

## PRACTICE-ORIENTED ARTICLE

# Deterrence and Crisis Stability – The F-35 and Joint Strike Missile's Effect on the Norwegian Security Policy Toward Russia

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This article analyzes how the F-35 Lightning II and Joint Strike Missile (JSM) affect the Norwegian security policy toward Russia. It answers how the systems influence Norwegian deterrence and defense efforts and crisis stability in serious crises and draws conclusions on how an operational concept should look in order to best reconcile the requirements for deterrence and crisis stability.

The F-35 and JSM improve Norwegian defense and deterrence by denial by contributing to situational awareness, NATO's collective defense, joint operations, as well as operations in the air, maritime, and land domains. They also open for deterrence by punishment and may contribute to improving the crisis stability by raising the threshold for Russian aggression. However, the stabilizing effect depends on the ability to defend the F-35 bases, and an overly offensive posture may instead cause escalation and threaten the stability.

The study outlines three relevant modes of operation for the F-35 during crises or war: defensive, tactically offensive, and strategically offensive. In a security crisis without NATO participation, deterrence and crisis stability may best be achieved by employing the F-35 and JSM in the defensive and, in certain circumstances, the tactically offensive mode. A war involving NATO may become a matter of national survival, and decision-makers should thus keep all options open and utilize the defensive, tactically offensive, and strategically offensive modes as required.

**Keywords:** Norway; F-35; Joint Strike Missile; deterrence; crisis stability; operational concept

## Introduction

Since the end of the Cold War, Russia has become increasingly assertive on the international stage and proven both willing and capable of using military force in pursuit of national interests. Russia has de facto invaded two of its neighbors in the past 10 years, which has ended any hopes that Russia is aligning with the West. The new strategic rivalry has triggered much debate in Europe on how to address the challenge and caused NATO to refocus on collective defense (Larsen, 2017).

The High North is a stable region characterized by peaceful interaction, but Russia's assertive behavior has sparked uncertainty in Norway as to the country's intentions. The Arctic is strategically important to Russia, and the region has a potential for conflict. In addition, Russia has modernized and expanded its military presence in the region in recent years (Etterretningstjenesten, 2017). Consequently, deterrence is back with force on the Norwegian security agenda. At the same time, Norway has a long tradition of balancing deterrence with measures of reassurance.

Parallel to the degrading security climate, Norway is in the process of replacing its aging fleet of F-16 Falcon fighter jets with the F-35 Lightning II. Norway is also developing and procuring the new Joint Strike Missile (JSM) for the F-35. The two systems will give Norway a military capability that far surpasses the older F-16. The most recent 2016 Norwegian Long-Term Plan for the Defense Sector (LTP) describes the F-35 as a strategic capability that is crucial to Norway's deterrence and defense efforts (Forsvarsdepartementet, 2016b).

The combination of the F-35 and the JSM's improved survivability, lethality, and flexibility gives Norway an offensive capability not seen before, and the systems can potentially improve Norway's ability to defend against and deter Russian aggression. While Norwegian security policy has traditionally emphasized a defensive posture, the weapons pave the way for a more offensive approach.

This article discusses how the F-35 and JSM may affect Norwegian security and answers three research questions:

*How can the F-35 and JSM affect Norwegian deterrence and defense efforts against Russia?*

*How can the F-35 and JSM influence on crisis stability in a serious crisis between Norway and Russia?*

*How should an operational concept involving the F-35 and JSM look in order to reconcile the need for credible deterrence and defense, on the one hand, and for controlled crisis stability, on the other?*

The questions are answered through a case study<sup>1</sup> that seeks to bridge the gap between tactical utility, Norwegian security policy, and the strategic context. Little academic research exists on the topic at an unclassified level, which renders the study explorative in nature and highly relevant. Primary sources consist of official documents, speeches, and five expert interviews.<sup>2</sup> Secondary sources include scholarly articles, books, intelligence assessments, and theses.

The article provides an overview of the main theoretical perspectives used in the analysis: deterrence and crisis stability. Then the strategic context is outlined with emphasis on Russian and Norwegian interests and security policies, before the capabilities of the F-35 and JSM are described. Finally, the article discusses the two weapons' effect on deterrence and crisis stability, and what an operational concept for their use may look like.

The study concludes that the F-35 and JSM are versatile tools for crisis management and have a positive effect on Norwegian deterrence by denial and opens for Norwegian deterrence by punishment. They may also improve crisis stability, but the effect relies on the ability to defend the F-35 bases and mitigate the security dilemma. An operational concept for a security crisis *without* NATO participation could employ the F-35 and JSM in defensive and, in certain circumstances, tactically offensive modes. The concept for a war involving NATO, on the other hand, should keep all options open and utilize defensive, tactically offensive, and strategically offensive modes as required.

## The Concepts of Deterrence and Crisis Stability

*Deterrence* "is the use of a threat (explicit or not) by one party in an attempt to convince another party not to upset status quo" (Quackenbush, 2010: 60). More specifically, deterrence is "the persuasion of one's opponent that the cost and/or risk of a given course of action he might take outweighs its benefits" (George & Smoke, 1974: 11). Consequently, deterrence is a mutual relationship that involves communication and signaling and assumes that states make decisions in accordance with rational cost-benefit calculations that can be manipulated (Mazarr & Goodby, 2011).

States can aim to deter an opponent using two main methods: denying benefits or imposing costs. Deterrence by denial involves convincing the opponent that it will likely not reach its objectives, or that the perceived benefits are of little or no value. Deterrence by imposing costs, or punishment, is about convincing the opponent that the risk of suffering large losses is high and that the cost of a counter-attack will be significant (Department of Defense, 2006).

Deterrence relationships are often mutual. Uncertainty, misperceptions, and misunderstandings may therefore have unintended consequences (Jervis, 1978). States employ strategies of deterrence to pursue national interests in a competitive environment. That involves balancing firmness against the risk of escalation and war, which introduces the concept of crisis stability (P. M. Morgan, 2003).

According to Langlois (1991: 802), *crisis stability* "is about *how far* one can go in a deliberate escalation, with a reasonable chance of keeping it under control." According to Brams and Kilgour (1987: 833), a stable crisis is one in which "neither side in a two-party conflict has a first-strike advantage that would give it the incentive to preempt the other, especially in a crisis in which tensions are high and distrust is rampant."

<sup>1</sup> The article is based on a master's thesis completed with the Norwegian Defence University College in 2017. The study was reported to the Norwegian Center for Research Data and approved by the Norwegian Defence University College.

<sup>2</sup> Those interviewed include member of the Norwegian Parliament Espen Barth Eide, former Chief of Defense of the Norwegian Armed Forces General Sverre Diesen, Director of security policy of the Norwegian MoD Svein Efestad, Secretary General of the Norwegian MoD Arne Røksund, and Chief of Staff of the Norwegian Joint Headquarters Major General Lars Christian Aamodt.

Crisis stability is thus not about war-fighting, but rather about how states can posture and structure their forces to secure interests without provoking the outbreak of war.

A crisis is stable if each party assumes that the other side will not attempt to catch it by surprise. States can base this assumption on their ability to defeat an attack or by maintaining sufficient survivable offensive capabilities to deter an attack in the first place. On the other hand, crises are unstable if either side finds that conflict will work to its advantage and risks war to further its interests, or when the parties sense that things are getting out of control and war is becoming inevitable (F. E. Morgan, 2013).

Crisis can become unstable even if neither side has aggressive intentions at the start. States may perceive an opponent's defensive military preparations in response to a crisis as aggressive intent, which may prompt them to respond in kind. This security dilemma refers to situations where measures taken by one state to ensure its security cause another state to feel less secure (Jervis, 1978).

The underlying mechanism of the security dilemma can be explained by the game theoretical model called prisoner's dilemma. It applies to situations where defection is preferred over cooperation, because the least preferable outcome is one in which the opponent defects first. Consequently, if the perceived consequences of a preemptive attack are sufficiently serious, defection becomes the rational choice. This may lead to unstable crises, escalation, and ultimately war (Nye, 2009).

F. E. Morgan (2013) emphasizes three characteristics of strike assets that contribute positively to crisis stability.

- *Strike assets should be sufficiently potent to deter a conventional attack.*

The underlying requirement is the ability to persuade the opponent that strike assets will contribute to denying the opponent the capacity to reach its objectives and that the punitive cost may be significant.

- *Strike assets should be able to minimize vulnerability to surprise attack.*

Capable strike assets may lead a risk-tolerant opponent to consider conducting a preemptive attack to mitigate the threat. Consequently, it is important to reduce exposure and vulnerability. Examples of such measures include early warning, dispersion, active and passive defenses, concealed locations, and maintaining bases outside the weapon range of the opponent (F. E. Morgan, 2013; Schelling, 1966).

- *Strike assets should not be postured in a way that adversely increases the threat of surprise attack from the defender.*

An overly offensive posture may intensify the security dilemma and lead to increased uncertainty and unwarranted escalation (Jervis, 2013; F. E. Morgan, 2013).

### **Strategic Context: Russia and Norway**

Russia wishes to maintain its position as a great power and has proven both willing and capable of using military force to achieve this. The Arctic is historically tied to Russia's position as a great power, and Russia has several strategic interests in the region. A large portion of Russia's nuclear forces are based on the Kola Peninsula, which means that the High North is vital to Russia's security and standing as a great power (Etterretningstjenesten, 2017; Norwegian Ministry of Defence, 2015).

This also means that there is a potential for conflict in the region. These can be bilateral conflicts sparked by overlapping interests and disagreements between Norway and Russia (Zysk, 2015), but more likely as spillover from a conflict starting in other parts of the world (Efjestad, 2017). Regardless of origin, a conflict with Russia will be very difficult to handle for the Norwegian government, and a main concern will be to ensure activation of Article 5 (Heier & Kjolberg, 2015; Norwegian Ministry of Defence, 2015).

In the event of war, Russia's main goal will be to protect its strategic assets on the Kola Peninsula (Tamnes, 2017). Russian nuclear-related forces on the Kola Peninsula consist of a triad of submarines, bombers, and ground-based systems. These are vulnerable before deployment, and the Northern Fleet plays a key role in protecting them (Norberg & Westerlund, 2016). In the event of escalation, Russia will attempt to establish sea control in the near vicinity of the forces and deny NATO forces access to areas further west. This layered approach is commonly referred to as bastion defense (Tamnes, 2017).

In recent years, the Russian military has undergone significant modernization (Etterretningstjenesten, 2017). Russian forces relevant to the High North include the Northern Fleet, strategic bombers, tactical bombers, fighter aircraft, maritime patrol aircraft, strategic air defense, and ground forces (Granholm, Carlsson, & Korkmaz, 2016; International Institute for Strategic Studies, 2017; Norberg & Westerlund, 2016).

Developments within two types of weapons are particularly important: long-range cruise missiles and air defense systems. Russian cruise missiles can threaten targets all over Norway and Europe (Askvik, 2015; Tamnes, 2017), while Russian Surface-to-Air Missiles (SAM) are among the best in the world (Defense Intelligence Agency, 2017). Both pose a threat to the defense of Norway and are important elements of Russia's anti-access strategy. Russia has stationed several advanced SAM systems close to the Norwegian border, and these include the S-400 with a range of up to 400 kilometers (Tamnes, 2017) as well as the new S-500, which Russia is in the process of introducing (Etterretningstjenesten, 2017). The latter has a maximum range of 600 kilometers (Defense Intelligence Agency, 2017). Russian SAMs can thus cover large portions of Northern Norway and potentially hinder or deny allied air operations in the region (**Figure 1**).

Furthermore, highly precise long-range weapons favor the offensive part and make it difficult for the defender to establish strategic depth (Norwegian Ministry of Defence, 2015). States that possess these weapons gain the flexibility to engage targets in other regions without having to deploy forces between them, which means that military conflicts are less likely to be contained to one specific region (Efjestad, 2017).

As a small state neighboring a much larger Russia, *Norway* must carefully balance a combination of tools to ensure sovereignty and freedom to pursue national interests. The cornerstone of Norwegian deterrence policy is NATO. However, deterrence has a softer meaning to Norway than it has for some major NATO countries, and Norway has traditionally balanced deterrence with measures of reassurance (Holst, 1967). Reassuring measures include self-imposed peacetime restrictions aimed at reducing Russian fear that Norway will act as a staging ground for a NATO attack.<sup>3</sup>



**Figure 1:** Coverage S-400 and S-500 located close to the Norwegian border.

<sup>3</sup> Since the Ukraine crisis in 2014, there has been much debate as to how Norway should adjust to the new security situation. The latest LTP explicitly emphasizes deterrence, and Norway has implemented new measures to that effect (Forsvarsdepartementet, 2016b). Examples include hosting a US Marine Corps rotational force at Værnes and in Troms and the High-Visibility Exercise Trident Juncture, which has received a lot of public attention. Critics claim that the former is an indication that Norway has departed from its line of restricting foreign bases on Norwegian soil and that it is watering out the traditional Norwegian reassurance policy. Still, both the rotational force and the Trident Juncture exercise send strong signals of solidarity internally to NATO as well as deterrence externally to Russia. Both also take place far from the Russian border, and the rotational force is not a combat force that is part of operational plans. Furthermore, Norway continues to enforce restrictions on foreign military activity in the northernmost part of the country (Forsvarsdepartementet, 2016d) and makes sure that operational patterns in the region are predictable and transparent (Aamodt, 2017). This indicates that while Norway may put more emphasis on deterrence, reassurance remains an important element of the security policy.

Since Norway cannot expect to deny a significant Russian military attack on its own, the main role of the Norwegian Armed Forces is to escalate a conflict to the level required to activate Article 5 and then delay the Russian advance until NATO forces can arrive (Forsvarsdepartementet, 2016b). After arrival, NATO will conduct operations to reclaim Norwegian territory, which also brings the prospect of deterrence by punishment, using both conventional and nuclear weapons, to the table (Kjølberg, 2015).

### **F-35 Lightning II and Joint Strike Missile**

In 2018 Norway decided to replace its aging F-16 fleet with the F-35, which is developed and produced by the Lockheed Martin Corporation. Norway received the first jets in the fall of 2017, and it will achieve initial operational capability by 2019 (Forsvarsdepartementet, 2015). In parallel, Norway saw the need for a long-range precision weapon to fulfill all requirements set for the F-35. Since no weapons carried by the F-35 currently fulfill these requirements, Norway decided to integrate and continue the development of the Norwegian-made JSM for the F-35 (Forsvarsdepartementet, 2011).

According to Lockheed Martin (2017c), the *F-35* boasts stealth, fully fused sensor information, advanced network capability, as well as fighter speed and agility. Compared to legacy fighters, such as the F-16, the F-35 offers greater survivability, situational awareness, and lethality, which enable the jet to perform a variety of mission types without support from other specialized aircraft.

The F-35 program has been subject to some controversy, and official reports and experts have criticized the system for being too expensive, subject to delays, vulnerable to software glitches and cyber-attacks, too heavy and underpowered to challenge adversary fighters, and for having serious design flaws (Bender, 2015; Department of Defense, 2016; Dillow, 2016).

Still, Norway received its first F-35 according to schedule in November 2017, and the MoD stresses that most problems have either been solved or are in the process of being solved (Forsvarsdepartementet, 2016c). Since the F-35 carries its weapons internally, the MoD also asserts that the F-35 has similar or better maneuverability than the F-16 when both aircraft carry a combat load of weapons and equipment (Forsvarsdepartementet, 2014). Nevertheless, much of the technology in the F-35 is still under development, and there is uncertainty as to the real capability and combat worthiness of the aircraft.

Low observability, or stealth, is often highlighted as the characteristic that sets the F-35 apart from legacy type aircraft like the F-16, even if it may one day become ineffective. While stealth does not make the F-35 invisible, it can better evade detection. This may increase survivability in high-threat situations and improves the ability of the F-35 to penetrate enemy air defenses. Low observability also provides the F-35 with an advantage in air-to-air combat, since it may engage enemy aircraft before they can detect it (Hanche, 2015; Lockheed Martin, 2017d).

The F-35 sensor suite includes a combination of a modern Active Electronically Scanned Array radar, electro-optical systems, such as the Distributed Aperture System and Electro-Optical Targeting System, and improved electronic warfare sensors (BAE Systems, 2017; Forsvarsdepartementet, 2016a). When combined with improved sensor fusion, where all sensor information is correlated and displayed to the pilot as one unified picture of the battlefield, the pilot gains increased situational awareness and can focus on what he or she determines is most important (Lockheed Martin, 2017b).

Furthermore, the aircraft can share the correlated picture with other units in real time using Link-16 data link, which is a standard system in NATO. Link-16 usage is detectable by others, and the F-35 therefore carries its own high-data-rate directional link, or Multifunction Advanced Data Link, which enables F-35s to share information among themselves in high-threat environments with reduced probability of detection (Lockheed Martin, 2017a). Still, some critics point to how limitations in bandwidth may restrict the types and amounts of data the F-35 can share with the outside world (Bronk, 2016).

The *JSM* is an air-launched, low-observable cruise missile developed by the Norwegian Kongsberg group and currently the only fifth-generation cruise missile to be integrated in the F-35. It flies at high sub-sonic speeds and has a 500-pound warhead with a high explosive charge that offers a combination of blast and fragmentation damage (Kongsberg Defence Systems, 2017). Kongsberg advertises a range of over 180 kilometers in a low-low profile and more than 550 kilometers if launched in a high-low profile (Scott, 2014).

The JSM is designed for anti-ship missions as well as to engage targets on land. It is highly survivable due to its passive sensor, low radar signature, and low-altitude terrain-following flight path. Combined with highly agile and unpredictable end-game flight profiles, this reduces the probability that the adversary can neutralize it before it hits the target.

The sensor uses imaging technology, which provides real-time target recognition and classification. The JSM can thus autonomously discriminate between types of targets and targets from non-targets. Additionally, the lethality of the missile has been improved, as the pilot can now select specific aim points (Scott, 2014).

Summarized, the F-35 and JSM provide improved survivability, lethality, flexibility, and standoff compared to the older F-16. The F-35 can solve demanding missions and strike well-defended targets at long range. This may have a direct bearing on deterrence, defense, and crisis stability and makes a more offensively oriented operational concept a realistic prospect.

## Effects on Norwegian Deterrence

In the event of war with Norway, Russia will probably attempt to protect its strategic assets on the Kola Peninsula by establishing zones of control and denial over and from Norwegian territory using long-range SAM systems and cruise missiles (Tamnes, 2017). This will enable Russian control of the air, sea, and land, which sets the stage for almost unhindered operations in these domains.

*Deterrence by denial* involves convincing Russian decision-makers that they will not easily reach their objectives or that the benefits of attacking Norway have little value. The F-35 and JSM can contribute positively to deterrence by denial in at least six main areas:

- *Improved sensors mean that the F-35 can aid in establishing better situational awareness in the build-up to and during a crisis.* Surveillance and intelligence in support of national decision-making is one of the main tasks of the Norwegian Air Force (Forsvarsdepartementet, 2016b). If the bandwidth issues are manageable, the sensor quality, connectivity, speed, and range of the F-35 mean that it has the potential to distribute data from large and remote areas to different levels of leadership in real time. It may thus contribute to handling difficult situations by either defusing them or providing intelligence that can ensure activation of Article 5.

- *The F-35 and JSM can contribute positively to the fight in the air domain.* Control of the air is a fundamental prerequisite for employing airpower effectively, since it allows aircraft to fly when and where they wish and enables them to attack enemy forces without interference. It also prevents such attacks in return (Gray, 2015).

Through stealth and increased survivability the F-35 can operate in contested areas where the F-16 cannot. Additionally, the standoff capability of the JSM allows the F-35 to engage Russian long-range SAM systems, thus contesting the ability of Russian aircraft to attack Norwegian ground forces within the sanctuary of their own air defenses. The F-35 can also confront Russian fighters more effectively, either by engaging them in the air or attacking their bases. It is unrealistic to believe that Norway can achieve broad control of the air in a conflict with Russia. Still, the F-35 can challenge Russian control, which may delay or hamper a Russian advance, and as soon as NATO forces become involved, the F-35 constitutes a capable addition to the alliance's struggle to control the air.

- *The F-35 and JSM can contribute positively to the fight in the maritime domain.* Russian naval forces will likely attempt to establish zones of sea control and denial as part of its bastion defense, which may negatively affect NATO's ability to operate freely in the High North and the North Atlantic Ocean (Tamnes, 2017).

With the JSM, Norway can realistically threaten Russian naval assets without putting the F-35 at severe risk. Even if the Norwegian inventory of missiles will be limited, Norwegian F-35s can attack key vessels and affect Russia's ability to reach its objectives with a small number of weapons at an early stage of a conflict. This may improve Norwegian and allied freedom to operate in contested waters. Regardless of whether the effectiveness of the missile lives up to expectations or not, it creates uncertainty as to how easily Russia can achieve its objectives of sea control which may impact Russian cost-benefit calculations.

- *The F-35 and JSM may affect the fight in the land domain positively.* It is questionable to what extent the F-35 will be used to directly support ground forces, but positive effects in the air and maritime domains combined with attacks on the enemy's rear areas may increase the overall room to maneuver and effectiveness on the ground.

- *The F-35 may contribute to more effective joint operations.* The combination of advanced sensors, sensor fusion, and connectivity means that the F-35 can act as a force multiplier by finding and designating targets for other assets. It can, for example, locate targets that are consequently attacked by assets better positioned to attack, or vice versa. The F-35 may thus contribute to increase the general war-fighting capability of Norwegian and NATO forces by improving overall flexibility, tempo,

accuracy, and coordination of efforts, providing military commanders with improved flexibility to employ a wider array of tools to achieve the desired effect.

Of course, more information available does not always ensure success and may instead cause information overload or tempt high-level decision-makers to interfere with the details of an operation (Hoiback, 2016). Furthermore, dependency on technology may lead to vulnerability, particularly if systems and procedures lack robustness and redundancy (Ministry of Defence, 2012). Data link and bandwidth limitations may also reduce the ability to contribute effectively (Bronk, 2016). Consequently, planners must be careful to not end up in a technology trap, where doctrines, procedures, and concepts take an overly optimistic position as to the effectiveness of new technology.

- *The F-35 and JSM may contribute to NATO's overall deterrence efforts.* The High North is a large and remote part of NATO's area of responsibility, and the alliance relies on Norwegian data for situational awareness in the region. Data collected by the F-35 may increase the alliance's understanding of Russian intentions, capabilities, tactics, and modus operandi. Additionally, the F-35's ability to challenge Russian denial strategies means that Norway may better set the stage for, or contribute directly to, a NATO counter-offensive.

The F-35 also opens for Norwegian *deterrence by punishment*. Deterrence by punishment is often associated with attacks on strategic or political targets (P. M. Morgan, 2012). However, Russian strategy is also dependent on long-range systems such as cruise missiles and advanced SAM systems. The prospect of losing these assets adds potential costs and introduces uncertainty as to the ability to achieve certain military objectives. Deterrence by punishment therefore involves both cost impositions on the battlefield as well as strategic effects not directly related to combat operations. Furthermore, NATO's forces in Europe are insufficient to deny and defend against a Russian attack of scale in the short run. Deterrence by denial thus lacks credibility standing by itself and must be complemented by deterrence by punishment through the prospect of a costly counterattack from the alliance (Friis, 2017).

The F-35 and JSM's ability to strike high-value targets puts Norway in a position to realistically impose costs on Russia. Aside from own and allied submarines, Norwegian F-35s are the only NATO assets with a significant offensive capability based in the northern theatre. This means that they can impose costs on Russian targets, both strategic and tactical, at an early stage of a crisis and even before NATO becomes involved. Furthermore, the F-35 can contribute to strategic attacks from NATO, either by paving the way or by participating directly. This way, Norway can improve the potency of NATO's operations and alleviate some of the pressure on the alliance by freeing up resources for use elsewhere.

Nevertheless, using Norwegian F-35s for strategic attacks can be problematic. First, offensive operations have a negative connotation in the Norwegian security discourse, and it may be difficult to find domestic support for strategic attacks (Eliassen & Sandnes, 2015). Second, an operational concept that explicitly involves strategic attacks may intensify the security dilemma by reinforcing Russian uncertainty over NATO's intentions, particularly if such attacks threaten Russian strategic interests like the nuclear forces on the Kola Peninsula. Third, strategic attacks on the Kola Peninsula run the risk of triggering a nuclear response from Russia. These issues are discussed in the following section.

In sum, the F-35 and JSM may contribute positively to Norwegian deterrence by denial and open the door for Norwegian deterrence by punishment. This adds uncertainty to Russian cost-benefit calculations, offsets some of the power asymmetry between the two countries, and may contribute to pushing Russian leaders to pursue interests peacefully.

## Effects on Crisis Stability

Crisis stability deals with how states can pursue national interests under pressure without causing unwarranted escalation to war. The following explores how the F-35 and JSM can influence crisis stability in three ways: their effect on Norwegian deterrence, vulnerability to a Russian surprise attack, and Russian fear of a surprise attack from NATO.

- *The F-35 and JSM should be sufficiently potent to deter a conventional attack.* As already concluded, the F-35 and JSM may have a positive effect on Norwegian deterrence toward Russia, which, when seen in isolation, may have a positive effect on crisis stability by raising the threshold for aggression.
- *Norway should be able to minimize the assets' vulnerability to a surprise attack.* Since the deterrence relationship between Russia and NATO is mutual, Norwegian deterrence efforts may intensify the security dilemma. This may prove particularly intense if Russia considers its strategic deterrence

and nuclear forces to be threatened. The offensive capabilities of the F-35 and JSM may therefore cause instability if Russia believes that it is better off removing the threat before it can be brought to bear on Russian interests. Consequently, the stabilizing effect of the F-35 and JSM relies on the Norwegian ability to protect the F-35 bases from attacks. Russian long-range precision weapons make the F-35 vulnerable to attack while on the ground, and, according to Askvik (2015), Russia can threaten targets across Norway. Defending Norwegian bases against cruise missiles is challenging, and even well-defended targets are at risk. Additionally, Russia may attack in the cyber-domain or using special forces.

Since Norway cannot base its F-35s outside the range of Russian weapons, it must ensure that the bases are appropriately defended or disperse the force. Dispersal can be difficult, since there is a limited number of military air bases in Norway. Defenses can lean on a combination of measures, such as air defense systems, hardened shelters, camouflage, decoys, force protection, and cyber-defense. Norway is currently building new hardened shelters at the main base at Ørland (Forsvarsdepartementet, 2017), and it is in the process of procuring long-range air defense systems (Forsvarsdepartementet, 2016b).

Still, the vulnerability of the F-35 bases will hardly threaten stability by default, since such missile attacks will lead to activation of Article 5 (Barth Eide, 2017; Diesen, 2017). The main threat to Russia is U.S. air strikes, and in this context the small number of Norwegian missiles is almost negligible. Consequently, while a war with Russia will likely involve cruise missile attacks on Norwegian F-35 bases, such attacks will be part of the larger war effort, not because Russia fears the effect of Norwegian weapons alone. In a bilateral conflict Russia will seek to avoid activation of Article 5 to prevent NATO involvement, and a preemptive attack of scale on Norwegian F-35 bases will make this difficult (Aamodt, 2017). Still, Russia may use hybrid methods, such as cyber-attacks or special forces, since these can be unattributable and are less likely to trigger Article 5.

*Norway should not posture the F-35 and JSM in a way that adversely increases the threat of surprise attacks from Norway and NATO.* Åtland (2014) concludes that there is currently a security dilemma in the Arctic, and if Russia fears that an attack from NATO is imminent, particularly against its nuclear weapons on the Kola Peninsula, it may find itself in a prisoner's dilemma where activation and enforcement of its bastion defense is the only rational choice. Even if Russia does not fear unilateral aggression from Norway, the Norwegian posture can intensify fears of an attack from NATO. The effect of Norwegian force structure and posture is thus closely related to NATO's overall posture.

Offensive capabilities may challenge stability since they favor the offensive part and make it difficult to distinguish between defensive and offensive postures (Jervis, 2013). Still, offensive operations are natural elements of modern warfare, including defensive warfare, and both Norwegian and NATO doctrines emphasize their importance (Forsvaret, 2014; NATO, 2016). Russia must also expect NATO to attack its forces in the event of war. However, while offensive capabilities may not challenge stability by default, policy-makers are faced with a potential dilemma: How do you signal that Norwegian F-35s are able to strike valuable targets at the Kola Peninsula in response to Russian aggression to achieve deterrence by punishment, while at the same time reassuring Russia that they will not be used to support aggression from NATO or to attack the nuclear forces? Deterrence by punishment may thus increase the tension between deterrence and reassurance, and optimal posturing may require a careful combination of tools to include a broad range of reassuring measures.

Norway signals defensive intent in several ways today. First, the range from the Ørland air base to the Russian border is approximately 1,200 kilometers, which may reduce the fear of a surprise attack by increasing reaction times. Second, the Norwegian Joint Headquarters communicates exercise activities of a certain size to Russia well in advance and ensures that operational patterns are predictable and that Norwegian military presence in the High North is the norm (Aamodt, 2017). Third, reassurance continues to be an important element of Norwegian policy, and Norway still enforces restrictions on foreign military activity close to the Russian border (Forsvarsdepartementet, 2016d).

## A Future Norwegian Operational Concept

Operational concepts seek to bridge the gap between the tasks of the armed forces, doctrines, and political directives (Norwegian Ministry of Defence, 2015). Operational concepts set the premises for defense planning, operational plans, and tactics. If made public, they can also signal intent and commitment.

During the 1950s and 60s, the Norwegian operational concept for the use of air power was offensively oriented and included attacks inside Russia (Skogrand & Tamnes, 2001). In the 1960s, the concept became mainly preoccupied with defensive operations aimed at delaying a Russian advance most effectively (Sandnes, 2008). The defensive concept lasted through the Cold War and continues to be the official Norwegian concept for the use of air power today (Forsvarsdepartementet, 2016b).

Contemporary Norwegian security discourses indicate that many see the prospect of any offensive operations toward Russia as problematic (Eliassen & Sandnes, 2015). However, the term offensive operation is general and does not capture the range of options it may involve. There is a significant difference between attacking enemy forces involved in the fight, regardless of where they are located, and attacking strategic targets far into Russian territory. A valid discussion of Norwegian operational concepts thus requires categories that go beyond the simple offense-defense distinction.

The discussion to follow is based on three main categories, or operating modes, for the F-35: defensive, tactically offensive, and strategically offensive.

The *defensive* mode does not preclude offensive operations, but Norwegian F-35s will not attack targets in Russia. It involves strikes on targets in Norway, as well as in and over international waters, to achieve tactical and military strategic effects. A *tactically offensive* mode also aims to achieve tactical and military strategic effects and allows attacks on military targets involved in the fighting also located in Russia. Finally, the *strategically offensive* mode involves strategic attacks on centers of gravity in both Norway and Russia with the intent of achieving military strategic and political effects. It is still about defensive intent, but mainly aims to affect Russia's ability and political will to continue fighting by carrying out offensive strikes.

A conflict between Norway and Russia may range from limited security crises to large-scale war. The transition between stages may be gradual and continuous, which opens for a range of developments and outcomes. The discussion to follow looks at two overarching or ideal type scenarios: 1)<sup>4</sup> a *security crisis without NATO involvement*, and 2) *war with Russia involving NATO*. A real crisis will not fall perfectly within the two scenarios, but for the sake of clarity and analysis, the discussion treats the two as distinctly different situations. For simplicity, the term NATO is used to describe both involvement of NATO as a collective institution as well as of a coalition of individual allied partners.

### ***Security crisis without NATO involvement***

A security crisis falls short of a full-scale armed attack, but still threatens Norway's territorial integrity and sovereignty. Security crises may involve political-military pressure and the use of hybrid measures and are the result of important conflicts of interests or misunderstandings that run the risk of further escalation (Norwegian Ministry of Defence, 2015).

Depending on the situation, Norway may have to resolve a security crisis without support from the alliance. NATO or key allies may need time to decide and respond, or they may abstain from supporting. Also, Norway may not wish to involve NATO in order to avoid escalation.

The *defensive* operating mode, where Norwegian F-35s do not attack targets inside Russia, is similar to Norway's contemporary operational concept. This mode can include mission types such as defensive counter-air and attacks on enemy forces inside Norwegian territory. A concept emphasizing the defensive mode balances reassurance and deterrence well and may signal Norwegian resolve without causing undue escalation. Norway can still challenge Russian control of the sea, attack Russian forces inside Norway, operate in certain contested airspaces, and contribute to situational awareness. Russia is less likely to interpret this as a prelude for a preemptive attack from NATO, and such a concept will probably receive broad political support in Norway. Consequently, in less severe security crises where unwarranted escalation is the prime concern, a concept leaning on the defensive mode may best balance the requirements of credible deterrence against the need for controlled crisis stability.

Still, in a serious security crisis involving significant stakes, the defensive mode may lead Russia to believe that it can achieve a quick fait accompli. Even if NATO does eventually become involved, a defensive concept may give Russia more time to solidify its position. Consequently, to prevent a deteriorating situation that can quickly get out of hand, a serious bilateral security crisis may warrant a more offensive Norwegian posture.

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<sup>4</sup> The third ideal type scenario is war with Russia without NATO involvement. Norway depends on NATO for deterrence and cannot expect to defend itself against Russia alone. Norway therefore works actively to tie the alliance to the defense of the country (Forsvarsdepartementet, 2016b). The F-35 and JSM can contribute positively to this scenario as well, but since the probability of military success is low, and since NATO is likely to be a tacit bargaining tool in any conflict between Norway and Russia, this article does not analyze the scenario specifically.

An operational concept based on the *tactically offensive* operating mode involves targets in both Norway and Russia as well as in and over international waters. This may include defensive counter-air and attacks on military forces in both Norway and Russia, which allows Norwegian F-35s to attack forces not yet involved in the fight and more effectively mitigate the threat from Russian long-range SAM systems and maritime forces. By introducing the prospect of striking important assets inside Russia, Norway can thus offset some of the power asymmetry between the two countries. This may deter Russian aggression and prevent certain forms of coercive diplomacy, since it opens for a damaging blow to Russian prestige.

However, if the Norwegian posture reinforces Russian fears of encirclement and a surprise attack from NATO, the *tactically offensive* mode may cause unwarranted escalation and give Russia an incentive to activate its bastion defense. Norway must therefore not employ the *tactically offensive* mode unless the situation has already deteriorated past a certain point and supplement it with additional measures of reassurance. According to Aamodt (2017), it may also prove challenging to achieve broad political support for the *tactically offensive* operating mode.

The *strategically offensive* operating mode includes attacks on centers of gravity in Russia. Norway cannot expect to achieve substantial strategic effects in Russia on its own. Consequently, the *strategically offensive* mode does not add much to Norwegian deterrence and defense efforts in a bilateral security crisis compared to the *tactically offensive* mode.

Furthermore, strategic attacks may severely challenge the stability of a security crisis. Even if Norway signals that its F-35s will only attack strategic targets not related to Russia's nuclear deterrence capability, the signal will cause uncertainty, come across as threatening, and Russia will likely perceive the posture itself as provoking. Overt threats to attack strategic targets in Russia will probably trigger activation of the bastion defense and cause significant escalation. Additionally, Russia may use this as an opportunity to frame Norway as the aggressive part. Finally, it is unlikely that strategic attacks during a security crisis will seem politically acceptable in Norway.

In sum, a Norwegian operational concept for a bilateral security crisis may involve both the *defensive* and the *tactically offensive* operating modes, depending on the intensity of the crisis. The *defensive* mode may prove to best balance the requirements of deterrence and reassurance in limited security crises where Norway wants to prevent unwarranted escalation. More severe crises, involving important security interests, may require a *tactically offensive* mode in order to deter Russian aggression, resist coercive diplomacy, ensure activation of Article 5, and prevent a rapidly deteriorating situation and possible *fait accompli*.

### **War with Russia involving NATO**

A major armed conflict threatens the sovereignty and integrity of Norway and is a state of emergency that will legitimize the use of all available resources to defend the country (Norwegian Ministry of Defence, 2015). After activation of Article 5, NATO will take command of most Norwegian military forces, and operations will be conducted jointly (Forsvarsdepartementet, 2016b). Norway's room to maneuver regarding choice of operational concept will thus be restricted. However, since war is a bargaining process where both sides aim to settle the ongoing dispute at favorable terms, all actions and reactions must be measured to ensure that the level of escalation does not spiral out of control (Schelling, 1966). It is, for example, imperative to keep an armed conflict below the nuclear threshold.

The *defensive* operating mode is particularly relevant in the initial stages of war to avoid further escalation or spillover to the High North. However, Russia may take advantage of a defensive posture and attempt to make quick gains. After NATO takes command of Norwegian forces, the alliance may want to use the offensive capabilities of the F-35 and JSM in a manner more in line with the *tactically offensive* mode, and any Norwegian restrictions and caveats will likely seem problematic to NATO.

War with Russia means that deterrence has failed. A *tactically offensive* operating mode is therefore less problematic regarding domestic opposition and the potential for unwarranted escalation. According to the LTP (Forsvarsdepartementet, 2016b), Norway should seek to seamlessly transition from crisis management to collective defense, if the situation warrants it. This may require an early change to a *tactically offensive* mode to hamper Russian advances effectively. Through the *tactically offensive* mode, Norwegian F-35s can also contribute more effectively alongside NATO forces in the High North and potentially attack Russian forces in support of strategic attacks by others.

NATO may choose to attack Russian strategic targets in the High North as part of the overall war efforts. Through offensive capabilities inherent in the F-35, Norway can take part in such attacks, and this makes the *strategically offensive* operating mode a realistic prospect. While strategic attacks may cause further escalation, Norwegian restraint may have little impact or even go unnoticed, since what matters is what NATO and

the U.S. do. The strategically offensive mode may thus prove to be a relevant element of a Norwegian operational concept in a war involving NATO. The serious nature of a major armed conflict also means that both the public and political opposition will likely see the use of extreme measures, including strategic attacks, as legitimate responses to an aggressive and dangerous opponent.

Overall, a Norwegian operational concept for the use of the F-35 and JSM in this scenario should keep the door open for all three modes. The defensive mode is particularly relevant in the early stages in order to avoid further escalation. However, as NATO becomes increasingly involved, Norway must allow a seamless transition to a tactically offensive mode in support of the overall war efforts of NATO. Norway can also support strategic attacks from NATO, if the situation requires, which means that the strategically offensive mode should also be included as an option.

## Conclusion

This article analyzes the F-35 and JSM's effect on Norwegian security and concludes that they are flexible and versatile tools for crisis management that can improve Norwegian defense and deterrence toward Russia both nationally and in a NATO context. Russia cannot plan a military campaign around the systems, and this may influence Russian cost-benefit calculations in a way that raises the threshold for the use of military force. If a conflict escalates, the F-35 and JSM contribute to delaying a Russian advance more effectively and potentially denying some Russian objectives altogether. Finally, the offensive capabilities of the systems open for Norwegian deterrence by punishment.

The F-35 and JSM may also contribute to improving crisis stability if employed appropriately. Improvements in deterrence and defense can increase stability by raising the threshold for Russian aggression. However, vulnerable Norwegian bases may invite a preemptive attack, both overtly and covertly. Consequently, the effect relies on the ability to defend the assets against attacks. The ability to mitigate Russian fears of encirclement and attacks from NATO is a key premise for crisis stability. Russian strategic nuclear forces on the Kola Peninsula are particularly problematic, and stability will suffer if Russia believes that NATO plans a preemptive attack. Since the offensive capability is inherent in the F-35 and JSM, it is imperative that Norway and NATO posture their forces in a manner that clearly signals defensive intent.

This study suggests three main modes of operation for the F-35 and JSM: defensive, tactically offensive, and strategically offensive. The nature of a bilateral security crisis between Norway and Russia differs substantially from a war involving NATO. In a security crisis, Norway may or may not seek involvement from the alliance, and support is not always guaranteed. Low-end crises may warrant an operational concept emphasizing the defensive mode, since this balances reassurance and deterrence well. Severe security crises may require a concept that also includes the tactically offensive mode in order to deter Russian aggression, ensure escalation to activate Article 5, and to prevent a *fait accompli*.

A Norwegian operational concept for a war involving NATO should keep the door open for all three modes. The defensive mode may be particularly relevant in the early phases to manage tensions. After escalation, NATO may expect Norwegian F-35s to contribute to the overall war-fighting in line with the tactically offensive mode. Finally, Norway can also realistically contribute to NATO's strategic attacks according to the strategically offensive mode, if required.

Consequently, in order to reconcile the need for credible deterrence and defense, on the one hand, and for controlled crisis stability, on the other, Norway should adopt different operational concepts depending on the severity of the conflict. Still, it is not certain that all sides of an operational concept should be communicated publically. An explicit concept may reduce Norway's room to maneuver domestically by inviting political disagreement and disputes and *vis-à-vis* Russia by restricting the options available in a crisis. A certain level of ambiguity in the publically communicated concept may work in Norway's favor, and Norwegian decision-makers must balance the requirements to signal resolve, capability, and restraint against the need to keep all options available if a crisis escalates.

There is still much work to be done before Norway can take full advantage of the added value of the F-35 and JSM. In this connection, planners must appreciate that the new weapons add something qualitatively new compared to the F-16. Achieving optimized effect requires analysis of how the systems fit into existing structures, concepts, and procedures at all levels. For example, how can units at the tactical level take advantage of the increased availability of information? What are the requirements for new infrastructure, equipment, and procedures, and how should specific tactics look? How do improvements in tempo and situational awareness affect the fight at the operational level? Do current command-and-control structures adequately facilitate joint operations involving the F-35, and do they meet the needs for faster decision loops and compressed targeting timelines? Are existing rules-of-engagement effective in situations where

an F-35 pilot must make strategic decisions alone to exploit a fleeting opportunity of great importance? Finally, at the political level, how does the offensive potential of the F-35 and JSM fit within the constraints of traditional Norwegian security policy? To what degree do political-level decision-makers see the F-35 as a 'means' to meet clearly defined 'ends'? These are all complex issues that may not have straightforward answers. However, with the potential strategic effect of the weapons and the current European security climate in mind, the process must be approached in a top-down manner where policy-makers carefully consider how the new weapons can best support national objectives while interacting with other instruments of power. This will require a strategic approach to the challenge and may make it necessary to see certain aspects of Norwegian security policy in novel terms.

## Competing Interests

The author has no competing interests to declare.

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