

The Nordics and the Strategic Shift



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By Dr. Robbin F. Laird

The Russian seizure of Crimea and other aspects of its global activism have had a significant effect on the Nordics.

The Nordics are working more closely together to deal with the strategic shift. And they are adding new capabilities to shape a more effective approach to crisis management and deterrence in depth.

And the Norwegians, Swedes and Finns are clearly committed to a total defense concept whereby society is being mobilized to support defense in depth as well.

This special report based on recent interviews in Denmark, Norway and Finland provide some insights into how the Nordics are addressing the strategic shift and provides a baseline for further work.

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INTRODUCTION

It is clear that the kinds of peer competitors we are dealing with are engaged in broad political conflict with the liberal democracies. They are crafting a range of tools to disrupt and to influence domestic policies in the liberal democracies.

It is also clear that the presence of Chinese and Russian economic interests in the liberal democracies provide a much broader opportunity than in the days of the Cold War to both establish and expand influence within our societies.

And the evolving tools sets associated with a core activity like information war or cyber conflict are designed not only to help competitors now but will be used in enhanced ways in the shape of any future high intensity conflict. They are already attacking our civil societies.

We are not facing an abstract future warfare scenario; we are already engaged in information war and cyber operations directed against the liberal democracies, and they certainly designed as well to undercut the cohesion of the liberal democracies to work against the interests of the illiberal powers.

Dealing with peer competitors was not just about preparing for an abstract future high intensity conflict but about dealing with various elements of that force already engaged against us.

Contested operations means that we need to significantly rework how information is used and how command and control is executed. This transition will be a major challenge and one, which forms a bedrock of further transformation.

How should we organize our force in the face of adversaries who will use a wide range of tools to disrupt it?

How will we deal with adversaries relying on significant strike assets to make fixed installations inoperable?

How can we deal with the mass at least one peer competitor is generating to try to both overwhelm us and to create the impression of inevitability of victory?

In other words, force structure construction is both about having a more effective and dominant force and persuading our publics and leaders in fact that we are capable of victory in a direct conflict.

How do we more effectively master new technologies to reinforce our core capabilities in dealing with peer competitors?

The strategic shift facing the liberal democracies and the return of Russia has had a significant effect on the Nordics.

Two Nordic states are members of NATO; and two are not.

But in spite of this, their level of strategic cooperation has deepened in the wake of the Crimean takeover and Russian activism globally.

The Kola Peninsula has on it the highest concentration of military power on the face of the planet and when combined with Putinism, this has gotten the Nordics attention.

And exercises like Zapad 2017 simply enhance their focus of attention.

As Mathieu Boulègue wrote after the completion of the exercise:

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At a time of tension with the West, the Kremlin used the Zapad drills to convey several messages.

On the one hand, Russia seeks to control the escalation dominance during a conventional conflict with NATO.

It did not rehearse a total war scenario but rather showed it is ready to raise the cost of deterrence in order to win while also imposing a tremendous cost on an invading army. Veshnoriya did not stand a chance.

Furthermore, intimidating NATO while bolstering Russia's sense of military power on the home front allows Moscow to use supposedly increased insecurity in the West and the shared neighborhood as a credible deterrent.

Deterrence is one thing, but if you can prove to your enemy that their incursion will result in a catastrophe, you create insecurity among your opponents – and your neighbors.

<https://www.chathamhouse.org/expert/comment/five-things-know-about-zapad-2017-military-exercise>

This Chatham researcher went on to assert that “Zapad showed that any army seeking to burst Russia's A2/AD bubble would bear a high enough cost as to be effectively beaten.”

Clearly, that is a conclusion the Russians hope we will reach; but it is not one which is to be assumed.

Indeed, it will be hotly contested; that is the whole point of whether or not the Russian actions really are even in the Russian interest.

The entire restructuring of North Atlantic defense, in part under the influence of a fifth-generation warfare approach, is to take away that assumption and put in its place a credible escalation response force.

For the Russians it is about intimidation; for the West it is about showing them once again that such an approach really is not in your long-term interest.

The strategic shift to confronting and dealing with peer competitors is built around shaping an effective crisis management approach and escalation management.

The recent strikes in Syria are an example, but it is just one on a continuum of crisis management events and responses to be managed.

It is quite striking to see how focused the Nordics are on trying to think through what crisis management in their region entails.

They are doing that on a national level as well on a collective one.

As one Norwegian strategic analyst put it during my recent visit to Norway:

“We have to prepare ourselves to handle a crisis situation on our own (Norway) but reaching out to NATO and to our NORDEFCO partners,

“We think that it is more and more likely that Sweden and Finland would be fully involved in such a situation.

“I think our western partners realize this, so the American footprint in Norway could also be used to reinforce the Baltic states.

“It might be difficult to penetrate the area in certain situations.

“Having access to Norwegians territory, and perhaps for a door in Sweden and Finland makes a big difference.

The Nordics are working more closely together to deal with the strategic shift.

And the Danes and Norwegians are adding new capabilities to shape a more effective approach to crisis management and deterrence in depth.

And the Norwegians, Swedes and Finns are clearly committed to a total defense concept whereby society is being mobilized to support defense in depth as well.

This special report based on recent interviews in Denmark, Norway and Finland provide some insights into how the Nordics are addressing the strategic shift and provides a baseline for further work.

OVERVIEW

Crisis Management and the Strategic Shift

The strategic shift is a crucial one for the liberal democracies.

That strategic shift is from a primary focus on counter insurgency and stability operations to operating in a contested environment with high tempo and high intensity combat systems as a primary tool set.

It is about managing conflict with peer-to-peer competitors.

On the one hand, the military capabilities are being reshaped to operate in such an environment, and there is a clear opportunity to leverage new platforms and systems to shape a military structure more aligned with the new strategic environment.

On the other hand, the civilian side of the equation needs even more significant change to get into the world of crisis management where hybrid war, multi-domain conflict and modern combat tools are used.

While preparing for large-scale conflict is an important metric, and even more important one is to reshape the capabilities of the liberal democracies to understand, prepare for, and learn how to use military tools most appropriate to conflict management.

This means putting the force packages together which can gain an advantage, but also learning how to terminate conflict.

Already we have seen two examples of crisis management using high intensity conflict forces under the Trump Administration, and both involved using military tools to degrade Syrian chemical weapons capabilities. The military strikes were the visible side of the effort; the back channel discussions with the allies and the Russians were the less visible one.

But crisis management of this sort is going to become the new normal, and rather than forming yet another committee of experts to lecture the Trump Administration on what Inside the Beltway thinks is proper behavior, it is time for some PhD brain power to be generated to deal with how to understand the new combat systems and how best to master these systems from a political military point of view to deliver significantly enhanced crisis management capabilities.

Recently, Paul Bracken provided some PhD brainpower on the subject and he highlighted a key aspect of what I am calling the strategic shift to crisis management for 21st century peer-to-peer conflicts.

The key point for today is that there are many levels of intensity above counterinsurgency and counter terrorism, yet well short of total war. In terms of escalation intensity, this is about one-third up the escalation ladder.

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Here, there are issues of war termination, disengagement, maneuvering for advantage, signaling, — and yes, further escalation — in a war that is quite limited compared to World War II, but far above the intensity of combat in Iraq and Afghanistan.....

A particular area of focus should be exemplary attacks.

Examples include select attack of U.S. ships, Chinese or Russian bases, and command and control.

These are above crisis management as it is usually conceived in the West.

But they are well below total war.

Each side had better think through the dynamics of scenarios in this space.

Deep strike for exemplary attacks, precise targeting, option packages for limited war, and command and control in a degraded environment need to be thought through beforehand.

The Russians have done this, with their escalate to deescalate strategy.

I recently played a war game where Russian exemplary attacks were a turning point, and they were used quite effectively to terminate a conflict on favorable terms.

In East Asia, exemplary attacks are also important as the ability to track US ships increases.

Great power rivalry has returned.

A wider range of possibilities has opened up.

But binary thinking — that strategy is either low intensity or all-out war — has not.

<https://sldinfo.com/2018/04/one-third-up-the-escalation-ladder/>

I want to focus on the following Bracken observation: These are above crisis management as it is usually conceived in the West.

The point can be put bluntly — we need to rethink crisis management rather than simply thinking the strategic shift is from fighting terrorists to preparing for World War III and musing on how we will lose.

And that is a key area of work facing civilian strategists, but only if they understand that the new military capabilities open up opportunities as well for something more effective than simply doing nothing or very little or launching major combat operations.

Figuring out how to leverage the new capabilities and to build upon these in shaping scalable and agile force capabilities is part of what civilians need to learn with regard to how to think about tools for crisis management.

The other part is to think through a realistic assessment of how to work with authoritarian leaders who are our adversaries in the midst of a crisis so that conflict termination can be achieved but without following the Chamberlain model.

At the heart of this is a fundamental change to C2, both for the military and for the civilian leadership which is supposed to provide strategic guidance.

But simply identifying a geographical location to send the military and then failing to find a time when the return ticket can be issued is not effective leadership.

My recent visits with the Nordics highlight a region thinking through these kinds of issues.

On the one hand, the enhanced military collaboration among the Nordics seen in things like Cross Border training or the coming Trident Juncture 2018 exercise in Norway is clearly about working through how to generate the combat power, which can be tailored to a crisis.

On the other hand, the Nordics within the framework of NORDEFCO, or the working relationship with the United States as seen in the new trilateral agreement signed by the US, Sweden and Finland are examples of working through the civilian side of crisis management.

It is a work in progress and not one where the United States is clearly in the lead. Given that crises are regional, our allies have important contributions in shaping a way ahead to manage crises in their region as well.

And the Nordics are clearly doing this.

We need to rework our military C2; and even more importantly, put a rest to our civilian strategists simply campaigning for a place in the next Administration.

We do need to focus on how we can turn the Russian and Chinese anti-access and area denial strategies into a 21st century version of the Maginot Line. And we are already building systems and capabilities that can do so, but not without a transformation focus and effort.

But we need to learn to not self-deter and to explore ways to push the leaders of the non-liberal powers hard and to also understand how to engage with them as well.

This is neither the world of the High School Musical, which the globalization folks seem to champion; nor the harsh world of zero sum conflict, which hardliners to the right seem to live in.

It is a world where conflict and crisis management are the new normal between and among peer competitors.

The Strategic Shift and the Norwegian Approach

Last year, I visited Norway and had a chance to discuss with senior officials their thinking about the way ahead for Norway and North Atlantic defense.

The Norwegians are investing significantly in new systems, but just as importantly are re-focused on their total defense concept to ensure the capability to provide for defense in depth for Norway.

This means working effectively with allies in the region, but also to being able to integrate allied forces, which come to Norway to work in exercises as well, would come in times of crisis as well.

During my visit this April, I had a chance to visit air bases in the north of Norway as well as to continue my discussions with senior Norwegian officials. One of those officials was Keith Eikenes, Director for Security Policy and Operations in the Norwegian Minister of Defence.

During our conversation last year, we focused on the changing strategic environment facing Norway and we picked up on our earlier discussion to relate that discussion to the preparation by Norway of its next defense white paper.

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The Norwegians are half way through their current long term defense plan and are preparing the next one which will cover the period from 2020 through 2023.

Question: How would you characterize the current plan as well as the focus on the next one?

Keith Eikenes: “The current long-term plan has a strong emphasis on regenerating combat power and on sustainability and readiness.

“It is also about regenerating our ability to provide for and take part in collective defense in our region within the NATO framework.

“The last whitepaper was written in a context where Crimea had just happened, but was relatively new. In other words, it was written in a context where we knew that there were fundamental changes underway and there was a more serious security situation that we were facing.

“But we did not really understand then, for obvious reasons, the true nature of what the new security situation was. We have a clearer view now and that will inform the next long-term plan.

“A new normal that has been created now, and the fact that that it is a new normal is an important finding in itself, and we hope that we will return to better relations and more stability, but we must prepare for the fact that we will be in a situation that will be unstable and characterized by high tension for a significant period.”

Question: It is clear from my discussions among the Nordic powers, that there is a clear focus on the need to have more effective crisis management capabilities to deal with the dynamics in the region.

How do you view this aspect?

Keith Eikenes: “It is clearly a crucial one. One of the key tenets of this new security situation, the new normal, is the speed of what will be happening.

“And we will need capabilities to understand and respond in a timely manner as well.

“This will require civilian policymakers and decision makers to address how to be effective in the new situation as well.

Question: This poses a significant integration challenge for Norway in facing crises as well.

How do you view this challenge?

Keith Eikenes: “Working with allies is crucial for Norway and working the integration piece is a key part of the effort. We have to be able to plug into something larger than ourselves for effective deterrence.

“Having a security architecture for the region, with all of the key components – military and civilian — working seamlessly together, is an extremely important policy objective for Norway.

“We are bordering the largest concentration of non-Western military power in the world in terms of the Kola Peninsula.

“For deterrence to be effective, we need to have regular allied presence in our area as the new normal as well.

“And part of the reason why we are strengthening our dialogue and increasing their incorporation with our Nordic partners, Sweden and Finland, is because we cannot view the challenges of the Baltic states as being isolated from the challenges in the High North or the North Atlantic.

“I think any situation that occurs in the High North will have effects in the Baltic Sea, and vice versa, so any situation in the Baltic Sea that increases tensions will also be felt and have an effect in our areas.

“That’s why we need to have a very close dialogue with our Nordic and Baltic partners on what’s going on in the Baltic Sea as well.”

Question: In light of the evolving perspective in Norway, what are some of the key questions you are addressing as you prepare the next long-term plan?

Keith Eikenes: “The key one clearly is what is the nature of deterrence in facing the new normal?

“What type of assets, forces, structures, and cooperation with allies do we need in order to have effective deterrence in the future?

“We must never lose sight of the fact that what we are trying to do is actually avoid a conflict. Getting the deterrence piece will be extremely important to shaping a way ahead.”

Foundation Principles and Modernization of the Finnish Armed Forces: The Perspective of the Permanent Secretary of Defense of Finland

During my visit to Helsinki in February 2018, I had a chance to discuss the approach and modernization of Finnish Defense with Jukka Juusti, Permanent Secretary in the Ministry of Defence.

The Permanent Secretary manages and supervises the activities of the Ministry of Defence together with the Minister.

Jukka Matti Juusti (born in 1955) has a long career in the defense administration, covering a variety of tasks and responsibilities also on international level.

He was appointed Director General of the Resource Policy Department at the Ministry of Defence in 2012.

Prior to that, Jukka Juusti has acted as Deputy Chief of Staff (Logistics and Armaments), Chief Engineer and Chief of Armaments in the Defence Forces; Director of Armaments in the European Defence Agency (EDA); and he has also served at the Mission of Finland to Nato and has held the National Armaments Director Representative position.

Director General Juusti was graduated from the Helsinki University of Technology in 1979. He also completed the MDA degree (Master in Defence Administration) in the Cranfield Institute of Technology (UK) in 1989.

We discussed a number of the core principles of Finnish defense and their evolution in shaping a way ahead.

We started by talking about the core role, which conscription and mobilization plays in Finland.

As the liberal democracies begin to deal more seriously with the challenges of the shift from the counter-insurgency wars to higher tempo operations and national defense, they can have much to learn from Finland.

Finland is clearly focused on mobilization and security of supply as key foundations to national defense.

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And as military transformation unfolds, these core capabilities become increasingly important to deal with the core challenge identified in the Finnish defense policy document published last year:

“The threshold for the use of military force is lower and the time to respond shorter.”

According to Juusti: “If you look at the map of Finland, it’s not an island but in practice we are an island.

“The vast majority of our trade is coming by ships.

“In that sense we are an island and this means that we have taken the security of supply always very seriously.

“It is the nature of Finland that we believe that we have to be able to take care of some of the most vital things by ourselves.

“That’s the reason for example that security of supply is so important for us.



Figure 1 Jukka Juusti, Permanent Secretary, Finnish Ministry of Defence

“For example, with regard to ammunition and those kinds of supplies, we have a lot of stocks here in Finland.

“Of course, with regard to some of the equipment we never can have enough in our own resources.

“The security of supply has got another respect also, which is the civilian side of the aspect.

“We have a security of supply agency, which is extremely important for us and it takes care of the civilian part of the security of supply.

“For example, electricity and telecommunications are vital for the survival of the nation, and one needs have to have the security of supply in those areas. Security of supply agency collects the money in such a way that they are financially safeguarded.

“Whenever we buy some gasoline, they collect some part of that purchase for the security of supply funds.

“It is organized in that way.

“We are continuously investing, in effect, in security of supply for the civilian sector.”

“And we think broadly about civilian defense as part of our mobilization strategy.

“That’s the reason we were still building shelters for the civilians, both to maintain infrastructure in times of crisis and for civilian protection as well.”

Question: And with modern societies, another key aspect clearly is a key element as well.

How does Finland approach this challenge?

Juusti: That is a very good point.

“Securing the data is one of the areas our national security of supply agency is focused upon.

“They have founded an organization, which is taking care of the secure data.

“Key national data must be secured.

“A key challenge is making sure that the data is not corrupted.

“One has to secure the data make certain data that you are using is valid and that the conclusions you are drawing from it reliable as well.

Question: And there can be a clear commercial impact from your approach as security of data is clearly both of concern for the commercial and military side.

Has that been the case in Finland?

Juusti: It has.

“Let me show you a data message terminal that I was part of developing some time ago.

“This encryption technology is dated know but the core point is that the technology was dual use and therefore useful for Nokia in their commercial endeavors as well as serving a core military function as well.

“But clearly we have shifted our focus to using the dual-use technologies and applying the civilian technologies and taking the best part of those technologies and applying them to the military side.

(And he literally brought the machine off of the shelf and showed it to me and as with individuals who enjoy working technology, got that glow in his eye talking about the development of the machine. Having worked with Secretary Wynne, I got used to seeing the technology light up in the eyes of a senior defense official and recognized quickly that Juusti was part of that unusual community of technologists who migrate to become senior policy makers.)

Question: Clearly, there is always a reactive enemy and technology is dynamic which means that you must adjust your system as we all do to technological and scientific advances.

What are some of those challenges facing us that you see?

Juusti: We have been talking about data and we could be discussing as well artificial intelligence and other key aspects of change.

“But underlying this is the rapid change in machine technology and that change will be driven significantly by advances in quantum computing.

“Quantum technology and quantum computing will evolve in a direction that protection of data through encryption will be increasingly challenging.

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“The challenge will be to generate relevant data, protect it, and then keep ensuring its transmission in a world in which data encryption will have to be dynamic, not static.

“We will have to find ways when working with others to ensure that we can keep our data reliable and secure.

“And with the challenges posed by the changes in capabilities of AI and quantum computing this will be challenging indeed.”

“Another challenge that I see that we will have to deal with is posed by swarming drones.

“How to process the data of the threat from a significantly enhanced number of more capable incoming threats.

“For our defense of territory, we have many artillery pieces, but in the age of swarming drones we will have to have a significantly different capability to defend the territory.”

We focused on the dynamics of change associated with not just technology but learning by adversaries and the need for the forces of the liberal democracies to be able to ramp up their learning curve with regard to evolving threats.

Our discussion reminded me of discussions in Australia where the RAAF has focused on the importance of gaining what they call “transient software advantages” over adversaries, recognizing that there are no plateaus in technological dominance but a continuous learning cycles for organizations to be able to prevail.

In short, the Finns have focused on the central importance of mobilization within which security of supply is a crucial element.

But in modern conditions, this simply does not mean static stockpiling of ammunition and equipment but a dynamic evaluation of what is necessary to sustain military capabilities through projected crises periods.

And as Finland reworks its regional networks, and shapes a broader perimeter of defense, how is the security of supply approach shaped and implemented?

As Finland adds 21st century combat systems, this will be part of the challenge facing the Finns, but with a solid foundation in place in terms of mobilization and distributed operations; their approach is quite symmetrical with the evolution of modern military technology.

The Standup of the Centre of Excellence for Countering Hybrid Threats: Shaping a Way Ahead

With the all the focus on the Russian intervention in the last U.S. presidential elections, it is useful to take a broader view of the challenge focused by the new technologies and approaches.

During my recent visit to Helsinki, a visit the European Centre of Excellence for Countering Hybrid Threats provided such an overview.

Although the term is new, the efforts at hybrid influencing are not.

The means have changed, the liberal democracies are evolving and the challenges have mutated.

The work of the Centre is at the vortex of a key vector for liberal democracies, namely the evolution of these democracies under the influence of a 21st century information society and with non-liberal actors seeking to use the new instruments to influence the evolution of the democratic societies.

The underlying dynamic is change within the liberal democracies themselves.

Conflict has deepened, and the internet and associated means of communication have enhanced conflict rather than consensus within the liberal democracies.

President Trump has spoken frequently of “fake news” and although his critics condemn this phrase, we all know it exists and is a core challenge facing the liberal democracies.

It is the change associated with the new means of communication along with the evolution of a more differentiate and disaggregated society which provides the entry point for adversaries to conduct hybrid warfare in the information domain.

In other words, it is not about warfare per se; it is about the evolution of liberal democracies and the expanded tool sets, which non-liberal actors have to seek to influence the culture, actions and decisions of the liberal democracies.

This has been predictable.

When I participated in a Spanish government sponsored forum on the information society in 1996 held in Madrid, I highlighted what I saw as a number of challenges along with the promise of a new information society.

I highlighted what I saw as three major challenges and one of those was as follows:

“The risk that special interest groups in the information elite can gain inordinate influence and even undermine democracy by competing with elected representatives.”

This certainly has happened and now ill liberal powers are one of those interest groups.

Both Communist China and revanchist Russia are part of Western economies and societies, unlike the Soviet Union which became over time more of onlooker to the West than an integral internal player, although the initial response to the Russian revolution certainly brought supporters of the Soviet Union in key positions to influence public parties and opinion.

But now as investors in the West, with legitimate interests and representatives but at the same time clearly committed to information war both the Russians and Chinese are spearheading significant change in the hybrid war aspect of information society.

And a key challenge which the liberal democracies face is clearly that we are on the defensive; it is difficult for us to counter offensive hybrid influencing efforts, although that will almost certainly be generated in the years ahead.

I had a chance to discuss the challenges and the focus of the new Centre with Päivi Tampere, Head of Communications for the Centre, and with Juha Mustonen, Director of International Relations.

The Centre is based on a 21st century model whereby a small staff operates a focal point to organize working groups, activities and networks among the member governments and flows through that activity to publications and white papers for the working groups.

Second Line of Defense

As Tampere put it: “The approach has been to establish in Helsinki to have a rather small secretariat whose role is to coordinate and ask the right questions, and organize the work.

“We have 13 member states currently. EU member states or NATO allies can be members of our Centre.”

“We have established three core networks to address three key areas of interest.

“The first is hybrid-influencing led by UK;



Figure 2 This photo was taken at the time of the event inaugurating the Centre. (From left): President of the Republic of Finland Mr Sauli Niinistö, The NATO Secretary General Mr Jens Stoltenberg, the High Representative of the European Union for Foreign Affairs and Security Policy/Vice-President of the European Commission Ms Federica Mogherini and Prime Minister of Finland Mr Juha Sipilä. Credit: European Centre of Excellence for Countering Hybrid Threats

“The second community of interest headed by a Finn which is addressing “vulnerabilities and resiliencies.”

“And we are looking at a broad set of issues, such as the ability of adversaries to buy property next to Western military bases, issues such as legal resilience, maritime security, energy questions and a wide variety of activities which allow adversaries to more effectively compete in hybrid influencing.”

“The third COI called Strategy and Defense is led by Germany.

“In each network, we have experts who are working the challenges practically and we are tapping these networks to share best practices what has worked and what hasn’t worked in countering hybrid threats.

“The Centre also organizes targeted trainings and exercises to practitioners.

"All the activities aim at building participating states' capacity to counter hybrid threats.

"The aim of the Centre's research pool is to share insight to hybrid threats and make our public outreach publications to improve awareness of the hybrid challenge."

With Juha Mustonen, who came from the Finnish Ministry of Foreign Affairs to his current position, we discussed the challenges and the way ahead for the Centre.

"Influencing has always been a continuum first with peaceful means and then if needed with military means.

"Blurring the line between peace time influencing and war time influencing on a target country is at core of the hybrid threats challenge.

"A state can even cross the threshold of warfare but if it does not cross the threshold of attribution, there will be no military response at least if action is not attributed to that particular state.

"Indeed, the detection and attribution issue is a key one in shaping a response to hybrid threat."

Laird: And with the kind of non-liberal states we are talking about, and with their expanded presence in our societies, they gain significant understanding and influence within our societies so they are working within our systems almost like interest groups, but with a focus on information war as well.

Mustonen: Adversaries can amplify vulnerabilities by buying land, doing investments, making these kinds of economic interdependencies.

"They can be in dialogue with our citizens or groups of our citizens, for example, to fostering anti-immigrant sentiments and exploiting them to have greater access to certain groups inside the European societies.

"For example, the narratives of some European far right groupings have become quite close to some adversaries' narratives."

Question: But your focus is not only on the use of domestic influence but mixing this with kinetic power as well to shape Western positions and opinion as well, isn't it?

Mustonen: Adversaries are using many instruments of power. One may identify a demonstration affect from the limited use of military power and then by demonstrating our vulnerabilities a trial of a psychological affect within Western societies to shape policies more favorable to their interests.

"If you are using many instruments of power, below the threshold of warfare, their synergetic effect can cause your bigger gain in your target societies, and this is the dark side of comprehensive approach."

"The challenge is to understand the thresholds of influence and the approaches.

"What is legitimate and what is not?

"And how do we counter punch against the use of hybrid influencing by Non-Western adversaries?

"How can we prevent our adversaries from exploiting democratic fractures and vulnerabilities, to enhance their own power positions?

"How do we do so without losing our credibility as governments in front of our own people?"

Laird: A key opportunity for the center is to shape a narrative and core questions which Western societies need to address, especially with all the conflict within our societies over fake news and the like.

Second Line of Defense

Mustonen: Shaping a credible narrative and framing the right questions are a core challenge but one, which the Centre will hope to achieve in the period ahead.

“We are putting these issues in front of our participants and aim at improving our understanding of hybrid threats and the ways we can comprehensively response to the threats.”

Facing Core Threats in the Nordic Region: Reverse Engineering the Russian A2/D2 Threat to Denmark

During my past visits to Denmark, I have had the opportunity to talk with the current head of the Danish Royal Military Academy, Rear Admiral Nils Wang.

During past discussions, we focused on the evolving Nordic Defense Zone from the Arctic to the Baltics.

With the Russian actions in Crimea and the Middle East, the Russians are demonstrating a clear military activism in support of Russian national objectives.

The Danish government has just recently released their defense agreement proposal to parliament, and this agreement highlights the need for increased Danish expenditures and focus on defense, in light of regional developments.

During my visit in October 2017 to Denmark, Admiral Wang focused on what he believes is the nature of the Russian military threat to Denmark as well as the importance of integrated air-naval modernization to address what he called a “reverse engineering” approach to deterring the Russian A2/AD threat throughout one might call the Nordic Zone of Security.

He discussed a briefing he gave last month to the Parliament’s Defence Committee which addressed the question of whether investing in the Danish submarine force was a priority.

According to an article written by Anders Puck Nielsen and published September 21, 2017:

The Defense Commission of the Danish parliament yesterday conducted a hearing on the question of whether Denmark should reintroduce submarines and sea mines in the naval arsenal.

Both were phased out in 2005 but especially the importance of submarines has been a question of intense debate ever since.

Rear Admiral Nils Wang, commandant of the Danish Defence College, made some headlines in local newspapers with a statement from the hearing that an investment in submarines would be “a flagrant waste of money”.

Wang’s argument was that a military conflict in the Baltic area would encompass a Russian invasion of the Baltic states and a subsequent Russian defensive posture in the Eastern part of the Baltic basin.

Denmark would thus find itself in a position where the navy must play the offensive role in a mission to escort troops to the Baltic states under the support of allied forces counting several carrier strike groups located in the North Sea.

In this scenario Wang primarily sees a need for area air defense, land attack strike missiles, a range of anti-submarine warfare (ASW) assets, and mine counter measures (MCM).

However, Wang does not see a role for submarines in this scenario as, supposedly, they do not give any particular advantage in ASW in littoral areas.

<https://romeosquared.eu/2017/09/21/danish-admiral-says-submarines-are-flagrant-waste-of-money/>

In our discussion, Rear Admiral Wang contrasted how he saw the Soviet-Warsaw Pact threat as opposed to the contemporary and evolving Russian threat.

The Soviet-Warsaw threat was one of invasion and occupation and then using Nordic territory to fight U.S. and allied forces in the North Atlantic.

In many ways, this would have been a repeat of how the Nazis seized Norway during a combined arms amphibious operation combined with a land force walk into Denmark.

In such a scenario, the Danes along with their allies were focused on sea denial through use of mines, with fast patrol boats providing protection for the minelayers.

Aircraft and submarines were part of a defense in depth strategy to deny the ability of the Soviets to occupy the region in time of a general war.

He contrasted this with the current and evolving situation in which the Russians were less focused on a general war, and more on building out capabilities for a more limited objective, namely controlling the Baltic States.

He highlighted the nature of the arms modernization of the Russian military focused on ground based missile defense and land and sea based attack missiles along with airpower as the main means to shape a denial in depth strategy which would allow the Russians significant freedom of maneuver to achieve their objectives within their zone of strategic maneuver.

A core asset carried by the Russian forces is the Kalibr cruise missile, which can operate off of a variety of platforms.

With a dense missile wolf pack so to speak the Russians provide a cover for their maneuver forces. They are focused on using land based mobile missiles in the region as their key strike and defense asset.

Rear Admiral Wang quoted the open source Danish intelligence judgment that the Russians can mobilize quickly to seize and hold the Baltic states if they choose to do so.

And the Russians have developed cruise missile which make it difficult for allied navies to operate in the Baltic and adjacent waters to contribute to Baltic defense.

"The Russian defense plan in the Baltic is all about telling NATO we can go into the Baltic countries if we decided to do so.

"And you will not be able to get in and get us out.

"That is basically the whole idea."

Rear Admiral Wang then argued for what he called a reverse engineering approach.

"When people are talking about the Cold War as reoccurring, they are completely wrong.

"They are missing the whole picture because we are in the complete different situation than we were during the Cold War

"If the Russians are neglecting NATO's deterrence deliberately or by accident?"

Second Line of Defense

“Then we are in a situation where we go from a defensive to an offensive dynamic because NATO then need to kick them out again.

“If we are going to cope with that situation, the first thing we need to do is to neutralize the mobile missile batteries in the woods of Kaliningrad and along the borders of the Baltic nations.

“And you don’t do that with submarines unless they have strike capability.

“You do that with F-35s and with strike missiles.

“And you do that with Danish frigates together with a US aircraft carrier, or a Brit aircraft carrier, and whoever wants to come too.

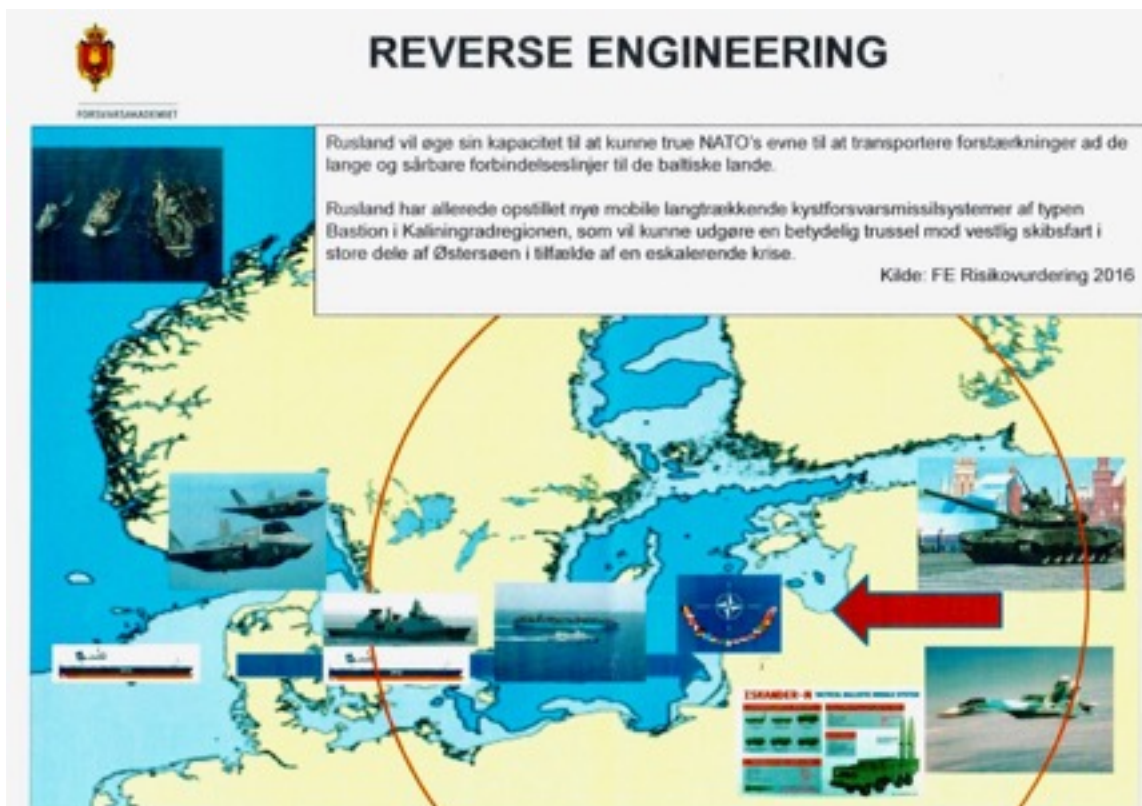


FIGURE 3 THE REVERSE ENGINEERING CONCEPT OF ADMIRAL WANG AS INCORPORATED IN HIS BRIEFING TO THE DANISH PARLIAMENT.

“One needs to create air superiority, or air dominance as a prerequisite for any operation at all, and to do that NATO would need to assemble all the air power they can actually collect together, inclusive carrier-based aircraft in the Norwegian Sea.

“This is where the ice free part of the Arctic and the Baltic gets connected. We will have missions as well in the Arctic at the northern part of Norway because the Norwegians would be in a similar situation if there is a Baltic invasion.”

He argued as well for a renewal or augmentation of ASW capabilities by the allies to deal with any Russian submarines in the Baltic supporting the operation, notably any missile carrying submarines.

He saw a focused Danish approach to frigate/helo based ASW in the region as more important than buying submarines to do the ASW mission.

“There is a fundamental misperception by many in Denmark that the best weapon against a coastal conventional submarine is another coastal conventional submarine.

“And that is simply not the case.

“And especially not in the Baltic Sea where you can hide in the salt layers, where there is so much background noise that you are not able to hear anything in the same moment you start to accelerate yourself in your own submarine.

“The best weapon is a combination of Maritime Patrol Aircraft, ASW ships/ helicopters, satellites working together to destroy the Kilo class missile launchers in the Baltic.”

Rear Admiral Wang saw the “reverse engineering” approach as combining several key elements: a combined ASW, F-35 fleet, frigate and land based strike capabilities, including from Poland as well.

The Admiral’s position is based in part on the arrival of the F-35 and notably the F-35 as a core coalition aircraft with a capability to work closely with either land based or sea based strike capabilities.

An alternative view to that of the Admiral was provided by a German naval officer who argued both that submarines were crucial for the operations he envisaged in the area as well as crucial to have a European autonomy in dealing with the Russians.

But without an F-35 force or without an ally with a flexible and significant nuclear force, it is difficult to see how the German naval officer’s view would square with dealing with the threat as described accurately, I would add, by Rear Admiral Wang.

Whereas the German officer was clearly focused on the Cold War threat, where certainly aircraft working with submarines were key elements in deterring an amphibious strike force, what Wang focuses on is an ability to go after mobile missiles in the area of interest supporting Russian occupation of the Baltics and operating via its offensive and defensive missiles at area denial of the Western forces.

SHAPING A FINNISH APPROACH

Crafting a Way Ahead for the Defense of Finland: The Perspective of the Head of the Defense Policy Branch in the Ministry of Defence, Finland

During my visit to Helsinki in February 2018, I had a chance to meet and to discuss the way ahead for Finnish defense with Janne Kuusela, Director General, Defense Policy Department of the Finnish Ministry of Defence.

According to the Finnish Ministry of Defence website:

The Defence Policy Department is responsible for assessing the development of the security and defence policy environment.

The Department provides the grounds for defence policy and the planning basis for the defence forces.

It deals with matters concerning general national defence capability, conscription, military crisis management, peace support operations and disarmament and arms control.

Second Line of Defense

The department consists of four units:

Defence Cooperation Unit

National Defence Unit

Research Unit

Scientific Advisory Board for Defence

https://www.defmin.fi/en/overview/ministry_of_defence/departments_and_units/defence_policy_department

During our discussion, we focused on four key issues.

Focus on Territorial Defense

First, Kuusela underscored that Finland has never shifted from its basic defense focus on the priority for the defense of Finnish territory.

While many European states, de-emphasized national or territorial defense, and shifted their forces to specialized force packages useful for working in coalition inside and outside of Europe.

“We have bought specialized equipment for some engagements, such as desert uniforms.

“But by and large our focus has been clearly upon territorial defense.

“When the Crimean crisis occurred, it was not an event that forced us to refocus on territorial defense. We were there already.”

Conscription and Defending the Homeland

Second, conscription has been an important part of Finnish defense, but there is an increasing emphasis on enhanced readiness.

This means shifting emphasis from training conscripts to getting as well better combat readiness out of the mobilization force.

He argued that one advantage of the conscription process is that the Finnish government was in a position to identify candidates for the professional military and with the increased “tech savy” required to man a 21st century force, this also allowed for exposure to some of the best candidates to serve in the military to provide for the relevant expertise for a 21st century force.

“It is a two-way street with the population.

“The reservists bring back a lot of current information about technology and society which can then be tapped by the professional military as well as the professional military providing up to date information on the evolution of military systems.

“I think this is a key capability as new equipment is more technologically sophisticated.”

Shaping a Process of Change: A Priority on Security of Supply and Distributed Ops

Third, change is being made to enhance inherent advantages of the Finnish defense approach.

C2 is an especially important part of the Finnish military given the size and location of the country and the Finns have built a modern C2 system which they leverage for the military operation on their territory.

It is also the case, that the trend to shape distributed operational forces has a solid foundation in Finland as well for in their training and preparation they disperse force away from the training bases to flexible operational settings within the country.

“We have also modified our legislation to allow for more rapid and effective crisis decision making which is a key requirement for the new situation as well.”



FIGURE 4 JANNE KUUSELA. DIRECTOR GENERAL, DEFENCE POLICY, DEPARTMENT, MINISTRY OF DEFENCE, FINLAND

In the Finnish defense policy document published last year, the core point underscored was that the threshold for the use of military force is lower and the time to respond shorter.

Obviously, given this characterization, C2 and crisis management systems are central pieces for shaping a 21st century defense and security capability for Finland.

This also highlights the importance of the security of supply.

“Given the short time span when you have a crisis going on, you need to fight with what you have in your stocks at that given moment, so you can’t expect to fly overseas to buy more.”

“We have heard a lot about anti-access and area denial.

“But that is our objective as well for the defense of Finland. “we’ve designed our defense so that if there is crisis we will not use our bases which we used in peacetime.

“The garrisons and the air bases and naval base will be empty, and our military will operate all around the country.

“Because we have mobilization force and we have to store our gear in the right kind of places so they are secure but they’re also available for distribution in times of crisis.”

Shaping a Modernization Effort

Fourth, the foundation is solid but needs modernization in terms of equipment and enhanced capabilities for joint and coalition operations.

Second Line of Defense

This is being done in two key ways.

Finland is building out its partnerships and working relationship within the region and with the United States and other European states.

For example, with regard to the security of supply issue, the Nordics are now enhancing their collaboration to ensure better security of supply for the region.

“Last year, we held the rotating chairmanship of Nordic Defense Cooperation, and one of the main issues on the agenda was military security of supply and what can we do with our Nordic partners.

“This year Norway is carrying on for where we left off, and continuing a serious look at how can we join forces better among neighbors in the Nordic area.”

The second way is by modernization of ground equipment, shifting from older artillery pieces to more mobile longer-range capabilities and modernizing the navy and air force.

There is a concern with the cost necessary to modernize the force, but by enhancing joint operations and leveraging the capabilities of the new systems to be more efficient in terms of modernization and support, the case can be made that an effective modernization path can be forged.

This is crucial otherwise in Kuusela’s view we risk losing public support for investment in the defense systems which are needed.

“We understand that the dynamics of the integrated battlespace of the 21st century is quite different from the operational approaches of the 1980s and we need to adjust to the new realities.

“And in our region, for example, the Norwegians are introducing the F-35 and the sensors onboard the aircraft will have a significant impact on how one shapes a joint fires approach.”

In short, the Finns are shaping a way ahead for themselves, with their neighbors and are key stakeholder in shaping a new approach to Nordic and Northern European defense.

Shaping a Way Ahead for the Defense of Finland: The Perspective of a Finnish Research Analyst

During my visit to Helsinki during the week of February 11, 2018, I had the chance to sit down with Matti Pesu, a research fellow at the Finnish Institute of International Affairs.

In a paper published late last year entitled “What non-alignment? Finland’s security and defence policy stems from partnerships,” he highlighted the focus of Finnish policy as follows:

Defence cooperation has become the most important driver of Finnish external affairs.

New initiatives are being launched, and ever-more extensive cooperation is binding Finland to the Western security system and its deliberations. At the same time, the waning of Finnish military non-alignment has further accelerated.

Finland has consistently removed the legal impediments that have restricted its room for manoeuvre in security and defence.

The paradigm of Finnish NATO cooperation has changed.

The centre of gravity of the partnership has shifted towards supporting Finnish national defence on the one hand and NATO's collective defence on the other.

When it comes to the EU, Finland is much more willing to see the Union as a security and defence community.

The bilateral defence partnership web has also expanded, with the stated purpose of intensifying these partnerships being to improve the chances of receiving crisis-time political or military assistance.

It is telling that Finland and Sweden are currently rehearsing territorial defence together.

Finnish defence cooperation with the United States is ground-breaking.

Helsinki has moved closer to Washington both politically and militarily.

Conducting exercises with the military superpower sends a strong strategic signal. Both nations have a mutual interest in Europe in general and in the Baltic Sea region in particular.

https://www.sldinfo.com/wp-content/uploads/2018/02/bp227_what_nonalignment.pdf

With significant change in the Finnish strategic environment, with Putin military activism, the election of Donald Trump and the formation of a new US defense strategy, with turbulence in the European Union, with the coming of Brexit and enhanced regional collaboration among the Nordic states in defense and security cooperation, Finland is defining its course.

It is clear from discussions in Helsinki with the government that a national defense focus is becoming broadened toward perimeter and regional defense.

It is similar in some ways to how the Japanese are now thinking in terms of perimeter defense, rather than a narrow concept of national defense.

And in so doing, the Finns are continuing their strong national commitment to national defense but doing so in terms of working with key partners and allies both to contribute to and to benefit from partner relationships for defense and security in the Nordic region.

According to Pesu, "We never had a post-Cold War defense holiday.

"We continued to be focused on national defense while our European allies rebuilt their forces for out of area operations.

"We continued conscription, training a territorial Army, and focused on the continuing need and reality for a national defense structure.

"When the Crimean crisis came along, we did not have to do a 360 degree turn away from out of area forces to rebuilding national defense forces.

"We face a modernization challenge, but we have built a clear foundation for national defense."

What is the advantage of conscription from the Finnish point of view?

Pesu: "As the current President of Finland puts it, we underscore the public will to serve and will to defend the nation.

"Finland is unique in Europe in terms of the very high level of public commitment to defend the national territory.

Second Line of Defense

“The vast majority of the male population has been through the conscript process and understands the military and support it as a trusted organization.

“The commitment to defense is ingrained among the Finnish population.

“And in the Nordic region, conscription is returning elsewhere as well as the defense of the nation and the region becomes a priority.”

Question: Obviously, Russia is the threat and the challenge.

How have Finnish officials responded to the return of Russia to the military stage?

Pesu: Finland has a long border with Russia and Russia is a big and powerful country and we have a long common border and involvement in the Arctic.

“Generally, Finland has been accommodative and realistic with regard to Russia and its interests.

“But recent actions by Russia have led Finnish officials to be quite critical of Russian behavior and has led to enhanced activity to defend Finland and to build out regional responses and bilateral relations in the defense of Finland and the region.

“We have made a number of changes to our laws and regulations which enable us to expand working relationships with partners and allies.

“Last year, we changed the law so that Finland can both contribute to and benefit from both giving and receiving military assistance.

“Finland is now committed to working with partners on an expanded basis.

“We are enhancing bilateral relationships where key states want to and can contribute to defense of the region.

“For example, we are ramping up our cooperation with the UK and the UK has had historically a long relationship in the region.

“History has returned with new evolving UK perspectives post-Brexit.

“Sweden is the most important partner for Finland. We have complimentary military capabilities and shared interests.

“The United States is now the second most important partner of Finland.

“The US concern with the Baltics, the Russians and the Baltic Sea is a key point of convergence with Finland.

“The Finns have been realistic about the coming of Donald Trump to the White House and have not reacted as have some “moralistic” European states; and indeed, the Finnish President was welcomed at the White House last year and this was widely appreciated in Finland.

How do you see the way ahead?

Pesu: We are clearly shaping a regional approach with enhancements from key bilateral partners like Sweden, the US and the UK.

“And we are expanding both our role in and the perceived significance of regional exercises to shape better defense operational capabilities.

“And as we add new naval and air systems, they will build on this evolving structure shaped through exercises and concrete agreements.

“It is about creating real deterrent capabilities, not simply upon verbal or paper commitments.

“And we are focused on significant improvement in the readiness of forces to be able to respond quickly and effectively in a crisis, and we see crisis management as evolving significantly.

“We are not looking at long time spans; we need to be able to respond quickly and effectively when a crisis comes. Reworking crisis management of significant concern throughout the Nordic region, and Finland sees this as an important effort.”

Distributed Operations, Exercises and Building Out Finnish Defense Capabilities: The Perspective of Lt. General Kim Jäämeri

My last official interview in Finland was with the former head of the Finnish Air Force and now Deputy Chief of Staff, Strategy for the Finnish Defence Forces, Lt. General Kim Jäämeri.

In my discussions in Helsinki, I was increasingly persuaded that a number of core foundational elements in the Finnish approach were very symmetrical with the changes unfolding in 21st century military technology and changes in approach which most liberal democracies needed to make as we shift from the land wars to higher tempo operations.

The mobilization focus of Finland which I discussed with Jukka Juusti, Permanent Secretary Defence, was one aspect.

The other which I discussed with Lt. General Jäämeri was distributed ops.

Clearly, a number of key aspects of military technological change are underscoring greater capabilities for force generation in terms of distributed operations and shaping C2 systems, which can support mission command approaches to directing a distributed force, are part of significant change going on in the U.S. military as well as other allied militaries.

But for the Finns, distributed operations is in their defense DNA.

They have been living under the threat of missile and air strikes for a long time and have never assumed that you operate from fixed bases alone as crises strike.

Dispersal and distributed operations are at the heart of how best to deal with a significant offensive threat.

And in major exercises like Arctic Challenge, the Finns are demonstrating how their legacy approach is informing their way ahead and how it can be modernized as new systems are being added to the liberal democratic force structure.

Lt. General Kim Jäämeri: “It is becoming clear to our partners that you cannot run air operations in a legacy manner under the threat of missile barrages of long range weapons.

“The legacy approach to operating from air bases just won’t work in these conditions.

Second Line of Defense

“For many of our partners, this is a revelation; for us it has been a fact of life for a long time, and we have operated with this threat in the forefront of operations for a long time.”

What clearly is new or evolving is the key role of exercises for Finland and the cross-learning which comes for both Finland and its exercise partners.

Finland passed legislation last year which allows Finland to both provide and receive military assistance which provides the legal framework for shaping ways ahead in exercising with other militaries and shaping cross learning in the military operational domain.



FIGURE 5 FINNISH HORNET LANDING ON ROAD IN FINLAND AS PART OF A MILITARY EXERCISE. CREDIT PHOTO: MINISTRY OF DEFENCE, FINLAND

Lt. General Kim Jäämeri: The legislation has brought logic to our exercise structure.

“It also clarifies how the European Union Treaty 42.7 would be practically executed; if someone asked for assistance, then now we have in place the procedures and structures to take proper decisions to provide for assistance.”

With the enhanced concern about the military situation in Europe after the events in Crimea obviously there has been enhanced focus within Europe on territorial defense.

With the Finns, this has clearly seen a renewed emphasis on force readiness and an ability to act more effectively in a crisis.

Lt. General Kim Jäämeri: “We have enhanced our focus on crisis management and the role of the military within overall crisis management.

“We have increased our investments in force readiness.

“With regard to our partners, their enhanced focus of attention on defense, whether it be the actions of Sweden, Norway or Denmark in the region, or by the United States within NATO with regard to the EDI-related investments, has been appreciated.

“And as we expand our exercise regime, we are cross-learning with regard to capabilities necessary for our defense.

‘You have to leverage your partnerships more to enhance crisis stability.’”

There is always the challenge of paying for defense investments, and the cost of maintaining conscription while adding new ground, naval and air capabilities will be challenging for Finland as it is for other liberal democracies.

The Finns are organized around a joint force structure, although respecting the differences among ground, sea and air operations.

But any major acquisition must provide a joint effect.

Lt. General Kim Jäämeri: “With regard to the Hornet successor, clearly its contribution to joint operations is a key aspect.

“For example, how will it help the navy more effectively fire their missiles at the relevant targets?”

“For more than two decades now there’s only one force development process and it’s fully joint.

“I’ve sat in a meeting this morning running through capability reviews from different services where any capability that’s required for our defense is always looked through the joint glasses.

“We only have one defense minister, no secretaries for the air force or navy or whatever; it’s all under the Chief of Defense (CHOD) and he drives this as a joint machine.

“Obviously, services need to be able to cherish their expertise, and that’s why we maintain them: you can’t do what some forces tried in the ’80s, where everybody puts on a violet uniform; it doesn’t work.”

In short, Finland has enhanced the readiness of its forces, is working more closely with partners, and through military exercises generating and learning from key partners with regard to operational innovations.

And the core defense DNA characteristics of the Finns, namely, to operate forces in a distributed manner and prepare to mobilize, are becoming key themes which other liberal democracies need to take heed of as the global situation changes.

In Swedish Exercise Aurora 17 Finland Steps Up its Level of Cooperation

The liberal democracies have much work to do to rebuild the forces and the shape an effective approach to crisis management in the Nordic and North Atlantic defense region.

There are new capabilities coming to the region, notably the P-8s/and Tritons in crafting a maritime domain awareness capability and an operational belt of F-35s from the UK through to the Netherlands.

Shaping an integrated force and one, which can leverage missile defense capabilities, is part of the way ahead; but this is a work in progress.

Second Line of Defense

In addition, Finland and Sweden are clearly focused on the defense challenges posed by Russia and are strengthening their relationship with Nordic NATO partners and others as well.

Notably, Sweden has recently held the largest military exercise in more than 20 years.

As our colleague Hans Tino Hansen put it in an interview with us last year:

It is quite interesting to see how Sweden has moved from the 1980s where you couldn't say "NATO" at all in Swedish security and defense circles.

Then in the '90s, it became possible to say "NATO," but you were not allowed to smile.

And then first part of the 21st century, we've had Sweden being integrated into NATO operations, for instance in Afghanistan.

This has had a significant impact on Swedish thinking.

And now we see, with the latest exercise, Aurora '17, the Swedes applying NATO standards to their forces to ensure greater interoperability with its NATO neighbors.

And you can see that they are seamlessly operating together with NATO forces in this exercise.

Finland is of course not integrated to the same level.

But Finland comes with a much different and much bigger defense organization, which at the same time offers new and flexible capabilities to counter hybrid warfare.

It is quite interesting to see that one of the things that was exercised in Aurora '17 was actually for Finland to reinforce the Swedish island of Gotland in the Baltic.

For the Finns it is crucial that Sweden is able to control and secure Gotland in a time of crisis, let alone a time of war.

The island is in reality an unsinkable aircraft carrier.

In late September, a story written by Jerry Lindbergh and published on the Swedish Armed Forces website highlighted enhanced Swedish-Finnish cooperation evident in the exercise.

In many respects, Aurora 17 is a unique Swedish defence exercise. With 19,000 participants from a total of nine countries, it is the largest Swedish defence exercise since 1993, and for the first time since then all armed services are exercising together – at sea, on land and in the air.

For some weeks, things have been happening across southern and central Sweden, and little Hagshult, outside Värnamo, is no exception. The 172nd Fighter Squadron from the Blekinge Air Wing, F17, is based here with six Jas 39 Gripen aircraft to defend Sweden against a heavily armed attack. To help them, they have a unit from Finland, 31 Fighter Squadron, with five majestic F-18 Hornet aircraft.

INDEPENDENT OPERATIONS

The Swedish squadron occupies one end of the Hagshult base, the Finnish squadron the other. From a strategically defended location, well inland, they are fighting side by side and facing the enemy over the Baltic Sea, in various scenarios thrown at them by the Swedish exercise control.

– Our operational effectiveness is good, says the Finnish contingent commander and pilot, Tomi Böhm. Our reception here at Hagshult has been excellent and virtually everything has worked flawlessly from day one.

The Finnish unit is acting in the air defence role and flies from early morning until 9.00pm in the evenings. The Swedes have a somewhat wider role, which includes night flying as well as engaging targets at sea.

– At the beginning of the exercise, we generally synched with the Finns, but since then we’ve dealt with our respective tasks independently. I am impressed that we now have a Finnish unit so well integrated into our system, says Swedish squadron commander and pilot Jörgen Axelsson.

CHALLENGES

Swedish and Finnish operating methods and thinking are not fundamentally different, but there are still challenges. Sharing a common situational picture is new for Aurora 17. And for a foreign unit to have access to Swedish classified information and Swedish orders from the Air Component Commander, requires preparation and rigorous procedures. Everything must work and comply fully with Swedish regulations.

At F17 in Ronneby, preparation work began as far back as spring 2016. All issues, large and small, have been thoroughly analysed.

– Before the exercise we conducted two reconnaissance visits to the base in Hagshult with the Finns. Any challenges we encountered have been resolved through good dialogue and the right technical support, says Hans Evefalk, area exercise leader.

A simple but telling example of the challenges faced is related to the size of the Finnish aircraft. The two-engine beasts carry significantly more fuel than Gripen, which, among other things, put new demands on fuel supply at the base. The weight of the aircraft also means longer take-off and landing distances. In Finland, there is a wire at the end of the runways that “catches” the aircraft if – for any reason – it’s not going to stop in time. At Hagshult this is not the case and, instead, it was decided to clearly mark distances on the runway. So, on landing, pilots can easily determine how much runway they have left, and – if necessary – take off again, if they’ve come too far to stop in time.

FULL CONTROL

Now that the exercise has started, there are routines for everything – including how orders are distributed and dealt with, how transport is coordinated, and the location of all personnel at any given time. Base Commander, Patricia Wall gives a good example of the effective organisation on this temporarily established base.

– We had an alert the other day and quickly had to account for all personnel belonging to the base. Within 40 minutes we had a complete picture of exactly where close to 800 people were located. In addition to food, accommodation, sanitation, logistics, and a range of equipment maintenance and information flows, security is of the utmost importance on the base. Personal security takes pride of place, but materiel must also be protected.

– You can’t have aircraft worth billions, bombs worth millions, personnel with years of training – and not protect them, says Kjell Eriksson, deputy commander in the command team.

Therefore, the Home Guard, who form a large part of the guard force, play a very important role on the exercise.

NEXT STEP

Both the Swedish and Finnish squadrons operate primarily along the Swedish east coast. They also cooperate with fighter aircraft from F17 in Ronneby and F7 in Sätenäs.

Second Line of Defense

The Finnish squadron has undertaken to conduct six sorties over the course of 16 hours each day. This requires the technicians to work both day and night.

– The base was well prepared and our reception was well organised, so everything has worked very well for us, says Jukka Muhonen, who is in charge of maintenance of the Finnish aircraft. We are fully established in the area we have been allocated.

He explains further that they have brought 10-15 containers of equipment and spare parts by truck from Finland. This also includes their mobile command post. Once on site, we borrow a tow truck from the Swedes. Armaments, which are mostly unarmed Sidewinder and AMRAAM missiles, have mainly been transported mounted on the aircraft. Everything has gone smoothly, which is also the case on the Swedish side.

– You can reflect on how smoothly things actually work, despite the complexity of what we do, says Patricia. We pack up our equipment, which arrives at the new location on a Sunday. Then the aircraft arrive on Tuesday – and we're up and running.

She is full of appreciation for her personnel.

– From private soldier to company commander – they all know their job and are very professional, even now towards the end of the exercise when fatigue has begun to set in.

Aurora 17 has given both Swedish and Finnish units a taste for more. Sweden and Finland have exercised together before, and for some time now have increased their military cooperation year on year, not least because of common political goals and decisions.

The Finnish Contingent Commander, Tomi Böhm, is pleased with the progress made during Aurora 17, and that Finland has now been integrated into Swedish air defence for the first time.

– It would be great if we can make further progress next time we cooperate, he says. I hope then that we'll then have the opportunity to contribute with our ground-attack capability.

The Finnish Air Force visited Sweden during the Air Force's exercise in Visby in 2016. Then they played a role where they attacked Swedish air defences.

– This time we're the good guys, says Tomi Böhm.

<https://www.forsvarsmakten.se/en/news/2017/09/swedish-finnish-cooperation-reaches-new-heights/>

Finland and New Combat Aircraft: Looking Back at the Hornet Acquisition

The Finnish government is set to acquire 64 new fighter jets for its air force.

This is occurring as Nordic defense is being reworked, and the Northern European states are sorting out how to deal with what the Finnish Defense Minister Jussi Niinistö has referred to as the “new normal” in Russian behavior.

“It's important that our armed forces have the equipment that they need to fulfill all of their fundamental roles,” said Niinistö.

Niinistö has described Russia's more unpredictable behavior in the greater Baltic Sea region, particularly in the areas of political influencing methods and security policies, as the “new normal”.

“Changes in the security environment and the multi-purpose use or threat of power have become a new normal. Russia has shown in Ukraine and Syria that it possesses both the capacity and the will to use military power to push its goals,”

<https://www.defensenews.com/global/europe/2017/01/26/global-vendors-size-up-finland-s-multibillion-dollar-defense-upgrades/>

The new combat aircraft will be part of an integrated Finnish defense force in the evolving strategic environment of the 2020's.

It is important to remember that the last major acquisition also occurred in a significant period of change for Finland in its strategic neighborhood.

With the collapse of the Soviet Union, and the dynamics of change in the new Russian republic, Finland was able to negotiate its way out of the Cold War agreement with Russia in which Finland was committed to cooperate with Russia militarily in the case that an aggressor was threatening to use Finnish territory to attack the Soviet Union.

The agreement required mutual affirmation of the threat and the engagement but nonetheless was a major curb on Finnish military independence.

With the end of this agreement, and then the unification of Germany, and the opening of a new chapter in the development the European Union, Finland positioned itself for membership in the European Union in 1995.

The EU treaty contains a mutual security agreement for all of the members as well.

It was in this period of dynamic change, that Finland acquired new fighters for its air force, F-18 Hornet aircraft.

In 1992, the Finnish government placed an order for 64 McDonnell Douglas aircraft.

And at the time of the sale a Finnish diplomat explained the deal this way:

“Until now, Finland’s neutrality made defense procurement difficult. But from now on, Finland will defend herself by her own means.”

<https://www.nytimes.com/1992/05/08/world/finland-in-3-billion-deal-for-64-mcdonnell-douglas-combat-jets.html>

In other words, much like new fighter aircraft will be purchased in a new strategic context of the 2020's, the first big modernization of the Finnish Air Force in the post cold war period occurred in a period of significant strategic change.

Buying fighter aircraft for Finland is a challenge but clearly connected to a broader strategic context.

This was well summed up by the distinguished Finnish historian, Henrik Meinander, in his 2013 book on the history of Finland as follows:

“The government emphatically denied that there were any security policy considerations behind the purchase of the Hornet, but everything points to the contrary.

“The acquisition of modern defense technology has always had a political dimension, since the supply and maintenance of equipment necessities continuing collaboration with the foreign manufacturer.

Second Line of Defense

“This aircraft meant that Finland’s air defenses became compatible with NATO’s almost immediately.

“It was only two months earlier that Finland had submitted its application to the EC/EUU, and it was doing all that it could to show that it was a country whose defense and security policy would not be a burden for the EU.

“The pilots were sent to the USA for training, and the first jet planes were flown across the Atlantic in 1995.

“Cooperation increased in the period 1996-2000 as 56 of the jets were assembled in Finland and gradually connected to the NATO satellite system and other technical infrastructure.”

Henrik Meinander, *A History of Finland* (Oxford University Press, 2013), p. 195.

During my visit to Helsinki in February 2018, this is what one Finnish analyst had to say about the challenge in acquiring the Hornets, but also the significance of the acquisition:

“It was a very bold move in the early 1990s.

“With the collapse of the Soviet Union, we lost a significant market and we had a huge recession with unemployment rising significantly.

“Timing was everything.

“If the decision had been delayed, it would not have been made.

“The purchase of the Hornets expanded dramatically the cooperation with the United States and other members of NATO and allowed cooperation to become real.

“At first, there was skepticism about the potential quality of the Finnish pilots but soon the US realized that Finnish pilots are first rate.

“And this also laid the foundation in the United States, that Finland is a credible regional partner.

“We do what we promise and by providing advanced weapon systems to Finland, it’s a stabilizing factor for the region as well.”

In short, understanding how the Finns see the evolving strategic situation is crucial to understand how they will address not only defense modernization, but integration of their forces nationally and with core coalition partners.

Editor’s Note: In late 2015, the initial report on replacing the Hornet was released by the Finnish government.

The working group which was set up to make a preliminary assessment of how to replace the operational capability of the Air Force F/A-18 aircraft proposes procurement of multi-role fighters. The capabilities of multi-role fighters would be complemented with air defence capabilities. The need and possibilities to procure unmanned aircraft and other complementing capabilities will be analysed at a later point.

The capabilities of multi-role fighters play a significant role in securing a pre-emptive threshold which would stop a possible aggressor from using military force against Finland. The capabilities of fighters form an integral part of air defence and the ability of the Defence Forces to use fire power to impact targets on land and at sea.

The life cycle of F/A-18 fighters will terminate by the end of next decade. It is not possible to replace their operational capability with anti-aircraft weapons or unmanned aircraft alone since both systems would only cover a part of the capabilities of the Hornet aircraft.

The project to replace F/A-18 fighters will extend approximately over 15 years. According to the report of the working group, the project needs to be launched in autumn 2015 at the latest. Project-related information requests should be made and, ultimately, invitations for tenders sent during the current parliamentary term.

The procurement decision should be made at the beginning of 2020s.

The working group submitted its report to the Minister of Defence on 11 June 2015.

<https://www.sldinfo.com/wp-content/uploads/2018/02/HX-ENG.pdf>

The Trilateral Agreement Among the US, Sweden and Finland

According to an article published by the Finnish government on May 7, 2018, a major part of the visit of their defense minister to Washington was signing a trilateral agreement with Sweden and the United States.

Minister of Defence Jussi Niinistö will make a working visit to Washington on 7-10 May 2018. He is to meet the United States Secretary of Defense James Mattis and Sweden's Minister for Defence Peter Hultqvist.

The ministers are to discuss the overall security policy situation and current themes in defence cooperation between the three countries.

The ministers will also sign a trilateral Statement of Intent (SOI). After signing similar SOIs with the United States in 2016, both Finland and Sweden have enjoyed positive bilateral defence relations with the United States and the goal is to apply the model also to trilateral defence cooperation in the future.

A trilateral SOI complements and brings together previously agreed thematic entities; through cooperation it is possible, for instance, to make sure that overlapping activities or competitive situations are avoided in international exercises and trainings. Finnish and Swedish defence ministers have informed their parliaments on 19 April 2018.

http://valtioneuvosto.fi/en/article/-/asset_publisher/puolustusministeri-niinisto-washingtoniin

The main elements of the agreement indicated in a public release are as follows:

The Department of Defense of the United States of America (U.S. DoD), the Ministry of Defence of the Republic of Finland, and the Ministry of Defence of the Kingdom of Sweden (MODs of Finland and Sweden) are deepening our respective bilateral defense relationships.

In 2014, Finland and Sweden initiated deepened bilateral defense cooperation that encompasses all branches of the Armed Forces and the Ministries of Defense. Likewise, the U.S. DoD signed bilateral Statements of Intent with each of the MODs of Finland and Sweden in 2016. These bilateral defense relationships are promoting security in the Baltic Sea region by reinforcing transatlantic linkages, strengthening stability in northern Europe, and building interoperability between the United States and two of its most capable and likeminded partners.

The U.S. DoD and the MODs of Finland and Sweden intend to build on this positive momentum. Our countries have a shared interest in cooperating to support a stable and secure environment in the Baltic Sea region, in safeguarding the fundamental principles of international law, and in preserving the European security order.

Second Line of Defense

Based on our respective bilateral Statements of Intent, the U.S. DoD and the MODs of Finland and Sweden intend to complement and reinforce our defense relationships by formalizing and enhancing our trilateral defense relationship.



FIGURE 6 THE SWEDISH, FINNISH AND US DEFENSE MINISTERS AT THE PENTAGON MAY 2018. CREDIT: THE US DEPARTMENT OF DEFENSE

Aim

The U.S. DoD and the MODs of Finland and Sweden intend to pursue an enhanced trilateral defense relationship. Expanded defense cooperation between the U.S. DoD and the MODs of Finland and Sweden strengthens our respective bilateral defense arrangements, as well as multilateral agreements and arrangements, such as those with the North Atlantic Treaty Organization (NATO), Nordic Defense Cooperation (NORDEFCO), and the European Union (EU).

Objectives

We intend to complement existing efforts and leverage existing structures and activities wherever possible to achieve the following objectives:

Intensify our trilateral dialogue on defense policy;

- *Develop practical interoperability at the policy and the military levels;*
- *Expand our trilateral situational awareness in the Baltic Sea region;*
- *Strengthen our capabilities and posture;*
- *Improve our ability to conduct combined multinational operations;*
- *Coordinate our strategic communications; and*
- *Promote constructive linkages between NATO and the EU.*

Means

To achieve those objectives, the U.S. DoD and the MODs of Finland and Sweden intend to conduct cooperative activities including, but not limited to:

Regular trilateral meetings at all levels, including study groups;

- *Exchanges of information at all levels;*
- *Increasing practical cooperation between our respective armed forces;*
- *Coordinated participation in training and exercises;*
- *Shaping exercise design to reflect trilateral cooperation priorities where appropriate;*
- *Development of cooperation in multinational operations;*
- *Coordination of strategic communication concerning incidents and activities as appropriate; and*
- *The enhancement of the EU-NATO strategic partnership.*

Status

This Trilateral Statement of Intent is not a legally binding commitment between the United States, Finland, and Sweden under international or national law.

This Trilateral Statement of Intent does not substitute for or invalidate any existing defense agreements, arrangements, or Memoranda of Understanding between the United States, Finland, and Sweden.

The U.S. DoD and the MODs of Finland and Sweden intend to modify this Statement of Intent as defense cooperation develops. The implementation of this Statement of Intent is intended to be reviewed regularly.

<https://www.government.se/49993c/globalassets/government/dokument/forsvarsdepartementet/2018/trilateral-statement-of-intent-8th-may-2018.pdf>

SHAPING A NORWEGIAN APPROACH

The Way Ahead for Norwegian Airpower: The Perspective of the Vice Chief of the Norwegian Air Force

During my visit to Norway in April 2018, I had a chance to meet with and discuss the Norwegian way ahead on airpower with Brigadier General Aage Longva, Vice Chief of the Norwegian Air Force.

We met at his office at Rygge Air Station south of Oslo.

The BG has lived through and been a key participant in the standup and evolution of the F-16 as the backbone Norwegian fighter. He began his training on F-16 at Sheppard Air Force base in Texas and has been part of the migration of Norwegian F-16s from being an air-to-air platform to becoming a multi-mission platform.

Second Line of Defense

He noted that at the time of the Balkan operations by NATO, the Norwegian Air Force was able to participate but only in an air-to-air role.

With the acquisition of new targeting pods and weapons, the Norwegian F-16s evolved into an air-to-ground fighter as well so that when the initial NATO operations in Libya began, the Norwegians were there from the beginning.

He also noted that the Norwegian commitment to F-16 modernization led their aircraft to get levels of modernization even more advanced than the USAF was flying at the time of the Libyan operation.

The Cold War experience has been foundational for the Royal Norwegian Air Force. After its official founding during World War II, the Norwegians in the Cold War were at the cutting edge of dealing with the Soviet threat operating from Kola and moving out into the Greenland-Iceland-UK gap.

After the end of the Cold War, the skill sets of NATO were redirected and several of those were attenuated.

During my visit last year to Norway, my interview with the Chief of the Norwegian Navy underscored however that Norway was more focused than many in NATO on the remaining threats which Russia could generate and kept capabilities alive to deal with these threats.

For example, the Norwegians did NOT redirect their P-3s towards overland missions; but kept them focused on ASW.

In my interview with the Chief of the Norwegian Navy, he underscored the importance of this focus:

The Rear Admiral noted that the Norwegians have never stopped flying their MPAs, in this case their P-3s, over their areas of interest in the North. They did not send their P-3s to the Middle East, nor did they retire their MPAs as did other P-3 users in NATO.

“We have kept this competence not only alive but focused on the key areas of interest to us in the region.”

The P-3s have been “critical to understand the underwater domain for our forces.

“We are buying the P-8 because of its capability and the priority to focus upon this capability.”

<https://sldinfo.com/2017/02/the-norwegian-navy-and-shaping-air-sea-integration-for-norwegian-defense/>

For the Norwegians, and this point was clearly driven home in the interview with Brigadier General Longva, there is a clear sense of urgency to enhance Norwegian defense capability and its ability to work effectively with allies in the post-Crimea political-military environment.

In this sense, not only is the F-35 not simply a replacement aircraft for the F-16, it is a strategic asset around which Norway will build out core capabilities to deal with the evolving challenges in the region.

In building out the new base for the F-35 at Ørland Air Force Station, where he was the Wing Commander prior to coming to his current position, the Norwegians are building a base that is built to operate during crises and conflict.

They are focusing on base protection, rapid repair capabilities, hardening of shelters and other means to ensure that the base can operate in difficult conditions.

And with the revival of the total defense concept, Norway is looking as well at ways to operate in conditions where leveraging capabilities to operate in other manners is possible as well.

The standup of the F-35 is different from the F-16 in an important way:

“We are standing up the aircraft at the same time as the USAF. We are training in a squadron made up of Norwegian, Italian and USAF pilots.

“We are on the ground floor working with the USAF to shape the concepts of operations for the aircraft with the USAF.

“And the USAF has been very open in working with us as well.”

Operating in Norwegian conditions is challenging; and the potential threat is there every day generated from the Kola Peninsula.

“It is not like operating from Luke; when we fly, we see and can engage targets on a daily basis.”

His perspective was very reminiscent of what the former Chief of the Israeli Air Force had to say about flying his F-35 in his region:

Major General Eshel was then quoted as underscoring a unique quality of what the aircraft provides the IDF.

“When you take off in this plane from Nevatim [base], you can’t believe it.

“At 5,000 feet, the whole Middle East is there for you in the cockpit.

“You see things, its inconceivable.

“American pilots who visit us haven’t seen anything like it, because they fly over Arizona or Florida, and here they suddenly see the [entire] Middle East as a combat zone – the threats, the different players, at both close range and long range.

“Only then do you grasp the enormous potential of this machine.

“We’re already seeing it with our eyes”

<https://sldinfo.com/2018/01/the-israeli-air-force-declares-ioc-for-its-first-f-35-squadron-writing-the-next-chapter-in-airpower-history/>

The Norwegian version of this challenge is clearly the bastion posed by the Russians on the Norwegian border.

The Russians have modernized and are modernizing their air and sea capabilities as well as enhancing their ground missile defense and attack capabilities on the Northern borders of Norway.

How to deal with the bastion threat and to have a credible response?

“One of the rationales for acquiring F-35 is that we are not able to use the F-16 against the Bastion threat in ways we need to.

“The F-35 will allow us to do so.”

The F-35 is a key element in building out that response and working with allies as well.

Second Line of Defense

Notably, the UK is now flying the same aircraft as Norway, the P-8 and F-35, and can work with other allies in the region and shape a foundational F-35 enterprise as part of the driver of change and innovation necessary to provide a credible crisis response capability in the region.

Brigadier General Longva focused on the IOC process for the F-35, which was targeting having a QRA aircraft able to be supported and to operate in a sovereign manner.

There are clear challenges to standing up the first F-35 squadron in Norway, but they are doing so as the Royal Air Force and Navy do so in the UK and the US will be doing at RAF Lakenheath.

And from the BG's perspective, this is a work in progress but when in which the allies are working through similar problems at the same time and are providing cross-learning in the process of standing up the new air system.

"We are not that far behind the USAF; we are advanced to the point where we can make our own mistakes to learn from as we standup the aircraft."

He emphasized that the strategic goal with regard to the F-35s operating in the region is to have as much of a common approach as possible.

For it is through a common approach that costs are reduced and capability enhanced.

The sustainment side of this is broadly challenging as the US has built the aircraft with a global supply chain and working with a number of industries in Europe.

And with a shift from a traditional approach towards a more global one, working through the details will be both important and difficult.

But at the end of the day, Norway's strategic location and the threat it is dealing with is central to the US and NATO, and how the Norwegians stand up their F-35 squadrons and build out from them to shape other capabilities will clearly be important and not just to Norway.

An interesting piece of this is the development and acquisition of the Norwegian Joint Strike Missile, which will be deployed on air, ground, and naval systems and can provide a significant missile capability, which can be leveraged by the F-35 as the sensor-shooter lead.

And because the missile is compatible from the ground up with other F-35As, partners in the global enterprise, notably Japan and Australia are joining into the opportunity to work with Norway on the Joint Strike Missile as well.

In short, Norway is working defense modernization in a way symmetrical to deal with the core threats facing it. And in so doing, will generate lessons learned for other allies in Europe and beyond.

Shaping a 21st Century Air Base at Ørland: Visiting the 132 Air Wing

I have had the opportunity to visit F-35 bases since the standup of the first one at Eglin Air Force base.

And this year, I have visited Williamtown, RAF Marham, Ørland, and MCAS Yuma.

In each case, changes have been made to accommodate the coming of the F-35 but also, infrastructure has been or is being changed to shape a 21st century base appropriate to the transformation of 21st century air combat operations.

With the coming of the data rich aircraft, there are new requirements, needs and opportunities to manage data. With the coming of a data generated maintenance system, new hangars are being built which can better facilitate the ability to work with data and to shape new maintenance approaches.

And security is a key requirement as well, but a work in progress.

At Williamstown and at Ørland, both the RAAF and the RNoAF are building F-35 centered airbases with legacy aircraft being moved out from the base.

At RAF Marham, the new facilities are being built as an enclave while the Tornados remain a key flying combat asset for the RAF and changes will be then be made at the base leveraging older facilities, such as hardened shelters, as the Tornados leave and the F-35s ramped up.

During my visit to Ørland, I had a chance to talk with Lt. Col. Eirik Guldvog, XO/COS 132 Airwing, at the end of April 2018, about the way ahead for the base.



FIGURE 7 SLIDE FROM BRIEFING AT ORLAND AIR BASE, APRIL 24, 2018.

The entire infrastructure for air operations in Norway is being restructured as the F-35 and the P-8 enter the force.

Ørland will be the main operating base for the F-35, with Bodø being closed and Evenes becoming the QRA base from which a squadron of F-35s could operate in a crisis as well.

The base is being built by the Armed Forces Estate Agency, and security is a key consideration. Workers have been brought from throughout Norway to work on the base.

According to Lt. Col. Eirik Guldvog: "The Armed Forces Estate Agency has built camps on the base to house workers to work on the base. Because of classifications, only Norwegian workers are being used.

When you fly into Ørland, one enters a small civilian terminal. But that is the only aspect, which is civilian; the base is military and everything is run by the military on the base.

Second Line of Defense

The F-16s will leave Ørland next year, and those at Bodø will be retired in 2022.

Lt. Col. Eirik Guldvog underscored that “The main objective is by 2022, to have the F-35s replace the F-16s and to provide the base line combat capability needed by the RNoAF.

“During the next three years, when Final Operational Capability is achieved, we will be utilizing the expanded capabilities of the aircraft.”

Because the introduction of the F-35 is not just about the aircraft, but the entire air system, the build out of basing and training is a key part of the standing up of the aircraft.

And indeed, it is recognized that doing so will be a work in progress for several years as well.

Force protection is a key part of building out the base, and, indeed, the center of excellence both for ground based air defence, force protection and mobile logistic support operates currently from the base.

And these skill sets will become even more important in the years ahead as well.

The transfer from Luke to Norway began with the arrival of the first three F-35s from Luke last November.

And in April, the first maintainers started their training at Ørland. The maintainers trained at Luke form the cadre of the initial Norwegian training capability.

And the ramp up of maintainers will be correlated with the arrival of the aircraft as well.

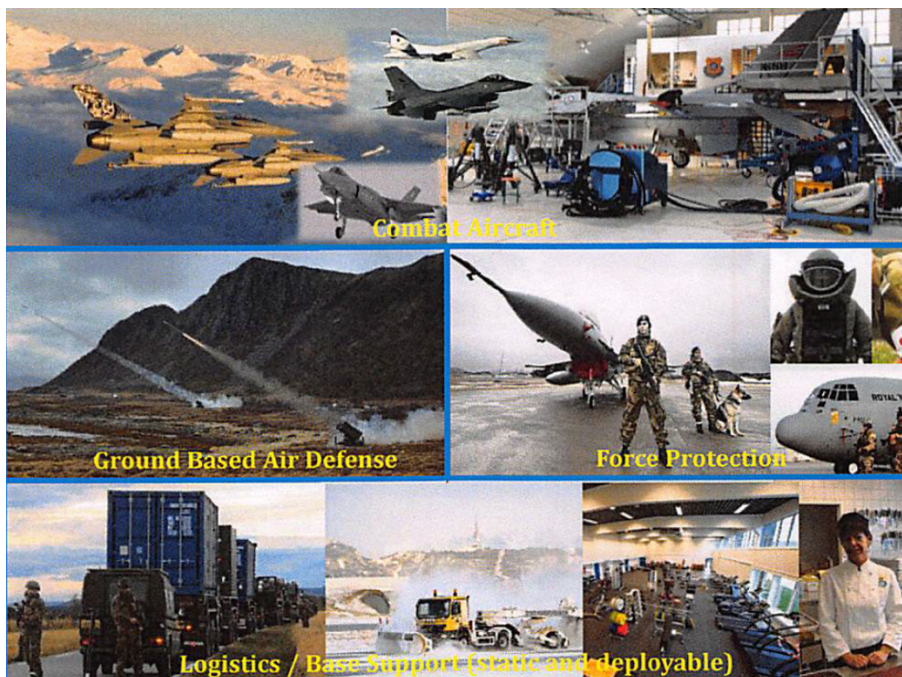


FIGURE 8 SLIDE FROM BRIEFING AT ORLAND AIR BASE, APRIL 24, 2018.

As Lt. Col. Eirik Guldvog added: “Each six months, we will receive three new aircraft and we will have trained the requisite personnel prior to those aircraft arriving in Norway.”

And because of the concentration of fighter aircraft at the base, flight activity will be closely monitored to control for noise and other impacts on the local community.

Lt. Col. Eirik Guldvog noted that “There will be about three times the amount of total flying over current conditions once the F-35 base is fully functional. The Estate Agency is closely monitoring noise and flight patterns, to provide a base line from which future decisions can be made to deal with any challenges.”

Clearly, the standup of the F-35 is at the heart of the base modernization, but it is about shaping a 21st century combat base.

It is about the ability to operate and sustain the combat operations of the aircraft; it is about the defense of the base, through ground based air defense and force protection, and it is about having the capability to support the overall Norwegian Air Force to be sustained where they operate and fight as well.

And working the synergy among these core interactive aspects will be at the heart of the development of the base in the years ahead.

Lt. Col. Eirik Guldvog highlighted that “The base will be evolving over the next several years as we operate the aircraft, and shape the infrastructure to work with the operations of the aircraft and the transformation of the RNoAF overall.”

Norwegian Quick Reaction Aircraft, Bodø Airbase and Future Basing Challenges

During visits to the United Kingdom, I have had a chance to see and visit with RAF the operators of the quick reaction air capability in the United Kingdom.

A key point is that to have two aircraft ready to fly on a moment's notice, or within 15 minutes, a significant pyramid of support is necessary to deliver a QRA capability.

But the question of what the pyramid looks like beyond this is simply having two pilots ready 24/7 with 2 support staff and eight engineers for each week in support as well.

1 (F) Squadron, 11 (AC) Sqn. and 6 Sqn. provide the aircraft, pilots and engineers for the 24/7 operation. The Air Traffic Control Center is manned 24/7 to enable aircraft to launch at any time. The Ground Support System or GSS provides support to the Typhoons with mission data and computer systems used by the aircraft.

And chefs and catering staff are on station to cook and serve meals for duty personnel, three meals a day, 365 days a year.

To put it bluntly: to be 24/7 ready is a significant demand signal for the Typhoon fleet, and one which can be overlooked in terms of the number of aircraft which are required to remain ready for operational launch, 24/7 and 365 days a year.

According to the QRA North team, the Typhoon has performed its role well, but it requires maintainers, pilots and operations personnel to pay close attention to the rotation of aircraft into the demand side of QRA.

And when the RAF deploys to the Baltics, in effect, the UK is supporting three QRA efforts.

The pyramid is demanding; the photos of the planes on strip alert simply masks the significant level of effort to ensure that they are on strip alert.

This demand side is one, which can be easily overlooked by everyone, except those providing the capability and the intruders into UK airspace.

Second Line of Defense

<https://sldinfo.com/2016/11/visiting-quick-reaction-alert-north/>

During my recent visit to Bodø Airbase, I was able to discuss the QRA effort at the airbase and the transition being put in place to transition from F-16s doing this mission from Bodø to F-35s operating from Evenes Air Station, where P-8s may operate from as well.

Evenes Air Station is significantly further north from Bodø, which will move the QRA effort further north as well.

The Norwegian government is restructuring its basing infrastructure, closing some airbases and building up others. Bodø Airbase itself is scheduled to close.

I discussed the QRA effort, the past and future of the Bodø Airbase, and the shift from the F-16 to F-35 for QRA with the Lt. Col. Henning Hansen Homb, Group Commander 132 Air Wing and Base Commander Bodø and Major Trond Ertsgaard who is a key member of the Wing as well.

The Bodø Airbase provides the pyramid from which the current F-16 QRA capability is generated. Like RAF Coningsby or RAF Lossiemouth, from which current RAF Typhoon QRAs are generated, Bodø Airbase is a main F-16 airbase and as such provides the pyramid to support the F-16s generated for QRA.

Bodø is strategically located to contribute to both air and maritime defense of Norway. It must always be remembered that Norway has very significant maritime as well as airspace to protect.

As Lt. Col. Homb underscored: "Norway's territorial waters are six times the size of our land area. This is also an area which we need to defend."

The base itself in its current configuration was built during the cold war and can host multiple squadrons and has a number of hardened shelters for operations as well.

As a main F-16 operating base, it can draw upon the personnel who fly, operate and maintain F-16s to support QRA activities.

Indeed, the base has demonstrated in operations, its ability to generate airpower as required by the Norwegian political authorities in times of crisis.

According to Lt. Col. Homb, during the Norwegian contribution to the 2011 Libyan operation, the turn around from the tasking to participate to delivering weapons during first strikes was only six days.

"That certainly proved that our training system clearly works.

"You can not go from a holiday weekend back home, to being ordered to participate in an international operation and then to deliver weapons within six days, if your training is not on track and clearly working."

Bodø Airbase as a large airbase dominates the town and is located at the tip of the peninsula on which the town is located.

The operating conditions are challenging for sure with winds and temperatures which create challenges to operate combat aircraft, and which require a learning curve for allies who come to the airbase to work with the Norwegians as well.

The basic facts as provided by the Wing Commander with regard to Bodø were as follows:

Midnight sun between May 30th and July 12th;

Dark time between December 1st and January 9th;

Average temperature in summer time +13.6 degrees C and in winter time 12.1 degrees C;

Well known as a windy city and for having the world's strongest maelstrom, Saltstraume;

And with the highest mountain in the area being Lurfjellind, 1.284m above sea level

The following photo captures in some sense the challenge:



FIGURE 9 BODO OPERATIONAL CONDITIONS. SLIDE FROM PRESENTATION AT BODO AIRBASE APRIL 25 2018.

Put bluntly, operating a QRA force with a requirement to launch on 15 minutes from the order to launch is not an easy task.

And as a large airbase, Bodø has been a key one where allies come to operate in exercises with the Norwegian Air Force as will be done in this year's Trident Juncture exercise.

And the larger shelters built to house an F-15 can take F-35s as well.

The local knowledge provided by the Bodø airmen are important to inform allies when they come to Norway of the challenges as well.

"We have beautiful scenery for flying but many hazards and dangers as well which we need to inform our colleagues from allied countries about when they fly in our area as well.

"Flying in mainland Europe is not the same as flying in our area for sure."

But the base is being closed as part of a basing cutback to support defense economies in support of an overall defense modernization strategy.

The close down of Bodø does pose challenges as well.

The first challenge is that when the F-35 takes over from the F-16 it will operate at Evenes Air Station, which is not scheduled to be a main operating base for the F-35.

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The main operating base for F-35 will be the Ørland airbase.

This means that a detachment of F-35s to do QRA will be operating from Evenes and supported from Ørland, which is different from operating from a large operating base of the same aircraft.

Getting the deployment support right will be a challenge but one not dissimilar from the Baltic Air Policing or Icelandic Air Policing mission experience.

Currently, the Norwegian Air Force has about 200 personnel to support the F-16 base overall and from that force can support the QRA mission as well.

The second is that Bodø has proven to be a key allied support base and sorting through how best to base allies when they come for an exercise or a crisis is a work in progress, one the Norwegians take very seriously.

But as the future of Bodø is worked out, facilities could remain beyond the currently scheduled search and rescue force.

Shelters could remain in some areas, if the approach is not one of complete elimination, and residual support capabilities could be sustained as projected in the following drawing of a possible future Bodø situation.



FIGURE 10 PROJECTED VIEW OF BODO AIRBASE IN THE FUTURE. . SLIDE FROM PRESENTATION AT BODO AIRBASE APRIL 25 2018.

A further challenge seen from the QRA perspective is that the F-35 is not an F-16 or a Typhoon for that matter.

What does a QRA mission conducted by an F-35 look like?

It is a multi-mission and low observable platform; how best to use it in the QRA role?

This is clearly a work in progress in which the Norwegians will be pioneering what I have called F-35 2.0, namely, how will use the aircraft as part of an overall combat transformation process?

Clearly, the Norwegians are modernizing their airpower and reshaping their infrastructure to support it and Bodø is part of that transition.

The current role of the Air Station was summed up by the Lt. Col. Homb in the following chart:

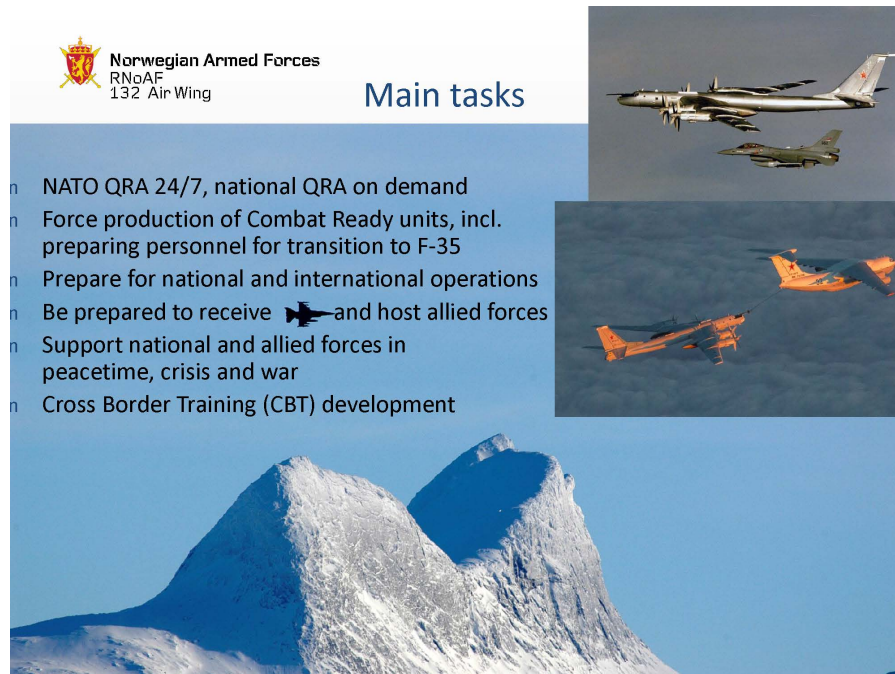


FIGURE 11 MAIN TASKS FULFILLED CURRENTLY AT BODO AIRBASE. SLIDE FROM PRESENTATION AT BODO AIRBASE APRIL 25 2018.

Shaping a Way Ahead: The Perspective from the Norwegian Joint Headquarters

The Norwegians are reworking their defense systems to shape a 21st century capability which can enhance their own capabilities but importantly work those capabilities into allied ready combat forces.

It is about shaping an effective 21st century combat force which when combined with allies provides a very credible deterrent force.

And given the proximity to Russia and the lack of strategic depth, it needs to be deterrence in depth back through the North Atlantic and continental Europe.

The Norwegians are adding new capabilities, like the F-35, the P-8, a new tanker, new missiles and other combat capabilities. But they are reworking their infrastructure as well to work more effectively in both the national and NATO interests.

One aspect of this is reworking the C2 systems within Norway, including building new or rebuilding older, whichever way, one wants to put it, within the Norwegian Joint Headquarters.

According to the Norwegian Ministry of Defence:

The Norwegian Joint Headquarters plans, conducts and leads the Norwegian Armed Forces' operations in times of peace, crisis and war.

The Norwegian Joint Headquarters (NJHQ) operates day and night, and has the overall command and control of all military activity in Norway. It also commands the Norwegian military personnel abroad.

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NJHQ is located in a mountain complex about 22 km from the city of Bodø in Northern Norway. From its joint operation centre, experienced officers continuously monitor the activity in Norway's vast land and sea territories.

This is possible thanks to our many sensors such as radars, the Coast Guard and the maritime surveillance aircraft P-3 Orion. The headquarters gathers all the information and makes a complete picture of the current situation.

This picture is shared with other departments in the Norwegian Armed Forces, and with NATO.

The NJHQ Commander is the Chief of Defence's most important advisor in questions concerning military operations and activity.

NJHQ MAIN TASKS:

- Keep an eye with Norway's vast sea and air territories, and have a current understanding of the overall situation.
- Exercise sovereignty in Norway's land, sea and air territories – and exercise national jurisdiction in these areas.
- Be present, and be able to handle crisis of any kind.
- Support civil society.
- Plan and lead military exercises.
- Provide control and support to Norwegian forces in international operations.

The operations center is located in a mountain facility and is focused on providing a common operational picture for the forces and for NATO as well as building modern C2 capabilities as well to leverage the changes underway to provide for enhanced situational awareness as well.

Recent Russian exercises have highlighted the importance not only of having rapid acquisition of an accurate combat picture but an ability to rapidly respond with the right force in the right place to defend Norway.

The Russians have been simulating attacks against Norway over the past couple of years. Thomas Nilsen in article published by the Barents Observer on March 5, 2018 provided an overview on recent Russian actions.

“Less than a year ago, on March 24th, Russian bombers were flying tactical flights towards the intelligence service's installations in Vardø. The bombers were conducting offensive profiles before they returned to bases on Kola. A total of nine aircraft participated in the operation,” said Lieutenant General Morten Haga Lunde in his annual speech at Oslo Military Society....

Two months later, Russian bombers were again simulating an attack against targets even further west in Northern Norway, the intelligence director could tell.

“Also, on the 22nd of May last year were Russian aircraft again flying tactical flights towards a fleet of NATO vessels exercising in the Norwegian Ocean. They conducted offensive operations before they returned to different bases on the Kola Peninsula,» Morten Haga Lunde explained.

“A total of 12 aircraft participated in this operation, including MiG-31, Fencer [Su-24], Fullback [Su-34] and Backfire [Tu-22M]....”

Russia's simulated offensive operations against Northern Norway did not stop with that, the intelligence director told.

“Less than a week later, on May 27 was a similar mission directed towards our military installations in the Bodø area. This happened in connection with a larger allied air force exercise led by Norway in cooperation with Sweden and Finland. Nine [Russian] aircraft participated in the operation...”

Talking about Russia’s largest military exercise last autumn, the Zapad-2017, Haga Lunde said Iskander missile systems were moved to an area close to the Norwegian border.

“Another significant element in connection with Zapad it that the missile system Iskander was transferred to the high north, specifically to the Pechenga valley, less than 40 kilometers from Storskog, approx. 15 kilometers from Korpjell, not far from the border to Norway.....”

<https://thebarentsobserver.com/en/security/2018/03/russian-bombers-simulated-attack-against-radar-norways-barents-sea-coast>

At Bodø Airbase, I had a chance to meet with Brigadier General Jan Ove Rygg and to discuss the geographical situation facing Norway as well as the changes being made to enhance the operational picture and to improve crisis management capabilities going forward.

The map below provides one with a sense of how Norway looks at the Russian challenge.

The Russians are building out infrastructure in the High North and even if the primary purpose not might be military, the build out of infrastructure does provide for presence, engagement and can host the operation of dual capable systems.

And the vast maritime zones surrounding Norway provides another challenge to ensure that threats can be identified monitored and dealt with.

With significant shipping in the area, determining anomalies and threats to be dealt with is an ongoing challenge.

It is clearly not a zero sum game with the Russians, as Norway works with Russia on a number of issues, such as fisheries. The two countries collaborate on ensuring that fishing in the maritime zones is regulated and “farmed” rather than exploited.

The goal is to have a sustainable fisheries industry and the two countries cooperate closely on this commercial and environmental objective.

In other words, a major demand is to be able to provide the military and civilian authorities with accurate and timely information through progress in situational awareness capabilities.

Brigadier General Rygg: “Everything that flies in Norway to support the government is operated by the air force.

“This means that we work closely with civilian authorities to provide for capabilities such as search and rescue and coast guard activities.”

With the coming of new ISR capabilities, such as P-8 and F-35, it will be an opportunity to leverage these new systems to enhance the situational awareness picture and to provided targeted information to decision makers to support crisis management efforts as well.

Brigadier General Rygg: “I do not want to turn the F-35 into an ISR asset but it can cleaelry contribute to our efforts.

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"More generally, the question how do we work ISR and C2 with the new assets?

"How do we use them in ways that inform us and not a potential adversary?"

The High North for Norway is a way of life, not some future scenario of activity being opened by global warming. As such, this means that activity needs to be supported and monitored.

Brigadier General Rygg: "The maritime situation is changing as the Arctic changes and we are seeing significant growth in tourism.

"The problem is that with the large cruise ships, if there is an accident, we will be called upon to contribute assets, which we will do.

"But the best form of working rescue if a large cruise ship goes down will be another ship."

The change in our ISR capabilities will flow into our National Joint Headquarters. And we need to work those evolving capabilities with evolving C2 capabilities as well.

Brigadier General Rygg: "We are building out new C2 capabilities within the National Joint Headquarters. It is about technology and reworking the workflow.

"We are bringing the key players into a close working relationship within the mountain to provide for better crisis management support as well."

As infrastructure changes, the focus will as well to provide for crisis management support.

Brigadier General Rygg: "We are shifting from a classic joint targeting approach to a joint effects approach. Every time that you do something with the military, you are creating an effect.

"We are fielding new systems, which provide capabilities we have not had in the past.

"How do we use these systems to create the appropriate joint effect?"

The kind of C2 system needed is clearly an agile, scalable and flexible one.

Brigadier General Rygg: "We may need to provide for mission control where the autonomy of key systems will be maximized.

"We may need to have a tight hierarchical C2 system.

"It depends on the threat; it depends on the mission and on the crisis management situation.

"But we need to build in redundancy and flexibility from the ground up.

"And we are."

Standing Up the F-35 at Ørland Airbase: Preparing IOC and Working Towards F-35 2.0

During my visit to Ørland Airbase, I had a chance to talk with Brigadier General Aage Longva, Vice Chief of the Norwegian Air Force, whose last post was Wing Commander at Ørland Airbase as well as with Lt. Col. Eirik Guldvog, XO/COS 132 Wing Commander.

Those interviews highlighted the building out of infrastructure and the general transition to becoming an all-fifth generation air combat force.

The specifics of working the air system and shaping a way ahead for the Norwegian Armed Forces in forging a 21st century combat force was discussed with the first Norwegian pilot of the F-35, Major Morten Hanche.

Earlier, we published his look at the coming of the F-35 to Norway as well as his presentation to last year's Norwegian Airpower conference.

<https://sldinfo.com/2016/09/a-norwegian-f-35-pilot-provides-an-update-shaping-new-combat-capabilities-in-the-northern-edge-of-nato/>

<https://sldinfo.com/2017/03/the-perspective-on-the-way-ahead-from-the-norwegian-air-force-meeting-the-challenge-of-integrated-high-intensity-operations/>

During this visit, we discussed the coming of the jet and working a way ahead for the combat force in the defense of Norway.

As the plus up the aircraft at Ørland and prepare for IOC, they have the opportunity to fly and work with the navy as they operate over Norwegian sea and land space.

With the deployment of the NASAM ground based system, they can work with the Army and with the coming of the Joint Strike Missile there is an opportunity to share a joint sensor-shooter working relationship.

Major Morten Hanche: "We are working from the outset on working together and creating multiple sensors and multiple shooters as we leverage the F-35 in Norway.

"For instance, we've been out practicing with Norwegian frigates and corvettes and providing target data for the NSM (Naval Strike Missile), which is the younger brother of JSM (Joint Strike Missile).

"It is not as complex to do this as some think. We can leverage the aircraft as flying sensor system to work various ways to enable shooters.

"We can practice and work this with our joint force partners as we fly the F-35 in the course of preparing IOC as well.

"And the flexibility which we can achieve leveraging the F-35 will be significant as part of shaping a way ahead.

"The F-35 can play a variety of roles.

"It could be a sensor for an external system or could be the shooter.

"Or both.

"Or maybe neither; it might simply provide the jamming capability to enhance the survivability of the missiles we are using to engage the adversary."

The interesting thing about the stand up of the F-35 in Norway is clearly it is happening in a strategic location.

And because the Norwegians are focusing a significant part of their indigenous defense industrial capabilities on the missile side of the house, they are standing up the F-35 as they evolve the missile capabilities for the joint force.

Second Line of Defense



FIGURE 12 MAJOR HANCHE AT THE NORWEGIAN AIRPOWER CONFERENCE 2017 SEEN WITH THE CHIEF OF STAFF OF THE NORWEGIAN AIR FORCE AND MARINE CORPS GENERAL HECKL.

And these capabilities can provide reach out with other allies, such as Australia and Japan who are clearly interested in the Joint Strike Missile.

The joint strike missile will be able to be fired from the air, ground or sea.

And because they are acquiring a combat aircraft, which can operate in a very flexible sensor-shooter, working relationship with the air, ground and sea force, significant joint force innovation can be unlocked as well.

Unlocking this kind of joint force integration is what I am calling F-35 2.0, or how to leverage the aircraft as part of a broader force transformation effort and design process.

F-35 1.0 is getting the plane and operating it in squadrons; F-35 2.0 is leveraging the aircraft as part of an overall transformation process.

And such an approach will be accelerated if the aperture of the acquisition side of the house is opened, in order to tap into significant innovations as well with regard to the development of strike systems as well.

This is a work in progress, but one inherent in leveraging the F-35 and the F-35 as a global enterprise.

For example, the USMC is a regular visitor to Norway and will operate F-35Bs from the sea base or perhaps operate ashore within the Norwegian basing structure in a crisis. The UK carrier will provide a mobile base from which to support operations in defense of Northern Europe as well.

It is clear that sharing of data across a deployed allied with the Norwegian F-35 forces can provide significant reach to support a diverse strike enterprise to provide for extended deterrence of the Nordic region as well.

Working through security arrangements to share data across the UK, US and Norwegian F-35 enterprise, as well as Denmark and the Netherlands, can provide a very significant foundation to provide for extended reach for an offensive-defensive enterprise in the defense of NATO's Northern region.

And it all starts with standing up the F-35 at Ørland Airbase and learning from the outset how to operate the aircraft as an enabler of a 21st century approach to deterrence in depth.

Basing and Active Defenses: The NASAM Case

A key dynamic associated with the strategic shift to higher intensity operations is working airbase defense as well as mobile basing options.

With regard to Norway, the new main operating base for F-35s will be at Orland Air Station in central Norway.

The Norwegians, along with the US and the partners, are building new 21st century air bases to operate the F-35s but are doing so driven not just by the coming of a new combat aircraft, but to meet the needs of evolving high tempo and high intensity conflict operations as well.

One aspect of building defense in depth for this base as well as for a distributed force is the Norwegian system worked with Raytheon, which is called NASAMS.

Norway has built out its missile capabilities with this missile system as well as its new Joint Strike Missile which will be launched from F-35s, ships and land forces as well.

According to Kongsberg, the NASAMS system is described as follows:

Characteristics:

Open architecture provides growth potential

Single and multiple engagement capability

Unprecedented fire capability

Beyond visual range capability with active seeker missile

Strategic and high mobility

Low manpower requirements

Network Centric Warfare principles of operation

High survivability against electronic countermeasures

Look down / shoot down capability

High value asset defense, area and army defense, vital point and air base defense

Unlike many international air defense systems either in use or in development, NASAMS is truly a netted and distributed system.

Second Line of Defense



FIGURE 13 NASAM. CREDIT: KONGSBERG

Integration of sensors and effectors

The proven, fielded, reliable and highly capable NASAMS system contains a BMC4I (Battle Management, Command, Control, Computers, Communications, and Intelligence) Air Defense capability through the integration of sensors and launchers. It employs the Advanced Medium Range Air-to-Air Missile (AIM-120) as the primary weapon. Targets are detected and tracked by a high-resolution, 3D pencil beam radar. Multiple of these radars and the associated Fire Distribution Centres (FDCs) are netted together via radio data links, creating a real-time recognized air picture.

NASAMS can fire on target data provided by external sensors. Advanced emission control features of the radars minimize the risk of revealing the NASAMS unit's own position. The FDC automatically performs track correlation, identification, jam strobe triangulation, threat evaluation and weapon assignment. The AMRAAM missiles used within NASAMS are identical to those used on fighter aircraft, yielding considerable rationalization returns for the user.

NASAMS in operation

The Royal Norwegian Air Force (RNoAF) was the first customer to introduce the NASAMS (Norwegian Advanced Surface-to-Air Missile System) program. Because of their success during NATO live flying exercises, NASAMS batteries are taken extremely serious by NATO aircrew. From 2004, NASAMS is earmarked by the Norwegian armed forces to be deployed in support of international crisis management operations.

NASAMS is under continuous development and every new program is adapted to the latest available technology. Currently, NASAMS is in use in 6 different nations.

https://sldinfo.com/wp-content/uploads/2018/05/NASAMS_September-2015_Screen_Small.pdf

Navigating the Way Ahead for a Fifth Generation-Enabled Combat Force: The Perspective of Maj. General Morten Klever

The Royal Norwegian Air Force is transitioning from an F-16 to an all F-35 air combat force as part of both Air Force modernization and overall defense transformation for the Norwegian forces.

The coming of the F-35 and the interaction between the standup of the F-35 and shaping a way ahead for the RNoAF was laid out and discussed.

In my conversation with the Norwegian head of the F-35 program, Major General Morten Klever, we had a chance to discuss key elements of shaping a way ahead, which would optimize the contributions of the air system to the transformation process.

We started with a base line reality as seen from Norway.

Major General Klever: "The plane is performing very well.

"The capabilities are superb.

"The feedback we have from the pilots is excellent and we are clearly looking forward to the impact of the aircraft or more accurately, the air system can have on RNoAF, and more generally upon the Norwegian armed forces."

He underscored that it would take time as well because moving beyond legacy thinking and legacy cultures is part of the transition challenge.

Yet "pilots are already starting to work with the Navy and the Army and to explore ways they might work the F-35 with the ground and maritime forces."

As the standup of the air system is put in place, it is important to generate best practices to ensure that the innovations, which the air system might allow, are realized.

Or put another way, it is important to lay a foundation that goes in the right direction rather than constraining the air system with regard to antiquated practices or legacy thinking that will reduce the impact, which the new air system can have on the combat force.

One key aspect of change, which is crucial for the F-35 weapons system itself, is expanding the ability to rapidly add capabilities, based on emerging threats.

Major General Klever: "We need to find ways to speed up the software development and insertion processes and to allow the warfighting experience of the entire range of partners to shape that software development process as appropriate."

Another key aspect of change is to ensure that an enterprise approach can be instituted from the performance of the software on the aircraft to its replication in the simulators.

This is especially important as the training dimension for fifth generation enabled combat will require expanded training spaces.

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And even though Norway has significant air space in which to operate, there is little interest in letting potential adversaries learn how coalition F-35s will work together to empower and extend defensive and offensive force.

Virtual integration of aircraft and simulators across the enterprise and between partners will enhance daily training, and turn out to be a force multiplier in operations.

Major General Klever: "This means that we will still need to train in the United States and elsewhere, but even more importantly we will need to find ways to connect our air forces across key coalition partners to shape extended live virtual constructive training as well."

And the infrastructure supporting the F-35 as a global air system needs to be shaped effectively.

This means that a global sustainment approach, grounded in an effective regional support structure, is established so that fifth generation aircraft can fly to the crisis rather than having to move large amounts of equipment prior to setting up and operating.

Major General Klever underlined the central importance of such an effort and expressed his concerns with the way ahead.

"The USAF is taking over the global sustainment approach as early as 2019.

"And currently, the USAF is continuing its legacy approach, , where the USAF transports its support equipment and parts to the fight, rather than relying on a more agile support structure.

"And even though they have an excellent PBL in the C-17 program, generally they do not do performance based logistics, and that is what is needed for this program.

"The USAF is currently too committed to a strategy of organic ownership of parts."

Major General Klever argued that the partners did not sign up for such an approach.

Under the leadership of JPO, all partners and services have designed a global sustainment concept to be implemented and from this standpoint the USAF could learn from partners, notably UK and the RAF and their approach to aircraft availability.

My visit to the UK the week after this interview highlighted how significantly the RAF is innovating with regard to Typhoon support and how those innovations are clearly relevant to the F-35 2.0 approach to sustainment.

And during that visit, the RAF maintenance community highlighted a visit of then then head of the Joint Program Office, Lt. General Bogden, who kept focusing on the legacy question of trust: how could I know the part was there when I needed it."

During a visit to RAF Coningsby a few years ago, he repeatedly asked that question to the RAF maintainers who all had the same answer: that is the wrong question. We will ensure that the aircraft going into combat has parts priority and we have set up a system to ensure that that happens.

And for Major General Klever, the key is getting the right support to the right aircraft at the right time, at the right place.

That will NOT happen unless there is a global sustainment approach with an established management structure supported by agreed business rules to ensure priorities are supporting the needs of the warfighter.

Major General Klever underscored that Norway has had an excellent experience with Pratt and Whitney with regard to a PBL contract on F-16 engines and P&W is currently standing up a support structure in Norway for the F-35.

He believed that the some US services could learn from the partners on this issue; and more to the point, this is what the partners and services signed up to; not a legacy maintenance and support structure for their F-35s.

And with allies flying as many F-35s as the US in the next few years, clearly the U.S. needs to pay attention to this approach.

And beyond that, if the F-35 will enable the kind of military transformation necessary to turn adversary anti-access and aerial-denial bastions into Maginot Lines, an ability to provide combat sustainment at the point of critical interest is the key.

The image put by one analyst in a discussion about the shift highlighted that when United Airlines flies to Australia it does not have a cargo plane carrying parts to ensure that it can fly back.

Major General Klever concluded: "How often have you missed a flight because of unavailability of aircraft due to maintenance?

"The commercial world has taught us a significant lesson about the way ahead.

"In the end, this boils down to affordability, and subsequently increased operational effect."

NORDICS AND THE ALLIES

Norway, NORDEFCO and Shaping a Way Ahead with the Nordics

As Norway looks to its defense transformation and working out ways to work more effectively with its allies in extended defense and deterrence, it faces change in Europe associated with significant dynamics of change in Europe from Brexit to Catalonia.

At the same time, the US is dealing with the Middle East as well as the Koreas as President Trump and his team sort through shaping a way ahead for the US and its allies in dealing with the threats of weapons of mass destruction.

There is much uncertainty in the strategic environment on the allied and on the side of the threat envelope for Norway as well.

In such a context, it is not surprising that the Nordics are working ways to collaborate more effectively in the defense of their region.

One way to do this is the cross-border training they are engaged in with Sweden and Finland.

Here squadrons from Norway, Sweden and Finland work together every week on cross-border training activities.

And the air space being used is very significant as well.

Europe as an operational military airspace training area is not loaded with good training ranges.

The range being used for CBT is very large and is not a cluttered airspace, which allows for great training opportunities for the three nations, and those who fly to Arctic Challenge or other training events.

Second Line of Defense

And the range flies over land so there is an opportunity for multi-domain operational training as well.

But this is being matched as well with policy discussions and policy coordination efforts as well.

As Harald Malmgren described such activities within the broader European context:

A new “cluster” of European nations with a common security objective has quietly emerged recently in the form of focused military cooperation and coordination among the Nordic nations, Poland, the Baltic States, and the UK.

This cluster is operating in close cooperation with the US military.

The Danes, Norwegians, the Swedes and Finns are cooperating closely together on defense matters.

Enhanced cooperation is a response to fears of Russian incursions, which are not new, but have roots in centuries of Russian interaction with Northern Europe.

It is also a response to the weak defense and security policies of most of the rest of Europe, notably the emasculation of any meaningful German military by the German government.

The Norwegians and Danes notably and reaching back to the UK are adopting the concepts of warfare pursued by the US military in its new focus on conflict in a fully integrated battle space operating in high intensity and at high speed.

At the heart of this integrated approach to building a credible deterrent to Russian “adventurism” and territorial incursions are the 5th generation F35 aircraft capable of coordinating and applying firepower from land, sea and air simultaneously.

Norway, Denmark and the UK are all acquiring the F-35 as part of the evolving collaborative approach.

The pilots in this assemblage of F35s are all trained in the same locations in the UK and the US, and are able to fly each other’s aircraft without adaptation.

It should be noted that Italy’s military wants to find a way to interact with the Northern Europeans as well as the UK and is acquiring F35s for itself to enable participation on short notice.

<https://sldinfo.com/2017/11/europe-illusions-and-reality/>

An evolving institution within which Nordic cooperation is being shaped is NORDEFCO.

In an interview I did with an American colleague who has worked in Denmark the past few years as a Senior Researcher at the Centre for Military Studies at the University of Copenhagen, we discussed NORDEFCO and its emerging role.

Question: How has Nordic cooperation progressed during your time in Denmark?

Gary Schaub Jr.: It has progressed significantly.

Initially, much of the cooperation was very political and often symbolic.

It has become less headline grabbing and more focused on the nuts and bolts of cooperation to shape real military capabilities as well as enhanced crisis management.

This is clearly a work in progress, but the change is significant.

NORDEFCO has been the organized effort to enhance cooperation among Denmark, Norway, Iceland, Finland, and Sweden.

NORDEFCO is now focused on ways to enhance operational military capabilities among the forces. For example, an agreement was reached last year on “Easy

Access” among the air and naval forces of the member states.

The agreement allows relatively free flow of those forces across the territories of the member states as agreed upon.

<https://sldinfo.com/2017/10/shaping-a-way-ahead-in-nordic-defense/>

Clearly, major changes on both the Swedish and Finnish sides have facilitated enhanced cooperation.

For the Swedes, it was a growing recognition of the threat to the Baltic States and Sweden has clearly cooperated more closely with NATO with regard to the Baltic States as well as in the Northern Region.

The Finns changed their legislation so that they can both receive and give assistance in a crisis.

Certainly, cooperation between Sweden and Finland has increased significantly in the past few years.

The NORDEFCO framework encompasses these two states who are not members of NATO with three members of NATO, namely Norway, Denmark and Iceland.

As one Norwegian senior analyst put the question to me during my visit to Norway in April: “How far can we take our cooperation?”

“We now have a mission paper which extends our framework of cooperation through 2020 and we are working a new one which extends the horizon to 2025.”

The members are working on an “easy access agreement” whereby the forces of the member states can cross borders easily to collaborate in exercises or in a crisis.

The NORDEFCO states are not focused simply on their own member exercises but participating in larger ones, which inevitably means NATO. As this analyst put it:

“The Swedes and Finns have a permanently placed officer in the Norwegian Joint command post in Northern Norway which certainly allows them to plan effectively for exercises, including this fall’s Trident Juncture.”

This analyst argued that there is a clear upswing on the level of cooperation and its significance as well.

“I think the discussions among ministers have been taken to an unprecedented level. We also discuss crisis management.

“We have to prepare ourselves for handing a situation without the Swedes and the Finns, because they are not members of NATO.

“But we think that it is more and more likely that they would be fully involved in such a situation.

“I think our western partners realize this, so the American footprint in Norway could also be used to reinforce the Baltic states.

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“Having access to Norwegians territory, and perhaps for a door in Sweden and Finland makes a big difference.”

This cooperation is unfolding in the context of the strategic shift to prepare for both crisis management and conflict in a high intensity warfare setting.

Clearly, a key focus is upon rebuilding NATO’s ability to establish sea control to reinforce the Nordic region in times of crisis and to ensure that reinforcements from outside the Nordic region can seamlessly integrate with Nordic forces as well.

Part of the crisis management approach is to focus on civilian support to the military in a crisis, which the Norwegian Total Defense Concept or the Finnish mobilization concept or the Swedish reintroduction of conscription is clearly designed to do as well.

Clearly, timely and effective mobilization is critical to generate appropriate responses to crises and to provide tools to ensure more effective deterrence as well.

Trident Juncture 2018, the Defense of Norway and Working 21st Century Deterrence in Depth

Trident Juncture 2018 will be a major NATO exercise. As the head of the Transformation Command in NATO, General Mercier, put it last year:

“NATO needs to hold exercises on a large scale.

“Only this way are we able to test all the levels in the alliance: From the troops on the ground and all the way up to a strategic level, NATO needs realistic training, where we can combine operations in the air, at sea and on land. In Norway we get everything, this is one of the best places to train in Europe.”

<https://sldinfo.com/2017/06/preparing-for-trident-juncture-2018-nato-focuses-on-its-core-mission/>

It will be the largest exercise hosted in Norway for a very long time.

The first Trident Juncture exercise took place in Portugal, Spain and Italy from 3 October to 6 November 2015.

Around 36,000 soldiers and other personnel from over 30 nations took part in the exercise.

The next Trident Juncture will be held in central Norway in 2018 and is expected to be of the same size. Norway has a long tradition of hosting major allied and multinational military exercises.

Among them is Cold Response. Trident Juncture 2018 will consist of a live exercise in October and November and a Command Post Exercise in November 2018.

But seen from a Nordic perspective, the exercise is coming at a time when Norway is modernizing its defense force, working ever more closely with the other Nordics, including cross-border training with Sweden and Finland, and re-invigorating its total defense approach.

Indeed, with the return of conscription in Sweden, with the continued commitment to a national mobilized armed forces in Finland and to a re-emphasis on the total defense concept, the Nordics are leading the way within Europe on a wider societal commitment to defense.

With the importance of crisis management in the region, an ability to work effectively with allied forces operating on NATO territory supported by a total defense approach within Norway, is part of the effort to calibrate force capabilities appropriate to deal with regional crises.

As Norway reworks its air basing structure, and modernizes its air force, army and navy, along with changes in the broader North Atlantic, working deterrence in depth is underway as well.

For example, the UK will add a new F-35-enabled carrier able to operate in the region as a mobile base able to work with other F-35s in the region to shape a wider combat grid to support moves on the strategic and tactical chessboard necessary to deal with regional crises.

But to shape such capabilities will require an effective exercise regime, one in which Norway works to support allied forces appropriate to meeting effectively specific regional crisis situations.

It is not just about being reassured by importing allied capability, more generally; it is about integrating Norwegian with appropriate allied forces to meet specific crisis management challenges and military threats in the region.

During my visit to Norway during April 2018, I had a chance to discuss Trident Juncture with several Norwegian defense and military officials.

And at the end of the visit had a chance to focus specifically on the exercise and its interconnection with the Norwegian Total Defense Concept with Col Lars Lervik at the Norwegian Ministry of Defence who is working the preparation for the Trident Juncture 2018 exercise.

According to Col Lars Lervik: "A key focus of the exercise from the NATO side is exercising our ability to conduct high intensity operations in a multi-national environment.

"What we're looking at here is confronting an opponent who has the whole arsenal available.

"We need to be able to function not only as individuals and individual nations, but actually function together.

"This is a key focus of the exercise."

Trident Juncture 2018 is also a command post exercise as well and given that Norway is reworking its C2 capabilities as part of defense modernization, the exercise provides an opportunity to input multinational operational training as well into the transformation process.



NATO's high-visibility exercise Trident Juncture will take place in central and eastern parts of Norway in October – November 2018. It will be the largest military exercise in Norway for decades.

FIGURE 14 TRIDENT JUNCTURE 2018. NORWEGIAN MINISTRY OF DEFENCE

Col Lars Lervik highlighted that “It is very important to ensure that we have the procedures in place necessary to operate an integrated force on Norwegian territory in a higher intensity operational environment.

“We are starting really to be serious about C2 again.

“We are working to shape an effective C2 template going forward.

“We need to make sure that all our structures are integratable with NATO.”

“It is not a coincidence that Norway volunteered to be the host for this exercise.

“We’ve been focused on getting NATO to focus back on collective defense for quite a while.”

The Norwegians are working at three levels with regard to C2.

The first is at the national level.

The second is at the NATO level.

The third is at the bilateral C2 level, namely working with the US, the UK, the Nordic non-NATO members as well as other NATO members, such as Germany.

There is a substantial maritime component within the exercise, which gets at the broader extended deterrence piece whereby the sea base becomes integrated into the defense of Norway and NATO forces operating on Norwegian territory as well.

Col Lars Lervik underscored that “Working with allied forces is also about the capability of Norway able to receive NATO and allied reinforcements.

“And that’s when a total defense concept comes into play for us to be able to fulfill our host nation support commitments.”

For Norway, the total defense concept is a focus on the ability of the civilian side of society to support military operations.

For example, the Norwegians do not have a specialized military medical service. The civilian side is mobilized to support both Norwegian and allied medical needs in times of conflict. This will be exercised during Trident Juncture 2018.

Col Lars Lervik emphasized that “We need to be able to support NATO allies when they come into Norway.

“I think we’re making real progress with regard to civil society’s ability to support the Norwegian and allied militaries.

“For example, when the US Marines arrive in Undredal, Norway (in the middle of Norway), it could be a civilian bus driver on a civilian bus who will transport them onward to their next location. They might pick up fuel from a local civilian Norwegian logistics company.

“It is about the resilience as well with regard to civilian society to support military operations.

“We need to understand and to enhance how the modern society is able to function in a time of crises and war.”

THIS IS NORWAY'S TOTAL DEFENCE

- In the event of a crisis or conflict, the Norwegian Armed Forces depend on support from the civil society. The Total Defence is Norway's total, collective military and civilian effort during crisis or war.
- The Norwegian Armed Forces are in charge of the military division of the Total Defence, while the Norwegian Directorate for Civil Protection (DSB) is in charge of the civilian part.
- Should a conflict or crisis arise, a number of civilian professions and branches may be affected. These include: public healthcare, transport and logistics, agriculture, food industry, media, and construction.
- The Norwegian Total Defence will be tested and trained this autumn, during NATO's exercise Trident Juncture in Norway.

FIGURE 15 NORWEGIAN TOTAL DEFENCE CONCEPT. NORWEGIAN MINISTRY OF DEFENCE.

A Norwegian Perspective on Cross Border Training North

During a visit to Bodø Airbase on April 25, 2018, I had a chance to discuss Norwegian Air Force training with the Finns and the Swedes as they expand their cooperation to provide for enhanced regional defense.

Major Trond Ertsgaard, Senior Operational Planner and fighter pilot from the 132 Air Wing, provided an overview to the standup and the evolution of this significant working relationship.

With the Swedes and Finns, both not members of NATO, working with Norway, the lead NATO member in Northern defense, working more closely together, enhanced deterrent capability is being shaped in Northern Europe.

A very flexible capability has been put in place among the three nations through the Cross Border Training approach and one driven by innovations at the squadron level.

Indeed, the day I was there, I saw four F-16s take off from Bodø and fly south towards Ørland airbase to participate in an air defense exercise. The day before this event, the Norwegians contacted the Swedes and invited them to send aircraft to the exercise, and they did so.

The day before is really the point.

And worked out among the squadrons themselves to turning flying time into cooperation to train for combat is the means.

It is being done without a complicated day-to-day diplomatic effort.

This is a dramatic change from the 1990s, when the Swedes would not allow entering their airspace by the Norwegians or Finns without prior diplomatic approval.

“In the 1970s, there was limited cooperation.

“We got to know each other, and our bases, to be able to divert in case of emergency or other contingencies.

“But there was no operational or tactical cooperation.

“The focus was on safety; not operational training.”

By the 1990s, there was enhanced cooperation, but limited to a small set of flying issues, rather than operational training.

“But when the Swedes got the Gripen, this opened the aperture, as the plane was designed to be more easily integrated with NATO standards.”

Then in the Fall of 2008, there was a meeting of the squadrons and wing commanders from the Finnish, Swedish and Norwegian airbases to discuss ways to develop cooperation among the squadrons operating from national bases.

The discussion was rooted on the national air forces operating from their own bases and simply cooperating in shared combat air space.

This would mean that the normal costs of hosting an exercise would not be necessary, as each air force would return to its own operating base at the end of the engagement.


The CBT started between Sweden and Norway in 2009 and then the Finns joined in 2010.

By 2011, “we were operating at a level of an event a week.


“And by 2012, we engaged in about 90 events at the CBT level.”

That shaped a template, which allowed for cost effective and regular training and laid the foundation for then hosting a periodic two-week exercise where they could invite nations to participate in air defense exercise in the region.

“And that is how the Arctic Challenge Exercise (ACE) entered the picture and has evolved.”






Royal Norwegian Air Force
AFB Bodø 132 Air Wing



Arctic Challenge Exercise

- Rovaniemi, Luleå and Bodø - aim to be conducted bi-annually
- 2013 participants from UK, US, NOR, FIN, SWE, NATO
 - Good results for being the first execution
- 2015 participants from NLD, FRA, CHF, DEU, GBR, USA, NOR, FIN, SWE, NATO (AWACS)
 - Further development from ACE13, approx 95 fighters and 17 Support
- 2017 participants from NATO, DEU, BEL, CAN, ESP, USA, FRA, NLD, GBR, CHF, NOR, SWE, FIN
 - Approx 100 fighters ++ (one of Europe's largest live EX for fast jets)



Cross Border Training - Major Trond Ertsgaard 132 Air wing Bodø

8 May 2018 7

FIGURE 16 ARCTIC CHALLENGE EXERCISE AND PARTICIPANTS FROM PRESENTATION AT BODØ AIRBASE

Since 2015 the three air forces have shaped a regular training approach which is very flexible and driven at the wing and squadron level.

“We meet each November, and set the schedule for the next year, but in execution it is very, very flexible.

“It is about a bottom-up approach and initiative to generate the training regime.”

The impact on Sweden and Finland has been significant in terms of learning NATO standards and having an enhanced capability to cooperate with the air forces of NATO nations.

And the air space being used is very significant as well.

Europe as an operational military airspace training area is not loaded with good training ranges.

The range being used for CBT is very large and is not a cluttered airspace, which allows for great training opportunities for the three nations, and those who fly to Arctic Challenge or other training events.

And the range flies over land so there is an opportunity for multi-domain operational training as well.

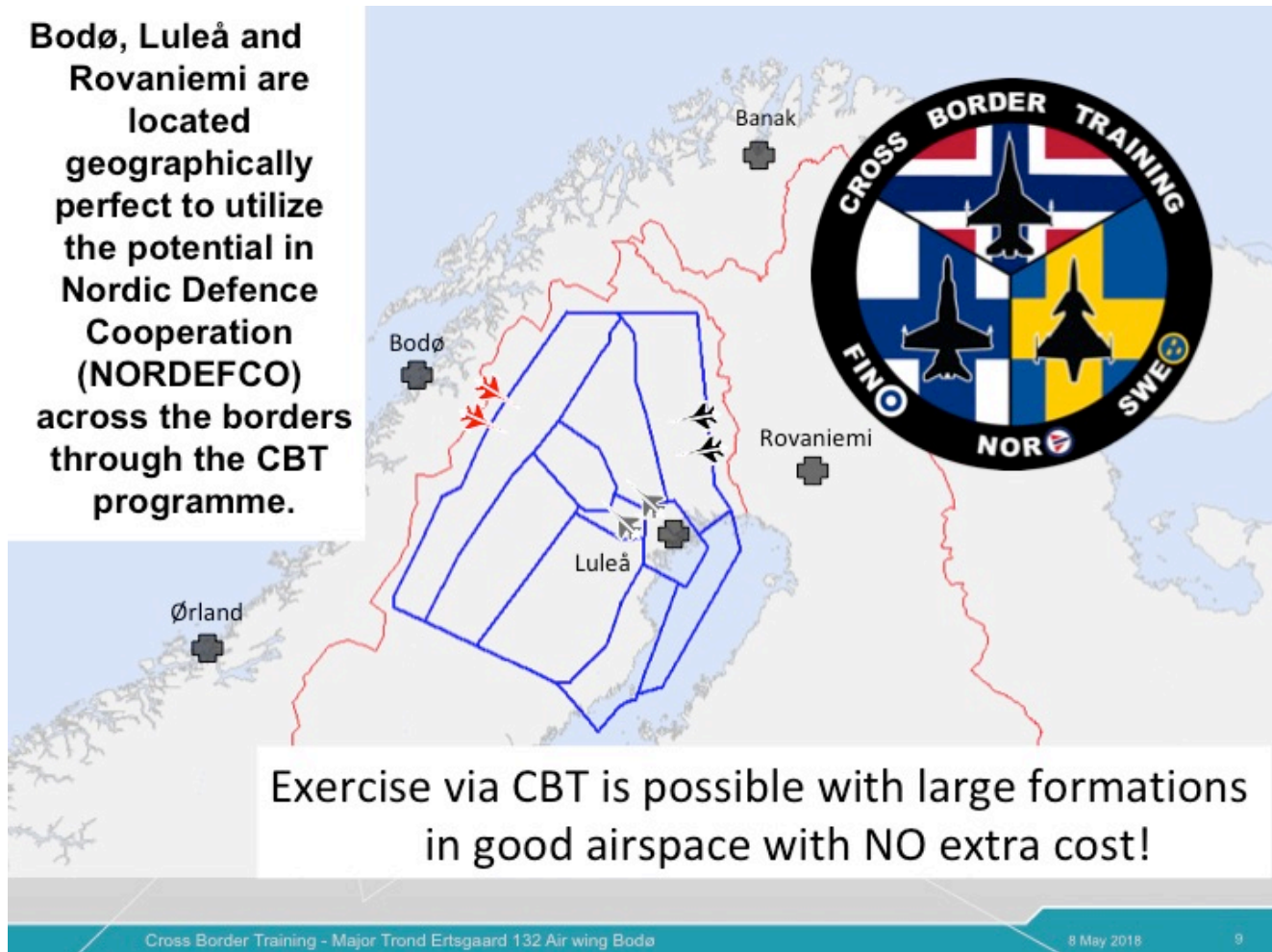


FIGURE 17 CBT OPERATIONAL AREA FROM PRESENTATION AT BODØ AIRBASE

The flag for the Arctic Challenge Exercise reflects the nature of the effort.

“The main center flag represents the national responsible for the planning of the event.

“In 2013, it was Sweden; last year it was Finland and in 2019, Sweden again.

“And then the flags of the participating nations are shown as well giving a sense of the collaborative scope of the exercise.”

He then discussed another exercise they have developed which they call Arctic Fighter Meet (AFM).

“We deploy to each other’s bases; so it is not the low cost end of CBT.

“We deploy four to five jets to each other’s base to do combat training.

“It is about getting to know each other; it is about making combat training more effective.”

What is most impressive can be put simply: “CBT was invented by the units and the wing commanders and squadron pilots.”

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And given the strategic location of the air space in which training is occurring it is a key part of working deterrence in depth in the region and beyond.

Leveraging the F-35 as Part of Danish Defense Transformation: The Perspective of the New Chief of Staff of the Royal Danish Air Force

I first met Major General Anders Rex at the Danish Airpower Conference in 2015. There he provided a significant presentation on the key focus within the Danish Air Force on how to work effectively within coalitions.

Being a good coalition partner takes practice.

We have a core group in the Danish Air Force, which has done several coalition operations, and when we are not doing that we participate in multinational exercises.

This is a core competence that the Danish Air Force has developed, and as we do so we work to find the gold in each coalition operation.....

A key focus of effort among the Allied air forces is clearly upon how to make the most of a coalition and to work more effectively together.

He coined the term "coalitionability" and set a goal for allied and partner Air Forces ways to shape higher levels of "coalitionability."

<https://sldinfo.com/2015/04/coalition-operations-are-in-the-danish-dna-finding-the-gold-in-coalitions/>

He has become COS of the Royal Danish Air Force as they prepare for the introduction of the F-35 and as core allies in the region are doing so as well, notably, the UK (onboard the Queen Elizabeth), the Dutch and the Norwegians. The coalition opportunity clearly is right in front of these partners, and in the UK case, the UK has not flown the same aircraft with the Nordic Air Forces for a long time indeed.

At the earlier seminar, Major General Anders noted that the USAF being as large as it was had less opportunity to work "coalitionability."

Of course, the USAF is a much larger force than that of Denmark's.

But Major General Rex underscored that "it's so big that if you look at the rate of coalition training opportunities per airman I'm sure it's a lot lower than an air force like the Danish one."

For the operations which we undertake "It's really important to know and understand how to make the most out of a coalition, how to dig out the gold."

In an interview I did last year with then head of the USAF at RAF Lakenheath, Col. and now General Novotny underscored how important he saw the coalition aspect of the standup of the F-35 in the region, notably the UK and the US based at Marham and Lakenheath, respectively:

"I see there is great potential for two countries to develop in concert, side-by-side, and to set, set the model for joint operations.

"As we get this right, we can bring in the Danes, the Norwegians and Dutch who are close in geography and the Israelis and Italians as well to shape the evolving joint operational culture and approach.

“Before you know it, you’ve got eight countries flying this airplane seamlessly integrated because of the work that Lakenheath and Marham are doing in the 20 nautical miles radius of the two bases.”

<https://sldinfo.com/2017/04/raf-lakenheath-prepares-for-the-future-usaf-f-35as-and-f-15s-combine-with-raf-capabilities-to-provide-a-21st-century-deterrent-force/>

As important as this might be for the USAF overall, for the Danes and the Nordics it is the coin of the realm.

To be blunt: to leverage every aspect out of the F-35 as a common coalition aircraft will be essential to defense in the Nordic region and the transformation of their forces to deal with the direct Russian threat.

This means leveraging common pilot training, leveraging pilots across the enterprise in case of shortages within a national air force, common logistics stores in the region, common maintenance regimes, common data sharing, and shared combat learning.

This clearly is a work in progress and what one might call F-35 2.0.

F-35 1.0 is getting the plane and operating it in squadrons; F-35 2.0 is leveraging the aircraft as part of an overall transformation process.



FIGURE 18 MAJOR GENERAL REX. CREDIT: DANISH MINISTRY OF DEFENCE

In my discussion during a visit to Copenhagen in October 2017, I had a chance to talk again with ERA (his call sign).

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And he was clearly focusing on F-35 2.0, probably in part because the new Danish defense agreement in process is clearly focused on countering the Russian A2/AD strategy in the region.

“When I talk with F-35 pilots, the same message is drilled into me – this is not a replacement aircraft; this is not like any aircraft you have flown before.

“The aircraft enables our air combat forces to play a whole new ballgame.

“And from my discussions with Australians, the Norwegians, the Dutch and the Brits, it is clear that the common drive is to shape a fifth generation combat force, not simply fly the current 256 F-35s as cool, new jets.”

He clearly had in mind working on F-35 2.0 to trigger a broader transformation.

And this makes sense, because in large part the F-35 is not simply a fighter which you define but what it does by itself organically, but, rather by what it can trigger in the overall combat fleet, whether lethal or non-lethal payloads.

“We need to focus on the management of big data generated by the F-35 and other assets that will come into the force.

“How do we do the right kind of command and control within a rich information battlespace?

“We need to build self-learning systems as well.

“The F-35 is a revolutionary man-machine system and sets in motion not only the challenge of new approaches to working information and C2, but new approaches to combat learning.

“How do we get there?

“That is what generating a fifth generation combat force is all about.”

It is clear that the F-35 is part of a significant culture change.

“We need to be open to significant culture change.

“Many Danish F-35 pilots will be converted from 16s and will learn the new ways of operating.

“At the same time, a new generation of pilots will have F-35 as their first combat aircraft and have no operational experience on legacy aircraft and are open to radical changes in how the jet can be used and in working with the other combat assets.

“We need to facilitate and channel such open ended learning as well as we build out our force transformation with those pilots with F-16 experience and the new F-35 pilots as well.

“Part of that is captured by the notion of integrating legacy aircraft with the F-35, but that is too narrow of a concept.

“We are really looking at shaping a different kind of force, F-35-enabled but which incorporates the old which remains valuable and adds new systems which can expand the combat effectiveness of the evolving fifth generation force.”

“How do we make sure that we don’t settle with the reality that the F-35 is better than anything out there and it makes the fourth gen better?

“That will not get us to a fifth generation combat force.

“We need to leverage it to drive continuous transformation to ensure that we have the kind of capabilities which our demanding strategic environment requires.”

Securing the Nordic-Baltic Region

The NATO Review

<https://www.nato.int/docu/review/2016/also-in-2016/security-baltic-defense-nato/EN/index.htm>



FIGURE 19 THE BALTIC REGION. NATO

Russia’s illegal annexation of Crimea in March 2014 and its military actions in Ukraine have led transatlantic policy-makers to reassess collective defence arrangements across what is frequently referred to as NATO’s “eastern flank”. Extending north partially beyond the “eastern flank” is a region that comprises eight Nordic and Baltic states, which have become increasingly interdependent in security terms. The region is of rising importance in the context of Europe’s changing security order – and defence and deterrence is set to be high on the agenda at NATO’s summit meeting in Warsaw, Poland, in July.

NATO has a strong role in coordinating closer security ties between the region’s states. Finland and Sweden are not members of the Alliance and are therefore not covered by NATO’s collective defence clause. However, the Allies are working closely with both countries – two of NATO’s most active partners – to assess

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security in the Baltic Sea region, to expand exchanges of information, including on hybrid warfare, coordinating training and exercises, and to develop better joint situational awareness.

The prospects are positive for improved NATO-Nordic-Baltic defence cooperation, yet a number of important challenges need to be overcome. The region will test NATO's flexibility in strengthening defence ties among its members and crucial partner states.

The Baltic balance

The Baltic states broadly welcomed the deterrence measures agreed at NATO's Wales Summit in 2014 to form the Readiness Action Plan (RAP). Nevertheless, many in the Baltics see it as a work in progress.

A core feature of the RAP is the 5000-strong Very High Readiness Joint Task Force (VJTF) created within the NATO Response Force (NRF). Baltic capitals would, of course, prefer the guarantee of a larger and permanent NATO military presence on their territory, whereas the current arrangement under RAP stresses the "trip-wire" of small Allied rotations.

NATO's lead Allies – France, Germany, the United Kingdom and the United States – still prioritize resolving the wider eastern European security crisis through diplomatic means. This has led to a difficult balancing act: on the one hand, they aim to stay within the constraints of the 1997 NATO-Russia Founding Act and avoid a tense military build-up along NATO's "eastern flank"; on the other, they seek to assure NATO's eastern members that any possible aggression will be credibly deterred.

Scaling-up cooperation within RAP

A radical overhaul of RAP is currently difficult to foresee but the deterrence framework can still be improved within the mentioned constraints. In signalling to Russia that there are no divisions within NATO that it can exploit, it is important that the various components of RAP are sourced from a broad group of Allies.

NATO's Baltic air policing mission shows that wide-scale allied participation is both possible and able to adapt to changing security circumstances. Since 2004, the air forces of 16 different NATO member states have been involved in securing Baltic air space. In the immediate aftermath of the 2014 Crimean crisis, the mission was scaled up in terms of the Allies and fighter aircraft involved. If required, options for increased airpower can be accommodated through more intensive use of bases at Malbork in Poland and Ämari in Estonia, in support of the air policing mission's original home at the Šiauliai Air Base in Lithuania.

Since the RAP's formation, the broad involvement of Allies has overall been satisfactory. Germany, Norway and the Netherlands have taken up the mantle for the "interim spearhead force", ready since January 2015, until the VJTF comes into full operation in 2017.

Moreover, the Pentagon is currently considering plans to deploy a 5000-strong combat brigade to Europe to rotate through the Baltic states, Poland, Bulgaria and Romania on a continuous basis. The United Kingdom will establish a greater naval presence in the Baltic Sea, announcing in February 2016 that it will deploy a destroyer, a frigate and three minesweepers, and has also pledged 100 troops for the Baltic states. Germany also plans to rotate military companies in the Baltic states and Poland.

NATO can gain a psychological edge by credibly signalling its ability to rapidly scale-up its deterrence presence along the "eastern flank" in the event of deteriorating security circumstances. In this respect, it will be important to upgrade hosting capabilities to be able to accommodate increases in NATO troops and military hardware. The United States has allocated an extra \$2.4 billion for this purpose in its 2017 budget but more

needs to be done by NATO – primarily by the states comprising the “eastern flank” – to provide the infrastructure needed to facilitate the scaling-up of NATO deterrence if required.

Boosting deterrence and defence through exercises

The number of major exercises conducted by NATO fully encompassing the land, sea and air power of its Allies in the Baltic Sea region should be increased. With Russia conducting “snap” military exercises numbering 30,000-80,000 troops proximate to Baltic borders since the onset of the Ukraine crisis, the previous NATO exercises that have taken place in the region, such as the 6,000 strong Steadfast Jazz in November 2013, now seem rather modest. Larger exercises would serve to demonstrate NATO’s credible commitment to deter one of the core aspects in Russia’s application of “hybrid” warfare, namely the use of the presence of large-scale conventional forces close to the border of the target state as coercion.

Smaller exercises in the region also bring added value to NATO Allies. Conscript and volunteer units remain important for Estonia’s territorial defence system and Lithuania recently decided to bolster its territorial defence through the reintroduction of conscription. Should a Russian military encroachment occur on Baltic territory, these conscript and volunteer forces working alongside their professional counterparts will be crucial to the early defence effort. It should therefore be important for all Allies centrally involved in RAP to hone better interoperability with these non-professional force components.

A model upon which to build was provided by the Siil/Steadfast Javelin exercise in Estonia in May 2015. This was a substantial exercise considering Estonia’s population of 1.3 million. The exercise involved 13,000 Estonian troops including conscripts and volunteers together with 600 troops from NATO Allies including Belgium, Germany, Latvia, Poland, the Netherlands and the United Kingdom.

Force structures

The Baltic states should be allowed the opportunity to remodel their force structures in accordance with changed territorial security circumstances. NATO remains a multi-purpose Alliance committed to collective defence, cooperative security and crisis management. Despite concerns over territorial defence, the Baltic states have previously been eager to respond to NATO expectations and contribute to out-of-area crisis management efforts, particularly in Afghanistan.

Participation in international missions has brought many side-benefits for Baltic military improvement. However, following Russia’s recent resurgence, Baltic defence planners need to focus their limited resources on military force structures that will facilitate a “deterrence by denial” strategy.

For the small Baltic militaries, this means developing tactics and leveraging military technology that will frustrate, bleed and limit the advancement of any encroaching enemy force. The Baltic states should be exempt from NATO-wide contribution expectations for any future crisis management missions. Instead, Baltic defence planners should selectively choose their missions based on the military development opportunities they offer.

Coordinating Nordic-Baltic defence

The security interdependence between the Nordic and Baltic states has increased considerably over the past decade. Maritime security has become one of the most pressing issues. Connections providing critical energy and communications infrastructure link many states in the region. Many key connections pass underneath the Baltic Sea.

In the event of a crisis breaking out around the Baltic Sea, secure access to this infrastructure becomes crucial to ensuring that NATO has the widest possible freedom of movement should the Alliance need to react in Second Line of Defense

defence of any one of its Allies. As Finland and Sweden are key provider states within these developing Nordic-Baltic infrastructural networks, NATO should ensure that both these partner countries are given the option to be integrated strongly within the relevant contingency planning structures.

Maritime security issues also centre on the strategic position of Gotland (Sweden) and the Åland Islands (Finland). Defence of the Åland Islands is complicated by the demilitarized status they hold under international law. Gotland was demilitarized after the Cold War but has recently been remilitarized: in light of potential danger, Sweden is establishing a precautionary 300 strong battlegroup on the island. The Swedish defence analyst, Karlis Neretnieks, has argued that should Russia capture Gotland, which is located in the centre of the Baltic Sea, their forces could position mobile surface-to-air missiles there. While placing the security of NATO's Allies in the region at risk, such a move would again potentially restrict NATO's freedom of movement in the effort to respond in defence of these Allies. The same logic can apply in the case of the Åland Islands.

Security for Gotland and the Åland Islands rests with Sweden and Finland respectively. However, the strategic position of these islands with respect to wider regional defence strengthens the argument that, as key Alliance partners, Sweden and Finland should seek to further synchronize their maritime security planning with NATO and individual Allies in the region.

Overcoming political obstacles

The Ukraine crisis has brought Nordic and Baltic security perceptions closer together. However, some intricate differences remain. This is the case particularly between Finland and Estonia. While cooperation thrives in other political and economic areas, the policy divide concerning some defence issues runs deep. Issues of Russia policy bring to the surface the differing approaches that have developed between both the Finnish and Baltic foreign policies.

Finland seeks to put improved defence arrangements in place in a way that minimizes confrontation with Moscow. The Baltic states, on the other hand, have frequently strived to communicate to their fellow members in NATO and the European Union the threat that Russia poses to European security order. In this sense, the view from Helsinki might be that Baltic leaders needlessly add tension to their relations with Russia, creating risk and making greater Finnish involvement in wider regional defence less attractive. Improved political understanding on both sides is required to overcome these difficulties.

The reformed concept of Nordic Defence Cooperation (NORDEFCO) announced in November 2014 to include close partnership with the three Baltic states should act as an environment where an improved cooperative ethic can be achieved. All participating states should take firm advantage of the benefits that a "new" NORDEFCO might offer.

Closer links between NATO and NORDEFCO

Increasing links with NATO in a wider sense stands to widen the pool of expertise available for NORDEFCO's development. Finland and Sweden are already benefitting from enhanced opportunities for cooperation and dialogue with NATO since 2014. Moreover, Denmark and Sweden agreed to expand defence cooperation in January 2016, demonstrating the higher emphasis on defence policy within the mainstream Nordic political agenda.

As all militaries in the Nordic-Baltic region require similar specifications in procuring equipment, the NORDEFCO environment provides opportunities to reduce financial burdens by bringing greater economies of scale to bear for joint procurements. With a strong argument present to advocate cold weather operations as

a core focus, the NORDEFCO framework facilitates opportunities for a greater number of joint military exercises that promise to hone better military interoperability in the Nordic-Baltic region.

The underlying compatibility between the Nordic and Baltic defence systems is strong. As is the case with Estonia and Lithuania, territorial defence planning in most Nordic states includes strong conscript elements.

Finally, from a wider NATO perspective, more NORDEFCO exercises should also be open to Allies from outside the region, such as the Germany, France, Poland, the United Kingdom and the United States, which stand to be important contributors under the RAP framework to defence in the Baltic Sea region. This type of wider security cooperation centred on Nordic leadership has previously been conducted to prepare for peace-support operations, for example, the Swedish-led “Viking” exercises. Given the current Nordic-Baltic security situation, there should also be scope to widen this cooperation into the area of territorial defence.

Europe's Northern Group

Europe's Northern Group is providing a venue for discussing ways to enhance defense, security and deterrence in the region. Its membership is built around the Nordic groups, but also includes the most relevant allies for the defense of the region, namely Britain, Poland, Germany, the Netherlands and the Baltic states.

In an article published in 2015 by Elisabeth Braw in *World Affairs*, the author highlighted the European Northern Group:

Under ordinary circumstances, the Northern Group would hardly be headline news.

The association of northern European countries holds regular ministerial meetings, strategic meetings, and expert-level meetings, but so do many other intergovernmental outfits.

Lately, though, Russian analysts have been watching this very vanilla-sounding Nordic association carefully.

That's because while its member states may consider themselves very peaceful indeed, the five-year-old Northern Group is a military alliance.

Take a look at the group's members: Britain, Poland, Germany, the Netherlands, the Nordic states, the Baltic states.

Only two countries in this 11-strong congregation are not NATO members: Sweden and Finland.

And there they are, collaborating with their northern neighbors on defense issues and participating in talks held by the Northern Group's NATO members.

“The Northern Group provides a key platform to help shape and deliver Europe's and NATO's response to the security implications of Russia's indefensible actions in Ukraine and whose incursions of European air and sea space have increased,” Britain's defense secretary, Michael Fallon, said ahead of the group's meeting in November last year, at which point annual air incursions into the members' territory had reached 100—three times as many as during all of 2013. Not bad for an alliance conceived by then Defense Secretary Liam Fox essentially to keep Britain engaged with its NATO allies.

Sure, the Northern Group is hardly essential to its members who also belong to NATO.

It's a complement, not an alternative, said Norwegian State Secretary Roger Ingebrigtsen at an earlier meeting.

But for Sweden and Finland, who are still vacillating about NATO membership, it provides a convenient partial solution that, handily enough, doesn't require a major political debate.

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Though Finland's new government has said that it will conduct a study on NATO membership, the step in no way indicates that Finland will eventually apply to become a member.

Besides, it would have to join with Sweden, whose government has not embarked on a similar fact-finding mission, though in April it announced that it wants to strengthen cooperation with NATO. Even if the pair would apply for NATO membership, it would be a long process before they formally joined.

By contrast, Sweden and Finland are already full members of the Northern Group.

That's good news as far as their defense capabilities are concerned, one might argue.

But it's no surprise that Russian officials suspect the group of really being a mini-NATO. And the Russian military correctly judges that in a crisis situation, NATO would come to Sweden and Finland's aid.

<http://www.worldaffairsjournal.org/blog/elisabeth-braw/europe%E2%80%99s-northern-group>

Suggestive of the thinking of the members of the Northern Group is the November 9, 2016 public statement released by the Group.

The countries of the Northern Group consisting of Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, the Netherlands, Norway, Poland, Sweden and the United Kingdom, have met today on 9 November 2016 in Copenhagen at Frederiksberg Palace.

The Northern Group is a valuable forum in which members come together informally for discussions on defence and security issues common to us as Northern European nations, and to explore new opportunities to work together.

Northern Group nations are committed to maintaining security and stability in our Northern European neighbourhood and the wider continent. Each of us support the strengthening of the 360-degree approach to security.

Today, all members of the Northern Group reaffirm their engagement in defence and security in Europe, and reinforce the need for a strong NATO-EU partnership.

Following the election of the new President of the United States of America, we look forward to continuing our fruitful cooperation with the new administration. We wish to underline the importance of our close transatlantic relationship and friendship with the United States of America, and place fundamental value in our close cooperation and our transatlantic bond which are essential to security and stability in Europe.

<https://www.government.se/globalassets/government/dokument/forsvarsdepartementet/joint-statement-northern-group-9-november-2016.pdf>

The importance of the Northern Group as well is rooted in the serious defense modernization underway in those states, notably Norway, Denmark, the UK and the Dutch are all pursuing significant defense modernization.

Poland is pursuing new capabilities as well notably with regard to missile defense.

In an article published on December 12, 2018, we highlighted how Poland is providing a cutting edge role with regard to missile defense.

Article III of the NATO Treaty focuses on the need for a country to take its self-defense seriously in order for the rest of the treaty to have real effect, including the Article V clause with regard to an attack on one is an attack on all.

If a country has not prepared to defend itself, it is difficult to see how allies can do that for the given country.

Or put bluntly, if a country cares so little for its own defense that it spends its money and efforts and everything but, why should other allies take up the slack?

Or put even more bluntly, if a country is not working to defend itself, it has put itself into the military world of becoming an area upon which both allies and adversaries will operate to protect their own interests.

With Poland's history and knowledge of the Russians, there is a clear understanding that they have little interest in being the forward edge of a battle.

But the challenge facing Poland and NATO has changed as the Russians have crafted a version of 21st century conflict, which is built around a significant missile strike force with adjacent combat capabilities....

Poland is approaching its Article III efforts by shaping a core missile defense capability, both medium and short range which allows it to deal with the Russian challenge in part with these means.

It is about building a capability which can defend Poland but link into the defense in depth which is necessary in the region.

The Poles are focusing on both building mid-range and short-range missile defense.

With regard to building out their mid-range missile defense, they are doing so with regard to ongoing modernization and building in capabilities for networking back to their own forces and to those of their neighbors and allies.

The system selected by the Poles to fill the mid-range missile defense system is a variant of the Patriot system.

But very noteworthy is the command and control aspect of the approach they are taking.

They are not pursuing a classic prime contractor provides all approach to a system but are opting for an open architecture system which will allow them to both have open ended modernization but also work the linkages to NATO neighbors and allies.

The Poles are acquiring the Integrated Air and Missile Defense Battle Command System or IBCS.

Rather than buying a legacy proprietary C2 system, the Poles are leaning forward to procure an open architecture C2 system.

They won't have siloed systems that require new or upgraded C2 with each new radar or interceptor.

This is important as other allies acquire missile defense systems going forward, and new air systems like F-35 become part of the extended defense equation, as Rear Admiral Wang suggested as well.

It is about shaping a defense in depth capability across Poland, German, the Baltics, Finland and the Nordics. Without shaping common C2 capabilities, defense in depth will be more limited than the defense capabilities could allow for.

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Siloed systems do their tasks but do less than they could to provide full up capabilities to the integrated battlespace.

The Poles are also moving in the direction the US Army is looking to transition as well.

Rather than buying whole systems, and being dependent on prime contractors for the complete integration of those systems, the US Army is looking towards a commodity approach.

What the U.S. Army is looking to do is be able to manage interactions among C2, sensors, and missiles and to plus whichever of these “commodities” needs to be plused up.

It is also crucial for the US Army to be able to integrate the defense systems in the maneuver force as well as to focus on what is necessary for the evolving integrated battle space.

It is not simply about after market integration; it is about building in integration from the ground up as new systems are added as well.

This means that the Polish approach is symmetrical with the strategic direction of the US Army itself.

Poland is working through the challenge of affordability with regard to missile defense, but senior Polish officials understand that the open architecture C2 system is not an add on but a core capability to the evolution of core Polish defense capabilities.

Asked about speculation that Poland could resign from the IBCS to lower the price of the Patriots, (Deputy Defense Minister) Kownacki stressed that the air defense management system obviously may be the subject of discussion, but “it’s not that it (IBCS) fundamentally changes the price proportions in the middle-range air defense system”.

“We are analyzing the document and we will be negotiating, but you must know that IBCS is what everyone will buy. This is the future that awaits all of us, and sooner or later we will bear this cost.”

<http://www.defence24.pl/kownacki-nieakceptowalna-jest-dla-nas-kwota-105-mld-usd-za-patrioty-mowilismy-to-od-poczatku>

In short, Poland has demonstrated NATO leadership in pursuing the most modern air and missile defense system available.

They are acquiring a system built not just for today, but to anticipate and counter future threats.

It is clearly in the US and NATO interests that the US and Poland work together to get to a price that satisfies both sides, while still preserving the investment in the future which IBCS represents.

<https://sldinfo.com/2017/12/poland-article-iii-and-missile-defense-shaping-a-way-ahead-in-alliance-capabilities/>

And Germany is hovering over the possibility of more defense investments and as they do so, the question of their role in Baltic and Northern European defense could be a defining vector for any significant modernization strategies.

And with the sale of new submarines to Norway, this sale could provide a lynchpin of relevant modernization as well.

We discussed the submarine dynamic in a story published February 2, 2017.

Last week, I attended an airpower conference sponsored by the Norwegian Air Force and held in Trondheim, Norway.

The title of the conference was about the shaping of a fifth generation air force, but in reality the conference focused on multi-domain integration and defense transformation in the extended defense of Norway.

In effect, a new phase of NATO development is underway whereby anchor states in key geographical regions take Article III of the NATO treaty seriously and focus on national defense in an allied context.

If you don't have the ability of any other state to help you is limited.

For Norway, this means raising the bar on the defense of Norway by acquiring new platforms, fully integrating those platforms into a national C2 system, but doing so in a plug and play context whereby key allies can more easily interoperate with Norwegian defense and thereby providing simultaneously extended Norwegian defense and enhanced Northern tier defense for NATO.

The week before the conference, the Norwegian defense minister announced the decision to acquire four submarines from Germany as part of the transformation process....

The purchase of the German submarines is more than that.

What Norway is looking for is to be interoperable with allies who are operationally prepared to provide for defense of the Northern region.

This means that the manufacturers who sell new equipment to Norway need to understand that they are committed to effective sustainment of the force in Norway under a wide spectrum of conditions.

It is not just about selling a platform.

And for Germany, the Minister of Defense and the Chancellor need to understand that they are committing themselves de facto to active defense of the Northern region, including Baltic defense.

It is not simply about selling equipment; it is about active engagement and enhanced interoperability.

According to the Norwegian MoD, the decision involves a broad and long-term Navy-to-Navy cooperation encompassing submarines and other naval capabilities.

The cooperation will include training, exercises, spare parts, maintenance and lifetime management of the new submarines. The identical design of the six boats also would enable the swap of crews.

<https://www.defensenews.com/naval/2017/02/03/norway-joins-forces-with-germany-to-procure-new-submarines/>

It is not just a market opportunity to save the German submarine maker from the end of the line which how it has generally been reported.

According to a press release published on February 3, 2017, the acquisition was announced by the Norwegian MoD.

After a comprehensive evaluation process, the Norwegian Government decided on Germany as strategic partner for new submarines.

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The partnership is based on a German-Norwegian common purchase and lifetime management of identical, new submarines.

The decision involves a broad and long-term Navy-to-Navy cooperation encompassing submarines and other naval capabilities.

The cooperation will include a purchase of identical submarines and cooperation on training, exercises, spare parts, maintenance and lifetime management of the new submarines.

The submarines will be based on the 212-design already in service in Germany and Italy. The cooperation also includes cooperation between Norwegian and German industry.

Submarines are amongst the Norwegian Armed Forces' most important capabilities and is of great significance for our ability to protect Norway's maritime interests. It is important that we have found a strategic partner that we can build a broad and long lasting cooperation with.

This lays a good foundation for the long-term relations we need to maintain a credible submarine capability in the future.

Submarine cooperation with Germany will ensure that Norway gets the submarines we require, and at the same time contributing to Smart defence and more efficient defence material cooperation in NATO, says the Minister of Defence Ine Eriksen Søreide.



FIGURE 20 GERMAN SUBMARINE; NORWEGIAN MINISTRY OF DEFENCE

The Norwegian Ministry of Defence has practised equal treatment of the suppliers and their nations.

The same amount of time and effort has been spent towards France and Germany, and the activities towards both have been balanced. It has been clearly communicated on all levels that it is the totality of the offers that will be the determining factor.

Both France and Germany offer excellent submarines that meet Norwegian needs, and both nations have been given good opportunities to come up with a total offer on new submarines and cooperation.

Norway will now enter into final negotiations with German authorities. When a government-to-government agreement is in place, a German-Norwegian negotiation towards the German submarine supplier ThyssenKrupp Marine Systems (tkMS) will commence. tkMS is the largest producer of conventional submarines in Western Europe. The shipyard has long experience with building advanced submarines and a large production capability.

The plan is to sign a common contract for new submarines in 2019. This will enable delivery of new submarines from the mid-2020s to 2030.

This timeline ensures a continuous Norwegian submarine capability as the Ula-class submarines reaches end of life and starts decommissioning.

The submarines Norway and Germany will procure ensures a submarine service for the future. Norway has an evolutionary approach to new submarines, and will base the procurement on an existing submarine design.

This way we avoid an extensive development project with the risks and costs this would involve. In addition, together with Germany, we will get a larger scale in the production, says the Minister of Defence.

Independent of this decision, the work to establish further cooperation with other nations continue in order to achieve even greater synergies and economies of scale.

Norway has for several years worked closely towards the Netherlands and Poland to create a broad submarine cooperation. This work will continue.

Norwegian industry is world leading on some of the technology used in submarines, and the Norwegian Government will use the procurement as an opportunity for the Norwegian Defence industry.

The procurement of new submarines will be used actively towards international partners to further develop a competent and competitive Norwegian Defence industry.

The scope of the industrial cooperation with Germany is in line with the ambition of the Norwegian Parliament.

It will provide good opportunities for the Norwegian defence and security industry in the prioritised technological areas as stated in the white paper Meld. St. 9 (2015-2016) Nasjonal forsvarsindustriell strategi.

Facts:

Submarines are a strategic capability that contribute to the Norwegian Armed Forces deterrent effect, and NATO's collective defence. The white paper on the future of the Norwegian Armed Forces, St. prp. 151 S (2015-2016), underlines the importance of submarines and their place in the future development of the Norwegian navy.

The Ministry of Defence has been working on different solutions for the future of the submarine service since 2007. Establishing a broad and long lasting international submarine cooperation with partners has been one of the goals in this work.

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The plans for the procurement of the new submarines are ready and the Government is planning to present the investment project on new submarines to Parliament in the spring of 2017.

<https://www.regjeringen.no/en/aktuelt/germany-chosen-as-strategic-partner-for-new-submarines-to-norway/id2537621/>

<https://sldinfo.com/2017/02/the-transformation-of-norwegian-defense-germany-norway-and-submarine-acquisition/>

And in a clear recognition of the growing importance of the Northern group to shaping more effective defense and security in the Northern Tier of NATO, Defense Secretary Mattis attended the Northern Group meetings held last year in Helsinki.

This was the first visit of a US Sec Def to the Northern Group and underscores enhanced understanding on the US side of how to address regional dynamics in support of a deterrence in depth strategy. In a discussion with senior Trump Administration officials late last year prior to the release of the new national security strategy, the perspective of the Administration was highlighted with regard to allies.

Mattis is especially keen to underscore the importance of core allies and partners in shaping an effective strategy. For Sec. Mattis, the President in spite of whatever language he has used in the past is firmly committed to working with core allies and partners.

Notably, because of the return of great power politics or intrastate conflict, the role of partners and allies is of growing significance to the US.

We are seeing the end of a unipolar era and the return of a more diffused global power situation. The diffusion of wealth and technology throughout the world is changing the global geopolitical situation.

State actors remain fundamental players although clearly nonstate actors and transnational groups are of great significance as well.

Priorities within the national security strategy will reflect a refocus state competition and the need to do with the diffusion of global power.

Global rules along with global powers are being contested.....

With regard to NATO, the core challenges clearly are fundamental terrorism inside and outside the region and the resurgence of Russia.

The United States is looking for European states to generate more capabilities and commitments to defense.

The US will also work with adversaries where necessary to deal with the fundamental threats of global terrorism and have to figure out how to handle both the competition and the collaboration with competitors like Russia and China as well.

The US needs to sustain operations in the Middle East; they're not going to go away but we need to maintain these at lower costs and lower level in order to build up our capabilities for higher intensity conflict and operations.

The United States intends to focus on rebuilding a high intensity and warfare capabilities and reduce the burden and frequency of lower end engagements.

<https://sldinfo.com/2018/01/inside-the-new-trump-administration-national-defense-strategy/>

The Netherlands Reworks Defense: The Dutch Defence White Paper 2018

This past March, the Dutch government released a new defence white paper.

According to the MoD statement published on March 26, 2018:

The Netherlands Ministry of Defence can once again have confidence in the future.

After years of budget cuts, the Defence organisation is investing in its people, capabilities and visibility.

Personnel will be given the equipment they need to work as effectively and safely as possible. Capabilities will be enhanced by the procurement of new materiel and by the modernisation of existing resources. Investments will be made in IT and cyber.

The Ministry of Defence will also work more intensively with partners, such as the business community, NATO and the EU.

In view of the deterioration of the security situation, an agile military force is vital. NATO is demanding larger and more robust units for allied defence, and the United Nations and the EU are turning to the Defence organisation increasingly often.

In the Netherlands, too, the military needs to be there when needed.

The restoration and reinforcement of the military organisation is therefore urgently needed.

And that is going to happen.

How?

In what areas?

To be able to do what?

And why?

This is all outlined in the Defence White Paper published today.

Capabilities

The document, entitled 'Investing in our people, capabilities and visibility', sets out what the armed forces are going to look like in the coming years.

The White Paper states, for example, that capabilities will be enhanced by the modernisation of weapon systems, and the replacement and procurement of ships. Information-driven operations will also be a priority, as will increasing the deployability of fighter aircraft and helicopters.

The ever-changing security situation calls for an agile, robust military force. A force that adapts quickly and is there when it is needed. What does that mean in practice? The Defence White Paper explains.

It also details what will be improved in the various elements of the Defence organisation. Much is possible with the extra money that will be allocated to the Defence budget over the years to come.

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The White Paper is full of plans, not only with regard to materiel, but especially with regard to personnel. Aspects such as improved career guidance, terms of employment, staying in a function longer, and the availability of new personal kit.

The changes will take time, however.

New personnel need to be trained and materiel procurement takes time to process.

Start of a journey

As far as Minister Ank Bijleveld-Schouten and State Secretary Barbara Visser are concerned, this Defence White Paper is not a destination, but the start of a journey along a path that determines the direction for the future.

A future in which the Netherlands once again has a healthy military force, robust and agile. Follow-up steps are needed for this. These too are outlined in the Defence White Paper.

The Ministry of Defence wants to be an organisation for which people are proud to work, an organisation that is visible in society.

An organisation that is a good partner to civil authorities, the European Union, NATO, the business community and societal organisations.

A military force with sufficient means and people, satisfied personnel with faith in the organisation.

The introduction of the White Paper highlights the way ahead:

We operate in a world that is changing and becoming less safe. Threats are complex, diverse and unpredictable.

The vulnerability of the Netherlands and of people throughout the world has increased. As a nation, we are strongly connected with the rest of the world.

The security of the Netherlands is thus also intertwined with security situations in other parts of the world.

The first main task, protecting national territory and the territory of allies, has therefore become more important in recent years.

The importance of the other two main tasks has likewise increased. Because of the greater instability in the world, a greater commitment is required for all of the main tasks.

It was with this in mind that we considered how the additional investments amounting to EUR 1.5 billion a year could best be spent.

This is based on the Netherlands integrated foreign and security strategy of the Minister of Foreign Affairs.

First, we will invest in our people.

They keep us safe and are there when they are needed. We want to restore their trust in the organisation and thereby ensure that they remain with the organisation.

Moreover, we want to recruit new employees and will focus on diversity. We will also invest in means. The emphasis in this regard will be on modernising our current strike capabilities and strengthening our information-driven operating methods.

The third key area of investment will be methods. We will focus efforts in this area on increasing and improving national and international cooperation to ensure that the organisation evolves into one that is robust and agile.

We will make every effort in the coming years to implement the measures set out in this white paper. In many cases, results will only become visible after a few years.

That is unfortunately the reality we face. It takes time to attract and train people, produce material and make it operational.

Nevertheless, a number of changes will become apparent in the short term. New colleagues will be joining us, supply levels will be improved and more exercises are being planned.

Furthermore, unnecessary rules will be abolished and commanders will have greater discretionary power in the sphere of practical execution.

We will also become visible again in society. Military personnel may once again travel in uniform.

After further consideration, certain Defence sites throughout the country that had previously been earmarked for closure will be maintained.

Royal Netherlands Marechaussee personnel will also become more visible at the border.

Furthermore, the recruitment of new employees will be organised at regional level to augment current national-level efforts and we will strengthen our cooperation with other organisations.

We are also collaborating in the preparation of the community work placement programme for young people.

All this will contribute to the versatility and readiness of the Netherlands armed forces. NATO has drawn up capability targets for the Netherlands which require further steps.

Given the foregoing, this white paper does not constitute an end point. Rather, it is a step that is in line with the long-term objectives that were included in the NATO agreements made during the 2014 Wales Summit.

The White Paper is well worth reading and here is one graphic from the White Paper which provides a sense of how the Dutch government sees the way ahead.

<https://sldinfo.com/wp-content/uploads/2018/05/DefenceWhitePaper2018.pdf>

- » We will ensure that fundamentals are as they should be in terms of readiness, operational support and the necessary replacement of weapon systems.
- » We will modernise and strengthen the armed forces and adhere in this regard to high-quality technological standards. What we do we will do well, also in terms of future proofing.
- » We will make information-driven performance a reality by investing heavily in cyber, intelligence, IT, and information-gathering capabilities and the Defence Intelligence and Security Service, and in the information domain as a whole.
- » We will replace the fleet and focus expressly in this regard, as will be the case in all replacement programmes, on international cooperation.
- » We will increase the deployability of fighter aircraft and helicopters.
- » We will modernise our weapon systems (midlife updates), such as the Bushmaster (all wheel drive armoured vehicle), Fennek (armoured reconnaissance vehicle), CV90 (infantry fighting vehicle), self-propelled howitzer, Apache (attack helicopter), landing transport dock (LPD) and hydrographic survey vessels.
- » We will increase the capacity of the Defence Explosive Ordnance Disposal Service.
- » We will strengthen defences against chemical, biological, radiological and nuclear (CBRN) threats.
- » We will replace the personal equipment of military personnel, including the tactical vests and ballistic protection gear. All handguns will also be modernised gradually.
- » We will keep open certain Defence sites that had previously been earmarked for closure. We will therefore be able to accommodate the organisation's expansion. Moreover, keeping these sites open will raise our profile in society.

FIGURE 21 THE PERSPECTIVE OF THE DUTCH DEFENCE WHITE PAPER, 2018

Europe Prepares for Fifth Generation Transformation: The European Air Group Works the Challenge

The European Air Group has been an incubator for change within the European air forces. The EAG flies below the radar but is a key asset for the Air Chiefs of 7 major European Air Forces in shaping ways to work more effectively together and to get the best value they have from legacy and new assets at the disposal of those forces.

They clearly have grasped the point of the Ben Franklin moment: We all hang together or we hang separately!

“We need to learn to work more effectively together to ensure that our individual national air capabilities are maximized in their effectiveness,” as one EAG official told me a few years ago.

The head of the EAG is rotational among the Air Chiefs, with the current COS of the Italian Air Force now the head of EAG. The Chiefs meet once a year to shape an agenda and to determine the way ahead based on the work performed by the EAG or being shaped for the EAG. There is a small permanent staff, headed by a Deputy Director and a Chief of Staff for the EAG, with its headquarters at RAF High Wycombe, UK.

The seven European Air Forces involved in the EAG are the following: the UK, France, Italy, the Netherlands, Belgium, Spain and Germany.

Two notable achievements of the EAG are working through the terms of reference and the approach to establishing the European Air Transport Command and the European Personnel Recovery Centre.

In 2014, I first visited the EAG and presented a briefing on how to think about the integration of 4th and 5th generation aircraft as European airpower is transformed under the impact of fifth generation operations.

In 2016, the EAG held a working group session and conference on the opportunities and challenges with leveraging fifth generation transformation.

The 2016 two-day 4th 5th Generation Integration Information Forum was held at the home of the EAG, RAF High Wycombe, at the end of April 2016.

With national 5th Generation aircraft programs maturing and the need to integrate 4th and 5th generation aircraft into future coalitions acknowledged the forum is providing a vital conduit to keep information flowing between both EAG nations and external partners and increase the awareness of nations about the challenges to come.

The first day saw experts from academia and industry set the scene with their interpretation of the technological and political developments that are going to shape the future of air power and more specifically the challenges of integrating 4th and 5th generation multi-national air forces into that vision.

The second day opened the floor to a discussion between the individual EAG nations present, Tactical Leadership Program (TLP), Joint Air Power Competence Centre (JAPCC); European Union Military Staff (EUMS) and the USAF that was being represented for the first time at an EAG 4th 5th Generation Forum.

The debate focused on the specific challenges being experienced at a national program level whilst also providing an overview of the future Air Force compositions.

The identification of the common challenges being experienced with this cutting edge evolution of the approach to, and employment of, air power is key to the development of future collaborative solutions.

National representatives were able to take away key areas for further consideration and investigation that when resolved will be fundamental to enhancing interoperability between the nations.

The 4th 5th Generation Integration Information Forum will continue to provide a crucial communication channel between the EAG nations as the next generation of combat aircraft are brought into service in Europe.

Second Line of Defense

Since then, the work on 4th 5th Gen integration has progressed considerably and the Integration Forum has been absorbed within a dedicated program that has been launched by the EAG in 2017.

During my most recent visit to the EAG in February 2018, I had a chance to talk with the Deputy Director of the EAG, Air Commodore Robert Adang of the Royal Netherlands Air Force, and to get an update on the effort to leverage fifth generation capabilities.

As he noted in our discussion, as a young student he saw the first F-16 ever to visit the Netherlands fly over his school and head for a Dutch Air Base. Now, he is on the ground floor as the F-35 enters European Air Forces, and is a force for change in reshaping the overall concepts of operations and combat capabilities of European Air Forces.

The EAG is addressing the question of how to shape an interoperable 4th-5th generation air force. They are addressing the question of “interoperability gaps” and how to attenuate them.

The EAG has developed a program, which they call the Combined Air Interoperability Program (CAIP) guiding the overall effort. The EAG Steering Group mandated in 2016 that there was a need “to develop a plan to solve the interoperability challenges that result from integrating 5th Gen with 4th Gen systems.”

The EAG is clearly not working this alone but is also providing operational intellectual capital to core organizations working the challenge in Europe, including USAFE, the Joint Air Power Competence Centre and NATO HQ Air Command.

As Air Commodore Adang put it: “the objective is plain and simple. It’s to create the optimum conditions for future combined training, exercise and operations by resolving interoperability issues that result from 4th and 5th gen integration.”

The baseline point is that F-35s will be a part of the force but not the dominant part numerically.

As Adang underscored: If I look at European air forces, current plans, when you total the projected number of F-35s in about ten years’ time, say 2028, and you compare it to the number of 4th gen fighters that will be used at that time still, then you’re looking at about 20% fifth gen systems and 80% 4th gen systems, not including any F-35 or F-22 US forces.

“And the total number that makes up that 20% of F-35s is too small to create the total effects that you need in a major combined air operation.

“You need the missile carrying capabilities and other attributes of the 4th gen fighters to ultimately be successful. So it’s only through a combination of 4th and 5th gen that we can be successful in future air operations.

“And this is the trick.”



Future 5th Gen Market Share* European Air Forces (± 2028)

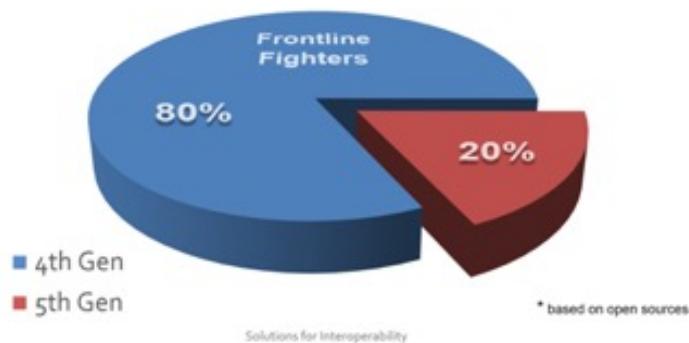


FIGURE 22 WORKING THE MIX OF FIFTH GENERATIONA WITH 4TH GENERATION AIRCRAFT. CREDIT: EUROPEAN AIR GROUP

Several dynamics of change are being addressed to generate a transformation process.

The first is shaping new training capabilities.

“How do we integrate the F-35 in the European theatre? We’re working on that between the nations and associated organizations.

“How can we establish red forces capability that’s relevant for a 5th gen force?”

The second is to build out airspace training ranges within Europe as well.

“There is a clear need for training airspace and ranges that are suitable for accommodating training with 5th gen weapon systems.”

The capabilities of the fifth-generation sensors and how the sensor-shooter relationship will operate over larger areas of airspace clearly requires reworking airspace training options. And to do so will require working with the civilian authorities responsible for handling the common airspace.

“When you’ve identified this common idea of where these chunks of training airspace are going to be, then you have to start looking at how that aligns with Single European skies. It’s the aim of Single European Skies to optimize civilian air transport. Integrating military training airspace is not a primary objective, and needs to be addressed effectively.

Third, is working the synthetic training environment and cross linking the various European efforts, including reaching out to the US forces in Europe as well.

“When I look at synthetic training, what I see is these national networks being developed bit by bit. I see some initiatives to connecting F-35 simulators multinationally. We clearly need to have some multinational training network that enables interoperability training in a synthetic environment – or rather a live, virtual and blended environment – in addition to live training.

“And I think that from a technological point of view it will be relatively easy to connect F-35 simulators from different nations in a multinational network, but then connecting that network to 4th gen capabilities for 4th

Second Line of Defense

gen nations is going to be where the challenge is, not only because of technological differences but also from a security perspective. But in the end, that's where we have to go.

"If in ten or fifteen years' time, we don't do a substantial part of our multinational training in a synthetic environment, we've done something wrong."

More broadly speaking with regard to transformation, the European air combat fleet under the impact of fifth generation is forcing changes, which are congruent with where technology, C2 and concepts of operations are headed.

Air Commodore Adang treats the F-35 as a first-generation information dominance aircraft. The fifth-generation approach lays the foundation for preparing for the future while current capabilities are transformed as well.

"By now most people agree there's a future of military operations come to be about information, not about systems. And the only way to be successful in these information-centric operations is when all the capabilities that you have are networked together seamlessly, or as seamless as possible. And those networks will see an increasing number of distributed centers and effectors operating in unison through the network. These sensors will give us an improved situational awareness if we prove to be capable of exploiting all the information that they're gathering, that's one of the biggest challenges that we will be facing in the future."

Put simply: a different approach to airpower and the fifth generation transformation is clearly driving change in this direction and the EAG wants to both help shape a way ahead for integration of the legacy with the new fleet, but lay down the foundation for the kind of combat learning which such a 21st century air combat foundation can enable.

"How can we educate people in 5th gen awareness, make them aware what 5th gen warfare means?"

The EAG is working within a network of organizations to foster innovation and to provide cross organizational learning which can facilitate transformation as well. "We want to take the best ideas and approaches within the European airpower network and apply those throughout the European airpower system."

In short, the EAG is proving pragmatic intellectual leadership in the European airpower environment to shape a way ahead for a more capable 21st century combat force.

The Growing A330MRTT Global Fleet: Norway and Germany Sign On

Norway has expanded its defense industrial relationships to provide for its 21st century defense capabilities.

This includes F-35, P-8, Joint Strike Missile exports, a new working relationship with Germany to acquire submarines.

Now the A330MRTT, the global tanker used by several air forces, is being acquired by Norway and Germany.

According to a press release dated June 29, 2017 by Airbus Defence and Space, "Germany and Norway formally join Netherlands and Luxembourg to operate pooled fleet of NATO-owned Airbus A330 MRTT tankers."

Madrid, 29 June 2017 – Germany and Norway officially joined the European/NATO program to acquire Airbus A330 Multi-Role Tanker Transport aircraft along with Netherlands and Luxembourg.

The two nations committed to participating in the project through the signing of a Memorandum of Understanding at NATO HQ in Brussels today.

Known as the Multinational Multi-Role Tanker Transport Fleet (MMF) the programme was initiated by the European Defence Agency (EDA) in 2012. Europe's organization for the management of cooperative armament programmes – OCCAR – manages the MMF acquisition phase as Contract Executing Agent on behalf of the NATO Support and Procurement Agency (NSPA). Following the acquisition phase, NSPA will be responsible for the complete life-cycle management of the fleet.

The Programme is funded by the four nations who will have the exclusive right to use these NATO-owned aircraft which will operate in a pooling arrangement. The aircraft will be configured for in-flight refuelling, the transport of passengers and cargo, and medical evacuation flights. The first two aircraft have already been ordered to be delivered from Airbus Defence and Space's tanker conversion line at Getafe near Madrid in 2020. Five additional aircraft will now be ordered, and that order will include options for up to four further aircraft.

NSPA GM, Peter Dohmen said "As NATO's Support and Procurement Agency, we are proud to be a key enabler of this critical project to help European nations meet their air transport and refuelling requirements. The successful cooperation in this project – bringing together all our capabilities – bodes extremely well for further future NATO/EU collaboration."

OCCAR Director, Arturo Alfonso-Meiriño said: "The MMF programme has broken new ground in bringing together the combined capabilities of the EDA, NSPA and OCCAR as one team, with each organisation working within its particular sphere of expertise. I very much welcome that this important initiative has now attracted additional partners to join, and it still includes options for the participation of even more countries."

EDA Chief Executive Jorge Domecq said: "The MMF is a prime example of European defence cooperation which shows that once a capability shortfall has been jointly identified, European nations can pull together, work on a common project aimed at filling the gap, and eventually deliver. It's Pooling & Sharing at its best".

Airbus Defence and Space Head of Military Aircraft Fernando Alonso said: "The A330 MRTT has established itself firmly as the world's premier tanker/transport aircraft. It is extremely satisfying to now see it adopted as the core asset of one of Europe's most important cooperative defence programmes. We hope that this collaborative approach will serve as a model for future joint procurements."

Exercise Aurora 17: Sweden Focuses on Deterrence

Aurora 17 is the largest Swedish exercise in more than 20 years, and is intended to exercise Sweden's defense capability against a larger, sophisticated opponent.

According to the Swedish Ministry of Defence:

In order to increase military capabilities, Swedish Armed Forces will conduct Exercise Aurora 17 – a national exercise that will build a stronger defence and increase the overall capability to face an attack on Sweden.

The overarching mission of the Swedish Armed Forces is to defend the country's interests, our freedom and the right to live the way of our choice.

Deterrence lies at the core of a strong defence, one that rises to all threats and overcomes all challenges. It is designed to deter potential attackers, and force them to carefully consider the risks of attacking our country.

Second Line of Defense

For a deterrent to be effective, it needs to be credible and visible. Through frequent and extensive training and exercise, especially with other defence forces, Sweden is strengthening its deterrence effect and makes it more credible.

Aurora 17 will be conducted in the air, on land and at sea. Units from all over Sweden will be involved, but the main exercise areas will be the Mälardalen and Stockholm areas, on and around Gotland, and the Gothenburg area.

The Exercise will contribute to the development of Sweden's total defence capabilities. Therefore, it is planned that around 40 other agencies will participate. In addition, in order to have as good an exercise as possible, and at the same time exercise Sweden's defence capability against a larger, sophisticated opponent, other countries have been invited to participate in Aurora 17.

<https://www.forsvarsmakten.se/en/activities/exercises/aurora-17/>

The exercise is the largest in Sweden for more than 20 years and involves the forces of several other nations, including Denmark, Estonia, Finland, France, Norway, Lithuania, and the United States.

More than 20,000 troops are involved.

According to an article published in The Express on September 11, 2017:

The three-week Aurora 17 drill kicked off on Monday and will chiefly take place around the strategic Baltic Sea island of Gotland and the regions surrounding Stockholm and Goteborg.



FIGURE 23 LT. COL. TAPIO HUHTAMELLA FROM PORI BRIGADE, WAS IN CHARGE OF THE FINNISH TROOPS IN THE GOTLAND PART OF EXERCISE AURORA 17

But the show of military might has rattled Russia, who branded the drills aggressive and said it was not necessary as Russia posed no threat to Sweden.

The Swedish military said the exercise by the non-NATO nation is designed “to deter potential attackers, and force them to carefully consider the risks of attacking our country.”

The drills are being held amid fears over Russia's military buildup in the region, which also has also seen several reports of airspace violations by Russian military aircraft.

Swedish Defense Minister Peter Hultqvist told the *Financial Times*: “If you control Gotland, you have control over the sea and the airways towards the Baltic states.

“It’s about handling the realities of the security situation in our part of Europe.

“It’s an important signal to the Swedish population and also to other countries and partners that we take this security situation seriously.”

<https://www.express.co.uk/news/world/852842/Sweden-military-exercise-Aurora-17-drill-Nato-Vladimir-Putin-fight-Russia-Zapad-drill>

It should be noted that Sweden is reintroducing conscription as well.

The Swedish government has decided to reintroduce military conscription – a move backed by the country’s MPs.

The decision means that 4,000 men and women will be called up for service from 1 January 2018, a defence ministry spokeswoman told the BBC.

They will be selected from about 13,000 young people born in 1999, who will be asked to undergo a military assessment, Marinette Nyh Radebo said.

Non-aligned Sweden is worried about Russia’s Baltic military drills.

In September, a Swedish garrison was restored to Gotland, a big island lying between the Swedish mainland and the three ex-Soviet Baltic states.

Why is this happening?

Ms Nyh Radebo said the return to conscription was prompted by “the security change in our neighborhood”.

“The Russian illegal annexation of Crimea [in 2014], the conflict in Ukraine and the increased military activity in our neighborhood are some of the reasons,” she said.

How will it work?

The 13,000 who undergo the military tests will be a mixture of volunteers and conscripts. “You are part of the conscript system once you’ve done the tests – men and women are treated equally,” Ms Nyh Radebo said.

“The authorities choose the ones who are willing, interested and motivated.”

<http://www.bbc.com/news/world-europe-39140100>

The Russians have created their own impact from their actions in Ukraine and elsewhere which is creating significant concern and strengthening of defense capabilities in Northern Europe.

The Russian major ZAPAD 17 exercise has highlighted the capability of the Russian military to threaten directly the Baltic and Nordic states.

And it also underscores the question of providing operative reminders of the Russian ability to threaten these states might not be short sighted.

<https://euobserver.com/foreign/139016>

It is not unusual for Russia or the United States to exercise their forces and to test them in various scenarios.

Second Line of Defense

Zapad 2017 is such an exercise but given its relative size and proximity to an area of clear European and American concern (the Baltics) significant political sensitivities are raised.

The challenge always is to ensure that an exercise is not a prelude to an actual military operation something which Baltic states have more than a little historical reason to be concerned with.

And as the most significant area of NATO undergoing modernization is Northern Europe, the exercise is likely to enhance the positions of the Nordics, the UK and other NATO states about the need to reinforce Northern European defense.

That is why the political and military cost to Russia might well outweigh whatever training benefits might accrue to the Russian forces.

Northern Tier Defense and UK-Norwegian Defense Cooperation

During a visit to Norway in November 2016, the UK Minister of Defence highlighted the evolving Norwegian-UK cooperation

According to a story on the UK Ministry of Defence website, the UK and Norway have agreed on new cooperation on Maritime Patrol Aircraft.

With the coming of the P-8 to the RAF, the UK MoD is looking to ways to enhance its impact on defense in the North Sea and beyond.

Sir Michael, who visited Norway's top military headquarters, close to the Arctic Circle on Thursday, announced that the UK and Norway would work closer on Maritime Patrol Aircraft cooperation, including in reducing costs and increasing operational effectiveness.

The UK announced that it would procure nine Boeing P8 MPA in last year's Strategic Defence and Security Review.

The new capability, which will be based in Scotland, will allow for enhanced situational awareness in key areas such as the North Atlantic, and will also further increase the protection of the UK's nuclear deterrent and our two new aircraft carriers.

Sir Michael also visited Norway's Bodø Main Air Station, home of two F-16 squadrons and a squadron of Search and Rescue Sea King helicopters, where he signed a new agreement on host nation support for UK exercises in the country, further increasing the UK and Norway's ability to exercise, train and operate together.

Mr Fallon welcomed the fact that British armed forces undertake yearly winter training in Norway, particularly 3 Commando Brigade in Harstad and Evenes and elements of Joint Helicopter Command at Bardufoss.

Defence Secretary Sir Michael Fallon said:

Britain needs Maritime Patrol Aircraft to keep watch over the seas.

As part of our £178 billion defence equipment programme, we've committed to new maritime patrol aircraft that are able to monitor threats to Britain and our armed forces.

By stepping up cooperation with Norway on maritime patrol, we will help keep Britain safer and more secure.

The Defence Secretary arrived in Norway following meetings with the Northern Group countries on Wednesday in Copenhagen, where he reaffirmed the UK's commitment to European defence.

As part of this, the Defence Secretary announced that 5 Battalion The Rifles would lead the UK's battalion in Estonia next year, part of NATO's Enhanced Forward Presence in the East.

Work on the UK's MPA programme is progressing well, including the investment on infrastructure in Lossiemouth in Scotland, where the planes will be based.

Former armed forces personnel who previously served on UK Nimrod are also re-joining the RAF to help operate the future P-8s.

12 have recently re-joined and more will re-join in the future

<https://www.gov.uk/government/news/uk-and-norway-agree-new-cooperation-on-maritime-patrol-aircraft>



Figure 24 State secretary Tone Skogen with Guto Bebb, Minister for Defence Procurement in the UK, in front of a US Navy Boeing P-8A Poseidon. Credit: Kristin Mørkestøl, MoD Norway

And the Norwegian Ministry of Defence website added this with a November 10, 2016 article with regard to the Northern Headquarters' Conference conducted at the 8-9 November meetings at the Norwegian Joint Headquarters in Bodø, Norway:

As a security forum for operational-level headquarters within the Joint Force Command Brunssum (JFCBS) Area of Responsibility (AOR) in the north-eastern part of the Alliance, the forum enables Commanders from NATO and Second Line of Defense

partner nations to discuss areas of common regional interest, and to raise NATO's profile within, and on the periphery, of Alliance territories.

In his opening remarks, General Salvatore Farina, Commander JFC Brunssum, emphasized the opportunity to discuss operational challenges, and to find practical solutions focusing on our area of responsibility "where we are working closely together".

He thanked Lieutenant General Rune Jakobsen, Commander of the Norwegian Joint Headquarters, for his hospitality, and expressed his appreciation for the close links to NATO's partners from Finland and Sweden – "who have a significant contribution to make to security in the strategically important northern region", Farina added.

With the outcomes of the Warsaw Summit fresh in everyone's minds, this year's event was an ideal platform to discuss selected outcomes affecting the AOR, to focus on NATO's High North and parts of the long term Adaptation Measures of the Readiness Action Plan, including the Very High Readiness Joint Task Force (VJTF), NATO Force Integration Units (NFIU) and the establishment of an enhanced forward presence in Estonia, Latvia, Lithuania and Poland in early 2017.

General Farina underlined the important role of the Multi National Corps North-East, Stettin, Poland, in implementing and conducting the enhanced forward presence drawing upon its expertise in land operations.

<https://forsvaret.no/en/newsroom/news-stories/third-northern-headquarters-conference-takes-place-in-norway>

Certainly, flying the same new aircraft, namely the F-35 as well as the P-8, while at the same time building out its Typhoon fleet with other continental partners, provides a strategic tissue to work through the post-Brexit challenges.

On May 3, 2018, the UK Ministry of Defence highlighted one aspect of the deepening relationship on the Northern Tier.

The UK and Norway advanced their plans for international Maritime Patrol Aircraft (MPA) co-operation in the North Atlantic, as the nations' defence ministers flew in an American P-8A Poseidon from RAF Lossiemouth today.

Defence Minister Guto Bebb hosted Secretary Tone Skogen, State Secretary in Norway's Ministry of Defence, on her visit aboard a US Navy P-8A Poseidon aircraft – equipment which both the UK and Norway will soon own themselves.

The allies ramped up discussions around how the nations will work together and might deploy their submarine-hunting aircraft fleet in the future. Areas of co-operation could range from maintenance to training and operations, which would not only cut costs but also boost operational power in the North Atlantic, a key area of submarine activity.

The aircraft took off from RAF Lossiemouth, which will be the future home of the UK's fleet. Investing £3 billion in the capability over the next decade, the UK is buying nine of the Boeing-built aircraft, whilst Norway are getting five.

Their key role for the UK will be to protect the country's submarine-based nuclear deterrent and its two new aircraft carriers – the Poseidons deploy sonobuoys to help them detect submarines, and can fire anti-ship missiles and launch torpedoes to destroy submarines.

Defence Minister Guto Bebb said:

“These sub-hunters will take to the skies from RAF Lossiemouth and help us combat a range of intensifying threats, not least increasing submarine activity in the North Atlantic.

“We’re investing £3bn in our own capability, but working alongside Norway takes this to a higher level. Not only could we cut costs by sharing training, spares and repair facilities, but we can patrol the seas together, meaning we’ve got more eyes and ears on any potential aggressors.”

Norway’s Secretary Tone Skogen said:

“Norway and the UK are natural partners given our shared values, as well as our history and geography. We can even further strengthen bilateral defence cooperation related to high-end capabilities such as the F-35 fighter and the P-8 maritime patrol aircraft.”

“In my discussions with Guto Bebb, Minister for Defence Procurement, I find a like-minded ally. The UK and Norway continue to stand together in training and exercises in the North Atlantic and the Northern region, as well as operationalisation of the Joint Expeditionary Force.”

The nine P-8A Poseidons will be based at RAF Lossiemouth in Scotland. Last month, Defence Secretary Gavin Williamson cut the first turf on a £132m facility for the new fleet. The new facility will be completed in 2020, to coincide with initial operating capability of the Poseidon aircraft being available in the UK.

Built by Elgin-based Robertson Northern, it will comprise a tactical operations centre, an operational conversion unit, squadron accommodation, training and simulation facilities and a three-bay aircraft hangar.

At the peak of construction, the project will support 200 local jobs. When the fleet is fully operational, some 470 additional service personnel will be based at RAF Lossiemouth, taking the total number of people employed there to 2,200. Further roles are also expected when the training and support services are established at the new facility.

<https://www.gov.uk/government/news/uk-and-norway-defence-ministers-plan-sub-hunting-co-operation>

And the Norwegian Ministry of Defence posted this news release on May 4, 2018 about the visit:

“In times like these, when the security landscape is complex and uncertain, we need close allies. I am especially pleased with the strong UK-Norwegian relations, says State Secretary Tone Skogen.

Earlier this week Minister for Defence Procurement Guto Bebb hosted Skogen on her visit aboard a US Navy P-8A Poseidon aircraft – equipment which both the UK and Norway will soon own themselves.

State Secretary Tone Skogen visited London and Royal Air Force Lossiemouth, the military airfield in north-east Scotland which will be the future home of the UK’s fleet of MPA’s (Maritime Patrol Aircrafts). The Poseidons deploy sonobuoys to help them detect and hunt submarines. The UK is buying nine of the Boeing-built aircraft, whilst Norway is buying five.

“These sub-hunters will take to the skies from RAF Lossiemouth and help us combat a range of intensifying threats, not least increasing submarine activity in the North Atlantic. We’re investing £3bn in our own capability, but working alongside Norway takes this to a higher level.

Second Line of Defense

“Not only could we cut costs by sharing training, spares and repair facilities, but we can patrol the seas together, meaning we’ve got more eyes and ears on any potential aggressors, says Guto Bebb, Minister for Defence Procurement in the UK.

“In my discussions with Guto Bebb, I find a like-minded ally with unwavering determination to strengthen NATO and our bilateral defence cooperation. This relates to high-end capabilities such as the F-35 fighter and the P-8 maritime patrol aircraft, training and exercises in the North Atlantic and the Northern region, as well as operationalisation of the Joint Expeditionary Force.

I am delighted that the United Kingdom and Norway significantly enhance our cooperation on these and other important issues”, State Secretary Tone Skogen says.

Surveillance of the North Atlantic is important for both UK and Norwegian security. Norway and the UK will intensify cooperation in this important endeavour, also in a trilateral context with the US.

As the F-35 is coming into operation in our countries, Norway welcome increased operational cooperation also in this domain – as well as the P-8’s. Norway also highly value Royal Marines’ training and exercising in Norway, and welcome the deepening relationship between the Marines and the Norwegian Armed Forces.

Norway also highly appreciate the UK initiatives and European leadership in forums such as the Northern Group and the UK-led Joint Expeditionary Force (JEF).

“Norway and the UK have special responsibility both to ourselves and to the Alliance to ensure stability in the High North”, concludes Tone Skogen.

<https://www.regjeringen.no/en/aktuelt/norway-and-the-united-kingdom-plans-co-operation-in-the-north-atlantic/id2600354/>

Allies and 21st Century Weapons Systems: The Case of the Coming of the F-35 To Europe

A key dynamic with the shift from the land wars to shaping a 21st century combat force is the crucial opportunity the US and its closest allies have to learn from each other thanks to the number of core weapons systems being bought at the same time.

Almost hidden in plain view is the emergence of a significant driver of change —flying the same aircraft at the same time, and cross learning from each other.

A case in point is the F-35.

There was much recent press on the arrival of USAF F-35s in Europe, landing at RAF Lakenheath and operating from there and then some of those aircraft going to Estonia and then Bulgaria. SACEUR himself showed up at RAF Lakenheath and underscored how significant the arrival of these aircraft was for a training mission in Europe.

For example, in an article by Robert Wall entitled “US jet fighters flex muscle amid Russia tensions” published in The Wall Street Journal, the arrival of the USAF jets in the UK and in Europe is highlighted. It is noted that the U.S. does not intend to permanently deploy the jets in Europe until 2020, and that “several allied air forces, are also buyers.”

<https://www.wsj.com/articles/new-u-s-jet-fighters-flex-allied-muscle-in-europe-1493977219>

But missing in plain view or perhaps plain view is the reality of the F-35 global enterprise being laid down prior to the arrival of any permanent U.S. deployment, and that global enterprise is being laid down by allies, not the U.S. simply by itself.

To take the key case, look at the United Kingdom.

Hidden in plain view is the fact that the UK is standing up its F-35 base PRIOR to the United States. And that the first squadron for the UK and Australia for that matter is being trained and equipped in the United States prior to their arrival in each of their countries. This is a case of the pilots and maintainers learning common approaches from the ground up PRIOR to standing up the new F-35 bases.

And not only that, but the facilities being established in Europe can provide a key sustainment and operational enterprise which the US as well as allies can leverage in common.

Or put bluntly, the U.S. if it follows an innovative sustainment model can gain significant savings and operational advantages from leveraging the European infrastructure, rather than flying in parts and other materials to support its jets. The impact of savings to the lift and tanking fleet for the USAF could be very significant indeed from coming up with a 21st century approach to sustainment, support and sortie generation.

It is not just about the US sending advanced jets to Europe; it is about the US being smart enough to embed its jets in a broad scale renorming of airpower associated with the coming of the F-35 to a significant part of the allied combat fleet at virtually the same time.

In 2016 I visited RAF Lakenheath and then in 2017 visited both RAF Marham and RAF Lakenheath to discuss the progress in standing up F-35 bases at both facilities.

The F-35 is a data rich aircraft and needs to see a 21st century basing infrastructure built to support it as is the case of with some other aircraft like Wedgetail, P-8 and Triton. The UK and the US are rebuilding in common their respective bases from which they will operate their F-35s.

During my visit to Marham 2017, I toured the new facilities and discussed the way ahead with senior staff.

There is a staff of 17 at the Lightning Force headquarters supporting the operational standup with nine specifically focused on the infrastructure aspects. They are busy simply in order to have the base ready next year to receive their first contingent of F-35Bs from their current base, which is in the United States.

The base will have a fully operational, training and support capability. Training, maintenance and various centers are being stood up. At the heart of the effort will be the National Operations Center in which logistics and operations are collocated and the U.S. will have personnel in this center as well.

There are multiple synergies involved with the F-35 and the standup of the Marham Air Base, two of which highlight the US-UK working relationship.

The first is the synergy from America to the United Kingdom and back again. The UK has operators at Pax River, Edwards, Eglin and Beaufort Marine Corps Air Station. The planes coming from Beaufort will provide the standup for the first RAF squadron, namely, 617 squadron.

The second synergy is between the standup among bases and lessons learned. Marham is being stood up and generating operational lessons learned back to the United States, both in terms of the U.S.'s standup of its own bases abroad and at home, and, notably in terms of shaping a new operational dynamic for RAF Lakenheath.

Second Line of Defense

The USAF F-35s at Lakenheath can become integrated into the operational, training and support elements in the UK as well, shaping a new approach for the USAF as well.

As Wing Commander Butcher, the CO of 617 Squadron, underscored the possibilities:

“We want to take forwards everything that we’ve done in the pooling and implementation agreement in the United States, and try and see how we can transpose that into a UK model.

“We’re looking to have jets taking off, F-35A’s taking off at Lakenheath. Well, what if they have an issue and they need to land in Marham. Rather than take the time to move people, spares etc from Lakenheath up to here, what’s to say that we couldn’t conceptually have some maintainers from 617 Squadron repair the jet, sign off, send it flying again.

“Lakenheath is going to be busy base with the closure of Mildenhall. Increased efficiencies working with us would make sense.

“Could we potentially have F-35As operating out of Marham on a daily basis?

“How do we organize hot pit operations on each other’s base?

“One can easily see how that could buy you a lot of combat flexibility, in terms of how you might do maintenance operations.”

<https://sldinfo.com/preparing-for-the-operation-of-the-lightning-force-infrastructure-operations-and-the-way-ahead-at-raf-marham/>

And visiting RAF Lakenheath, the synergies underway are obvious as well.

According to Col. Evan Pettus, the Commander of the 48th Fighter Wing at Royal Air Force Lakenheath, England:

“We do not have a closer partner than the UK. We will both operate the F-35 from Marham and Lakenheath respectively, which are very close to one another.

“Shaping synergy between the two bases is clearly an important objective. We are working this process in a step-by-step manner, from understanding how we might operate F-35As from Marham and F-35Bs from Lakenheath, to deeper sustainment and training opportunities as well.”

But the potential is even greater for synergy from the two bases working together across the region. During my visit last year I discussed the impact of the synergy of the US and the allies standing up at the same time the new air combat force with then Col. Novotny, the 48th Fighter Wing Commander, and now General Novotny at the Air Combat Command.

“We are not flying alone; but joined at the hip. We will be flying exactly in the area of interest for which the plane was designed and can fly together, maintain together, and operate together leveraging the air and sea base for which the F-35 B will fly from as well. It is a unique and strategic opportunity for the USAF and for the nations.”

<https://sldinfo.com/raf-lakenheath-prepares-for-the-future-usaf-f-35as-and-f-15s-combine-with-raf-capabilities-to-provide-a-21st-century-deterrent-force/>

General Novotny added that the two bases joined at the hip can provide a key strategic impact as well.

“As we get this right, we can bring in the Danes, the Norwegians and Dutch who are close in geography and the Israelis and Italians as well to shape the evolving joint operational culture and approach. Before you know it, you’ve got eight countries flying this airplane seamlessly integrated because of the work that Lakenheath and Marham are doing in the 20 nautical miles radius of the two bases.”

The RAF, the RAAF, the USAF and the USMC are already learning how to integrate the F-35 into the air combat force at Red Flags, and recently have included the French Air Force in a Langley trilateral training exercise. But integration will be accelerated by the integration of normal operations from common bases throughout the European region as well.

As Novotny put it: “Doing Red Flags requires bring forces to Nellis and expending monies to come to the exercise, clearly an important task notably in learning to fly together in high intensity warfare exercises. But what can be shape from the RAF Marham and Lakenheath bases is frequency of operations with core allies flying the same aircraft.”

“The same aircraft point can be missed because the UK did not fly F-16s, the Norwegian, the Danes and the Dutch do. And the USAF does not fly Typhoons and Tornados; the UK does. Now they will ALL fly the same aircraft.”

“I did two OT assignments and we worked to get into Red Flag when we could to do joint training. Here we can do that virtually every day. We reach the Dutch training airspace, and can work with the Dutch, with the Brits, with the Germans, with Typhoons, with F3s, with the NATO AWACS. We take off and we fly 30 minutes to the east and we make it happen. It is Red Flag as regular menu; rather than scheduling a gourmet meal from time to time.”

<https://sldinfo.com/synergy-and-building-out-extended-nato-defense/>

And it is not only European allies who can engage in the cross learning.

The Aussies and the Dutch are standing up their F-35s at about the same time, and cross learning between the Aussies and the F-35 European enterprise is clearly already underway based on my interviews in Australia as well.

In short, the UK is leading the way in shaping a new infrastructure for a 21st century air combat force and with its operational footprint at RAF Lakenheath, the USAF is well positioned to interact with this dynamic of change.

With the RAF and the USAF setting up four squadrons of F-35s between them at two nearby RAF bases, there is a clear opportunity to shape a common sustainment solution.

And the impact of so doing could be significant on the North Sea neighbors, namely, the Danes the Norwegians and the Dutch. This is clearly a key way ahead in building out NATO capabilities going forward, which provides a 21st century example of burden sharing which delivers relevant capabilities.

2018 Security of Defense Supply Agreement Between Norway and the United States

On April 12, 2018, the US Department of Defense and the Norwegian Ministry of Defence signed a new agreement on security of supply between the two countries.

According to a story on the Department of Defense website:

Second Line of Defense

Mr. Eric Chewning, the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (DASD-MIBP) and Mr. Morten Tiller, Norway's National Armaments Director, signed a Security of Supply Arrangement (SoSA) on April 12, 2018.

The intent of this effort is to further industry collaboration efforts between the allied countries.

This is one of the mechanisms that the office of the DASD-MIBP is utilizing to implement U.S. Defense Secretary James Mattis' new national defense strategy that is focused, among his top priorities, on strengthening alliances among allied countries.

The DASD-MIBP recognizes that mutually beneficial alliances and partnerships are crucial to achieving our national security objectives.

SoSAs are arrangements that incentivize and encourage allied countries to procure/acquire defense articles/services from U.S. suppliers, enhance mutual interoperability, and enshrine confidence that DoD can rely on allied partners to securely deliver needed items as needed.

<http://www.businessdefense.gov/News/News-Display/Article/1505391/security-of-supply-arrangement-signed-with-norway/>

And a Defense News story written by Jen Judson and published by Defense News on April 17, 2018 provided additional details.

A SOSA allows "the DoD to request priority delivery for DoD contracts, subcontracts, or orders from companies in these countries. Similarly, the arrangements allow the signatory nations to request priority delivery for their contracts and orders with U.S. firms," according to a Pentagon definition.

The U.S. has entered into similar arrangements with eight other countries: Australia, Canada, Finland, Italy, the Netherlands, Spain, Sweden and the United Kingdom. And the U.S. has established subsequent codes of conduct with industry in Finland, Italy, Sweden and the U.K.

"For decades the Norwegian industry has delivered critical defense equipment to the U.S. armed forces. This indicates that the U.S. authorities have considered Norwegian companies to be trustworthy suppliers for many years already," Tiller said just prior to signing the document. "Norwegian companies have also cooperated with U.S. companies for many, many years and I would say with great success."

A prime example of such partnership, Tiller noted, is the 50-year cooperation between Norway's Kongsberg and Raytheon.

Tiller said that once the agreement is signed, the next step will be to enter a code of conduct arrangement with Norway's defense and security industrial association where participating Norwegian companies "will commit to, as it is stated, make every reasonable effort, to provide priority support to U.S. authorities and prime contractors that need to invoke security of supply arrangement in future contracts."

He added that he expected many Norwegian companies will sign up to the code of conduct and particularly the companies present at the signing, such as Kongsberg and Nammo, would do so "before the summer break."

The agreement comes at a time where the U.S. is turning more toward strengthening alliances — a top priority laid out in the new National Defense Strategy.

<https://www.nadic.us/single-post/2018/04/17/US-Norway-officially-enter-arrangement-to-share-supplies-for-national-security>

A partnership between a US and Norwegian team can lead to third market opportunities as well, as being seen in the case of the Raytheon-Kongsberg NASAMS program.

An October 4, 2017 press release from Kongsberg announced an Australian purchase of the NASSAM by Australia.

The Australian Government has announced that a National Advanced Surface to Air Missile System (NASAMS) solution will be developed for the Land 19 Phase 7B project – the Ground Based Air and Missile Defence capability for the Australian Army through a Single Supplier Limited Tender process to Raytheon Australia.

Raytheon Australia has been identified as the Prime System Integrator and KONGSBERG will be a major sub-contractor in the program. NASAMS is a proven and fielded mobile air defence system in service with seven nations today, including Norway and the United States.

“We are pleased to see that NASAMS is recognized as the preferred ground based air defence capability solution for the Australian Army and we are looking forward to the process leading to a contract”, says Eirik Lie, President of Kongsberg Defence Systems.

The inherent flexibility and modularity of NASAMS makes it a world leading solution with unique capabilities to combat modern airborne threats, as well as having the ability to integrate with networks and a variety of different sensors and weapons.

“NASAMS is one of the most successful KONGSBERG products internationally and we are proud to be part of the Raytheon Australia team for delivery of this capability to the Australian Army”, Lie said.

<https://www.kongsberg.com/en/kog/news/2017/april/nasams%20solution%20for%20australian%20army%20ground%20based%20air%20defence/>

And by participating in the F-35 global enterprise, Kongsberg is developing a very flexible joint strike missile, which will be launched by the Norwegian F-35 initially, but can operate off of ships and land as well.

And by being part of the F-35 program, the JSMs Kongsberg builds for the Norwegian planes are integrable from the ground up with other F-35 partners, two of which have shown advanced interest, namely Australia and Japan.

In a February 26, 2015 press release from the Norwegian Ministry of Defence, the partnership was announced between Australia and Kongsberg.

The Norwegian Ministry of Defence and the Australian Department of Defence have agreed to cooperate on the development of the Joint Strike Missile (JSM), following talks between Norwegian State Secretary Mr. Øystein Bø and his Australian colleague Mr. Stuart Robert during the Norwegian State visit to Australia this week. The agreement seeks to support the introduction of an advanced maritime strike weapon on the F-35 in the early 2020's time frame.

Although far apart geographically, Norway and Australia share many of the same challenges. We are both maritime nations on the periphery of our immediate regions, with a large land mass and even larger maritime territories, yet relatively limited populations. This means that we have to maximize the effects of the capabilities that we invest in to ensure that they cover as much of the spectrum of operations as possible, said Norwegian Minister of Defence, Ms. Ine Eriksen Søreide.

Second Line of Defense

Norway and Australia have maintained a close dialogue for several years regarding the JSM within the framework of the multinational F-35-partnership. This agreement takes the process one step further, with Australia agreeing to provide expertise in missile control and guidance systems.



Figure 25 The cooperation between Norway and Australia on the JSM was announced at Avalon Air Show earlier today. From the left, Deputy Chief of the Royal Australian Air Force, Air Vice Marshal Leo Davies, Norwegian State Secretary of Defence Mr. Øystein Bø, and Executive Vice President of Kongsberg Defence Systems, Mr. Pål Bratlie

The JSM is already a very capable missile, but with the support of Australia, we hope to make it even better. Though Australia is still a few years away from making any final decisions on its future maritime strike capability, we are encouraged by the interest they have shown for both the missile and for the capabilities of Norwegian industry. We should now continue talks between our two governments, and aim to formalize this agreement in the near future, said Norwegian Minister of Defence, Ms. Ine Eriksen Søreide.

The Joint Strike Missile is an advanced long range precision strike missile, tailor made to fit the internal weapons bay of the F-35. The F-35, combined with the JSM, provide the ability to both locate and defeat heavily defended targets, both on land and at sea, at extended ranges, significantly enhancing the strategic capabilities of the aircraft. The missile utilizes advanced navigation, a passive infrared seeker, low signature and superior manoeuvrability to ensure mission effectiveness, thereby providing user nations with significantly enhanced combat capabilities.

Norway intends to procure up to 52 F-35A aircraft to enhance the ability of its Armed Forces to meet future security challenges, with first delivery planned for late 2015. Norway's first four aircraft will be based at the F-35 International Pilot Training Centre at Luke Air Force Base Arizona, while the first F-35 will arrive in Norway in 2017. Australia has so far committed to procuring 72 F-35A, out of a planned 100, with the first two aircraft delivered in 2014.

<https://www.regjeringen.no/en/aktuelt/norge-og-australia-enige-om-jsm-samarbeid/id2397609/>

Allies and 21st Century Weapons: The Maritime Domain Strike Enterprise

In July 2017, the UK, Norway and the US signed an agreement to work together on ASW in the North Atlantic, which will leverage the joint acquisition of the P-8 aircraft.

This agreement and the evolution of the aircraft is yet another example of the US and its allies standing up at the same time an evolving defense capability in which allies are clearly key partners in shaping the evolution of a core combat capability.

To lay down a foundation for a 21st century approach, the US Navy is pairing its P-8s with a new large unmanned aircraft, and working an integrated approach between the two. In a very narrow sense, the P-8 and Triton are “replacing” the P-3.

But the additional ISR and C2 enterprise being put in place to operate the combined P-8 and Triton capability is a much broader capability than the classic P-3. Much like the Osprey transformed the USMC prior to flying the F-35, the P-8/Triton team is doing the same for the US Navy as the F-35 comes to the carrier air wing.

The team at Navy Jax is building a common Maritime Domain Awareness and Maritime Combat Culture and treats the platforms as partner applications of the evolving combat theory. The partnership is both technology synergistic and also aircrew are moving between the Triton and P-8.

The P-8s is part of a cluster of airplanes which have emerged defining the way ahead for combat airpower which are software upgradeable: the Australian Wedgetail, the global F-35, and the Advanced Hawkeye, all have the same dynamic modernization potential to which will be involved in all combat challenges of maritime operations.

It is about shaping a combat learning cycle in which software can be upgraded as the user groups shape real time what core needs they see to rapidly deal with the reactive enemy.

All military technology is relative to a reactive enemy.

As Ed Timperlake has noted “It is about the arsenal of democracy shifting from an industrial production line to a clean room and a computer lab as key shapers of competitive advantage.”

And from the ground up, the US Navy is doing this with the Brits, the Australians, and soon the Norwegians will join into the effort.

Much like the F-35 pilots and maintainers for allies are being trained initially in the United States and then standing up national capabilities, the same is happening with the P-8/Triton allies whereby the Brits and Australians are training at Jax Navy and this will most certainly happen with the Norwegians as well.

In fact, recently an RAF pilot has gone beyond 1,000 flight hours on the P-8 at Jax Navy.

And the allies are doing training for the entire P-8 force as well.

The Australians are buying the P-8 and the Triton and the Brits and Norwegians the P-8s but will work with the US Navy as it operates its Tritons in the North Atlantic area of interests.

These allies are working key geographical territory essential to both themselves and the United States, so shared domain knowledge and operational experience in the South Pacific and the North Atlantic is of obvious significance for warfighting and deterrence.

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And given the relatively small size of the allied forces, they will push the multi-mission capabilities of the aircraft even further than the United States will do and as they do so the U.S. can take those lessons as well.

There is already a case in point.

The Australians as a cooperative partner wanted the P-8 modified to do search and rescue something that the US Navy did not build into its P-8s. But now that capability comes with the aircraft, something that was very much a requirement for the Norwegians as well.

And the US Navy is finding this “add-on” as something of significance for the US as well.

I have visited the Australian and British bases where the P-8s and, in the case of the Aussies, the Triton is being stood up. And I have talked with the Norwegians during my visit in February about their thinking with regard to the coming MDA enterprise.

It is clear from these discussions, that they see an F-35 like working relationship being essential to shaping a common operational enterprise where shared data and decision making enhance the viability of the various nation’s defense and security efforts.

During my visit to RAAF Edinburgh, which is near Adelaide in South Australia where the Aussies will build their new submarines, I had a chance to discuss the standup of the base and to look at the facilities being built there.

As with the F-35, new facilities need to be built to support a 21st century combat aircraft where data, and decision-making tools are rich and embedded into the aircraft operations.

At the heart of the enterprise is a large facility where Triton and P-8 operators have separate spaces but they are joined by a unified operations center.

It is a walk through area, which means that cross learning between the two platforms will be highlighted.

This is especially important as the two platforms are software upgradeable and the Aussies might well wish to modify the mission systems of both platforms to meet evolving Australian requirements.

And in discussions with senior RAAF personnel, the advantage of working with the US Navy and other partners from the ground up on the program was highlighted.

“In some ways, it is like having a two nation F-35 program. Because we are a cooperative partner, we have a stake and say in the evolution of the aircraft.

“And this is particularly important because the aircraft is software upgradeable.

“This allows us working with the USN to drive the innovation of the aircraft and its systems going forward.”

“We’ve been allowed to grow and develop our requirements collectively. We think this is very far sighted by the USN as well. I think we’ve got the ability to influence the USN, and the USN have had the ability to influence us in many of the ways that we do things.”

“We will be doing things differently going forward. It is an interactive learning process that we are setting up and it is foundational in character. We’re generating generation’s worth of relationship building, and networking between the communities. We are doing that over an extended period of time.”

“For about three years we have been embedding people within the USN’s organization. There are friendships that are being forged, and those relationships are going to take that growth path for collaboration forward for generations to come.

“When you can ring up the bloke that you did such and such with, have a conversation, and take the effort forward because of that connection. That is a not well recognized but significant benefit through the collaborative program that we’re working at the moment.”

“We are shaping integration from the ground up. And we are doing so with the Australian Defence Force overall.”

I have visited RAF Lossiemouth as well where the Brits are standing up their P-8 base.

With the sun setting of the Nimrod, the RAF kept their skill sets alive by taking Nimrod operators and putting them onboard planes flying in NATO exercises, most notably the Joint Warrior exercises run from the UK.

This has been a challenge obviously to key skill sets alive with no airplane of your own, but the US and allied navies worked collectively as the bridge until the Brits get the new aircraft.

<https://sldinfo.com/keeping-skill-sets-alive-while-waiting-for-a-replacement-aircraft-from-nimrod-to-p-8/>

And the base being built at Lossiemouth will house not only UK aircraft, but allow Norwegians to train, and the US to operate as well.

Indeed, what was clear from discussions at Lossie is that the infrastructure is being built from the ground up with broader considerations in mind, notably in effect building a 21st century MDA highway.

The RAF is building capacity in its P-8 hangers for visiting aircraft such as the RAAF, the USN, or the Norwegian Air Force to train and operate from Lossiemouth. In many ways, the thinking is similar to how building the F-35 enterprise out from the UK to Northern Europe is being shaped as well.

<https://sldinfo.com/the-p-8-coming-to-raf-lossiemouth-shaping-the-infrastructure-for-uk-and-nato-defense-in-the-north-atlantic/>

In effect, an MDA highway being built from Lossie and the F-35 reach from the UK to Northern Europe are about shaping common, convergent capabilities that will allow for expanded joint and combined operational capabilities.

At this is not an add on, but built from the ground up.

F-35 and P-8/Triton Belts

F-35 and P-8/Triton Force

Integration of RAF Lakenheath and RAF Marham Provides Unique Impacts and Advantages.

“I see there is great potential for two countries to develop in concert, side-by-side, and to set, set the model for joint operations.

“As we get this right, we can bring in the Danes, the Norwegians and Dutch who are close in geography and the Israelis and Italians as well to shape the evolving joint operational culture and approach.

“Before you know it, you’ve got eight countries flying this airplane seamlessly integrated because of the work that Lakenheath and Marham are doing in the 20 nautical mile radius of the two bases.”

■ P-8: Lossie, Iceland, Norway



FIGURE 26 GRAPHIC REPRESENTATION OF SHAPING THE ISR AND C2 STRIKE ENTERPRISE ACROSS THE NORTH ATLANTIC WITH US AND ALLIED F-35S AND P-8S. CREDIT: SECOND LINE OF DEFENSE

Flying the same ISR/C2/strike aircraft, will pose a central challenge with regard to how best to share combat data in a fluid situation demanding timely and effective decision-making?

The UK is clearly a key player in shaping the way ahead on both the P-8 and F-35 enterprises, not just by investing in both platforms, but building the infrastructure and training a new generation of operators and maintainers as well.

At the heart of this learning process are the solid working relationships among the professional military in working towards innovative concepts of operations.

This is a work in progress that requires infrastructure, platforms, training and openness in shaping evolving working relationships.

Having visited Norway earlier this year and having discussed among other things, the coming of the P-8 and the F-35 in Norway, it is clear that what happens on the other side of the North Sea (i.e., the UK) is of keen interest to Norway.

And talking with the RAF and Royal Navy, the changes in Norway are also part of broader UK considerations when it comes to the reshaping of NATO defense capabilities in a dynamic region.

In my interview with the Chief of Staff of the Norwegian Air Force, Major General Skinnarland, she underscored how important she saw the collaborative from the ground up approach of operating new systems together.

Referring to the F-35, she argued that “With the UK, the US, the Danes and the Dutch operating the same combat aircraft, there are clear opportunities to shape new common operational capabilities...

“And with the P-8s operating from the UK, Iceland, and Norway can shape a maritime domain awareness data capability which can inform our forces effectively as well but again, this requires work to share the data and to shape common concepts of operations.

“A key will be to exercise often and effectively together. To shape effective concepts of operations will require bringing the new equipment, and the people together to share experience and to shape a common way ahead.”

In effect, a Maritime Domain Awareness highway or belt is being constructed from the UK through to Norway.

A key challenge will be establishing ways to share data and enable rapid decision-making in a region where the Russians are modernizing forces and expanded reach into the Arctic.

Obviously a crucial missing in action player in this scheme is Canada. And in my discussions with Commonwealth members and Northern Europeans there is clear concern for disappearing Canadian capabilities.

Perhaps one way to enhance modernization of Canadian forces along with the Brits and the Norwegians would be to shape a joint buy with the UK and Norway to procure a set of Tritons in common and work common data sharing arrangements.

Or perhaps a model to sell data rather than buy aircraft might be considered as well which has been the model whereby Scan Eagle has operated with the USMC.

As the COS of the Norwegian Air Force put the challenge:

“We should plug and play in terms of our new capabilities; but that will not happen by itself, by simply adding new equipment.

“It will be hard work.”

CONCLUSION

The Nordics are responding to what they see as a new situation in their region. The Arctic opening expands the range significantly of the challenge in what might be called the Nordic Security Zone (NSZNS) and the use of military power in Europe and beyond by the Russians has changed the defense environment of the post-Cold War period.

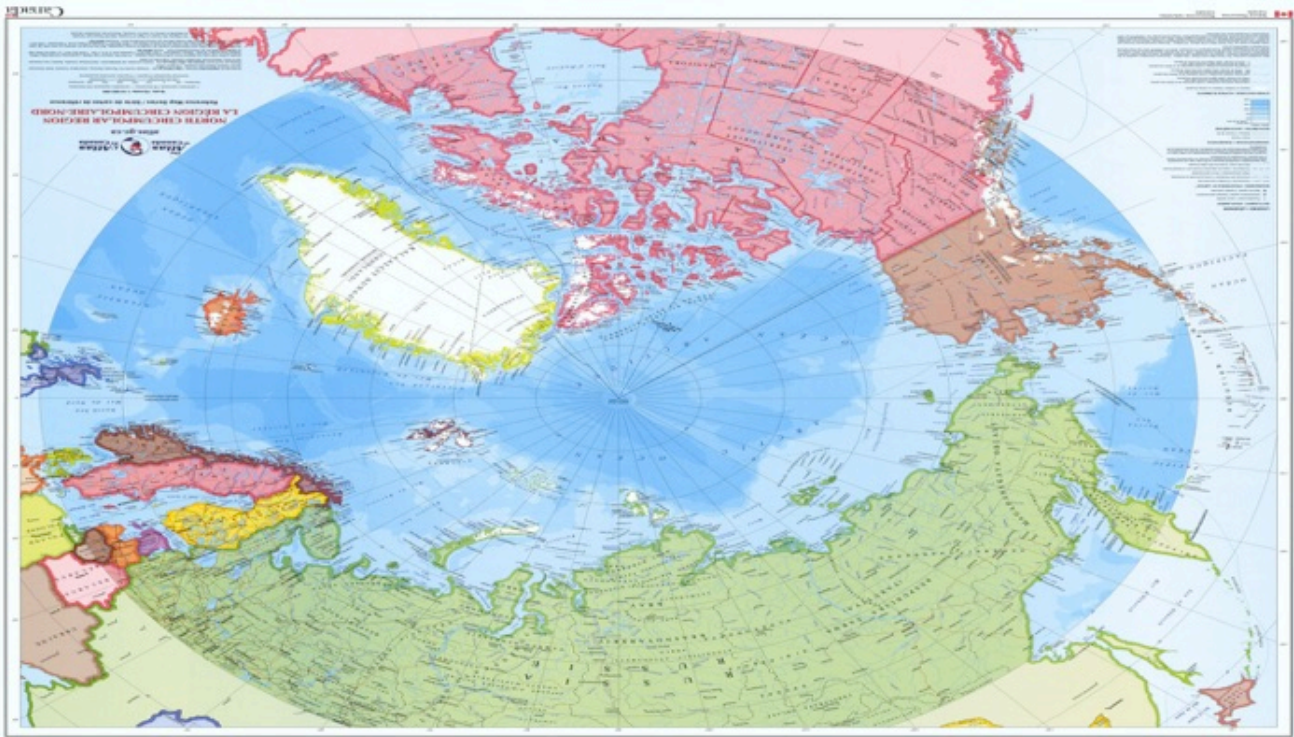


FIGURE 27 A REPRESENTATION OF NORTHERN EUROPE FROM THE NORWEGIAN PERSPECTIVE. GRAPHIC INCLUDED IN BRIEFING AT BODO AIRBASE

The Russians under Putin are clearly not the Soviets. They are not protecting their Empire in Eastern Europe; freed from this burden they can now pursue more narrowly considered policies in the perceived Russian interest. This includes expanding Russian territory to include areas which the Russian leadership regards as inherently theirs, such as in the Crimea. And this includes as well expanding Russian geopolitical influence through insertion of force into the Middle East and strengthening Russian bases in the region.

Under Putin, the Russian military has been downsized and modernized and with this modernization much greater integration of air and maritime power has been highlighted. Illustrative of the change is building a fleet of missile armed frigates operating in the Caspian Sea which are used to support Middle Eastern operations.

For the Nordics, the Russian dynamic creates a fluid NSZ from the Arctic through to the Baltics. And in the heart of the NSZ is heavily armed Kaliningrad which is home to a significant missile and air defense force which given the Caspian example is part of a broader strategic capability to influence events within the NSZ.

The Nordics have been playing close attention to the strategic shift in their region. Norway and Denmark are putting in place modernization efforts and have reshaped their public discourse about the challenges in their region. The Swedes have just concluded their first major military exercise in more than 20 years; and the Finns are working more closely with Nordics and allies for regional defense.

At the same time, the UK is in the throes of working out post-Brexit defense plans, and it is clear that Northern Europe will play a major role in shaping the way ahead. New aircraft are coming to the region – F-35s and P-8s, tankers and lifters – which will provide for enhanced capabilities to deal with challenge, which Russia presents.

With the coming of the P-8s and Tritons, the return but in reality, transformation of ASW into a maritime domain awareness and strike enterprise is being shaped. And Canada is contributing to this with a new helicopter and significant modifications of its legacy P-3s.

And the coming of the F-35 as a key coalition force could generate significantly greater collaborative integration to shape an offensive-defensive force necessary to be taken seriously by the Russians.

In short, the Nordic defense is in process of significant change. This change is about the engagement of the Nordics themselves in a process of greater cooperation and capabilities for their regional defense. Their commitment to find ways to mobilize society to support the military and to prepare for future crises is impressive.

And the European and North American allies are interacting with these changes to shape more effective capabilities to provide for deterrence in depth for Northern Europe. It is a work in progress but one of the most dynamic ones underway.

And the interactions between changes in this region with areas much further away, such as in the Pacific are very significant as well. The cross-learning by the leadership of the illiberal powers is clear. But the liberal democracies are expanding their cross-learning as well.

At a Williams Seminar in Canberra in March 2018, the Chief of Staff of the Royal Air Force highlighted the interactive dynamic.

You asked me to speak about high-intensity warfare in Europe. Perhaps I've not really provided that much of that specific geographical context.

But then as I said right at the start, I don't believe that what I've described can be bracketed within a particular geography.

The challenges I've described are truly global and truly common to us all.

<https://sldinfo.com/2018/04/shaping-a-way-ahead-the-perspective-of-air-chief-marshal-stephen-john-hillier-the-royal-air-force/>

APPENDIX: A STRONGER NORTH? NORDIC COOPERATION IN FOREIGN AND SECURITY POLICY IN A NEW SECURITY ENVIRONMENT

In a new report produced under the aegis of NORDEFCO, the Nordic cooperation effort is assessed and analyzed.

The authors of the report, Tuomas Iso-Markku, Eeva Innola, and Teija Tiilikainen, focused on the history and the way ahead with regard to Nordic cooperation.

<https://www.fiia.fi/en/project/a-stronger-north-developing-nordic-cooperation-on-foreign-and-security-policy>

Eeva Innola is a research fellow in the European Union Research Program. Thomas Iso-Markku is a research fellow with the European Union Research Program. And Teija Tiilikainen is editor in Chief of the Finnish Journal of Foreign Affairs.

https://storage.googleapis.com/upi-live/2018/05/nordic-vntas-report_final.pdf

Second Line of Defense

The purpose of the report was identified as follows:

It is against the backdrop of the recent changes in the Nordic-Baltic region, the EU, NATO, the transatlantic relationship, international institutions and the global power political set-up that this report sets out to assess both the current state and future potential of Nordic foreign and security policy cooperation.

Where does Nordic foreign and security policy cooperation stand in an international environment marked by the above-mentioned developments?

Do these developments imply new challenges, opportunities and/or constraints for Nordic foreign and security policy cooperation?

The aim of the report is two-fold.

Firstly, it seeks to provide an overview of the current state of Nordic foreign and security policy cooperation. This entails taking a look at its formats and structures as well as recent trends in this cooperation.

Secondly, the report seeks to analyse in more detail possible gaps, constraints and problems as well as untapped potential in Nordic foreign and security policy cooperation.

The report is comprehensive and provides a very helpful overview on the dynamics of change with regard to Nordic cooperation.

The report concludes as follows:

There are many reasons to expect a coherent and coordinated Nordic approach to a multitude of issues in the international arena. Nordic countries are united both through their societal values and geopolitical position.

As Northern small or middle-size powers, their international position and influence benefit essentially from joint positions and action.

Due to their significant economic output, successful societal model and respected tradition of international mediation and peacekeeping there is a joint power potential within the Nordic countries that should not be underestimated.

Furthermore, Nordic cooperation is decidedly uncontroversial and enjoys a solid legitimacy among the Nordic populations.

This report studied how this power potential is used and the kind of hurdles that obstruct a more concerted Nordic action in foreign and security policy.

The hurdles are political, institutional and cultural.

When the Nordic brand in international relations is quite clear and coherent externally, the different historical traditions and identities come to the fore internally.

The statement according to which the further away from the Nordic region one is, the better the Nordic foreign policy cooperation functions, is highly descriptive of the situation.

The study in hand confirms the key conditions for further enhancement of Nordic cooperation in foreign and security policy.

Due to historical experiences and identities, the Nordic community is important but still does not form the primary political community for any of the Nordic countries.

It is rather seen to complement the main “alliances”, which in the case of Denmark, Norway and Iceland is NATO, and in the case of Finland and Sweden the EU.

Irrespective of the commonality of values and geopolitical interests among the Nordic states, Nordic cooperation has to adjust to the political and institutional requirements of NATO and the EU.

Adherence to different alliances does not mean that common Nordic interests could not be taken into account and promoted by the Nordic members of the respective two alliances, NATO and the EU.

This is what happens, but there are limits to it as it is by no means supposed to challenge the broader consensus-building in the EU or NATO. It is obvious that the possibilities for influencing the EU and NATO as common arenas for European and transatlantic policy-making remain underused from the point of view of common Nordic interests.

Major decisions in the EU and NATO concerning their policy priorities or strategic approaches, for instance, do affect the whole Nordic community irrespective of the Nordic states’ affiliation with the organisations.

The preparation of such decisions should therefore be prioritized on the Nordic agenda and be linked with more thorough information-sharing and policy coordination. Broader Nordic-Baltic cooperation could duly strengthen these efforts to influence the EU and NATO. Could more efficient Nordic (and Nordic-Baltic) coordination lead to a more proactive policy by the respective Nordic members of the EU and NATO with regard to questions of shared Nordic interests?

Another key condition of Nordic cooperation in foreign and security policy – linked to its character in complementing primary alliances – is its informal nature. The only exception to this can be found within Nordic defence cooperation, where the set-up is more formal.

Informality means that there is no single institutionalized framework for foreign policy cooperation, nor is there any systematic planning or a coherent set of policy instruments.

What is equally missing is overall strategic leadership, which would define the key Nordic priorities and interests for this cooperation in the longer perspective.

Nordic cooperation takes place in a variety of different contexts, starting from dense contacts between individual civil servants and policymakers, and covering a whole range of multilateral fora, both with an entirely Nordic character (N5) and larger formats (NB8, e- PINE, N5+V4 and Northern Group). Informality is highly valued as it enables the formation of a fully needs-based agenda. The Nordic meetings can address issues of topical concern and interest.

Informality also means that there is no need to decide whether Nordic foreign and security policy cooperation should include the Nordic states with or without the Balts, as an enlarged Nordic community would be in the interests of many but not all.

Informality is clearly perceived to be an asset for Nordic foreign policy cooperation, but it is also a reason for the highly reactive nature of this cooperation. Without any joint policy- planning capability, the Nordic agenda can hardly contain more systematic and long-term efforts to influence the political environment in a more proactive manner.

Second Line of Defense

In order to lead to more concrete outcomes, Nordic foreign policy cooperation should also have clear foci, which seems to be at odds with its needs-based agenda-setting.

To ensure full use of the Nordic potential, Nordic foreign policy cooperation should adopt a dual-track approach. Within the general framework of informality, it should still be possible to agree on a number of concrete policy priorities and adopt a joint implementation plan for advancing them.

In order to safeguard both the legitimacy and high political character of these joint projects, their planning and implementation should stay within the Nordic foreign ministries by taking the form of a joint Nordic task force.

These priority projects could contain a common Nordic initiative or effort within a multilateral institution or be more targeted towards the immediate Nordic-Baltic environment.

The projects should fully respect the Nordic commitments within EU and NATO contexts. These kinds of priority projects would enhance both the concrete content and continuity of the Nordic foreign policy agenda, but without challenging its informal character.

A third cornerstone of Nordic foreign and security policy cooperation can be found in its institutional complexity. The form of cooperation varies concerning its participatory structure and level and there is a lot of overlap between the various forms.

The informal foreign and security policy cooperation and the more institutionalized defence cooperation take place in separate realms with obviously little interaction existing between them.

In addition to the multilateral forms of cooperation, a range of systematic forms of bilateral relationships exist, with each of them having their own background and goal-setting.

Even if there is no possibility of significantly streamlining and simplifying the arenas for Nordic foreign and security policy cooperation, an effort should still be made to strengthen synergies between its different forms.

First, Nordic defence cooperation should be better anchored in a more systematically pursued Nordic consensus concerning the developments in its strategic environment and the emerging threats.

This is a section that is currently missing from the extensive cooperation agenda.

All of the Nordic countries produce such an analysis separately, in the framework of their white books of security and defence, which also have linkages to the corresponding strategic documents produced by the EU and NATO.

A Nordic consensus on the strategic environment could be elaborated, for instance by reviewing the separate Nordic documents and identifying converging and differing elements in their analysis.

The review could bring together the ministries of foreign affairs and defence at different levels with the process and outcome of the debate, providing a more solid common political starting point for Nordic defence cooperation both in the NORDEFECO framework and in the bilateral format.

Other types of synergies between the different forms of Nordic foreign and security policy cooperation should also be enhanced. One question to be answered deals with the added value that existing bilateral relationships might provide for the broader Nordic framework if efficiently used.

Are the good practices emerging within a particular bilateral relationship efficiently presented in the multilateral Nordic context in order to possibly be used in another bilateral context?

Existing bilateral practices extend from the exchange of civil servants to joint political visits to third countries, and further to different forms of operational cooperation between various branches of the armed forces.

Finally, one question that needs to be studied further is the discrepancy that exists between the external conception about Nordic unity in international relations, and the more divided and fragmented situation internally, where differences in policy content and the value of Nordic cooperation both come to the fore.

If the external view is much more coherent than the internal reality suggests, could it possibly be enhanced, and also be more efficiently utilized without major changes being made to the internal system of policy coordination?

The pragmatic Nordic political culture is free of political symbols and a political rhetoric typical of great powers. The forms or outcomes of Nordic foreign policy cooperation are rarely celebrated with attention-grabbing headlines or references to strong Nordic unity or loyalty. Among the very few recent exceptions to this modest outlook was the Nordic solidarity declaration, which was nonetheless cautious in tone.

This raises the question of whether the Nordic countries should change this low-key style and start marketing the Nordic achievements, including unity and numerous common goals in foreign and security policy, much more visibly than what is currently the case.

The conceptions that exist about Nordic unity could also be utilized for the purposes of stronger communication about the common values underpinning this unity, and about the goals into which they translate at the international level.