

An aerial photograph of a submarine's conning tower protruding from a vast, flat, icy landscape. The scene is captured in a soft, hazy light, possibly dawn or dusk. To the left of the submarine, a small group of people stands on the ice, their shadows cast long. The overall tone is somber and desolate.

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BASIC

Re-emerging Nuclear Risks in Europe

Mistrust, ambiguity, escalation and arms-racing between
NATO and Russia

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BASIC

The British American Security Information Council (BASIC) is an independent think tank and registered charity based in Whitehall, London, promoting innovative ideas and international dialogue on nuclear disarmament, arms control, and nonproliferation. Since 1987, we've been at the forefront of global efforts to build trust and cooperation on some of the world's most progressive global peace and security initiatives, advising governments in the United States, United Kingdom, Europe, the Middle East and Russia. Through an approach based on active listening, understanding and empathy, the charity builds bridges across divides and lay new pathways to inclusive security.

BASIC has developed institutional expertise across a number of transatlantic issue areas, including the UK-US nuclear relationship, the UK's Trident programme, the politics of disarmament and arms control in the UK Parliament, NATO nuclear weapons in Europe, the Middle East, the evolving role of responsibility in nuclear governance, and expanding technological threats to SSBN platforms.

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This report highlights recent changes to US and Russian nuclear postures that have exacerbated and increased the likelihood of nuclear escalation which would irreparably harm Europe. The four main areas in which nuclear risks have emerged are:

Mistrust

Tensions between Russia and the United States stem from the late 1990s and were highlighted in 2002 by the US withdrawal from the ABM Treaty. Russia interpreted this decision as a US long term plan to develop missile defence capabilities with a view to neutralising Russia's nuclear forces and achieving strategic dominance. Russia's annexation of Crimea in 2014, its violation of the INF Treaty, and announcement in early 2018 of a new suite of new strategic nuclear weapons designed to evade missile defences further fueled mistrust. This breakdown in co-operation has undermined the global nonproliferation regime, weakened accepted values and norms, and led to renewed nuclear modernisation plans in both the United States and Russia.

Ambiguity

Deterrence theorists believe that too much specificity can assist military planning of adversaries and even tempt them to operate with impunity below any red lines. However, the degree of misunderstanding between US and Russian signaling from ambiguity increases the likelihood of misperception, miscalculation and nuclear escalation.

Escalation

In this confrontational environment, the risk of escalation is compounded by certain nuclear systems, particularly those that facilitate first use or that are dual-capable. These can compress decision-making time and make nuclear escalation more probable.

Arms racing

States are increasingly turning to zero-sum unilateral strategies to pursue security, deepening reliance on nuclear weapons rather than engaging in arms control or risk reduction.

Nuclear risks: the Cold War and beyond

It is widely held that whilst Cold War nuclear postures in the European theatre may have had some degree of stability, they were highly dangerous. Given the conventional imbalance between NATO and the Warsaw Pact, NATO forward-deployed thousands of tactical warheads throughout Europe to ensure there were no perceived gaps in the escalation ladder. Delegated control of tactical nuclear weapons to local commanders meant that low-level skirmishes had the potential to escalate rapidly to the tactical nuclear level, and war-gaming at the time pointed to the very high likelihood that this would then escalate further to a strategic exchange. Indeed, the number of near-misses throughout the Cold War, and beyond, are well-documented.² From the 1970s, the two sides recognised the exorbitant financial and human cost associated with arms-racing and attempted to cap this with arms-control. NATO's dual-track approach, conceived in the Harmel Report of 1967, was pursued controversially in the early 1980s as missiles were deployed alongside offers for talks. Deeply alarmed at the level of nuclear risks, Presidents Reagan and Gorbachev began a very personal dialogue in 1985 that considered the possibility of massive disarmament and declared that "a nuclear war cannot be won and must never be fought". The INF Treaty two years later, a breakthrough arms control measure that removed destabilising intermediate-range nuclear and conventional missiles, was widely credited with reducing many nuclear risks in Europe.

Tensions between the United States and Russia along with the attendant nuclear risks rapidly declined with the end of the Cold War in 1991. The Presidential Nuclear Initiatives removed large swathes of tactical nuclear warheads from Europe. Yet both the United States and Russia also demonstrated a strong residual commitment to retaining significant strategic arsenals, some of which were kept in a launch on warning posture.

Almost two decades later, President Barack Obama articulated a vision of a nuclear weapon free world and amended US nuclear posture in 2010, taking a number of steps to reduce nuclear risks. He also initiated the Nuclear Security Summit process focused on locking down nuclear materials, and completed New START with Russia. For a while nuclear weapons appeared to take a backseat on the European continent, and President Obama's agenda was widely embraced by allies.

Yet the momentum for progressive steps was short-lived, and the attachment to nuclear deterrence remained. NATO's 2010 Strategic Concept and 2012 Defence and Deterrence Posture Review reaffirmed that NATO would "remain a nuclear alliance for as long as nuclear weapons exist", but stated that, "the circumstances in which any use of nuclear weapons might have to be contemplated are extremely remote". Since then the strategic situation has deteriorated and the possible use of nuclear weapons has re-emerged in Europe as a significant risk. Following Russia's annexation of Crimea in 2014, mistrust has re-emerged between NATO and Russia.



Mistrust

The breakdown of trust in the diplomatic relationship

Misunderstandings about modernisation or defensive efforts are a common risk in a security relationships. Known as the security dilemma, one state's actions are interpreted as offensive by another, thereby leading to a breakdown of the relationship, arms racing, and an increased possibility of crisis escalation.³ The security dilemma pushes states into worst-case zero-sum diplomacy, and states see little room for compromise. This can be seen very clearly in the relationship between the United States and Russia today. During the Cold War, arms control negotiations were insulated from other disputes, but this has not been achieved in recent years. This makes it more difficult for Russia or the United States to check in with one another about ambiguous actions and therefore increases the risk of escalation.

It is undeniable that the relationship between NATO and Russia has deteriorated significantly since Russia's annexation of Crimea in 2014. Russia clearly sees the strengthening influence of NATO and the EU in Ukraine and Georgia as a threat, whilst NATO sees Russia in turn as an aggressive and dominant actor in relation to these states. In consequence, diplomatic relations were halted completely and Russia was shut out of the European security community. Since 2014, NATO has increased its emphasis on deterrence at consecutive summits in Wales, Warsaw and Brussels. Member states formally and officially committed to the goal of spending 2% of national GDP on defence at a time when public spending was under pressure, and NATO developed a number of plans to improve its military capabilities in light of the re-evaluated threat situation.⁴ It highlighted Russia's challenge to regional stability for Baltic NATO members and along NATO's eastern border in general despite NATO's overall conventional superiority to Russia. NATO's goal to deploy 30 land battalions, 30 air fighter squadrons and 30 ships in 30 days and enhanced forward presence in the Baltic member states and Poland has sought to address this risk.⁵



© Images: Unsplash CC 2.0, Sebastian Spindler, Matt Artz, Stephen Leonardi

NATO has reaffirmed its commitment to political dialogue to minimise miscommunication, misunderstanding and unintentional escalation.⁶ Yet, the NATO-Russia Council, NATO and Russia's main lines of communication, was paused immediately following the annexation of Crimea, and military-to-military communication (through direct contact between Russian and NATO command) stopped. These have been restarted again for the purpose of laying out red lines and to avoid further escalation and NATO has publicly reaffirmed its commitment to cooperation with Russia once all current issues around the Russian occupation of Crimea are resolved. Nevertheless,

Russian statements from the same time period make clear that these messages were not received positively in light of NATO's enhanced forward presence in eastern Europe.⁷ A range of other events have contributed to the problem. These include allegations of Russian interference in the 2016 US Presidential elections, the Russian chemical attack in Salisbury and tensions over the conflict in Syria.

Given the current trust deficit, the continuing dispute over the INF Treaty is a diplomatic crisis. While this issue had existed as a technical dispute since late 2013, since 2017 it has taken on an openly political dimension. Both sides appear unwilling to move forward in seeking a pathway to compliance. Russia continues to insist that they are adhering to the treaty. Similarly, the United States has not taken the opportunity to demonstrate that BMD in Europe complies with the INF treaty, which Russia disputes.⁸ NATO Deputy Secretary General Rose Gottemoeller argues that Russia may have developed the 9M729 missile to redress concerns over its Eurasian periphery but failed to communicate this with the United States. This has resulted in an INF Treaty crisis in the absence of clear security dialogue.⁹ This assessment highlights the consequences of a breakdown in open bilateral communication and the strain that it places on the non-proliferation regime.

Obstacles to overcoming mistrust

One of the main obstacles for dealing with this circle of mistrust is the nature of the political leaderships in the both the United States and Russia and their relationships with domestic constituencies that support a confrontational approach. Initially, there was hope that President Trump could 'reset' wider relations with Russia, which could provide the basis for finding cooperative ways of reducing nuclear risks. However, this has been hampered by a mutual breakdown of trust and the broader deterioration of political relations, as well as challenges to President Trump over his relationship with Russia. Additionally, negative and stereotypical messaging about each other permeates the public discourse in both countries. This makes it difficult to engender public support for a more conciliatory course. In this climate, it is very difficult to establish the level of open communication and transparency which would be needed in order to diminish the risk of miscommunication and misperception of each other's intentions. In such a heated climate, such measures appear a risk in themselves and opening oneself up to vulnerability vis-a-vis the opponent.¹⁰ As a result, the relationship deteriorates further.



Ambiguity

The risk of misperception and miscalculation

Purposeful ambiguity in nuclear signaling compounds mistrust and, given the current trust deficit between NATO and Russia, increases the risk of misperception and miscalculation between the two. Modernisation plans are read in a negative light as the intent is often ambiguous or not believed, which, in turn, contributes to arms-racing and the increased risk of crisis escalation.

Those responsible for determining nuclear postures seek to establish stable deterrence relationships with their adversaries, and would claim that those postures are designed to minimise risks of crisis instability or misunderstanding. Demonstrations of weakness, lack of resolve, or too much reassurance for adversaries could embolden them to take dangerous actions, and are therefore seen to increase risk. On the other hand, measures that destroy another state's confidence in their deterrent capabilities are openly seen as dangerous and therefore undesirable. Therefore, at the heart of deterrence there is a challenging tension and a delicate balance when it comes to strategic stability and risk reduction. It may be that measures taken to create a stable deterrence relationship, and reduce risk, increase it by setting off action-reaction cycles. Unintended consequences can easily undermine a stable relationship and heighten the risk of a nuclear exchange.

"Miscalculation or misinterpretation connected with signaling failure presents the greatest threat to Euro-Atlantic stability" - UK Rear Admiral John Gower¹¹

The role of ambiguity in increasing nuclear risks through misperception and miscalculation can perhaps be best summarised as follows:

an atmosphere of uncertainty is generated by political instability, unpredictability or mistrust;
this conjures misperceptions relating to state intentions;
this establishes and reinforces a trust deficit;
within this context, there is a mounting sense of perceived crisis; and
as a result, states arm and prepare for conflict and put greater emphasis on their nuclear arsenals.¹²
So what are the sources of this risks in US and Russian doctrine?

The United States

In a low trust environment, the 2018 US Nuclear Posture Review sought to challenge upfront perceived Russian aggression. It described an uncertain strategic environment characterised by a “return to great power competition” in which the United States is perceived to have fallen behind its adversaries, including Russia.¹³ Changes to US nuclear doctrine and the modernisation plans are designed to broaden its nuclear options and increase the diversity and flexibility of its nuclear forces.

Expanding deterrence

The United States has clearly signaled its willingness to engage in limited nuclear retaliatory strikes. This is an attempt to plug a perceived credibility ‘gap’ and ‘correct’ Russia’s ‘mistaken confidence that limited nuclear employment can provide a useful advantage’.¹⁴ While a number of commentators have expressed concern that this doctrine increases nuclear risks by lowering the nuclear threshold, the Trump Administration has argued that rather than enabling nuclear war-fighting, its new doctrine and new non-strategic nuclear weapons will actually raise the nuclear threshold, “by convincing the adversary that even limited use of nuclear weapons will be more costly”.¹⁵

Another key change in doctrine expands the role of nuclear deterrence to encompass a number of “non-nuclear strategic attacks” that include conventional, chemical and biological and emerging technologies, such as cyber-attacks from both nuclear, and non-nuclear weapon states.¹⁶ While the Administration has attempted to articulate and expand the circumstances the United States would consider using nuclear weapons (including first use), it has also cast doubt on how it might resort to nuclear weapons in specific circumstances to avoid the commitment trap. Its changes mark a departure from previous US nuclear thinking and has increased uncertainty. Consequently, the sometimes contradictory caveats to its declaratory policy are destabilising, confuse US signaling and arguably increase the chances of miscalculation.¹⁷

US modernisation

For the purpose of bolstering its deterrent, the United States is planning on developing a number of new nuclear weapons as well as renewing US strategic forces. These include a modified low-yield non-strategic warhead for the Trident sea-launched ballistic missile (SLBM) and a new sea-launched cruise missile (SLCM). This comes on top of US plans to develop a low-yield nuclear-tipped air-launched cruise missile (LRSO) and the modernisation of the B61 gravity bombs, many of which are forward-deployed throughout Europe. In 2019, Washington announced it was also developing a new ground-launched cruise missile to respond to Russia’s INF Treaty violation.

These developments, while intended to fill 'credibility' gaps and decrease risks through enhancing deterrence, could bring with them a number of risks covered later. Low-yield weapons lower the threshold for nuclear use; dual-capable systems blur the distinction between conventional and nuclear, increasing crisis instability; and stealthy cruise missiles, as well as intermediate-range systems, compress decision-making time and put European targets uniquely at risk.

Russia

It is difficult to demarcate Russia's strategic thinking from conjecture and imperfect information, whilst US analysis is often based on worst-case interpretation.¹⁸ Similarly, cognitive dissonance can distort shared mental images and result in a skewed threat perception that is at odds with realities. What is clear is that Russia leverages political ambiguity and US paranoia as a tactic to acquire an edge and undermine NATO unity in its deterrence framing.

Ambiguity in doctrine

Russia's 2014 military doctrine states that Russia will only contemplate use of nuclear weapons if "the very existence of the state is threatened".¹⁹ Yet, more trenchant concerns governing nuclear use include the allegation that Russia has an 'escalate to de-escalate' policy. Whilst Russian officials deny the existence of limited nuclear options for terminating a war, efforts are undermined by western suspicions. Yet these are not shared by all, as Bruno Tertrais, a respected French commentator states:

*Russia is not building new dedicated theatre-nuclear systems, and there is little evidence of new "low-yield" warheads; it does not have an "escalate to de-escalate" doctrine; and it is not practising the use of nuclear weapons in large-scale military exercises.*²⁰

Nevertheless, Russian public signaling is confusing. President Putin's announcement in October 2018 that any Russian nuclear action would only ever be "responsive and reciprocal" was interpreted by some as raising the nuclear threshold and a coded No-First-Use statement. This jars with official Russian declaratory policy and other statements by the President that have been interpreted as deliberately provocative.²¹ Russia's mixed signaling makes it difficult to measure and minimise risk.

Russian modernisation

While Russia's nuclear threshold may have increased since the late 1990s, its commitment to nuclear deterrence to fill its conventional capabilities gap with NATO appears to remain solid, and it has invested in a number of new systems.²² In March 2018, President Putin publicly announced a number of 'doomsday' weapons: 'Sarmat', a heavy ICBM; 'Avangard', a hypersonic glide vehicle; a nuclear-powered cruise missile; and 'Poseidon', an unmanned underwater vehicle with massive nuclear warhead. All these were publically justified as countering US missile defences, and as a reaction to the US decision to withdraw from the ABM Treaty in 2002. Russia has also developed new intermediate-range dual-capable missile launchers and missiles, notably the 9M729 which violates the INF Treaty.

Ambiguity's impact on risk

Both the United States and Russian deterrence decisions have been made to bolster their national security, and minimise what they see as emerging risks in the deterrence relationship. While these decisions are made to restore strategic stability, ambiguity in signaling can have unintended consequences that affect overall crisis stability. It is undeniable that both states' plans are seen as aggressive by the other and both



Russian Iskander-M missile test, Sept 2017, Konstantin Alysh/Defence Ministry Handout/EPA

the United States and other NATO members have made clear that they perceive Russia's development of new weapons as an escalation and will invest in their own capabilities in turn.²³

On the Russian side, there is scepticism over the intent of US strategic and nuclear planning and a belief that the United States is seeking strategic dominance, through the combination of its nuclear forces, ballistic missile defence (BMD) and other means including prompt global strike to neutralise Russian missiles. Even during the Obama Administration, there was a belief in Russia that US proposals for reductions below those agreed under New START were, "aimed at eroding the credibility of Russia's nuclear deterrence" by increasing US reliance on US BMD and high-precision conventional weaponry.²⁴ While many commentators often dismiss Russian complaints as "spurious" or "paranoia", the mistrust of US doctrine drives reciprocal arms-racing action that NATO sees as destabilising. In the United States, the widespread belief that Russia has an 'escalate-to-de-escalate' doctrine drives US doctrine. Notwithstanding the actual intent of US and Russian doctrine, an air of uncertainty is created through deliberate or unintentional ambiguity, and the other feels forced to respond with new capabilities.

Doctrines that include plans for limited nuclear strike arguably increase nuclear risks by lowering the threshold for use. Following the 2018 US NPR, many commentators sought to highlight the ways in which the US doctrine of tailored and flexible response to counter any limited nuclear use by Russia increased nuclear risks. The risk is that both the Russian and US countenance of limited nuclear use with non-strategic nuclear weapons would result in nuclear weapons use, despite the emphasis on these doctrines for deterrence purposes. Indeed, the United States has begun to add low-yield nuclear weapons into its arsenal that bear close resemblance to some of those Washington criticises Russia for possessing - low-yield, dual-capable systems. The United States contends its actions raise the nuclear threshold by bolstering deterrence, thus reducing nuclear risks.²⁵ Yet if this is true for the United States, it is not unreasonable to conclude that Russia could be motivated by a similar logic. In any case, any conflict with Russia that involved low-yield nuclear weapons would take place in Europe and would put European targets uniquely at risk.

The US explicit expansion of nuclear deterrence to cover 'non-nuclear attacks with a strategic effect' seeks to draw additional deterrent value from its nuclear arsenal but has also introduced further ambiguity over when the United States may cross from conventional to nuclear use. Combined with the entanglement of nuclear and non-nuclear assets doctrinally and physically, and Russian mistrust of US intentions, the chance of miscalculation has increased dramatically. With both sides believing that the other's doctrine contains a low threshold for crossing from conventional to nuclear, the risk of misperception and miscalculation in a crisis has increased substantially.

Paradoxically, within the relatively stable nuclear balance that had existed since the end of the Cold War, fears of limited nuclear use, and warfighting have re-emerged. Under an ostensibly stable strategic balance, either party may increasingly contemplate limited nuclear use. As the risk of mutual nuclear annihilation becomes less tangible in the absence of the Cold War, the incentive to use a limited nuclear strike to de-escalate a conflict, restore deterrence or show resolve could increase as states see the risk of a strategic exchange as remote. There are reasons why both sides could believe that limited nuclear strikes, or at least ambiguity over such postures, would decrease nuclear risks. One may believe that a limited nuclear strike is the only way to halt an unfavourable conflict before resorting to a 'full-blown' nuclear attack, or one may believe that forgoing the ability to respond on every rung of the escalation ladder in a tit-for-tat fashion would increase instability in a deterrence relationship. However, by seeking to use nuclear weapons to control escalation dynamics, one could in fact accelerate a nuclear crisis. Doctrines intended to cap escalation are not dissimilar to warfighting missions that were rightly abandoned since the Cold War. Indeed, every nuclear armed state makes it explicitly clear that they would respond to a nuclear attack with a nuclear attack; any use of nuclear weapons is bound to escalate if states follow-through on their word.

Obstacles to overcoming ambiguity

There are a number of obstacles to overcoming the risk of misperception and miscalculation in nuclear signaling. There exists a belief in the defence establishments of both NATO and Russia that further assurances to the other side or moves to limit nuclear threats could be exploited and thus create new risks. The long-held belief that transparency provides reassurance and that it is preferable to have your enemy at ease rather than constantly fearful and ready to fire seems to have been forgotten. Even when assurances are given over the circumstances for nuclear use, these are seen as adding little value because promises can easily be retracted or broken. This attitude ignores the fact that official declaratory policies have a direct effect on posture, training and operations of nuclear forces.

Noting the risk of misperception and miscalculation, General Curtis Scaparroti, Supreme Allied Commander Europe, stated in April 2019 that the United States "should have more communication with Russia", noting that "during the Cold War, we understood each other's signals. We talked... I'm concerned that we don't know them as well today".²⁶ Military to military contact between the two was cut off in 2014 and is prohibited in the United States until the Secretary of Defence certifies that Russia has ceased aggressive activities; further cooperation and understanding over signaling is stifled by political mistrust.

It has been suggested the nuclear-armed states and NATO could mediate ambiguity within nuclear declaratory policies and adapt their nuclear decision protocols through measures that increase restraint, increase assurance to adversaries and ensure nuclear weapons remain a purely strategic deterrent,²⁷ for example states could consider a sole-purpose doctrine. Without further action to explain and build confidence in the purpose of the other nuclear doctrine and establish a common understanding, capabilities posturing will be interpreted as overtly hostile. NATO and Russia both believe they are reacting or matching the other, yet in turn, they are creating the conditions for a crisis in Europe to inadvertently turn nuclear.



Escalation

The risk of certain nuclear systems

The lack of trust between NATO and Russia and the risk of misperception and miscalculation caused by ambiguous nuclear signaling increases the risk that a conventional conflict between NATO and Russia could escalate to nuclear use. This risk is caused by the nature of many of the systems deployed by NATO and Russia: non-strategic low-yield nuclear weapons; dual-capable systems; intermediate-range missiles; and entangled conventional and nuclear command and control. These lower decision-making times and blur the distinction between conventional and nuclear war.

There are three primary ways that escalation could occur:

1. the purposeful use of 'non-strategic' nuclear weapon when one believes they are losing a conflict;
2. inadvertent nuclear use due to miscalculation and misperception in a spiraling conflict; and
3. reaction to conventional attacks on one's nuclear forces of command and control (entanglement).²⁸

Short-decision making time

A key aspect of nuclear risk concerns decision-making; there is little to no time for considered assessment and decisions during an unfolding crisis. The assumption is often made that short decision-times around the release of nuclear weapons (likely to be just a few minutes in a heightened moment of crisis) mean that decision-makers are less likely to make rational choices. In Europe, the collapse of the INF Treaty and the potential return of intermediate-range ballistic and cruise missile would further compress decision-making time, increasing the risk in any potential conflict.



A D5 SLBM (U.S. Navy photo by Mass Communication Specialist 1st Class Ronald Gutridge/Released) (Photo by MC1 Ronald Gutridge)

Generally, short decision timelines are seen to increase the risk of launch, not least because leaders fear being outmaneuvered in a crisis. There have been a number of proposals aimed at lengthening the decision-time for leaderships in a nuclear crisis, though none have been uncontroversial. Sico Van der Meer discusses physical measures, such as taking systems off alert status and removing pre-defined targets, as has been done by the United Kingdom.²⁹

On the other hand, advocates of high-alert and launch on warning postures believe these reassure decision-makers in the earlier stages of a crisis, by allowing the

leadership to rely upon the nuclear option without early decisions to prepare or scramble forces.³⁰ Indeed, none of the traditional proposals for extending decision-making times such as de-alerting, de-targeting and de-mating address this objection; lengthening decision times through technical measures and introducing interim steps in the launch sequence may simply lead to states developing rapid reaction systems and encourage races to earlier deployment in a crisis to avoid being caught off guard.

Therefore, it is likely that proposals to extend decision-making time will need to sit alongside other means for strengthening trust, building transparency and decreasing the role of nuclear weapons in security doctrines and military signaling. States that have implemented de-alerting postures have done so as part of a broader move in posture towards a more recessed strategic deterrent, one that sees the deployed nuclear weapons as offering an assured second strike.

Dual capable systems

The integration of nuclear and conventional forces and the deployment of dual-capable systems can be attractive to defence planners as this offers flexibility and complicates strategic planning for adversaries. However, this also exacerbates the risk of nuclear escalation from short decision-making times. In an escalating conflict, a conventional attack could be mistaken for a nuclear one, or a limited nuclear strike could be interpreted as the precursor to a larger one. In crises, adversaries are likely to assume the worst and the prevalence of such systems heighten 'use it or lose it' dynamics. For example, when asked whether a Russian commander would know whether an incoming nuclear SLBM was low-yield or high-yield, General Hyten responded saying, "they will find out in about 30 minutes" after launch.³¹ In such exchanges, 30 minutes makes a big difference, when critical command and control systems are vulnerable. In such an environment, they may assume the worst.

Thus, the issue of dual-capable systems does not just refer to the difference between conventional and nuclear, but the distinction between 'non-strategic' and 'strategic' weapons. While military planners may see the escalation pathways as clear rungs on a hypothetical escalation ladder that can be controlled, it is doubtful whether such confidence can be placed in real-world conditions. The United States keeps 'non-strategic' nuclear weapons while maintaining the posture that any use of nuclear weapons would be 'strategic' in effect.³²

The co-location of nuclear and conventional forces at bases, dual-capable aircraft equipped for the nuclear mission and Russian systems in violation of the INF Treaty may potentially confuse commanders in times of crisis and could potentially lead to 'use-it-or-lose-it' scenarios. The same concern also drives Russian protestation over BMD within Europe that has contributed to the decline in trust. It is likely that proposals to limit dual-capable weaponry will once again have to accompany a shift to a more recessed nuclear doctrine, in which nuclear weapons are only required for countervalue targeting as a weapon of last resort.

Emerging technologies

There is a debate over whether emerging technologies are increasing the dangers of crisis instability and the likelihood of nuclear use. The effect of current emerging technologies on established deterrence practices is not well understood, and questions remain over how states will manage, moderate and control these technologies when handling nuclear risks in Europe.

There are persuasive arguments for both the destabilising and stabilising effects of hypersonic weapons, for example. On the one hand, as Russia worries that missile defences may neutralise their strategic deterrent, their deployment of hypersonic weapons could increase their confidence, restoring a sense of mutual vulnerability and stability, and therefore from the Russian perspective reduce nuclear risks. On the other hand, if hypersonic vehicles' high speed and stealth mean that they are undetectable and impervious to missile defences, this could stoke fears of a 'first-use' advantage similar to the window of vulnerability associated with the 1960s missile gap and that drove arms racing in the Cold War.

States are already grappling with the question over the impact of cyber and nuclear deterrence. The 2018 NPR signaled that the US would consider using nuclear retaliation against cyber threats with a strategic effect and on critical infrastructure. However, there are complex issues around attribution of cyber attacks. Could expanding deterrence to these circumstances create new pathways to nuclear escalation and confuse nuclear signaling or does it make the offensive use of cyber capabilities more remote?

With existing arms control agreements under threat, it is unlikely that the United States and Russia would be able to agree to new treaties on emerging technologies. However, if they do negotiate new arms control agreements, it will be important that exotic offensive / defensive technologies are included given their potential to impact on strategic stability. At the very least, common understandings between the two sides of the effect of emerging technologies on nuclear deterrence could be a helpful starting point as a basis for future codes of understanding for reducing these risks.

Entanglement

Entanglement presents another risk of escalation to a nuclear conflict. Any attack against early warning radars and satellite control could be interpreted as an attempt to "blind" the adversary and could prompt nuclear retaliation, even if such attacks are intended for conventional purposes. Indeed, both NATO and Russian doctrine entail this possibility.³³ Within the European theatre, a Russian strike against sites that contained US tactical nuclear weapons, dual-capable aircraft, missile defence radars and interceptor launchers, key industrial sites, satellites, NATO command and control and sites related to the British and French nuclear deterrent could trigger a nuclear response by NATO. NATO and Russian military forces, including nuclear weapons, sit perilously close to each other.



A Minuteman missile in North Dakota, these missiles remain on high-alert

Obstacles to tackling risk-prone systems

There remain a number of obstacles to limiting the weaponry and systems that make nuclear escalation pathways possible:

- ° First, technological improvements are an inevitable dimension to nuclear deterrence postures, and suggest some kind of qualitative arms race is inescapable, one that will inevitably at times include destabilising or transitional developments.
- ° Relatedly, force posture and modernisation decisions arise from deterrence strategies explicitly designed to cause fear and uncertainty in the minds of adversaries. This can overshoot and backfire.
- ° To cap this, NATO and Russia have different perceptions of strategic stability and the impact different systems have on it. Russia has a more holistic concept across nuclear and conventional systems, whilst the United States has traditionally considered it only in terms of nuclear capabilities. As Heather Williams notes on the few pathways to a renewed US-Russian strategic dialogue, it may be that the new US definition in the 2018 NPR may come closer to the Russian understanding.³⁴

Proposals to extend decision-making time and limit certain systems will need to sit alongside means for strengthening trust, building transparency and decreasing the role of nuclear weapons in security doctrines.

Arms Racing

The risk of zero-sum approaches to security

NATO has traditionally pursued arms control alongside deterrence to manage nuclear risks. European Allies in particular place high stock in existing arms control treaties. This is now causing division within NATO. Both the United States and Russia appear to be walking away from arms control, relying solely on capabilities-based thinking and planning. The majority of European states see it increasingly inevitable that the INF Treaty will collapse later in 2019, and that the United States and Russia will not negotiate a successor treaty. There is also uncertainty over whether Moscow and Washington will agree to extend New START or negotiate a successor Treaty. The United States has reportedly rejected initial Russian offers for an extension, and it now appears increasingly likely that even if there is the political will there may not be the time, given Russia's statement that it would not automatically renew, and see in-depth dialogue as necessary for an extension.³⁵ It is not clear how new nuclear and other systems with impacts on strategic balance will be counted under existing, and any future agreements. Finally, non-strategic nuclear weapons could have major destabilising influences on stability and on crisis management.

Walking away from arms control is seen by many as deeply irresponsible. New START has unparalleled levels of transparency and verification for both sides including 18 on-site inspections a year. If it were not renewed this would likely feed further mistrust and shut down avenues for future co-operation. Both the United States and Russia seem to be caught in an escalatory spiral which could lead to further arms build-ups which can make a crisis consequently far more explosive.

Obstacles to preventing arms racing

The current crisis has been triggered by a lack of confidence in arms control, stemming from political mistrust. Both sides currently see the current arms control architecture as disadvantageous to them in some fashion. The public discourse falls back on adversarial politics. It looks as if these obstacles will be difficult to overcome in the near future. Yet, if sides exercised restraint in developments and deployments there may be time to regain the trust needed to negotiate new agreements. Both sides appear willing to play fast-and-loose with nuclear weapons as political tools, which has made agreement difficult despite what should be both sides' clear mutual interest in arms control.

Arms control has been the prime mechanism for mutually managing nuclear risks on the European continent. If we are now approaching a post-arms control era, it is incumbent on leaderships to think about alternative mechanisms for managing these risks.

The United States and Russia seem to be caught in an escalatory spiral which could lead to further arms build-ups and make a crisis far more explosive.

Conclusion

Nuclear risks in Europe are re-emerging and these risks are all interlinked. A general breakdown of trust has led states back onto a dependence upon deterrence as the tool for reducing nuclear risks. But active and dynamic nuclear deterrence creates, indeed depends upon, a certain degree of nuclear risk. Ambiguous signaling and distrust of each other's nuclear postures have deepened the risks of misperception and miscalculation leading to nuclear use. 'Non-strategic' low-yield nuclear weapons, dual-capable systems, intermediate-range missiles and entangled command and control reduce crisis decision-making times and lower the threshold for nuclear use in various ways. Cognisant of such risks, both sides, in turn, appear to rely increasingly on nuclear deterrence as the core tool for providing security and are walking away from arms control.

It is necessary to build some kind of common understanding on what nuclear risks Europe is facing, before addressing the challenging but necessary task of reducing these risks. This report begins that process of identifying the types of nuclear risks that Europe is facing. It does not prescribe specific policy solutions to these issues. Nevertheless, a number of principles could help guide a search for risk reduction proposals that deal with the risks identified in this report:

Mistrust

Proposals to deal with the political mistrust between Russia and the United States will come from a place of empathy and understanding, look to set up new pathways for dialogue and recognise the dangers of politicising nuclear risk reduction.

Ambiguity

Proposals need to reduce ambiguity, exercise restraint and more clearly signal the intent and purpose of nuclear doctrines.

Escalation

Proposals will be based on a common understanding of what sort of nuclear systems destabilise deterrence relationships. They might attempt to increase decision-making time and minimise the likelihood that any crisis or conventional conflict that occurs will go nuclear, understanding that such crises are possible.

Arms racing

If arms control appears out of reach in the current situation, proposals will attempt to limit arms racing through practices that demonstrate restraint and transparency.

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