"BattleSwarm" is a concept that maximizes national advantages when it comes to the traditional core capabilities in the Norwegian Armed Forces to endure hardship under demanding winter conditions in any terrain. Swarming forces could execute speedy deployments into every corner of the country more effectively than the army as of 2014. An organizational design for a joint swarming force should be developed. The crucial requirement is the organizational will for change. The Norwegian military needs a new vision for the NAF 15-20 years ahead. Norway may not retain a heavy combined arms capability as it simultaneously builds a swarming capability. In case of insufficient resource allocation Norway might end up with a ground force incapable of conducting either form of war. Transition to a "BattleSwarm" doctrine might be the only option Norway can afford in a future fiscally constrained environment. If affordable, the optimal force composition would be to retain the Army as it is today, and simultaneously build a strong and capable swarming force. It would be a rapidly deployable asset in a world where great power rivalry again seems to be on the rise.
FUTURE WAR PAPER

The Joint Swarming Force: Maximizing Technological and Human Advantages in the Norwegian Armed Forces

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF OPERATIONAL STUDIES

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Figure 1: GEO-STRATEGIC ENVIRONMENT AND NAF BASES AS OF 15th NOV 2013
Source: Norwegian Ministry of Defense
THESIS

This future war paper asks if there is potential to develop a future joint force operating according to the “BattleSwarm” doctrine, maximizing modern technology and human advantages, utilizing elusiveness, superior situational understanding, and long range stand-off capabilities, in order to more effectively cope with future national security challenges on Norwegian soil such as the scenario described in the fictional future narrative below.

A FICTIONAL FUTURE NARRATIVE

Svalbard has belonged to the Kingdom of Norway since 1920. The race for the oil and gas resources that started in 2020 increased international interest, in the entire area. In 2023, a Russian company discovered oil reservoirs believed to contain up to 60 million tons of oil. Norway had opposed Russian oil exploration for years but received limited international support. Many nations claimed that the resources at Svalbard should be equally divided among the signatory states of the Svalbard Treaty. In 2025, the situation worsened when the Russian government decided to deploy military forces to Svalbard as a defensive measure to protect their interests. In 2028, after a political change in Russia, the new government voiced intentions to protect resources also in other parts of a larger Arctic region.

If Russia should decide to seize the oil, gas, and seafood installations in Northern Norway, the regular forces available to hinder them were limited. The Norwegian Army would be limited to project substantial combat power to counter the threat due to lack of operational lift. However, the Navy and the Air Force could forward deploy to bases in Northern Norway. National SOF assets could be deployed accordingly. The Joint Swarming Force, recently declared fully operational capable (FOC), could be deployed with enough organic firepower as
well as stand-off capabilities to establish a sufficient threshold for potential enemy aggression.
This specially trained and equipped force, with more than forty combat ready teams, could
deploy nationwide with a variety of terrain vehicles, small boats, and long range weapon
systems. Every team could communicate and direct fires from both national and allied air and
naval platforms. The Swarming Force would truly be a joint and combined unit that would give
the National Joint Commander a tremendous operational flexibility.

INTRODUCTION

Swarming concepts and tactics have been used in war and conflicts for ages. U.S forces
fought swarming autonomous Somali militia units in the Battle of Mogadishu in 1993. The
German Kriegsmarine’s submarine tactics in the Battle of the Atlantic in 1942-45 is a naval
example of swarming. Napoleon’s operational level maneuvers in the 1805 Ulm campaign,
where several independent corps converged simultaneously to encircle and destroy the Austrian
Army, is another prominent historical example. Another example of swarming was the Finnish
“motti” tactics employed in the Russo-Finish Winter War in 1939-1940 to encircle the Russian
units and columns, and to conduct multiple rapid attacks against rear echelon elements. As the
Russian columns were broken into fragments, the Finns closed in for the final destruction, one
piece at the time. The Russians took heavy losses, and strived to counter the “motti” tactic.¹

states that “one possibility worthy of consideration is a doctrine based on swarming and other
nonlinear, dispersed tactics.”² Edwards describes swarming as a convergent attack by force or
fire on an enemy from multiple directions, executed by lighter units inserted by either air or sea,
having organic mobility to remain elusive in any type of terrain.³ John Arquilla and David
Rohnfeldt named the concept “BattleSwarm” in their Rand Study of 2000 describing it as “a
convergent attack on an adversary from multiple axes (from most of the points of the compass) by semi-autonomous units.\textsuperscript{4}

Some experimentation with swarming concepts was a part of the Norwegian ISTAR project. The NORISTAR Project was an attempt to organize suitable conventional units from all of the services in the Norwegian Armed Forces into a regimental size unit at the tactical level with a joint operational interface. The political guidance given in White Paper 42, \textit{The Modernization of the Norwegian Armed Forces 2005-2008}, described a unit merging the Military Intelligence Battalion from the Army, the Coastal Rangers from the Navy, and a UAV unit from the Air Force.\textsuperscript{5} However, after years of promising testing and experimentation the NORISTAR concept remained on the drawing board and never came to completion.

Also, some of the simulations performed by the Norwegian Defense Research Establishment as a part of the last “Future Land Forces Study”, compared swarming to other organizational alternatives for future force structure.\textsuperscript{6} The idea of swarming never gained any ground. However, the concept has some strong advocates, among them former Chief of Defense, General Sverre Diesen (CHOD 05-09), and more people in the Norwegian Armed Forces start to see the need for an additional capacity to complement especially the mechanized Norwegian Army. Over the last few years, Norway has decided to purchase a new heavy artillery system and modernize and upgrade its fleet of both main battle tanks and infantry fighting vehicles.\textsuperscript{7} The theoretical fundament described in J.F.C Fuller’s \textit{“The Foundations of The Science of War”} from 1926, is evident.\textsuperscript{8}

According to Nils Holme, the former director at the Norwegian Defense Research Establishment, the heavily mechanized Norwegian Army cannot deploy rapidly on Norwegian
soil, due to the lack of operational mobility. Both the Navy and the Air Force will possess stand-off capabilities to fill that void of the Army being deployed in response of a crises or an attack, but that might require an additional joint ground capability. The latter would be the need for a light force that can deploy rapidly and, in case of an attack, halt enemy movements.

According to former Norwegian Chief of Defense, General(R) Sverre Diesen, future capability development in Norway is too conventional, and not necessarily tuned into the operational needs and the opportunities of the future. Diesen’s main argument is that the NAF is not maximizing its technological and human advantages. Conscription holds a strong position in Norway. Diesen argues that Norway is using its resources in a wrong and inefficient way. Too many resources are used to educate and train conscript soldiers. When they are at their peak of their military performance, they are sent back to the society to continue their civilian lives. According to Diesen, there is an urgent need for more professional soldiers to cope with the increased implementation of technologically complex equipment. Time and resources are wasted in training of soldiers who are not going to use their skills in the Norwegian Armed Forces. The operational needs of the future require more innovative thinking, especially when it comes to the critical importance of rapidly deployable ground forces with joint capabilities. Again, according to Diesen, given an enemy’s most dangerous course of action (similar to the WWII strategic attack by Germany in operation Weserübung-North in April 1940), it is doubtful that the Army “even when modernized in 2020” will be able to sufficiently and effectively respond to a similar threat. The Navy and the Air Force comparably will be far better positioned to rapidly respond.

Both Holme and General Diesen argue strongly that such a heavy ground force will have limited capability of doing something on Norwegian territory in case of conflict, and that Norway needs to develop new ground capabilities. An airmobile unit has been discussed at
length since 2001 without any fruitful conclusion. The Royal Norwegian Air force (RNoA) is fully occupied with the current implementation of the F-35 Joint Strike Fighter (JSF). An airmobile capability might be a future option post JSF implementation but is not considered likely due to fiscal constraints. The Royal Norwegian Navy (RNoN) is equally busy getting their new frigates and coastal corvettes fully operational. An amphibious force similar to the USMC has been discussed several times, but no concrete initiatives have ever been followed through.

The “BattleSwarm” concept is closely linked to these ongoing processes in the Air Force and the Navy but has never been discussed or developed in any doctrinal depth or length. If the NAF as such manages to establish a “Joint Swarming Force” utilizing the “BattleSwarm” concept, it might severely increase the joint combat support to the mechanized army and also in a better way utilize the future integrated stand-off capabilities of the entire NAF. Given the right doctrine and organizational decisions and circumstances, the “BattleSwarm” concept could be a valuable operational approach for the future joint warfighting capabilities of the Norwegian Armed Forces. In the long term it could actually be the way Norway decides to organize the entire military establishment.

There may be potential for the Norwegian Armed Forces to develop a doctrine and future joint operational force operating according to the “BattleSwarm” doctrine, in order to more effectively cope with future national security challenges. The key decisions about how to develop the NAF for the next 15-20 years have been made and will probably remain firm due to the long term nature of the military procurement system. However, the swarming concept may be more relevant for the desirable ends of future war and conflict. History shows that new military ideas need time to mature.
The Norwegian Armed Forces (NAF) are small and dispersed. The Army is mainly positioned in the northern part of the country. Norwegian National Joint Headquarters is the central joint command, and plans and leads operations both home and abroad in times of peace, crises, and war. Norway has two small regimental size special operations forces (SOF) units at the strategic level. The navy has a Task Force with coastal rangers, ships, and submarines. The Royal Norwegian Air Force operates all the aircraft in the NAF. The Home Guard is operating as a 45k strong semi-separate ground service divided into eleven regional commands. It is mainly a light infantry force with limited mobility and firepower. The Army has some 9500 personnel, half of whom belong to the active duty brigade, Brigade North. The only large units outside the brigade are His Majesty the King’s Guard, a light infantry battalion in the Capitol of Oslo, and the Border Guard Regiment, a light infantry ranger force deployed along the 196 kilometers of the border with Russia.

In 2005, the Army closed down both its air defense battalion and elements of its heavy artillery battalion, along with its Multiple Launch Rocket System (MLRS). More recently, the Ministry of Defense has signaled that an air defense capability will be re-established in the brigade, but as yet there are no plans to reactivate the MLRS, undoubtedly the most potent weapon system in the Norwegian Army. It was deactivated as part of Norway’s adaption to the so-called anti-personnel mine convention, as mines can be delivered with MLRS. A second reason was also the increasingly high cost of MLRS missiles. The mechanized battalions operate Leopard 2A4 main battle tanks and CV90N infantry combat vehicles. The main challenge for the Norwegian Army is limited size, and the elongated territory to defend. The Home Guard is too lightly armed to compensate for the Army’s limited sustainability.
If the NAF could handle a crisis or even a conflict alone, such a capacity would be limited in time and space.\textsuperscript{16} It is not a force designed primarily for the defense of Norwegian soil in times of war. It is primarily designed to enable Norway to contribute forces to NATO and to facilitate allied reinforcements. Norway has important resource and security interests in the north that are not always necessarily shared by its allies or partners. Moreover, as Norway observes US repositioning of its forces to Asia in parallel with the majority of European countries reducing their military force structures, suggest that an immediate NATO response to a crisis on Norwegian soil cannot be taken for granted. This means that Norway needs a military capability to handle crises on its own, perhaps a capability limited in space and time.\textsuperscript{17}

THE CAPABILITY GAP

Future development of ground forces might well be a useful approach to develop a new type of capability. The requirement of the future is hard to predict with accuracy. An identified operational shortfall or a capability gap might be irrelevant in certain types of scenarios, while it would be prominent in others. In a national defense scenario, the key requirement for the Norwegian Army is its ability for rapid force projection. For the army, the ability to airlift heavy vehicles is limited to non-existent. Slow oceangoing transports between southern or northern Norway, is a viable and available alternative, but it’s definitely not rapid. The use of railway is possible in southern Norway, but limited in northern Norway since the railway line ends in Bodoe, located in the middle of Norway.

Given the dispersed nature of the Norwegian Army, a conflict or threat in any part of the country would require deployment of ground forces either way. A possible solution might be to look for a unit that could rapidly deploy with a certain level of mass, mobility, and firepower: a
kind of intermediate unit that could deploy between the arrivals of the lightest forces (SOF) and the arrival of the heavy armored forces. The light nature of a swarm unit may fit this role.  

SWARMING, A DEFINITION

According to John Arquilla and David Ronfeldt, swarming is “the systematic pulsing of force and/or fire by dispersed units, so as to strike the adversary from all directions simultaneously.” They differentiate swarming from the other traditional forms of battle, such as mass and maneuver, by focusing on what technology, new weapons systems, and the information age has enabled us to do with our forces. Sean Edwards states that “swarming occurs when several units conduct a convergent attack on a target from multiple axes. Attacks can either be long range fires or close range fire and hit-and-run attacks.” Again, according to Arquilla and Ronfeldt, swarming has two fundamental requirements, namely the ability to strike the enemy from multiple directions and that the swarming force as a part of a sensory organization, providing intelligence to other members of the force and the higher echelon units. Sean Edwards emphasize the difference between swarm tactics and conventional tactics. Frontal attacks with one or more flank attacks, turning movements, or even double envelopments in order to destroy the enemy, are not regarded as a swarm attack despite some similarities. According to Edwards, swarm tactics should be broken into two distinct approaches, namely Massed Swarm and Dispersed Swarm. Massed Swarm begins as a single massed body, then disassemble and conducts a convergent attack to swarm the enemy from many directions. Each unit then attacks from individual positions to converge on the battlefield. Dispersed Swarm converges directly on the target from scattered basing areas.

Andrew Kubik describes swarming as the “Art of 21st Century Warfare.” His main argument is the need for more professional soldiers and more special operation forces rather than
fielding and raising more conventional forces. Furthermore, Kubik argues that the warriors of the future must have superior individual skills in order to operate in lighter autonomous units. Kubik's point is applicable to the topic of this paper. Swarming is a business for professional soldiers, not for conscripts or reservists.

A NAF JOINT SWARMING DOCTRINE

"BattleSwarm" doctrine in a Norwegian context should provide a closer look at technology as a force multiplier and the enabler for elusiveness, superior situational awareness, and direct and/or indirect stand-off capabilities. A key element for consideration is to investigate potential human advantages in the NAF. Of particular interest is the quality of young officers and small unit leaders and their theoretical and practical understanding of decentralized command and commander's intent.

A useful tool for analysis is DOTMLPFI (doctrine, organization, training, materiel, leadership, personnel, facilities, and interoperability) used by NATO to guide capability development. The DOTMLPFI guides capability development by providing a framework within which to articulate each element of this swarming capability. This construct should be an important guide to examine the opportunities of swarming in a Norwegian context. This may require a new doctrine, an altered organization, and additional personnel to perform new functions. These personnel must not only be trained, they may need new equipment and facilities. The swarming force could become a new capability for the NAF.

The prototypical (or generic) swarming force should be organized with many small, dispersed, networked maneuver units that are fully joint, with stand-off and organic firepower, in a seamless and integrated command and control system between the operational and the tactical
level. The operational requirements and tenets should primarily be based on a centralized strategy, with decentralized tactics, by distributed formations and logistics. Given the future circumstances for the NAF, swarming could be a feasible alternative to maximize national advantages.

In Norway, there is no command level between the operational National Joint Headquarters and the tactical brigade. A future with limited conventional forces might have numerous swarming units. A swarming force is a smaller and a lighter force and will therefore require less budgetary costs than a heavy mechanized brigade, and can be applied more effectively across the spectrum of conflict. Exact figures are not available to provide a proper exchange rate of how many swarming units to “purchase” for the cost a conventional brigade. As a part of a greater defense study, the Norwegian Defense Research Establishment established a project called “Future Land Forces.” The project was tasked to analyze future force structure alternatives for the Army and the Home Guard as part of the Norwegian Defense’s long term planning process. No organizational structure similar to the swarming concept was considered, but the project provided valuable insight in certain fiscal requirements. An expeditionary heavy mechanized brigade with three battalions equals the cost of six battalions of light infantry.

Arquilla and Ronfeldt describe swarm units in an organizational sense as “pods” and “clusters.” The “pod” could be a team of ten. The “cluster” a platoon of three to four teams. Up to ten “clusters” could form the battalion. There may be no company level command in the battalion. The exact force composition should ensure all elements can perform with comparable effectiveness. The key requirement is to establish a force able to aggregate combat power in various ways tailored to terrain, climate, opponent, and mission. A swarming force should be capable of dividing into smaller teams for sustained deep reconnaissance to gather and transmit
intelligence, and provide target acquisition for long range weapon systems, as well as to call in naval and air strikes against second echelon command and control installations, logistical units, and enemy reserves.

Norway as an area of operations includes plateaus and areas of arctic wilderness, steep mountains, heavily wooded areas, penetrating fjords, multiple lakes and rivers, and scattered urban areas densely populated. It is a type of environment that favors lethal, dispersed, and highly mobile units relying on the tactical defense and the superior use of terrain to their advantage, luring the opponents into designated kill boxes. It is an environment for elusiveness and concealed maneuver. Such swarm units should be less vulnerable to enemy precision guided weapons compared to conventional or mechanized formations. Mobility and logistics would be a challenge. A future swarming force should be able to deploy with a variety of mobility assets ranging from light-skin strike vehicles (LSV), light all-terrain vehicles (LATV), and many types of small boats, often transported by cargo planes, helicopters, coastal corvettes, or other naval craft for distant deployments to the island of Svalbard perhaps.

Logistics would be a challenge. Arquilla and Ronfeldt state that a swarm force may represent only a tenth of the usual portion of conventional ground forces, and require less logistical demand for prolonged sustainability. A logistical unit must be established at the operational as well as the tactical level. Based on speed and mobility, swarming will require a flexible supply system. Combat units should carry only those supplies needed, and can’t carry heavy supplies or maintain stockpiles in their area of operations. The information-management system could partly solve that problem and provide constant visibility of supply levels to be maintained to ensure supplies are delivered exactly as needed, and at a suitable time and place. When possible, swarm units should be equipped with the same common vehicles, weapons, and
equipment to ensure commonality of parts, and fewer systems to maintain and repair. Battlefield
distribution should allow effective means for distribution and delivery, such as air drops.
Helicopter borne logistical units and small boats and submarines should be used for dispersed
sustainment. Prepositioned caches may not be useful with this concept.

Training for the future swarming battlefield should focus the training on how to apply
lighter and independent units to move undetected by enemy surveillance systems to strike
emerging enemy formations. Swarming units should operate according to principles used by the
Special Forces, exploiting simplicity, speed, security, purpose, and surprise. Andrew Kubik
argues for swammers to be intensively trained in small unit leadership and critical thinking.30
Kubik also says that every individual, both commissioned and non-commissioned officers, must
be comfortable and capable of thinking, analyzing, and operating like higher level commanders.
They should know and be able to process more information than traditional junior officers.

A new training regime will be required to forge leaders for such a decentralized
environment. Superior situational awareness gives senior commanders great opportunities to
monitor and dive into tactical decision-making. In this case, doctrine must be crystal clear.
Swarmers must be trained to operate according to commander’s guidance and intent (mission
command), and in no case await higher direction to take action. Senior commanders should
appreciate solid insight in the tactical situation, but intervene sparingly when necessary.
Otherwise they may inadvertently reduce the initiative among the junior ground leaders.
Subordinates in turn should appreciate that their commander should be up to speed on what is
going on. They should even be able to “fight blind” if they lose connectivity. Junior leaders must
be thoroughly trained and nurtured into a command climate that is fairly different from that of a
conventional force.
Elusiveness, whether based on concealment, superior situational awareness, or mobility, ensures that elements of the swarming force can choose the time and place of combat. They can run, hide, or fight when it is advantageous to do so. Elusive maneuvering empowers standoff fire by positioning units where they can attain greater result. Either by attacking a softer target or by attacking from an unexpected direction or at an unexpected time. 31 Liddell Hart believed so strongly in the power of maneuver that he theorized that the weight of a force is its weapon power multiplied by its mobility. 32 Training for elusiveness pertains to familiarity with the terrain and must be developed as an advantage within the Norwegian Armed Forces. Fighting in demanding terrain, under challenging weather conditions (either urban, mountain, or arctic warfare) has been a critical quality of the Norwegian soldier and must be maintained. An arctic warfare capability is definitely a requirement for the future as Norway’s northern interest increase in a competitive austere environment. 33 The nature of future conflict in the Arctic and the operational requirements to be able to operate in such an environment support the need for a force that is robust and rapidly deployable.

A swarming force has to be smaller, smarter, and more autonomous than traditional forces. Combat efficiency is closely linked to the ability to process fused intelligence and filter out the relevant and crucial information for successive application of combat power. Making the “BattleSwarm” concept efficient would require a digital communications network that is robust and light weight, not only in the technical sense, but also in the informational sense. Limited information leads to incomplete situational awareness. Too much might create informational overload and friction in the field. Arquilla and Ronfeldt state that “full connectivity, improperly utilized, might foster indecision.” This suggests in particular more and focused training for future leaders of swarming units on how to analyze and extract important information from non-
essential. Leaders should never expect to have complete situational awareness prior to execution, nor should any tactical concepts or standard operating procedures rely on it.

Complete situational awareness is always a goal, but it should never limit operational performance or the obligation to engage. A lot of the technology is available off the shelf, but should be adapted and developed for a swarming force. New issues and challenges will emerge. One of the key issues is how to deal with a lot of communication and acquisition means, and to keep them operable throughout longer periods in demanding operational environment like in the arctic. Even today, this is a challenge, but innovations in this field are emerging. The NORMANS project (Norwegian Modular Arctic Network Soldier) is an ongoing conceptual idea towards individual and small unit soldier systems for the future. NORMANS is founded on capability areas defined by NATO - lethality, survivability, sustainability, mobility, and C4I, in order to establish superior situational understanding and awareness for officers and soldiers on the ground. Key tools provided by Normans are a blue force tracking system, precision navigation instruments, with an integrated target acquisition module with text messaging capabilities. Additional capabilities can be added and tailored to specific missions and tasks.

The Norwegian Defense Research Establishment has enhanced NORMANS to substantially increase accuracy and effectiveness during the preparation and execution of ground force operations. Similar capabilities must be developed above the individual soldier to support a swarm concept, such as dealing with the extreme cold of the Arctic, explicitly stated in the very name of NORMANS. However, NORMANS was mainly developed for the mechanized army. Requirements for a swarming force may overlap, but will be different. The future development of any NORMANS system or capability should emphasize how to facilitate dispersed swarm operations, especially mobility and sustainability in any place and clime. Artic warfare might
very well be the benchmark for operational performance. If it works in the arctic, it will probably work anywhere, or as the Norwegian Allied Training Centre, a Centre of Excellence in Cold Weather Operations use as its credo, “if you can survive and fight in the extremes of the arctic, you can fight anywhere in the world.”

Future leaders of swarm units have to undergo more extensive training than in the past. Application of a swarm concept requires tactical commanders that exercise greater initiative because units will operate across greater distances, fires may be remote and unseen, as units are more isolated. Small unit leaders, especially squad leaders, will need to possess the skills and education of higher commanders. Training is one way to alleviate the strain of dispersion on morale and unit cohesion. New ways will need to be developed to cement bonds between soldiers even though they are rarely in close proximity. Training for swarm operations will require a small paradigm shift away from the traditional combined arms training prevalent today.

The key training aspect is how to train for the non-linear battlefield. Edwards identified five key factors to successful swarming: superior situational awareness, elusiveness, standoff capability, encirclement, and simultaneity.37 It is possible that a shift from traditional combined arms operations to swarming will require another leadership style and type. Command and control will definitely be different with less face-to-face interaction. At the lower level, leadership from the front will remain a critical leadership trait, but the majority of the leaders will manage through the communications system using either the written word in a message or by voice. Ability to communicate in a succinct way will be crucial with regard to how communicate commander’s intent, mission, and tasks. Any leader must have a thorough understanding of the meaning of the word to be able to apply force towards the desirable end state. Not to do so would be detrimental.
A new terminology must be developed and enforced to maximize the capability and efficiency of the entire system. It will in the end require an educational shift throughout the entire army. New programs must be developed at the Officer Candidate School, the Military Academy, the Command and Staff College, and at the Land Warfare Center. The organizational curriculum must be altered to meet the needs of the future. Edwards suggests that the principles of war should be reinterpreted. Disperse/mass should change to mass, economy of force should be replaced by simultaneity, and unity of command should change to unity of effort. His discussion on this issue clearly identifies the doctrinal shift between combined arms and dispersed swarming operations. Mass will remain the most important principle for the employment of combat power. A “vapor swarm” where the swarming elements are dispersed widely in the area of operations, ready to converge and attack without forming into a massed larger formation, follow the principle of mass by attacking the same target at the same time.

CONCLUSION AND THE WAY AHEAD

“BattleSwarm” is a concept that maximizes national advantages when it comes to the traditional core capabilities in the Norwegian Armed Forces to endure hardship under demanding conditions in any terrain. A shift to a “BattleSwarm” doctrine would provide Norway greater availability of rapidly deployable forces. Swarming forces could execute speedy deployments into every corner of the country more effectively than the army as of 2014. An organizational design for a joint swarming force should be developed. Certain command levels must be permanently eliminated to provide more operators on the ground to maximize combat power. Several joint swarming battalions should be organized with “pods” (teams), and “clusters” (platoons), as previously described by Arquilla and Ronfeldt.
The crucial requirement is the organizational will for change. The Norwegian military needs a new vision for the NAF 15-20 years ahead. The future holds a critical decision point. Norway may not retain a heavy combined arms capability as it simultaneously builds a swarming capability. In case of insufficient resource allocation, Norway might end up with a ground force incapable of conducting either form of war. Transition to a “BattleSwarm” doctrine might be the only option Norway can afford in a fiscally constrained environment. Nevertheless, the optimal force composition would be to retain the Army as it is today, and simultaneously build a strong and capable swarming force.

A “BattleSwarm” doctrine is the right solution. It will be a most valuable tool for the joint commander in a future of uncertainty, and it will be a rapidly deployable asset in a world where great power rivalry again seems to be on the rise. “BattleSwarm” should be the future major military doctrine in the Norwegian Armed Forces.
ENDNOTES

10 One in the Army (Camp Rena, southern Norway) and the other in the Navy (Bergen, southwestern Norway). From 1. Jan 2014 the two SOF units will be placed under a new 2-star level SOF command (SOCOM).
11 The main naval base is Haakonsvern, in Bergen in southwestern Norway, while the main coastguard base is situated in Sortland in northern Norway.
12 Fighter aircraft and ground based air defense units are currently stationed at Bodoe and Oerland, but the plan is to move all the aircraft to Oerland in the coming years. A forward base with quick reaction aircraft (QRA) will be established at Evenes Airfield in northern Norway.
13 The Norwegian Home Guard is a territorial force manned by reservists. 85-90% is ground forces. The rest is smaller specialized elements like air defense units for airfield protection, and naval units for harbor protection and operations in the littorals.
25 Andrew Kubik is a former Tactical Air Control Party and USAir Force combat controller.
27 The lack of command levels between the NJHQ and the tactical level has been identified as a shortfall. The Army and the Home Guard are currently working to establish what they call a Mobile Tactical Land Command(Mobil Taktisk Landkommando-MTLK)
32 Ibid. pp, 116-117.


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