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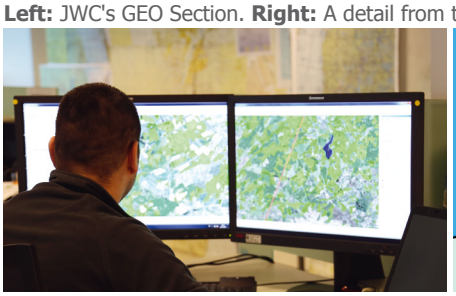
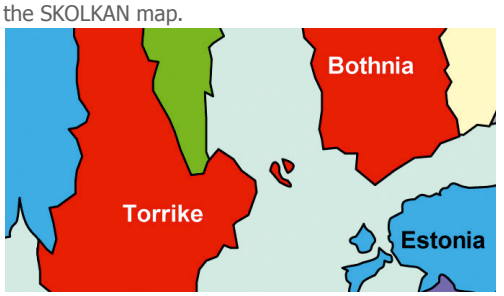
NATO Training Centres' Conference on collaboration for **SETTINGS, SCENARIOS AND SIMULATION**

Left: JWC's GEO Section. **Right:** A detail from the SKOLKAN map.





«...TO TRAIN AS THEY WOULD FIGHT, NATO FORCES MUST, WHEN THEY ARE JWC'S TRAINING AUDIENCES, BE IMMERSED IN A SYNTHETIC WORLD THAT PROVIDES THEM WITH REAL-WORLD COMPLEXITIES AND CHALLENGES.»

Background to the conference

CERASIA, SKOLKAN and, under development now since January 2014, SOROTAN will be complex settings into which JWC weaves intricate scenarios. The production of both settings and scenarios (see p: 58) requires the investment of many man-months of expert analysis and design effort to develop the granularity, richness and credibility that will provide our Training Audiences (TAs) with challenges analogous to those they faced in Afghanistan or would be likely to face in a future crisis. When NATO forces are tasked with tackling real crises, they need to gain a comprehensive understanding of the operational environment that confronts them. They will seek to understand how individual Nations function socially, economically and politically; to understand the terrain and critical infrastructure; how the military forces function within this environment and then how all these local or national systems interact regionally and, to the extent necessary, globally. Finally, of critical and, in our modern highly-connected world, ever increasing importance, they will need to grasp how the information environment functions.

To train as they would fight, these NATO forces, when they are JWC's Training Audiences, must be immersed in a synthetic world that provides them with similar complexities and challenges. When undertaking their estimates and planning, that synthetic world is presented to them through analysis products, directives from higher headquarters, maps and other media. When they come to execute their plans, they need the real-time stimulation of an operational environment that, if not provided through live feeds from a LIVEX, can only be provided through a detailed constructive simulation, which presents to them the complex and credible actions of Opposing Forces (OPFOR) and other actors through the same systems that

The TS3 Conference, which was viewed as a vital stepping-stone for future training efforts within the Alliance, brought together a wide range of exercise stakeholders and scenario, CAX and OPFOR-MEL/MIL experts, setting them the challenge of understanding barriers to sharing knowledge and resources to improve exercise capability whilst sharing and controlling costs. Photographs by JWC PAO.

would stimulate them operationally. Essentially, the scenario provides the PMESII (Political, Military, Economic, Social, Information, Infrastructure) background, the OPFOR (Opposing Forces) framework and the foundation for MEL/MIL development, which the CAX then translates into the actions of tactical units. These actions and resultant interactions affect the "PMESII world" and can be observed and reported back into military reporting chains affecting subsequent TA responses and, indeed, the further actions of OPFOR.

The development of setting and scenario is highly manpower intensive. The population of the simulation, its testing and, indeed, its synchronization with scenario such that JWC can ensure that the subsequent Computer Assisted Exercise (CAX) provides seamless stimulation to TAs also requires considerable effort. And, in each case, the need is for expertise in these disciplines. Setting, scenario and simulation are at the same time both critical capabilities and significant cost drivers. These are issues for JWC. Of course, logically, they must be issues too for other organisations with similar responsibilities to JWC; meaning those responsible for training at the operational and higher tactical levels across the Alliance. With Nations and NATO sharing similar problems, the question was whether Nations and NATO could share solutions. The Commander JWC directed the staff to establish whether there was enthusiasm for exploring the problems and investigating solutions together. The responses from Nations and NATO bodies were positive and so the Commander invited stakeholders in settings, scenarios and simulation for training from across the Alliance to NATO's inaugural TS3 Conference, held at Joint Warfare Centre from 24-26 June 2014 and co-chaired with our partner organisation, NATO's Joint Force Training Centre (JFTC).

Conference execution

On 24 June, over 100 representatives from 19 NATO Nations and eight NATO headquarters started to tackle the following objectives:

1. Explore avenues for potential collaboration on:
• developing new settings/scenarios, and,
• enhancing/adapting those that are already available;

2. Investigate sharing resources for preparing CAX support systems (e.g., simulation databases, data, etc.);

3. Investigate sharing Subject Matter Experts (SMEs) in the preparation of Training Objectives and Main Events List and Main Incidents List (MEL/MIL);

4. Investigate exchanging SMEs including modelling and simulation experts;

5. Share experience, know-how, and lessons learned in all these fields in order to improve interoperability and re-usability.

To facilitate exploration of the problem space and to manage the workload required to address these objectives, it was necessary to break the participants out into smaller teams. In designing the conference, it was recognized that topics of policy, technical and procedural issues needed to be addressed, but also that expertise firstly on settings and scenarios, secondly on simulation systems and thirdly on the employment of OPFOR and the related subject of MEL/MIL was invested in different groups. While this initially suggested the construction of tightly focused and tasked groups within the conference, too much subdivision ran the risk of fracturing the conference. The solution adopted was to divide the communities in part by topic and in part by subject area. Thus, three conference strands were constructed: an overarching Policy Syndicate, and two subject matter syndicates; one on CAX-MEL/MIL-OPFOR and another on Settings and Scenario.

To ensure that individual participants were able to synchronize with the conference as a whole, much of the first day was held in plenary. The syndicates provided an initial backbrief on the second morning to ensure cross-fertilization of ideas. The last morning was again in plenary with final syndicate backbriefs, a panel session which provided the conference as a whole with an opportunity to benefit from the insight of Air Vice Marshal Robert Judson and the General Officers (who had, by necessity, been concentrated in the Policy Syndicate) and concluding comments from TS3 Conference co-chairs, former Commander JWC, Major General Erhard Buehler and JFTC Deputy Commander and Chief of Staff, Hungarian Army Brigadier General Laszlo Szabo.

Output from the Conference

The conference proved an excellent venue for sharing experiences, know-how and lessons learned in all TS3 subject areas (Objective 5), with syndicate discussions usually lively — even impassioned — as participants explored the subject matter through the prisms of their own organisational experience. A key element of the Policy Syndicate was a series of National and Training Centre presentations, which more formally shared experiences and infor-

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Exercise TRJE 14 White Cell with the Estonian Contingent: Working within the construct of the settings and scenario, White Cell participants seek to craft the MEL/MIL to ensure challenging and appropriate stimulation for the Training Audience. Photograph by JWC PAO.

mation on capabilities. These presentations now form part of the conference "library" to inform future work.

The conference was similarly successful in meeting Objective 1, with the barriers to collaboration explored and assessed, including the fact that Nations naturally often built scenarios in their own languages creating a cost-of-translation barrier to NATO or other National exploitation.

A second barrier was the difficulty presented to an original scenario developer of reintegrating a scenario modified by a second Nation or Centre, where aspects of the modification are deemed valuable, whereas other aspects might take the scenario in a direction that does not meet the originator's aspirations. Similarly, the fact that not all the thinking invested in a scenario is obvious and accessible within (existing) scenario documentation also acts as a barrier to shared exploitation.

TS3 also made strong progress in meeting Objectives 2, 3 and 4. Particularly, as mentioned above, in the Policy Syndicate, but also in the other syndicates and in the conference as a whole, participants were able to describe their capabilities, air their own concerns and better understand the capabilities and concerns of others. Whilst some differences, of course, remained, this shared understanding allowed the syndicates to agree on the main issues and recommend actions. To realise Objectives 2, 3 and 4, it will be necessary to develop detailed action plans, which will require equally detailed analysis by all parties who wish to participate. If the benefits nested within Objective 1 are to be realised, this too will require the development of detailed action plans. Objective 5, meanwhile, can be seen to be an on-going objective that should persist, building on the progress made at this conference. This too will require planning.

As might be expected, individual syndicates identified issues peculiar to their own subject areas. For example, the Settings and Scenario Syndicate emphasised the importance of modular design to scenarios. Whilst this principle already exists, it is clear that it will become increasingly important if different organisations wish to access parts of each other's scenarios without necessarily having to take the full scenario; or, indeed, if they find enough commonality of requirement to co-develop significant portions of scenarios.

Similarly, the CAX-MEL/MIL-OPFOR Syndicate discussed standardization, struggling between the limitations of Bi-SC 75-3 as it is currently written and its perceived value as a vehicle for standardization. In this case, their recommendation was to review and update it and then adopt it as a standard for NATO and Nations. Although this need for a fundamental review of Bi-SC 75-3 was not identified by the Settings and Scenario Syndicate, they did highlight its value and proposed it as a vehicle for promulgating updated guidance on scenario development, which could set a common standard for all participating agencies.

While these and other "syndicate specific" recommendations were made, it is worth noting that the theme of cataloguing appeared in all three syndicates and, as such, may be considered to be a particularly significant area to address. The Policy Syndicate recommended building "a capability interoperability catalogue with cross-referenced database", while the Settings and Scenario Syndicate identified the "need for a scenario library where exercise materials are classified by metadata". The

CAX-MEL/MIL-OPFOR Syndicate had similar aspirations of cataloguing where the "expertise currently resides within Nations and NATO Bodies". This syndicate went further by recommending JWC to "establish a TS3 Portal in order to provide a general point-of-contact for exercise issues for all participating Nations". Such a portal could be an enabler for the cataloging recommendations of all three syndicates. However, it is clear that further work would be required to fully realise these recommendations including identifying, inter alia, metadata, catalogue description requirements, definitions of expertise areas and rules of operation.

Building on the conference

It was clear that the recommendations — and underpinning observations and discussion points — from all three syndicates needed to be analysed in detail and action plans developed to push them forward. If the collaboration objectives are to be met, naturally actions must be taken together by the NATO and national organisations that seek the benefits which will accrue. Someone has to take the first steps, however, and JWC judged that initiation of those actions probably sat best with JWC, in particular because of its unique role in scenario development.

Since the end of the conference, JWC has therefore commenced analysis of the outputs of TS3 and to develop detailed proposals for action, including development of a prototype TS3 Portal as recommended in the conference. Significantly, as ideas take shape, the other TS3 Conference partners will continue to be invited to engage, with the aim of ensuring that agreement can be made on bi-partite or multi-partite bases as appropriate. The high value of this TS3 Conference was discussed in all syndicates and strongly emphasised in the Panel Discussion as the conference came to a close. The Settings and Scenario Syndicate recommended "the TS3 Conference should be repeated on a regular basis as a forum to develop networking relationships, share best practices, and discuss proposals for future collaboration". As the action plans develop, the community as a whole can assess the need for, and timing of, a follow-on TS3 Conference to solidify the successes of the first one.


The co-author, Adrian Williamson.

DEFINITIONS OF SETTING, BASELINE SCENARIO AND EXERCISE SCENARIO

SETTING:
The regional context that is the basis for exercise scenarios. It includes basic geo-data information and PMESII (Political, Military, Economic, Social, Information, Infrastructure) data for all potential regional actors.

BASELINE SCENARIO:
The specific problem area within the setting to be used for a series of exercises, including detail on the geo-political situation and enhanced information on the theatre of operations.

EXERCISE SCENARIO:
The body of data that is added to the setting and baseline scenario through close co-ordination with the Training Audience. The scenario output includes Scenario Modules delivered throughout the exercise cycle.

SKOLKAN SETTING:
Built into the political geography of Northern Europe, five nations inhabit real-world Finland and Sweden, with a sixth nation occupying North Island of New Zealand moved off the coast of Norway. The physical geography is closely based on reality (to minimise simulation cost). All are rendered with credible and cohesive PMESII characteristics. NATO Nations are unmodified.

SKOLKAN BASELINE SCENARIO:
SKOLKAN 1.0, the first baseline scenario developed for SKOLKAN concerns the potent and highly capable threat of Bothnia, which harbours designs on territory of a NATO Nation (Estonia). The Geo-political situation behind "Bothnian aggression" is laid out in the baseline scenario package.

SKOLKAN EXERCISE SCENARIO:
Built on the baseline scenario, the specific exercise scenario presents the detailed problem with which the Training Audience Commander and his staff have to wrestle. For example, in SKOLKAN 1.2 this is the information that supports Bothnia's invasion of Estonia's Hiiumaa Island.

The "Setting — Baseline Scenario — Exercise Scenario" paradigm attempts to achieve the optimum balance between the twin pressures of always presenting new challenges to Training Audiences whilst at the same time trying to reduce cost through "re-cycling" elements of scenario. So, for the entire SKOLKAN series, for example, the basic "setting data" remains unchanged; the "baseline scenario" changes radically between a capable threat with "Article 5 potential" (Bothnia) to a "failing state" requiring Crisis Response Operations (Arnland), with an even more potent adversary (Lindsey) to provide another "baseline" challenge. Each baseline supports a series of exercises with that baseline unchanged. The exercise scenario (often termed just "scenario") builds on the baseline to paint the specific challenges that the Training Audience will face in a particular exercise.