NORTH ATLANTIC TREATY ORGANIZATION

SUPREME ALLIED COMMANDER
TRANSFORMATION

SACT's KEYNOTE at

C2 COE Seminar

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Sheraton Waterside Hotel

Général d'armée aérienne Denis MERCIER

As delivered

Admirals, Generals, Distinguished guests, Ladies and Gentlemen,

Good morning.

Thank you very much, Gerrit *(Captain (N) Gerrit Nijenhuis; Dir C2COE)*, for your kind introduction.

I commend you and your entire team for organizing this three-day seminar on "*C2 in Emerging Warfare – Challenges for the Alliance and Coalitions*" hosted here in Norfolk, together with the Combined Joint Operations from the Sea Centre of Excellence.

It is a great privilege and honour for me to share with you ACT's thoughts on the evolution of our security environment and its consequences on the adaptation of the Alliance's forces, especially in terms of Command and Control.

These thoughts have been part of a recent analysis on the Framework for Future Alliance Operations, completed by ACT. This document draws the main military implications for NATO's current and future military adaptation.

Without going into great detail, our strategic analysis defined five main strategic military perspectives that should drive the transformation of Allies and whenever possible, Partner forces.

- First, as we can see in current coalition operations, there is a need for more operational agility, for our forces to adapt more quickly than our adversaries' tactics, technics and procedures.

- Second, our political and military leaders must also maintain closer control of the operational effects of these forces.

  These leaders must therefore get a comprehensive and precise understanding of the situation through comprehensive and continuous strategic awareness.
- Third, there is a need for a broad security network for our forces, as no future operations will be planned and conducted without the involvement of Partners, whether they are Nations or other International as well as non-governmental Organizations.
- Fourth, the resilience of our forces will be critical as they face increasing cyber threats or anti-access, area denial environments.
- And last, but not least, there will be a growing need for strategic communication, by which the Alliance develops, coordinates and disseminates its narrative, that in turn sets conditions for the success of its activities.

In my view, the most striking conclusion from this work was that the central piece of the adaptation of our Alliance's forces to meet the requirements of a high level of strategic awareness, operational agility, resilience, security networking and strategic communication was the design of a future Command and Control architecture.

This morning, my aim is then to focus on this adaptation of our command and control architecture,

- By showing it has been part of a process which made the continuous presence of a Command and Control Structure a main strength of our Alliance;
- By highlighting the current challenges and related efforts to adapt all our C2 structures which may be discussed during the next Summit in Warsaw;
- And last, by looking to the future and understanding the main principles of what could be an innovative C2 framework which ensures the permanent ability for our forces to offset any adversary.

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To start with my first point, we must keep in mind that the existence of a permanent Command and Control structure, able to support a timely and well-informed decision-making process, has been the main strength of the Alliance ever since the 1950's.

NATO is the only international organization with such a robust C2 structure…simply because the Alliance has been able to adapt this structure to the evolving security environment.

It started during the Cold War with a main focus on Collective Defence. Then, the emphasis was given on deployable and flexible C2 structures to respond to the new geostrategic context of the immediate post-Cold War era, more focused on crisis management and cooperative security.

After a decade of mainly expeditionary operations, the Alliance has again to adapt its deterrence and defence posture, which means we have to define the appropriate mix of conventional, nuclear and missile defence forces, at the right level of readiness and responsiveness.

And with this mix, the appropriate Command and Control framework.

The renewed mix of forces that will be set-up has to simultaneously fulfil the three core tasks of Collective Defence, Crisis management and cooperative security to address the many challenges related to the global nature of crises.

Indeed, threats have become more diverse and come from multiple domains, directions and span physical, virtual, and psychological dimensions.

To cope with this new environment, initial decisions were made at the Wales Summit.

The most symbolic decision was the implementation of the Readiness Action Plan – or RAP-, essentially reactive in nature and focused on the enhancement of the NATO Response Force -NRF.

But this plan remained limited in scope and still potentially is a reflection of the expeditionary mind-set generated after a decade of deployment in Afghanistan.

We adapted our C2 structure with an emphasis on the NRF with deployable headquarters provided by nations.

But it is more and more obvious that we may have to look beyond the measures taken with the RAP.

When rapid response to a crisis is required, there may be no time to deploy national headquarters.

Indeed, high responsiveness will not only result from the enhancement of our NRF and its C2 structure.

This should be considered only as a first step. We have now to look at the entire military capacity on which NATO's posture is based.

Responsiveness will result from decision making processes that are fast and concise and range from the political down to the tactical level.

And, more than ever, the Alliance should rely on its main strength, its Command Structure.

It should be adapted to become a backbone, better linking the NATO Command and Force structures, as well as Allies' and Partners' forces as part of a Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance - C4ISR- architecture.

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This brings me to my second point about our current challenges and efforts to implement such adaptation.

We must first understand the new reality of a complex and interconnected world, which compels Nations and the Alliance to address Command and Control in the near term.

From my perspective, we need to:

- better anticipate, if we want to avoid escalating into conflicts.
- be more responsive and adaptable, if we want to contain the escalation and expansion of such crises and;
- be more resilient, so we can recover from any setback or strategic surprises and respond.

Let me quickly expand on the aspects of anticipation and responsiveness.

In terms of anticipation, against hybrid strategies, recent events, as in Ukraine, have shown the need for being able to detect the early signs of any crisis and to connect what appear to be unrelated events.

Recent crises also suggested permanent monitoring would be required to establish normal patterns and, therefore, be able to detect any variations in the strategic landscape.

Questions were also raised about our level of cultural awareness and we suggested possible solutions, such as developing teams with the required expertise to understand the psychology, behaviour, and doctrine of potential adversaries.

In a nutshell, these events shed light on the need for more proactive, comprehensive and continuous strategic awareness of our external environment.

So how can we build such a comprehensive and continuous strategic awareness?

It should start with the collection process, which needs to include open source information, social media, cyber awareness, knowledge of our own forces capacity/capabilities and limitations or our societies resilience.

Our challenge is to integrate these assets and sensors with the processes for collaboration, coordination, and sharing of data in order to effectively fuse the information and to make sense of it.

In addition to this necessary strategic awareness at all levels, we must ensure that Joint ISR is an integral part of the C2 framework.

Joint ISR is feeding the decision making process and is not a stand-alone process for pure data collection and analysis.

In reality, we will not have one specific architecture for Joint ISR and another for decision making. Command and Control must encompass both.

Increasing the linkage was the goal of combining this month's CWIX experiment with the ISR exercise Unified Vision 16. And there is still a lot of work to do!

> And I would like to stress that to achieve a strong link between building a strategic awareness and the decision making process is key to responsiveness, especially at the political level.

For the North Atlantic Council to be in a position to decide, potential threats or signs of crisis need to be detected, clearly identified and responsibilities attributed; with risks and possible options assessed.

A significant future challenge within the Alliance lies therefore in its Command and Control capacity to bridge the gap of not only collecting information and ensuring political consultation, but to also enable decision making in a complex environment, in a timely manner.

Our Command and Control framework must ensure the best response from the Council, by addressing the highly interconnected aspects of all crises.

Indeed, a crisis in Syria can have consequences in the Black or Baltic Seas and vice versa.

The interrelated nature of crises in the East and South, or in the High North leads us to avoid regionalization as well as any separation of the Command structure, even if, in some cases, we may have to draw on a more regional focus.

So, the real challenge for NATO's Command and Control is less about the creation of new responsive structures, but better use of existing ones.

Let me give you some examples.

- From a **joint** perspective, among the responses to be given in the coming years is the role of our two Joint Forces Commands and of our Single Service Commands in an Article 5 or non-Article 5 operation.
- From a military domain perspective, starting with **land**, we should clearly define the role of the Multinational Corps North East, Division South East and LANDCOM.

- In the **maritime** domain, we have to create the flexibility to aggregate additional naval forces on short notice in the early stages of a potential crisis.

  We also have to address the challenges in the High North and the security of our sea lines of communication, which could be needed for the deployment of additional forces, for example within the US European Reassurance Initiative.
- From an **Air** Domain perspective, we have to define more clearly how we shift the C2 framework from an Air Policing to an Air Defence mission.

  In addition, what role space should play within a future C2 framework?
- In the **cyber** domain, which is likely to be labelled as such in Warsaw, we have to look to the operationalization of this domain, especially in terms of Command and Control.

We also have to look more closely to the connections between NATO and national forces being deployed in the same place.

Indeed, to respond quickly to the new challenges posed by hybrid scenarios and multiple crises occurring simultaneously, we most likely will see a mixture of deployed forces under different commands.

How the C2 architectures can enable seamless transitions and transfer of authority? These architectures should also consider the integration and coordination with our Partners.

These are from my point of view, the most urgent questions to be answered which directly impact our C2 structures in the short-term.

For that purpose, ACT expects the NATO Military Authorities to be tasked to conduct a functional analysis of Command and Control – I must say not only limited to the NATO Command Structure - after the Warsaw Summit.

Such a functional analysis would have the advantage of addressing some of the most pressing operational issues facing the Alliance.

For instance, against anti-access and area denial (A2/AD) environments implemented by some state actors.

They indeed take advantage of sophisticated and integrated multi-sensor systems to limit our ability to deploy in a rapid and effective manner.

Instead of thinking about massing forces and accepting attrition to fight against these systems, an innovative command and control structure could enable a tailored set of forces to fulfil their main missions, provided we achieve higher levels of integration by using multiple sensors and effectors that complement each other.

Such C2 architecture would interconnect and synchronize all sensors, assets and weapons in order to act and make well-informed and timely decisions, as to engage the right combination of assets at the right time.

The functional analysis may also deliver possible solutions to keep our forces' initiatives against non-state actors, especially terrorist groups.

These groups are today very flexible, due to a very flat organization, characterized by a significant decentralization to plan and conduct their operations.

Their unpredictability offers us limited windows of opportunity to make timely decisions and deter their actions.

To counter this, we need better flexibility in our decision making processes; by providing an architecture that allows options for a stronger decentralization of operational control of forces when necessary, thereby allowing the Alliance to quickly exploit windows of opportunity.

These are only two operational examples, but they show how we should look beyond the adaptation of our current C2 structures to better anticipate, respond and be resilient.

All the efforts in the C2 area must be connected in a coherent manner allowing for innovative C2 architectures, able to address the interrelation of crises, the complexity of our security environment and our superiority over our adversaries.

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This brings to my third point regarding the key principles of innovative Command and Control.

> First of all, I believe that we need to **change our mind-set** and rethink C2 from the political to the tactical level and from the NATO Command Structure to the Nations' command structures.

As we talk about closer relationships between NATO and all its partners, especially the EU, this new C2 architecture should facilitate the distribution and presentation of appropriate information to the different levels of the chain of command.

Such architecture would also allow Nations and partners to integrate their forces seamlessly into a network of capabilities.

It means seamless connections between all platforms, sensors, and units deployed in an area of operation.

Even if it seems complex, the success of our future operations will really depend on our ability to build a community upon a common standard, such as the Federated Mission Networking.

This would be a mind-set shift as the aim would no longer be to link different assets directly, but through a network, a cloud or federation of clouds, instead.

To illustrate what we should achieve, we should create an architecture in which older platforms, which I would represent by a very old computer, would be able to exchange information with brand new assets, like a smart phone.

Today, this smartphone may not be compatible with the old computer, but the two devices can be linked through the Internet and exchange data.

Our C2 architectures, through a federated community should be able to do the same.

This would solve some of the interoperability gaps resulting from Allies and Partners advancing at different paces, in terms of capability development.

A second principle is the **preservation of a human control in the C2 architectures** when and where needed.

This will become an increasing challenge as productions of the C2 cycles will generate more data that what can be handled by individuals.

The new C2 architectures will have to include more artificial intelligence, to help decision makers and autonomous systems.

But this should not replace human control and we will have to integrate a robust assessment of all Human capital aspects in our studies and analyses.

A third principle is the **consideration of all cyber aspects from the C2 project genesis**.

This would be a 180° degree approach from what we have done until now. We would not build C2 structures and then look at their protection against cyber threats or vulnerabilities. Instead, cyber requirements will be taken into consideration in the design of the future clouds or federation of clouds.

A fourth principle is that we should preserve the **coherence of all the initiatives** taken forward in the area of Command and Control.

And to do that there is a **need for a clear vision**.

As already discussed in my two initial points, ACT's ambitious vision for Command and Control is a continuous, agile, resilient and force multiplying capability to unite NATO, Nations and Partners.

This would achieve synchronized, comprehensive and optimized collective effects, cost efficiencies and "zero day" mission readiness, by combining a well-trained force with simplified structures, distributed processes and cutting-edge technology.

Let me describe what that means tangibly for the four interconnected phases of Command and Control: collecting, decision-making, effecting, and connecting.

- During the collecting phase, rapid advances in technology can help deal with “big data” challenges to enhance the situational awareness, minimizing strategic surprises.

A seamless connection of willing NATO Nations and Partners would also enable persistent and accurate detection, tracking, monitoring, and sharing of threat information across all domains.

Also, as part of this collection phase, we need the capability to detect anomalies within big data flows, map 3D urban environments, including friendly, neutral, and enemy tracks in real time.

- For the decision-making and sense making phase, speed will be of essence, as technological advances continue to shorten the Command and Control cycles.

Emerging technologies like predictive analytics, predictive search, artificial intelligence, computer-aided decision-making, and human cognition enhancers provide unprecedented opportunities in this area. These technologies should also enable more subsidiarity in the chain of command.

- The effecting phase of Command and Control has always seen rapid technological advances, like integration of conventional, irregular, and cyber warfare to achieve greater effects by connecting smaller initiatives.

Continued advances in cyberspace, autonomous systems, strategic communication, lasers, 3D printing and bio-inspired capabilities will affect the Alliance and its posture in the future.

Even though NATO itself will not necessarily “own” these capabilities, individual member Nations and partners might.

- The final piece of the Command and Control puzzle is connecting, linking, and harmonizing the other three phases.

This will allow us to connect actors and platforms in a globally enabled network environment, providing an agile, secure, and resilient “plug-and-play” infrastructure.

It is the connections between and integration of all related parts that are critical to collective success.

NATO will need to establish agile, resilient, and secure networks to maintain continuous operations in a possibly degraded cyber environment.

We will also need to take flexible system designs and enhanced autonomy into account. Future capabilities must operate across multiple domains, as military operations employ manned and unmanned capabilities.

Creating this architecture is ambitious, both operationally and technically, but will be cost-effective over the long-term.

The fifth and last principle for an innovative command and control is it **must be connected to all the other transformational efforts** of NATO's military capacity, from education and training to capability and force development.

The new architectures will affect the way we approach our Partnerships in a more mutually beneficial approach.

These architectures will require an effort in the education of our human capital, especially our leaders knowing how to leverage all the possibilities offered by these architectures and the interrelationships between humans, assets, weapons and platforms.

I have an important message to get through here.

We should not fear the consequences of change, but understand them as opportunities of innovation.

This innovation could not only lead to new ways of ensuring command and control, but could impact the overall political, military and institutional adaptation of the Alliance in the mid-term. Over the long-term, it could even change the nature of future warfare in its entirety.

Such innovation will be implemented if we are able to leverage all frameworks driven by our Nations, industry, academia, think-tanks, and Centres of Excellence.

This is why today's venue is so important, because it can be a building block in the quest for innovation.

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To close, I will encourage candid, productive and innovative discussions during this seminar.

Take stock of all the different perspectives, especially from the civilian and Industry world, which also faces similar issues.

I look forward to reading the conference's after action report and I stand ready to answer your questions.

Thank you for your attention.