

# Non-Nuclear Weapons with Strategic Effect: New Tools of Warfare?

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# Roundtable Report

The term ‘non-nuclear strategic weapon’ denotes a category of non-nuclear weapon systems that, used on their own or in conjunction with other weapon systems, and under certain circumstances, can achieve decisive strategic outcomes in conflict.

Although a growing body of literature exists on the topic, non-nuclear strategic weapons remain understudied conceptually and empirically. In order to enhance our understanding of this weapons category and its implications for security and defence policy, IISS–Europe convened a hybrid roundtable with the title ‘Non-Nuclear Weapons with Strategic Effect: New Tools of Warfare?’ on 10 and 16 February 2022 in Berlin. The roundtable attendees were from Europe, North America and the Indo-Pacific, and comprised analysts from think tanks and academia, government and military representatives and industry experts.

During the roundtable, participants discussed conceptual, military and political challenges associated with non-nuclear strategic weapons. This report outlines the main findings from the event.

## Conceptualising non-nuclear strategic weapons and attacks

The roundtable attendees agreed on the importance of differentiating between non-nuclear strategic weapons and their non-strategic counterparts. Non-nuclear strategic weapons refer to weapons systems below the nuclear threshold that can achieve decisive strategic effect. The participants attributed this quality in part to their ability to engage targets at the strategic level of warfare, where the adversary’s sources of national power are located. Put differently, non-nuclear strategic weapons allow their possessor states to bypass the tactical and operational levels of warfare, potentially enabling decisive victory prior to defeating the adversary’s armed forces on the battlefield.

Several types of non-nuclear strategic weapons were identified by the roundtable participants. However, broadly speaking, these can be differentiated into two

categories: kinetic and non-kinetic. Kinetic non-nuclear strategic weapons achieve their objectives by altering the physical environment, usually through the delivery of destructive effects with extreme accuracy. These weapon systems include, for example, conventional precision-strike capabilities (cruise missiles, ballistic missiles, hypersonic glide vehicles and unmanned aerial vehicles (UAVs)), kinetic anti-satellite weapons and missile defence. Attendees noted that missile-defence capabilities can achieve strategic effects through denying the enemy strategic options.

Non-kinetic non-nuclear strategic weapons include cyber attacks with strategic effect, but also electronic-warfare (EW) capabilities, which may achieve decisive effects by degrading or denying the electromagnetic environment to the adversary. In addition, misinformation and disinformation campaigns, used to undermine trust in public institutions and the integrity of the institutions themselves, were mentioned as a possible non-kinetic non-nuclear strategic capability.

Generally speaking, however, the roundtable discussants noted the difficulties in differentiating a strategic from a non-strategic attack. This is because several factors can influence whether a non-nuclear attack has strategic or non-strategic effects. Reference to the weapon system alone is usually not sufficient to discern whether a non-nuclear strategic attack has taken place. While non-nuclear strategic weapons can indeed be used for strategic attack, they often can and do fulfil functions below the strategic level of warfare. For example, conventional precision-strike capabilities may be used to target supply columns of advancing troops, while cyber or electronic weapon systems may be used to deny tactical command and control (C2) to individual units on the battlefield. In this case, the impact of potential non-nuclear strategic weapons may be tactical or operational, rather than strategic, in nature.

Indeed, whether a weapon system constitutes a strategic capability often depends entirely on the context of

its employment. For example, North Korean artillery deployed on the border with South Korea and in range of Seoul may have a strategic effect, notwithstanding its very limited range. Outside the context of this geographic paradox (Korea, but also India–Pakistan, Eastern Europe, etc.), the impact of this weapon system would be largely confined to the tactical level of warfare. As a result, one participant argued that it may be useful to differentiate between non-nuclear strategic weapons that can have strategic effect in almost any circumstances (e.g., intermediate-range cruise missiles, strategic cyber attacks), and those that have strategic effect only in particular circumstances (shorter-range artillery). Size, context, and resilience against such attacks matter.

Because of the inherent ‘strategic–tactical dual-capability’ of non-nuclear strategic weapons, depending on the context of their employment, the delineation of non-nuclear strategic attacks must be complemented by an effects-based logic factoring in intent and the consequences of their employment. This is problematic given that, as the participants pointed out, measuring effects can be complicated, especially if non-kinetic weapons are involved that target non-physical property where the implications of an attack may not be immediately visible. In addition, some actors may perceive the attack as more severe than others, creating distinct interpretations as to the severity of the attack. Attribution, as always, will be a concern. Finally, focusing on intent is difficult, as states have been relatively silent on their doctrinal use of non-nuclear strategic weapons.

Overall, participants agreed that conceptualising and differentiating a non-nuclear strategic attack from a non-nuclear non-strategic attack is a difficult endeavour for both analysts and decision-makers. This ambiguity may result in misperception and misinterpretation.

## **Proliferation, deployment and employment of non-nuclear strategic weapons**

In recent years and decades, the proliferation of non-nuclear strategic weapons has progressed significantly. A steadily increasing number of states now deploy potential non-nuclear strategic-weapon systems, including growing arsenals of conventional precision-strike capabilities, electronic, anti-satellite and cyber weapons, as well as missile defence capabilities that may be used in strategic functions.

According to roundtable attendees, several proliferation drivers have contributed to the spread of non-nuclear strategic weapons. In this regard, the desire to counter the nuclear strategic weapons of another state through non-nuclear means constitutes the exception that proves the rule. South Korea is the most important outlier in seeking to acquire such systems for this strategic objective. This could be indicative of a South Korean desire for nuclear weapons in the future, or a desire for nuclear latency to bolster deterrence, but for now it is the use of highly-capable non-nuclear systems to deter a nuclear-weapon state (North Korea). More broadly, non-nuclear strategic weapons in the past have rarely been acquired with explicit strategic functions in mind. As the roundtable participants explained, tactical requirements related to battlefield objectives usually constituted the primary factor motivating their acquisition. The potential use of these weapon systems for strategic purposes has been treated as a side effect of their proliferation, though with significant consequences.

Roundtable participants outlined that non-nuclear strategic weapons, especially those on the kinetic side, constitute widely-used and partially battle-tested capabilities. Several major powers have used conventional precision-strike capabilities in recent years, for example in the context of the Syrian civil war, although often for tactical objectives only. The strategic potential of these weapon systems had, however, already been demonstrated in the past, in the Iran–Iraq War, the Gulf War, the Iraq War and in the former Yugoslavia, to name but a few examples. As a result, the significant capabilities of conventional long-range strike capabilities, including for strategic purposes, are well-known and understood, thus contributing to their deterrence value. However, the comprehensive doctrinal severance of ballistic missiles from the parallel pursuit of weapons of mass destruction through ever-higher precision constitutes a new theoretical development that requires adjustments to missile proliferation paradigms.

While non-nuclear strategic weapons may enhance deterrence, discussants outlined that the availability of non-nuclear strategic weapons did not deter conflict between Armenia and Azerbaijan over Nagorno-Karabakh, which took place from September–November 2020. The availability of these

weapon systems, such as long-range strike weapons and armed UAVs which could be and were used to devastating strategic effect by Azerbaijan, was known beforehand, but, surprisingly, was discounted by Armenia. This suggests that their deterrence value should not be overestimated, and that the credible demonstration of such capabilities is often necessary before it can be used in deterrence signalling. The military threat of these weapon systems in the Russian arsenal also did not seem to compel Ukraine to provide further concessions prior to the outbreak of the Russia–Ukraine war.

Other non-nuclear strategic capabilities, including non-kinetic ones, are less well demonstrated, but have been tested and employed in the past. Several states have tested kinetic anti-satellite capabilities. Missile-defence systems have been increasingly employed in recent years, in the Middle East in particular. States have also used cyber weapons to achieve strategic effect, such as the Stuxnet attack against an Iranian uranium-enrichment facility.

Overall, attendees of the roundtable therefore agreed that non-nuclear strategic weapons constitute more than a theoretical construct and represent a more or less proven capability. This being said, the large-scale employment of these weapon systems has been confined to asymmetric conflict, where weaker states have been pitted against much stronger ones, which could rely on superior technology and firepower. The conventional balance in the war between Russia and Ukraine is more equal. Nevertheless, Russia still enjoys a substantial advantage in terms of potential non-nuclear strategic weapons. As such, we have yet to witness the employment of these weapon systems in a high-intensity major power war, where both sides possess significant numbers and capabilities in terms of non-nuclear strategic weapons.

Regarding the implications of non-nuclear strategic weapons deployments, one roundtable discussant argued that it is useful to distinguish between deployments by nuclear-weapon states and deployments by non-nuclear-weapon states.

For nuclear-weapon states, the deployment of non-nuclear strategic weapons has important implications on their nuclear arsenal. The deployment of

non-nuclear strategic weapons by a nuclear-weapon state can strengthen its nuclear capability. For example, these weapon systems can be used to target and neutralise the enemy's air and missile defence, thus facilitating the successful delivery of nuclear weapons. In addition, these weapon systems could be launched in conjunction with the state's nuclear arsenal in damage limitation or counterforce strategies, maximising the damage such a strike may cause. In particular, non-nuclear strategic weapons could be used to engage stationary and mobile nuclear platforms, supporting infrastructure, or C2 (both through targeting C2 infrastructure and leadership). Because these weapon systems can be used to undermine the enemy's strategic deterrent, they may be detrimental in regard to strategic stability.

Non-nuclear strategic weapons in the hands of non-nuclear-weapon states provide the latter with a novel and potentially significant escalation-management tool. The proliferation of these weapon systems increases the number of independent decision-making centres capable of employing strategic weapons, which may yield important implications for alliance politics and security. Especially in the context of bilateral or multilateral military alliances, such as US–South Korea or in NATO, this may increase the credibility of deterrence. On the other hand, the proliferation of non-nuclear strategic weapons to non-nuclear-weapon states may be destabilising. For one thing, non-nuclear strategic weapons in the hands of a growing number of states increases the number of relevant actors in crises, thus increasing complexity. In addition, they may induce a sense of security and the belief that non-nuclear-weapon states can go toe-to-toe with nuclear-weapon states, at least to a certain extent. As a result, deterrence at the level of conflict below nuclear warfare may be weakened. Next to that, their employment by non-nuclear-weapon states may draw nuclear-weapon states into conflict and contribute to catalytic escalation.

More broadly, roundtable participants agreed that non-nuclear strategic weapons close the gap between conventional and nuclear weapons, and create an environment where strategic weapons are more usable politically, and therefore on the battlefield. Also worrying is the fact that non-nuclear strategic weapons

are often forward-deployed, with authorisation procedures taking place at much lower levels of command chains. As one attendant outlined, the use of these weapon systems could therefore lead to ‘tactical escalation’, whereby an inexperienced or unaware commander with limited situational awareness authorises the employment of an escalatory weapon system, or catalytic escalation, where an ally deliberately provokes an adversary, bringing other allies into the fight without prior agreement.

## **Deterrence and governance of non-nuclear strategic weapons**

Roundtable participants also considered how the proliferation of non-nuclear strategic weapons could be addressed from both a governance and deterrence perspective. Looking at governance, attendees provided several reasons why we should be pessimistic about potential arms-control tools and other cooperative security measures, related to the deployment and use of non-nuclear strategic weapons.

Firstly, non-nuclear strategic weapons (including conventional precision-strike capabilities) and cyber, EW and anti-satellite weapons have all proliferated widely. More importantly, these weapon systems continue to be highly attractive to state actors, due to the important tactical and strategic functions they may fulfil alongside the ability to complicate attribution in the use of non-kinetic systems. In fact, non-nuclear strategic weapons already constitute an important element in many states’ conventional deterrence postures. As a result, state actors may believe that the benefits related to these weapon systems outweigh the risks, rendering any regulation of their acquisition, deployment and use undesirable.

Secondly, any potential type of governance related to these weapon systems will be challenging, given the definitional challenges outlined above. On the one hand, it is not clear how potential arms-control instruments would differentiate between strategic- and non-strategic-weapon systems. As repeatedly stated, non-nuclear strategic weapons often fulfil both tactical and strategic functions. Therefore, whether a non-nuclear capability constitutes a strategic weapon often comes down to deployment and employment of the weapon system, the context-dependent effect, as well as to how this

effect is perceived (intent is less important than effect and perception of effect in this regard). One participant outlined that while it may perhaps be possible to define strategic-weapon systems well enough for arms-control purposes, it will be much harder to define ‘strategic effect’ in any international agreement. Therefore, arms-control instruments are likely inadequate in regulating this particular type of weapons category.

Nevertheless, discussants stated that there are existing and potential new measures that may regulate the deployment and use of certain categories of non-nuclear strategic weapons, and in particular, missiles. Two potentially useful instruments exist in this regard; the Hague Code of Conduct against Ballistic Missile Proliferation and the Missile Technology Control Regime, which seek to curb the proliferation of ballistic and cruise missiles. At the same time, participants noted that the two instruments are not currently up to the task and would need radical change if they are to perform adequate regulatory functions related to non-nuclear strategic weapons.

In regard to missiles, attendees also noted the role played by the New START Treaty in regulating US and Russian missiles that could be conventionally-armed, and thus qualify as non-nuclear strategic weapons, as well as the Intermediate-Range Nuclear Forces Treaty. Participants discussed the idea that the nuclear-weapon states discuss and potentially agree upon useful normative measures in the absence of arms control, for example, by designating potential targets, such as C2, as off-limit. In light of Russia’s invasion of Ukraine it is unclear, however, to what extent such dialogue remains feasible, at least between Russia and NATO.

Looking at other types of non-nuclear strategic weapons, participants were even more pessimistic, noting, for instance, that states have yet to achieve any substantial agreements and confidence-building measures related to cyberspace due to myriad complexities, attribution being just one among them. The same also applies to artificial intelligence (AI) and the handling of digital data. For example, as one participant noted, the poisoning of AI-relevant data may potentially produce strategic effect. Although China, Russia, the United States and other countries held dialogues on the issue, no agreement could be found. Attendees also noted

that the testing of kinetic anti-satellite weapons continues, the latest of which was conducted by Russia in November 2021, but also with significant and demonstrated capabilities in the US, China and India.

Therefore, arms-control governance of these weapon systems in the near future may not be a feasible prospect, rendering less ambitious normative efforts the only viable path forward. As a result, in addressing the proliferation of these weapon systems and the threats emanating from them, states may have to rely more on deterrence rather than governance.

In regard to deterring non-nuclear strategic weapons, one participant outlined that, thus far, states seem to emphasise deterrence-by-punishment over deterrence-by-denial. This is particularly visible in regard to conventional precision-strike capabilities. European NATO states have especially preferred the acquisition of offensive weapons, such as short- and intermediate-range cruise and ballistic missiles, over missile defence. Russia, on the other hand, has developed some significant point-defence capabilities for missile defence. Similar dynamics seem to be visible in the Indo-Pacific. This can likely be explained by the fact that fielding an effective precision-strike capability is easier than deploying a reliable missile defence network. While this deterrence-by-punishment focus may enhance deterrence under certain circumstances by threatening symmetric non-nuclear strategic retaliation, it also provides for a more explosive international environment, where first-strike pressures are high and crisis stability is low. In particular, in a world where non-nuclear strategic weapons are proliferating but not yet available to the extent that non-nuclear strategic retaliation would be assured, the incentive to attempt to knock out the enemy's non-nuclear strategic weapons in a first-strike may be high.

Consequently, addressing the non-nuclear strategic threat to international security remains a challenge. Both the governance and deterrence approach present the international system with problems.

### **Non-nuclear strategic weapons in regional context**

After the roundtable considered different analytical themes related to non-nuclear strategic weapons, the

participants were asked to discuss the implications of their proliferation, deployment, and employment in different regional contexts.

### **Indo-Pacific**

Over the last two decades, non-nuclear strategic weapons, and in particular conventional precision-strike capabilities, including cruise and ballistic missiles, as well as some hypersonic glide vehicles, have proliferated widely in the Indo-Pacific. Today, almost a dozen states in the region deploy a significant precision-strike capability. In addition, several states have tested anti-satellite weapons and pursue missile-defence projects. In addition, cyber and disinformation attacks are not uncommon. Combined with the fact that a total of five nuclear weapon states are actively engaged in this region, non-nuclear strategic weapons are particularly pertinent to security and stability in the Indo-Pacific.

One important aspect discussed relates to the interplay of non-nuclear strategic weapons with the nuclear deterrent of different states in the region. Firstly, there seems to be great uncertainty surrounding the survivability and credibility of China's nuclear arsenal in light of the proliferation of non-nuclear strategic weapons. In this regard, some discussants outlined that non-nuclear strategic weapons play an important part in US damage-limitation strategies in case of a nuclear confrontation with China. As such, it was argued that non-nuclear strategic weapons by the US and its allies (such as the US decision to lift all restrictions on the range of South Korea's missile capabilities) may contribute to the credibility of US nuclear deterrence in the Indo-Pacific and are thus a stabilising factor. Other participants disagreed with this framing, however, contending that such force posturing mainly contributes to arms-race instability in the region, leading nuclear powers, most notably China, to build up their nuclear arsenals.

Beyond China and the US, roundtable participants outlined that non-nuclear strategic weapons affect other nuclear-conflict dyads in the region. As outlined above, South Korea's missiles, including sub-launched ballistic missiles, are conventional-only precision-strike systems, explicitly designed to neutralise or mitigate the nuclear threat of another state. In this regard, South Korea's military has adopted a conventional pre-emptive strike

doctrine, which seeks to deny delivery of North Korean nuclear warheads by destroying them before launch. In addition, South Korea's conventional precision-strike arsenal also fulfils a deterrence-by-punishment function by threatening decapitation strikes against the North Korean leadership, should they take the decision to engage in hostile actions against South Korea. Discussants concluded that with growing arsenals of precision-strike capabilities in both India and Pakistan, non-nuclear strategic weapons could become increasingly important to the South Asian nuclear-deterrence landscape as well.

Roundtable attendees identified several other implications of non-nuclear strategic-weapon proliferation in the Indo-Pacific. In many ways, these weapon systems have the potential to rebalance power relationships in the region. In particular, they can provide smaller, non-nuclear weapon states with a credible deterrent vis-à-vis larger states, including those with nuclear weapons. For example, non-nuclear strategic weapons likely will play an outsized role in a Chinese invasion of Taiwan, and may allow smaller regional powers, such as Australia, to better project power in the region by credibly holding at risk enemy assets from a distance. As outlined above, however, the proliferation of these potent first-strike weapons could increase crisis instability and create destabilising first-strike incentives.

## Europe

In Europe, non-nuclear strategic weapons play an increasingly important role. Roundtable participants pointed out that the potential strategic role of conventional precision-strike capabilities, but also of other kinetic and non-kinetic strategic-weapon systems, cannot be underestimated. Similar to the Indo-Pacific region, non-nuclear strategic capabilities have proliferated widely in the region, especially in the last two decades. Today, a growing number of European states deploy land-attack and anti-ship cruise missiles, ballistic missiles, multiple rocket launcher systems, EW capabilities and other weapon systems that could provide strategic effect, such as cyber and disinformation capabilities.

Several attendees outlined that Russia, after the Yugoslav Wars, felt the need to respond to the growing

arsenals of conventional precision-strike capabilities in NATO member states with its own set of capabilities at an operational and tactical level, in addition to bolstering its strategic forces. According to Russian analysts and officials, NATO weapon systems could be used to undermine Russia's nuclear deterrent, especially when employed in conjunction with other non-nuclear strategic-weapon systems, such as EW, anti-satellite weapons, cyber capabilities and missile defence. Indeed, high-precision conventional strike options can take roles previously assigned to formerly less-accurate nuclear systems, freeing up nuclear forces for other missions. This attitude toward non-nuclear strategic weapons has resulted in a one-sided Russian arms race on air-, sea- and ground-launched ballistic, cruise and other trajectory systems, seriously undermining crisis stability. Russia continues to voice unease, however, about US capabilities and thus justifies the continuing build-up of its nuclear arsenal and its adoption of more pre-emptive nuclear force postures, capabilities and exercises.

Roundtable participants further discussed the doctrinal implications of Russia's focus on building asymmetrical non-nuclear-deterrence options to deter regional conflict below the nuclear threshold. In case of a regional conflict with NATO, Russia's doctrine suggests that it would intend to use non-nuclear strategic weapons, in particular precision-strike capabilities, in conjunction with cyber and information weapons, to achieve quick and decisive victory and end the confrontation on terms favourable to Russia. Unlike most other states in Europe, Russia therefore seems to have a relatively better idea about the strategic rationale behind these weapon systems and related doctrine. More often than not, as one discussant noted, the West thinks about non-nuclear strategic weapons as a headline in search of a doctrine. European states (but also Indo-Pacific states) tend to deploy these weapon systems without necessarily solving the larger doctrinal questions, thus undermining stability in a seemingly automatic way.

Roundtable attendees also expressed concerns over issues of conventional-nuclear entanglement in Europe that arise due to the increasing deployment of non-nuclear strategic weapons. For example, non-nuclear and nuclear strategic weapons often use the same C2



and intelligence, surveillance, reconnaissance and target (ISRT) systems. Thus, targeting ISRT for a practical purpose could also blind co-located nuclear command, control, communication and information assets, causing the stricken state to believe a nuclear first strike could be imminent. In addition, states operating in the European theatre deploy growing numbers of dual-capable launch systems, capable of delivering both nuclear and conventional strategic weapons, which could create warhead ambiguity. According to roundtable participants, this entanglement may lead to inadvertent or accidental escalation, thus increasing nuclear risks. At the same time, one discussant identified a potential positive aspect of conventional-nuclear entanglement, arguing that military personnel in charge of entangled weapon systems may develop a better understanding of nuclear thresholds, preconditions to nuclear use, and related consequences.

Comparing non-nuclear strategic weapons in Europe and the Indo-Pacific, participants noted an interesting difference in how policymakers and analysts approach the issue. In Europe outside of Russia, policymakers seem to be much more hesitant to openly discuss the topic of strategic-weapons deployments, while in Russia, it is a settled matter of doctrine and policy. In the Indo-Pacific this topic and the rationale for their deployment are discussed openly, but the strategic stability implications seem less well understood than could be useful. In light of Russia's war on Ukraine, this debate in the West may be forced to improve rapidly.

## Conclusion

As the roundtable and its participants showed, non-nuclear strategic weapons are an important factor in international politics and military strategy. With growing arsenals of non-nuclear strategic weapons around the world, their impact will likely be more extreme over time.

The rationale for their development, procurement and employment is clear. Non-nuclear strategic weapons allow their possessor states to achieve decisive, strategic effect without using nuclear weapons. In doing

so, non-nuclear strategic weapons are not only much more usable politically, they also do not necessarily invite nuclear retaliation. As such, non-nuclear strategic weapons may actually fulfil the promise of strategic air-power theory in the sense that they constitute an employable and credible weapon system that can engage the sources of enemy power directly, skipping the tactical and operational levels of warfare. They also help states that seek to change existing orders or who otherwise seek asymmetric advantage below the level of kinetic attack to achieve strategic aims without risking nuclear war.

One area where the issue of non-nuclear strategic weapons seems particularly paramount is nuclear-weapons policy. As one of the roundtable participants noted, the non-nuclear/nuclear nexus has arrived, and it is here to stay. Non-nuclear strategic weapons have the potential to unsettle already-brittle nuclear-deterrence relationships, potentially resulting in increased arms race and crisis instability.

Again, beyond the traditional understanding of nuclear-deterrent dyads, non-nuclear strategic weapons promise revisionist states an opportunity to alter existing power relationships. Smaller, non-nuclear-weapon states can use these weapon systems to equalise power asymmetries with larger, nuclear-weapon states, or potentially even challenge their dominant position. Larger nuclear-weapon states with latent feelings of strategic inadequacy or a desire to revise local, regional or global balances also can use them to great effect against status-quo powers or systems. Non-nuclear strategic weapons also seem to play an increasingly important role in alliance politics by providing junior members with their own credible tools of deterrence.

In any case, the proliferation, deployment and use of non-nuclear strategic weapons has far-reaching consequences for international security and defence. The roundtable has provided some initial insights into the multifaceted strategic implications of non-nuclear strategic weapons. More research is needed, however, to address the various policy challenges associated with this weapons category.

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