginning of the WUST should not initially be responsible for training the staff.
- Improve the quality of critical documents for the staff (operational documents and SOPs). Documents should be released for the participants' pre-training and preparation well in advance of the exercise.

E. & F. MIL-CIV COOPERATION, COMPREHENSIVE APPROACH AND OPERATIONAL UNITY OF EFFORT

Overall, the scenario and exercise design provided an excellent platform for the training audience to practice a "comprehensive approach" and to conduct operations and plans to achieve "operational unity of effort."[6] Continued focus is needed to maintain and update the concept and delivery of a comprehensive approach in future exercises. Nevertheless, VIKING 22 has met its objectives in this area.

The most critical limiting factor was the absence of certain organizations and civilian professionals in the planning and conduct of the exercise, which impacted the value and realism of the comprehensive aspect of the exercise. Real-world events reduced crucial civ-mil interaction in VIKING 22, as UNHCR, UNRA, and various other IOs and humanitarian structures cancelled participation at the last minute to respond to the crisis in Ukraine. This was unforeseeable and unavoidable. Reasons for the lack of involvement of certain other structures – such as the EU, OSCE, USAID, and others – are less clear. Several EXCON interviewees noted limited buy-in from civilian organizations early in the exercise concept development phase and particularly the MEL/MIL workshops.

From a civilian perspective, the exercise would have benefitted by a larger buy-in by the Swedish MFA and the participation of the Folke Bernadotte Academy (FBA). The departure of FBA created a void in the civilian coordination of the exercise, including the lack of a civilian exercise director. This cascaded into diminished participation by other civilian organizations and may also have influenced the withdrawal of the EU.

The PMESII Response Cell also suffered from a lack of civilian subject matter experts – limiting the achievement of exercise objectives. For future exercises stressing civ-mil cooperation, early buy-in from key civilian stakeholders and key advocates is essential. In the absence of a single civilian coordinating organization, a civilian cluster should be considered as part of the core planning team.

Notwithstanding these difficulties, the exercise benefited from certain enabling factors. The updated scenario of the exercise was a major positive driver. Injects in the new scenario prevented a kinetic-only approach by the military training audience and encouraged holistic approaches to solving complex problems in the operational environment. Humanitarian exigencies and the cross-border focus of the scenario forced establishment of coordination mechanisms

[6] *Operational Unity of Effort* is defined as "coordination and cooperation among multiple organizations, working toward common objectives, even if the participants are not part of the same command or organization." The concepts of civ-mil cooperation, comprehensive approach, and unity of effort are closely related.

and encouraged coordination across governmental, non-governmental, military, and civilian agencies.

The exercise forced the NFOR training audience to resolve tension in information sharing and operational security at an early stage. UNMIM was better prepared for this, as key staff from the UN participating in the exercise had begun preparation earlier and were more versed in UN processes.

The development of the joint coordination mechanism between a UN Peacekeeping Mission and a NATO crisis response mission was the result of the particularly unique scenario of VIKING 22, and potentially a major outcome for the exercise. This type of experimentation with the comprehensive approach is an area for potential future development for the exercise, reflecting a need to find new cooperation models in a changing security environment. The exercise's experimental aspect should be further enhanced.

The new scenario also provides an opportunity for "games within games" as an avenue for future proving of concepts and experimentation in other areas, while maintaining the exercise's overall pedagogical focus.

Recommendations

- Maintain robust civilian participation in the exercise, which is critical to train in CIV/MIL cooperation
- Consider making friction points for CIV/MIL more challenging
- Emphasize the importance of a flexible rhythm in gaming and injects supporting training objectives

G. GAMING AND TECHNICAL PLATFORM

The VIKING exercise concept aims to train and educate military, civilian and police participants and is a distributed computer assisted (CAX) command post exercise (CPX). This exercise is to be built on methods where no live troops and field units are deployed. Instead, they should practice their tasks realistically in a simulated, synthetic environment, which makes effective use of the available time.

The use of distributed constructive simulation in federation was limited, and gameplay was simplified due to an over emphasis on the incident and injects script. Simulation was rarely used to realistically represent operations in the field. Narrow dynamic tactical behaviour led to very simple use of simulation, mainly providing simple movements to feed the common operational picture.

Recommendations

- The CIX gaming platform should have an early site acceptance test (SAT) for the whole system, rather than just parts of the system.

- Develop the use and methods of federated and distributed simulation.
- Make the gaming, scenario and injects more dynamic to enhance tactical behaviour and the use of tactics for TA and Response Cells. This should be developed in close cooperation with partner resources and knowledge.
- Include a short training period for the training audience in the use of services, applications, and software during the WUST period.
- Synchronization of Geo-data application versions at distributed sites is required. Timely and better planning and requirements for the exercise should solve this.
- There should be a separate system/method for EXCON and the Exercise Director to communicate directly with the training audience at all sites. The lack of such a channel of communication hampered information sharing about technical issues and measures that were initiated. This also made it difficult to relay any clear guidance from the Exercise Director about how to address the technical challenges.

H. EXERCISE PLANNING

The commitment to exercise planning and preparation at the operational level was exceptionally high. This is the only way to overcome the frictions and shortcomings associated with such a complex planning process. In this respect, the core planning team did an extraordinary job, particularly in view of the disruptions and impact caused by the Covid 19 pandemic. However, the commitment of the strategic level to VIKING could have been more substantial. This limited commitment (decision making and respect for planning milestones/deadlines) caused delays in the timeframe, and some important guidance and decisions were initiated bottom up, which created severe challenges for the planners.

As a result of the Covid-19 pandemic restrictions, the Initial Planning Conference was mainly conducted virtually. This was considered successful, and the virtual element also proved to be advantageous in that it avoided costly travel during the planning process, especially for distant participants. The involvement of partners, particularly those far away, can also be done virtually in the future.

The VIKING exercises respond to and anticipate real operational requirements in crisis readiness. Even greater synergies should be exploited to support the VIKING planning process by engaging the existing NATO/PfP future visioning frameworks (i.e. the PfP Consortium of defence academies and security policy institutes).

The planning of a large multinational joint exercise stands and falls with a core of experienced and dedicated people. It is predictable that many previous knowledge holders will no longer be available for planning the next exercise. This impending brain-drain must be countered. In the short term, the current VIKING 22 core planning team must ensure this knowledge transfer, before

being disbanded. In the mid and long terms, a functional plan for knowledge management and best practices, must be developed.

The inclusion of representatives from interested and committed partner countries and key organisations would increase the capacity of the core planning team and broaden its expertise. This will develop the concept, increase resources, and share the burden of the main actors.

Final remarks

This First Impression Report (FIR) is the first step towards the Final exercise Report (FER). The evaluation process will continue as exercise organisers and the training audiences present their findings in written evaluation reports by 1 June 2022.

These reports, along with EXEVAL independent evaluation observations and reports, will constitute the basis for the Post Exercise Discussions taking place in Stockholm 14-15 June 2022. The aim is to discuss observations further and to develop recommendations for future VIKING exercises. These recommendations will be presented in the Final Exercise Report.

Finally, the exercise was an excellent collective training event thanks to the efforts of the training audience and the VIKING planning team. Its relevant scenario, supported by a robust technical infrastructure, enabled the training audience to focus on operations and tactics in high intensity hybrid warfare involving direct engagement, with a comprehensive approach centred on civil-military cooperation.

ANNEX D - EXDIR/CPT REPORT

EXECUTIVE SUMMARY

Exercise VIKING 22 was conducted in accordance with the Exercise Plan and met the overall expectations of the participating countries, agencies and organisations. The exercise aim and the exercises objectives were achieved through an effective and inclusive implementation of the comprehensive approach. More than two years of preparations culminated in the execution of the exercise from 28 March to 07 April, 2022.

The exercise included some 2,000 participants representing 50 nations and 60 organisations. The exercise was conducted simultaneously in six countries and on nine different locations. Translated into a real-life situation the training audiences (TA) would have led and commanded operations and missions comprised of up to 70-80 000 personnel.

The exercise concept was developed in several aspects in order to ensure a high level of relevance for the participants and the new "Northern Continent Scenario" was a key to success

The VIKING exercises are sometimes described as being complex. The reality and current operational environments, however, are far more complex and demanding. In order to prepare individuals and staff functions for today's multidimensional peace operations, training and exercises need to adequately reflect the existing operational challenges.
That includes partners to co-operate with, units to lead, and host country actors to liaise with.

Effective and lasting learning often takes place in an environment that is as similar as possible to the context in which the new knowledge is expected to be applied. Viking 22 provided a realistic and challenging 360-degree perspective on mission leadership and civil-military interaction, including demanding headquarters, active subordinate units, multiple partner organisations, and resourceful host country representatives. The aspiration was to dissolve the boundary between training and reality.

As EXERCISE DIRECTOR I would like to emphasize that the "New VIKING" is extremely relevant and with the deep insight I myself have gained realize the significance of its continued existence. Finally, as a conclusive and important remark, justified by the "NFOR Force Commander," I would like to recommend an interval reduction in between the exercises, to a period of 2-3 years a part.

INTRODUCTION

The Swedish Armed Forces have a mandate by the Swedish Government to plan, prepare, execute and evaluate the Computer Assisted Exercise VIKING 22. The exercise was led by an Exercise Director (EXDIR) supported by a Core Planning Team (CPT).

The day to day management and development was conducted by the CPT with membership from the Swedish Armed Forces, Swedish Defence University and US, with augmentation for specific tasks as required by subject Matter Experts (SME) from different national and international organisations.

The CPT responsibility is to conduct detailed planning, coordination and preparation of the exercise according to the EXSPEC and the Planning Guidance. In the planning for VIKING 22, the EXSPEC was jointly agreed by the main stakeholders.

During the execution of the CAX the CPT was the foundation for forming the EXDIR:s Command group and EXERCISE CONTROL (EXCON).
The EXCON was responsible for monitoring and coordinate the overall exercise progress, and for reporting this on a daily basis to the Exercise Director.

KEY SUCCESSES AND CHALLENGES

VIKING 22 used the Northern Continent scenario, a new fictional scenario providing versatility and realism to train contemporary complex international interventions including UN-led multidimensional peace operations, and NATO-led Crisis Response Operations.

The scenario layout is designed in such a way that different scenarios can be played in parallel depending on the needs of participating organisations. For example, a NATO mission may be deployed in a high-intensity conflict in one country while a UN mission may be deployed in a different country focusing on post-conflict peacebuilding with a lower level of conflict. Likewise, one country may resemble a Middle Eastern context, a second country may resemble a European context and a third country may resemble a sub-Saharan conflict.

The new scenario was a key to success!

Another key to success was UN HQ (DPO) early involvement in the planning. Both taking part in the planning conferences and actively working with the “Gaming” process.

An important contributing factor to the good atmosphere and learning environment during the execution phase was the experienced and committed Commander NFOR and SRSG.

Regional aspects mirrored the choice of distributed sites.

Brazils long contribution in United Nations peace operations were a vital part in the "UN part" of VIKING 22. By inviting ALCOPAZ (Latin American Association of Peacekeeping Training Centres) the exercise contributed to develop the cooperation between a number of south American countries.

Qatar's participation as a part of the Far east created new cooperation across several continents. The exercise resulted in them meeting both their own and others expectations.

Ukraine was planned to have a distributed site with the aim to develop their skill in participating in NATO operations. Of obvious reason they had to withdraw from the exercise the week before STARTEX. Their part in all the preparations was though very successful.

BiH was also planned to have distributed site with participation, among others, from neighbouring countries. In the end it wasn´t possible to succeed in this and instead they participated successfully with a brigade response cell at the Main site in Sweden.

It´s important to point out the significance of the Site visits that was conducted to all sites, including the tech Site at Joint Forces Training Centre (JFTC) in Poland, by the Exercise Director together with key personnel from the CPT. They were very valuable, created cohesion and a mutual understanding concerning the exercise total purpose all the way down to training objectives.

During VIKING 18 the technical platform was a huge challenge. It has now been developed and turned out to be a success.

LESSONS IDENTIFIED

During the planning process, the Core Planning Team has drafted an Exercise plan (EXPLAN). EXPLAN has served the purpose of supporting the planning, preparation and execution well, but some parts (SOP-annexes) should have been drafted earlier.

A lot of efforts have been put in to provide exercise participants with information about the exercise. Traditionally the exercise portal has been used throughout the whole preparation and execution phase. It wasn´t the case this time. Another tool is the Advanced Distributed Learning (ADL) courses provided to the TA and EXCON. This concept has to be revised in order to have the courses available earlier.

The responsibilities for planning and conducting the Pre-training between CPT/EXCON and the respective COS TA/SITES, could be more clearly described on an early stage.

It`s important that flag officer's positions are manned with the correct level though they have an important impact on the learning environment. There is also a need of more relevant personnel on key-positions.

It´s should be easier for all the participants in the exercise to log in to the CIX platform.

The way the technical preparations was conducted has to be studied carefully in order to collect lessons identified.

RECOMMENDATIONS

Engage "real" organisations and HQ's to be part in the exercise as higher control (HIGHCON) in EXCON (for example UN or NATO JFCBS). These organisations could take part at the main site or as distributed sites.

Encourage other nations and organisations to take on responsibility for manning other functions than the Training Audience. Burden sharing when it comes to EXCON, EXEVAL, OTM must be seen as the ultimate multinational and comprehensive approach.

Review the structure and manning of EXCEN (i.e. SITCEN and OTM.s). Key posts should be manned earlier, in order to make it possible for those positions to take part in the planning process (i.e. planning conferences). The level of competence for positions in SICEN and OTM must be on a high/adequate level and the need for some high level role players to be able to act "as ministers" should be stressed.

Develop, for educational reasons, video recording and distribution of some of the more important high level meetings (SRSG meeting with COM NFOR etc.), in the future. This will require some additional resources (manning, technical etc.), but if a plan would be developed in due time the need for new resources will be well balanced by the training effect.

In order to support the sites both in Sweden and abroad, exercises like VIKING must have an active and open Public Information (PI) policy established early in the process.

In order to be able to support the planning of the exercise The EXEVAL Team has to be established earlier in the process.

As EXERCISE DIRECTOR I would like to emphasize that the "New VIKING" is extremely relevant and with the deep insight I myself have gained realize the significance of its continued existence. Finally, as a conclusive and important remark, justified by the "NFOR Force Commander," I would like to recommend an interval reduction in between the exercises, to a period of 2-3 years a part.

ANNEX E - EXDIR/GAME REPORT

Exercise Planning Group.

The planning of Viking 22 started with the assessment process of Viking 18 in the fall of the same year, through collection of data from the main actors and workshops with SWE-US partners.

In April 2019, the Swedish armed forces HQ decided to scrap the Bogaland scenario used during previous Viking exercises. The scenario team collected scenarios used by the UN, NATO and EU and conducted interviews with different experts to identify the main themes that should shape scenario development. The team then developed the strategic considerations and the geopolitical dynamics of the fictitious conflict and merged them with real conflict data resulting in the Northern Continent scenario.

The scenario used the Scandinavian geography with seven countries with different dynamics to be used depending on the type and purpose of exercise as well as the training objectives in play. AI avatars and a complex intelligence background package with consideration to early feed the staff processes in the TA HQs.

CPT and MEL/MIL

The gaming organisation within the CPT is complex and the tasks spanned from international coordination to CAX implementation and game development. The MEL/MIL was severely hampered by the COVID pandemic and had to be rescheduled several times.

The analysis of the methodology used is that the CPT has to receive the training objectives early with emphasis on the focus areas of each TA. The Battle wheel on HQ and CC levels has to be developed and delivered before the game production starts. The current TA ORBAT on the NATO HQ an CC level has to be modernised to meet the processes that the TO requires; the staffs are to small and the NCO functions are lacking.

The role of the SITCEN

The SITCEN PLANS Section was responsible for planning the game for the coming 24–48 hrs. It finalised the scripting of the upcoming game and provided overall coordination to ensure game coherence. Once approved by SITCEN PLANS, the game was handed over to the SITCEN CURRENT Section to inject them into the game through the RCs based on observations from OTMs. SITCEN CURRENT maintained situational awareness of the ongoing game through the EVENT-LOG, EXONAUT TEM, and SITAWARE. The SITCEN CURRENT Section was responsible for maintaining situational awareness throughout the exercise to ensure that the planned game enabled the TA to meet the TOs. A key factor to maintain control over the game was for the TRACKERS to monitor the training audience's response in coordination with the OTMs. The TRACKERS focused on the current game but also supported the planning process through feedback from OTMs. The Chief SITCEN CURRENT directed, guided and decided on gaming activities, according to the EXDIR's decisions and guidelines.

Overall evaluation of SITCEN

SITCEN CURRENT played a key role in the EXCEN. It was well-staffed, well-organised and fulfilled its new role in a very satisfactory manner. Relations with PLANNERS, RCs and OTMs were very good and coordination was equally smooth with the distributed sites. The tempo was high during the first few days but quickly dropped. This can mainly be attributed to effective routines and SOPs that facilitated coordination and game execution. The flow of information (observations and assessments) from the OTM was satisfactory and enabled SITCEN to fine-tune the game daily. The new CURRENT SOP was tested and room for further improvement was identified. From CURRENT's perspective, the following issues could be addressed:

Game quality

The game plan received by SITCEN CURRENT daily was not always up to standard. It was not clear who was supposed to do what. Some game was also not aligned with the scenario or the overall storyline. This created confusion within the RCs and at distributed sites. For example, RCs at the sites played the roles of the TA at the main site leading to confusion and conflicting information. Too many incidents were not finalised in terms of content, quality, resourcing and TOs to be played. It would have been necessary to have a more careful screening of the game to ensure its coherence with the scenario and its playability.

Distributed Sites

Game implementation and coordination with the distributed sites would benefit from streamlining to ensure game coherence. Sites differed in their engagement, capacities and resources and during the planning of the exercise, they should be asked to select among a series of set models ranging from bubbles that have very little or no link to the main training audience up to full integration. The lack of a clear model made it difficult to coordinate. Certain sites should have been independent from the very beginning while others (Brazil) should have been supported to ensure full integration. A daily VTC with Brazil was set up to facilitate coordination after a few failures and misunderstandings about the gaming method. This could have been easily addressed with additional briefs for the most ambitious sites. Other sites played an unrealistic game that most likely led to negative training and that could pose a reputational risk for VK (NATO airdrop of food in an IDP camp upon request from the Red Cross). Other sites did not coordinate their game in the exercise management system and ran a parallel exercise with a different scenario. SITCEN had great difficulties keeping the storyline together due to the lack of co-operation of certain planners, RCs and sites who wanted to wage war on Arcticland. Finally, parts of the PMESII cell should have been located at the sites. For example, OCHA should have been located in Kungsängen as part of a CMCoord cell of 3-4 persons with one person being detached to PMESII for game coordination.

UN Mission HQ Planners and OTMs

The UN Mission HQ did not have dedicated OTMs and relied on embedded trainers as well as one observer who reported daily on the training audience's progress. The

embedded trainers were senior UN staff sent by DPO who made valuable contributions that led to the success of the UN Mission training during VK22. The additional observer managed to provide a sufficient number of observations and relay important information to guide the game development in SITCEN. SITCEN PLANS had two dedicated planners that aided the SRSG and his close staff who planned the game on a day-to-day basis. This bicephalic set-up made it easy to tailor the game to the progress of the TA but it made game planning and coordination more complex than anticipated.

Tech

Some technology does not support the gaming organisation. While the platform 'worked' it was unsuitable for this type of exercise. The difficulties with the login systems made parts of the training audience revert to using the internet to conduct the exercise instead of the platform. Since the TECH platform did not allow them to conduct all their activities at an acceptable level. However, the platform was stable during the exercise and allowed the participants to communicate with each other during the whole exercise.

The simulation experiments in SITCEN harmed the exercise's execution, causing inconsistencies that were undetectable by the average user as well as detectible inconsistencies such as a brigade appearing out of nowhere or large boats appearing on land. Many participants complained about EXONAUT which requires technical competence that few experienced role players possess.

Main conclusion

SITCEN worked smoothly and the new gaming method made SITCEN more effective and better coordinated. The main improvement was in the relation to the OTM which enabled an enhanced understanding of TA's progress and challenges. The number and quality of observations collected were positive. The SOP was simple yet sufficient to drive a complex process. SITCEN was able to accomplish more with less. SITCEN was able to move faster thanks to simplified yet better-integrated processes. The key was meticulous preparation. A general recommendation is to use a similar strategy of centralised early planning and to roll it out according to the calendar and across all sites.

Recommendation: Merge EXCEN so that it has three pillars under one command; Plans, Current and OTM.

Recommendation: The CPT has to receive the training objectives and what focus each TA has early in the planning process. The Battle wheal on HQ and CC level has to be delivered before the game production starts. The CPT has to produce more products by itself since it is laborious to coordinate uninitiated planners at each workshop. The TA ORBAT needs to be revised.

Recommendation: The CPT has to produce easy products for scripters to gain situational awareness of the scenario and OPP, otherwise the gaming will be planned off-track and not support the available intelligence package or reach Joint Operations.

Recommendation: RC chiefs and C SEC should be engaged in the process from MEL/MIL 2 to enable understanding of the gaming process.

Recommendation: A team of 2-3 observers in addition to a sufficient number of embedded mentors would have been better suited to replace the OTMs in the UN TA. Game planning must be centralised or equally distributed to ensure that sites play a game that is coordinated and aligned with the scenario. EXDIR directives must be given to the distributed sites to ensure compliance with the exercise gaming method.

Recommendation: Improve the material and communication towards distributed sites to ensure understanding of the gaming method and coordination mechanisms.

Recommendation: Centralise game development to a greater extent with a more careful quality check process and the presence of civilian planners.

Recommendation: Simplify the tech platform to make it easier to log in and remove functionality that does not support the exercise TA or EXCON in conduct and separate experimentation from operation during conduct. Increase the number of clients on PLANEX and let the UN and humanitarian organisations use that platform during the conduct of the exercise for a more realistic and workable environment.

ANNEX F - EXDIR/C TECH REPORT

Summary

The technical platform has been developed since previous VIKING exercises and turned out to be a success.
The Core systems were based on the virtualised platform CIX, which was re-built from scratch, operated very well.
The planning portal, PLANEX, didn´t fully meet all the demands and requirements in time.
The technical preparations have a lot to improve.

Positive Experiences

The complex integration of CAX systems into the VIKING Core System technical design was a big challenge that worked out well.
No major tech issues occurred during the execution of the exercise.
The cooperation with the participating nations/sites was good. Some distributed sites had initially some problems to adapt to the VIKING concept.

Sustain

The Core System Platform, which supported all systems.
The good co-operation with the sites Technical Teams.
Three Technical workshops but give more guidance of what the sites need to bring to the workshops.
Sustain and improve the possibilities to demonstrate the technical solution at international exhibitions and the VIKING conferences and forums before the exercise, as a rehearsal and as strategic communication.

Improve

An early start of the planning work is crucial to develop a solid technical platform. It is not necessary to work with big risks conducting a VIKING exercise.

Before the task is given to conduct a complex exercise like VIKING the Officer Scheduling the Exercise (i.e., HQ) has to ensure that there are pre-conditions for a Technical solution that can manage such an exercise, both concerning the planning phase, preparations and the execution itself. The lack of the full solution in time caused a lot of time-consuming discussions and meetings without any successful solutions. Thanks to the Exercise Directors commitment, we finally gained support in the HQ to finalise the development of the technical platform.
As these pre-conditions weren´t in place at an early stage, it caused a lot of extra work, personal frustrations, and a lot of extra costs.
The accreditation process, run by the SWE Headquarters, of the technical platform was finalised the day before the Pre-Training started. This is not acceptable and that´s way too late.

There were no pre-conditions for tests of new applications, and the technical testing require much more time to be completed in time for the execution.

The requirements of the TA and EXCON must be defined early during the planning phase to become reality in time.

The technical design work needs information regarding requirements, early in the process, such as

- TA/EXCON requirements needed for the system design
- Exercise organisation (TA/EXCON)
- Physical location of the TA/EXCON components
- ORBAT
- Gaming method including information of the use of simulation, operators, and training

An experienced CAX Manager is crucial, to provide accurate Game requirements to the technical preparations to achieve those.

The Technical Test Plan could not be fulfilled according to the late deliverance of the platform. This made difficulties in the start-up of the exercise and must not happen again (has been written in previous VIKING reports).

As the exercise is a CAX, the plan was to cooperate with US and NATO Modelling and Simulation Centre of Excellence (M&S CoE) in achieving a common simulation federation. In the end, this was not possible, instead the NATO Joint Force Training Centre (JFTC) did a great job replacing M&S CoE, hosting a MSaaS solution.

Another area for improvement is the Pre-Training. There is a need to be more training on what the CAX systems can offer to support the TA and EXCON. Trainers should be involved early in the process.

The possibilities stated in the EXSPEC/EXPLAN regarding Technical Experiments and Concept Developments were not fulfilled in the technical platform. This is an important part in the Partnership Simulation Network (PSN) stated in the MoU with US. This must be developed in future exercises.
The NATO MSaaS (Modelling and Simulation as a Service) concept could though be solved very well, through cooperation with JFTC and NL MoD.

Recommendations linked to the difficulties for users to manage three logins:

A. Remove password to log in to the hardware (computer). This rule works very well if the idea of *bring your own device-concept* "BYOD" is fully used.

B. One person (Superuser) in each "cell" should receive training in how the systems can be used.

C. This will enable:
   1. Train the users on the "change password" function so that the user who finds it difficult with different passwords can use a password that he or she remembers. In this way, the same password can be used to log in to the Horizon environment and the CIX system.
   2. Train users that it is possible to change automatic logout to longer time periods than the times that are set by default.

3. The two upper points summarize the need for a training package under WUST regarding the use of the technical solution to make it easier and reduce the perceived difficulty of using the system, as well as increase the degree of maturity of the users.

Additional Comments

Site LedR in Enkoping, needs to be more involved at an early stage in the preparations concerning the development of the technical platform in large exercises.

The STEXs (Staff Expedition) task as a first line support for Tech was a success and should be sustained.

- The possibility to work in the system (CIX) early in the process is crucial to prepare the exercise, especially for IMOs (Information Management Officers).

- Keep the Technical Platforms running over time. This reduces the technical planning and preparation work for an exercise like VIKING a lot.

- Management to ensure that there are enough personnel in the technical branch over time.

- Simplify the shipping procedures. Develop the system, so the need of shipping to distributed sites is minimal and only use Diplomatic shipping.

- Continue the cooperation between Tech and IM in the Mock Up Workshops.

- IT security needs to be involved early and need to have an understanding about the demands and requirements of the systems used.

ANNEX G - OTM REPORT (FROM AAR)

The following annex is the AAR-report submitted at the end of VIKING 22.

Conclusions based on the Exercise Objectives:

1.1 NFOR HQ

1.1.1 Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- Conduct a handover/takeover between the EXCOM and the training audience. This should include:
  - Generic staff officer training.
  - Clarification of roles and responsibilities.
  - Clarification and refinement of SOPs
  - Branch handovers and/or ROCC drills (but branch specific ROCC drills, not overall generic ROCC drill)
  - A read-in and explanation of where we are in the scenario (e.g. why the JPTL includes the targets that it does)
- The handover could also include completion of startup tasks and confirmation of IT systems and procedures.

1.1.2 The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- The planning conference should have ironed out discrepancies in the gaming (not all injects/incidents landed with the right training audience/functions)
- Interface between levels and between gaming, OTM, and training audience needs to be synchronized better.
- Small injects and overly detailed gaming derailed the training audience's understanding of the big picture.

1.1.3 OTM assessment on the fulfilment of the overall Exercise Objectives.

- Need to prioritize the exercise objectives (which one are the most important?)
- Need to develop metrics for the exercise objectives if they are to be measured
- Participants tend to get tunnel vision in their own functional areas and systems (e.g. Exonaut) and do not always reach out to others to gain outside information or develop good information flow.

1.1.4 OTM-assessment on the fulfilment of the Training Objectives.

- CURRENT OPERATIONS:
- OPERATIONS ASSESSMENT:
- JOINT COORDINATION:
- FUTURE PLANNING:
- JOINT FUNCTIONS:
- INTERNAL STAFF WORK FLOW:

1.1.5 Other observations.

- The Commander was willing to get fully integrated into the exercise, put pressure on the staff, and provide firm direction and guidance as well as understanding his training audience and working in a pedagogical way. This really helped get the best out of the students.
- An example of a professional CUB brief cleared by the Commander and COS before the exercise begins would speed up improvements in the quality of the CUB in the exercise.
- Due to the 12 hour exercise cycle (with simulated 12 hour overnight cycle) the morning CUB ignored the changes that took place during that simulated cycle making the CUB information 12 hours old.
- The rear area component command (RACC) was in the scenario but not played in reality (i.e. No response cell, no training audience). This resulted in a lack of information and detail.

1.2 LCC

1.2.1 Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- AJPs, SOPs and templates must be available for the TA in advance and used during the pre-training and the exercise.
- All participants should have a focused pre-training aimed at their staff-level.
- Language education at the Defence Universities could be further focused on operational writing, reading and understanding relevant AJPs.
- Orders including the cooperation between NFOR and Southland Forces should be further developed (D+67)
- The COM LCC and COS would have benefited from having an experienced mentor.
- The gaming organization must cover all functions i.e counter intelligence, ISTAR and CIMIC.

Conclusion

More structured and focused preparations would likely lead to a more effective startup and to better achieved exercise aims.

1.2.2 The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise and impacts from the preparations of the exercise; successful areas and important areas for improvemen.

- AJPs, SOPs and templates must be in the system when TA arrives at the exercise.
- LCC startex including tactical situation, tasks and planned advancement must be improved. The advancement could be planned by the TA in order to get in to the scenario during the WUST. The TA will then have a deeper understanding of the plan.
- LCC needs a reserve in order to maintain FOA.
- There must be a coherent enemy plan in order to enable TA to assess the operation and draw relevant conclusions.
- More detailed WUST-planning where OTM –TA interaction is more developed.
  - One part should be dedicated to inter-level function meetings and education.
  - One part dedicated to general staff procedures, time-perspectives in current and planning processes, information flow in the staff etc.

Conclusion

More structured and focused preparations would likely lead to a more effective startup and to better achieved exercise aims.

1.2.3 OTM assessment on the fulfilment of the overall Exercise Objectives.

a. Promote mutual understanding, confidence, co-operation and interoperability among all contributing and affected forces, organizations, offices and personnel – military as well as civilian (i.e. comprehensive approach).

- There is very little mutual information about the ”comprehensive situation” and problems. It is not necessary though for the exercise to have too comprehensive an approach at the LCC and brigade level.

b. Understand and apply mission command and management, staff roles and functions, procedures and structures, as well as co-ordinated planning processes.

- TA has an elementary level of knowledge of mentioned processes.

c. Understand and apply current operational concepts reflecting present as well as future challenges in multinational and multidimensional peace operations.

- TA has an elementary level of knowledge of mentioned processes and areas.

d. Create an environment that supports and facilitates development and experimentation of methods, operational concepts and technological enhancements for participating organizations and nations.

- The environment is sufficient for the development of the mentioned areas. However, there is not much experimenting based on existing SOPs or such. The TA is struggling more with finding a way forward through the exercise.

1.2.4 OTM-assessment on the fulfilment of the Training Objectives.

- CURRENT OPERATIONS:
- *Conduct Current Operations in accordance with valid Standing Operating Procedures (SOPs), Operational Plan/Joint Coordination Order/Land Coordination order/ Fragmentary Order (OPLAN/JCO/LCO/FRAGO), relevant documents and other Commands (CCs).*

GREEN.

TA has executed COM LCC orders and directives sufficiently, including monitoring the current situation and presenting a shared situational awareness. Functionally, the TOC has operated according to valid SOPs. The handling of incidents has been satisfactory including forming Ground Action Teams and reports at routine level. The daily CUB has been presented according to SOP and with a basic coordination and de-confliction between the branches. There are still improvements that can be developed further. Noticeable progress has been made with the Targeting Cell providing vital information to advance tactical decision making in support of the operation.

- OPERATIONS ASSESSMENT:
- *Conduct LCC Assessment to review the situation, assess the LCC results.*

GREEN.

Assessment meetings and working groups have been conducted according to SOP and BR. Two Assessment Reports have been prepared and adjusted according to COM D&G together with inputs from AWG and then finally disseminated with minor adjustments. This has been conducted in an orderly manner and with a basic understanding of the processes needed within the LCC HQ.

- FUTURE OPERATIONS:
- *Coordinate and execute midterm planning through LCB and related working groups or supporting sub-processes.*

GREEN.

The Mid-Term planning mainly conducted by G 35 has, after a confusing start, found a functional way to handle LCBWG and LCB towards LCO 006. This

has been conducted in coordination with LNOs from the Bde and coordinated with the Bde HQs.

- FUTURE PLANNING:
- *Conduct contingency planning.*

GREEN.

JOPG/LOPG is now working in parallel on contingency plan to mitigate threats from Arcticland. Brigades are informed and can start their planning at this point. The LOPG are ready to start new long term planning on subjects identified in the assessment process. Better coordination with Southland force is needed regarding long-term issues. Coordination, internally and with other branches, is satisfactory and works well.

- BATTLESPACE MANAGEMENT:
- *Conduct land battlespace management in LCC AOO.*

GREEN.

TA has maintained support to the SSI process and identified actors within own AOO on a basic level that are needed to interact with. TA managed to establish and maintaining a Land Operating Picture that supports the COP. The targeting process is working in a functional way. LCC G2 has, in a good way, identified and prioritized intelligence requirements originating both internally and externally to the LCC 2. They have also assessed a collection plan continuously in accordance with established priorities

- INTERNAL STAFF WORK FLOW:
- *Employ the staff organization and procedures to optimize its ability to plan, conduct and support the operation successfully according to a valid battle rhythm (BR) and SOPs.*

YELLOW.

The TA has established a functional BR on a daily basis in accordance with higher HQ´s decision cycle, as well as maintaining an Information Management Plan IOT collect, store, process and disseminate information. The coordination within the staff and sharing of information with external actors within the mission can be improved. The use of LNOs within LCC staff can also be incorporated more efficiently, mostly based on the LNO’s own proactive approach.

Conclusion

Despite frictions during the startup, the TA managed to create a functional staff environment. However, in order to make the most out of the exercise the WUST and the Startex must be more structured.

1.2.5 Other observations.

- RLS has been great!
- The scenario works well.

1.3 ACC

1.3.1 Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- STARTEX documentation at the tactical level were under developed or absent, which presented counterproductive challenges to the TA initial days. (OPO annex H).
- Pre-startex comms IT systems should be tested from top down.
- Pre-startex understanding of information flow needs and means (up and down, as well as across command levels) should be exercised in some way: Perhaps OTM led workshops at whatever unit level is most effective on a practical level or perhaps a literal walk through where TA follow a sample inject from start to finish, department to department.
- Recommend a reorganization of ACC and CAOC into a NATO JFAC structure to be according to current NATO AJP3.3, meaning that manning lists and structures are corrected accordingly for participants. This will have implications on change of houses for ACC at Site Uppsala.
- The existing RC-air functioned really well as it was manned. A large factor for success in this regard is the experience in persons that have been part of Viking/CJSE on many occasions in the RC-air.
- Site Uppsala set-up of infra and housing was supportive to the exerecise, however the RC Air and OTM would have benefited from being located really close to each other in order to make coordination more effective.
- Manning of OTM organization with the right expertise and experience from similar operations and, also from similar exercises as OTM was important for providing a god training for the TA.
- The level of detail in gaming planned meant that RC-air needed and used a certain mandate to develop the planned gaming as it played out during the conduct of the exercise. That was an important parameter for the success of the air-exercise output for the training audience. Improvements regarding the structure and the manning of the planning before the exercise are possible as far as documentation and summaries on each planning event.

- The manager of Exonaut should be an experienced military and have experience in running military exeriences.
- The scenario would improve in having a opposing force representing a high level air threat to NFOR and the protected Southland, with consists of air-to-air capacity almost up to the capacity of NFOR ACC. This would provide a base för air-tactics for the staff-work. This would allow for additional training output, which would be good for training assessments in desired effects and what factors and parameters during the time period in the gaming to follow up. In order to not have unwanted spill-over effects to the rest of Viking or CJSE the base for such consequenses of such an air-gaming are to be contanined in ACC and the Air-gaming.
- As was the case during Viking 22 it is very beneficial for the TA to have OTM with experience in targeting, joint air-space management, air-combat, planning-cycle (A5 strategic planning to include A5 operational assessment), weather, Intel, A4 (including knowledge in medical, probost marsh, air base management and logistical operational setup). Also NATO A7 expertise to support the RC can possibly benefit the continous development of the gaming. Mentors with expertise in the fields of LEGAD and Strategic communications are important and was well covered during Viking 22.
- Have the Excon planner and tracker start the WUST With OTM and RC-air with the

Conclusion

The planning and conduct of the exercise is dependent the involvement of relevant expertise of participants held together with robust structure, leading up to a well prepared and manned exercise. The Site Uppsala is functional, and can serve future exercises in changing details regarding housing and routines

1.3.2 The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise and impacts from the preparations of the exercise; successful areas and important areas for improvemen.

- D+68 was a “catapult launch”: The TA benefited from training and education before injects of TST (SOCC) and PR (Joint PR-Cell) that where pre-maturely injected in the ACC. However they would gain even more towards the Training objectives with present mentors to this during the execution.
- The risk is that too challenging injects time sensitive targeting and personal recovery (TST and PR) introduced early in the exercise before TA are settled into their positions end up hampering achieving training objectives. The plan for the exercise was that subject matter experts (SME) were to menthor TA in

staffing these early injects. However persons not being able to attend according to the plan for SME:s partly resulted in absence.

- At CAOC level the joint element can be functional earlier in the exercise. Top-down directed joint targeting needs further development to ensure that components understand and respond to the capabilities and needs of other components, as well as STARTEX documentation to serve better as conditions for coordination with LCC and MCC regarding Airspace.
- Multi-national exercises on this level is (?) unique and this means Sweden provides an important exercise.
- FHS may consider to input more of ACC specific education adding to the Joint-specific education in preparatory week.
- Already early in the exercise inputting new targets for ACC in the JPTIL would have been good. This time it seemed a bit slow in getting new targets to work with. The early TST was a help towards the training objectives but only partilally since the staffing is somewhat different than for the ordinary targetingprocess.
- Air-space coordination in between ACC-LCC and MCC should be better, and up to speed earlier in the exercise than was the case VK22. The problem this year was partly due to the conditions in STARTEX documents in Oplan Annex H (Air Ops) with regard to ACO (airspace coordination order) and ACP (airspace control plan). This ment that MCC and LCC had little directives to follow in the OPLAN. Documents corrected this time during the exercise.
- Having a continuation of persons involved from FHS and the Air Force involved in the planning process leading up to the exercise is important. Clusters of people that participate is one solution for the problem of other tasks stopping individuals from participating in for example MEL/MIL workshops.
- Good training achieved in the exercise, and a good cultural exchanged.

Conclusion

Good structure and continuation for personell involved in planning for the exercise is key. Going from planning for the exercise into executing is challenging as far as ensuring situation awareness and continuation, resulting in a realization that back-up plans are needed in order to handle absent instructors and planners going into execution.

The exercise is an important exercise.

1.3.3 OTM assessment on the fulfilment of the overall Exercise Objectives.

- Mutual understanding, confidence and trust was achieved well.
- Staff roles and functions were successfully exercised within the air component.

- The exercise objective referring to "peace operations" is beside the scenario for this exercise. First and foremost, the TA need to develop their skills in the application of military force.
- The scenario doesn't and shouldn't, promote experimentation. The combined and joint environment demands SOPs rather than experimentation when dealing with a TA of this experience level.

Conclusion

Exercise objectives are over all fulfilled, but the peace operation objective may serve better to be isolated for the UN part of the scenario.

1.3.4 OTM-assessment on the fulfilment of the Training Objectives.

- CURRENT OPERATIONS: TO met. A RC air that had space to manoeuvre in order to make adjustment as the daily plan for gaming was executed was key.
- OPERATIONS ASSESSMENT:
- JOINT COORDINATION: TO met. It will be desireable to achieve an efficient coordination earlier in the operation with other CC´s as far joint airspace and joint targeting are concerned. This was however a consequence of conditions as far as Startex-documents in OPO annex H partially met going in to the exercise, and was handeled by OTM, RC and TA during the first days of the exercise.
- FUTURE PLANNING: TO met.
- JOINT FUNCTIONS: TO met.
- INTERNAL STAFF WORK FLOW: TO met.

Conclusion

The overall assessment is that all TOs are met in terms of staff work and capabilities in current and future OP´s, planning as well as assessment. The progressive development of TA's skills and staff procedures has been clear on a day-to-day basis resulting in cohesive staff teams that worked in a collegiate, professional, respectful and, therefore, effective way. A clear demonstration that, in a combined and joint environment, SOPs and clear command and leadership structures are essential for success in conflict situations.

1.3.5 Other observations.

NIL

1.4 MCC

1.4.1 Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- Successful area: The information package (eg. exercise pocket guide) was well put together, user friendly and got everyone up to speed quickly.
- Area for improvement: TA need more time to prepare before the exercise when it comes to reading orders, scenario, etc. in order to enhance learning.
- Area for improvement: Vital staff documents must be up to date and imported into CIX ahead of the exercise.

Conclusion
In order for TA training some preparations should be added for next exercise.

1.4.2 The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise and impacts from the preparations of the exercise; successful areas and important areas for improvemen.

- Areas for improvement: WUST needs to be more directed towards the TA staff duties, procedures and tasks during the exercise and synced to TA proficiency level. TA weren´t as prepared as they could/should have been.
- Exercise support systems have been working satisfactorily throughout the exercise.

Conclusion
TA will reach satisfactory levels of proficiency faster with more focused pre-training

1.4.3 OTM assessment on the fulfilment of the overall Exercise Objectives.

- Manning of competent OTM's for vital positions in the staffs must be ensured. During VIKING2022 OTM MCC was only manned up to 60%. This hampered OTM's possibility to train and mentor COS and COM in a suitable manner.

Conclusion
Exercise would benefit if EXCON priorities manning of vital functions

1.4.4 OTM-assessment on the fulfilment of the Training Objectives.

- CURRENT OPERATIONS: As assessed in Exonaut **GREEN**
- OPERATIONS ASSESSMENT: As assessed in Exonaut **GREEN**
- JOINT COORDINATION: As assessed in Exonaut **GREEN**

- FUTURE PLANNING: As assessed in Exonaut **GREEN**
- JOINT FUNCTIONS: As assessed in Exonaut **GREEN**
- INTERNAL STAFF WORK FLOW: As assessed in Exonaut **GREEN**

Conclusion

TA staff performed better than expected during circumstances where ACOS were not manned from regular SwAF staffs

1.4.5 Other observations.

- Manning of response cells must be ensured. The RC must consist of well-prepared members in order to give the TA the best possible training.
- Some members for the OTM groups should be selected from the MEL/MIL group.

Conclusion

Proper manning of RC is vital for staff training. Excon gaming will benefit with interaction between MEL/MIL group and OTM

1.5 JLSG

1.5.1 Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- Successful areas: ADL courses, Conferences
- Areas for improvement: see point 1.2

Conclusion

The personal preparation by the ADL courses on the VIKING LEARNING platform are useful and necessary. Also the planning conferences were good and the communication between the national planner and the Swedish counterpart was uncomplicated.

Due to the fact that the ADL courses gave only a big overview about the situation, an additional package should be provided for the Training Audience. This should include the respective SOPs or at least job-descriptions. Then the Training Audience can prepare themselves for the exercise much better.

1.5.2 The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise and impacts from the preparations of the exercise; successful areas and important areas for improvemen.

- Successful areas: WUST, Computer system
- Areas for improvement: STARTEX package, basic understanding, latest updated SOPs or job-descriptions

Conclusion

The WUST was important to set the conditions for starting the exercise. But the STARTEX Package (eg. OPLAN with Annexes, ORBAT, etc.) should be available for the participants at least 2 weeks before the exercise IOT prepare on their own.

Additionally the training audience of JLSG must have a basic understanding of the nature and character of a JLSG-HQ. Especially regarding the tasks and responsibilities, a mutual understanding is necessary.

Due to the fact that the ADL courses gave only a big overview about the situation, an additional package should be provided for the Training Audience. This should include the respective SOPs or at least job-descriptions. Then the Training Audience can prepare themselves for the exercise much better.

The Computer system worked really well with no implications for the exercise.

1.5.3 OTM assessment on the fulfilment of the overall Exercise Objectives.

- The challenges regarding a multinational and multidimensional operation were discussed within the JLSG and the dependencies were figured out.
- Due to the fact that the logistic support relies in some Classes of Supply on the HNS, the political circumstances were considered. At least at NFOR level, because JLSG lacked a POLAD, LEGAD or CIMIC branch.

Conclusion

During the exercise mutual understanding as well cooperation with other actors were developed. The training audience found their specific role and were able to fulfill tasks, regarding to their responsibility. The vertical and horizontal coordination was improved and therefore processes such as the Military Decision Making Process or the Planning Process were successfully brought to an end. The developed products are sufficient.

Due to the multinational composition of the staff and the different experiences and knowledge of the people a “force integration training” (WUST) is necessary. After the two days a more or less working staff was developed.

1.5.4 OTM-assessment on the fulfilment of the Training Objectives.

- 1) Conduct CURRENT OPERATIONS (2.20 – EXONAUT)
- At the end of the exercise, most of the branches are on a sufficient level. Cooperation and information sharing within the JLSG-HQ was satisfying. At the beginning of the exercise, internal procedures were established and they were improved on a daily basis. The main tools to develop a common understanding within the staff was the Commanders Update Brief in the morning and the Battle Update Brief in the evening, After these briefings COS gave additional tasks and guidelines for the staff work.

- GREEN

- 2) Conduct OPERATIONS ASSESSMENT to review the situations (3.20 – EXONAUT)
- Due to the confusing logistics concept JLSG developed a new and feasible Joint Logistics Support Network. This was a common effort during the WUST and eased the work during the exercise.
- Overall an assessment of the logistics operation was conducted, but there was only a little interaction with the higher level.
- GREEN

- 3) Synchronize short-, mid- and longterm planning ~~JOINT COORDINATION~~ (3.11 – EXONAUT)
- COS and DOS gave tasks to synchronize the staff work after the CUB, at mid-day and after the BUB.
- GREEN

- 4) FUTURE PLANNING (2.30 – EXONAUT)
- The Plans Branch implemented a "Logistics Planning Group" and conducted planning in a professional way. Several topics were handled and COAs were developed, which were synchronized with the CCs, NFOR and other actors. Collaborative planning was implemented.
- To specify the CCIR a own planning group was established. In an iterative process between COM, Plans Branch and the other branches the strategic and operational CCIRs were broken down to the level of JLSG. This was a good and fruitful process.
- GREEN

- 5) Conduct JOINT FUNCTIONS in related working groups (2.31 – EXONAUT)
- Regarding the STARTEX JLSG developed a feasible and logical logistics concept. Also the contribution to the JCB regarding the JCO 006 was really good. Cross coordination within the staff and the higher level was sufficient.
- GREEN

- 6) INTERNAL STAFF WORK FLOW (2.16 – EXONAUT)
- At the end of the exercise, the staff worked very well. Well-structured coordination, cooperation and communication helped everybody to fulfill its task. LNO were used to enhance the common operational understanding.
- GREEN

Conclusion

The performance of the JLSG-HQ staff was good. Also the spirit and motivation of the Training Audience was on a high level. Everybody was willing to support and to contribute to given tasks.

Events, injects or incidents were handled quite well and solutions were found Also the proactive working and the thinking in advance has developed well. Assessments based on facts ensured solid conclusions and logical recommendations for the COM. And this led to tasks with following actions. The performance was checked and additional measures were taken.

The coordination, communication and collaboration within the staff and with others (NFOR, CC, Civ) has improved during the exercise and so logistical joint thinking was developed.

The implemented mid- and longterm planning process to support was good and the products were useable for the own command and for the higher level. The available LNOs were involved in most of the processes.

One challenge was to develop a situational awareness. Especially the assessment of the enemy forces was not easy, because the tool status or location of the enemy in SITAWARE was not always in line with reports from the subordinates.

At the end all branches were able to fulfill basic as well as more complex tasks.

1.5.5 Other observations.

- The internal structure of JLSG-HQ should be orientated on the Allied Logistics Publication 4.6.1 dated April 2021. To this latest "doctrine" there are some discrepancies to the exercise structure:
  - Missing: INTEL branch, MilEng branch, HNS branch, CIMIC branch
  - Not necessary: MAINT branch

This publication should be the basis for the further development of the exercise.

- Due to the implementation of the RACC in the STARTEX there was a confusing logistics concept. The responsibilities were not clear. This was sorted out and more or less the RACC was taken out of the game. There could be the necessity for a rear area security element, but then without third or theatre level logistics. This belongs to JLSG.
- Due to the manning of the JLSG-HQ, the Commander had no advisors (LEGAD, POLAD). Therefore JLSG-HQ had to rely on the advisors from NFOR. But this needed time and therefore sometimes the decision making processes lasted longer, then it should.
- The layout of the JLSG-HQ looked like a classroom. After the WUST some improvements were made, but overall this hampered a little bit the work of the branches.
- Most of the briefings were given in the JLSG-HQ facility, because no own briefing or meeting room was available.
- LNO are crucial for the information flow. Unfortunately, the LNOs were not fully manned.
- The availability of only two OTM hampered the following of all the incidents.
- **The Real Life support was outstanding.**

Conclusion

The necessary personnel and an adequate infrastructure is one of the preconditions for staff training. If this is not available, some restrictions has to be taken into account for the exercise.

1.6 1 MNB

1.6.1 Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- Pre-exercise training contributes a lot to the TA' understanding the aim and TOs of the exercise. Moreover, it gives opportunity to the TA and EXCON to prepare for the exercise and to conduct the later smooth and without any show-stoppers.
- Successful areas: SITAWEAR, technical , establishing the internal procedures, pre-exercise preparation of the working places.
- Areas for improvement: advanced training of the CIV RC and Grey Cell, more time for preparation of the HQ staff in terms of training the internal procedures and Information Management (assembling the HQ staff in advance), possible implementation of tactical simulation system (e.g. JAYCATS) as more realistic operational picture.

Conclusion

The thorough preparation of the exercise contributed a lot in achieving the Exercise Objectives. However, changing a little bit the concept of the exercise including a separate three to five days training of the HQ staff prior to the real exercise, will reduce the efforts of the TA and the resources deployed for achieving the TOs. Possible solution could be a of two steps exercise. First step (3-5 days) dedicated to assembling and training of the HQ staff, RC CIV and Grey Cell. The second step (up to five days) is to be the real exercise

1.6.2 The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise and impacts from the preparations of the exercise; successful areas and important areas for improvemen.

- The injects are not synchronized with the results of the TA's activities, thus it is losing the logic of the game.
- The simulated operational environment by the SITAWARE is not synchronized with the STEX.
- The username of the E-mail addresses should represent the real positions names (e.g 1bde_commander@swapsix.mil.se instead user632@swapsix.mil.se).
- When there is a requirement for coordination with the SOUTHLAND there should be a real RC.
- The maps provided lack of coordinates/grids. The needed coordinates in the injects had to be defined by the SITAWARE.
- There was no initial setting of the units at the game start.
- No clearly defined AOR of the brigade in the OPLAN.

- There should one day off from operational perspective.
- In order to be facilitated the Info Sharing within the brigade HQ there should be an Info Support Officer in the TOC as well, not only Info Manager in the Distributed Remote Site.
- It would be useful having prepared at least 3 or 4 SIX-portal accounts for the CIV RC and Grey Cell, not only one for the group. Availability of SITAWARE workstation in the RC will give more opportunity for situational awareness.

Conclusion

Successful exercise in terms of gaining valuable experience not only for the military personnel, but for the civilian participants in the CIV RC and Grey Cell as well. The interaction between the military and civil component and working in multinational environment were appreciated the most from all participants.

1.6.3 OTM assessment on the fulfilment of the overall Exercise Objectives.

- The Exercise Objectives were fulfilled successfully. The interoperability, implementation of the staff functions and applying the operational concept were performed in a best manner. In addition, the supporting technical architecture creating a unic operational environment contributed a lot in achieving the results.

Conclusion

Multidimensional operational environment provided opportunity for the TA to work in and conduct Peace Support Operation implementing the comprehensive approach, thus achieving the defined exercise objectives

1.6.4 OTM-assessment on the fulfilment of the Training Objectives.

- CURRENT OPERATIONS: GREEN.
- OPERATIONS ASSESSMENT: GREEN.
- JOINT COORDINATION: GREEN.
- FUTURE PLANNING: GREEN.
- JOINT FUNCTIONS: AMBER TO GREEN
- INTERNAL STAFF WORK FLOW: AMBER TO GREEN.

1.6.5 Conclusion

All training Objectives are achieved. Some minor deficiencies in the area of internal workflow in terms of Info Sharing and following the internal procedures which do not affect the successful objectives fulfilment.

1.6.6 Other observations.

No other observations

1.7 2 MNB

1.7.1 Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- Pre training week is important and has a relevant content.
- There have to be an IPOE (Intelligence preparation of the operational environment) ready for the staff at WUST IOT get a good start up.
- Simultaneous start of all levels creates a lagging on the lowest levels when these have to wait for products from HICON IOT to get started.
- The size of the OTM team and OTM preparations has been sufficient.
- The integration of language support in the OTM team has been good and enhances the learning environment for TA.
- 2.MNB has been lacking OTM G4 and had benefitted from one more OTM G3.
- The lay out of by 99 could be improved by putting TOC in center and all branches/cells directly connected to TOC.

Conclusion

The information flow in staff could be enhanced with another layout.

A better coordination between LCC and BDE in start up would have smoothen the initial days of excersise

1.7.2 The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise and impacts from the preparations of the exercise; successful areas and important areas for improvemen.

- It possible the WUST could include revision of the given OPLAN since the staff hasn´t produced it them self. I would have created a better understanding regarding the order and a better STARTEX.
- Starting point of units if the BDE and LCC must be clarified before STARTEX.
- When conducting comprehensive approach the injects and game play requires a better balance. Events must be coordinated on all staff levels, SITCEN and game cells, not only in silos.
- Staff where missing SOPs that should have been in place from the beginning. Hampered the WUST.
- The tactical plan of the red side where logical, but engagements where to short, red sides movement too fast and blue sides movement too slow.
- Civil game play must be reinforced and better coordinated.

Conclusion

The staff would have come even further if SOPs and IPOE were in place during WUST.

Game play has affected the work of doing relevant assessments.

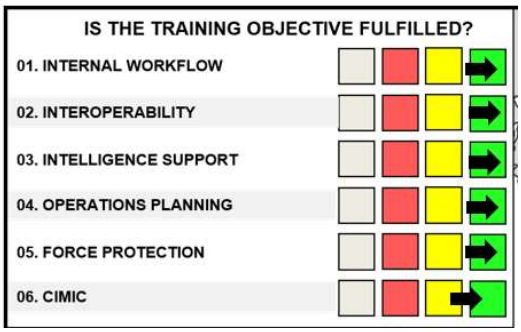
A comprehensive approach requires relevant civilian gameplay.

1.7.3 OTM assessment on the fulfilment of the overall Exercise Objectives.

- Mutual understanding, confidence etc has been promoted in general. Cooperation with the PMESII response cell must be improved.
- The staff understands and applies mission command and management. The individuals knows their roles, understands the roles of other SOs in the cell/branch and have a perception about the other branches in the staff.
- G5 have used NATO APP 28 Tactical planning process for operational planning. This is the current valid planning process for NATO land forces and Finland has decided to implement and use it for all tactical planning for land forces. In order for Sweden to be interoperable regarding process, Swedish armed forces should implement and train with APP 28 (or a national adaptation) for long term tactical planning. APP 28 reduces the risk to lose important factors in planning, especially in a comprehensive approach environment.
- G3 Plans have used Swedish PUT (Planning Under Time pressure) with success, but needed to train the Finnish SOs.
- The portal and SITAWARE are relevant tools for staff work and current execution. IOT enhance the use of SITAWARE there have to be better training and/or procedures regarding enemy situation and interface with simulator system.

1.7.4 OTM-assessment on the fulfilment of the Training Objectives.

- 1 (3.24) Internal work flow - green
- 2 (1.12) Interoperability - green
- 3 (5.5) Intelligence support -green
- 4 (3.25) Operational planning - green
- 5 (6.6) Force protection - green
- 6 (1.13) CIMIC – yellow/green



The length of the exercise was sufficient to fulfill the TOs even though the staff lacked personnel in G9. The staff also lacked G1 and G6.

The fulfillment is based on a relative scale based on the TA starting position. IOT have a more objective scale the TOs should have been based on AJP 3.14.

Conclusion

The length of the exercise was sufficient to fulfill the TOs even though the staff lacked personnel in G9. The staff also lacked G1 and G6.

The fulfillment is based on a relative scale based on the TA starting position. IOT have a more objective scale the TOs should have been based on AJP 3.14.

1.7.5 Other observations.

- Shortcomings at one level results in problems in another level. In the exercise, this is mainly due to the architecture of the levels and the exercise.
- Cooperation between Finnish and Swedish officers is working very well and there has been a good atmosphere in the staff and OTM team.
- The half day (Sunday) could have been a full day off including planned excursions and a dinner party IOT further strengthen cooperation and make room for reflections.
- The scenario has room for a division of different activities and objectives. E.g HNS, CET/FIT offensive and defensive ops, CRO, PSO ets. This means that different commands and levels can train different objectives in the same exercise.
- During the exercise OTM has produced three different reports with three different recipients, Exonaut, SITCEN reporting on TOs and OTM VTC report. The reporting could probably be more efficient if only one report where to be submitted.

1.8 4 MNB

1.8.1 Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- Scenarios is extensive and reflects current training needs.

- Data bank for the exercise is quite large and not well enough organized.
- Background material should be available to all participants prior to exercise.
- Relevant SOP:s doesn't exist and during WUST or exercise there is no time to develop them.

Conclusion
Task specific read-ahead instructions should be made

1.8.2 The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise and impacts from the preparations of the exercise; successful areas and important areas for improvemen.

- Startex (WUST) would be wise to so that everyone gets to know what has happened earlier and what orders/plans etc has been given.
- From the startex there should be clearly identified long term planning task to G5.

Conclusion
Long term planning task should be developed

1.8.3 OTM assessment on the fulfilment of the overall Exercise Objectives.

- G2 achieved its objectives, long term assessment was developed in last days of EX.
- G3 achieved its objectives, TOC and current PLANS achieved their objectives.
- G4 achieved its objectives and learnt to work as part of the HQ.
- G5 achieved its objectives by the end of EX, relevant NATO procedures were utilized when producing plans and orders.
- G9 was able to support other branches in the planning and execution of the operations.

Conclusion
EX objectives were very suitable taking in consideration the experience and skill level of training audience.

1.8.4 OTM-assessment on the fulfilment of the Training Objectives.

- CURRENT OPERATIONS: By the end of EX staff was able to asses situation and make relevant decisions based on the assessments.

- OPERATIONS ASSESSMENT: Current OPORDER does not support the operation assessment with best possible way because no criteria for success was not identified.
- JOINT COORDINATION: LCC G4 role wasn`t clear and strong enough in the planning process witch made MNB logistics planning challenging.
- FUTURE PLANNING: By the end of EX planning staff was able to conduct planning according to NATO procedures.
- JOINT FUNCTIONS: NIL (Brigade level)
- INTERNAL STAFF WORK FLOW: Relevant battle wheel in taking consideration of high command battle rhythm was established.

Conclusion
Training objectives were rather challenging, however achievable during given timeframe

1.8.5 Other observations.

- Scenario has developed in right direction; it reflects very well the training requirements of current security situation in Europe.
- Multinational manning of the Staff gives unique opportunity to the training audience to learn from each other's experiences.
- Comprehensive approach is vital in this and future operations.

Conclusion
VIKING exercise series should be continued

1.9 OTM CMD Group

1.9.1 Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

- Scenario now more Peace Enforcement than Peace Keeping. Good.
- Pre training week for students important,

1.9.2 The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise and impacts from the preparations of the exercise; successful areas and important areas for improvemen.

- WUST good

1.10 Other observations.

- Shortcomings at one level results in problems in another level. In the exercise, this is mainly due to the architecture of the levels and the exercise.
- Cooperation between Finnish and Swedish officers is working very well and there has been a good atmosphere in the staff and OTM team.
- The half day (Sunday) could have been a full day off including planned excursions and a dinner party IOT further strengthen cooperation and make room for reflections.
- The scenario has room for a division of different activities and objectives. E.g HNS, CET/FIT offensive and defensive ops, CRO, PSO ets. This means that different commands and levels can train different objectives in the same exercise.
- During the exercise OTM has produced three different reports with three different recipients, Exonaut, SITCEN reporting on TOs and OTM VTC report. The reporting could probably be more efficient if only one report where to be submitted

Overall impression

- Exercise setting facilitated coordination in all dimensions and domains (NATO/UN, Mil/Civ, Air/Sea/Land/Cyber/Info)
- Game plan really supported the achievement of training objectives – gaming method could be further developed in responsiveness to arising training needs
- Learning environment was really good – battle rhythm supported the learning process

Fulfillment of Primary Exercise Objectives and Training Objectives

- Exercise objectives are achieved
- Scenario facilitated both NATO and UN Missions and reinforced the need for coordination
- Exercise allowed for implementing Cyber domain into the scenario
- OTM noted continuous improvement in all training objectives throughout the exercise
- Training objectives have overall been achieved

Recommendations for future exercise

- Availability of doctrines for TA would further improve reference to current operational concepts
- Balance the manning of TA in relation to training objectives, i.e. number of MNB’s vs response cell

- Availability of VTC's could enhance collaborative work
- Separation of OTM and Tracker functions worked well – keep concept for the future

ANNEX H - UN DPO REPORT

General comments

As the largest and most complex Peacekeeping Command Post Exercise globally, the UN Departments of Peace Operations and Operational Support have taken part in the Viking series since 2005. The exercise configuration and scenario have evolved to accompany the current needs of the UNSC to achieve international peace and security. The Viking series constitute a robust platform for preparing key personnel for deployment in UN Peace Operations.

At the exercise in 2022, the UN Mission HQ and RO/SHQ achieved operational capabilities in 48Hs after deployment. They were also able to get synergies with other international forces deployed under UNSC mandates in a record time of 72 hs. The exercise achieved its objectives by preparing in record time the UN leadership and core planning team for deployment in a multidimensional peacekeeping mission operating alongside other international forces.

The UN mission personnel gained valuable experience throughout the exercise's experimentation capabilities. The scenario events and incidents required the UN and other international forces to explore coordination mechanisms. By planning and conducting complex operations with other international actors, the mission personnel revealed new concepts and good practices in working with parallel forces.

The UN participation at the Viking 22 CPX profoundly benefited exercise participants; it also contributed to disseminating updated UN policy and guidance to other international, regional and local actors. We understand that this exercise should continue being organized, preferably in two-year periods, to capture the rapidly evolving circumstances affecting international peace and security.

Positive highlights

The exercise was highly successful and the UN mission personnel met the training objectives. The UN mission HQ was staffed with core senior UN staff which greatly contributed to the success of the exercise. The learning process was also facilitated by an adequate scenario that had all the required elements as well as impressive and realistic simulated media. The UN mission was hosted at SWEDINT where physical facilities were excellent and fit for purpose. The SWEDINT staff was outstanding

Suggested adjustments

Practical preparations for the exercise should be based on the UN principle and practice of fully integrated missions. For example, at the outset of the exercise, there were two IT platforms for the UN Mission HQ: one for civilians and another for military personnel, which was contrary to integration and would have contributed to negative learning. The SWEDINT staff, highly professional, worked quickly to correct the problem to the extent possible given the timeframe. In the same vein, communication between the MHQ AND RHQs could be facilitated. Overall, the IT system should be simplified and access to WIFI facilitated. This would in turn facilitate communication and access to information before and during the exercise.

ANNEX J - NFOR HQ REPORT (FROM AAR)

The following annex is the AAR-report submitted at the end of VIKING 22.

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• Preparations need to be made by the participants. Different level of ability to complete preparations depending on where you come from. • IMP is vital for a smooth start and a guidance how to work. Needs to be created prior to the exercise in cooperation with the COS/DOS • Rockdrill is a good way to create a good start of the exercise. • Clear understanding of roles and responsibilities beforehand needs to be established.

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
a. Everything goes faster and we get more effective. Objective fulfilled. b. Not involved in the processes within the HQ directly, but support the processes to make them happen. Objective fulfilled c. Know our role in the system. Objective fulfilled d. High tempo during the exercise for this group. Hard to achieve the objective with the preparations made. Objective not fulfilled

Other observations.
• Professional staff clerks to be included in the exercise is vital. Made it possible for this HQ to fulfill its tasks with their experience. • Include archivists and registry clerks within the exercise. Do the process in the correct way, not skipping an important part in staff work.

Branch/Unit: STEX

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• Overall well thought out planning of the pre-training • Everyone in the STEX should attend the pre-training for preparation and discussion of methods, especially C STEX for decision making • The Sitaware education that was held – clear up who needs to attend to learn about it – not applicable to STEX? • Team Talk and VTC orientation was good but there is room for improvement in the presentation, for example power point slides and an SOP on the portal • STEX as 1st Line Support and helping with Trouble Tickets worked good. Forms to order maps needed early in the WUST though. • IMPEX routine – the part performed by STEX worked but the rest of the chain went slow in the beginning. Staff members felt frustration early in WUST while waiting for their impexed material. • The Portal education by EXCON IMO. Require only run through of the system/portal not how we are supposed to use it before IMO/DOS has decided about the information flow. This happened in WUST and did not correlate with the information we received at pre-training.

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• EXCON IMO + NFOR IMO/DOS+ STEX should agree on information flow together earlier to be able to use part of WUST to inform every staff member how to do things correctly from the beginning and act as a good example as the top level node NFOR. • Booking of Assembly Hall – STEX should have coordinated with Helpdesk earlier on. Ownership of the booking procedure was turned over to NFOR STEX late in the exercise due to quick changes in needs by COM NFOR • Email addresses should already be established and only those ought to exist in Outlook coordinated with commonly used recipients for Order/Report/Request send lists

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• NFORHQ STEX fulfilled our objective to support NFORHQ. • Good team work within the STEX as well as with DOS in regards to forwarding information within NFORHQ. It may be useful to agree on an acceptable pace on how long STEX can wait for DOS instructions before distributing the information or establish a standard distribution list for common types of documents. • Good work flow.

Other observations.

- Archivists and registry clerks from SwAF should always be included in exercises such as this. Why? All staff members need to learn to do things correctly from the start with regards to the information flow and archival requirements of the Swedish Armed Forces.
- J1 function commandeered one STEX clerk without discussion with C STEX.
- JOC staff clerks are J3 staff clerks, not just JOC?
- Request for next time: 2 adjustable standing desks for the STEX front desk
- Overall bad cleaning service in Hall B + lavatories.

Branch/Unit: J1

Exercise Objectives (not in priority order):

Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• Important area of improvement – manning list of all troops in order to be able to give correct information about nationality etc regarding KIA, WIA etc. No names are requested but level, nation responsible for recruiting, if key position. • Important area of improvement – J1 should attend the pre-training and work on SOP • Successful area - Overall well thought out planning of the pre-training ACOS J1 got in the role as STEX (even if it was only one day)

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• Due to no manning in NFOR HQ J1 a member of STEX that usually work as clerk at SwAF HQ volunteered to act as the part of ACOS J1. STEX therefor lost one member during the rest of the exercise. • J1 Personnel should be manned with at least 3 people. ACOS, SO1 and Staff clerk. • All levels/units should have had manned Personnel sections

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• It has been a highly appreciated opportunity to be tested a new position as ACOS.

Other observations.
NIL

Branch/Unit: J2

Exercise Objectives (not in priority order):

Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• The web based INTRO and WIKI were a good aid to dive into the exercise. • For some participants there was no time to conduct pre-training due to lack of time for preparation. Also there appears to be some problems with the request for account for the e-learning portal. For those who completed the pre-training there are requests for improvements (e.g. the SitaWare module). It needs to be more interactive. • The workspaces are satisfactory with plenty of workstations and infrastructure. • J2 Prod should be prioritized in manning (8+ SO) • J2 TSC should be 2 SO´s. • The SitaWare training on site was helpful. However there should be a written product for the SITAWARE workflow. • **OTM / EXCON handover, lecture** • (J2 Plans) It would be helpful for J2 to have specific Intel-documents pre made and provided in the beginning of the exercise. The documents are: Intelligence Management Plan and Intelligence Plan (Collection Plan, Processing Plan and Dissemination plan). • (J2 PLANS VSi) Sufficient and high quality background information. Short and compressed presentation about the OPLAN process (where we are and how we get here HG and J2 wise) could be helpful for orientation. • (J2 Plans MSE) Many of the STARTEX documents were missing in the portal when staff arrived at site and started preparations. This was a clear hindrance for getting prepared and up to speed before the gameplay started.

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• A "handover" from a responsible SO side EXCON at the beginning of the exercise. In order to show the most important documents and the idea behind them would have eased the Start of the exercise. As well as a short training session within the branch and the sections. • In order for the scenario to work, a JIPOE (Joint Intelligence Preparation of the Operational Environment) needs to be completed in a proper manor ahead of STARTEX. The consequence is otherwise that several processes lack the sufficient inputs (e.g. PLANS, COLLECTION and ANALYSIS). For example: Which are the centers of gravity? What are the results of the Critical Factor Analysis on the scenarios? (e.g. **data for I&W**, **indicators and warnings**) • Having an ACOS and staff members with real life experience from working with Intel on the operational level was also really helpful. • Experienced (Intel) Clerks was necessary to be able to start working effectively when the exercise started. • Cyber domain was quite under stressed on the background material (inc. OPPLAN and J2 SOPs). The gaming pushed quite substantial amount of injects from cyber domain, but still J2 was not internally tasked to connect the dots. • The NFOR HQ battlewheel was not clear to many participants at the start of the exercise and should have been clarified. There was no J2 internal battlewheel at all, at least a draft should have been present at the start. Also, a comprehensive description of the various meetings in and processes in the HQ battlewheel would have been most helpful. • Outlines of products, briefings and plans outlines should be synchronized.

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• Objectives **b)** and **c)** were fully achieved. • **d)** could only be partially achieved. Most trainees were already fully occupied to learn the SOP and understand their contribution. The training level needs to be higher over the whole staff to have the "resources" to dig into experimentation etc. Probably the aim should be adjusted. • Objective **a)** could only be partially achieved. Fruitful interaction with partners increased over the duration of the exercise. J2 did not manage to fully integrate the newer operational spheres such as cyber into their work. Achieving a fully integrated recognized picture that is in line with special staff functions such as political, gender, cyber in order improved over the duration of the exercise but was never fully achieved.

Other observations.
• It felt as if gaming didn´t react on our decisions. E.g. J2 decisions on sensor coverage, priorities and tasks did not produce expected results. Such as INTREPS from sensors from the assigned areas. (RFI to Highcom add

- (J2 JIOS) **For the Joint Collection Management Board/Working Group, it is imperative that J2 is able to interact directly with A2/G2/M2.** Due to lack of VTC time slots, we instead had to rely on component command LNOs, which is not a satisfactory solution. The LNOs lack the detailed knowledge on collection management and available ISR assets that is required for the JCM process to be fully functional.
- **CYBER)** There was some confusion about the roles regarding the cyber domain. The CyberAds in some ways became in charge of operations, which is unexpected, and there was no one with cyber responsibility at J3. There was also (which is very common!) confusion about the line between cyber operations and IT in general. For example neither patching (routine maintenance) nor having host nation agencies achieve effects for you through their normal means would qualify as DCO or OCO. These activities were perfectly justified and reasonable within the scenario, I just disagree with the labelling.
- J2-Plans identified its main tasks on early phase of the EX. The creation and especially integration of the J2 "**base line products** (current, short- mid-, and long term **assessments**" into J2PLANS main products /working groups (JCBWG-, JOPG and AWG) could be more coherent from the STARTEX. STARTEX example products could help to facilitate more coherent working between J2 sections.

Branch: J3 JPRC

Exercise Objectives (not in priority order):

Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• Exercise friction can be mitigated by clarifying information flows during the preparation phase. This could be fixed with an up to date SOP. • With SEDU students being posted in new and unfamiliar functions, the WUST have to focus on creating an adequate understanding of what is expected of respective functions and provide tailored training.

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• Precise staff processes require synchronized situational awareness and validated information/ reports. • A better understanding of the different roles and functions in the staff would improve the overall effectiveness of the staff and the mission.

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• Being given assignments on the joint level has broadend our perspective and knowledge regarding joint operations, even without previous specific knowledge in the function. Frequent coordination with other partners such as the UN, ICRC etc. has also contributed to this effect (Comprehensive approach). • An improved understanding has been gained regarding different components' workflow and procedures, how to coordinate assests to be able to achive operational objectives and what different components can contribute to the overall mission.

Other observations.
• Access to professional OTM's in all respective functions is vital to achieving learning objectives and individual development, and also to understand the overall context. • The overall state of facilities has been below acceptable standard and has affected the health and well-being of the personnel. (Dry air, insufficient ventilation, dusty work spaces, lack of cleaning of common areas and restrooms.)

- Actions taken to limit the spread of COVID have been inadequate, especially with regards to the fact that other troop contributing countries may still be struggling with the pandemic.
- Working hours should be more strictly adhered to during the exercise, some functions has kept on working after the daily PAUSEX which has led to a corruption of the shared reality/SA (Some pause during lunch, other works around it, some have worked two hours after PAUSEX).

Branch: J3 Targeting
Exercise Objectives (not in priority order):

Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• Position Specific training regarding each positions had been useful. • Fin students, and other participants, would have had the same lectures etc as Swe students. • Swe students had a fruitful week for prep.

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• Battle wheel could have been decided before ex. • During WUST there had been useful with a short introduction of what had happened within the targeting process and what were out to come. • Internet had been useful for intel collection

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• Yes, overall • Object A is particularly well fulfilled

Other observations.
• Appreciate our multinational cell • Great support from OTM. Smooth and helpful. Very educating with daily lectures. • We really appreciate the learning environment. It has been OK to not know or to do something wrong. We have all learned a lot.

Branch: J3 JOC
Exercise Objectives (not in priority order):

Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• TA got a lot of material before the start of the exercise, which was good. Sometimes it is hard to navigate and prioritize what is most important (for instance: what documents are relevant on Joint-level).Suggestion: Get at specified "read in" to each branch. • Manning of the JOC: identify what functions should be part of the JOC, and make sure they are actually manning the JOC. • Lacking an overview of the full structure/manning sheet, with a short job description of the various roles and what it contains, SOP for function. • It would be good to organize joint sessions during the intro days (or in pre-training), to clarify organizational structures, processes, agreed usage of Sharepoint and Sitaware etc. to have a joint view and get everyone up to speed early on (this would be set on D+68). Some of this must be clearly stated in the SOP. • Basic structure (seating, phones etc) should be set before the start. • Excon should set the structure for the full information flow from the start, to make sure we are not all inventing our own structure,.

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• Specify and clarify the gaming condition and rules • Some of the game injects where not realistic, for instance cyber threats only affecting taking off, not landing of aircrafts and similar events.. • ACOS/DACOS where often tied up in meetings, they were often far away from the JOC, and less available (both physically & mentally) for fast decision making. • We lack an overview of all Events, i.e. less traceability. Adding an event in the Event log in Sharepoint while on the phone is difficult, which means the scribble on the paper easily gets lost. Needs to be clairified in information SOP to keep logs in each branch • We continuously had to search and collect information from functions and other areas. With a well working information flow system, we would instead get the information sent back to the JOC as part of a.defined process.

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• We have learned a lot during this time, however it is difficult to both train and apply it during this time. As we've had to come up with our own structure, we are still in the process of refining it (and not always aligned with other functions).

- The game is moving so fast that the battle wheel forces continuous reporting, tying the SOs to the computers, rather than managing/coordinating the fields.
- The international involvement is a strong positive factor in this exercise, where we can learn from each other, compare processes etc.

Other observations.

- If we want to run joint training sessions (which could be great), the game should be stopped during this time, not to have phones ringing etc at the same time.
- Allow for food-boxes being brought from the restaurant.

Branch: J3 InfoOps
Exercise Objectives (not in priority order):

Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• MPC/FCC well performed in a hybrid mode • Pre-learning package useful

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• WUST should be more structured by EXCON • LI from working groups need to be transferred to LL within the exercise • Manning on staff function should be adjusted (number)

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• Mission accomplished

Other observations.
Overall Observation • Transportation organization (Airport –Enköping) and Astoria Hotel to Enköping barracks should improve. • A "guided Mini-CAX" before StartEx would be helpful to get into the mail system and the exercise related web portals. Way of communication? • A proper event/Joc watch tool would be helpful. The one in use is, from our perspective, confusing. Preparation of InfoOps related documents: • A general Information Strategy and/or a STRATCOM framework should be delivered within the STARTEX package (or prior to the exercise) -> Gives an overall and better understanding about how Higher Headquarters wants us to communicate with regard to the mission. • Standard Operational Procedures (SOP): A pre-scripted SOP for staff personnel working within the InfoOps branch should give a clearer understanding what his/her job is all about. • AJP 3.10 (InfoOps), 3.10.1 (PsyOps) and NATO STRATCOM handbook should be provided at StartEx (or prior) so that Training Audience have the opportunity to get a deeper understanding of the functions.

- A valid Key Leader Engagement Matrix should be provided at StartEx -> Due to the fact that KLE plays an important role in the exercise setup, a valid and detailed KLE matrix should be provided.

- An ORBAT concerning available PSYOPS within JOA assets should be provided,

- Annex VV (PSYOPS) should define PSYOPS Effects and NAC approved target audiences -> STRATCOM audiences differ from PSYOPS target audiences and follow the given format according to AJP 3.10.1

- InfoOps Synchro matrix and a PSYOPS Matrix, which are parts of the respective Annexes, should be in use at StartEx. This needs to be pre-scripted within the MEL/MIL phase, prior to the exercise.

Manning/Structure:

- PAO and STRATCOM Advisory Branch should get manned in a more proper way. PAO section should include Chief PAO/spokesperson, media monitoring section, Media Information Center.

- STRATCOM advisor should be reinforced by a small staff element IOT handle staff related issues (Battle Rhythm) and to give proper advice to the COM.

- Think about re-structuring InfoOps, CIMIC, Cyber, G2/G3 assets under a DCOS Joint effects.

- NATO wise it is unusual to have a Chief of Staff for the Advisory Group, if there is a valid SOP in place, those guys should know, what to do. Suggestion: Kill this position.

- The CE List should give more information on the job titles. SO 1/2/3 InfoOps is usual, however, this could allow potential Training Audience having a clearer picture of what should be their task.

- Host nation LNO and UN LNO should be more visble/embedded into the staff structure. In this phase of an NATO/UN operation, NFOR communication stakeholders need to have close coordination with them.

To sum it up:
Beside this remarks, it was a great and well organized exercise. RLS was very well organized and the scenario and the idea of conducting joint operations with military and civilian actors have made this exercise well prepared for the next years to come!

Branch: J3 Maritime

Exercise Objectives (not in priority order):

Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• Solid and vast amount of material to read before the exercise. Creates good conditions for the start if you have the time. • During the CET/FIT the EXCON might could have supported more with training/procedures on the information management side. Would have created a more smooth exercise start. • The preparation week at SEDU could gain more on having additional interaction and focused preparation within respective area of interest.

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• Well-structured NATO-format facilitates common understanding of the different processes in the staff. • The preparations/facilities here at ENKÖPING for conducting the exercise are good. Technical equipment and aids were adequate and worked ok. Technical support has been working great. • Unfortunately some branches/sections are a bit undermanned. That could lead to problems to grasp all procedures and to get an accurate picture of, staff roles, functions and what´s expected to contribute with in respective process. • OTM in some branches are missing which is unfortunately. But we have stilled received a valuable introduction and support from existent OTM/ACOS. It is also pre-condition for success to have OTM standing in as chiefs at important positions when vacant.

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• Fulfilment of Exercise objectives A-D. We have increased our understanding for planning processes and staff work in a multinational environment.

Other observations.
• Use a clear and mutual language that facilitate common understanding in the staff. • Coordination within the staff and branches is important and every piece needs to contribute to the larger picture. • Coherent reporting within/between the organization is a major challenge, keep it simple and don´t “guess”. • A well functional information management is essential and a key to success.

Branch: J3 Air

Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• Online material and videos are valuable

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• Complex and rich scenario • A lot of good inputs and inspiring media coverage. • Injects and playcards must be well coordinated from Excon/Gameside • Many times, contradicting inputs existed

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• All the objectives are met.

Other observations.
• Sometimes confusion and mismatch between real world countries and scenario countries. Like Finland, Sweden, UK, US vs Northland, Oldland and Bigland • Even more coordination with UNMIM would have been nice • J3 Air, Land and Maritime were missing OTM:s

Branch: J4

Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• Simplify the preparation, do not have actors like RACC that isn't at TA or RC. Include ORBAT, capabilities IOT quickly understand the force/function. • Battle wheel and reporting should be clear BEFORE the exercise starts, as well as responsibilities • WUST have to be pre-planned STARTEX. WUST should also include basic information about other branches IOT TA create a HQ SA regarding internal branch(function) processes, working groups etc. • Functional planning have to be coherent between the levels, i.e. medical. IMSOP and annexes have to be coherent between the levels, i.e. reporting times (battle wheel).

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• WUST have to include coordination ICCW CCs • Internal SOP is written for a whole branch. WUST must include adaption IOT handle vacancies/manning • Use NATO standard templates as far as possible • Share Point portal has to be able to share information upwards and downwards, that's the strength of it! • OPLAN, JCO, SOP etc should be incorporated in WUST.

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• J4 has successfully been able to create a COP within the NFOR. Overall, J4 has succeeded all training objectives. • RLP and CLC process (CJLWG!) has greatly been improved during VIKING

Other observations.
• When creating an incident, create a plan to whom its suppose to challenge… • LTCOL VENDEL (SWE JFC) was CoG for J4s success! • J4 has been able to create an open and creative learning environment • VTC rooms… one is perhaps not enough for ONE staff…

Branch: J5 JOPG

Summary Hot Wash Up – J5 JOPG

WUST needs to be structured and addressed/focused at the task of the elements. If the WUST was presented in a more structured way, the exercise participants would have a better plan for what to do during the exercise. IF the WUST was better structured it would mean that the beginning of the exercise would be more efficient. Examples of JOPG, how to start the process.

Pre-exercise training is important and should be done. All the information needed about the exercise was not distributed to all participants. Important to know which function you will be in in order to prepare before the start of the exercise.

Mentors during exercise was active. In the beginning strong base and structure of the processes. How we were supposed to start the process.

Mutual understanding among nations and branches has been established.

One of the most important lessons are that JOPG should always have branches within the JOPG in order to increase the competence in the group. In staff it should also be numerous LNO for the SOU GOV.

More briefing for the ACOs, too much is relying on the Commander. ACOs need a bigger responsibility in their role.

We met our goals. But how to implement the link between assessment and planning is not fully clear.

Branch: J5 Assessement
Based on the Exercise Objectives, all staff unit are requested to discuss and report the following items:

- Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
  - Before coming to VIKING 22:
    - The introduction material was very high quality.
    - The description of the very interesting scenario was really good.
    - Good scenario.
    - Difficult to access information about the preparatory material.FOI did not receive any information from VIKING 22 and the log-in to the learning-portal did not work. Lucky we have contact at the Armed Forces HQ and could get info from the,
  - When at VIKING 22
    - It would have been good if all SOP-material was uploaded on the Portal the very first day.
    - It would have been good to, during STARTEX/WURST, have an introduction to what all the different meetings are and what was expected from the meetings our section held.
    - It would be good with a more precise SOP, with more specific info about what was expected from our section and what products we were supposed to deliver and when.

- The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
  - Interpretation of question: after STARTEX, how did the exercise run?
  - In general the implementation of the exercise has been really good.
  - It is interesting not to start at Day 0 of the operation, instead Phase II Stage II. It is perhaps more demanding but very interesting.
  - The implementation of the exercise has been hampered by the lack of meeting rooms. Also the working space has been a hampering factor. J5 would have needed a meeting room within the cubical.
  - The lack of personnel, including TA, ACOS and OTM have had an negative impact on the implementation of the exercise.

- Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
  - Promote mutual understanding, confidence, co-operation and interoperability among all contributing and affected forces, organisations, offices and personnel – military as well as civilian (i.e. comprehensive approach).

- Good: in our working group we manage to create good spaces for civilian personnel to understand the military problem and branches, and vise versa.
- Good: We had a high focus on a comprehensive approach.
- Good: We planned our meetings well to make sure participant would understand what was expected of them and to create a confident environment in the meeting-setting.
    - We fulfilled this goal.

- Understand and apply mission command and management, staff roles and functions, procedures and structures, as well as co-ordinated planning processes.
    - Mission command was applied.
    - We relatively quickly understood how the NFOR HQ Staff was organized and worked because we had to understand that to conduct our tasks.
    - Regarding procedures and structures: it was difficult due to lack of information about the processes and what was expected of us. It was unclear what we were supposed to produce and deliver.
    - We struggled to set up and participate in co-ordinated planning processes. Mainly due to: lack of understanding of what was expected, lack of personnel and lack of time and rooms.
        - We partially fulfilled this goal.

- Understand and apply current operational concepts reflecting present as well as future challenges in multinational and multidimensional peace operations.
    - At least at the end we had a deeper understand of some operational concepts, but it was challenging to get there.
    - We got aware of some trends through our working group.
    - Our understanding of the multidimensional aspects of (peace) operations increased over time, but more could have been done.
        - We partially fulfilled this goal.

- Create an environment that supports and facilitates development and experimentation of methods, operational concepts and technological enhancements for participating organisations and nations.
    - We did great! We have received very good feedback on the set up of our working group.
    - We experienced a lack of mentors (due to Covid) and had also wished that out mentors would have assisted us a bit more on informing on what the end product was going to be.

- The mentoring in understanding our mission was perfect but translating that into the final report we had to write was challenging.

- Other observations.
  - We had fun!
  - A J5 Assessment team should consist of at least 5 people (including Chief J5 Assessment)

Branch: J6

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• Very good preparing-lessons and videos • Annex Q (CIS) for the JSO 005 wasn´t prepared for the exercise • CIS / J6 topics wasn't really foreseen and prepared for the exercise • List of systems and frequencies at the Joint- as well at the CC-Level did not exist. Therefore it was very difficult to analyze the CIS Situation and to take the necessary steps regarding short – mid and long term planning. • OTM J6 was missing all the time (does she/he exist?) • J6 Branch wasn´t enough staffed (2 PAX) to be able to do the assigned tasks according the NATO Staff Handbook. • Cyber wasn´t well prepared for the exercise. The staff conducted cyber not according the JTFHQ SOP 218 (CyOWG and CyOCM as well the assigned tasks according JTFHQ SOP 218). • Incidents wasn´t well prepared (for example incident regarding blue-force tracking system). In order to be able to handle an incident, its' important to have the necessary technical information (frequency-planning, systems in use, hardware in use, etc…).

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
most important lessons identified: • Co-ordination within the components as well with the higher command is key. • Cyber is a very time-sensitive topic (effects and actions taken) Most important areas for improvement • Introduce CIS fully in the exercise (as well in the OTM / EXON). • Prepare more and logical CIS incidents. • Cyber has to be handled according JTFHQ SOP 218. CyOWG as well CyCOM should be implanted and staffed in the exercise.

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.

• Objective a.); fulfilled. • Objective b.); partly fulfilled. Staff roles and functions (with only 2 members in the J6) procedures and structures, as well as co-ordinated planning processes, especially in the field of cyber, was not well prepared and trained (missing OTM) • Objective c.); partly fulfilled. • Objective d.); fulfilled.
Other observations.
• None

Branch: J9

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• The preparations from the Swedish side of the exercise were very good and executed professionally. All pre conditions were set for the training audience to get up to speed with the scenario and the exercise goals. • Role of the ACOS is crucial in the start of the exercise. A prepared ACOS can get his branch a running start. • The WUST could have been better coordinated. • FHS pre-training did not cover the CIMIC field. • The IM-package did not correlate with the actual technology of the information system.

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• An IMO would have been very efficient, on branch and staff level. A clear SOP of the staf flow in the beginning of the exercise would clear up a lot of miscommunication. • Suggest a ´get to know the branches´ moment. • Scenario was a ART 7 deployment, but focus changed very quickly to warfighting. EXCON should have intervened. • VIKING gave us the change to experience the inner (political) workings of an HQ staff. A first for many of us. • We also liked the mix of services in the branches. • Point B and D are somewhat conflicting. • The gameplay could have used improvement, perhaps the OTM could have played a more active role in adjusting the flow of the exercise.

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.
• On the survey scale from 1 to 5. Our overall grade is a 3 (good) with some criteria a 4. • Also we were very lucky with our branch staff. • A,C and D are more fulfilled than point B. but that is a logical outcome as we had to figure things out on the way.

Other observations.
• The professionalism of our branch staff gave us a flying staff, but this sometimes put the group ahead of the scenario. • We wish to address in particular the efforts of Karl Rongert in binding the group together on a personal level, this payed out on the professional level. • Attitude in the group towards a unknown branch (CIMIC) was very positive.

Branch: Special staff

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.
• A short introduction to all staff to explain how the IT system etc. works. • Cross-briefs/mini wargames before STARTEX to give an understanding baseline. • Learning Portal training packages to be available on the Ex network (not just internet). • Outline general SOPs for HQ. • SOP:s, orders etc. must be up and running from Day 1. • The new scenario and the old documents didn't match in all details. • No training objectives for all personal (i.e. Force Provost Marshal).

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.
• IT system should be much easier to use, especially the horrendous login procedure. • Improve CIMIC and cooperation with UNMIM; too much focus on the military side. • More time during the exercise play to pause, learn/ experiment and capture lessons. • The overall picture must be monitored at all time; same knowledge for everybody. • Ensure the entire staff is introduced to the functions of the Spec. Staff.

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Obj.
• Cyber <u>was</u> able to conduct some experimentation of concepts/processes, though more to be done on articulating Cyber considerations and factors to the HQ staff and CCs. • Achieved better understanding of roles and processes within the staff.
Other observations.
• The process how to book a VTC needs to be improved. • The STEX in B-hall has been efficient and professional, always with a smile. • The passwords to the computers is way too complicated; • Great work and support from the OTM:s. • Poorly prepared exercise for the medical officers in the HQ.

ANNEX K - LCC REPORT (FROM AAR)

The following annex is the AAR-report submitted at the end of VIKING 22.

PART 1 – Overall impressions

Overall, the LCC TA appreciated the NORCON scenario for its complexity and the way it highlighted challenges and provided training opportunities in many different dimensions of a modern warfighting operation. The online training materials available before the exercise was considered to be of high quality and a good help in understanding the scenario.

Despite initial frictions affecting startup and WUST, the exercise as a whole was perceived by the LCC TA as a great staff training experience and a good learning with a motivated TA and a great learning environment.

The LCC TA felt that the startup of the exercise was hampered by the lack availability of a coherent SOP (as well as templates, battle wheel etc). Synchronization between the different HQ levels was initially slow. This led to unnecessary frictions and delayed the staff in reaching IOC.

PART 2 – Exercise and training goals fulfilment

LCC TA assessment of fulfilment of exercise goals IAW Endex order:
(scale 1-5 was used, 1 = not fulfilled, 5 = completely fulfilled)
Objective A – 3,7
Objective B – 2,8
Objective C – 3,3
Objective D – 3,6

The LCC TA assessed the fulfilment of the training goals related to mutual understanding and co-operation and the learning environment as high. This is also reflected in the overall impressions that the TA presented.
The goal to understand current operational concepts as well as the challenges in modern peace operations was assessed as partly fulfilled. The scenario has the depth to facilitate this understanding, but it is hard to highlight all aspects while also focusing on learning staff procedures etc.
The fulfilment of the goals related to the management, staff roles/functions and procedures was assessed as lower. This is mostly related to the frictions in startup phase as presented in the overall impressions above.

PART 3 – Recommendations for future exercises

1. More precise preparations and more detailed pre-training materials available. If an LCC SOP (with battle wheel, templates etc as well as a supporting structure in the CIX portal, pre-synched with NFOR HQ as well as SUBCOMs) were in place and available before the exercise, this would make the fact finding phase during the startup shorter.

2. Startup meetings, branch-to-branch and key working groups, either during the WUST or day 0 of the operation. This would serve as a sort of "icebreaker" event within as well as between the different HQs.
3. More mentors available, either as OTMs attached to key positions or experienced personnel manning some of the key positions within the staff, at least in the beginning of the exercise. This would enable students to gain some momentum in key processes in the staff work.
4. Develop the game play to be more dynamic and incorporate more of the specialist functions, such as CIS and CIMIC. If a more dynamic gaming was in place, the major tactical decisions on the CC level could have a larger impact on the events being played.
5. The starting position in the operation could be moved from Stage 2 of Phase 2 to Stage 1 of Phase 2 (the starting point of LCO 005). This would enable HQs to more clearly differentiate between the current, mid and long term perspectives. This would also make it easier to define the planning in the mid and long term between G3 PLANS and G5, where G35 could plan and release FragOs for the remainder of Phase 2, and G5 could plan and release LCO 006 for Phase 3.

ANNEX L - ACC REPORT

1. General

Areas that were working out well
ACC had a good start. Spending the first day of the WUST on briefings, training, hunting for information and Maslow's was a winner. By Tuesday morning, the staff was ready to address the first tasks: generating a solid common understanding for the situation and the tasks at hand, engaging with our counterparts on all levels, and establish a situational awareness of blue, red and green forces.

WUST as a concept is good. The JFACC choose to use it mainly to establish all cells and branches in the staff, gather information, make an inventory for the need of training, and by ourselves, or with the support of the OTM:s conduct that training. The "product" was a staff briefing on Wednesday afternoon, after which the JFACC staff was good to go.

The new scenario was much appreciated, and will have a bright future, if cared for and continuously developed. E.g., the scenario and the events gave a lot of opportunities for contingency planning and the planning of branches and sequels.

As always, information sharing is a challenge, and never worked fully. But the IMO and STEX did an excellent job supporting the staff. It was more than enough to fulfil our tasks and reach the objectives.

Integrating Special Staff in planning and conducting operations worked beyond expectations, as did the CIMIC cell. The use of LNO:s into and out from JFACC was a key to success.

Areas of improvement
This is an on-going operation. It should start with a HOTO (hand over – take over) from the previous staff to the new. Preferably, the HOTO should be planned and conducted by the OTM:s. Valid orders, RAP, status and location of forces etc would then be a given. This would be the most effective way to improve STARTEX and initial situational awareness.

Gaming for all branches, functions, and SME:s. If it is to be manned, there should be a gaming prepared for that position.

The mid-game stop on Sunday; we suggest three things:
1/ Make an operational pause, meaning that Sunday is not a game day.
2/ Use the first half of Sunday for training, and a possible job rotation handover
3/ Use the second half as a planned, joint cultural event on each site.

The Air War must improve in order to challenge operational planning, and for conducting a more challenging and rewarding air campaign. In VIKNG 22, JFACC used contingency planning, but that is hard for CAOC to do in the same

manner. A more potent and aggressive opponent would improve the exercise for the JFACC.

Experiences and impacts from the preparations of the exercise
First and foremost: the exercise cannot be built and conducted on the assumption that all have conducted pre-training. That will perhaps be the case of the students and a few more, but for most people Monday is the first day. The in-brief must fill in some blanks there.

To keep
The WUST concept and the focus there in situational awareness and establishing contact with counterparts.
The pre-training of STEX is a must, and worked well.

To improve
C2 system, and more than anything: the log-in process. More of the information from the training/preparation portals must be published in the C2 system. It must be easier to import and export. However, the IT support was excellent.

The first day of the WUST could contain a IMO brief on what's on the portal, and what's not.

2. Three key areas to success

Creating a learning atmosphere is key. JFACC managed to achieve that, and that helped making the exercise a success.

The use of experienced mentors is also key. A suggestion is to use experienced mentors or OTM:s in a "follow me" approach for the first few days, and then handing over positions to students or less experienced staff officers for the rest of the exercise, and mentor them.

The differences in tempo and tasking between the CC:s creates a frustration and frictions. Therefore, the use of LNO:s, a common operational picture, and a shared situational awareness is important.

3. Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives.

The level of interoperability in the JFACC was high, and a prerequisite for success. The international manning is both challenging and rewarding. This exercise shows that any trained crew can turn in to a functional staff, if given a few days, a C2 system, and SOP:s.
From the COMJFACC perspective, all the objectives have been fulfilled.

4. Other observations.

ACC and CAOC have had great team spirit and working climate.
The IRL support from the Uppsala site was beyond excellent.

ANNEX M - MCC REPORT

Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement.

The intended manning of EXERCISE VIKING 22 for MCC was to have experienced branch heads to lead and support students and other unexperienced personnel in the staff. As real life matters in a late stage SAF Maritime Battle Staff not to take part, this resulted in a mainly student driven exercise.
- IMO, and STEX preparations before WUST and the SiteDir had made good preparations. But with limited guidance on how the information structure was built.
- A revised manning list instead of moving DACOS to ACOS level should have been made by the Swedish Defense University.
- Delegation of responsibility regarding WUST Schedule was not clear between MCC Training Audience (TA) and EXCON/OTM.
- It is of outmost importance that the MCC SOP, NFOR HQ SOP, NFOR HQ Battle Wheel and other relevant documents are in place NLT start of WUST, and preferably available for preparations before STARTEX.

The lack of proper initial guidance and limited access to relevant documents hampered the preparations for the LIVEX part of the exercise making staff using half the WUST period to self-invent procedures and write lacking documents.
OTM actions supported achievement of training objectives. This time OTM contribution had even bigger importance due to manning issues mentioned earlier. It might have been good to position highly skilled OTM members in leading staff positions.
Pre-training must focus on staff processes and coordination on and between the tactical levels as well. Pre-training at the Swedish Defence University only focused on the JOINT-level.
The scenario and gaming were excellent. Both fully supported achievement of training objectives. This time requires high intensity war fighting operations against an advanced opponent. Scenario and gaming also provided appropriate amount of relevant joint-actions and -planning. Response cell was undermanned but worker hard and played their role well to support the TO`s.
Support from the Swedish Naval Academy (Sjöstridskolan) was comprehensive and left no room for improvement. Karlskrona Naval Officers Society´s (Sjöofficersselskapet i Karlskrona) social activities supported teambuilding and multinational cohesion in best naval traditions.
Very good exercise as a whole. We are significantly better than before the exercise.

The most important lessons identified and most important areas for improvement regarding the implementation of the exercise

The late finalization of the OPLAN/OPORDER both on NFOR HQ and MCC level made the start of the LIVEX a struggle and this unfortunately hampered

a lot of the exercise. The most important lesson identified is that a OPLAN that has been in force for 60+ days when LIVEX starts must be finalized and distributed in advance IOT have the possibility to use exercise time in good manner.
The initial tempo of the exercise with the OTM team releasing a FRAGO the night before LIVEX ordering a landing was a rough start- and maybe a little high tempo in reference to the preparations and lack of experienced staff.
The student driven exercise was in one way very good and challenging giving good training for ACOS and Chiefs to manage the staff and its processes. A stronger OTM-team is a possible solution instead of integrating experienced officers within the staff.
One main friction was the very late release of the NFOR HQ Battle Rhythm and the non-response regarding Reporting instructions. Coordination meetings at COS-level (COS NFOR HQ to COS CC) could have solved many initial challenges.

Self-assessment on the fulfilment of the overall Exercise Objectives and the Training Objectives

Overall the MCC Staff has made progress towards all of the exercise objectives and training objectives. The comprehensive approach (Objective A) is assessed to be achieved. MCC Staff has started to understand mission command and management of staff but applications of them are only partly achieved (Objective B). The same applies for the understanding and application of current operational concepts (Objective C). The tempo and unexperienced staff members did only partly create an environment that supports development (Objective D).

Other observations

The half day off is better used as a no game half-way-hot-wash-up-day. Instead of driving the game for half a day, Sunday is better used for the staff and branches to recap the first days, evaluate, and make changes supported by the OTM-team. Gaming a half day only builds frictions and problems for the next day.

INPUTS FROM MCC BRANCHES

MCC M2

- WUST for three days was to long with these settings. Learning would have been more useful learning by doing.
- A brief/lecture regarding staff procedures at the tactical level pre-exercise would have been useful
- Working areas, tech support and real-life support was excellent
- M2 felt it took at least 2 days before J2 actually was in the exercise
- Lack of reporting routines from high command were hampering

- The workload was manageable and there was time to learn and socialize with other colleagues
- Create a database for 2-function – using RFI from this and previous exercises.
- As an SO it was hard to get a grasp of what the other branches was doing. A walk around or a brief/lecture on tactical staff work would be preferred. Could be enclosed in the WUST or at the end of the exercise.
- At least ACOS M2 must have experience from the intel community. Has to be considered when manning the staff.

MCC M3

- Pre-training and the WUST must be coordinated at EXCON/OTM level.
- SWE and FIN pretraining differs
- Pre-training should be concentrated on either exercise situation or staff process, the other to be done during WUST.
- SWE pre-training only focused on the JOINT-level
- There was not enough time to go through all material in relation to the exercise
- The e-learning portal was of high quality. Pre-training should be more focused on that.
- Lack of SOP:s made it very hard to find information flows within the component and NFOR
- Lack of LNO:s were hampering
- To strong concentration on the game versus learning – all students should be allowed to participate as an audience in all meeting to learn and get a view of the processes.
- Sunday should be a non-game-day and be used for HWU and learning
- To high tempo in the game leads to corner cutting in processes and learning wrong
- Learning objective A = Green
- Learning objective B = Yellow
- Learning objective C = Yellow
- Learning objective D = Red
- A bigger (more personnel) OTM-organization is needed to support all branches

MCC M4

- Manning the staff – M4 lacked personnel with logistic experience
- The Viking 22 website was very good as pre-training information
- Lack of templates, SOP, reporting instructions was hampering and took focus away from scenario and staff preparations
- During WUST (or pre-training) there was a need for education regarding staff work and processes at the component level – SWE pre-training only focused on the JOINT-level
- The WUST and pre-training must be adapted when there are no experienced personnel present from actual Naval Staff.
- The balance between staff work, learning processes and managing the scenario was poor.

- It took long time (days) before counterparts at high com (J4/JLSG/LCC/ACC) was identified. This could have solved during WUST/Pre-training or by support by OTM.
- A tour of the whole staff (MCC) would have been useful to fully understand how all the processes align – during WUST.

MCC M5

- no actual staff training during WUST or pre training
- OTM did support the branch during WUST which was essential for starting up the branch
- Lack of coordination from the JOINT-level (JOPG) hampered the staff work
- unclear guidance regarding what was long-, medium, short term
- close cooperation within the staff is vital for SA
- Learning objective A = Green
- Learning objective B = Yellow
- Learning objective C = Green
- Learning objective D = Green
- The pre training information packages are very good
- War game was great

MCC M6

- Lack of SOP, BW and reporting instructions was hampering
- Need more information on what CIS-equipment is used at the TG-level, frequencies table for MCC and NFOR, Comms Plan, EW and Cyber.
- WUST was well planned and well executed.
- Team talk functions must be up and ready before the exercise
- No OTM at the M6 branch
- There should be more playing cards against the M6 branch and functions
- Training objectives A-C is fulfilled

MCC M9

- The branch was only manned at half – missing SO:s and clerks.
- No OTM:s designated to M9 branch – hampered start up and WUST due to no experienced CIMIC personnel in the branch
- Lack of BW and SOP was hampering
- Templates and reporting instruction were missing
- When staff/branch is outnumbered the time becomes a great issue

- No time to read signals or gather information

- No time for assessment

- Meeting etas your working hours
- Learning objective A = Green
- Learning objective B = Yellow
- Learning objective C = Green
- Learning objective D = Green

- News flows should be presented at TV screens
- SITAWARE should include movement of IDP:s and refugees
- The information package in pre training regarding the scenario was very good

MCC LNO to ACC

- Pre training at Swedish Defense University could be structured different. More lectures regarding processes in the different branches and on the tactical level.
- MCC SOP must be posted before the exercise
- When manning the staffs more people should be tasked as LNO:s
- The e-learning portal is of very high quality.
- Excellent support from OTM at A5 – key to success
- The importance of inter liaison between A5 PLANS, A5 ASSESSMENT and A3 CURRENT would probably apply at MCC as well.
- The importance of all branches being aware of Decisive Conditions and Operational Effects, not only for the 5-branch. All must be aware of the assessment – were are we in the operation.
- All training objectives are reached.

ANNEX N - JLSG REPORT (FROM AAR)

The following annex is the AAR-report submitted at the end of VIKING 22.

JLSG summary evaluations

1. Preparations
    a. Success
        i. IT-preperations were a success – everything was working
        ii. Preparations with the stex and the clerks helped during the startup of the exercise. The education they had one week before is one of the vital points in preparations.
        iii. Finnish students and officers went for a two day training in Helsinki, scenario and logistic preparations, done within a week before exercise start up. A majority were able to use the pre-training website.
        iv. Seems to be a lack of preparations regarding the Swedish staff-participants. Swedish Defence University had one week but working personal barely had any.
    b. Improvement
        i. The lack of SOP in the startup of the exercise had a negative impact on the staff work. These SOP, for example JLSG, should be distributed in pre training and be available during the startup of the exercise.
        ii. Could it be possible to use teachers from NATO-school (support group HQ in ULM GERMANY) to educate the JLSG in the WUST period.
        iii. Main effort in preparations must be synchronization between Exdir and participants so that as many as possible come in to the exercise with as good preparations as possible.
2. Lessons
    a. Identified
        i. Good exercise to understand the JLSG concept and the operational level.
        ii. The duration of the exercise made it possible to learn and implement lessons identified.
        iii. Principles and the need for cooperation between subunits, adjacent and higher staff as well as civil and military was an important factor to be able to function as JLSG.
3. Exercise objectives
    a. Command group and branches are of the understanding that the JLSG HQ managed to reach the common training objectives mentioned in the Endex order page 6.
4. Other

a. Space was not optimal for JLSG. We need a place for briefing and assessments. Lack of VTC in the JLSG must be fixed for next year.
b. Excon and incidents – has been good regarding the quality, and the guidance through the organization (reaching the right level).
c. There must be improvements regarding the command and control situation regarding RACC and JLSG. Stick to the existing NATO concept regarding NATO logistics, lack of response cell to answer from the RACC.
d. There has been a learning attitude within the JLSG staff which benefitted the whole staff work progression.

From Branches within JLSG, details

HWU JLSG PLANS and LNO

- Experiences and impacts from the preparations of the exercise; successful areas and important areas for improvement

  - ✓ For "Newcomers" would be good to have a short briefing about the organization and chain of command.
  - ✓ The lack of SOP for JLSG in the portal, SOP`s were organized by FIN.
  - ✓ The lack of Branches in JLSG like J1, J2 and J6.
  - ✓ The LNOs (and their sending COS) lack documents or orders which explained why the LNOs was sent to the receiving staff, also containing mandate, task or at least guidelines so that it would not take half of the exercise to figure this out. Then the focus instead would have been even more on solving problems, actual liaising, and really be the ear and voice of the sending staff.

- The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise.

  - ✓ How to spread information within / with the Staff / other Units, (JLSG could not read NFOR Documents and vice versa).

- Self-assessment on the fulfilment of the overall Exercise Objectives and Training Objectives

  - ✓ Overall we have been involved in every objective more or less.

- Other observations

  - ✓ It was a good experience to work in a real multinational Staff with SWE-, FIN-, AUT- and CHE- Staff members.
  - ✓ Overall the atmosphere within the staff and the climate to learn has been good since the first day.

Maintenance, contracts, supply & services, medical

Experiences and impacts from the prep

- According to the organization: there is a need of better information and schedule to the participants before the start of the Exercise.
- IT support & IT itself: excellent work.
- Educational for us was good, especially for us who are civilian
- Setup was not good enough, HQ needs more room and space to work. One big class room is noisy and crowded. Sometimes it was difficult to consecrate to work and talk to phone.
- Lack of templates, lack of basic information especially in the area of ORBAT, logistic details i.e. DOS
- Clearer information regarding starting times, locations and ending times, to make booking of transport easier.
- Earlier information regarding the exercise pause at 14:00 on Sunday. Perhaps also a bus transport back to Enköping so that more people could have gone to Stockholm.
- Slightly more time spent on how the event log works and how all the branches should use it, to improve information handling. Maybe choose members of each branch as IOs and give more training.
- More information sent before the exercise regarding how the JLSG is organized, how it works, main functions and what is expected of each branch, and how branch specific tasks will be conducted.
- The Rule Book of Medical Game apparentely missing.
- ORBAT of Medical Corps and capacity of medical assets (*e.g.* number of ward beds, ICU beds and OR capasity of ROLE2/3 *etc.*) should be know before the exercise.
- The same ground for and level of understanding of the exercise was missing inside the branch. This could have avoided by having a branch oriented education/lectures in the beginning of exercise or/and a binder/folder with all the templates/report forms/SOP´s.

The most imported lessons:

- The most important lesson is that the language can bring a confusion. For example, A says something that B understand in a different way.
- Get familiar with JLSG organization and its SOP's.
- Experience: good experience from staff work and procedures between higher HQ and subunits.
- For JLSG Contracts – We received a finalized contract list the same day as the exercise started (too late, no time for us to gather information on our contractors) and we had to create it ourselves.
    - Missing important information on our contractors, locations, capacity, lead times etc.
    - The way in which we should work / co-ordinate purchasing was unclear and we had to figure it out as we went along.
    - Unclear routines in how/who we contact when looking for information on contracts and getting authorization.
    - Limited co-ordination between "HNS" and Southland Government, which caused in-game confusion.
    - Different email addresses for different functions. All emails this time for NSPA, HNS and every contractor went to the same address and caused some confusion.
- The medical injects need to be precalaculated/preplanned, more realistic and follow the intensity of fighting.
    - The medical assets in the operation theater has to be preplanned and dimensioned according to the operation plan.
- If it isn't broken you don't have to fix it

Self-assessment on the fulfilment of the overall Exercise Objectives and the training objective

- **Current Operations**
    - Only 30% of our task according to JLSG SOP 707 fullfilled.
- **Operations Assessment**
    - Fullfilled
- **Joint Coordination**
    - Synchronized mainly short-time planning.
- **Future Planning**
    - Fullfilled partly
- **Joint Functions**
    - In our own headquatres mainly.
- **Internal Staff Work Flow**
    - Fullfilled. Most of our exercise concisted of this.

- We have not received branch specific objectives and find the overall exercise objectives vague and unclear.
- We feel that prior to the exercise, the training objectives should be clarified to give guidance to participants and enable post-exercise analysis.

JLOC

Experiences and impact from the preparations of the exercise; successful areas and important areas for improvement.

- Some officers did not receive the e-learning access to learn about VK22
- Manuals and SOP should be accessible from day 1 (in the WUST already).

The most important lessons identified and the most important areas for improvement regarding the implementation of the exercise

- Scenario and working methods in different staffs should be taught in the early days of WUST. Need multiple Mentors-coach on place that can follow the branches, we lost 2 WUST days to invent our processes and didn't knew what to expect from our cell.

Self-assessment on the fulfillement of the overall Exercise Objectives and the Training Objectives.

- We reached our goals, our COM has been informed and could take decisions.
- We improved the capacity to work together as a Staff internal in JLOC and with other branches also.
- We managed to assess different points of view, discuss in an open way, listen to other opinion and find a way to work together and cover the needs of the operation with success.

Other Observations

- Special mention goes to our STEX guys for helping us.

ANNEX Q - 1.MNB BUL REPORT

1. Brief Introduction.

VIKING 22 preserves the tradition of previous editions of the exercise to present to TA a scenario based on real conflicts, which allows learners to get the most realistic idea of planning and conducting an operation in such an environment. This, in turn, implies a future update of the scenario, according to past or current conflicts, which requires the joint use of military and civilian structures to resolve a complex humanitarian situation.

The structure of 1.MNB consisted of students (staff course), teachers at BGR National Defense College and international participation from USA. The structure served its purpose in facilitation of the training objectives, specifically in the interaction between mil and civ players in VIKING 22.

2. Focused analysis on the exercise aims, objectives and focus areas.

The exercise was successful in achieving the main aim, to train and educate civilians and military to meet the challenges of current and future multidimensional crisis response and peace operations, based on a scenario that promotes comprehensive approach through co-operation and co-ordination between all relevant actors. This enabled the brigade headquarters to acquire new knowledge and skills related to the planning and conduct of a modern multidisciplinary operation.

As regards of the headquarters of the 1.MNB, it can be said that achieving these goals was a good challenge and contributed to mutual understanding, confidence, co-operation, and interoperability among all contributing and affected forces, organisations, and personnel – military as well as civilian. In fact, it was a great experience of learning and sharing knowledge and skills, which improved everyone's knowledge and made it possible to pursue the goals of mutual understanding, operational planning, and civil-military relations.

The brigade headquarter once again has demonstrated knowledge of the techniques and procedures / areas of work and objectives of IOs, GOs and NGOs. They were able to distinguish the tasks of civilian support organizations, as knew the levels of cooperation, coordination and took them into account in military planning. They were able to plan, prepare and take appropriate measures to support and monitor operations to assist civilians, being aware of the limitations and possibilities of military cooperation with IOs, GOs and NGOs.

The brigade headquarter was able to coordinate different capabilities of the individual organizations to enhance the effectiveness of the mission. Military personnel were able to plan, command and control the support and monitoring of civilian relief operations, while were aware of the limitations and possibilities of military cooperation with IOs, GOs and NGOs, and in support of humanitarian relief.

Although been very successful, it can be said that VIKING 22 poses a challenge to both military and civilian structures. This challenge was largely because the military structures represented by the brigade headquarters had limited idea of how the planning and assignment of tasks in civilian structures was going. Equally it was the case for civilian structures, which also had very little idea of

how a military formation works, especially when it comes to planning and setting tasks to be performed. It should be noted, of course, that the specific activity performed by some of the structures of the brigade headquarters, which involves classified information could not be shared with civilian structures, also contributes to this.

3. Lessons identified with recommendations.

Unlike previous editions of VIKING exercise, when the structure of the Bulgarian brigade largely allowed the brigade to perform a wide range of operations, the structure assigned to VIKING 22 greatly limited these capabilities. This, at times, proved to be a challenge for the planning staff of the brigade headquarters in cases where the situation shifted from actions in a peacekeeping operation to a stabilizing operation.

Incorporating civilian students into the VIKING 22 exercise, despite the fact they are not part of TA, is very proactive approach. It gives them unique opportunity to obtain voluble knowledge and skills using unique exercise platform.

Mil TA carried out the tasks in accordance with the SOP in a timely manner, but it was seen that it was necessary to improve the interaction and cooperation with the civilian authorities by improving the actions of the brigade HQ. Further improvement is desired in the information flow both horizontally and vertically. Communicating the information with the CIV TA took more time than necessary, and it should be the main area of improvement.

4. Administrational, technical, and other comments and observations.

Regarding the technical platform and the services provided for the exercise:

- E-mail worked well and was linked to the personal login accounts in the exercise portal.
- The developed WEB portal for sharing information and documents worked without failures.
- SITAWARE worked by providing an overall operational picture of the TA.

It is necessary to refine the composition of the opposing forces so that the graphic symbols of the SITAWARE correspond to real parameters. For example, when a graphic symbol for a mechanized battalion appears on SITAWARE, the TA recognizes that it is indeed a formation with a certain composition. During the exercise, when a graphic symbol for a mechanized battalion appeared on the screen, and you click on it, a composition close to an infantry platoon was display. This at times confused the TA and influenced the decision that the trainees were expected to make regarding the actions against the respective opponent. This can be corrected by providing more detailed opposing forces information in the graphic symbols, providing in advance an information regarding every symbol or to use a set of appropriate graphic symbols that corresponds to the composition of the respective enemy formation.

The technical pre-training regarding the simulation systems needs greater attention. The brigade headquarter should be familiar with the system with which battalion commanders work - what graphic characteristics and what capabilities

the system has. This affects the way in which the tasks of the subordinate formations in the brigade are set and what the commanders of the subordinate formations are expected to report.

5. **Recommendations for future exercises.**
   For future exercises, it is appropriate to use brigade structures that correspond to the changes in the scenario.

ANNEX R - 2.MNB SWE REPORT

INTRODUCTION

2.MNB/SITE SWE was deployed in Enköping, Sweden. BDE Headquarter was located in Enköping garrison area together with BFOR, LCC and JLSG. Exercise facilities and real-life support for training personnel were excellent.

2.MNB HQ personnel were Finnish Staff officer course and Swedish officer course students. Finnish students were manning HQ DACOS and SO tasks. Swedish officers were manning ACOS and SO tasks. Students of both nations were at the same level regarding staff working capabilities, language skills and attitude.

2.MNB HQ structure was not Finnish armed forces neither Swedish armed forces HQ structure. HQ structure was planned for crisis management operations. G1 branch was missing from the structure. HQ total strength was 52 staff officers which is approximately 2/3 of full BDE National HQ total strength.

TRAINING OBJECTIVES

2.MNB/SITE SWE had six main training objectives for Viking 22 exercise. Underneath are training objectives listed and comments added concerning their achievement:

TO	Headline	MET
1	Internal Work Flow	Improve cooperation and coordination within the HQ. (check and improve C2-R2 systems and SOPs). COMMENT: This TO was achieved in a **good** level.
2	Interoperability	Improve interoperability with the rest of the actors within the AOR. COMMENT: This TO was **not achieved**. Reason for that was lack of gaming of other actors in 2.MNB AOR.
3	Intelligence Support	Provide intelligence support to operations. COMMENT: This TO was achieved in **sufficient level** concerning the nature of 2.MNB offensive operation.
4	Operations Planning	Implementation of military decision-making process and operational planning – preparation and issue of OPORDERs – FRAGOs at operational/tactical level. COMMENT: This TO was achieved in a **good** level.
5	Force Protection	The protection of forces in PSO environment against all kinds of symmetric, asymmetric, hybrid and cyber-attacks.

		COMMENT: This TO was achieved in **sufficient level** concerning the nature of 2.MNB offensive operation. There were not a lot of gaming for above listed effects which would have issued need for Forde protection planning in 2.MNB operation.
6	CIMIC	Improve cooperation and coordination with other actors in the AOR (IO/NGOs etc.) and plan and conduct CIMIC activities. COMMENT: This TO was achieved in **sufficient level**. Even though there were lack of gaming of other actors in the 2.MNB AOR (IO/NGOs etc.)

PRE-TRAINING AND PREPARATION

There were two days pre-training for Finnish students before exercise. Under training students familiarized with 2.MNB OPLAN, HQ structure, SOPs and BDE sub units. Two days national pre-training for Finnish students were not enough. There was not pre-training for Swedish students before Viking22 exercise.

There were also two days and one-half day pre-training in Enköping before exercise. Pre-training and preparation were called WUST. WUST training was way too short for training BDE staff.

RECOMMENDATIONS

2.MBE personnel suggest following issues to be fixed for following Viking exercises:

1. MNBE HQ structure should form more capable to conduct BDE offensive operations. G2 needs more personnel and cells to maintain and share BDE SITAWARE.
2. Pre-training and Preparations should last at least five days IOT achieve at least rough capability for MNBE to maintain SITAWARE in offensive operations.
3. Gaming of CIMIC, MNB SUBUNITS and other actors (IO/NGOs etc.) in BDE AOR should be invested more effort.
4. Maintain offensive scenario with strong and aggressive OPFOR

CONCLUSIONS

Viking22 scenario platform and Enköping real life arrangements were the most positive things in the exercise. Exercise is a very good platform for BDE level HQ training in multinational environment. It is very useful exercise for Finnish SO course officers.

ANNEX S - 4.MNB FIN REPORT

Objectives 4 MNB

Overall our orders and objectives were straightforward and clear.

- Neutralize OPFOR and disarm warlords
- Gain terrain and seize key areas

The brigade also received some restrictions from LCC in carrying out the mission:

- Do NOT push the OPFOR over the channel and into NORRKÖPING

After revised and briefed by G5, COM/DCOM 4.MNB decided that we will secure key areas, and conduct a pincer movement combined with an Air assault to prevent the OPFOR to retract over the channel and into the NORRKÖPING area.

Key success

- Neutralizing OPFOR capability and still not pushing OPFOR north was challenging but the task also was the foundation for many learning points and good tactical discussions.
- 4.MNB conducted an Air Assault SE NORRKÖPING which promoted inter-service coordination which was really good from a learning perspective. It is questionable if it had been possible in real-life operations.
- Daily Co-ordination with 3. Bde regarding the border situation was good but also implied that the intel gaming differed slightly between the brigades. 4.MNB situational awareness was not the same as the 3.MNB.
- Coordination between 4. MNB and MCC was limited but a key part to secure the archipelago.
- Air Request and Airspace Coordination was smooth and without frictions.
- The scenario allowed both warfighting and civilian-military dimension.

Challenges

The size and shape of the Bde area were a challenge but also provided many good tactical discussions.

Lessons identified

- WUST is needed and well spent time for preparations. Not all participants are students at a Defence University and the time for exercise preparations differs from nation to nation.
- It is of outmost importance that an existing and updated SOP and battle wheel are present and can be reached before STARTEX
- 4.MNB concluded that there is a difference in the SA between the Bde´s (Intel game?)
- Site FINLAND provided excellent support.
- It is hard to stimulate 2 and 5 branches unless they are given the time to make the right preparations.
- IDP and refugees played a vital part in 4.MNB planning but during the execution we rarely was hampered by IDP´s/refugees.

Other observations

- During VIKING the Com grp also facilitated briefings in Gender, ROE, Targeting, Comprehensive Approach, and tactical discussions. During the tactical discussions, the whole staff was invited to participate. The briefings were appreciated by the TA.
- VIP visits are important, especially for the students. The visit from senior officers were well taken.

Recommendations

- STARTEX could be divided to allow higher staff and key functions to make necessary preparations: NFOR-LCC-Bde´s. Preparation and execution on a lower tactical level is easier to stage than within the NFOR HQ. Otherwise there is a risk that the operations will be driven by lower level and Joint HQ are trying to catch up (i. e. targeting).

- STARTEX could also be adjusted to allow improved game mechanics and training i e: Com grp – Intel - Plans

- The information could be accessible before STARTEX especially SOP, description of different positions, etc.

- INTEL game must be coordinated across Bde´s border and between services

- IDP´s/refugees could be used in a wider extent to enhance civilian-military coordination, however the need to train and practice regular warfighting still exist.

- The OPFOR needs to be buffed to pose a serious threat.

- OTM`s can be developed to be active in training role of the TA, not solely observing. Especially early in the exercise. However, OTM´s for the 4.MNB quickly reacted and adapted to the situation.

- The brigade areas could be changed to get the ground units into action earlier. Now the major effort is to push north rather than to figure out how to neutralize an enemy.

- Social event/sightseeing should be pre-planned on low ops day

ANNEX AA - SITE REPORT ENKÖPING

Site Report Enköping

(Col Anders Edholm, Commander of the Joint C5 Warfare Centre, Site director Enköping)

The site in Enköping is in many ways complex, with both local and central functions duplicated in many functional areas. The key to success has been to as much as possible also integrate central functions in site meetings and site coordination. One of the most important experiences, from the site's point of view, is that the transition from preparation to exercise organization and coordination should have been done earlier, already during pre-training. Many uncertainties and coordination needs could only be solved when regular site meetings started fully manned. Numerous experienced key personnel (in the Core Planning Team, exercise control, and support staff) retire shortly - that legacy and those experiences should be recorded in an exercise manual while there is time.

Preparations

During the preparations, there have been ambiguities in responsibility between the CPT and the site; there have also been shortcomings in the action plan - who does what and when. Above all, Security and Military Police testify about late inputs and plans that did not correlate. Time pressure and lack of staff meant that much had to be solved with very short notice.

Before starting the exercise, some coordination meetings were held for the site. They were very valuable, and with the results in hand, the meetings could have been more and conducted with more stakeholders.

In summary, there are many dedicated people who, during the preparations, have shown extraordinary evidence of flexibility and willingness to solve problems that have arisen. Even though the responsibilities have changed somewhat for Viking 22, the solid routine in the organization and among volunteers has helped or even been indispensable.

Execution – Exercise

As Viking in Enköping is more than just a site, the transition should have been made earlier. Many ambiguities, unclear responsibilities, and problems were easily solved when regular site meetings started with all functions present.

The execution was characterized by orderliness, a positive attitude, cooperation, and solution-oriented experienced staff. What is particularly highlighted in the evaluation is the excellent collaboration and division of labor between Stex and Syscon. Demanded support (both technology and RLS) could be delivered with little friction. An indication of this is spontaneous feedback that this year's Viking was the most stable ever and that the problem calls to the Duty Officer were very few.

The Sitedir and the safety organization conducted a formal electrical and fire safety inspection before the exercise and a follow-up a few days into the exercise. In addition, the person responsible for electrical safety carried out daily inspections. A fire evacuation exercise was also conducted at the site, with good results. The safety measures and the fire drill were a good base for the safety officers to exercise their responsibilities. The actions were seen as natural among the exercise participants and signaled a professional attitude.
Stenvreten is an environment with many actors and security aspects. Performing exercise under those conditions is complex. Involving the local manager for Stenvreten is a prerequisite for success. The local manager, Lennart, was not designated to participate in either the preparations or the exercise. Still, an essential part of the exercise's success is that he and many others are dedicated to their responsibilities and stand up.

In summary, the meeting structure for the site was well-functioning, and that especially VOB and PIC participated in most site meetings even though they did not belong to the site was a success factor, or rather a prerequisite. The same also applies to central security.

Additional observations
A generic manual should be prepared for extensive exercises, like Viking.

The change of cleaning supplier during the exercise, despite remarks in good time to postpone the transition to after Viking, was very unfortunate.

The PIC function lacked a manager, and therefore no preparations were made for the exercise. This, combined with technical problems with communication technology platforms, initially led to a heavy start for the function and missed opportunities to get external communication about multinational cooperation during the exercise (extra unfortunate this year given the prevailing world situation).

The VOB function needs permanent MP representation in or at least closer cooperation. It was solved gradually during the exercise, but it is an important experience to include in future exercises right from the start.

Luggage space/storage needs to be available at check-in - it signals professionalism, and it is a security issue.

Exercise participants and visitors are handled with manual methods, e-mails, and forms. It is very time-consuming, increasing the risk of incorrect information and mistakes. This handling must be digitized so that participants or visitors take greater responsibility for registration, such as at trade fairs, NATO meetings, etc., so the GDPR should not be an obstacle.

ANNEX BB - SITE REPORT UPPSALA

Short introduction on the organization or function in the exercise

Planning phase
During the planning phase, the Site organization in UPPSALA has been responsible for all planning to ensure manning of the Site organization, RC AIR, ACC and CAOC with personnel from the Swedish Armed Forces, Swedish Defense University, foreign partners and voluntary organizations.
Site planning has also been focused on creating as good physical exercise conditions as possible for the main training audience concerning real life support, locations and technical support in UPPSALA.
Pree Training has been carried out to ensure WUST in the implementation phase.

Implementation phase
In the implementation of the exercise, Site UPPSALA has supported the exercise with RLS and technical support in order to create as good exercise conditions as possible and that everyone involved in the exercise should enjoy UPPSALA.
Site UPPSALA has also supported with security service, PIO and VOB.
During the implementation, 193 people participated in the exercise at Site UPPSALA.
Pre Training 2 and WUST have been completed.

Analyses of key successes and challenges during both the Planning phase and the execution of the Exercise

Planning phase
Support from CPT regarding common equipment such as badges, cups, printed material about the exercise and maps worked very well.
Staff support from CPT with manning of desired support from voluntary organizations worked very well.
CPT has been helpful in the planning process in providing answers, support and guidelines.
Manning for Site UPPSALA became challenging with fairly short time conditions within the Swedish Air Force. The manning process was also affected by the war in UKRAINE. Here, the employment of experienced reserve officers became a success factor.
Site UPPSALA has had difficulty in clarifying the planning situation regarding ICC / ITC via the company NCIA. This led to some uncertainty in the planning phase.
Sending a Calling message would have been good to clear up any uncertainties regarding times and places for setting up for the exercise.
Uppsala Garrison's local conditions have been very good for deployment of ACC / CAOC / RC-Air.

Implementation phase

Pree Training 2 was well balanced in terms of staff and time taken. IMO staff provided good support for WUST and implementation, where the IMO service did not become a bottleneck during the exercise.

The time for WUST was needed, where the staffs had time to carry out the necessary preparations before the start of the exercise.

The directive of "game stop" in the middle of the exercise, perceived as coming at a late stage where there was no time to create the best conditions for creating a good program with guided tours for the training audience.

From a Site perspective, everything went well where no special events occurred regarding security, catering, transportation and lodging etc.

In both the planning phase and the implementation phase, FMTIS has delivered excellent support at UPPSALA. Overall, the Site organization has been well adapted to the Site's tasks.

Activities at the Officer´s mess in the evenings have been appreciated where everyone at Site UPPSALA had the opportunity to relax, build networks and team-building for the training audience.

Lessons-Identified

- The ICC / ITC system is critical for practicing ACC / CAOC. Uncertainty about ordering and manning from the company existed for a long time in the planning
- Personnel planning should come in at least one month earlier. Site UPPSALA had problems with time to sort, analyze and send out directives within Swedish Air Force for manning of all assigned positions. Some rescue could be made by hiring reserve officers for critical positions close to the exercise. In total, 75% of all assigned positions were filled. The result of this was that certain managerial positions had to be manned by students. Some functions had to be deleted and competence depth within ACC / CAOC suffered. The result was that certain injects had to be deleted and that tactical discussions may have been suffered

Recommendations (for future exercises of this type).

- Regarding ICC / ITC, it is recommended that FMV signs a multi-year agreement with the company NCIA
- Manning process should start up earlier
- Main CPT continues to deliver the same excellent support to sites

ANNEX DD - SITE REPORT KUNGSÄNGEN

Introduction

VIKING22 once again show that SWEDINT provides an excellent site for conducting international command post exercises. The flexibility of the facility allows for a dynamic and rapid change of the floorplan, accommodating needs of the training audience. Dining facilities, Mess service and accommodation meet expected standards. The experience of the permanent staff allows for a responsive approach towards international participants. SWEDINT will remain a reliable partner for future VIKING exercises.

However, planning and preparation of this iteration was subject to the uncertainties of the ongoing Covid-19 pandemic. Multiple alternatives for lodging, meals, transports, floor plans, medical service et cetera had to be considered, frustrating the planning staff. Fortunately, early indications of lifting of Swedish Covid-restrictions allowed for a deliberate risk-taking in planning for an on-site solution.

The scope of this report is limited to experience of activities related to host nation support. Fulfilment of exercise aims and objectives for the training audience are covered in Annex H.

Pre- and Work Up Staff Training

By request from the leadership of the UN training audience SWEDINT accepted a party of key-staff arriving on Friday the week before the exercise started. This facilitated their own organizing, as well as influencing the set-up of the premises. The UN organization is fixed, but it is also flexible and task-oriented. When the situation requires they organize themselves in working groups accordingly. For future set-up of a UN Mission Headquarter it is recommended to prepare rooms with work stations according to the size and design, and then let the training audience decide which function/cell to populate a specific room.

A last-minute decision was made to have the initial main welcome-brief in Enköping instead of in Kungsängen. This allowed the UN training audience to see and understand the magnitude of VIKING 22, and also facilitated initial networking between the missions of UNMIM and NFOR. Although time and resource consuming, it is still worth considering for future exercises.

Many participants – especially civilian staff – are not accustomed to the concept of Z- or B-time. This was the foundation for a lot of misunderstanding and frustration when setting up meetings or coordinating activities. A solution is to have either a Z- or B-time clock shown in the exercise portal head.

Public Affairs-activities lacked centralized guidance and control which affected planning and overall management for the site's Public Affairs Officer. The chosen platforms – FM Blogg as well as the CIX-client-based news broadcasts – limited the possible channels for dissemination of information, internally and externally. The choice of the latter meant that the very professional TV-news produced could not be aired on Site

Kungsängen's internal information network, limiting the audience numbers.

Host Nation Support

Personnel

Lack of defined task and budget to participate and prepare the exercise led to an initial obstruction as to whom was concerned with this. Coupled with changing requirements of what positions should be manned in the manning list all the way up to game-start, meant that an effective and prudent planning and preparation was hindered. Tasking with an appropriate budget are a basic prerequisite to plan, prepare and adjust for shifting needs as the planning progresses.

It is highly recommended that there be only one Master Manning List, which can then be cut, sorted and distributed as required. As it happened, there were in the end a plethora of lists, which more often than not had contradicting information.

The decision to cancel the OTM positions for the UN Mission Headquarter had an impact on the Real Life Support as well, in that some of the frictions affecting the support staff during the exercise could have been mitigated by the OTM organization. An unfounded concern of the OTM's role as evaluator of the participants must be moderated during planning conferences by explaining the OTM's role as not only observers and mentors, but also as game-players and synchronizers. One example was occasional failure to synchronize injects from subordinated staffs to higher staffs and vice versa, creating confusion, frustration and unnecessary work.

Finances

It must be clearly stated in the invitation the responsibility for payment of the exercise fee. In the application form there should be two alternatives presented: *Pay individually* or *Paid by organization* (followed with a space for Billing Address). The choice must then be presented in the Manning List, to make it apparent for the site's Pay Master.

Premises

11.1.1. Exercise building

The standard and flexibility of SWEDINT's facilities was much appreciated by the participants. The variety of big and small rooms and auditoriums make it a versatile location for any training audience.

11.1.2. Accommodations

Even though there was an unfortunate change of hotel management contractor – both reception and cleaning service – in the middle of the exercise, the standard and proximity of the hotel was to the participant's satisfaction.

Meal services

Although meal hours are always a point for opinions during education and training at SWEDINT, the dining facility in Kungsängen have provided excellent service during the exercise. An extension of opening hours is a requirement for this kind of international staff exercises.

Medical services

Unfortunately, the Kungsängen garrison Medical and Health Unit (FH LG) was in a state of reorganization during the exercise, and was therefore unable to provide medical support to the participants during the stay. It could only provide limited support to Covid-testing, necessary for providing travel certificates required by some airlines or foreign destinations. Instead, this was handled through the support of Operation Gloria and the National Veterinary Institute. A recommendation for future exercises – if required – is to decide and communicate the Swedish Armed Forces' responsibility for participant's possible need of medical service, either by providing full service or by putting all responsibility on the participants themselves.

Technical/IT Support

11.1.3. Pre-exercise

Initially the Swedish Armed Forces Communications and Information Systems Command (FMTIS) rejected support obligation to LG/G6 and Swedint Technical Support Group (TSG). FMTIS claimed it had not been tasked to support Viking preparations. The requirement was configuration of switches, which was eventually solved through support from Enköping. Considering the unique and complex IT-solution for VIKING it is highly recommended that FMTIS is tasked and involved from the start. The designated equipment, computers and telephones, arrived mid-February. TSG could therefore account for, check and set up all equipment well before the exercise started. This was beneficial for the preparations and should be kept for future exercises.

A recurring feedback to SWEDINT is the lack of WIFI. This was especially evident during VIKING 22 where many of the UN staff flew in from ongoing missions around the world, with expectations on them to be reachable 24/7. The 21'st century is maturing, and modern professionals from all sectors expect to be connected, using their or their employer's devices as a primary tool of communication. This is expected more so at an international training centre such as SWEDINT. Failure to provide such service reflects badly on the Swedish Armed Forces as a modern provider of training and exercises.

11.1.4. During the exercise

One of the frequent issues for both IT-support and the staff clerks (STEX (by the way, a Swedish acronym unbeknownst to foreigners, and should therefore be changed for next time)) was participants losing their log in-documents or otherwise failing to log in. The set-up with three different accounts (A, B and C) created strain on support personnel and frustration among participants, which on many occasions lead to unauthorized short-cutting by using alternative platforms or software (private or outside the exercise set-up). A one-account-solution should be considered for next time.

The decision to assign specific virtual meeting rooms (VRM's) to specific users turned out to be counter-productive. Instead of preparing a meeting by booking an available VMR, it happened on several occasions

that two parties planned the same meeting, assuming that their "own" VMR was to be used. Not only did this create confusion and frustration at the start of the meeting, trying to de-conflict, but also meant that two VMR's were blocked, preventing better use for someone else. It is recommended that the STEX should be in charge of available resources such as meeting rooms, VMR's, VTC's et cetera, and that organizing a meeting is a STEX responsibility.

Security

The regulation on entry/access for the different sites should be streamlined in advance, to facilitate liaison and exchange. A participant's badge and a valid ID should be sufficient for admittance to all training sites, circumventing local visitor's requests.

There were only a few real-life security incidents, but on some occasions it became difficult to assess what IT-systems had been effected and by that determining the loss of information or threat. In some cases, this could be related to insufficient awareness among the staff assistants and clerks on what systems should be used for what purpose. This should be a priority during information management training.

ANNEX EE - SITE REPORT BULGARIA

Brief Introduction.

Now that VIKING 22 has been brought to a successful conclusion, we can fully see how complex and responsible it was to plan and organize such a large-scale distributed computer-assisted command post exercise. This could only be possible thanks to the lead planning and support we received from the Swedish Armed Forces, as well as from the traditional host in Bulgaria - our Defense College, participating Allies and colleagues from IOs, GOs and NGOs. Everyone on this list has contributed not only to the success of the exercise, but also to our constant cooperation and good relations, so all this is highly appreciated.

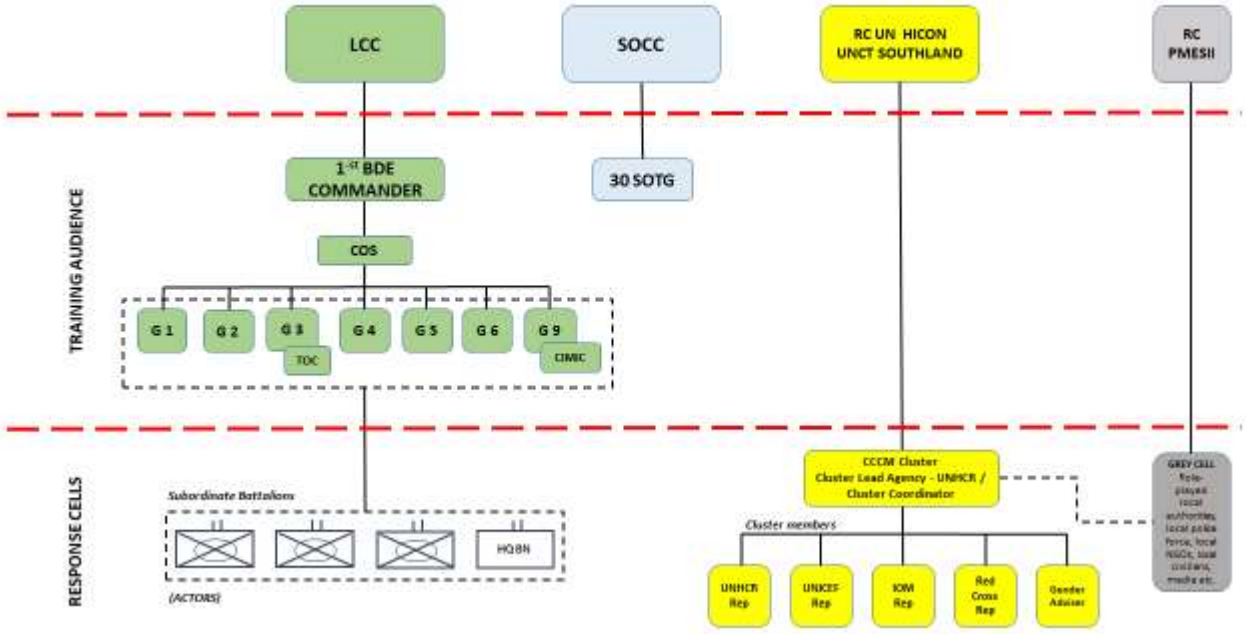


Fig.1 – Site Bulgaria

The structure of Site Bulgaria is at Fig. 1. 1st MNB was under LCC. The brigade consisted of students (staff course) and teachers at BGR National Defense College. The illustrated structure perfectly served its purpose in facilitation of the training objectives, specifically in the interaction between mil and civ players in VIKING 22.

6. Focused analysis on the exercise aims, objectives and focus areas.

The exercise was successful in achieving the main aim, namely, to train and prepare the staff to deal with a multidimensional, multi-layered crisis, which gave us a real challenge with its complexity and size. This can only be achieved through a comprehensive approach and inter-agency cooperation. From what we were able to observe during the exercise, we can clearly say that everyone had a fruitful exchange of views and ideas, and we are convinced that this will help the main audience of the training

in their upcoming meetings to at least be aware of potentially apply current concepts and methods related to peacekeeping operations and requirements in the preparation of SOP.
The exercise delivered the expected outcome, focusing on understanding and applying the comprehensive approach, as well as the idea of promoting mutual understanding and cooperation. In fact, it was a great experience of learning and sharing knowledge and skills, which improved everyone's knowledge and made it possible to pursue the goals of mutual understanding, operational planning and civil-military relations.
Broadly speaking, the exercise achieved the expected result by focusing on understanding and applying a comprehensive approach, as well as the idea of promoting mutual understanding and cooperation. In fact, it was a great learning and knowledge-sharing experience that improved everyone's knowledge and made it possible to pursue the goals of mutual understanding, operational planning and civil-military cooperation and relations.
All in all, a much more delayed and complex situation, both created direct and big challenges for the civilians planning and conduct of VIKING 22. Equally important, this situation also highlighted the continued need for the Viking series exercises. The challenges facing real life coordination, the understanding of different actors' roles and possibilities, the knowledge gaps that could be observed in real life (as well as in the exercise) are important to address. Viking as a platform certainly can address these. But there is a much greater need to see and prioritize the civilian participation, to succeed to achieve the full potential. In the current situation there was in many ways good efforts and achievements in reaching the training objectives on site and in line with the overall training objective for the exercise, however not on a very systematic and integrated level. More in relation to building a broader basic knowledge base among both civilian and military participants.
The challenges faced due to pandemic and real-life situation in Ukraine – created big challenges for planning, as well as the conduct, of the exercise. Despite these challenges it should be recognized that the exercise could be carried out, which is an achievement.
Parts of the objectives and contents were mission-specific and had to therefore be trained as appropriate.
Key personnel knew the techniques and procedures / areas of work and objectives of IOs, GOs and NGOs. They were able to distinguish the tasks of civilian support organizations, as knew the levels of cooperation coordination and took them into account in military planning. They were able to plan, prepare and take appropriate measures to support and monitor operations to assist civilians, being aware of the limitations and possibilities of military cooperation with IOs, GOs and NGOs.
The brigade headquarters was able to coordinate the different capabilities of the individual organizations in order to enhance the effectiveness of the mission. It was able to plan, command and control the support and monitoring of civilian relief operations, were aware of the limitations and

possibilities of military cooperation with IOs, GOs and NGOs, and in support of humanitarian relief.
On a side note, this would not be possible without all the support of the EXCEN including response cells, event managers, simulation support, and role playing, all of which was performed in an outstanding way. Likewise, effective observation and mentoring was in place to allow us, along with the requirement and the guidance from the TA Commander, to be specifically aware on the progress of the TA and the additional training necessities driving the game.

7. Lessons identified with recommendations.

Specifically, for the lead planners - having thought of providing the Swedish Site Coordinators, System and Simulation support, as well as the civilian site advisor is a best practice and should definitely be sustained in the future iterations.
The complexity and interaction between actors be it between military and military, civilian and civilian actors, but especially the civil military interaction, achieving a comprehensive approach is as challenging for the planners of the exercise as for the persons taking part in the exercise, regardless of participating as TA or in EXCON.
Both BGR RCs PMESll and CCCM Cluster members obtained appropriate knowledge and understanding that are consistent with the Training Objectives. They found the complexity and level of detail of the VIKING 22 information package appropriate to their background and experience, and essential to their success as “trainees”. Their learning was enriched by the CIV Advisor`s knowledge through the experiences and examples he shared. CIV Reps had ample opportunity to ask questions and receive answers during WUST session. They were comfortable with the pace and length of the session.
Incorporating civilian students into the VIKING 22 Exercise, despite the fact they are not part of TA, is very proactive approach. It gives them unique opportunity to obtain immersive training using unique exercise platform.
Mil TA carried out the tasks in accordance with the SOP in a timely manner, but it is seen that it is necessary to improve the interaction and cooperation with the civilian authorities by improving the actions of the brigade HQ. Further improvement is desired in the information flow both horizontally and vertically. Communicating the information with the CIV TA took more time than necessary, and it should be the main area to be improved.
By improving interaction, both military and non-military learners have greatly improved the activities in their functional areas of responsibility. As a result of the improved communication, the headquarters, both military and civilian TA became familiar with structure, capabilities, limits, restrictions, etc. of their counterparts.

8. Administrational, technical and other comments and observations.

Regarding the technical platform and the services provided for the exercise:

- E-mail worked well and was linked to the personal login accounts in the exercise portal. This approach is very good for computer security and observation but makes it difficult for EXCON and TA. It is appropriate to build role (functional) e-mails in future exercises, and/or to delegate rights to information managers to define role (functional) e-mails.
- The developed WEB portal for sharing information and documents worked without failures.
- EXONAUT worked as expected and provided the necessary resources to the personnel related to the management and monitoring gaming.
- SITAWARE HQ worked as expected by providing an overall operational picture of the TA and EXCON. For future exercises using such a system, it is advisable to require a specialist to work with TA during all exercise to improve the efficiency of using the system.
- The Common SimGui (Actors) is a common graphical interface to provide realistic information for the SITAWARE HQ. The following appeared when using the system: the response cells used only the controller's account, which in turn led to difficulties in detecting the enemy, revealing neighbours, coalition forces. Operators were forced to make estimates, based on previous experience in using simulation systems.

For the proper development of the exercise scenario, it is appropriate to organize response cells for the situational forces, with representatives from each participating in the exercise country, preferably located in the main EXCON.

In future exercises, the systems for constructive simulation used by the participating countries, to be included in the established federation for the exercise.
All auxiliary materials (maps) should be in the working language of the exercise.
As the main coordinate system used in military maps is MGRS, in the ACTORS system should provide the possibility to use MGRS.

Recommendations for future exercises.

However, in order for VIKING 22 to really fulfil its purpose as much as possible, to a higher potential, our recommendation is that there should be a Bulgarian Site follow up including both civilian organisations and military as well as some participants, in order to see and find ways to use this experience, the exercise and the real-life situations, as an accelerator to further strengthen the important work in improving civil military coordination and cooperation to be achieved in Bulgaria, thru VIKING and other efforts, for future national and international crises.

With our participation as one of the remote sites of VIKING this year we in a way made a strong commitment for a following participation next time. This means we have to keep the memory, further develop the preparedness and generally start next time from at least where we leave it this time.

ANNEX FF - SITE REPORT FINLAND

INTRODUCTION

In addition to the participation at the training sites in Sweden, Finland was responsible for setting up one Multinational Brigade Headquarters (HQ 4MNBDE) in Helsinki, Finland. This task was given to the Finnish Defence Forces International Centre (FINCENT).

FINCENT was responsible for the placement of international participants coming to Finland in SITE FINLAND (Site FIN) and HQ 4BDE assemblies, and for the administration of the international participants.

FINCENT was responsible for reserving the necessary exercise and accommodation facilities in Santahamina and making them available for training. FINCENT designed the general arrangements for the implementation of Site FIN and issued a separate executive order.

Site FIN was led by Lieutenant Colonel Niclas von Bonsdorff, Director of the Finnish Defence Forces International Centre, assisted by Site Coordinator LCDR Mauri Vierula.

4MNBDE was deployed in Sandhamn Garrison in Helsinki. During the exercise the Brigade's HQ was located at the campus of the National Defence University of Finland (NDU). The exercise facilities and all technical arrangements were well prepared and they served this kind of exercise excellently.

Site FIN consisted of altogether 91 participants covering mission leadership and various headquarters levels from some 8 nations.

Based on exercise evaluation reports and Observers', Trainers' & Mentors' (OTM) assessments the exercise was very successful and as a conclusion it can be said that all exercise and training objectives were achieved as planned.

The EXEVAL Group consisted of officers from the Finnish Defence Forces who were responsible for conducting exercise evaluation for the training unit. The exercise evaluations consisted of daily observations and evaluation reports which were delivered to the chief of EXEVAL as requested.

PLANNING PHASE

During the planning phase, two priorities were clearly highlighted: planning the whole of the exercise and building the required staff. In accordance with the guidelines of the SITE Director, each of the above entities was appointed to be responsible for these matters. This "one-stop-shop" principle clarified the activities of the designated responsible persons and enabled the management of Site FIN to maintain an up-to-date picture of the situation. In addition, the solution significantly clarified operations, especially for foreign participants.

Throughout the planning phase Site FIN benefitted from a good an active co-operation with the VK22 Core Planning Team. Details were also covered

through the participation of Site FIN representatives at the Main Planning Conference and the Final Coordination Conference. A Site Survey by the CPTM was conducted at Sandhamn in August 2021.
The management was well supported by the standard handling of preparations at FINCENT's weekly meetings in early spring 2022. This helped to create a good picture of the situation for NDU and FINCENT participants and allowed for a proactive response to the change factors that had occurred.
For the exercise, a separate data network environment with the necessary networking and terminal equipment was built in Santahamina. The key parts for building the data network were delivered to Finland in the week before the exercise. In the preparatory phase, a separate information network was built in the Auditorium Building for the activities of the headquarters of the international brigade to be established.
The IT challenges during the preparation phase were successfully solved before the start of the actual exercise. In addition, Swedish experts came to Finland to help and guide Site FIN during the preparation phase. This support proved to be necessary and valuable in order to make the needed preparations on time.
In the RLS preparations for the exercise, extensive use was made of the good practices and established practices observed in FINCENT's multinational course activities. Preliminary preparations focused on the design and preparation of details related to the participation of foreign and non-FDF participants.
The complexity and extent of the planning and implementation of the task required the suspension of FINCENT's normal training and course activities during the preparation and implementation phase of the exercise. With good advance planning and other proactive measures, the Centre's core activities were carried out as planned.
The training audience prepared for the exercise in separate sections. In week 7, lectures were given to students and self-study and orientation assignments were given in the material on the exercise training portal.
In week 11, a preparation session for the teaching and training staff (teacher week) as well as preparatory training were provided, where the students got acquainted with the training scenario, operational basics and the main processes and key products of the Joint-level staff through lectures and group work.
In week 12, preparatory training was conducted, the focus of which was to get acquainted with the operational basics and situation of the exercise.
Summary of key findings from the feedback related to this phase:

- ICT preparations should be implemented and tested already in the pre-training phase before the training phase
- Pre -exercise material and material prepared during the preparation phase should be available at the start of the exercise (data transfer from one system to another)

- It is a good idea to add customized (targeted) teaching to the national training phase if participants are to be trained in roles and responsibilities of different kinds of departments and sectors in military structures
- The general arrangements were well implemented and they supported the objectives of the exercise

EXERCISE OBJECTIVES

Gaming was well planned and executed from the perspective of the exercise objectives. The exercise objectives and training goals were divided into daily training themes which were executed and observed intensively. Continuous discussion and cooperation between the gaming organization and the OTM personnel worked well.

TRAINING OBJECTIVES

NFOR 4.MNB

TO	HEADLINE	MET
1	**Internal Staff Work Flow**	Employ the staff organization and procedures to optimize its ability to plan, conduct and support the operation successfully according to a valid battle rhythm (BR) and SOPs.
2	**Current Operations**	Conduct Current Operations in accordance with valid SOPs, Operational Plan and Fragmentary Orders (OPLAN/FRAGO), relevant documents and other Brigades.
3	**Operations Assessment**	Conduct Assessment to review the situation and assess the results.
4	**Operations Planning**	Implementation of military decision making process and operational planning – preparation and issue of OPORDERs – FRAGOs at tactical level.
5	**Working in International Environment**	Working as a part of a multinational staff participating in a large-scale military operation in a complex crisis management environment.

1) Internal Staff Work Flow

A lack of an updated SOP was a challenge in STARTEX when 4MNBDE HQ was deployed. The only available SOP for the HQ training and education was an obsolete version of the SOP from the year 2018.

A common information management plan was missing from the HQ-level. At the beginning of the deployment the HQ was putting quite a lot of effort into organizing internal work flow and external cooperation and coordination with subordinates and IOs/NGOs.

After challenges as mentioned above Internal Staff Work Flow started to improve. At the end of the first exercise week Internal Staff Work Flow was already running in a coordinated manner.

2) Current Operations

SOP challenges as mentioned above influenced G3 work as well. After SOP update delays G3 got their staff procedures up and running. Despite all challenges G3 managed to balance its work load and was conducting current operations on the required leve1. Current operations met its training objectives.

3) Operations Assessment

Assessment procedures were tested inside of the HQ. Operations assessments were conducted as required and the training objective was met as planned.

4) Operations Planning

At the beginning of the exercise GS was also suffering from the lack of an updated SOP. Some national differences and opinions about how to run planning tools and processes in G5 were also recognized. There were some moments the planning load was too low and they tried to push LCC to get more D&G and new planning tasks. Despite some minor challenges, it can be assessed that GS fulfilled all the training objectives as planned.

5) Working in an International Environment

This goal was met at the beginning of very early phase of the exercise. Cooperation started very well and interaction among the Training Audience (TA) was improving through the exercise. The training objective was met well.

MILITARY-CIVILIAN COOPERATION AND COMPREHENSIVE APPROACH

Comprehensive approach training and education plays a very important role in the pre-training phase. This was conducted well with Finnish students in pre-training. The HQ's internal and external CIVMIL networking was developing on higher level through the exercise. This is still an important issue which has to be taken into consideration and kept in mind. Without doing that the HQ easily forgets the importance of CIVMIL cooperation and starts to concentrate on the military matters only. All NGOs/IOs have been in the area before the NFOR operation starts. That is why there is a need for the NGC/IO Country Books which describe these organizations' actions and outcomes before STARTEX. At the beginning of this exercise no one was able to provide this information history about NGOs/IOs.

LESSONS IDENTIFIED

On the general level the exercise scenario and all background information were well prepared and they enabled a comprehensive framework for organizing this kind of exercise. The exercise scenario and training objectives reflected the spirit of modern crises and established a realistic exercise environment for planning and conducting civ/military operations.

- CIVMIL cooperation has to be taken into consideration and kept in mind all the time. Without doing that the HQ easily forgets the importance of CIVMIL cooperation and starts to concentrate on the military matters only.

- In today's military operational environment CIVMIL matters and humanitarian assistance should be seen more clearly as a part of operational planning duties and military tasks.
- Pre-training time should be reserved for the OTMs and TAs to orient themselves and learn their individual level of duty requirements based on planned exercise posts. This will reduce stress and frustration among instructors and the training audience and will motivate individuals when they are already familiar with their responsibilities when the exercise is starting.

RECOMMENDATIONS

- Standard Operating Procedures, the SOP's need to be updated and finalized before the next exercise.
- Despite the e-learning packages and pre-training sessions there needs to be a STARTEX Commanders Update Brief CUB on all levels of the command structure. This would serve as a scene setter for the exercise and would provide a much better situational awareness to the TA.
- To reduce waiting times in STARTEX, the first operational planning tasks could be prepared in advance and sent out when the exercise starts. Now there was a delay at the beginning of the exercise when MNB HQ was awaiting for D&G from the LCC

ANNEX GG - SITE REPORT QATAR

Introduction on the organisation and function in the exercise

Viking 2022 was the latest edition of the Viking series, which has been organized by Sweden and the US since 1999. Viking exercises are distributed and attended by many nations. They are typically based on UN peace operations. The Viking 2002 exercise scenario was about two civil wars in the fictitious Nordic Continent Setting depicted in *Figure 1*. One of these civil wars was in Midland which ended one year before the STARTEX by the UN peace efforts, and UN Mission in Midland (UNMIM) was deployed for peacekeeping in Midland. The conflict in Midland was spread to its neighbor Southland and NATO Force (NFOR) was deployed to Southland for a UN mandated peace enforcement operation sixty days before the STARTEX. UNMIM area of operation is divided to two sectors. The eastern sector, called Sector 1, was the area of responsibility for the Qatari Brigade Headquarters.

Figure 1 Viking 2002 Scenario in Nordic Continent Setting.

The exercise was conducted in eight sites as shown in *Figure 2*. Four of these sites were in Sweden. Originally, Bosnia Herezegovina and Ukraine planned to join the exercise, nevertheless, they withdrew after the war in Ukraine started. In Qatar, 95

participants attended the exercise. The details of the participants are as the following:

- 74 Qatari Officers and Noncommissioned Officers
- 8 Swedish Officers and Noncommissioned Officers
- 4 members from various police units
- 2 members from Qatari Red Crescent
- 2 members from the Ministry of municipality
- 5 international civilians

The total number of participants in all eight sites were over 2500 officers, noncommissioned officers and civilians.

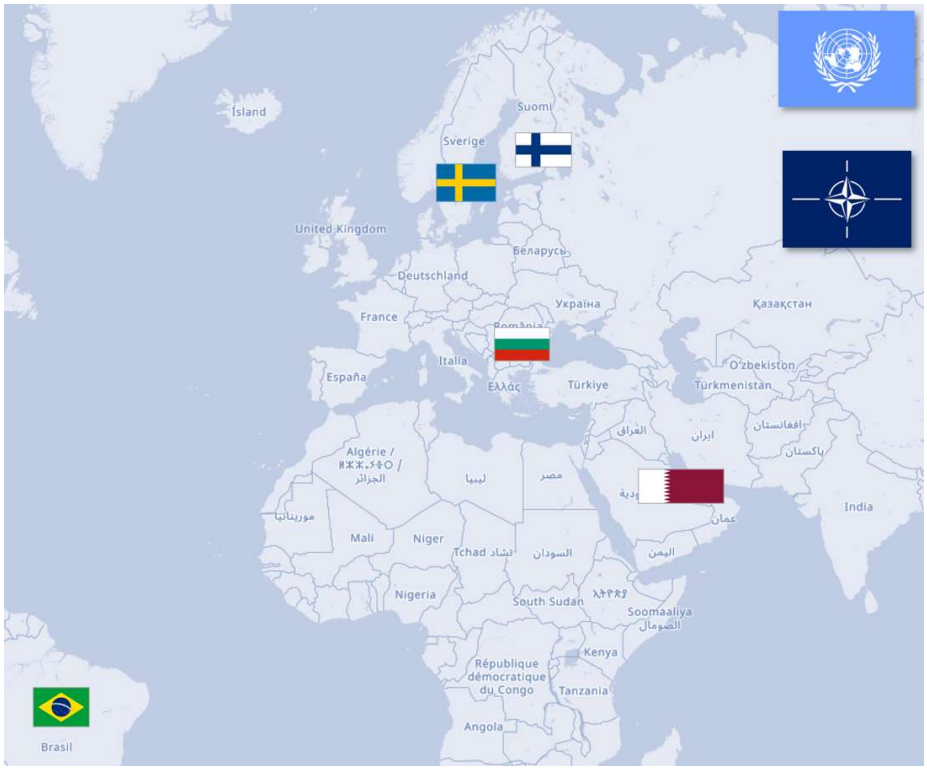


Figure 2 The Viking 2022 exercise sites.

During the distinguished visitor's day of the exercise, Qatar Chief of Staff, Swedish Ambassador and one Swedish Lieutenant General visited the Qatari Joint Warfare Training Center.

The exercise objectives of the overall Viking 2022 were as the following:

- Promote mutual understanding, confidence, co-operation and interoperability among all contributing and affected forces, organizations, offices and personnel – military as well as civilian (i.e. comprehensive approach).
- Understand and apply mission command and management, staff roles and functions, procedures and structures, as well as coordinated planning processes.

- Understand and apply current operational concepts reflecting present as well as future challenges in multinational and multidimensional peace operations.
- Create an environment that supports and facilitates development and experimentation of methods, operational concepts and technological enhancements for participating organisations and nations.

The exercise and training objectives for the Qatari site are given in Annex A.

All the main activities of Viking 2022 given in Annex B were attended by the Qatar Armed Forces.

The Qatar Armed Forces followed all the steps in the Conduct of Exercise as defined in international standards, including Phase 1 foundation training, Phase 2 Response Planning, Phase 3 Execution and Phase 4 After Action Review. The detailed timeline for the conducting stage of the exercise for Qatari site is given in *Table 1*.

Table 1 Stage 4 Conduct of Exercise for the Qatari Site.

Month	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
March	27	28	1	2	3	4	5
	6	7	8	9	10	11	12
	Foundation Training (Academics)						
	13	14	15	16	17	18	19
		Pre-Training in Sweden					
	Foundation Training (MAPEX)						
	EXCON Structure		Functional EXCON Systems Training				
	20	21	22	23	24	25	26
	Ph III.2 Operations Planning						Weekend
			Key Leader Training				
	EXCON MIL Training			OPLAN Training			
		COMEX		MIL Workshop 3			
	27	28	29	30	31	1	2
	Weekend		MINIEX				
		Ph III.3a EXCON Trng. TA Warmup			STARTEX	Ph III.3b Execution	
April	3	4	5	6	7	8	9
	Execution		DVDay	ENDEX	Ph III.3c AAR		

During the exercise, 141 injection are made to training audience and 20 actions are implemented in the simulated theater. Further statistics related to the execution phase in the Qatari site are given in Annex C.

The exercise in Qatari site was observed and evaluated by an observer trainer mentor (OTM) team that consists of two brigadiers, two 1st Lt and two 2nd Lt. The OTM Team made 55 observations and concluded that all the exercise and training objectives are fully met in Qatari site. Apart from the OTM Team observations, the observations by all the exercise participants were collected during the after action review phase. These observations are analyzed and categorized as the following:

2. Analyses of key successes (sustains) and challenges Improves)

a. Sustains

1. Exercise structure and processes are well established and practiced by the members of JWTC.
2. Viking 22 was very beneficial both to JWTC and the training audience. It is recommended that Qatar Armed Forces continue hosting international exercises and participating in Viking series.
3. Workload on training audience were sufficient and productive.
4. Although the civilian participation in the exercise was limited and as a response cell only, it was highly valuable.
5. Observer Trainer process was established and run well.
6. MIL Team scripted new injections during the execution. Dynamic scripting experience is gained.
7. Nested training objectives and MIL process worked fine.
8. Google Earth is used as the situational awareness tool by the training audience. Google Earth was populated and stimulated with the simulation database automatically.

Improves

1. The workload on the training audience could have been better balanced. Afternoon shifts were challenged less comparing to the morning shifts.
2. The workload on the battalion commanders in the LOCON was not high enough. That could have been executed by fewer number of battalion commanders.
3. Foundation training and MAPEX could have been one week.
4. Lessons Identified Lessons Learned (LILL) tool is not used and the process for that was not run.
5. Team Leaders in EXCON can collect statistics related for their process.
6. Encouraging injections could have been better planned. Some of the injections did not create the expected outcome and there was not enough planned encouraging injections to reinforce the training effects.
7. Language barrier especially in the training audience created difficulties in reaching the expected outcomes.
8. Although observer trainer process run fine, the observers and trainers need further training.

Recommendations

Based on the observations made throughout the exercise, the following are recommended:

- Viking 22 was very beneficial both to JWTC and the training audience. We recommend participating in future Viking series.
- Civilian participation to exercise was very beneficial. We would like to include regional office as a training audience in the next Viking exercise.
- In the next exercise, the Qatari training audience IT systems should be completely connected with the higher training audience headquarters.
- We recommend creating a task group that consist of the key members of the Viking 2022 Training Audience to develop an SOP for a sector hq in UN peace operations.

Annexes:

A. The Viking 2022 Exercise and Training Objectives for the Qatari Site

B. Main Activities in the Viking 2022 Exercise Process

C. The Execution Phase Statistics

The Viking 22 Exercise Objectives for the Qatari Site

#	Exercise Objective
1	Train a composite brigade headquarters on UN peace operations as a sector headquarters
2	Connect Qatar Joint Warfare Training Center with its international counterparts

The Viking 22 Training Objectives for the Qatari Site

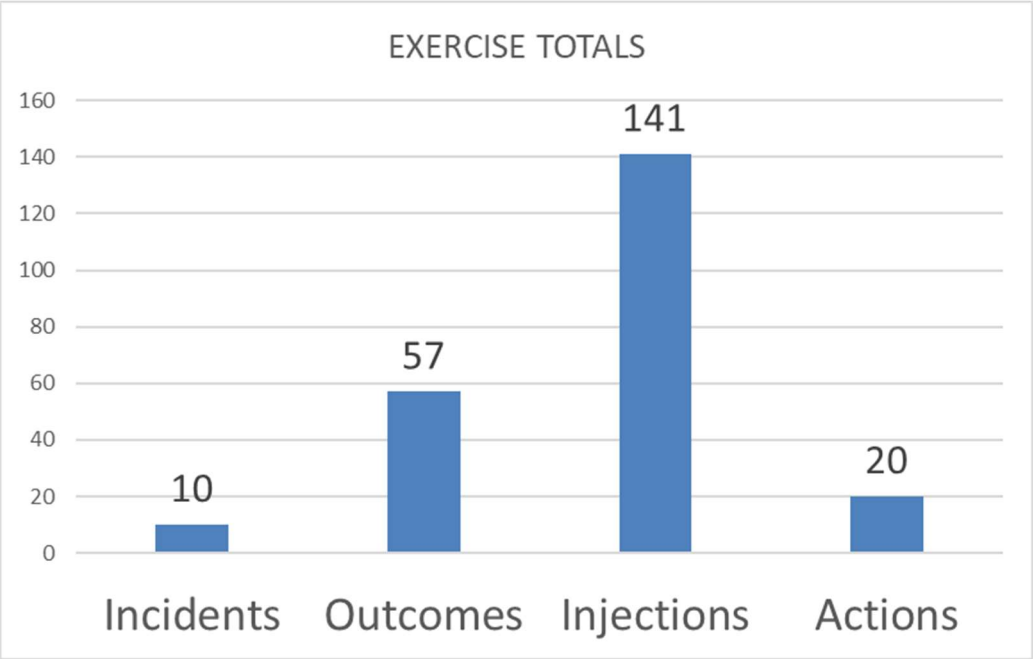
#	**Training Objective**
1	**STRATCOM**: Strategic communications during UN operations in hybrid environments
2	**COMMUNICATIONS**: Horizontal and vertical communications in UN operations
3	**EXPEDITIONARY LOGISTICS**: Long distance deployment and logistics in expeditionary UN operations
4	**CURRENT OPERATIONS**: Execute Current Operations in accordance with; valid Standing Operating Procedure (SOP), Operational Plan/Joint Coordination Order/Fragmentary Order (OPLAN/JCO/FRAGO), relevant documents and Component Commands (CC).
5	**FUTURE OPERATIONS**: Joint assessment and coordination processes as a UN Sector HQ
6	**BATTLERHYTHM**: Executing a battlerhythm aligned with the higher UN HQs

Main Activities in the Viking 2022 Exercise Process

Date From	Date To	Activity	Comments
11 Jun 2020	-	Exercise Specification Conference 1	Teleconference
16 Sep 2020	-	Exercise Specification Conference 2	Teleconference
16 Feb 2021	-	Initial Planning Conference	Teleconference
7 Jun 2021	11 June 2021	Technical Workshop 1	Attended by two Qatari Officers in Norfolk Virginia
8 Sep 2021	9 Sep 2021	Main Planning Conference	Planned to be attended in Stockholm, Sweden
4 Oct 2021	7 Oct 2021	Site Survey in Qatar	1 Brigadier, 2 Lieutenant Colonel, 1 Major, 1 Civilian and 1 NCO (Total 6 Swedish Military Personnel) visits JWTC.
11 Oct 2021	15 Oct 2021	Technical Workshop 2	US
15 Dec 2021	16 Dec 2021	Final Planning Conference	Sweden
Jan 2022		Technical Mockup	Sweden
25 Feb 2022	28 Feb 2022	MEL/MIL Workshop 2	Sweden
23 Mar 2022	25 Mar 2022	MEL/MIL Workshop 3	Sweden
14 Mar 2022	18 Mar 2022	Pre-Training	Sweden

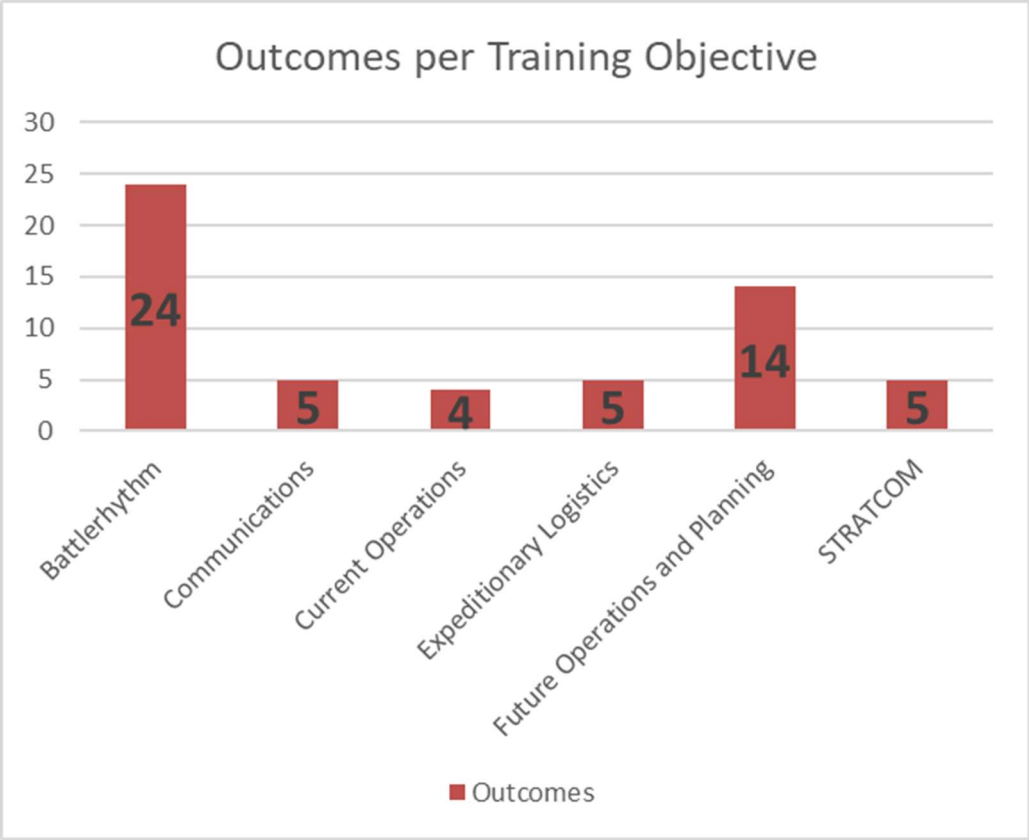
21 Mar 2022	25 Mar 2022	Pre-Training	Qatar
28 Mar 2022	07 Apr 2022	Computer Assisted Exercise	Distributed

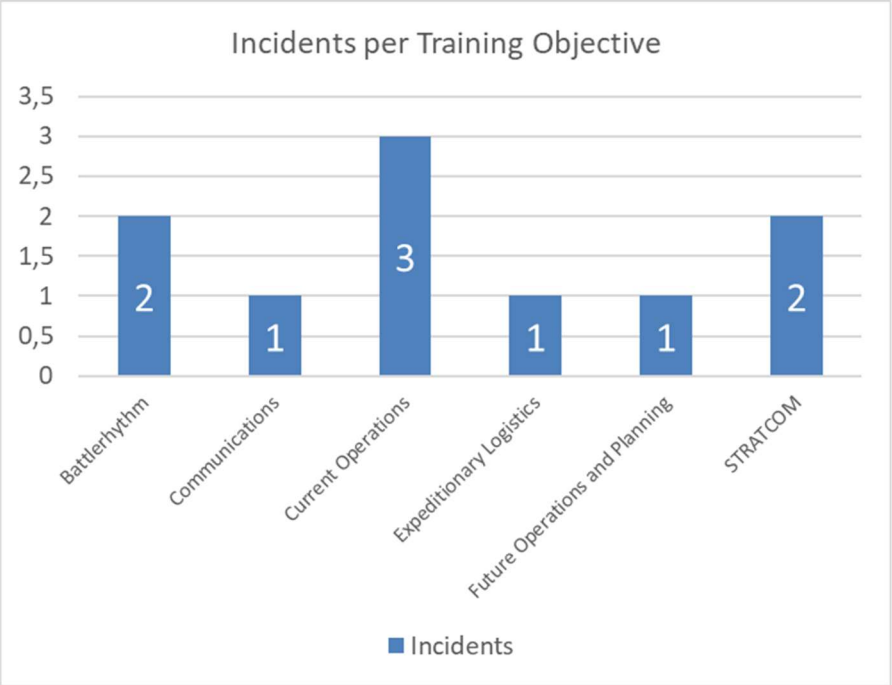
The Execution Phase Statistics



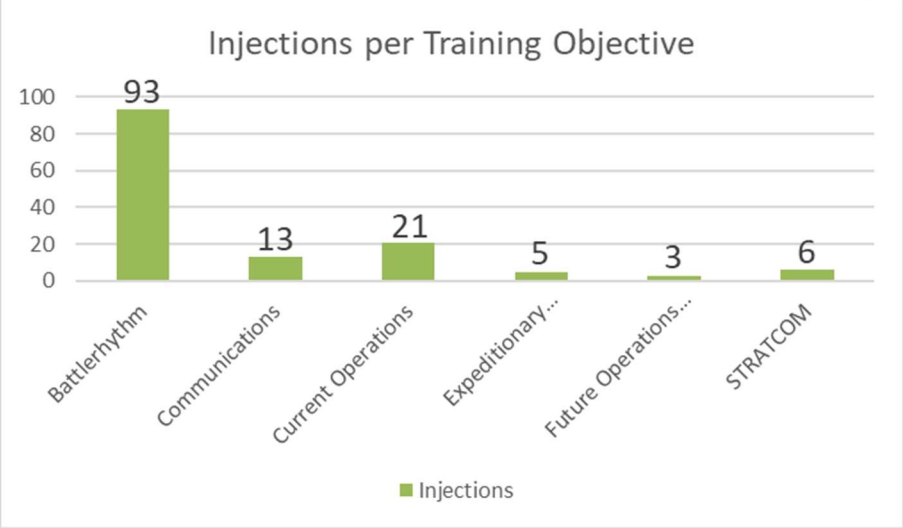
Primary Training Objective	Incidents	Outcomes	Injections	Actions
EXERCISE TOTALS	**10**	**57**	**141**	**20**

Primary Training Objective	Incidents	Outcomes
Battlerhythm	2	24
Communications	1	5
Current Operations	3	4
Expeditionary Logistics	1	5
Future Operations and Planning	1	14
STRATCOM	2	5
EXERCISE TOTALS	**10**	**57**



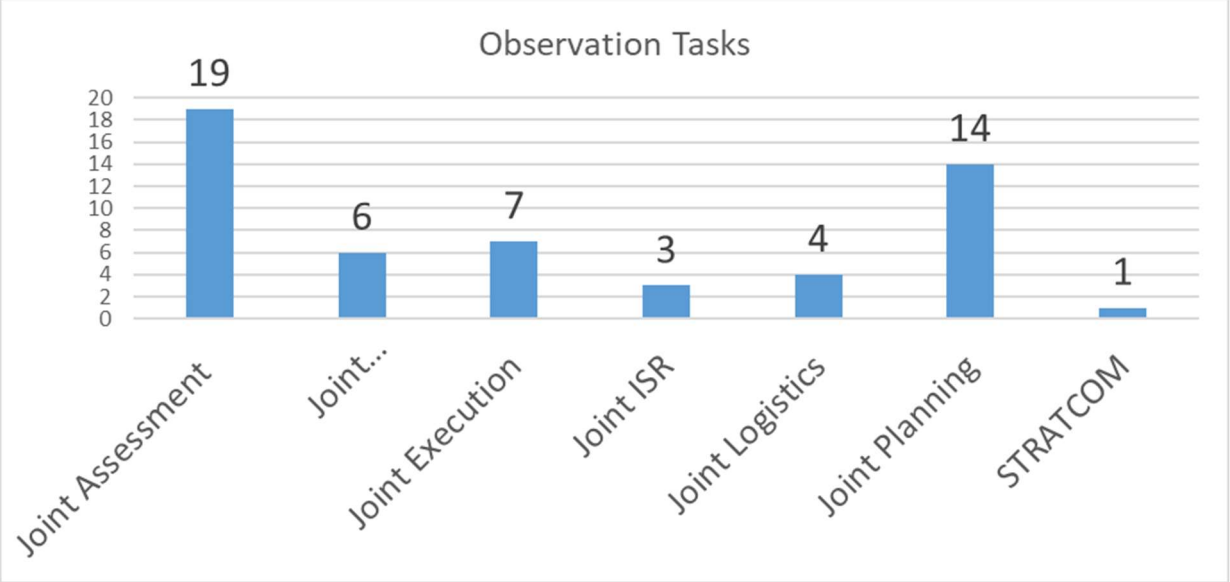

Incidents per Training Objective
3,5
3
2,5
2
1,5
1
0,5
0
2
1
3
1
1
2
Battlerhythm
Communications
Current Operations
Expeditionary Logistics
Future Operations and Planning
STRATCOM
Incidents

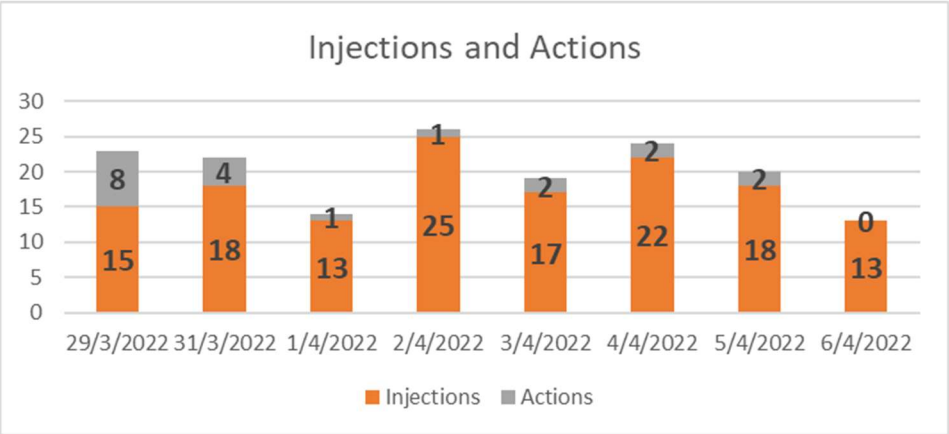

Actions per Training Objective
12
10
8
6
4
2
0
0
4
5
0
0
11
Battlerhythm
Communications
Current Operations
Expeditionary...
Future Operations...
STRATCOM
Actions


Injections per Training Objective
100
80
60
40
20
0
93
13
21
5
3
6
Battlerhythm
Communications
Current Operations
Expeditionary...
Future Operations...
STRATCOM
Injections

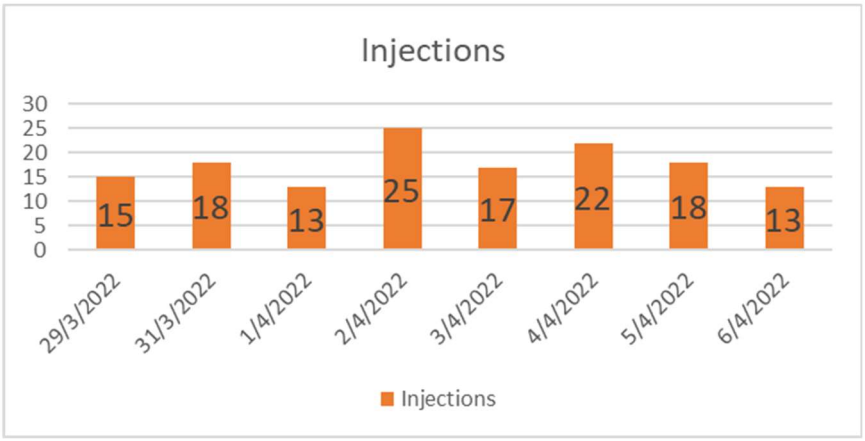
Primary Training Objective	Injections	Actions
Battlerhythm	93	0
Communications	13	4
Current Operations	21	5
Expeditionary Logistics	5	0
Future Operations and Planning	3	0
STRATCOM	6	11
EXERCISE TOTALS	**141**	**20**

Audience Processes/Joint Processes	Observation Tasks
Joint Assessment	19
Joint Coordination	6
Joint Execution	7
Joint ISR	3
Joint Logistics	4
Joint Planning	14
STRATCOM	1
TOTAL	**54**





Date	Injections	Actions
29/3/2022	15	8
31/3/2022	18	4
1/4/2022	13	1
2/4/2022	25	1
3/4/2022	17	2
4/4/2022	22	2
5/4/2022	18	2
6/4/2022	13	0
TOTAL	141	20




Actions
10
8
6
4
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8
4
1
1
2
2
2
0
29/3/2022
31/3/2022
1/4/2022
2/4/2022
3/4/2022
4/4/2022
5/4/2022
6/4/2022
Actions

ANNEX II - SITE REPORT BRAZIL

BRAZILIAN MINISTRY OF DEFENSE
JOINT STAFF OF THE ARMED FORCES
HEAD OF JOINT OPERATIONS
INTERNATIONAL OPERATIONS

VIKING 22 Exercise

Brazil Site Report

Brasília-DF – Brazil

Jun 1st 2022

ABSTRACT

Exercise VIKING 22 was an international computer-assisted command post-training activity carried out at the level of mission headquarters, component commands, regional commands (brigades), and offices. It was considered an excellent collective training event. The exercise was cross-functional and the participation of the different actors in it, improved the knowledge of the functions and responsibilities of the civilians, military, and police, sharing responsibility for planning, executing, and evaluating the training.

This Brazilian site report, under concern the Exercise Plan (EXPLAN), aims to contribute to the subsequent editions of the exercise by presenting the main aspects observed and considered as opportunities for improvement from the Brazilian participation point of view.

The structure of this document is divided according to the exercise's preparation and execution stages, covering the period between the planning events to the end of the execution, on 07 April 2022..

SUMARY

1. Preliminary

This report aims to provide subsidies for adjustments and improvements focused on carrying out similar activities in the future. The information contained herein comes from the analysis of various Brazilian participants throughout the planning and execution period of Exercise VIKING 22.

2. Improvement Opportunities

2.1 I MEL/MIL Workshop (15Nov21)

The activity was carried out in person in the city of Enköping, Sweden, between November 15 and 19, 2021.

Improvement Opportunities:

- **Maps** - The maps distributed and used initially by the organization of the Exercise was not appropriate for planning. It would be desirable that the distribution of resources, the delimitations of sectors, and the main structures of the Exercise were adequately allocated and represented on the maps, in the same way that we would find in any peace operation that was already in progress for more than one year. Like the Deployment Charts of the UN Missions in South Sudan (UNMISS) and the Democratic Republic of Congo (MONUSCO).

2.2 FCC – Final Coordination Conference (16Dec21)

The conference aimed at finalizing the coordination of the Exercise, held in the city of Bälsta, Sweden, on December 16 and 17, 2021.

Improvement Opportunities:

- **Facilities** – The last coordination conference presented several very relevant and useful aspects. However, it would be interesting to present information that would allow military personnel who worked in remote points outside Brazil to familiarize themselves with the facilities that would be available, as well as its location.

2.3 III TWS - Third Technical Workshop (18Jan22)

The third event focused on the technical adjustments of the Exercise. It was held at the Command-and-Control Regiment of the Swedish Armed Forces in the city of Enköping between the 18th and 20th of January, 2022.

Improvement Opportunities:

- **IP Telephones** - On this occasion, it was verified that the IP Telephones that would be used during the Exercise were not compatible with those that would initially be used in Brazil. This problem was overcome by sending 17 Swedish devices to Site Brazil. However, it would be interesting for this type of incompatibility to be presented sooner so that solutions of greater feasibility or duration could be made viable.

2.4 II MELMIL Workshop (24Jan22)

Second Workshop conducted by the main exercise planning team between the 24th and 28th of January with the objective of structuring the main events and incidents of the Exercise with attention to the fulfillment of the previously proposed objectives.

Improvement Opportunities:

- **Maps** – The same problem observed at the time of the first Workshop had not yet been resolved in the second, so it would be interesting to have maps aimed at planning military actions, containing relevant information about the scenario that had already been structured even before the first Workshop.
- **Brainstorm Interaction** – This event had a great deal of interaction among the participants. However, methods and tools were not established that would allow the exchange of information in a clear and efficient way. It would be interesting to implement brainstorm in order to debate about events and injects creation.

2.5 III MELMIL Workshop (23Mar22)

The third Workshop for planning and preparing the list of main events and incidents for the Exercise preceded the start of activities and execution and took

place in the city of Enköping between March 23 and 25, 2022, with the presence of representatives from the Brazilian Armed Forces.

Improvement Opportunities:

- **Timeline** – Although all the injects are already loaded in the EXONAUT System, it is suggested that a timeline be developed where the injects are framed in order to explain the development of the events and their final outcome;

2.6 Exercise Execution (28Mar22 to 06Apr22)

The execution of the Exercise covered the period from March 28 to April 7, 2022, taking place simultaneously in Sweden, Brazil, and other remote sites.

Improvement Opportunities:

- **"DON'T PLAY THE TRAINING AUDIENCE"** – The possibility of "playing" as if it were the training audience should be avoided as much as possible. This situation was noticed on the second day of the Exercise, as structures from the JOC, JMAC, and Police Commissioner Office (PC) were present on the Kungsängen site as a training audience. On the first day of the Exercise, a series of injects were launched as if they had started from them (JOC, JMAC, and PC). In the "Morning Briefing" of the FHQ the following day, it was found that this type of procedure was generating a chain reaction that went beyond the Exercise's objectives, caused confusion among the participants, and could have compromised the training. After intervention and adjustment, the problem was controlled by defining three rules:
  - Do not use the training audience (Don't play the Training Audience).
  - The Tracker and Planner must not have contact with the training audience.
  - Only the Response Cell and OTM can communicate with the training audience.

  It would be highly recommended that these three rules be stipulated and disseminated before the start of the Exercise.

- **Context of Air Units Operation** - Once the development of the employment of the Air Units at the tactical level was not part of the design of the Exercise. Its performance was limited to the planning of missions within the structure of the MSD (Mission Support Division), which was manned by the MSD Training Audience (Director of Mission Support) in the city of KungSängen, Sweden. The training audience of the Air Units could perform attributions aimed at fulfilling the training objectives. In this way, it would be important that this context of action was already coordinated, even before the first Workshop, during the development of the exercise manning list regarding Aviation Planning Cell inside MSD structure.
- **Knowledge of the EXONAUT/SWAPCIX platform** - It is suggested to give more knowledge about the game platform to the Training Audience. Either, **i**t is suggested that more time be devoted to explaining the operation of the Exercise in practice, including a rehearsal as detailed and complete as possible.

2.7 ARR/EXEVAL (07Apr22)

April 7th was dedicated to accountability, post-action analysis and specific considerations aimed at the evaluation of the Exercise (EXEVAL), although the latter took place in parallel during the execution of the event.

Improvement Opportunities:

- **Learning Cycle** - Increase contact between OTM and Planners in order to better monitor the performance of the Training Audience.
- **EXEVAL/OTM Interaction** - It is suggested that EXEVAL take the lead role in the Exercise so that EXEVAL interacts with Observers, and also indirectly with the training audience.
- **MCC/Maritime Environment** - It is suggested to include more details about the maritime environment in the UN Exercise Scenario.

3. Conclusion

The Brazilian participation in the Exercise was very positive considering initially proposed objectives. Opportunities for improvement, best practices, and lessons learned from planning and execution activities will be the object of study and analysis by the Brazilian Defense Ministry and the Brazilian Armed Forces.

Brasília – Brazil, Jun 1st 2022

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Major General (Air Force) ALVARO MARCELO ALEXANDRE FREIXO
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ANNEX XX - LIST OF ABBREVIATIONS

AAR	*After Action Review*
ACC	*Air Component Command*
APOD	*Air Port of Debarkation*
BDE	*Brigade*
C2	*Command and Control*
CAOC	*Combined Air Operations Centre*
CAP	*Combat Air Patrol*
CAX	*Computer Assisted Exercise*
CAX CON	*Simulation Control*
CC	*Commanders Conference*
CDC	*Concept Development Conference*
CFA	*Ceasefire Agreement*
CIS CON	*Communications and Information Systems Control*
CIV/Civ.	*Civilian*
CJTF	*Combined Joint Task Force*
CL	*Confrontation Line*
COS	*Chief of Staff*
CPA	*Comprehensive Peace Agreement*
CPT	*Core Planning Team*
CPX	*Command Post Exercise*
CRO	*Crisis Response Operation*
DDR	*Disarmament, Demobilisation and Reintegration*
DEP	*Deputy*
DIR EXEVAL	*Director of Exercise Evaluation*
DMS	*Document Management System*
DPA	*Department of Political Affairs*
DPO	*UN Department of Peace Operations*
DV Day	*Distinguished Visitors Day*
EG/TOR	*Exercise Guidance/Terms of Reference*
ENDEX	*End of Exercise*
EO	*Exercise Objective*
EPG	*Exercise Planning Group*
ESC	*Exercise Specification Conference*

EU	*European Union*
EXCON	*Exercise Control*
EXDIR	*Exercise Director*
EXEVAL	*Exercise Evaluation*
EXPLAN	*Exercise Plan*
EXSPEC	*Exercise Specifications*
FER	*Final Exercise Report*
FIR	*First Impression Report*
FOM	*Freedom of Movement*
GIS	*Geographic Information Systems*
FCC	*Final Co-ordination Conference*
FOM	*Freedom of Movement*
HICON	*Higher Control*
HQ	*Headquarters*
HRAM	*Human Rights Alliance Midland*
HWU	*Hot Wash Up*
IASC	*Inter-Agency Standing Committee*
ICC	*International Criminal Court*
ICC	*Integrated Command and Control Software*
IDP	*Internally Displaced Person*
IED	*Improvised Explosive Device*
IM	*Information Management*
IMO	*Information Management Officer*
IOC	*Initial Operating Capability*
IP	*Internet Protocol*
IPC	*Initial Planning Conference*
ISP	*Internet Service Provider*
IVO	*In the Vicinity Of*
JLSG	*Joint Logistic Support Group*
JPM	*Joint Planning Meeting*
JPT	*Joint Protection Team*
LAN	*Local Area Network*
LCC	*Land Component Command*
LedR	*Ledningsregementet (Swedish Joint Signal Regiment)*
LG	*Livgardet (Swedish Life Guards Regiment)*
LOCON	*Lower Control*

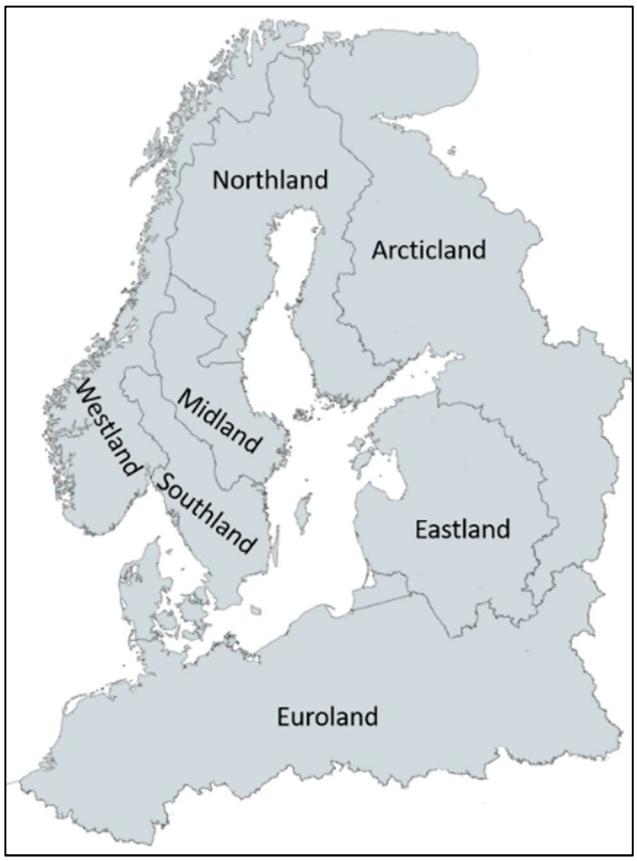
LSS	*Luftstridsskolan (Swedish Air Warfare Centre)*
MCC	*Maritime Component Command*
MEL	*Main Event List*
MEL/MIL	*Main Event List/Main Incident List*
MEZ	*Maritime Exclusion Zone*
Mil.	*Military*
MIL	*Main Incident List*
MoU	*Memorandum of Understanding*
MPC	*Main Planning Conference*
MSR	*Main Supply Routes*
NAC	*North Atlantic Council*
NATO	*North Atlantic Treaty Organisation*
NCDDR	*National Commission for Disarmament Demobilisation and Reintegration*
NFS	*North Friendly Sea*
NFZ	*No Fly Zone*
NGO	*Non-Governmental Organisation*
NHRC	*Independent National Human Rights Commission*
NLA	*National Liberation Army*
NSAA	*Non-State Armed Actor*
NTP	*Network Time Protocol*
OCE	*Officer Conducting the Exercise*
OPLAN	*Operation Plans*
OSE	*Officer Scheduling the Exercise*
OTM	*Observers, Trainers & Mentors*
PfP	*NATO Partnership for Peace*
PIC	*Press & Information Centre*
PO	*Peace Operation*
POC	*Protection of Civilians*
POC	*Point of Contact*
PTN	*Public Telephone Network*
PXD	*Post Exercise Discussion*
RC	*Response Cell*
RLPI	*The Religious Leaders Peace Initiative*
RLS	*Real Life Support*
SABDE	*South American Brigade*

SEC	*Site Exercise Centre*
SEDU	*Swedish Defence University*
SIM	*Simulation*
SIO	*Senior Information Officer*
SITCEN	*Situation Centre*
SITCEN DIR	*Director of Situation Centre*
SITEDIR	*Site Director*
SITFOR	*Situation Forces*
SNR	*Senior National Representatives*
SOP	*Standard Operating Procedures*
SPD	*Strategic Planning Directive*
SPM	*Solidarity Party of Midland*
SPOD	*Sea Port of Debarkation*
SRSG	*Special Representative (UN) Secretary General*
SSR	*Security Sector Reform*
SSS	*Sjöstridsskolan (Swedish Naval Warfare Centre)*
STARTEX	*Start of Exercise*
SwAF	*Swedish Armed Forces*
TA	*Training Audience or Technical Agreement*
TBA	*To Be Announced*
TBD	*To Be Decided*
TECH	*Technical, Technical Group*
TO	*Training Objective*
TRC	*Truth and Reconciliation Commission*
TWS	*Technical Work Shop*
UFI	*United Front for Independence*
UN	*United Nations*
UNCT	*United Nations Country Team*
UNICEF	*United Nations Children's Fund*
UNMIM	*United Nation Mission in Midland*
UNSCR	*United Nations Security Council Resolution*
UN RO	*United Nations Regional Office*
UPS	*Uninterruptible Power Supply*

VBIED	*Vehicle-Borne Improvised Explosive Device*
VOB	*Visitors and Observers Bureau*
VOiP	*Voice Over IP (Internet Protocol)*
VPN	*Virtual Private Network*
VTC	*Video Telephone Conference*
WAN	*Wide Area Network*
WS	*Work Shop*
WUST	*Work Up Staff Training*

APPENDIX B1 - SCENARIO OVERVIEW

1. The Northern Continent is a geo-strategic region and important crossroad for trade and access to the Arctic. Historically, the region has suffered from political and economic instability and sometimes war. Larger states have tried to extend their influence over smaller ones. The discovery of petroleum deposits in the Baltic Sea has led to tensions regarding their exploitation. The effects of two different civil wars are affecting the region.
2. In Midland, power capture and nepotism have led to poor economic governance. Over time, this has resulted in the under-development of rural areas populated by ethnic minorities. Midland uses its security forces to suppress dissent and impose order. The country is today caught in a vicious circle of poverty, authoritarianism and violence.



3. Following the financial crisis of 2019-20, Midland's regime had to proceed with budget cuts that pushed many people below the poverty line. The government delayed the repayment of its debt to creditors and postponed the payment of its fuel imports to Arcticland. This led to an economic recession forcing the government to take very drastic measures that sparked large-scale demonstrations.

4. The situation continued to worsen and the greatest threat emerged in Midland's southern province where groups of citizens began looting and taking up arms against the 'inept and corrupt' government. The President responded by deploying the army but he was unable to restore order. Instead, this attempted repression triggered a mutiny and the establishment of the United Front for Independence. UFI quickly pushed back governmental forces with its Iron Brigade and took control of the oil-rich territories in the south.

5. Under international pressure, the parties to the conflict signed a cease-fire agreement. The United Nations authorised the establishment of the UN Mission in Midland (UNMIM) to restore peace, support the peace process and facilitate the political transition. Subsequently, the parties signed a peace agreement. Overall, the conflict in Midland has claimed the lives of over 60,000 persons. Over 550,000 persons have been displaced. Some 820,000 Midlandians require humanitarian assistance.

6. Southland is a relatively democratic and free parliamentary republic. It is a middle-income country enjoying economic growth. However, development is unequal with large differences between ethnic groups. Deprivation and poverty have characterised the life in marginalised provinces populated by a majority of ethnic Milis. This has led to grievances and separatism.

7. Following UN deployment, the Midlandian conflict spread to Southland's north-eastern province with separatist attacks against government buildings and officials. Small groups of 'self-defence militias' affiliated themselves to Midland's UFI. Soon after, Southland's 5th Brigade mutinied to join the UFI as the 'Phoenix Brigade'. It then pushed back government forces and took control of the province before advancing south to capture oil fields.

8. This led the international community to deploy a UN-mandated NATO Crisis Response Operation to stabilise the country and enforce peace. Shortly before the start of NATO operations, UFI's Phoenix Brigade declared the independence of the Free Republic of Nericia, a territory composed of the provinces under UFI control.

9. As the NATO forces are pushing north, the Phoenix Brigade is being pushed back towards the border area, leading to cross-border movement of weapons and fighters back into Midland.

10. The conflict in Southland has so far claimed the lives of over 50,000 persons. Allegations of ethnic cleansing have been made against the UFI and Mili self-defence groups. Over 700,000 persons have been displaced and 220,000 have fled as refugees to neighbouring countries. An estimated 1 million Southlandians require humanitarian assistance.

APPENDIX B2 - CONCEPT EXPERIMENTATION REPORT

CONCEPT EXPERIMENTATION THROUGH EXERCISES
VIKING 22 AFTER ACTION REPORT FINDINGS
USCYBERCOM AND MCDC MNICF

EVENT SUMMARY: USCYBERCOM and Multinational Capability Development Campaign (MCDC) Multinational Integrated Cyber Fusion (MNICF) Project representatives participated in VIKING 22, 27 March through 07 April 2022 in Enköping, SWE. USCYBERCOM/MNICF formed a multi-disciplinary team to support education, training, role-player emuation, staff planning and exercise control functions in order to integrate cyberspace planning and execution considerations into the all-domain exercise. Simultaneously, the team used the event to meet defined objectives with respect to experimentation. These objectives were achieved and, in several cases, exceeded, with measurable progress in developing cyberspace operational concepts.

EXPERIMENT FOCUSED OBJECTIVES:

1. Utilize the event to expose training audience to MNICF concepts in order to refine these, whilst identifing new concept requirements and implementation aids for further development. (Support to operational planners).
2. Refine methods and tools to enhance how USCYBERCOM and MNICF support future concept development, evaluation and implementation through education, training and exercise activities. (Support to concept developers and evaluators).

RESULTS: Combining agile design and planning with extensive and diverse participation, VIKING 22 provided an effective forum to meet and exceed USCYBERCOM and MNICF's experimentation concept objectives. The following lists the concept papers and aids that were tested or identified during VIKING 22, divided into experimentation objective categories:

Operational Planning Concepts

- Cyber Risk To Mission Concept Paper
- Key Terrain Assessment Process
- C2 and Coordination for expeditionary forces
- Cyber Effects Process
- Commander's Critical Cyberspace Decision-Making Questions List
- Cyberspace Activities in support of Operations Paper
- Cyber Incident Reporting Template
- Draft Cyberspace Rules of Engagement
- Cyber Working Group Terms of Reference
- Cyber Common Operational Picture Considerations Paper
- Request for Support Template

Experimentation Development Concepts

- VIKING 22 Cyberspace Micro-Learning Courses

- Continuum of Learning Framework (COLF)
- Coalition Exercise Support Element (CEXSE)
- Cyberspace Exercise Survey Form

NEXT STEPS: USCYBERCOM, MNICF and associated organizations will build on the concepts and lessons identified from VIKING 22 in a number of upcoming experimentation efforts and implementation initiatives. This planned activity includes:

- Swedish Defence University (SEDU). The SEDU is developing an operational level course to address planning factors and considerations for cyberspace employment in operations.
- MNICF Project. Concept papers and training aids developed during VIKING 22 experimentation will be incorporated into completion of the MNICF Operating Framework and supporting Annexes, as well as informing future MNICF work packages during the MCDC 2023-2024 Cycle.
- MNICF used VIKING 22 experimentation to develop a Cyber Risk to Mission Estimate and planning template. This will be tested in the upcoming MNICF sponsored TTX during the NATO Coalition Warrior Interoperability eXploration, eXperimentation, eXamination eXercise (CWIX) in Poland (June 2022).
- MNICF will expand on the VIKING 22 generated COLF and CEXSE papers through its Workforce Development Line of Effort and Assessment/Evaluation work plans, to include additional papers on employment of wargames for experimentation. This includes scoping to develop a prototype board game to educate stakeholders and gain insights into the expeditionary cyber fusion cell.
- MNICF is considering inclusion of legal and policy work packages its 2023-2024 development plan based, in part, on VIKING 22 lessons identified.
- USCYBERCOM has leveraged lessons from VIKING 22 and associated concepts to inform themes and topics for its upcoming Ex CYBER FLAG 22 Multi-National Symposium and TTX.
- USCYBERCOM, based on VIKING 22 outcomes, will work with MNICF to refine the expeditionary Cyber Fusion Cell, incorporating the concept into its Ex CYBER FLAG 23-1 exercise (October 2022).
- VIKING 22 lessons learned and derived concept papers will inform USCYBERCOM's Continuum of Learning (COL) initiatives and Joint Exercise Support Element (JEXSE) development.
- USCYBERCOM will use concepts and training aids from the experimentation to inform its expanding Defense Security Cooperation Activities, including training aids for partner engagements, wargames and exercises.

APPENDIX B3 - E-LEARNING AND ANALYSIS PLATFORM

MADLX

Setting foundations to measure ROI

UX EXERCISE MEMO: DI-MGMT-80227

RECOMMENDATIONS REPORT DI-MISC-80711A

VIKING 22

June 22, 2022

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Acknowledgments

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Contents

Executive Summary

The Viking 22 exercise represented a prime opportunity to mature both aspects of Advanced Distributed Learning (ADL) integration into multinational exercises: providing ADL resources to enhance learning, and utilizing the data harvested from participant use of ADL to analyze and quantify training performance. Viking 22 was conducted from March 28 to April 7, 2022, with over 2,000 participants from 47 nations, despite a significant reduction in planned participation due to the war in Ukraine and COVID-19 mitigation.

To enhance both pre-training and in-exercise learning, we successfully deployed nine ADL courses that targeted elements of the exercise and training objectives, including introductions to the new exercise scenario tailored to the event's NATO and UN teams, and a bespoke website for wiki pages presenting the full scenario in a user-friendly form. A total of 762 participants took the online courses, primarily during the two weeks before the start of the exercise event but also while the event was running. The wiki pages were accessed by 747 participants, again both before and during the exercise game play. In the post-exercise survey, 92% of participants who answered the question about the Viking eLearning platform said it had proven useful in preparing them for their role in the exercise.

Toward the second aspect of ADL integration, learning analytics enabled hypothesis testing and analysis of the relationships between learning and performance, the Return on Investment (ROI) of learning. Visualization of these analytics in an intuitive and informative dashboard can offer real-time decision support to a wide range of exercise stakeholders. At Viking 22, we further tested the protype of the MADLx ROI Dashboard, exhibiting its capacity to utilize xAPI and non-xAPI data to analyze and visualize information critical to improved decision-making about training. Viking 22 stakeholders also were able to use the Dashboard for the first time to introduce the learning analytics possibilities to other participants.

The student learning data for our analysis was comprised of participants' measured performance in the eLearning platform, and their relative success at meeting the mission rehearsal objectives within the exercise itself. We collected data from three digital sources (eLearning courses, wiki pages, and observer trainers), generating 202,686 xAPI statements from 1,025 learners. In addition to the digital sources, the organizers ran surveys that helped establish an overall evaluation of the exercise.

A very basic hypothesis we sought to test with the data collected and presented at Viking 22 was that exercise participants who utilize ADL content demonstrate measurable and visualizable improvements in operations effectiveness. However, our capability to analyze in-exercise performance suffered from a lack of timely data provided to us by the event managers. The correlation matrix at the heart of the ROI Dashboard, for example, should be a starting point of discovery for reporting the impact of training objective performance and a wide spectrum of related data, but the level of available data input hampered the ability to accurately identify correlation among variables.

Based on the MADLx team's experience integrating ADL at Viking 22, we present the following recommendations regarding the ADL component for implementation in the next exercise:

- **Mainstream ADL beyond exercise pre-training eLearning courses.** The meaningful integration of ADL into exercises must include an appropriate, complex understanding by exercise organizers of what ADL represents; otherwise, they tend to see ADL only as a source of pre-training eLearning courses, rather than appreciating the analytical applications and value of the data that can be harvested from ADL assets. This necessary understanding can be achieved with timely, upfront integration of the ADL team in the overall exercise planning design. Treating ADL in isolation does not benefit participants, and it negatively skews their views of the ADL materials.

- **Develop an exercise data strategy and implementation plan.** Granular analysis of the xAPI statement streams can be useful on a larger stream of data,

but it must be put in the context of the exercise training objectives to be fully utilized. When eLearning is offered as pre-training, ROI can be shown when the ADL data is compared with performance data from the actual training. Therefore, exercise organizers must at the outset develop a strategy that identifies the broad spectrum of data to be collected across the exercise process and a clear plan for implementing the reporting procedures and mechanisms required to ensure sufficient data harvesting to conduct meaningful analysis, including the use of standardized measurements to the greatest possible extent.

- **Diversify utilization of learning analytics in exercises.** To conduct meaningful analysis, the MADLx ROI Dashboard requires sufficient data covering the broadest possible range of human exercise activities in real time. The exercise organizer must provide the full set of training performance data for Dashboard input. Only by contextualizing and combining multiple data sources can the Dashboard effectively visualize ROI in mission rehearsals and contribute to immediate, visible performance enhancements and savings in time and resources. Real-time learning analytics can and should incorporate machine learning into the assessment process.

- **Adopt data privacy and cybersecurity policies and implementation guidelines.** Multinational exercises face particular cybersecurity challenges given their diverse and dispersed participation. Cybersecurity elements for exercise participants should cover all ADL activities connected with the exercise (e.g., eLearning courses, mobile learning, etc.). Organizers should carefully implement clear privacy and data-sharing policies.

The ideal implementation plan for maximizing the value of ADL integration into exercises would encompass the role of ADL resources throughout the exercise process. ADL would be used to help train key personnel at the outset of the planning process, such as the members of the Exercise Planning Group (EPG) and Core Planning Team (CPT), and help prepare exercise managers such as observer

trainers (OT) to ensure uniform standards for training audience (TA) performance scores. An ADL Working Group would be part of the CPT to develop specific methods and measures for data collection, connecting the exercise objectives and training objectives with pre-training and in-exercise performance evaluation. During exercise execution, multiple data streams would supply the ADL dashboard with the necessary volume and granularity of information to give management real-time visualizations of training progress and data analysis. ADL also would further shift from an educational to a supportive function, with the ADL platform supplying learning at the point of need, such as templates, checklists, and standard operating procedures for multiple activities. After the exercise event has concluded, ADL analysis of the full set of training performance data then would help inform Post-Exercise Discussions (PXD), provide insights for documents such as the First Impressions Report (FIR) and Final Exercise Report (FER), and aid the development of lessons learned and recommendations. And in the necessary financial review, the ADL ROI Dashboard would quantify and illustrate the training gains made in the exercise.

Background

The objective of the Maturing ADL in Multinational Exercises (MADLx) Project is to build the foundations for measuring learning effectiveness in mission rehearsals to help management make better decisions about implementing training that closes the gap between the desired state of performance and the current state of performance. The goal of the research study is to develop and field test standardized measurements of participant performance in exercises utilizing analytics of learning content and to visually represent those analytics in a dashboard.

Maturing ADL in Exercises Project goals:

- Support policy development
- Enhance the exercise user experience
- Broaden the availability of demand-driven data and analytics
- Expand the range of learning content delivery tools
- Develop content to support awareness and adoption

MADLx
Setting foundations to measure ROI

The Problem

While the field of learning analytics becomes increasingly sophisticated, the U.S. currently lacks the capability to produce high-fidelity determinations of how particular military exercises specifically improve personnel readiness. The lack of standardized measures magnifies this challenge in multinational environments.

Hypothesis

Exercise participants who utilize Advanced Distributed Learning (ADL) content demonstrate measurable and visualizable improvements in operations effectiveness.

Over the course of its development, the MADLx Return on Investment (ROI) Dashboard's capabilities have been tested at a series of live multinational and national exercises. Each iteration of this field testing – obtaining real-world data in real-world exercise conditions with all the attendant real-world challenges – has advanced the refinement of the Dashboard's design and function. Prior exercises in which the Dashboard has been field tested include:

- Viking 18 (2018)
- Combined Joint Exercise (CJSE) 19 (2019)
- Brigade Exercise, Ukraine (2019)
- NATO Standards, Ukraine (2020)
- Bold Quest 20.2 (2020)
- Joint HQ, Ukraine (2020)
- CJSE 21 (2021)
- Bold Quest 21.2 (2021)

Related Publications

The following documentation details the development of the MADLx Project's concept, approach, and output:

- Salkutsun, S., Golovanov, A., Tyschenko M., & Presnall, B. (2021) *Enhancing Military Exercise Performance with Diversified xAPI Instrumented eLearning*, [Paper presentation]. In Volume 2021 (Eds.), Proceedings of the 2021 Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC). Arlington, VA: National Training and Simulation Association.

- Presnall, B. (2021). MADLx Learning Analytics Survey Report.

- Presnall, B. (2021). MADLx UX Exercise Memo: Bold Quest 20.2.

- Presnall, B. (2021). MADLx Protocol/Recommendations Report: Bold Quest 20.2.

- Presnall, A., Radivojevic, V. (2018). Learning analytics with xAPI in a multinational military exercise [Paper presentation]. In Volume 2018 (Eds.), Proceedings of the 2018 Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC). Arlington, VA: National Training and Simulation Association.

- Ax, T., Presnall, A., Ljung, N., Schatz, S. (2018). Integrating Advanced Distributed Learning into multinational exercises [Paper presentation]. In Volume 2018 (Eds.), Proceedings of the 2018 Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC). Arlington, VA: National Training and Simulation Association.

- Presnall A. (2018). ADL in Exercises.

VIKING 22

The Viking 22 distributed computer-aided exercise was conducted from March 28 to April 7, 2022, with over 2,000 participants from 47 nations, despite a significant reduction in planned participation due to the war in Ukraine and COVID-19 mitigation. Viking 22 was the latest installment in the Viking series of joint and multinational exercises, and this year's event served as a training platform to prepare civilian, military, and police personnel to persevere in contemporary threat environments.

The organizers developed a new international scenario for Viking 22 called "Northern Continent." The scenario combined Nordic geography with content reflecting present-day conflicts. It conformed with NATO doctrines and the processes used in NATO and UN operations.

The units commanded by the various staffs in Viking 22 were "played" by simulations. The participants were located at nine sites in six countries. The game was run from Sweden, with the main deployment of about 1,000 military, civilian, and police personnel in Enköping.

ADL Component: Online Pre-training

Pre-training was made available to all participants on an independent, secure instance of a platform specifically designed for the event (vikinglearning.org), according to unique requirements of the exercise stakeholders. This platform combined two sources: the LMS and the wiki page.

The LMS offered nine online courses that targeted the exercise training objectives:

- **NATO Crisis Response Operation.** This course was tailored for participants in the exercise's NATO Crisis Response Operation (NFOR). It covered the Viking 22 scenario in the form of a microlearning asset tailored to the information needs of NFOR participants in the exercise. A total of 540 participants took this course.

- **UN Mission in Midland (UNMIM).** This course was tailored for participants in the exercise's UN Mission in Midland. It covered the Viking 22 scenario in the form of a microlearning asset tailored to the information needs of UNMIM participants in the exercise. A total of 98 participants took this course.

- **SitaWare HQ Overview.** This course covered the basic functions of the Sitaware HQ command and control system (version 6.10). The course specifically targeted participants who needed to refresh their knowledge about Sitaware from the perspective of the Viking 22 exercise. A total of 175 participants took this course.

- **NATO ELTEC II.** This NATO-developed course provided English language microlearning training for staff officers. A total of 80 participants took this course.

- **EXONAUT.** This course covered key elements of the Exonaut™ training and exercise management software. The course demonstrated how to create observations, add objective assessments, and add activity assessments in Exonaut Compliance and Performance Manager (CPM); and it provided an overview of Exonaut Training and Exercise Manager (TEM) and the Exonaut dashboard. A total of 68 participants took this course.

- **Observer Trainer Mentor (OTM).** This course provided guidance on the role and duties of the exercise event's OT. A total of 64 participants took this course.

- **Exercise Management.** This course provided an overview of how Executive Control (EXCON) is organized, staffed, and functions; and it explained the basics of the gaming method, including the roles of OTs, SITCEN PLANS, and SITCEN CURRENT. A total of 60 participants took this course

- **Cyber Operations: Risks and Opportunities.** This course was aimed at helping all staff understand how dominance in cyberspace affects their mission outputs. It introduced key elements of cyberspace operations, describing the challenges and opportunities they present to decision-makers and planners. A total of 56 participants took this course.

- **CAX (Computer Aided Exercise) Method with ADL.** This course provided the background of ADL integration in joint and multinational exercises. It was a shorter and improved version of a previously developed course on the topic. A total of 47 participants took this course.

Of the 2,000 participants enrolled in the pre-training, a total of 762 took the online courses, with the NATO scenario introduction attracting the highest level of participation (see Figure 1).

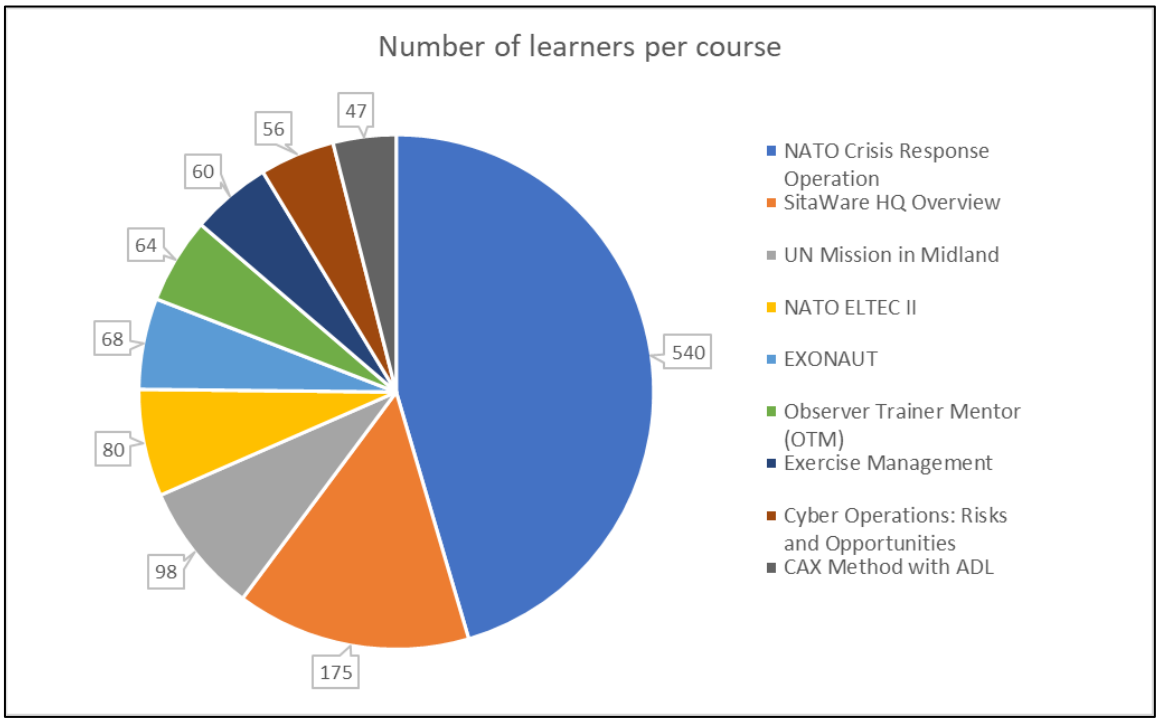


Figure 1. Number of learners per course

The eLearning platform was opened to exercise participants on February 1, giving them two months to take advantage of the online courses. Participant activities in the courses intensified as the beginning of the exercise approached (toward the end of March), but their utilization of the online courses continued into first half of the in-person event as well (see Figure 2).

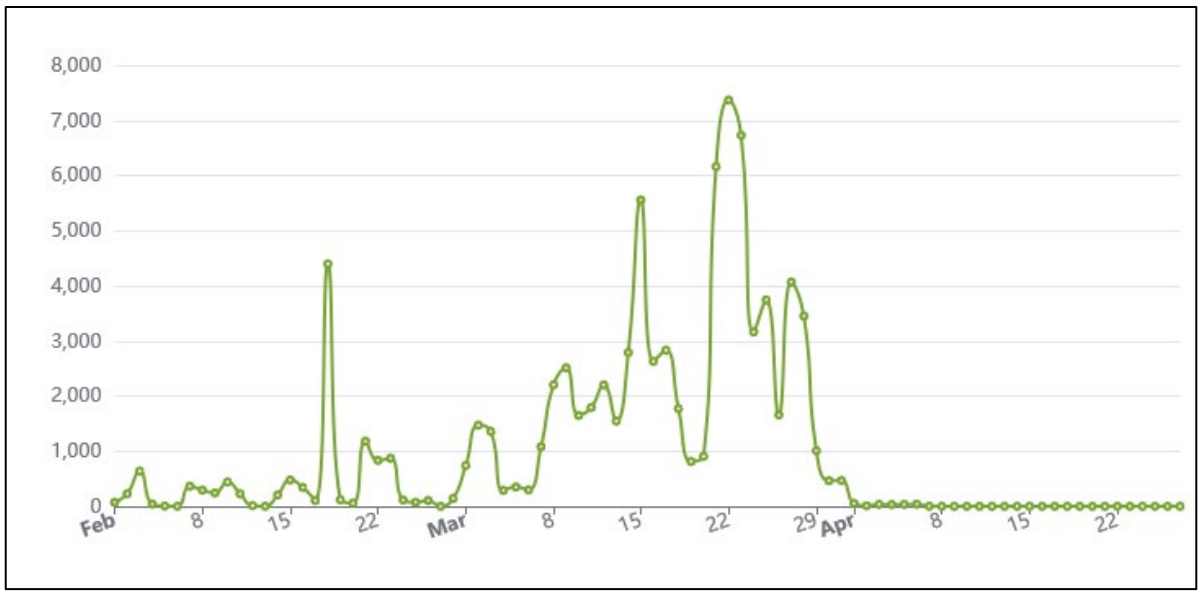


Figure 2. LMS activities

Participants were particularly successful in the two mandatory courses, the English language microlearning course (NATO ELTEC II), and the Cyber Operations course, with scores averaging 100%. Their performance in the other courses was considerably lower (see Figure 3).

We were also able to determine the most-active learners by combining the time spent on the eLearning platform and the quantity of learning content visited (e.g., page viewed, question answered, etc.)

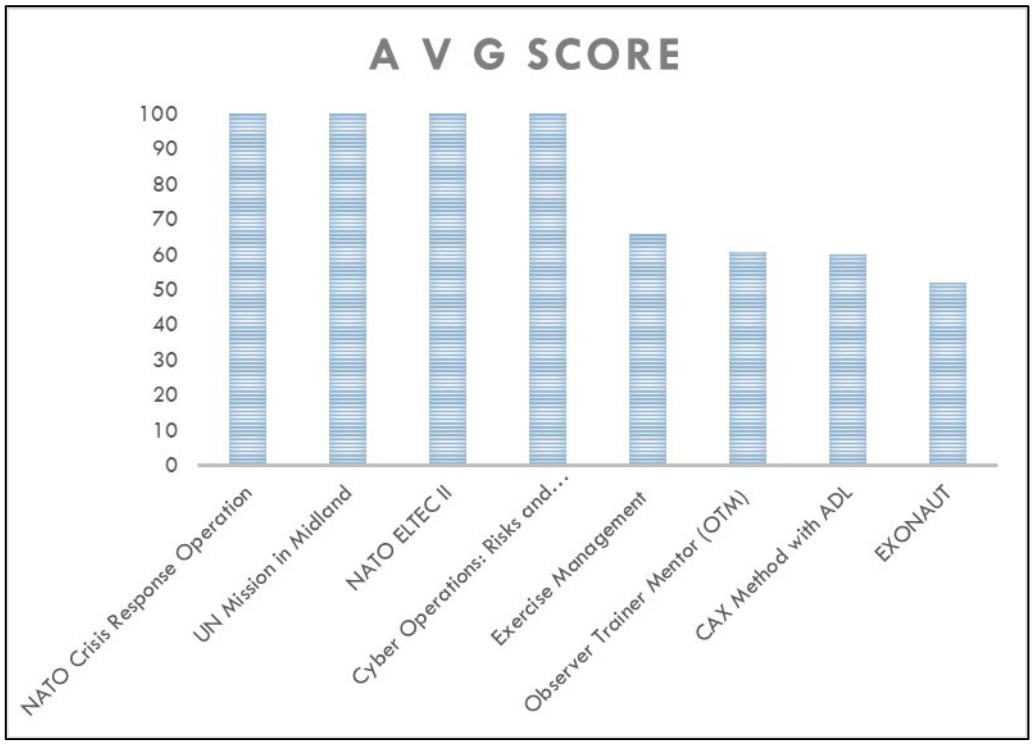


Figure 3. Average scores in eLearning courses

The wiki pages were designed to familiarize participants with the newly developed exercise scenario, and they differed slightly for members of the NFOR and UN teams. A total of 747 participants visited the wiki pages. Similar to the eLearning courses, participant activity in the wiki pages peaked on March 28, the start of the main exercise event. However, the wiki page activities peaked well into the second week of the event (see Figure 4), strongly indicating the need for learners to refresh their knowledge of the scenario and to have such an immediate learning aid available for in-exercise performance support.

The Executive Summary was by far the most visited of the wiki pages: 39% of the participants who accessed the wiki read the summary while interest in all other wiki pages attracted single-digit interest (see Figure 5).

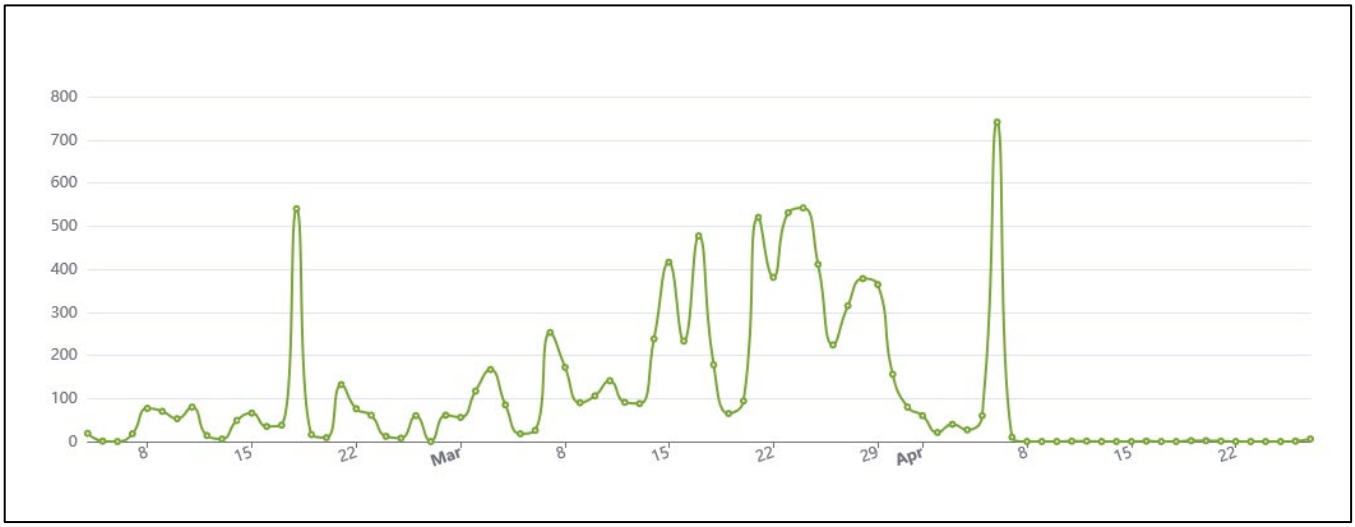


Figure 4. Wiki pages learner activity

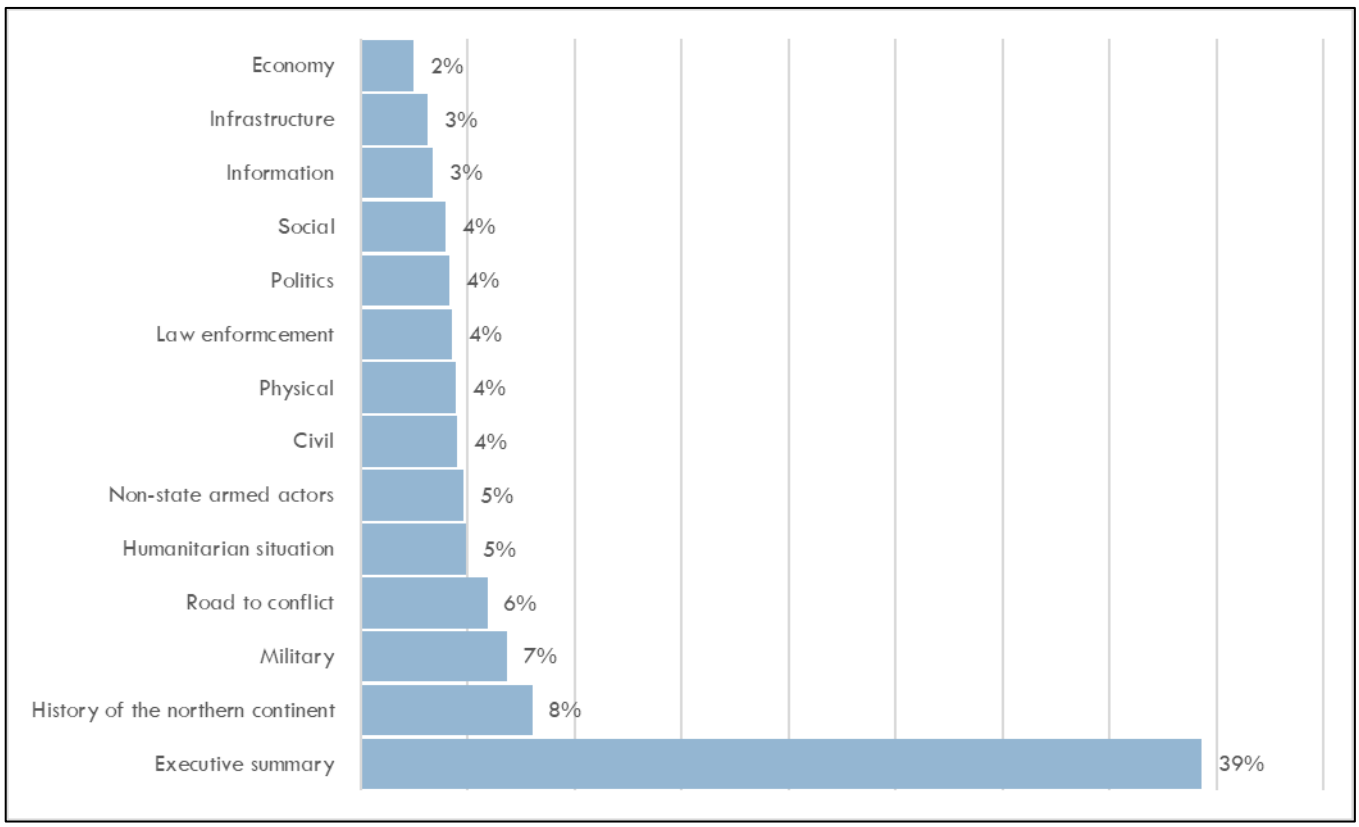


Figure 5. Wiki pages visit distribution

Learning Analytics: Data Collection

The student learning data was comprised of participants' measured performance in the eLearning platform, and their relative success at meeting the mission rehearsal objectives within the exercise itself. Data were collected from three digital sources (eLearning courses, wiki pages, and observer trainers), generating 202,686 xAPI statements from 1,025 learners (including 84,850 xAPI statements on the learning behavior of the 762 participants who took the online courses). In addition to the digital sources, the organizers ran surveys that helped establish the overall evaluation of the exercise.

All data collection was limited to the essential information required to evaluate the success of the project. Initially, the Jefferson Institute will maintain the data collected during the MADLx study for 180 days after the study is completed, so it can be analyzed by the MADLx Testing & Evaluation Team with standard statistical and data visualization software. Subsequently, non-attributable data will be transferred to the Advanced Distributed Learning Initiative for archiving, to support further research on the effectiveness of learning in mission rehearsals, and to benefit eLearning researchers.

Two essential components of utilizing ADL are the Learning Record Store (LRS) and Learning Management System (LMS). The LRS is a server that receives xAPI statements, stores them, and makes them available for analysis. The LMS is a software package for administering and taking ADL courses. For the LRS, we used Trax **(https://traxlrs.com/)**, and we used Moodle **(https://moodle.org/)** for the eLearning course LMS, both of which are open source. We also custom-made an html website for the wiki platform with the scenario, which provided an additional stream of exercise participant training data. The learning analytics architecture was

set up to fulfill the exercise organizer's requirements for European-based servers with a security audit performed on multiple levels.

Collection Methods

The collection methods included the following data procedures:

- Real-time data were collected on participants who attended the online pre-training, which started roughly two months before the main exercise event. Data were sent to a designated LRS from two sources: eLearning courses and scenario wiki pages. Both resided on a custom-designed and dedicated platform. Participants gave informed consent for the project and data collection when they initially accessed the platform.

- Proprietary software Exonaut™ served as the main tool for observer trainers (OT) to monitor exercise events and input their observations on performance of the training audience. These data were transferred in Excel file format both daily during the exercise and after the exercise ended, converted to xAPI statements, and transferred to the LRS.

- Participants completed a "Startex" survey when training activities commenced.

- Participants completed an overall reaction "Endex" survey when the exercise concluded.

Survey Data

Self-reported data was collected at the beginning (Startex) and end (Endex) of the main exercise event. This was achieved utilizing standard Likert-type five-item scales for a set of questions. Among other relevant questions, one asked about eLearning specifically:

- Assess the usefulness of the content of the Viking eLearning platform in preparing for your role in the exercise. On a scale of 1 (Poor) to 5 (Excellent)

The aggregated data showed overall participant satisfaction with the eLearning component. At the beginning of the event, 93% of participants who completed the survey positively ("Fair" or greater) viewed the eLearning's effect on their preparation. This assessment held after the main exercise event's conclusion, with 92% of participants who answered the question in the Endex survey saying that the Viking eLearning platform had proven useful in preparing them for their role in the exercise (see Figure 7).

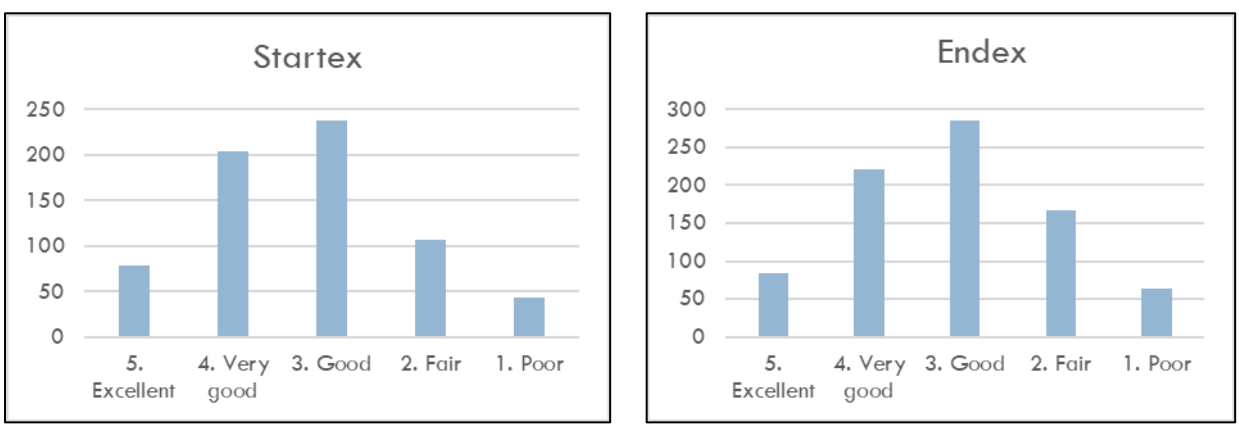


Figure 7. Participant assessment of eLearning

The Endex survey also provided participants with a field for entering additional comments about the overall exercise experience. Text analysis of these comments identified four key words: EXERCISE, WUST, PRE-TRAINING, and INFORMATION. Contextual analysis indicated that the word EXERCISE is collocated with positive words, like GREAT and VERY. Furthermore, the importance of pre-training was elevated and present in most of the comments (see Figure 8).

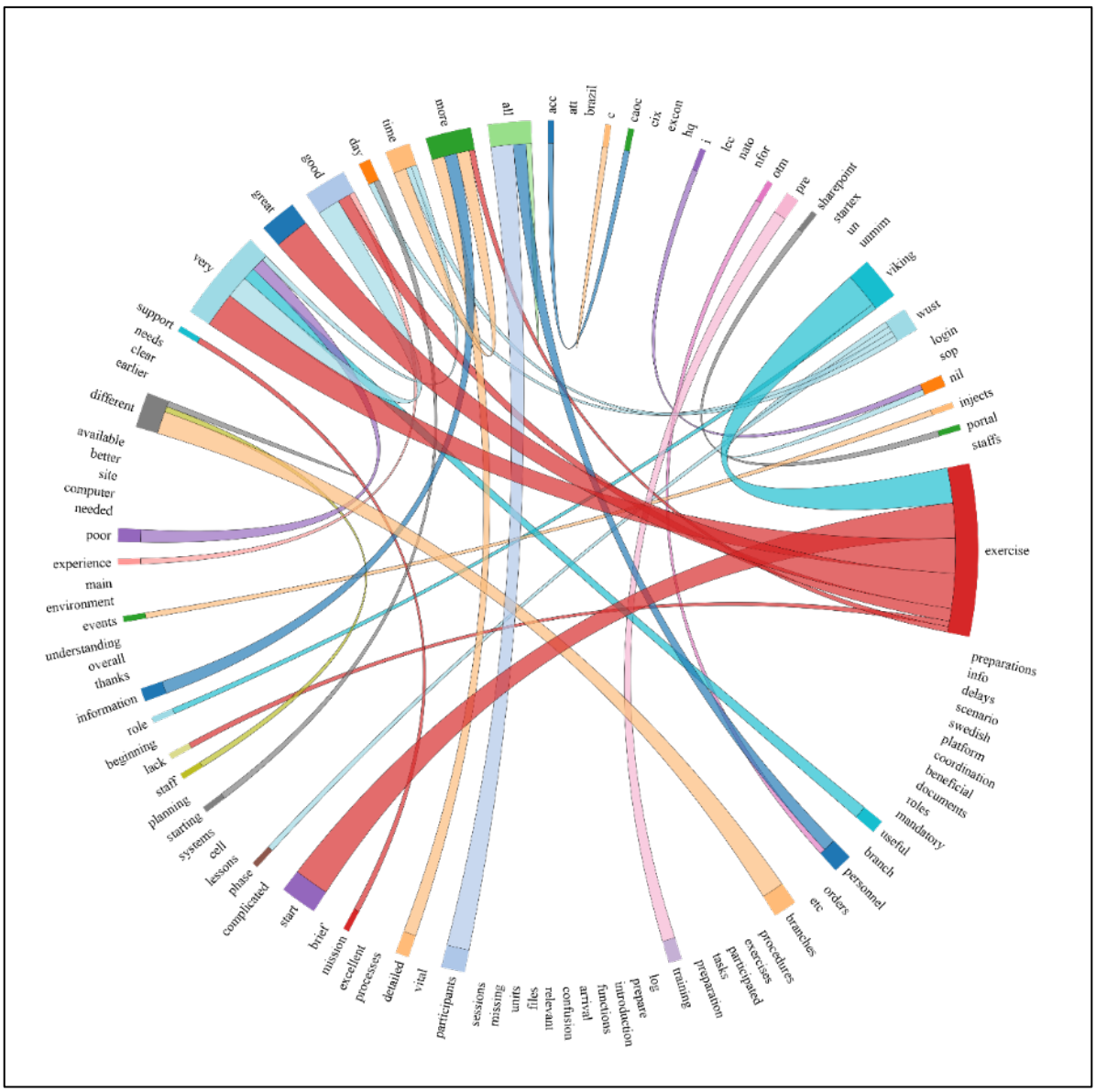


Figure 8. Survey response text and contextual analysis

However, this analysis also discovered that participants' key complaint was the lack of important information during pre-training and WUST (Work-Up Staff Training). Specifically, participants complained about:

- Insufficiently substantive WUST
- Missing documents in pre-training that are utilized in the exercise
- Inadequately targeted instructions for the different roles

While utilizing ADL resources could help effectively address these shortcomings, the complaints highlight an exercise preparation issue greater than the ADL component.

Figure 9. Word-cloud of the most frequently commented terms by participants

EXONAUT™ Observer Data

The exercise organizers mapped multiple training objectives (TO) for the exercise under what they termed common training objectives (CTO) :

- **Comprehensive Approach.** Organize multilateral coordination and cooperation with other actors including, inter alia, NATO, UN agencies, funds and programs, regional organizations, parallel forces and international organizations and NGOs, and conduct civil/military coordination.

- **Conduct Ongoing Operations.** Execute ongoing Operations in accordance with valid Standing Operating Procedure (SOP), orders, and relevant policies.

- **Integrated Operational Planning.** Implement decision making process and operational planning, based on organizational authority, command and control policy, staff roles, functions, procedures, structures, and coordinated planning processes.

- **Protection of Civilians.** Prepare operational and tactical-level risk mitigation activities to protect civilian through dialogue and engagement, physical protection, and stable environment.

- **Intelligence Coordination.** Maintain situational awareness and share information and intelligence in support of operations.

- **Force Protection.** Apply an integrated approach to plan and conduct force protection based on identified early warnings and symmetric, asymmetric, and hybrid threats.

- **Strategic Communication.** Implement a communication strategy in support of the operation and in response to disinformation, misinformation, and hate speech.

Observer trainer (OT) data – in the form of OT observations and evaluations of participant performance – were collected and shared only for some of the training teams in the exercise. The OTs graded training performance on a "traffic light scale" with numerical scores of 0, 50, and 100 represented by colors (red, yellow, and green, respectively). This limited scale did not afford the OTs the ability to make fine distinctions in their scoring of the training audience's performance. Thus, the collected data could not give granular insight into the participants' learning behavior. Furthermore, data were not collected for the CTOs Strategic Communication and Protection of Civilians, while data for Intelligence Coordination and Force Protection came with assessed scores of zero on performance. Because the UN teams failed to collect any data from OT observations, team performance on the CTOs only could be calculated and visualized for the NFOR teams (see Figure 10).

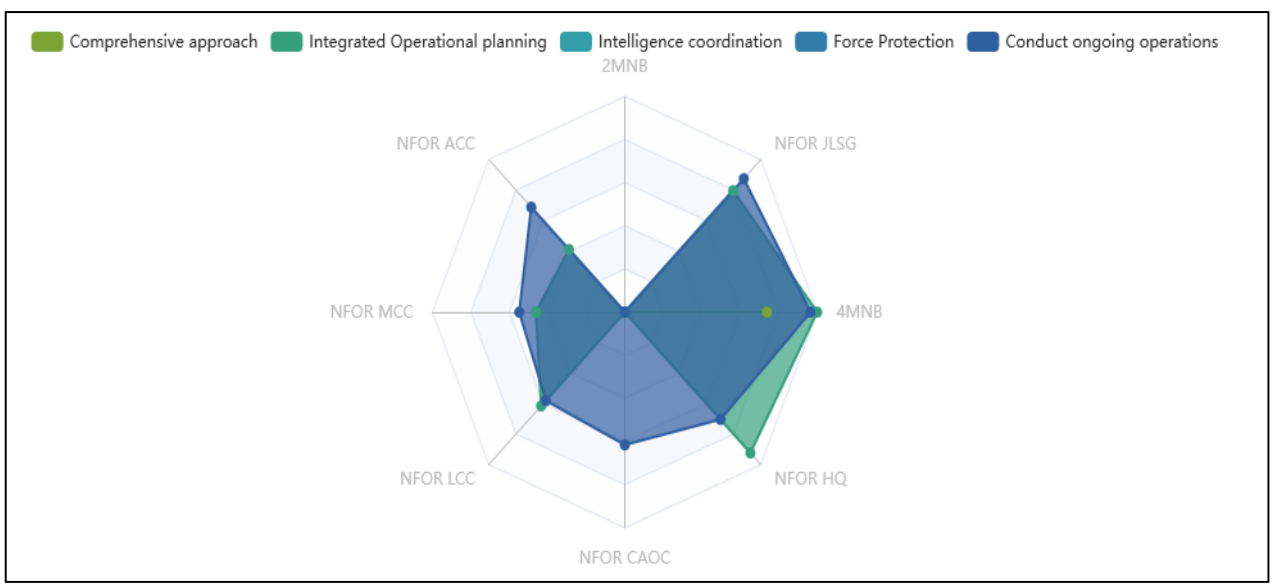


Figure 10. CTO performance per training team

Despite its lack of granular insight, the shared performance data were transformed into 108,348 xAPI activity statements. The activities were concentrated on days of the main exercise event, with multiple sub-training objectives under seven common training objectives (see Figure 11).

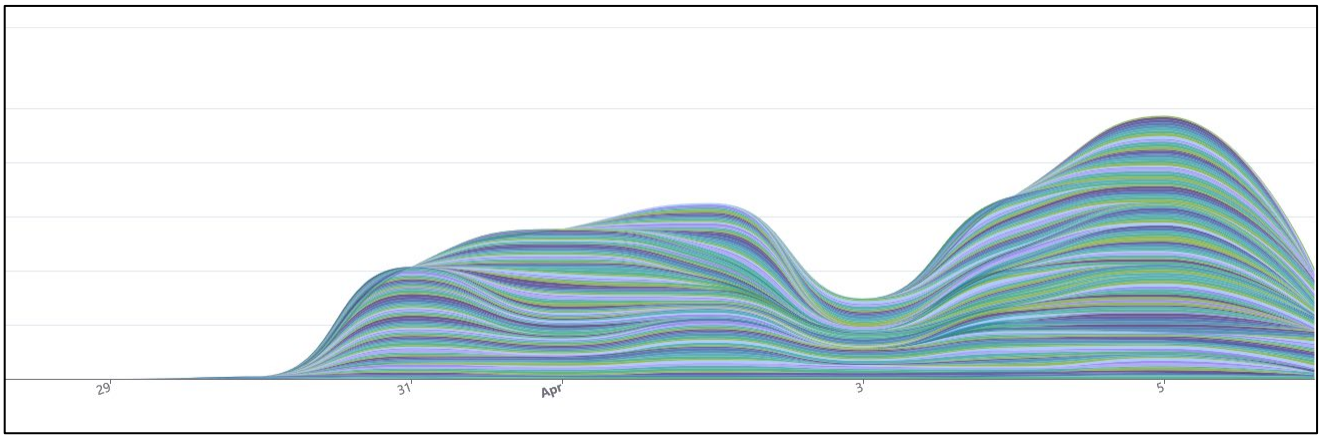


Figure 11. Sub-objectives activities

Exonaut™ is a product of *4C Strategies*, which is actively involved in the exercise, determining the exercise goals, types of measures and many other aspects. It is also utilized by several militaries and NATO allies including the USA.

"As a longtime trusted partner, 4C have worked with NATO's core team to match our exercise requirements and improve our capability. This has clearly shown the benefits of commercial solutions in terms of speed and agility."

Stuart Furness, Joint Force Development Programme Manager, NATO Allied Command Transformation

With close to 100 sub-objectives, the OTs faced significant obstacles in following and connecting them directly to the common training objectives. Hence, a large number of sub-objectives were left unscored. The difficult job of the OTs was magnified by the challenge of making performance evaluations using the limited "traffic light" range for scoring. The UN OTs did not report any evaluations at all. Despite these complications, the OTs provided very useful recommendations. Text analysis of the OT recommendations identified five key words:

CONTINUE, INFORMATION, STAFF, MONITOR, and PLANNING.

Contextual analysis indicated that improvement is needed in the coordination of some of the essential information among units and that the process should be better monitored and planned ahead (see Figure 12).

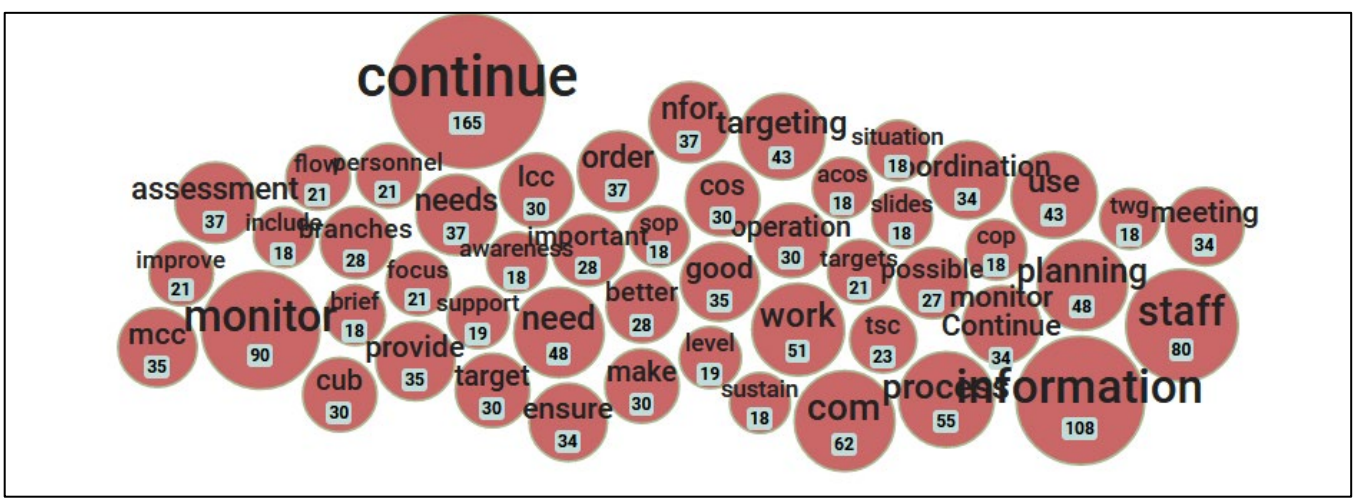


Figure 12. Observer Trainer recommendations

ROI Dashboard Prototype

Learning analytics enables hypothesis testing and analysis of the relationships between learning and performance, in short, the Return on Investment (ROI) of learning. The aim of the MADLx ROI Dashboard is to show at glance the correlation of training factors that would support an informed decision for paths to improved training. At Viking 22, we further tested the Dashboard protype, exhibiting its capacity to utilize xAPI and non-xAPI data to analyze and visualize information critical to improved decision-making about training. In addition, exercise stakeholders were able to use the Dashboard for the first time to introduce the possibilities of learning analytics to other participants.

Maj. Tohmas Ax, SWE using MADLx Dashboard during Viking 22 (photo courtesy of Swedish ADL)

Data collected and retrieved from the vikinglearning.org platform via the LRS were the Dashboard's only real-time data source. Data from the Exonaut™ system were shared every day during the main exercise event and after the exercise ended in the form of Excel files. These data were transformed into xAPI data files and subsequently sent to the LRS.

The Dashboard's central focus is the learning process of the entire exercise. Thus, in the overview (see Figure 13), we compare all learning and training objectives from all available sources to create a correlation matrix. In the Viking 22 exercise, the available data sources were nine eLearning courses, the wiki scenario, and three core training objectives.

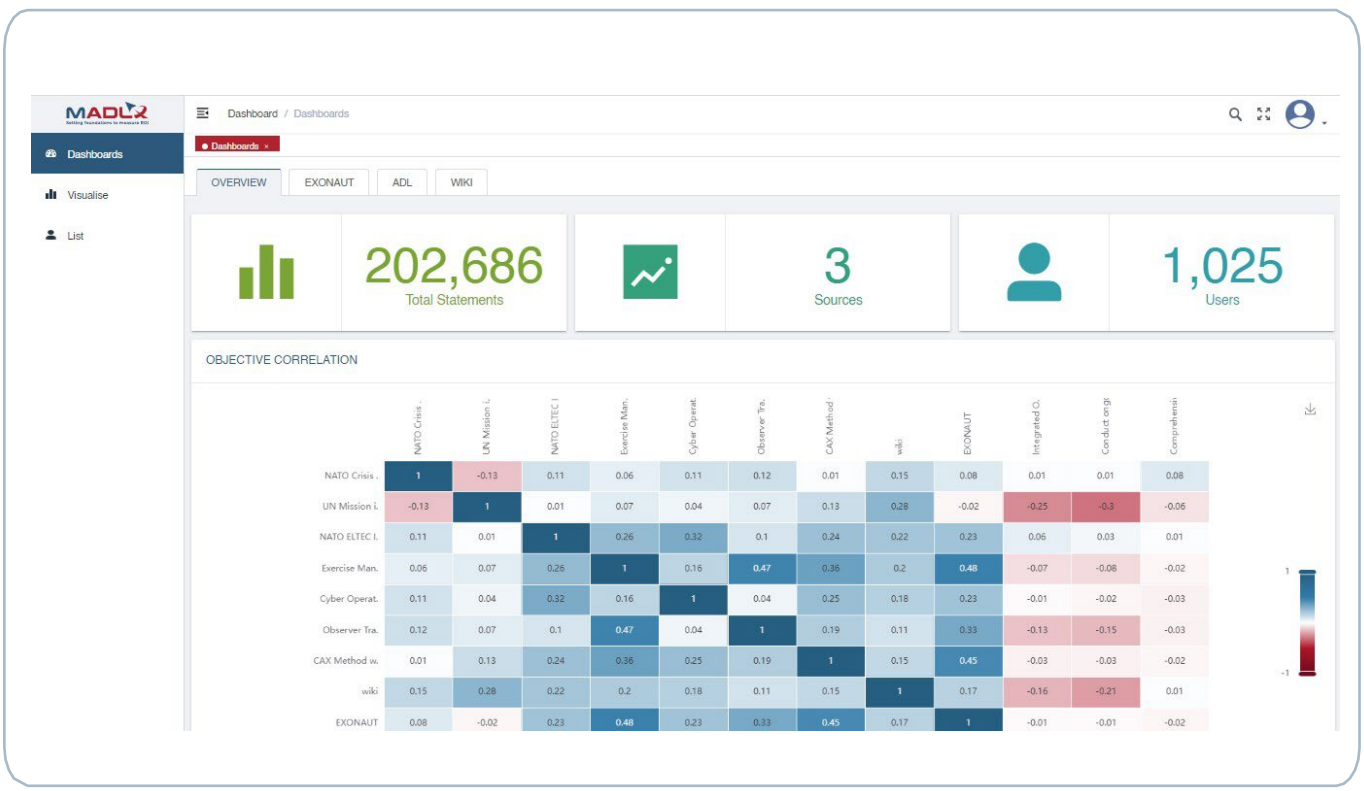


Figure 13. Viking 22 ROI Dashboard

The lack of granular exercise performance data and incomplete data on the training objectives impeded our ability to identify correlations indicating relationships among the observed variables. A positive relationship was indicated among all eLearning courses. The complete lack of UN team performance data explains the negative correlation between the UN version of the scenario course and the training objectives. Wiki pages are positively correlated with all other eLearning courses. A similar and highly positive correlation appears among the three training objectives of the exercise (Comprehensive Approach, Conduct Ongoing Operations, and Integrated Operational Planning).

Cybersecurity

Amid the very delicate situation of the war in Ukraine, we sustained no intrusions in an active hostile security environment. Prior to the exercise (February 2022), our custom Viking 22 eLearning website (vikinglearning.org), the exercise LRS, and the MADLx ROI Dashboard were internally tested for potential security issues listed under the Open Web Application Security Project (OWASP) Top Ten Application security risks 2022. OWASP Top Ten is a powerful awareness document for web application security, and it represents a broad consensus about the most critical web application security flaws. The members of OWASP include a variety of security experts from around the world who have shared their expertise to produce this list. The scope of the internal audit was to provide security tests during the development phase with two primary objectives: preventing unauthorized access and/or the retrieval of sensitive information. The application server passed the audit, hosted on a protected dedicated server and accessible only via encrypted connection with strong encryption. The default configuration was set to provide a good balance between security and compatibility with current browsers. The server was approved by the highly regarded certified authority Let's Encrypt, and it received the grade of A from the Qualys SSL Labs test.

Learning Technologies Guidance

Our Viking 22 learning architecture met Total Learning Architecture (TLA) standards.

> *The TLA is a research and development project sponsored by the ADL Initiative and conducted in collaboration with stakeholders from across the defense community, professional standards organizations, industry, and academia. It includes a set of technical specifications, standards, and policy guidance that define a uniform approach for integrating current and emerging learning technologies into a learning services ecosystem. Within this ecosystem, multiple services and learning opportunities (of various modalities and points of delivery) can be managed in an integrated, interoperable 'plug and play' environment. Once matured and implemented, the TLA will enable personalized, data-driven, and technology-enabled lifelong learning across the DoD, other Federal Government agencies, and beyond.*

- Advanced Distributed Learning Initiative-

The nine ADL courses and scenario wiki we created for Viking 22 were designed to meet the Experience Application Programming Interface (xAPI) standard. xAPI is an eLearning software specification that allows learning content and learning systems to speak to each other in a manner that records and tracks all types of learning activities.

Conclusions

At the Viking 22 exercise, we were able to advance the maturing of both aspects of ADL integration into multinational exercises: providing ADL resources to enhance learning, and utilizing the data harvested from participant use of ADL to analyze and quantify training performance.

To enhance both pre-training and in-exercise learning, we successfully deployed nine ADL courses that targeted elements of the exercise and training objectives, including introductions to the new exercise scenario tailored to the event's NATO and UN teams, and we created an html website for wiki pages presenting the full scenario in a user-friendly form. Respondents' assessments in the post-exercise survey attested to the merit of ADL learning resources, with 92% saying that the Viking eLearning platform had proven useful in preparing them for their role in the exercise. Still, with slightly less than 40% participation in the online courses, Viking 22 again demonstrated the need to increase participant utilization of this valuable asset both to improve learning outcomes and reduce the amount of time needed for pre-game preparation once participants have arrived at the exercise site(s).

Further testing of the MADLx ROI Dashboard prototype at Viking 22 exhibited its capacity to utilize xAPI and non-xAPI data to analyze and visualize information critical to improved decision-making about training. Viking 22 stakeholders also were able to use the Dashboard for the first time to introduce learning analytics to other participants. However, while we were able to gain useful insights about learning and ADL usage from the data collected and presented at Viking 22, we could not confirm our basic research hypothesis: exercise participants who utilize ADL content demonstrate measurable and visualizable improvements in operations effectiveness. Our capability to analyze in-exercise performance suffered from a lack of complete, granular and timely data provided to us by the event organizers.

Experiment Highlights

- Developed eight new, native xAPI courses and significantly revised one previous course to serve as part of the exercise pre-training.
- Developed a customized wiki page to present the new exercise scenario in a searchable, interactive manner.
- Learning Record Store (LRS) launched, and data collected from the Learning Management System (LMS) and wiki page while maintaining the security level for the LMS, LRS, and learning analytics dashboard.
- Collected 202,686 xAPI statements on participant learning behavior during pre-training and the exercise event.
- Successfully tested the ROI Dashboard prototype on a real event with live monitoring of ADL performance during the pre-training and more than 15 data visualizations showing performance and behavior of the training audience.
- The exercise organizers did not provide a full set of data on training performance in the exercise; thus, correlation between eLearning and exercise performance could not be detected.

APPENDIX B4 - CAX EXPERIMENTATION AAR

By Capt Peter Lindskog, SweAF

EVENT SUMMARY:

The objective was to use the Modelling and Simulation as a Service (MSaaS) concept to augment the existing CAX platform with services that support the generation of operational pictures for the training audiences.

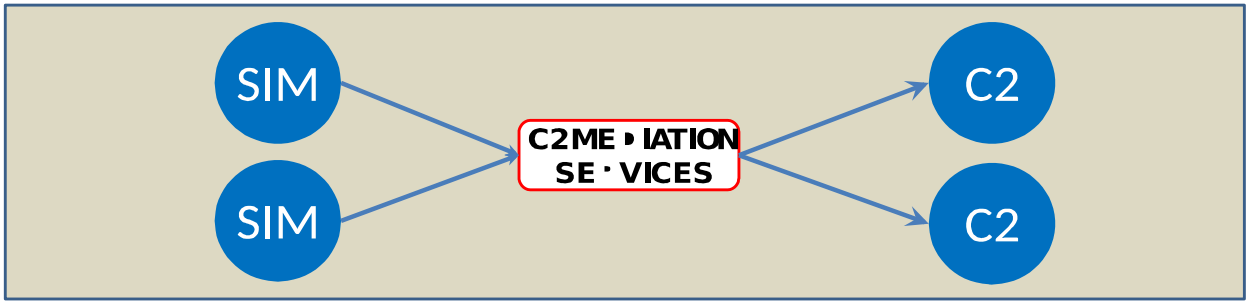
Since Viking offers participating organizations to bring their own Simulations and C2 system, there is also a need to ensure interoperability between federated systems to feed operational pictures.

The mission of the JFTC was to support the exercise by transforming simulation data into Command and Control (C2) data in a standardized way based on data about red forces from the simulation federation. In addition, KIXS MoD NLD also subscribed to data from the simulation environment and delivered both AIS traffic and Blue Force Tracking to Sitaware HQ.
JFTC acted as a provider and a consumer of MSaaS Services and KIXS only as a provider of services.

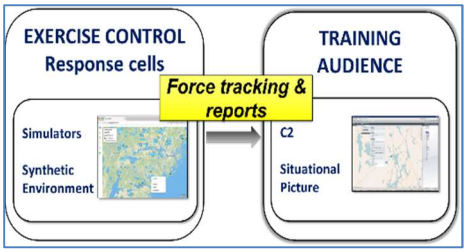
Viking 22 successfully used MSaaS to feed C2 systems as the basis for the Training Audience to develop the Common Situational Summary (CSS).
The objective was achieved and, in several cases, exceeded, with measurable progress in developing MSaaS operational concepts.

RESULTS:

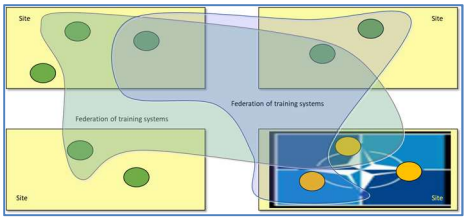
It is beneficial to have support from other organizations to solve issues without developing our own solutions and instead rent or pay per use for provided services. Using and sharing services rather than owning hardware, software, services, staff, and infrastructure, provided us with a flexible and easy solution. This approach is recommended for future upcoming events, including exercises other than Viking. The stimuli to the C2 system via Tactical Data Links (TDL) delivered the expected outcome. They were good enough for the Training Audience to create their Summary Operational Picture. In that aspect, the CAX solution for Viking is a great success. It contributes to the further development of booth MSaaS and TDL for NATO.



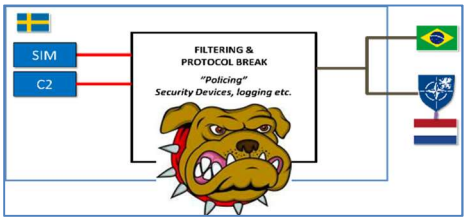
EXPERIMENT FOCUSED OBJECTIVES:



1. Investigate the possibility of replacing the existing solution on CIX to exchange data between Sim and C2 in a standardized way. Which data links should we focus on and offer the correct data for the purpose, and is Sitaware HQ compatible with these links. We described requirements for what information should flow between the synthetic environment and the C2 service



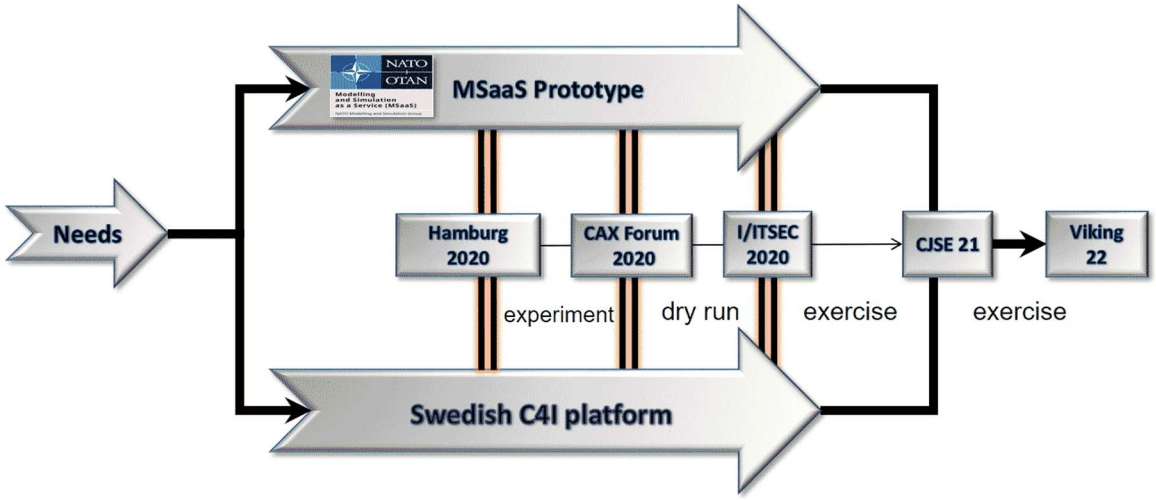
2. Try the MsaaS concept, and search for "feed C2 with simulation data" from NATO and partners through the discovery service. NATO was able to provide the services "EXIS" and the Dutch MoD the "VesselTrafficGenerator (VTG)" and "ELIAS". Focus on modularity, loose coupling, elasticity, reusability and scalability and how those could be achieved during Viking 22.



3. Investigate how we can ensure automatic control of the data flow of information across multiple domains. A cross-domain security (CDS) solution is required to allow CIX and the external sites' Simulation and C2 feed systems to interoperate with high assurance.

BACKGROUND

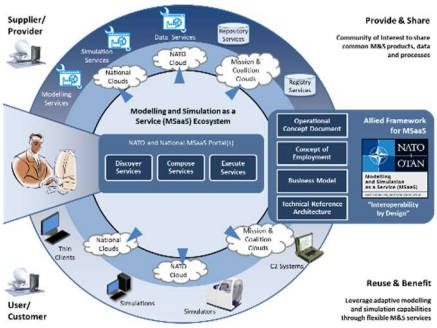
NATO MSaaS was used to augment the Swedish CAX platform with NATO services to support a real exercise with Viking 22 in focus. Preparation in the NATO working group (MSG-164) started in 2019 and conducted a series of experiments until the execution of Viking 22. The initial planning with JFTC started at CWIX MPC in 2020.



Figur 1Descripton of the developement of MSaaS towards Viking 22

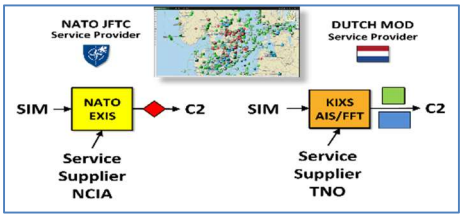
The MSaaS concept

NATO and nations use simulation environments for various purposes, such as training, capability development, mission rehearsal and decision support in acquisition processes. Consequently, Modelling and Simulation (M&S) has become a critical capability for the alliance and its nations. As a result, M&S products are highly valuable resources, and it is essential that M&S products, data and processes are conveniently accessible to a many users as often as possible. However, achieving interoperability between simulation systems and ensuring the credibility of results requires great efforts regarding time, personnel and budget.



Recent developments in cloud computing technology and service-oriented architectures offer opportunities to utilize M&S capabilities better to satisfy NATO's critical needs. M&S as a Service (MSaaS) is a new concept that includes service orientation and the provision of M&S applications via the as-a-service cloud computing model. This model enables more composable simulation environments to be deployed and executed on-demand. In addition, the MSaaS paradigm supports standalone use and integrating multiple simulated and real systems into federated cloud-based simulation environments whenever the need arises.

To follow standards when stimulating the C2 system



Since Viking is offering all nations to use their own C2 system, it will become crucial that those system can exchange information with other system and doing that in a standardized way. In any national, multinational, coalition and NATO operation, including Viking, all authoritative commanders require situational awareness about the precise disposition of all friendly forces at all times with the highest possible accuracy. Nations have procured various friendly force tracking and command and control systems with differing capabilities. For example, some C2 systems only provide position reports with corresponding timestamps; others allow the full array of command and control. Differences in type, format and content of the exchanged information and technical variances of the protocols cause significant interoperability issues. It prevents the direct exchange of positional and other information of friendly forces between the different national systems and even what information should be reported by spotted enemies. So are there any standards we could use for reporting about all forces in the Viking exercise?

The following data were expected to be transferred to the C2 system from the synthetic environment; CallSign, Position, Speed, Heading, Symbol, Nationality, Status, Combat Effectiveness, Activity, Sender, Reported by and Holdings.

Security

Implementation Risks

Stakeholders implementing the proposed concept in their organizations will also face risks and some major challenges. The following general (i.e., not defence-specific) risks associated with service-based M&S approaches have been identified:

- Managing security, privacy, accountability, risk and trust become more complex
- Dependency on network connections makes M&S applications vulnerable to network effects
- Adapting legacy M&S applications with a service interface or for hosting in the cloud may be complex and/or costly
- Dependency on remote infrastructure and services increases vulnerability in front-line/combat situations, which may reduce benefits as local fallback options or backup systems must still be maintained
- Unwillingness of defence companies to move to ecosystem procurement models

CDS

Cross-Domain Security (CDS) is a controlled interface that allows manual or automatic access to or transfer of information between different security domains.

It acts as a boundary with a set of mechanisms that enforces security policies and controls the flow of information between interconnected information systems.

CDS aims to allow a trusted network domain to exchange information (uni- or bi-directional) with another domain without introducing the potential security threats that generally come with network connectivity.

Lesson Learned

The following list shows the lesson learned from respective objectives:

1.10.1 Use TDL standards to stimulate C2

We were looking for a Data Link that could convey a spot report about the red force[7]. So we examined and tried the NATO Friendly Force Information (NFFI)

[7] We examined and tried the Friendly Force Identifier, Adat P-36, for that purpose and with the knowledge that FFI has its focus on tracking own forces and not the red ones.

standard (ADatP-36), even if it focuses on tracking blue and not the red forces. For blue force tracking NFFI, OTH-G and AIS standards were used.

Desired data	Received data				Note
	FFI	OTH-G	AIS	CIX sim-C2 API	
CallSign	Yes	Yes	Yes	Yes	
Position	Yes	Yes	Yes	Yes	
Speed	Yes	Yes	Yes	Yes	
Heading	Yes	Yes	Yes	Yes	
Symbol	Yes	Yes	Yes	Yes	
Nationality/Force	NO	Yes	Yes	Yes	
Status	Yes	NO	NO	Yes	
CBT Effect-ness	Yes	NO	NO	Yes	
Activity	NO	NO	Yes	Yes	
Sender	NO	NO	NO	Yes	
Reported by	NO	NO	NO	Yes	
Holdings	NO	NO	NO	NO	

All data link formats differed and had more or less information about the units. In the CIX environment, we stimulated one C2 internal data layer inside Sitaware HQ with its own data set. So, when using:

a) OTH-G
    a. There were fields not filled in with ship data expected to be produced by a real-life sensor. But in the simulation environment, this data currently does not exist. So, to take advantage of OTH-G even more in the future, we need a system that could provide this additional data about existing ships to the simulation.
    b. During Viking, we used OTH-G even for some ground units. It was strange to have Ship data fields for the land forces, e.g. “navigational status”, “ship type”.
b) Using FFI to report about the red force is really to commit violence on the standard. However, we accepted the lack of some important enemy data and reported this data manually instead.
c) AIS was more accurate and precise in what to report about civil ships than our own generic Sim-C2 connector. Nice that we had the right flag for the respective ship, but IMO, ETA and destination harbour is required in the future.

- Overall comments
    - OTH-G is good to have for the Naval traffic but not as well for land forces
    - We need to develop sensors further and then more specifically regarding ship data and also need to develop a FOM to supplement this data to get a good stimulus of OTH-G
    - FFI is good to use to stimulate reports regarding own force strengths but not as good to generate intelligence reports of red forces.
    - CIX Sim-C2 was suitable for intelligence reporting. Still, to obtain a complete report, we continue to search for the appropriate TDL for that as well.
    - AIS fits the purpose very well, and if we can provide data to supplement with information regarding IMO, ETA and destination, the AIS link will be complete

Use MSaaS and have distributed services by NATO

- Since the service is developed and maintained by an external organization, we could use it just for the specific exercise, thereby reducing the cost of ownership and our local overheads.
- By using MSaaS, we had a more flexible, efficient and secure way of providing and consuming simulation services
- When we realized that the service was insufficient and there was a need to scale it up, it was straightforward for the provider to allocate more IT resources for this demand. This flexibility improved the quality, elasticity, and scalability on-demand.
- It was a great advantage to have the opportunity to use the available expert knowledge from the providers and suppliers. We received support for both the function of the service and troubleshooting. In addition, we increased efficiency by reducing our staffing requirements and got direct access to SMEs. So, using and sharing rather than owning hardware, software, services, staffing, and infrastructure is very beneficial.Because of security issues and bureaucracy, we were not allowed to connect to remote sites and establish the MSaaS network until really late in the integration phase. As a result, we experienced many network and firewall problems. We needed to reallocate labour to solve network problems like robustness, unstable tunnels, bandwidth issues, and crypto settings, rather than focusing on the results of MSaaS (fit for purpose and QoS).
- In test labs, all services worked fine at their respective remote site. However, since Sweden did not have an experimental environment, we suffered a lot from not being able to validate the composition before implementing it in the runtime environment.
- The Quality of the composition depends on the quality of all participating services and the composition design. Test plans for individual services were developed, and each service was tested before integration, not MSaaS validated, however. But there was a lack of a uniform testing framework for the composition. In addition, there were no readily available tools for testing these service compositions, and we experienced a lot of bugs and issues during exercise that was time-consuming to fix.
- It was difficult to monitor the entire composition of the remote services due to security regulations which made it challenging to understand where the problem was. The lack of collaboration tools makes it hard to communicate issues

Overall comments

- Involve IT security and the accreditation early in the process because IT security regulations can be the show stopper
- Stay focused on the outcome and the composed quality
- Make sure of the network robustness
- Ensure monitoring and supervision
- Design a redundancy plan and fallback solution
- Ensure collaboration tools
- Build a good relationship with your service provider

Cross Domain Security

- The overall design of the federated simulation system requires a careful analysis of the information flow across network boundaries particularly where data flows across security domains.
- The Viking design allowed ground truth unit data and sensor calculations (detections) result to flow across a CDS solution to the JFTC-provided services.
- The CDS solution is always a combination of software, network and security devices configured to meet assurance and security requirements. It is essential to include accreditation authorities early in the solution design to ensure timely approval to connect.
- The Viking CDS solution covered not only simulation data to the service providers but also the Brazilian simulation site. This required the CDS to be bi-directional with respect to the simulation data to and from Brazil. Data release policies were developed and implemented in the CDS solution to match the exercise requirements and system design. Only data required for the simulation and services to function were allowed to be transferred across domains.

Overall comments

- Design system carefully and minimize data required to flow across domains
- Load test the CDS based on realistic scenarios to ensure enough computing resources
- Work together with IT security, network admin, simulation architects and accreditors to fully understand how to best set up the CDS

NEXT STEPS

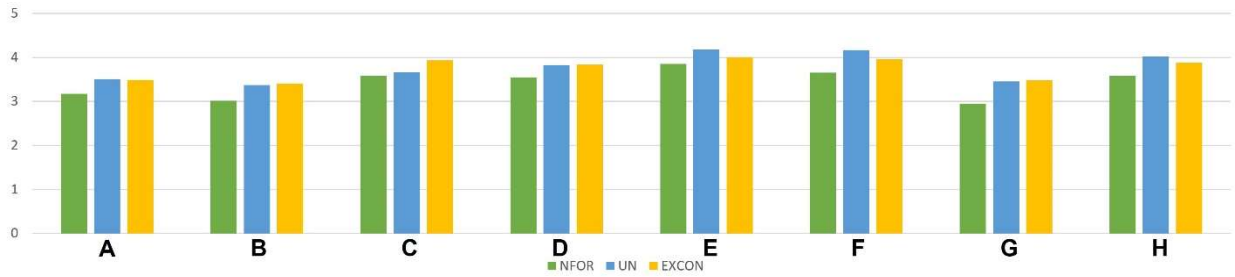
- Need to find a stable and standardized solution for Sim to C2 to continue to be able to offer participating nations to bring their own systems to the exercise. Start participating in CWIX as an interoperability event.
- Engage in NATO working groups to further develop the MSaaS concepts and technologies. Promote the use of MSaaS for both industry and training facilities.
- The recommendation is to consider to use and benefit from MSaaS the next Viking and other exercises.

APPENDIX B5 - ANALYSIS VIKING 22 SURVEYS

STARTEX Survey summary

691 records.

Assessment on a Scale of 1 to 5 (1-poor, 2-fair, 3-good, 4-very good, 5-excellent).



A. Usefulness of the content of the Viking e-learning platform in preparing for your role.
B. Usefulness of the onsite work up staff training (WUST) in preparing for your role.
C. Your ability to use IT applications in staff work.
D. Your ability to use spoken and written English to produce clear, coherent briefings, orders, reports, and other products.
E. Your ability to work in a multicultural and multinational environment.
F. Your ability to work with military/police/civilian counterparts.
G. My overall preparedness for the exercise is:
H. My understanding of the exercise aim and objectives is:

Have you participated in a NATO, EU or UN led peacekeeping/ crisis management mission?

42,4 % YES

43,1 % NO

14,5 BLANK

Have you previously participated in the Combined Joint Staff Exercise (CJSE), VIKING or other similar exercises?

48,6 % NO

13,3 % YES, once

7,1 % YES, twice

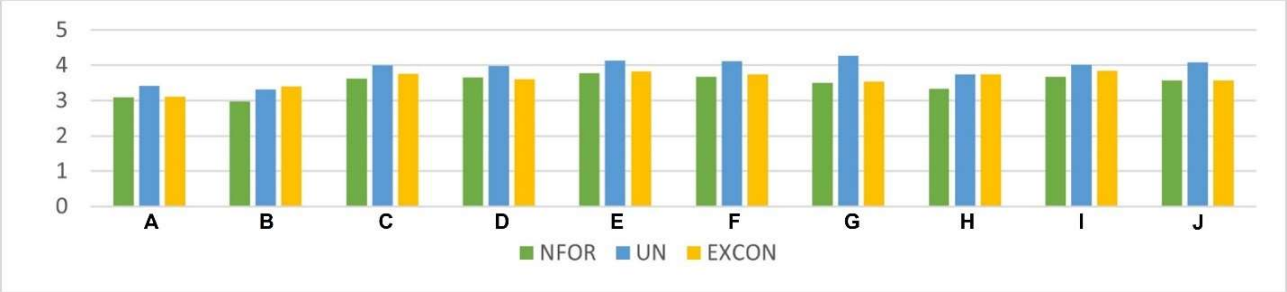
16,8 % YES, three times or more

14,2 % BLANK

ENDEX Survey summary

850 records.

Assessments on a Scale of 1 to 5 (1-poor, 2-fair, 3-good, 4-very good, 5-excellent).



A. Usefulness of the content of the VIKING e-learning platform in preparing for your role.
B. Usefulness of the on-site work up staff training (WUST) in preparing for your role.
C. Your ability to use IT applications in staff work.
D. Your ability to use spoken and written English to produce clear, coherent briefings, orders, reports, and other products.
E. Your ability to work in a multicultural and multinational environment.
F. Your ability to work with military/police/civilian counterparts.
G. How useful the exercise has been for your professional development?
H. How well you understand the gaming method used in Viking 22?
I. How well did you understand the exercise aim and objectives?
J. How realistic and up to date the scenario was?

Based on your experience of the exercise, which of the Exercise Objectives received the most prominence?

41,1 % a. Promote mutual understanding, confidence, co-operation, and interoperability among all contributing and affected forces, organisations, offices, and personnel – military as well as civilian (i.e., comprehensive approach).

34,9 % b. Understand and apply mission command and management, staff roles and functions, procedures, and structures, as well as coordinated planning processes.

9,2 % c. Understand and apply current operational concepts reflecting present as well as future challenges in multinational and multidimensional peace operations.

11,7 % d. Create an environment that supports and facilitates development and experimentation of methods, operational concepts and technological enhancements for participating organisations and nations.

3,1 % BLANK

Was the information sharing between military/police/civilian actors sufficient for your area of responsibility?

73,3 % YES

23,8 % NO

2,9 % BLANK

Have you experienced confusion about your own role and responsibilities?
16,7 % YES, OFTEN

43,9 YES, A FEW TIMES

36,2 % NO

3,2 % BLANK

Have you experienced confusion about the role and responsibilities of other participants (training audience, embedded mentor, response cell etc.)?
19,7 % YES, OFTEN

52,1 % YES, A FEW TIMES

26,5 % NO

1,7 % BLANK

Is there anything else that you want to add?

The analysis of the comments to this question in the STARTEX and the ENDEX surveys, have been divided into three main sections: UN participants, NFOR participants and EXCON participants. In each of these three segments, the sorting has been made into the Focus/Subject Areas and the subtitles Other and Appreciations.

The text in "Italic" belong to comments in the STARTEX Survey, all other comments belong to the ENDEX Survey.

Additional details can be analyzed in the "raw" data. All "trash" comments have not been inserted here (you find them in the "raw" data exported from Exonaut to xls, available at the Joint Training Centre).

UN participants:

(90 comments)

A. Exercise Objectives

NIL

B. Exercise Concept and Development

- *There is a need to better bring on board trainees coming from outside UN environment and make clearer for UN staff that they must provide "pre-deployment training" to trainees. The exercise is tremendously ambitious but still too much military lead in its design.*
- *Exercise Viking is an important exercise and a great vantage between Military, Civilian and police. This exercise will help to expand the horizon of knowledge and experience of all the participants for their future tasks in any real crisis.*

- The civilian component should be larger and include at least WFP and UNICEF, besides UNHCR, because those agencies are among the most active actors in such situations. It is recommended to make it very clear the distinction between civilian sections of the mission and the agencies that integrate de UNCT. During this exercise, there has been some confusion related to this, which may lead to relevant misunderstandings.

C. Exercise Planning

- We need to enhance the police participation.
- The police part could have been bigger in the exercise.
- The exercise materials should include the basic documents and policies, such as mission budget document, structure, CASEVAC policy procurement manual, etc.
- A well planned and conducted exercise which has given a good perspective on working environment in a UN Mission and coordination between various components

D. Preparations

- *It would be good to make sure all the civilians participating (non-UN) who are in roles within UNMIM receive the same documents as the UN team prior to arrival. That would help for the teams to be more coherent about the roles, exercise prior to arrival and save time once they arrive. On the E-learning platform, it would be useful to have more information loaded up on that platform such as the basic documents for UNMIM etc.*
- *Some of the important documents like the Security Council Resolution 9901 or the report of the SG should have been added to the platform to prepare. It would be good if the exercise started for everyone at the same time and if participants with no mission experience would get a better introduction to aim and objectives and the roles of the different players.*
- *Previously and earlier preparation, especially for the OTM, about the using of the system. there could be platform with all the latest handbooks for the respective functions. I know, that would cause a lot of admin work but could support the ongoing learning process.*
- *Apart from reading materials to prepare participants, planning of the exercise should take into consideration participants coming from hot climates (if the weather is cold in Sweden); arrangements should be made so that the concerned participants are given an opportunity on arrival to shop/acquire warm clothing to avoid catching a cold, pneumonia, or other cold weather-related sickness.*
- *I understand that this may be on purpose for the exercise, but a closer engagement with NATO in the preparation week would be beneficial.*
- *The training activities to the exercise should has presented the circle of tasks and flux of information in the way it was supposed the happen.*
- *In FHQ, we got few information from our superior for preparations, what is expected from us, what is done etc. which complicated the start of the working quite much, even though we tried to be proactive in our respective roles in this exercise.*
- *Better structure of WUST would be desirable. Atmosphere extremely friendly.*
- *It is the overall organisation of the exercise that is very poor this time! Having participated in 2 Viking Exercises before I have means of comparison. FBA had the important function of organizing the induction (WUST). This time WUST was nonexistent except for presentations on how to behave in the military compound. Hardly any content related sessions, no introduction of major parties to the game, nothing! What a shame, let us hope we can draw some positive learning effects out of this iteration.*
- *More information on the end state of NFOR mission could also be made available to understand exactly how the two organization might developed working relations.*
- *It is not the fault of the Exercise Staff, rather the communications through in terms of job clarity and items to bring etc. This would aid in the preparation of all members, along with allowing the effective and efficient conduct of the WUST.*
- *Actual training during the WUST was very poor. No intro on my responsibilities or duties compared the previous exercises (before participated on NATO -site).*

- If possible, make sure all participants have the UN documents ahead of time.

- It would be good to have had a Strategic Communication presentation to all staff at the beginning to enhance communications, same with gender adviser - have a presentation and a few more gender advisers and place them within more pillars, particularly political.
- An intro about the roles and responsibilities should have taken place. Also, a briefing on the different contents of the units - maybe in the e-learning - would have made things clearer right from the beginning.
- There is a need of 2 days of academic classes especially for civilians who arrived from respective country ministries.
- A short brief about my role and duties would have helped
- I suggest that the manning list of the staff members from Force Commanders, side, and the UN Military Staff to be shared before in advance prior the exercise, for the effectiveness of command-and-control purposes. To make it clearer, to avoid a junior rank to be in superior appointment than the senior. All military staff participated were so flexible in this regard, but just for the good military practices.
- Organigram would have helped to know who what is and where, introduction to military side would have helped the cooperation and coordination, excellent experience in any case
- At the WUST, provide structure and allow the participants (role players) within the RCs time to introduce themselves and to announce their roles in the exercise.
- I did not receive the UNMIM mandate and the Midland Peace Agreement ahead of the exercise, which hindered my ability to effectively operate
- That the senior staff was on site a few days before the rest of the TA, and had started to work, made it very confusing and stressful the first days.
- Serious gaps in the preparation of the exercise: different level of information amongst training audience due to different documents made available through different access to portal and game! UN docs were not available until we were in Kungsängen where the UN had been working already 3 days on the scenario. There was no WUST in the true sense of the word! Just a code of conduct and how to fold an army blanket! No presentations of actors, nor content related presentations relevant to the exercise.
- Most duties were performed by experienced staff who did their everyday business. The integration of participants not that familiar with the work and less experienced should have taken more priority.
- We did not get the supporting documents in PLANEX, something must have gone wrong because the documents CPT prepared were not there during the exercise.
- For the participants whose were for first time on the VIKING exercise and for first time on operational level, you should have for beginning training for each of them and for each branch.
- WUST has a key role to success. As well someone to be mentoring and guiding your role in exercise to be learning effectively.
- There could have been clarifications on all roles: now when we called the UN-agencies in Enköping it was some confusion on what they did/what we did. The same goes for Sector 1 and 2 that was hard to reach, and it took us 2-3 days into the exercise before we even knew we had team members there.
- The various branches in MCC would benefit from a unique STARTEX experience FAQ from the previous exercise. Our Branch benefitted from an experienced director and dep

director. But branches that lacked experience in the management spent days getting a full grip of the branches task and responsibility.

E. Exercise Conduct

General

- *The role of Mission Support Division in all aspects of mandate implementation was missing and needs to be brought into the scenario in a much better way to bring realism to the exercise*
- *My suggestion is to insert the maritime environment in the next edition of VIKING Exercise, because Sweden has a long coast like Brazil and we can't mitigate the enemies ships came from to MIDLAND under control of UFI. Smuggling, drugs trafficking, piracy could be coming from the sea to main ports (critical infrastructure) in this kind of Exercise.*
- *For Non-UN people the number of acronyms and abbreviations is overwhelming.*

- IM and in-processing were the most significant obstacle for our UN training audience in Kungsangen.
- Scenarios are very realistic, and the actors were good/realistic for the most part.
- JMAC/JOC did excellent work, but we just need to make sure they and the DSRSG led pillars coordinate/share info to feed into the analysis.
- JMAC section could have been better informed and equipped to support the rest of UN-MIM HQ, whereas it seemed like they were learning as they went and operating with very similar information to that received by the general participants.
- Military gender equality issues should have been noticed in UNMIM.
- In the absence of OTMs, this issue was left for the UNMIM military management as in the real life and it did not work.
- The embedded OTMs were missing, the training method was not well explained before the game started. On a personal level (out of game) the interaction with the different groups got better and better, but within the exercise the cooperation was low. Everyone seemed to be busy within their bubble.
- Cumulated difficulties have made the exercise complicated despite the tremendous efforts.
- Diversity of training audience, unequal assignation of functions with offices not having anyone knowing the effective functioning of such offices.
- The exercise was excellent for showcasing how the UN works.
- The exercise was an excellent opportunity for those who don´t have mission experience to learn how UN Missions functions.

Gaming and Scenario

- *Include more routine situation for all cell and injects also.*
- *All students should have better understanding of the overall situation during the exercise.*
- *The exercise focused mainly on the military and the substantive component in the planning stages without full consideration for the role played by Mission Support Division. The internal coordination with the support division and other components needs to be enhanced right from the planning stages.*

- Scenarios are very realistic, and the actors were good/realistic for the most part.

- Build in a Security Management Team meeting and a Crisis Management Team Scenario too into the exercise would be good.
- It was very realistic as was UNMIM and the scenarios.
- The injects were not challenging enough in terms of mission crisis management.
- I found the exercise control aspect of the game to be almost non-existent from the perspective of my functional unit. I oversaw a unit that would be quite prominent in a real UN operation but had not really been factored into the game play
- More injects for UNPOL! We were just supporting other events that was planned for UNMIM Force, nothing of substance for UNPOL and HQ-RO coordination. Lack of necessary UNMIM policy and framework for UNPOL. To little info about MNPS and Iron brigade in regards of policing issues.
- The role of Mission Support Division was very underplayed and there was almost nothing in the exercise documents on the support side of peacekeeping operations. Without sufficient inputs like the correct organization of MSD, an exercise budgetary allocation and exercise civilian staffing and logistics scene, the reaction of different uniformed and civilian components at times were unrealistic as the 'resources and time estimation' factor for mission activities' were absent. Assuming unlimited resources and immediate conclusion of responses, without a clear understanding of time, space and capacity requirements, made the exercise drift away from reality.
- New scenario far too complicated and not yet mastered by the organizers.
- I think that the Exercise Planners could consider more tasks to the maritime environment, and I think that the Naval component could be included in the UNMIM Forces, mainly because the Sector 1 (Qatar) had a huge coast to protect and to permit the resupply. We must highlight that there is a Maritime Task Force by UN in Lebanon.
- The space of the UNMIM exercise was slow and injects were only coming through the news.

<u>Mil Civ Cooperation</u>

- More time for UN-NFOR cooperation to develop would be good.
- Presentation on NFOR/NATO structure would be helpful ahead of time.
- Working and collaborating with NATO colleagues was very challenging, and it was unclear whether that was by exercise design, or rather reflects broader cultural differences between institutions and member states.
- The lack of EU participation, and OSCE participation, could have been more clearly communicated to participants up front.
- I would like to highlight the integration between the 3 components (Military, Civilian and Police) during the exercise.
- It was a very interesting exercise, where the police training audience could exercise higher level of management, since we do not have a "staff" training like the military. I would suggest that for a next opportunity the presence of a police officer liaising directly in the country hosting central coordination be implemented. This would improve communications and organization to the police pillar.
- The liaison with NATO was not as strong as it could have been.
- Great exercise, not only to be able to work together with other UN agencies but also to be able to exchange with all participants of the exercise.

Technical and Information Platform

- *IT problems are making more difficult the exercise in Brazil. Also, the different time zones and the fact that some civilians participating in the exercise were not released from their daily tasks back in the office.*
- *Need for more training time on Information Management.*
- *Computer system complicated - passwords etc. organigram missing*
- *The computer environment (logins etc.) poses a challenge in that it causes a delay in carrying out the work.*
- *The internet connection in the site Brazil is poor.*
- *Need to work out the IT kinks to reflect an integrated mission*
- *The IT systems are very cumbersome and do not allow for good flow of information in the mission and with other stakeholders (NATO, UNCT)*

- If possible, if there is a simpler communications/IT system it would make it easier in sharing information.
- Improving sharing of information, presentations to all participants as this would help learning, better working relations with regional offices, for those leading pillars/components, good to let them know ahead of time they will be mentoring, training.
- Some more attention could be paid to the interoperability of sections and how the IT system can best play into that, however that is a small point compared to the outcomes achieved.
- The only issue I´ve faced during the exercise was the difficulty to verify the information.
- Info security requirements with three logins, not surprisingly delayed the practical work. Reportedly, IM and in-processing was the most significant obstacle for our UN training audience in Kungsangen.
- Less computer work, more face-to-face meeting!
- And finally, an impossible IT situation. Separate, isolated, and parallel communication circuits were created to overcome the complexity of the IT system.

Simulation Environment

- Was this an exercise using simulators, we never had any impact of any such information?

Real Life Support

- The RLS at Kungsangen did exceptionally well to facilitate the exercise.
- I want to highlight the excellent attitude of the SWEDINT staff to help us throughout the exercise, and the warm welcome and hospitality by our Swedish colleagues and friends.

F. Other Lessons Identified

- Personally, it was a great experience for me because the operational concept was based on the land (army forces) and I am from the Navy. In this way, I got new knowledge.
- One point to consider: The work at Mission is often like a project starting from the preparation stage. The work is done through couple of stages to reach the outcome. If any of the steps is not going ahead but staying at same spot, someone should (mentoring) intervene and guide ahead in the topic. At RoL Operational Team, MOU-question was solved (common understanding and responsibilities) but affecting on operational work too long.

G. Appreciations

- *This is an excellent opportunity to share experiences and learn from one another.*
- *This exercise offers me the opportunity to learn a lot of new things about working methods and practices.*

- A super positive one: Thanks to all the Swedish personnel - you are wonderful!
- Thank you for this great opportunity to learn!
- Thank you, Sweden, for an amazing exercise.
- Swedish support and organization for the exercise was excellent
- The exercise was wonderful!
- Thank you for an excellent exercise!
- Thanks for the Exercise, keep on the good work!!!
- Thank you for arranging
- Wonderful staff and help from all sides of SWEDINT. Thanks a lot for that!
- In my opinion, this exercise is very interesting because it contributes to the understanding and knowledge of how a mission is carried out in a real way. Also, it allows us to share experiences of peace mission or experiences of your country.
- Host Nation staff were extremely helpful, gracious and hospitable. They have demonstrated a high level of service and support. Australia has much to learn from Sweden about hosting foreign forces. Thank you.
- This Exercise accorded me a wonderful learning opportunity and a platform to share experiences with all actors.
- Thank you for the opportunity to develop a civilian team in Site Brazil. We have a lot of work to do for future simulations, but V22 left a huge legacy.
- The organizers have done a tremendous job to make the exercise look like a real life one. Thank you very much for the hospitality!
- VERY GOOD EXERCISE.
- The exercise was excellent.
- Thank you for the opportunity and congratulations for the organization and professionalism of the DIREX and OTM.
- Excellent exercise, congrats!!!!!
- Overall, the exercise itself was very well run.

NFOR participants:

(272 comments)

A. Exercise Objectives

- It is not clear what the objective of the exercise is to the participants. Is it a window to promote yourself and your career in real life? Is it to get to boss around other people than you usually do? is it about the processes where it is ok to make mistakes and learn from them? For example, the cub slides, wouldn't it be better if mistakes were allowed and not laughed at? To lower the ambition of the actual content and focus on the process instead?

B. Exercise Concept and Development

- *I suggest planning for a led training on site on behalf of the exercise.*

- This training event is useless for student at the HOP at SEDU.
- This exercise would benefit more from using a single Swedish unit with foreign partner enablers to execute the mission. Putting officer students into roles for which they are not trained or have little experience slows the exercise down and has caused confusion amongst the training audience. Too much time was spent working through processes that should have already been learned. Additionally, the lack of templates and SOPs frustrated the training audience and slowed the pace of the exercise down. If student officers are used in the next iteration, I would recommend placing them in positions where they have experience and making the exercise less complicated.
- It would have been more effective for the future if the last day of exercise would have been only for writing SOP: s and Battle wheels for future exercises. At this point (Tuesday morning) there seems to be no more things to learn.
- I know that there is a time issue but letting start each level of command on different days will facilitate the start of the exercise (e.g., NFOR HQ X, LCC X+2, MNB X+4)
- When a CPX/CAX exercise is designed, it is very important to state the STARTEX inputs to the trained staff. When there is a big lack of understanding of where we are in the timeline for the exercise there is miscommunications between the LCC / BG / SITAWARE .
- Skip 3 days of preparation. Max 2 days are needed. Speed up the intensity of the exercise earlier. Instead of Monday i could have started Sunday morning (at least) Then the RR could be used as a small time out and you will be able to reflect.
- It is not fair to put students on a level where they have never been closed to. It will not help them. They will have a much better training if they are put in positions on lower levels. Now students are only guessing. Doing their best but guessing. Why not use the real ACOSs and then maybe the students can act as SO under their command? The OTM has not done their job in supporting the students. Much more to ask from them. Sad, but true. Overall, there was too little to do in my branch. Pore play from the RC.
- VIKING serves no adequate function as part of the SEDU education (HOP).

C. Exercise Planning

- Make sure to have people on all levels/units in Personnel sections and create the information about planned troops (level, country, key competence) needed to complete reports.
- And please do not re-invent the wheel for next exercise, re use methods and let participants form new routines amongst this from a base point of view.
- As A3 MET there have been no training objectives. For me I had been more challenging to have another staff position to learn staff work.
- I am looking forward to a deeper FISE -cooperation.

- If you add any cells/positions between the exercises, it must be clearly stated what the new cell's assignment is. It is really confusing when no one (not even OTM) can tell you what the meaning of the role is. For example, the MAC in CAOC PLANS.

D. Preparations

- *I believe that the STARTEX information could have been better. We did not know the status on the different brigades.*
- *Really nice ice-breaking and after exercise events. Maybe have functional briefing sessions based on SOP during WUST.*
- *WUST is too long.*
- *Need for in-briefing on how the HQ works and any specialist functions. LEGAD brief was excellent - but we need that approach for other areas (not just a org diagram shown for 5 seconds on the screen!). Cross-briefings on the Tuesday would have been invaluable.*
- *It would be great to have function specifical training within the WUST Phase.*
- *WUST time was abundant, but the info/teaching not. More detailed instruction would be appreciated.*
- *Specific processes to the branch job are not described in advanced and somehow specific to this exercise*
- *More time to read important information before VIKING. It came 1 day before*
- *Excon preparations needs to be better in the details that effects staffs. Borders, OPSTAT, Annex AA, etc.*
- *Sort out the basics like templates and meeting agendas before the exercise begins.*
- *The main issue is coming from my organization. information arrived too late. i know that is time consuming but a delay starts of exercise per level (HQ, LCC, MNB) will let time to every echelon to do his part before subunits start.*
- *WUST was no effective as it could have been. Main issue was that COMMs were not opened and checked at the first day of WUST. It was difficult to communicate with HI & LOCOM during the WUST.*
- *the three days of start mode is too long. We should get started whit the scenario earlier.*
- *I conducted national three-day training session in my home country. The most challenging issue was that LCC wasn´t able to reach ANY of NFOR documents during WUST anymore. So, we needed to read NFOR material on the vikinglearning via mobile phones and then write all necessary again in the Sharepoint -portal.*
- *Mentors should participate more to the onsite WUST*
- *The WUST did not address functions and their needs to coordinate between J/LCC/Brigades. That was still work in progress when the exercise started.*
- *All students should have better understanding of the overall situation during the exercise.*
- *Problems with STARTEX: we did not have clear picture of our own units and their place on the map. At the upstart brief it would have been useful to have an IMO describe the flow of information and use of the portal. in general terms. I feel that many frictions are due to a lack of understanding of the IT-tools and the flow of information.*
- *I was told my position in CAOC is not common, and it wasn´t even on the initial contact list for CAOC. Although I was asking around a lot, no one seemed to know what was expected of my position. my position. Another thing - very frustrating with all the logins on the computer all the time.*
- *The main challenge in the beginning of the exercise was the confusion on the logistics concept. For example, the role of the G4/LCC was unclear since everything appeared to go through J4/NFOR and JLSG. Also, the info on NSEs should be available from the beginning of the exercise. Besides the few challenges, the exercise has been very informative and interesting so far.*

- *Vital document and were missing in the pre training and the first day of the exercise, that decreased the output the first day of the exercise.*
- *Some preparations should be added, for instance the IPB-Intelligence-Preparation-Battlefield.*
- *The WUST part should be planned better, now it was random orders and trying to figure out what to do.*
- *in WUST there should have been the need for an instructor (Info management, systems, and the branch substance) in the branch room present at least for a couple of hours during the first days. STARTEX documents were lacking in some areas. The documents did not make it possible to start produce the first orders and plans fluently, but the documents still made the planning possible - so all-in-all it was an OK level to start the exercise. Good atmosphere in the whole exercise and the welcoming was nice. An icebreaker could have been a good idea during the first three days to get to know each other more quickly.*
- *e-Learning platform and scenario wiki is a great addition to the exercise*
- *I think the preparations should focus more on processes within and between the ACC and CAOC. The relations between the different branches in the staff, battle wheal and so on. The understanding of this is the major issues during the initial phase during the start of the exercise.*
- *Explanation of the different roles would be good so that you can adapt the reading before the exercise starts.*
- *EXCON must in the future be aware the necessity of in the STARTEX to submit a) relevant documents, b) correct version of relevant documents*
- *Preparations for the exercise felt rushed and left many questions to be answered.*
- *During WUST it would be useful to get some lectures from OTMs.*
- *WUST was waste of time. There was no training except the CIX-training. The whole branch has no experience of its matters, and no training was provided. Students are still wondering what the hell we supposed to do...*
- *Start up at site Uppsala need to be improved. No introduction to the IT systems other than handing out a log in. If you didn´t know that you needed Centrix and ICC no one told you. OTTM arrived 2 days late. It is helpful with OTTM support but if it arrives late much time is wasted. Have previously attended the exercise in Enköping and then there was a comprehensive schedule for IT-introduction.*
- *Get COS involved in the creation process of the Sharepoint portal process earlier in order to reduce the number of changes to the system and work methods*
- *E-learning portal was phenomenal.*
- *Access to correct documents and orders at beginning of exercise must improve.*
- *The lack of access to the exercise documents, like orders, plans, ROE: s and agreements was very noticeable. This caused great confusion and a lot of time wasted.*
- *Unable to assess pre training as it was not available to me*
- *WUST should be directed more closely by mentors. More time must be given to the learning of HICOM-material and other scenario material*
- *The WUST phase could probably be shortened by adding more mandatory e-learning lessons up front and by providing a overview on the different staff functions and responsibilities at the beginning of the WUST*
- *The Start Up has been very good compared to my other CJSE experience*
- *Given how inexperienced most of all personnel are, it would be very beneficial if the ACC SOP was more detailed. Especially what products each section/branch are supposed to produce, and the processes or working groups intended to achieve them.*
- *The time was not utilized efficiently during WUST as schedules and expectations were not prepared. Of course, communicating with everyone jointly during WUST was beneficial.*
- *SOP´s and relevant NATO Manuals should be accessible beforehand on the e-learning platform.*

- *WUST must have more staff in the cells that have the knowledge of the right procedures, because this year almost all the participants did not have previous experience. So we do not know if we are doing the right or wrong procedures.*
- *SOPs, OPLANs etc. should be available already from the beginning of WUST. IT and IT support works great*
- *National pre-training on Viking role would be useful. I have pre-trained in CAOC and the role in Viking is in ACC. Login in computer is quite slow. User card and shorter pin code or equivalent would be better option.*
- *Lots of pre-training materials missing from exercise systems*
- *Instructors should have been instructing participants from the first day, now and then.*
- *A shorter introduction / information / education on the portal (Sharepoint) platform would be very useful. Explaining in brief how it is setup and designed to work. I.e., what is the Event log and what should it be used for, the different websites how they are designed and for what purpose. Just to make all participant get a common understanding of the IT tools available.*
- *The WUST was concentrating in wrong matters. It should be focusing rather on training personnel in working in their own branch, SOP etc. rather than focus in the scenario which was already covered with in the mandatory Viking-portal education*
- *Regarding quality all content to prepare ourselves was very good. There was just missing a lot of information like SOP and others. Therefore, the preparation could only partly be done properly.*
- *The pre-training should be mandatory for everyone*
- *It is unfortunate that INSS wasn´t able to attend pre training. A lot of things would have been better if we had been here all personnel and all week. I only got to attend one day out of more planned and most of us wasn´t here at all.*
- *The routines should be in place, all the materials should be in place.*
- *I think the WUST can be shortened to two days.*
- *Prepare more documents in the data base before start.*
- *I would be happy if there would be more details ready per cell*
- *WUST: Who is training whom? To perform a work-up staff training, there needs to be a training agency. It honestly felt like everyone was just let out at the IT systems, with few to zero people knowing the STARTEX or what they were supposed to do.*
- *Bases documents / information own units and enemy must be clear bevor starting exercise and into the system. Also, the processes under the different branches and up/down must be trained in the WUST.*
- *WUST -phase 4.MNB documentation was and is missing. Brigade SOP does not exist. All needed documentation should be available on CIX -system.*
- *SWEDISH: Avsaknad av gemensam bild av förutsättning och läge vid övningens början hindrar verksamheten. Längden på planeringscykler gör att LCC måste börja övningen med att rekonstruera den planering vi borde ha gjort 2-3 dagar innan övningen började.*

- I would like to have more focused WUST-training, especially lectures "how the staff is supposed to work as a whole" and "what are different processes and how to use them". Now we were just students together wondering that what we are supposed to do?
- Preparation under PRE-Training week would benefit of having one IMO on site or ISO to prepare portal changes
- It would be very good to have the current orders that are to be implemented when the exercises start. Now the main confusion was the actual orders and what was supposed to be done after three days.
- In the VIKING22 e-learning platform, there were a lot of good material, which was not transferred to the CIX-system. Therefore, the material was not used in HQ.
- Operation procedures was very unclear. This caused a lot of confusion and unproductive work.

- To improve the experience and learning it would be help full if the first 3-day before start-ex included a structured and instructor led training in staff methods, SOP, and the IT-system. the second improvement would have been if the OTTM and participating teachers from SEDU or other evaluate what we are doing in relation to relevant military theory and STANAGs etc.
- I believe there was a sluggish start first three days of the exercise, due to missing settings at start.
- We were not able to train before the exercise because we did not receive accounts for the expected training.
- We should have received more training how the HQ works before the EX started. There was a lot of confusion and hurry in the beginning of what everyone should do, and we had to come up with our own solutions. It would have been easier if someone who knows how this is supposed work would have told us how it is supposed to work.
- We have lack of training what we supposed to do in ACC (SO-level). Start was confusing, but quite fast we managed to do the right things.
- The exercise start-up needs to be set. A briefing stating the orders situation, so we know who has gotten what order and who is planning what. Also there need to be supporting documents for the chosen method of leading. If we are using NATO methods then all NATO STANAGS, order templates and planning documents etc. must be available on site.
- It would be beneficial to spend one of the first days to go through joint processes, procedures, roles etc. Now, we often had to guess to understand what activities our role included, and how to handle basic procedures (approval processes of orders etc.).
- The NFOR HQ (and perhaps for the CC's as well) would have benefited from a "dry run" of the first exercise day. This way the first they would have been done twice to de-conflict battle wheel, meetings etc. issues. It would also have given the staff the understanding of what are expected in different setting and events. The other very important issue is the battle wheel. It should be locked in place at the NFOR HQ level before the exercise and not be changed as this cascade downwards to CC and BDE level.
- SOP´s should be available beforehand (e-learning platform or otherwise).
- Moreover, for NFOR-personnel, basic knowledge of NATO documents should be prerequisite (APP-28 and respective AJP/ATP of the own function within the exercise).
- I did not have pre-exercise eLearning... :(
- During the WUST there should have been orientation to JLSG HQ staff processes and procedures by mentors. Now it was made by more experienced to newcomers - not the best solution.
- SOP, CIS, and on-site training must be provided before STARTEX.
- More advice and guidance are needed at WUST. Now we were figuring things out by ourselves. All the dummy documents were empty even though the operation has continued over 60 days.
- It would have been helpful if SPINS, ACP & ACO were in a better shape before the exercise. Now the SPINS and ACP were completely blank and the ACO could have been a lot better. Would have saved us a lot of time and allowed us to focus on process rather than the product.
- I wish there had been a more specific SOP for my role and that we would have been introduced to a method that is adapted to the very short time we have during an exercise like this one.
- It would be better if we had more "data" earlier, for example capacity in different units.
- WUST should be structured. Without a previous experience guidance would have been needed. It would also been good if the "warfighting" part of the exercise would have shorter. This would have given more time to learn the processes. Overall exercise was useful and very well organized.
- The start-up brief could be improved by having a general overview of the HQs involved and the main processes. Including a presentation of the flow of information.
- I would like to express my compliments on the produced material for the exercise. The STARTEX material was excellent!

- Good experience and when the gaming started it became more interesting. The preparing days could have been planned more effective. Some brief or training of how the gaming is organized more detailed info about processes would have helped allot. OPLAN should have been in the portal immediately not 1 day late. Or the first day planned differently.
- WUST should have been coherent, well planned preparatory training for NFOR HQ TA conducted by OTM-team. Now it was done within means and capabilities of TA itself. Ad hoc training was successful due to few experienced professionals in the branch. Prepare and plan general briefs to whole HQ and internal branch training during the WUST.
- Given how inexperienced the training audience generally is, the SOP: s and OTM support for the various units needs to be much better during the WUST.
- In WUST roles of the branches should be taught to every participant.
- There should be at least 2- 3 days of "role specific" training after nominations to manning list is done.
- For the most of us, it was the very first time to work on an operational level and not on a tactical one. Based on this, I would have very appreciated a guided staff training during the WUST to understand the different branch`s roles and processes.
- I lacked details on CIS-units. Annex Q where poorly produced and must be better prepared for next exercise.
- The WUST is a very important and useful tool to get the exercise going directly when the game starts. I think more effort should be put into this part. Roles must be explained, and relations must be created before start. One other thing is that I or we in staff would have been very help of a staff instructor keeping us on track. I think many of our discussions on tactical level could be stopped in favor of operational ones.
- The pre-exercise work should be much mor focused on training the staff on what the different parts should do. Not only by concept, bur primarily practically. What meetings, working groups, reports, briefings are we supposed to do?
- Within the diverse Staffs: a kind of battle staff training (BST) should be arranged where all players (cells) do have the possibility to explain the entire staff their role (many students and participants did not have any idea about a military NATO staff is working and who is doing what and what for).
- The startup in Uppsala needs to be improved. Documents need to be in place. Training on IT systems (Sharepoint, ICC, SITAWARE need to be done.
- WUST might be developed by teaching what do by taking every level of the chain command under command.
- The WUST did not prepare the training audience for their assigned positions and did not assist in establishing routines and how to work according to the SOP.
- An ISO SITAWARE workshop before the exercise to clarify the methods and information flow inside SITAWARE.
- WUST should be better coordinated to achieve better effect, Key staff personnel should have a 2-day head start (over the rest of the staffs) for this IOT to synchronize staff procedures and basic staff coordination mechanisms. Commands and or actors not represented in the Response cells or TA should not be part of ORBAT/OPLAN or scenario - creates confusion and mix-ups that are totally unnecessary.
- Please include a briefing/lecture about presumed flow between different levels/staffs.
- Before exercise should be teaching about NATO terms and work methods, how to MN HQ work, what is the role of everybody and how to work usually in this kind of NATO operations.
- Pre-training should be mandatory so everyone is at the same level, or more info should be on VIKING e-learning about the systems to prepare not just the scenario.
- I missed some basic information about our asset’s capacities, what almost caused bad using of the aircrafts.

- The WUST must include a briefing by an experienced coach for every branch, so the work is done right at the beginning. The SOP were not answering on the procedures or how discussions should be done.
- More education for the system like SITAWARE .etc.
- Orders covering the requirements and objectives of appointments would be beneficial to guide personnel who might not have filled the type of appointment before. This would help personnel become a more effective team member earlier in the exercise.

E. Exercise Conduct

General

- *The exercise focused mainly on the military and the substantive component in the planning stages without full consideration for the role played by Mission Support Division. The internal coordination with the support division and other components needs to be enhanced right from the planning stages.*
- *The role of Mission Support Division in all aspects of mandate implementation was missing and needs to be brought into the scenario in a much better way to bring realism to the exercise*
- *My suggestion is to insert the maritime environment in the next edition of VIKING Exercise, because Sweden has a long coast like Brazil and we can't mitigate the enemies ships came from to MIDLAND under control of UFI. Smuggling, drugs trafficking, piracy could be coming from the sea to main ports (critical infrastructure) in this kind of Exercise.*
- *This is an excellent opportunity to share experiences and learn from one another.*
- *There is a need to better bring on board trainees coming from outside UN environment and make clearer for UN staff that they must provide "pre-deployment training" to trainees. The exercise is tremendously ambitious but still too much military lead in its design. More information on the end state of NFOR mission could also be made available to understand exactly how the two organization might developed working relations.*
- *Exercise Viking is an important exercise and a great vantage between Military, Civilian and police. This exercise will help to expand the horizon of knowledge and experience of all the participants for their future tasks in any real crisis.*
- *This exercise offers me the opportunity to learn a lot of new things about working methods and practices.*
- *Starting situation were confusing. JLSGHQ personnel is in too small room, too crowed and noisy.*
- *Levels of HQ should start the exercise differentiated to have the let hierarchy and procedures form from top - down.*
- *In the LCC we lacked a meaningful brief about the situation within the LCC, for example: who is doing what in the LCC staff, what is the starting day in the scenario, which orders have been given and what can be changed in those orders.*
- *The days are quite long. People should remember how many people are listening when they are speaking. What I mean by this, is how they are using(wasting) other people's time.*
- *In planning V22 the emphasis should initially be more to coordinate and create an overall understanding for each site's different identities, before starting the inputs in EXONAUT.*
- *I would have expected to have a lesson with a teacher, instructing our entire section on our role/tasks/expected outputs. We have spent three days reading SOPs - which we've found to be sub-standard, conflicting with COPD and leaving us with several outstanding questions. Just a one-hour session would have sufficed, preferably with someone who has participated/worked in the exact same section - either in real life or a training environment.*
- *Lack of OTM personnel has an impact on the learning effect because you need one to explain the next steps and for every step there should be done a hot wash up/AAR. Conclusion: more OTM personnel in reserve*

- *There are not enough OTMs. I get no coaching at all.*
- *OTM must better prepare the settings for the training audience. Lacking SOP, procedures, and far most, mentoring during WUST and startup has hampered the staff's ability to be effective and get a good start at the exercise.*

- The processes were not to the point when it comes to training what happens in chain of command.
- The time perspective of the command was too close to combat lead and so hampered with the achievement of the set goals.
- In addition, for military TA an exercise like this should concentrate on planning instead of battle management or routine work producing paper.
- Participants should be courage to write down and pass on experiences to coming exercises. This should also be observed and demanded.
- I feel fortunate to have attended this military exercise as a civilian Staff clerk. This have given me a broader understanding of the military. Very important learning experience.
- Thank you for the chance to participate. I have learned allot about the roles within the NATO HQ. I appreciated the pace of the exercise, where there was a focus on learning instead of making a lot of products.
- Please provide next time logistical details, detailed ORBAT= basic information
- More free time.
- Information exchange among HQ and component commands could improve, advisor roles, especially POLAD and LEGAD should have closer interaction with commander.
- The ambition to integrate cyber exceeded my expectations and made me very happy. I hope these experiences will be taken care of and used in our daily life in the military.
- It would have been good to have a specific presentation of the different roles and how they connect with each other at the staff that you are working at. The intensity at this role I was assigned was very high and there was a shortage in staff members. Due to this I could not engage in any other processes which would have been good to get a bigger understanding. Therefore, it would be good if the trainers in the exercise in some way could help or ensure that the students have the possibility to sometimes get out of their role or room to see other processes/attend to CUBS, meetings etc.
- The OTM's comments where often on very superficial levels I would have wanted more SME-type of guidance.
- It needs to be clearly distinguished, which kind of information is transmitted with which mean on which occasion (suggestion: SOPs on Operational Reporting and COP-management/Situational Awareness).
- Clear instructions during the startup and having one or more participants in the CAOC that have previous experience would create even better possibilities to reach the exercise objectives. We lost a lot of time wandering around, inventing the wheel all over again. That is also useful in some cases but in this exercise with a limited time frame it was to the disadvantage of the objectives. The good discussions started during the last two days, and we would need maybe two or three days to reach what we all were hoping the end goal would be.
- There is a need for an OTM InfoOps in the MCC.
- The setting of the exercise was good. Unfortunately, the time given to get involved in the actual stage (not the scenario), integrated into staff work, familiar with the computer systems and applications makes it difficult and quite confusing to act in a proper way according to the/my respective function. In addition, lack of the first 60+ days of the scenario and missing the possibility to get familiar with the "real" environment and establish and maintain contacts to civil and political authorities puts a lot of pressure to the acting elements (TA and role players). The high expectations to this exercise according to the exercise objectives, are far from being reached. The lack of trainers/mentors/tutors had a narrowing impact to the possibilities of increasing the effectiveness to learn more and develop. At the end of the exercise NFOR seems

to have won the war.... but a possible upcoming mission according to Phase 3 of the OPLAN might not have been successful!

- The last day (WED 220406) could be dedicated to reflecting the entire exercise and trying to establish the "big picture" by discussion instead of the gaming continuing WED.
- OTM support was crucial.
- Lack of experience in staff and having to start the HQ from scratch meant much time spent on training the basics - less opportunity for true experimentation and development.
- The biggest reason why own and other party's role and responsibilities inside of LCC was confused, LCC-HQ have not staff guides/work order.
- Working in LCC TOC was a true pleasure, also assigned TOC DIR was able to train TOC in SITAWARE and responsibilities of various SOs.
- Role of the OTMs was not very clear and their participation was not useful in my position.
- Great confusion occurred when vital documents were a) missing, b) incomplete, or wrong in STARTEX.
- OPLAN should be sharper and more detailed to CC's demands (incl. DCs/DPs, OEs, OAs). Only one version of JOA that must be like it is in UNSCR.
- The exercise hardly promotes mission command - it is very tightly coordinated and with limiting subunit scripts. More time during pre-training should be devoted to own SOPs.
- Very good co-operation within our BD staff members.
- There should be more advisors at the start of the exercise. The roles and tasks were not clear for all of us. In conclusion there was a lot of people who did not know their tasks in HQ. Working without specific SOP's brakes down the organizations main source of strength, coordinated and analyzed way of work.
- The exercise suffered from a severe lack of experienced staff to assist in mentoring and training.
- Excellent mentoring and training in Joint Fire Element (Targeting).
- There NEEDS to be better synchronization in the RC AIR cell towards other elements. We've been torn between the Wings reporting nothing to do and low morale, and the LCC reporting high usage of the same wings and companies.
- The Response cells for the air wings have not contributed with on time misreps of significant events and with a lack of detail that should be reported in a misrep. this has hampered the INTEL work at a high degree. simple information such as nationality, weapon load-out and behavior have not been reported causing the INTEL work to lag behind.
- Confusion regarding role and responsibilities can mainly be attributed to my own ignorance, and my understanding has improved but I still see potential.
- They days were long. I think we could focus on things better if the days did not last so long. The mentors could answer our questions, instead of giving more questions. We kind of did not get anything out of the training phase, just some more questions.
- It was excellent opportunity to upgrade knowledge of OPP.
- More SOP and pretraining in the flow.
- Mentoring and training should be more intensive in the beginning. All commands and branches should be as multinational as possible.
- Lack of underlying documents and technical issues created unnecessary obstacles for the exercise.
- LCC OTM personnel should have the understanding about COPD process.
- There is need for improvement of STARTEX. TA confused. Key personnel in the staff are not up to speed with the operational plan or staff procedures. None of the relevant NATO documents are available on the portal.
- Don´t underestimate the small talks in other times than behind your desk. Dining hall, coffee rooms and such. I´ve learned a lot in those environments.

- LNO MENTOR in HQ was missing in this exercise. This would be good for future exercises due to the importance of the LNO positions and what they are supposed to deliver both to their CC and in the HQ staff.
- Set up a meeting during the warm start between the LCC and HQ counterparts to understand lines of communication and items that are important to pass up (and down).

Gaming and Scenario

- *Include more routine situation for all cell and injects also.*
- *Very well written scenarios and actors/organizations.*
- *The STARTEX orders were poor.*
- *It is very important for the MEL/MIL, that there is an expert for every branch to get good events/injects.*
- *A STARTEX meeting between the staff and its played response cell would have been beneficial to establish a common strategic position*
- *I would have liked a walkthrough of how the staff at different levels are divided, what they do and how they work together. This differs a lot if you come from a LOCON and find yourself working at a HICON.*

- Well planned and a good level of "issues" during the exercise
- The scenario is realistic, but it was not prepared amongst the response cells. No realistic METOC data. No one handled tasked MPA regarding sensors (until I called response cell acting as TG04 and Helicopters and he did an excellent job!) No intel from AWACS to the MCC, NO ASUW capabilities connected to ACC 6. WING (GRIPEN) (according to the response cell) but MPA. Lack of templates (had to create my own and got the approved by ACC). Besides this the exercise VIKING is most beneficial!
- The timeline in the scenario is too tight and for that reason situational developments shift the focus on current events instead of planning. On the component level, the emphasis should be in planning over 72 h.
- Very good scenario, with some adjustments to NATO SOP and manuals there will be success!
- The numerous injects disrupted the staff's ability to properly practice the proceedings and planning process. Remember that many participants in the TA are completely new to their position.
- Interesting with the new scenario. More to coordinate and measure. The OP design gives room for acting and follow the process through JCO and FragO.
- Injects from medical response cell hast to be precalculated, realistic and follow the intensity of fighting.
- The game did not serve action from a CIMIC perspective.
- MEL/MIL needs more subject matter experts' participation and more leadership (breaking the process down to sub-syndicates with respective leaders could help here for example). The information flow needs to be well prepared, especially the routine reporting (e.g., INTREP, SITREP, ...) and, even more important, the immediate reporting (Incident Spot Reports, enemy contact reports, etc.).
- Scenario is ok but would benefit by adding a north or western high potent air threat (air-to-air), start from the top by consolidating this into existing structure of the NFOR operation.
- The scenario and the prepared documents had inconsistencies when it comes to the legal mandate and scenario, ROE and JOA.
- Why not making two good guys side fight each other as if the other side was the bad one?
- The bad takeaway was that the pre-exercise guiding documents (e.g., ROE: s) were not prepared enough.

- It seemed that the current game was mainly run by civilians and students (in SITCEN) with very little military tactical and/or combat background experience. As the current operation require tactical adjustments in the game, justified tactical military knowledge is crucial and a must. The current game became very static and scripted more like Staff Training than exercising. I guess that was not the intention.
- Impressive scenario especially with the different media articles and news.
- I would like a more realistic scenario concerning the air space. There have been different opinions regarding the airspace when it has been violated. Also, I would like to highlight the importance of having Air Charts in the exercise instead of the ones we had now.
- Gaming (how and who) info would have been very useful at the start of the gaming to avoid confusions within 3 first days.
- Please make the gaming engine so that initiative and use of mission command feasible. Do not push the exercise participants into the "right path" all the time.
- There have been several "gaming issues" which affected the exercise experience negatively. For example, there have been at least five different JOA2 in the orders and reference documents, and the response cell has had a different understanding than ACC/CAOC, which has caused unnecessary confusion and issues. Would have been good if such issues were clarified between response cells and training audience directly when identified instead of being discussed throughout the exercise.
- It is a little bit boring that the game is scripted and a lot of the things we are doing won't have an effect.
- Gaming should reflect on decisions made in the various branches. E.g.: We didn't feel that our decisions, where to put our sensor assets (J2) had any impact from what and where we receive INTREPS.
- You need to add space, cyber, EW, and a better air scenario. Then, this will be a much better scenario.
- The center of gravity of the exercise might be better placed on the end of "Phase II" transferring to phase III when actual peacekeeping starts. Just because everybody has trained mechanized attack earlier. Otherwise, the exercise and scenario are good.
- The scenario and especially the game need more content from a gender perspective.
- It felt like the game organization was a bit understaffed; hence the material available to Analyse was insufficient and caused an out of sync situation between LCC and NFOR HQ.
- The media gaming should be more public to realistic.
- An overall MEL/MIL seems to be missing as seen from the TA. Some injects were quite artificial and not realistic for the operational level.

<u>Mil Civ Cooperation</u>

- I have been LNO working between the UN and NFOR. It had been helpful if the STARTEX documents also included clarification on why the LNO was sent to their respective staffs and also how the missions have agreed to share information. I feel this have been something that have hindered cooperation, something that probably would have been decided before sending out the LNOs in a reel situation.
- All in all, the best thing in this exercise was to co-operate with other nations.
- There was not an Engineering Officer/student and there were no specific injects until the very end. When we attempted to coordinate with the UN for setting up the refugee areas and to find out what methods/requirements worked the best, there was no knowledge that there was a separate part of the UN that was responsible for this. Additionally, the UN participants were far more experienced than the students.

Technical and Information Platform

- *Preconditions relating to entering established IM routines are very poor. Unless every section has a pre-trained clerk that is synched with other sections and staffs, it is necessary to create a complete portal infrastructure in advance and have easily accessible guides for using them. Having an unrevised SOP package that some staffs have found, and some have not is good enough, and even when updated it is not comprehensive.*
- *There have been quite large problems with the ICC in the beginning, hindering the work.*
- *It is very hard to get into the computers.*
- *Perhaps the password should be a little bit easier....*
- *The login with three different username and passwords is cumbersome to manage.*

- Make phonebook and organization-tree in the same.
- Exonaut did not work.
- The Login process to the computer has been extremely poor and have created frustration and stress that has impacted the exercise objectives negative. It took the staff in my cell at least one, maybe two extra days just to understand how the IT systems work, and how to login. Many hours spent due to lock accounts and not understanding the IT environment. Some information during day one or two should be spent for ALL to explain how the IT systems work and how they are supposed to be used.
- A handbook in the portal with all acronyms used in VIKING document where the acronyms also are explained.
- A lot of detailed information has been missing for the brigades which could have been prevented and help to make the assessment.
- Some confusing and contradictory information at times.
- SITAWARE was not able to give realistic picture of the environment.
- More computers would be helpful. 2 per section limited participation. Instead of 12-hour workdays, overlapping 2 shifts (9 am to 4pm and 1pm to 9pm) would allow participants to practice shift change and give more people the opportunity to do the job/access to a laptop. Most Bulgarian military participants were filling a role they have never done before (i.e., G4 soldier working in G3 and pilots working in G1).
- IT arrangements should be improved, access to the internet is necessary for producing somewhat decent products in some offices. This should not be too hard since the exercise was being conducted with unclassified material.
- Access to the portal beforehand would be good to lessen the technical gaming frictions of learning the system and finding all documents.
- Using the "supporting" IT systems cannot continue to be this confusing. We spend more time just handling the information than we do processing it or acting on it. The whole exercise cannot be centered on the chronological event log and depend on how the different STEX clerks assign messages as they arrive. If we do not have an IT system that supports working, we might just as well do the entire exercise on paper instead of on computers!
- This year I really have difficulties with non-institutionalized e-mails. I was not institution, I was a number, and many Actors are numbers - it was hard to follow communication in this way.
- When I press Enter, I submit this form, should not be.
- Please add English subtitles on the news cast.
- Max volume on the computers is too low and we don´t have any headphones.
- There were few times computer problems that hampered my job.
- IT Problems. It took to long for the portal to connect to the server and then you lost all icons on the C account.

Real Life Support

- *Please. Create signs and clear markings on the map where e.g., LCC and NFOR HQ are located at the start of the exercise.*

- Extremely good support from site Karlskrona
- Very flexible, always on improvement focused support by RLS FINSITE.
- SWEDISH: Undermåligt städning generellt, men i synnerhet på WC/dusch. Låg standard på logementen, trasigt och slitet. Och väldigt smutsigt.
- Less food.
- Plastic chairs from "Exhibition Tent Company" are horrible. My back hurts after 9 days in one.
- Increase the font size on the name tags for position. Your position is more interesting than your name!

F. Other Lessons Identified

- Like most things in life the more you do it the better you will do it.
- VIKING 22 was a great learning experience for me as a member of the Home guard. Co-operation and joint exercises, not only between countries but also between the different branches of the Swedish Armed Forces are vital to promote trust in and understanding for the different branches' tasks and methods of working. Also being able to see how things are done on a different level of operation than I usually work at was very educational.
- Better planning and covid restrictions.

G. Appreciations

- VIKING serves no adequate function as part of the SEDU education (HOP).
- Good exercise that gave me tools for further development.
- Many thanks for the hospitality of the Swedish Armed Forces!
- Thanks for the opportunity to participate in this kind of exercise. I have learned a lot from the other participants. I wish you success in the future exercise.
- Happy to join the EX. Thanks to the host nation and the responsible actors for this exercise.
- Learned a lot, hope to attend the next VIKING.
- A very well-prepared exercise.
- Very well planned and prepared exercise!
- Absolutely excellent exercise. Very happy that I was assigned to the Finish site and 4MNB.
- On a personal level, this has been a very good exercise. Especially in practicing my own leadership.
- Great exercise and just in time because of a worried world
- Thank you for your job. I will be hopefully for 'VIKING 2026.
- An interesting exercise for better understanding in different levels and branches, very good.
- Good exercise. Happy I came
- Congratulations! All the best!
- Good exercise!
- Enjoyed it.
- SWE - thanks for the opportunity!
- Very good exercise which highlights the need to train procedures in a multinational setting.
- Great exercise!
- The COS was a great leader.
- A very good exercise!
- I am glad to have had the opportunity to be here to learn and meeting with fellow officers.

- Good exercise.
- I am very impressed with the exercise. Very realistic and an excellent opportunity to learn.
- Excellent exercise and a great learning environment.
- Great framework, great scenarios, great facilities, support etc.! 5/5 for the VIKING22!!!
- Great exercise in a multinational environment.
- Thank you, great exercise.
- Thank you & the very best of luck with future exercises.
- Thank you for the training!
- Thank you for this tremendous experience!
- Very good exercise. Thanks!
- It has been one of the best CJSE/VIKING I ever attended. My reflection on why it has so been that all old documents were taken away. It was a new scenario, and it was a scenario with more airstrike focused. To coordinate fire makes this a good exercise from an Airforce perspective.
- As a member of the foreign delegation, I wish to pay particular thanks to the transportation team who were very obliging.
- Be proud to be a team of WIKING22
- Positive feedback from English Language Teacher to Students is excellent
- Perfect organization of the event, perfect training, all in all outstanding

EXCON participants:

(Non-Training Audience participants)
(110 comments)

A. Exercise Objectives

- It was great to work in such a multicultural environment but next time I would like more emphasis being put on points a. & d. from the previous question. Since this is a training environment one should also have the possibility to experiment with new approaches. There should be space & time for that.

B. Exercise Concept and Development

- Try to collect and analyze how the exercise has gone, to improve the scenario and gaming for the next exercise 2024.
- This exercise must prioritize what it is. Now, it is a multinational friendship and interoperability exercise, a Staff College exercise, a pseudo-NATO exercise with training objectives to assess the readiness of the HQ, and a gaming exercise. It cannot be all four simultaneously. At the very least, the gaming requirements must be reduced. A game/EXONAUT driven exercise skews both achievement of the training objectives and the ability to train and educate the students. More pre-training is required to show the students what good is in terms of operating as a staff officer. Finally, we must be careful how we explain the use of training objectives. Many of our international colleagues were confused initially because they saw the training objectives and then sought to validate the HQs. It took a while to explain that the HQ was in fact 80% students and that education was in fact more important that validation of the HQ.
- It is a strange exercise. It is either an exercise to train the staff or to train warfighting. I think it is to train the staff. Why then are there no supporting documents on the procedures the TA should follow. There were no templates, no briefing packs and routines for them to study and then follow. A lot of the TA seemed quite young (captains) and appear to have limited experience in working in an operational HQ. They therefore require a commander with relevant experience who can provide clear direction to the staff. This is something that did not happen. The ambition among the students was high and as good army officers they will work hard and produce orders, but it was often the blind leading the blind.

- The exercise should not start at the same day/time for all command levels (NFOR/CC/MNB), instead divided so that HICON and Subordinates (NFOR/Bn/Coy) starts day one, middle (CC) starts day two and LOCON (MNB) starts day three. IOT get in the correct battlespace awareness, timeframe, and the operational environment.
- A real unit/training audience, instead of fictitious headquarters manned by students, even in management positions/assignments.
- VIKING 22 was an eye-opening experience and will benefit from increased U.S. participation to appreciate the capabilities and mindset that the Nordic countries, specifically Sweden and Finland bring to the table. Against the backdrop of current events in Ukraine, VIKING is urgently applicable to the global community to preserve democracy and the rule of law. Can VIKING be transformed from CPX into a field exercise with operational forces (OPFOR)?
- Recommend less, not more, participants. Smaller engagement. More ""forces"" engagement working with Sweden and Finland mechanisms. "
- Develop methods and techniques regarding federated distributed constructive (and virtual) dynamic simulation.

C. Exercise Planning

- In the air part we should start using a current NATO/ NATO led operations JFAC HQ structure as learning environment instead of ancient ACC/CAOC structure.
- In the TOs the word gender was missing. Though it may fall under one or more TOs one would expect 'Gender' would have a more prominent place.
- TA Manning and EXCEN gaming positions should be selected early faces in the way that, there is enough experience to be the trainer (Role player) in that position that is played and trained. Simulated troops are not necessarily needed in this kind of EX (it is just move the objects).

D. Preparations

- *More detailed info about UNCT activities in Southland needed during WUST as the basis for NATO CIMIC cooperation planning process.*
- *The efforts exerted for this exercise is massive and without a doubt impressive, however, from a humanitarian perspective the organization of the humanitarian cluster should have been closer to reality and the delineation of the roles (EXCON, training audience,) should have been included extensively in the WUST*
- *Valid start up documentations missing. Tracking and Mentoring prepared insufficient.*
- *Basic conditions and bearing should have clearer and more established from the beginning.*
- *The starting day (WUST) should be different for different C&C levels. NFOR and SubCom/game, starting on Monday. LCC/ACC/MCC on starting on Tuesday and MNBDs on Wednesday. Not all at the same day.*
- *I think that it would be interesting a training with all participants, specially related to the use of systems.*
- *The organisation of the roles could be a bit more precise*
- *We are quite a few that miss a Logistics Coordination Order. This Log CO should be finished before the start of the exercise.*
- *Make a start handbook that different branches in ACC, CAOC, RC AIR can use. Should have information that the different branches would know day +67. Now much time is spent on looking for information that would been known at this stage. E.g., logistic support for bases. This is a reoccurring issue each VIKING/CJSE. A start handbook would speed up the game and make TA work with correct tasks*

- *Very un-organized in the beginning, would have liked to have some sort of document stated to be able keep track and be updated on the necessary files and know where to find them in the Sharepoint site. and some sort of description or clarification for the "role" I play, still very many question marks for someone who is not used to work in this role.*
- *To slow start. Confusing start of exercise. Same as every year.*
- *To avoid the "first day hick up" it might be useful if key personnel and staff would start the exercise 2 days before the main body.*
- *The OTM WUST needs to be planned better for future exercises.*
- *This time the VIKING exercise did not feel too well prepared according to earlier VIKING exercises. Maybe because of the situation in the world, or lack of time for preparing lessons at the Command & Control Regiment but it feels like it's been a lot of last-minute changes and lack of personnel.*

- The first days were a bit confused, and the task of the RC Mar was not very clear.
- Some civilians in EXCON joined the exercise later and some only part time, some arrived after the “Work Up Start Training”, WUST, which created some lack of performance.
- Better preparations for TA (mainly staff units), such as SOP: s, are needed.
- Team building and clarifying roles are crucial. Many participants were not confident enough to just enter the game from the beginning. Achieving a common understanding of roles and expectations is a challenge. The WUST might have been used more efficiently, e.g., better introduction of the actors - organizational as well as personal (incl. be introduced to your main POCs in the exercise). I suggest that Rock Drill is reintroduced for the third day - a good way to check readiness before exercise starts.
- As part of EXCON it would have been useful to - during the WUST - to better get to know the different functions, and individuals, this for us to understand and influence the flow of injects.
- TA needs to be more educated on (NATO) interoperability as a concept before the exercise. A large part of the TA is taking a huge step from their previous position in the peacetime establishment entering the exercise. It can be up to three steps from the previous level. This can hamper the EO and TA for the TA, especially at the ACC.
- Do not exercise all levels at the same time without proper STARTEX documents that are understood by the user. Use the WUST to run through the cross-levels procedures like targeting from Brigade to NFOR HQ, Intel procedures, Assessment procedures and other procedures that runs through all levels. This to get everybody on the same track. Update and try to use SOPs that are valid from the start of the exercise. Put all relevant NATO doctrines at one place on the portal so you get check different processes and how things should be done. Do not compile the time in the daily BR to let the midterm end long-term planning groups use a method for planning and that they have the time to follow the process off estimation and factor analysis in a correct and timely manner. Now need to jump directly to start produce the order product without a decent analysis behind.
- The exercise should have started with a review of plans IOT create a better start for the staff.

- Make greater use of academics' period by bringing in Training Audience and run them through training modules (e.g., J2 PIR development and JIPOE) Use role-players to support the effort.
- Pre-STARTEX training and cross-briefs to upskill NFOR HQ plus less compressed Battle Rhythm would enable space/time for more experimentation and feedback loops.

E. Exercise Conduct

General

- Few civilian role-players/participants had any experience with the Exonaut software or with command post exercises, which created a performance gap.
- The integration of civilians into the gaming (planning and) coordination is a challenging process. Overall, the civilian exercise control participants role playing IOs, INGOs, NGOs and local authorities have been better integrated in the gaming procedures then in previous VIKING exercises.
- TA must have reached further in their cognitive perception of the staff process and routines. Rather focus on the COM ENDSTATE than sub-units' current activities. Tell sub-commanders "What" and "why" not "how" and "when". Patton said, "tell the units what to accomplish, let the units decide how to do it - but do support your units".
- The complexity of the exercise meant at times that people focused on some strategic issues rather than operational. The amount of ARC play needs to be adjusted to not distract the TA from SOU and MID. Occasionally, the event/serial/inject did not have a clear owner so that an issue could be quickly discussed to conduct refinement to facilitate the correct outcome. Positively, the level of detail was incredible and there were so many very complicated issues to deal with. Additionally, the level on OTM support should be reviewed to capture people like medical who appeared light on the support to planning in a NATO environment however, the TA fought through those challenges and succeeded.
- The lack of mentors with knowledge of AOD/ACO/ATO-process was clear in ACC and CAOC. Cyber and likely other elements have more sustained and iterative engagement with training audience (e.g., part of the staff work). Requires greater integration of OTM, Role-player and embedded OTMs in the training audience (e.g., let them share folders across, work off a common Sharepoint site crossing the TA and CONTROL information boundaries.
- Recommend using a trained staff in the TOC vice students from the Defence University. Two days were spent having the TA learn their roles and muddle through processes due to lack of templates and SOPs. A trained staff would have the requisite knowledge to already understand the processes needed to make their sections function smoothly and would give the exercise more realism. If students are going to be used as the TA in future iterations, I recommend putting them in roles they have been trained for. For example, the Targeting Officer in the LCC TOC was trained in counterintelligence. While he was a rapid learner and took critiques well, a great deal of time was spent going through the finer points of targeting. He ultimately did a fantastic job in his role, but he may have been better served staffing a portion of the G2. Another change that

needs to be considered is a focus on tactics versus processes. This is where an experienced staff would be more beneficial as well. I sat in on G3 Plans delivering COAs to COM LCC. Two of the COAs presented were not fundamentally sound and the other two presented were far too complicated. I reserved my comments to allow the TA to work through the problem, but had this been a real-world scenario, the number of casualties taken to gain the objective would have been unnecessary. There also needs to be a more fundamental understanding of formations and types of operations. There were two amphibious landings conducted during the exercise, but the MCC did not coordinate with the LCC on how those landings would look or progress. An amphibious landing is one of the most complicated military operations to plan and execute and it felt like they were simply glossed over to move the scenario along. This does not provide a sound understanding of their complexity and leads the TA to believe that coordination between all three elements (LCC, MCC, ACC) is more of a courtesy rather than a hard and fast fundamental. Overall, the exercise taught processes to the TA and was a success in that regard. As future iterations of the exercise are executed, a focus on real-world tactics needs to either balance out or supersede the focus on staff processes.

Gaming and Scenario

- *There have been some questions about the gaming methods. Most of the procedures are focused on the EXONAUT systems but there are many other procedures and systems that has not been discussed or set up in a proper way. The overall common situational picture for EXCON in a distributed CAX is vital to make sure that all reporting emanates from the same "gaming world". There was some confusion about coms check. Setting up coms and info flows are a vital part of the preparation for a distributed exercise with multiple chains of commands.*
- *My role within the response cell is very clear however, I was slightly unsure of exactly what level my response cell was at. For example, was it the out of theatre JFC or SHAPE/NATO HQ? This maybe a historical anomaly that may require slight refinement.*
- *I would recommend better role player training prior start of the exercise. Also, I would recommend to better introduce and integrate the role players with each other to reduce the miscommunication at the beginning of the exercise.*
- *Please consider more Cyber awareness training sessions for the upcoming Viking series. Also please implement more Cyber scenario´s into the battlefield to the Viking series better and more realistic to actual real-life events.*
- *Excellent scenario and exercise scripting, totally unrealistic execution.*
- *Wish it were more of war fighting scenario as opposed to a quasi-Bosnia one.*

- There have been some questions about the gaming methods. Most of the procedures are focused on the EXONAUT applications but there are many other procedures and systems that has not been discussed or set up in a proper way. The overall common situational picture for EXCON in a distributed CAX is vital to make sure that all reporting emanates from the same "gaming world".
- Well planned and a good level of "issues" during the exercise.
- Overall great event, right level of flexibility and structure, great scenario material. Role-player depth of representation very good and unusual. Technology worked.
- Staff functions to distinguish between "battle rhythm" and Operational Planning.
- In WUST I suggest time is given for practical training with given exercises to familiarize yourself with the exercise.

- From the beginning, it was not very clear what the task of RC Mar was.
- WUST could include practical exercises to familiarize yourself with the "digital tools", too much of "one-way communication" repeatedly can be counterproductive.
- The new scenario with one NATO-mission and one UN mission is very good.
- There has been no real coordination from central Gaming to local gaming. Very little coordination from Central EXDIR, OTM, EXEVAL to respective sites and its Swedish coordinators.
- Plans and gaming time schedules are too tight (or busy) for supporting training. TOs first and then the game.
- The SITCEN personal needs to be able run and react in military tactical and maneuvering dynamic situations. There were too many civilians with limited military background driving the game.
- Most of civilian role-players only spoke to the UN mentors through the game and did not do any offline gaming coordination. This circumstance is likely much related to the geographical separation of having the UN training audience in Kungsängen, while civilian role-players were in Enköping. We had little direction more than our own observations on how our injects were received into the staff work.
- How the planners decided to structure Events, Incidents and injects was a bit confusing. The incidents where to large and vague and the prepared injects to few and without the context that the incident should provide. I would focus more efforts on creating a larger number of incidents representing smaller parts of the scenario and then break them down into crisp injects.
- The new scenario provides ample opportunities to train various aspects of a mission, operations, coordination, comprehensive approach etc. Maybe the staff should be focused on different aspects on a more thematic level so that certain aspects that you want to come across becomes clearer. Functions have sometimes had a difficult job to find reports that should have supported various injects.
- The game injects did not support steady upward learning curve. Meaning that the injects in the beginning were too intense and difficult level compared the training audiences' capabilities.
- The new scenario needs to be evaluated to what extent it supports comprehensive approach. It's counter intuitive that high-intensity war fighting on the military side is conducive to civil-military integration. Another analysis needs to be done to what extent joint functions that require specialized skills and software, like Targeting, Cyber, STRATCOM, should be exercised. If so, that ambition should be reflected in the manning and set-up of those functions to produce a good learning environment for the students.
- The scenario was too much like a Bosnia/peacekeeping one, whereas many of us wished for a more warfighting one.
- I think there should be a red cell which war games the different HQs for added realism.
- Scenario needs a character driven guide for where you want the higher political situation to go and a storyboard for the interface with some idea on how to get there in the discussions.
- Gratulation to the significant improvement of the scenario according the "old" Bogaland scenario. To split the trackers from the rest of OTM proved to be a good idea and worked very well.
- More Engineering and Contracting injects.
- A better setup prior to the start of the exercise to include a map and in-depth listing of available forces and capabilities/limitations.

Mil Civ Cooperation

- Pre-scheduled high level (face to face) meetings would have set the stage for a more structured interaction with more depth.

- It would have been helpful to know in advance, that we should do roleplaying; Roleplaying and SME is not a good combination; In the planning phase invite Gender Advisor; it would be helpful if we would have known that we had to do roleplaying
- The lack of a police officer in EXCON Sweden since the preparation of the exercise was a problem. Many specific UNPOL information were either created too late or not created at all. The UNMIM UNPOL HQ in Sweden interacted little with Brazilian Site UNPOL HQ, and there was no planning during Mel/Mil to integrate a Sweden UNPOL HQ in the incidents that were planned by the Brazilian police EXCON. The perception was that UNPOL was more a second actor to military and civilian components, than an actor itself. This due to the lack of peculiar attention to producing incidents that were typical UNPOL staff material, as they were developed by Brazil Police Excon.
- The scenario on the civilian part was not of good quality. It would need to be planned with humanitarian/civil authority actors to ensure realistic, quality, and accurate scenario for the participants.
- The lack of CPOE-products from NFOR/LCC, a very sporadic response from PMEESI-cell along with an undermanned Bde/G9 has critically limited any ambition to facilitate a comprehensive perspective on Bde level. To give intel a realistic importance in current as well as plans OPFOR-gaming should be based on a recognized doctrine and set of TTP's.
- Cooperation between components was poor.
- Greater cross-engagement between UN and NATO mission to support TA UN-NATO cooperation (may be the fault of the role-player in not doing that).

Technical and Information Platform

- *The login procedures into the CIX system are very time consuming and complicated. Can it be solved with a role card instead? Great exercise by the way :-)*
- *It could be useful to have an independent communications expert help with the introduction program. Someone with an inclusive approach, who avoids shoptalk and acronyms not known to all. Microphones at briefings is another suggestion - do people really get the message when they do not hear?*
- *Location of files remains a challenge, especially for external sites. Clarity is needed as to team; roles and Events injects. Linking and briefing - remote sites to centre within PMESII should be done on day 1 or latest am day2. Earlier access to background files would help too. 3xlogins and delays remain a frustration. User names and roles could be tied together in advance like our IDs to reduce delays, lastly reception to Enkoping, no pickup at train station and in check was a nightmare with 35-40 minutes delays in processing outside with no shelter (lucky it was sunny but cool - rain would have been a mess) while having to drag luggage long distances from front gate to reception, to 224 was awkward at best. More to follow*
- *The computer system is overloaded with more information than needed, what makes the use of it and interaction slower and counterproductive. However, for the UNPOLICE there is a lack of relevant information, templates, etc., that were provided very late just after repeated requests or not provided at all. For the coordination before and during the exercise the lack of a clear UNPOLICE general exercise coordinator brought several difficulties, delays and made the interaction not optimal.*
- *The CIX system is terrible.*
- *Add an online and searchable glossary regarding all abbreviations and their meaning. It is time-consuming and lowers the quality when I do not understand.*
-
- I did not feel that I had enough knowledge about SITAWARE, Actors or Exonaut when the exercise commenced.

- Preconditions relating to entering established IM routines are very poor. Unless every section has a pre-trained clerk that is synched with other sections and staffs, it is necessary to create a complete portal infrastructure in advance and have easily accessible guides for using them. Having an unrevised SOP package that some staffs have found, and some have not is good enough, and even when updated it is not comprehensive.
- There was some confusion about communications check. Setting up coms and info flows are a vital part of the preparation for a distributed exercise with multiple chains of commands.
- To many login-moments to get in the CIX computer (that was hard and took longtime).
- IM continues to be a major challenge of Viking exercises. Access to documents on the Sharepoint portal and finding specific information, as well as search functions all still has significant room for improvement.
- Even when being part in a group having received good training on Exonaut, achieving the proficiency for basic use and logging in were inherently slow and frustrating due to the security requirements of triple logins and sophisticated passwords.
- In general, training sessions with the civilians need to have a very clear focus on instructing how to use the system and the application required. A super user assistant with insights into the terms of the gaming needs to be present. As for now, a general demonstration of what the software can do is not enough.
- Need to work on pre-setting email and chat groups by functions, then link to individual accounts. It was confusing and academics sessions were not clear (in that they did not speak to the lowest common denominator -the role player).
- Lack of people at the site. ISO is needed in TOC at the sites to make good presentations and increase the understanding of how to use SITAWARE. To short pre-training for SITAWARE operators at the site. I miss TYR...
- The IT really needs an overhaul, and I am sure there is a reason why we had to log in 3 times every time we wanted to use the laptop this was very dull and time consuming. it seems unnecessary as there is nothing restricted on the system. A few years ago, we had iPads for the OTM observations which worked much better. It meant spending more time with the TA as opposed to going back to the office to log on 3 times. A search function on the webpage would have been good also to help find relevant documents. The webpage also needs all the relevant NATP documents such as COPD, task verbs, various templates etc.
- The IT system needs cleaning up. The layout of the VIKING 22 page is counter-intuitive and confusing.
- The CIX system is terrible mainly due to the login procedures and the terrible user interface in the portal. The lack of a sufficient phone/email registry has made the startup procedures unnecessarily long. SITAWARE is not a sufficient map-tool.
- Exonaut needs an overhaul - with a search function and cross referencing.
- I wish a glossary of abbreviations including the meaning of the abbreviation.
- Learned that you need to use SharePoint and email tracking more vice stand-alone products (more realistic and more effective to share information.

Simulation Environment

- This exercise is a Computer Assisted Exercise - CAX, meaning you have a simulation driven scenario gaming supported by a script. VIKING 22 has been a hard scripted Staff Training Event (per NATO definition, an exercise is involving a trained unit/headquarters) providing mainly a learning experience for students. That is not the intention, I guess. I recommend future VIKING exercise go back to its purpose and objectives, developing training capacities using distributed simulation.
- There was very little operations and outcomes running in any simulation.
- Was there any simulation used in this CAX? I never realized any outcome of any simulation in the current gaming.

- The use of simulation in VIKING, wargaming an operation in the computers have been much more obvious and available in previous VIKING events.
- Is the application Actors" really a simulator?
- The use of distributed constructive simulation in federation was limited, and gameplay was simplified due to an over emphasis on the incident and injects script. Simulation was rarely used for realistically representing the operations in the field. Narrowed dynamic tactical behaviors caused a very simple use of simulation, mainly providing plain movements to feed the common operational picture.

Real Life Support

- Please try to improve cleaning at the barracks.

F. Other Lessons Identified

- Lots of comments which I will file separately. Overall comment re:. civilian input: piece meal and more confusing than real life would be.
- I am a member of the Joint Training Centre, as a GeoAnalyst. My role has been to take part in the Swedish Armed Forces GeoSupport Exercise, which forms an integral part of the Viking 22 platform. Swedish Military Personnel from Navy and Army units do take part, as do more than 12 members of the Swedish National Cadastral Administration (Lantmäteriet). However, the software and systems solution we use is all new, and even these experts, who - like me - have more than 5- or 8-years' experience in the field of GIS (Geographical Information Systems) have a very hard time, producing meaningful and immediately useful end products "on the fly". Weeks, if not months of training should have been spent to prepare all these people for their assigned roles within the system. However, in a spirit of "lessons learned" the willingness of all participants to educate themselves, contribute and hopefully gain useful experiences and training remains very high.

G. Appreciations

- It was impressive to witness the depth and breadth of the Swedish Defense Force and associated elements perform an exercise of this magnitude.
- Keep it up!
- Thanks for the good EX.
- Congratulations for the exercise
- The organization was very professional!
- Great exercise
- Thank you for a great exercise!
- Thanks for planning and conducting this kind of exercises.
- I love you
- It has been lovely!
- A very positive spirit of cooperation at site Qatar.
- Excellent exercise! Great work Sweden!!!
- This was a fantastic opportunity for US and allied/coalition partners to get to know each other's nuances and ways of conducting operations. This is extremely beneficial considering the current operating environment and threats fomenting within Europe.

- We learned a lot about the operations and the exercise. We will return to home with the certainty of our duty accomplished, more capable and confident. So, I would like to thank the esteemed support of the Swedish Air Force, the friends of Brazil.
- This was an excellent exercise: well-organised, well-supported and an enjoyable experience overall. Thank you for giving me the opportunity to take part.

- Impressive exercise, very well organized.
- I am grateful for the efficient admin pre-arrival which made things a lot easier. Thank you.
- A lot of potential in this kind on EX
- The exercise VIKING 22 is very useful and beneficial for me, and I am sure that is the same for all my colleagues.