



# Moving Transformational Activities into NATO Exercises



## **CAPABILITY INTEGRATION AT JOINT WARFARE CENTRE**

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**T**HE MILITARY ENVIRONMENT continues to evolve as new technologies and new ideas for exploiting them are developed. In some cases, this presents NATO with opportunities to increase capability and, in others, challenges that must be addressed to prevent adversaries from gaining advantage against us.

NATO, primarily Headquarters Supreme Allied Commander Transformation (HQ SACT), together with its "Triple J" subordinate commands — the Joint Warfare Centre (JWC), the Joint Force Training Centre (JFTC) and the Joint Analysis and Lessons Learned Centre (JALLC) — has a series of programmes that takes ideas forward, developing them into capabilities to be employed by Allied Command Operations (ACO). At various points, information is needed by these programmes to help shape, refine, or prove the capabilities. The integration of an evolving capability into the JWC-directed exercises can prove a vital source of such information, leading capability developers to articulate a requirement for a Transformational Activity (TACT) to be scheduled for a particular exercise in the form of a "NATO Capability Integration Project".

For capability integration into JWC-directed exercises, there are generally two overarching objectives; the first objective is that it should provide knowledge or insight to capability developers to help them shape, or confirm, their development activity, and the second objective is that it should improve the overall JWC exercise delivery both in the targeted exercise and in future exercises.

On a more detailed level, there are other objectives in addition to these two overarching ones, which in turn will affect the design of the capability integration project. From a capability development perspective, factors that affect the design typically include the warfare area being developed, the maturity of the development programme, its span and the extent to which capability previously existed in this warfare area. With regard to improvement in exercise

## A cyber capability integration project could cause serious disruption upon Training Audiences.



delivery, these considerations also affect design, as does the potential for the warfare area to unbalance an exercise. A cyber capability integration project could, for example, legitimately, and within the bounds of realism, cause serious disruption upon Training Audiences. However, the capability integration design would need to account for all Training Objectives to be met; cyber play should not excessively disrupt the meeting of other Training Objectives.

Similarly, in the recent Weapons of Mass Destruction (WMD) Disablement capability integration projects, the explicit inclusion into JWC-directed exercises of a significant WMD threat had the potential to substantially impact the way that the Training Audiences ap-



**ABOVE, BELOW:** The author, photographed at the Joint Warfare Centre. Photos by MSgt Sven Giegerich

proached the exercise — that is, of course, as it would in a real operation. In such cases, capability integrators need to work with exercise designers to understand their appetite for confronting Training Audiences with such effects.

### Operational-Level Capability Integration Campaigns

It is common practice that the integration of a capability into a particular exercise is part of an overall capability integration campaign across two or more exercises. There are a number of reasons for this:

- First of all, the requirements of capability developers are often complex. The overall information objectives may be clear, but the detail less so. By progressing through several exercises, information can be built up and answers to initial research questions can be used to define, and increasingly refine, later questions.
- Second, the capability development programme itself may be planned to progress through a series of increments each of which requires, or at least could benefit from, information that can be generated through capability integration in an exercise. In such cases, each individual capability integration project within the capability integration campaign can be mapped to a particular phase of the capability development programme.





**ABOVE:** A meeting of the JWC Training Advisory Team at USS Mount Whitney with Rear Admiral James A. Kirk, JWC's Deputy Commander and Deputy Exercise Director. Photo by JWC PAO

For most capability integration campaigns, each exercise is a single instantiation of conditions within which the capability can be examined; meaning that a single exercise essentially provides one dataset — albeit one with multiple factors, observations and datapoints.

- Therefore, since there is normally latitude to shape the parameters within which the capability operates in a particular exercise, a capability integration campaign over "X" exercises should provide "X" such datasets, insuring against conclusions being drawn for a capability as a whole, which are actually peculiar to an individual set of circumstances.
- Fourthly, there is a need to build understanding. Capability integrators need to gain a solid understanding of the warfare area under study. Capability developers, who have generally come to their roles with deep expertise in that warfare area and have, since appointment, brought themselves up to speed on capability development, may have less knowledge of exercise mechanics and less still on how to exploit exercises to generate information. At the commencement of a capability integration campaign, there is inevitably an understanding gap between capability developers and capability integrators, and thus, a requirement to bridge this gap. This is best achieved progressively across a capability integration campaign.

- Finally, building persistence into exercises in a rapidly developing warfare area is non-trivial. A capability integration campaign helps to compile exercise material for a variety of exercises into a potential library for that warfare area. Perhaps more importantly, having built up understanding over the course of the capability integration campaign, particular focus can be given on cataloging the final capability integration project to include supporting information that will inform future exercise developers of key factors and peculiarities that affect that warfare area.

The fourth of these reasons, the need to bridge the understanding gap, begs the question of what level of expertise is necessary in the relevant warfare area for capability integrators in the context of a campaign? From a practical standpoint, the capability integrators would normally not become subject matter experts (SMEs) in a particular warfare area. What is important, though, is for them to have enough knowledge to: (1) be able to work with the capability developers to develop detailed objectives; (2) lead the design of a capability integration project to meet such objectives; (3) observe and understand the complex situation as it develops during Crisis Response Planning and Execution, and discuss key issues, and, as required, formally interview Training Audience SMEs to fully exploit their experiences within the exercise as they relate to the objec-

tives of the capability integration project; and, (4) interpret and analyse the data gathered during the exercise, fusing them to develop results of value to the capability developers.

There is, of course, an analogous question for capability developers. Whilst they do not need to become SMEs in either exercise design or capability integration, they do need to know enough to understand the "art of the possible" in capability integration projects.

## The Capability Integration Teams

It follows clearly from the above that to successfully deliver capability integration projects, it is necessary to bring different skill sets together, and capability integration teams are formed, including, as a minimum, capability developers (normally, though not invariably, programme managers or project leads from HQ SACT) and capability integrators, at least one of which groups must include analytical resource. Depending on the exact nature of the capability integration project, the core team will also typically include SME representation from one or more of the following entities: the JWC Advisory Teams, NATO Centres of Excellence and ACO Training Audiences and/or other ACO stakeholders or external national experts.

Beyond this, there will be occasional, or, ad hoc requirement for input from, or coordination with, other stakeholders, particularly the exercise developers. In certain cases, it will be necessary to include such stakeholders as permanent members of the core team [see *WMD Disabling side-panel on p. 37*].

## Initialisation of Capability Integration Campaigns

The preference has been for an initial "observation and engagement" capability integration activity in the first exercise of a capability integration campaign, where capability developers and capability integrators observe the warfare area of interest in an exercise, initially unmodified by capability integration and, in parallel with this, schedule meetings both to better understand the capability developers' needs and to investigate the options for integrating the capability into following exercises.

*(continued on p. 40)*



# CASE STUDY

WMD Disablement was a Transformational Activity during **TRIDENT JAVELIN 2017** and **TRIDENT JUNCTURE 2018**

## Capability Integration Campaign on Weapons of Mass Destruction (WMD) Disablement

### BACKGROUND

Paragraph 34 of the Lisbon Summit Declaration (2010) stated that NATO Allies "will continue to implement NATO's comprehensive strategic-level policy for preventing the proliferation of WMD and defending against chemical, biological, radiological and nuclear (CBRN) threats." Paragraph 50 of the Chicago Summit Declaration (2012) reiterated this, further stating that "we will ensure NATO has the appropriate capabilities, including for planning efforts, training and exercises, to address and respond to CBRN attacks." In these two NATO Summits, the Heads of State and Government set a clear direction for the Alliance, which NATO has taken forward, advancing policy into concept work, and leading to the development, in 2017, of a "WMD Disablement Functional Concept". HQ SACT capability developers recognised a need to test the ideas within the functional concept and sought the exploitation of a JWC-directed exercise to that end.



### CAMPAIGN START-UP

WMD Disablement was confirmed as a capability to be integrated into Exercise TRIDENT JAVELIN 2017 in late 2016 (it was too late to enable initial observation in the execution phase of Exercise TRIDENT JUNCTURE 2016). Engagement with capability developers from HQ SACT was initiated in November 2016 and it was confirmed that their requirement was to test the ideas set out in the recently developed functional concept, to build confidence in, and help steer a course for, the future development of the capability. Through HQ SACT, interaction was initiated with the Joint Chemical, Biological, Radiological, and Nuclear Defence Centre of Excellence (JCBRND COE), which was prepared to prioritise the WMD Disablement capability integration campaign. By doing this, they provided vital additional CBRN subject matter expertise throughout the campaign.

JAVELIN 2017



TRIDENT JUNCTURE 2018



The JWC, meanwhile, has its own in-house CBRN subject matter expertise, primarily within the Training Advisory Team, which it deploys to support Training Audiences in exercises. Ready access to both in-house and NATO Centre of Excellence expertise enabled the JWC capability integrators to accelerate the capability integration campaign, catching up lost time to enable a full, albeit not excessively complex, capability integration project to be undertaken in Exercise TRIDENT JAVELIN 2017. To service the project requirements, a core team was put together comprising an HQ SACT capability developer, the JCBRND COE subject matter experts, a JWC Advisory Team subject matter expert and JWC capability integrators, with access to other JWC exercise expertise and Training Audience representation as required.

### First WMD Disablement Capability Integration: TRIDENT JAVELIN 2017 (TRJN17)

One effect of this late start was that the door was already closed on changing any baseline scenario products and a number of the early update packages, as these had already been delivered to the Training Audience. However, the JWC scenario team had already included some WMD capabilities, which provided sufficient scope for a WMD Disablement capability integration project to be developed that was coherent with the extant scenario. The penalty of this late start was not overly severe. The compressed timelines for WMD Disablement capability integration design in TRJN17 argued strongly for a design that constrained impact on the Training Audience to ensure that risk could be adequately managed. In practice, this was not a particularly onerous constraint as capability integration campaigns generally follow a "crawl-walk-run" philosophy and, moreover, the WMD Disablement functional concept defined three different types of WMD Disablement operations: small-scale, medium-scale and large-scale, the exploration of all of which were of equal priority. It was therefore perfectly acceptable to the capability developers for a small-scale WMD Disablement operation to be selected for integration into TRJN17.

Based on the fictitious scenario, the capability integration project design involved the transfer of dual-use nuclear technology to the Opposing Forces (OPFOR) by organized crime

groups. The technology was originally that of a third party, but poor care and recordkeeping had enabled nuclear material, technology and technical specifications to be obtained by these criminal enterprises. The evolution of the WMD Disablement problem was presented to the Training Audience through a series of scenario products, including special reports with the details developed through the Main Events List/Main Incidents List (MEL/MIL). As the mechanics did not entail OPFOR actions, the OPFOR engagement was limited to mutual awareness and deconfliction. Dynamic interaction during exercise execution phase was not planned (proactive), but some was required (reactive) primarily relating to adjustments in timings. The design presented the Training Audience with a challenging and unusual problem in that there was no risk to force (although this was left with a degree of ambiguity).

The problem for the Alliance was longer term and "programmatic" — that is, the activities were depicted as elements within a long term WMD programme. In practice the Training Audience analysed the problem superbly, pulling together a cross-functional team to develop potential courses of action and developing fragmentary orders (FRAGOs) to address it.

Overall, the capability integration provided valuable, though necessarily limited, information for the capability developers and significantly improved the training provision to the Primary Training Audience. It also enabled identification

of adjustments that could be made to the next capability integration in Exercise TRIDENT JUNCTURE 2018.

### Second WMD Disablement Capability Integration: TRIDENT JUNCTURE 18 (TRJE18)

As the second iteration of a capability integration campaign, WMD Disablement was much better placed for integration into TRJE18, albeit that the specificities of the design requirement depended on the results of the integration into TRJN17, the execution of which was in November 2017 and therefore not well aligned with the scenario development timelines for TRJE18. Again, this meant that baseline scenario documents were closed. The scenario presented a range of opportunities for WMD Disablement, leading to substantial discussion with exercise developers to select the design which "best fit" the scenario, whilst meeting capability integration objectives.

With the knowledge and experience of TRJN17 "banked", the capability integration team was able to develop a more complex design for WMD Disablement, consistent with a medium-scale WMD Disablement operation. The design entailed a non-state actor with a chemical weapon programme, involving two different agents, each with its own delivery method. The non-state actor's activities were "programmatic" in nature, with DOTMLPFI (Doctrine, Organization, Training, Material,



Joint Warfare Centre TRIDENT JUNCTURE 2018 Situation Centre (SITCEN). Photo by JWC PAO



Photo by Sergeant Bastian Koob, Eurocorps



Leadership, Personnel, Facilities, Interoperability) aspects, although this programme was, of course, more rudimentary than would be the case for a state actor (**Ed.:** *Of these, only Leadership and Interoperability did not apply and were not developed*).

Their programme included significant test and evaluation, doctrine development and training activities undertaken on NATO soil, in a NATO country, part of which had been invaded and which was therefore under significant stress. This presented the Training Audience both with information on which to build their situational awareness, and opportunities for WMD Disablement action. Since much of the non-state actor's programme was to be undertaken in a NATO country, the capability integration team was expanded to include a national CBRN expert and, furthermore, liaison was undertaken with civilian agencies in that country.

As with integration into Exercise TRJN17, the evolution of the WMD Disablement problem was presented to the Training Audience through a series of scenario products, primarily Crisis Situation Updates (CSUs), but augmented by HUB articles (**Ed.:** *The HUB was a store of additional articles that could be used by the Training Audience to provide richer understanding and Situational Awareness*), with the details developed through the MEL/MIL.

Again, there was no requirement for direct OPFOR action, though an aspect of the non-state actor's strategy was to exploit the disruption caused by OPFOR's hybrid campaign in that nation and so there was a requirement for

coordination, as well as deconfliction.

Unlike TRJN17, dynamic interaction during exercise execution phase was planned (proactive) as a means of providing more direct control of the complex integration project. In addition, there were unanticipated perturbations during execution, which required reactive adjustments to be made. The WMD Disablement capability integration project design in TRJE18 presented the Training Audience with a complex problem, which was very different from anything presented in previous exercises delivering a learning opportunity in this developing warfare area, whilst enabling them to achieve certification in their defined processes. Building on TRJN17, the integration into TRJE18 provided information to capability developers both on the ideas articulated within the WMD Disablement functional concept and on considerations for future doctrine development.

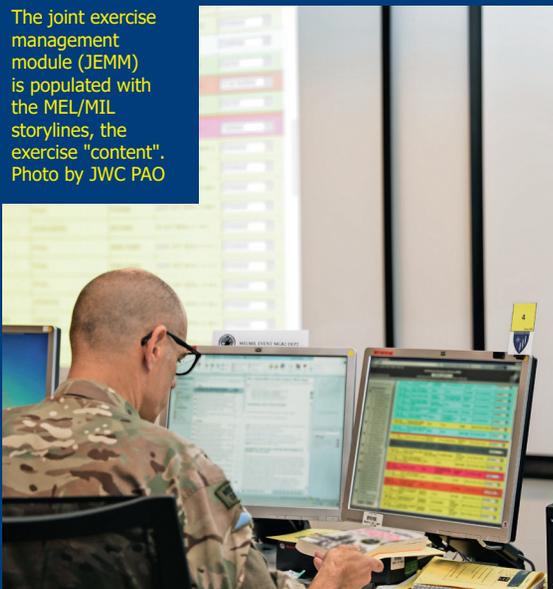
### WMD Disablement post-TRJE18

Building on TRJN17 and taken together with it, the TRJE18 capability integration project provided the information required by capability developers to assess the status of the functional concept, and to help shape future activities. It was therefore decided to conclude the capability integration campaign on completion of TRJE18 reporting. There may be a case for further work after the current doctrine development activity has progressed sufficiently. The nature of any

such work is as yet undefined, but, most likely, it would be a doctrine integration activity rather than further capability integration.

The smooth transfer from capability integration to enhanced training in future exercises is always a challenge, but is particularly so for WMD Disablement, since WMD Disablement play is not always a requirement for JWC-directed exercises, and, indeed, was not originally scheduled for TRIDENT JUPITER 2019-1, the next equivalent exercise to TRJE18. To address this, an additional objective for the capability integration campaign was to produce a package of WMD Disablement material, including the "detailed design" for capability integration in TRJE18, additional material to make the design easier to understand, and supporting information explaining the design decisions. Taken together, these provide a handrail for WMD Disablement in future exercise designs.

The joint exercise management module (JEMM) is populated with the MEL/MIL storylines, the exercise "content". Photo by JWC PAO



Members of the JWC's Capability Development Branch. Photo by MSgt Sven Giegerich



“The exploitation of **Opposing Forces** as a capability integration tool is **highly complicated.**”

(continued from p. 36) Unfortunately, development timelines are often such that this precept is more often breached than observed. If this step is missed, though, there is an accompanying risk that the initial integration, which would then be a “full capability integration project” with significant investment of resource, would be less effective than had it proved possible to have preceded it with an “observation and engagement” initialisation capability integration activity.

## The Capability Integrators' Toolset

For all capability integration projects, the toolset available to capability integrators is the same: the development of scenario products; the Main Events List/Main Incidents List (MEL/MIL) — the detailed script used to stimulate the Training Audience during an exercise — the actions of the Opposing Forces (OPFOR); and dynamic interaction during execution.<sup>1</sup>

The particular mix — the pressure that can be exerted through careful manipulation of each of these levers — depends on the specificities of the particular capability integration project in terms of the factors discussed above — and it is not always necessary to press all four levers. Each conveys benefit but may bring with it accompanying disadvantages. Often, there is scope within the design to select between them; though sometimes the requirement of the capability integration project forces one or other option.

For example, the JWC has been integrating Space into its exercises since TRIDENT

JUNCTURE 2016. This integration has required that the OPFOR have certain Space-based, or counter-Space capabilities. Where, as is generally the case, these capabilities would be known to NATO, they should appear in the relevant scenario Country Books; thus, the capability integrators must ensure that these requirements are fed early on to JWC's scenario team: the scenario lever must be used.

In the case of Weapons of Mass Destruction (WMD) Disablement, if an evolving situation is to be presented — and, if the situation is not evolving, either there would be no need for NATO to react, or there would be an expectation that action would have been taken earlier — then scenario information has to be fed to the Training Audience at appropriate intervals throughout the crisis. In this case, JWC's scenario team has a number of vehicles available to capability integrators: primarily the Crisis Response Intelligence Package (CRIP), Crisis Situation Updates (CSUs) and, ultimately, the “Road to StartEx Package” as well as a number of other available mechanisms that may vary between exercises. Whichever of these is utilised, all are “scenario” vehicles and so this lever is again essential.

The MEL/MIL is extremely flexible and, since it provides a direct stimulus to Training Audiences, is generally the best option for linking *cause* to *effect*, although this will often be modulated by the medium — essentially information flows within Training Audiences —



Photo by JWC PAO

through which it passes. The MEL/MIL is the default lever for capability integrators.

The exploitation of OPFOR as a capability integration tool is more complicated. For the most part, the JWC's OPFOR team concerns itself with “large muscle movements”, and the specific requirements that a capability integration project may have for particular OPFOR capabilities to be utilized is often best achieved through the MEL/MIL (albeit coordinated for consistency with OPFOR's plans). However, where, again as in the case of the Space capability integration campaign, the capability integration project has built significant Space capabilities into the OPFOR Order of Battle (ORBAT), the OPFOR team's actions are informed by the knowledge that they possess, and can exploit, such capabilities.

The final tool is “dynamic interaction” during execution. This can be both reactive and proactive, and is coherent with JWC's approach to training. One of the functions of a JWC Advisory Team deploying to a Training Audience location during an exercise execution phase is, through observation of its Training Audience, to assess that Training Audience's progress towards its Training Objectives. By feeding the observations back into the Exercise Control (EXCON) machinery, it facilitates making adjustments that help the Training Audience stay on track, and ultimately to achieve the Training Objectives. There is an analogous process for capability integration projects, where the capability integration team can accelerate, decelerate, or adjust existing MEL/MIL, use reserve injects and/or introduce new material to, in this case, facilitate meeting the capability integration objectives, including the provision of richer training.

## Outputs: Data and Analysis to Support Capability Development

The project plan for a capability integration — formally a Capability Integration Design Document, or CIDD — lays out both the approach to the capability integration project and, through its included data collection and analysis plan, the specific data to be collected and analysed to meet (primarily) the capability development objectives. There is generally a number of physical documents produced that report various aspects of the capability integra-





ABOVE: The MEL/MIL is the default lever for capability integrators. TRIDENT JUPITER 2019-1. Photo by Sergeant Bastian Koob, Eurocorps

tion project, culminating in the formal "Capability Integration Report". This report aims to assist capability developers to understand the current status of their capability, identifying strengths and weaknesses, as well as the factors that need to be considered when bringing the capability forward.

The capability integration project should provide evidence not otherwise available to the capability developers and, since a single capability integration project can only evaluate the performance of a capability within the circumscribed parameters of a particular exercise, a capability integration campaign can be used to broaden that to look at wider sets of circumstances, and thoughtful capability integration design across the campaign can provide a rich picture of the strengths and weakness of the

capability in a diversity of circumstances.

Taken together with other data collected during the capability development process, the capability integration campaign results should provide the capability developers with sufficient information on which they can apply both their subject matter expertise and sound military judgment to determine the way forward for the capability. Moreover, they should be able to do so with improved confidence.

### Outputs: Exercise Improvement and Persistence

From an exercise development perspective, the main product of capability integration is the "play" in, or the "play" in relation to, the relevant warfare area during the exercise.

However, it is also important to consider persistence of change in exercise delivery. The main impediment to this is, in fact, intrinsically linked to the nature of the capability integration projects. The capability integration projects are generated to assist warfare areas going through significant change. To achieve this, as described above, a capability integration team is specifically appointed. This team persists, perhaps with limited variation, for the duration of a capability integration campaign and is then disbanded, as it must be, so that the next warfare area undergoing significant change can be tackled.

Of those involved in the capability integration campaign, the only typical core team member who, by default, continues to be involved in that warfare area in future JWC-directed exercises is the Training Advisory Team subject matter expert (if a JWC billet exists and is filled) and that individual is already fully engaged in a wide range of activities in support of JWC exercises. Capability integration teams can and do take action to endeavour to ensure that those improvements in the delivery of exercises gained during capability integration campaigns do not dissipate over future exercises. Inclusion of relevant NATO Centres of Excellence within the core capability integration team can reduce this risk as they are well placed to transition the capability into regular training, and strong engagement with ACO can also assist. While this remains an area of concern, developments made during capability integration campaigns have transitioned into exercises, persisting both in physical products such as exercise templates (in scenario data and MEL/MIL) and within the human capital of the JWC's exercise teams. ✦



Colonel Jean-Michel Millet, JWC's Head of Transformation Delivery Division. Photo by Tudor Jelescu

### ENDNOTES:

- 1 MEL/MIL provides a framework for JWC to help Training Audiences (TA) meet their Training Objectives (TOs). There is always a degree of "dynamism" in this as information flows into the TA are calibrated based on their progress towards meeting the TOs and other factors. The greater requirement that capability integration (CI) projects often have to steer the use of capabilities makes this process a critical focus for design, and it is thus often treated as a separate CI control lever.