The NPT and the P5 Process

STRATEGIC NON-NUCLEAR WEAPONS AND STRATEGIC STABILITY – PROMOTING TRUST THROUGH TECHNICAL UNDERSTANDING

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This paper addresses the threat strategic non-nuclear weapons pose to strategic stability, and explores options for mitigating this growing peril. This paper makes the case for delineating different types of strategic non-nuclear weapons, as well as differentiating strategic non-nuclear weapons from other types of advanced conventional weaponry. In this regard, the paper provides some parameters for what such a delineation could look like, and outlines what implications a better technical understanding of strategic non-nuclear weapons would yield in terms of strategic stability considerations.

The first part of this paper introduces the notion of 'strategic non-nuclear weapon.' It defines the term, provides a historical contextualization, and outlines why strategic non-nuclear weapons have become a growing threat to strategic stability in recent years. In the second part, the paper outlines and explains a number of key variables that render advanced conventional weapons 'strategic.' In this regard, it presents a 'counterforce coefficient equation' that, together with the range of the weapon system in question, can determine its strategic utility. The third and final section outlines the implications of this research and provides recommendations on how the P5 can make further progress on the issue.

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Strategic Non-Nuclear Weapons and Strategic Stability

In recent years, analysts and scholars have paid increasing attention to the blurring line between the conventional and nuclear domains. According to these authors, the separating boundary between the nuclear and conventional operating environments is increasingly breaking down, requiring nuclear policy planners to take into account both nuclear and conventional developments when deciding on nuclear weapons policy.[1]

A key issue in this regard relates to the emergence of so-called 'strategic non-nuclear weapons.' Strategic non-nuclear weapons can be defined as advanced conventional weapon systems designed and deployed to accomplish strategic functions. The use of the term 'strategic' requires further explanation. Every weapon system is 'strategic' in the Clausewitzian meaning of the term, relating to the means-ends relationship between the use of armed force and political objectives. Weapons are the tools enabling the use of armed force in the pursuit of political ends. In the context of nuclear policy, the word 'strategic' has largely acquired a different meaning, however. During the Cold War, and in the context of the Strategic Arms Limitation Talks (SALT I & II) of the 1970s, the term 'strategic offensive arms' referred to long-range delivery vehicles of nuclear weapons (range >5.500 km). In this sense, the term was used initially to contrast long-range strategic weapons from shorter-range non-strategic (or tactical) weapon systems.[2] While range continues to constitute an important factor determining the 'strategic' nature of a weapon system, the latter have, more recently, been identified by reference to their functions (i.e. their tasks and purposes). Strategic weapons are usually developed and deployed with two potential employment scenarios in mind: counterforce and countervalue. The former seeks to target and destroy the enemy's strategic weapons (i.e. the adversary's nuclear weapons), while the latter targets political, population, and economic centers in order to destroy the socio-economic potential of the state and to bring to an end its political existence. In this meaning of the term, 'strategic weapons' are those capable of contributing to counterforce and/or countervalue missions.

For the purposes of this paper, the term 'strategic non-nuclear weapon' refers thus to a weapons category of advanced conventional weapons that may (1) credibly threaten the survivability of the adversary's nuclear forces or (2) jeopardize high-value political and socio-economic targets inside the enemy's territory, threatening the state's connectivity and its ability to function normally. In other words, they can be used as part of counterforce and/or countervalue missions. Both kinetic and non-kinetic weapon systems theoretically fall under the category of strategic non-nuclear weapons. While the potential threat of effective non-kinetic strategic non-nuclear weapons, especially electronic warfare capabilities and cyber weapons, is a grave one,[3] the threat emanating from kinetic strategic non-nuclear weapons, in

[1] Andrew Futter and Benjamin Zala, 'Strategic Non-Nuclear Weapons and the Onset of a Third Nuclear Age,' *European Journal of International Security*, 2021, 1–21; Andrew Futter and Benjamin Zala, 'Emerging Non-Nuclear Technology and Nuclear Weapons: Are We Asking the Wrong Questions?,' in *Nuclear Disarmament: A Critical Assessment*, Abingdon: Routledge, 2019, 205–24.

[2] Herbert Scoville Jr., 'Strategic Weapons and Their Control,' *India International Centre Quarterly* , vol. 5, no. 3, 1978, 147–54.

[3] On the cyber-nuclear nexus see, for example, Andrew Futter, *Hacking the Bomb: Cyber Threats and Nuclear Weapons,* Washington D.C.: Georgetown University Press, 2018; Beyza Unal and Patricia Lewis, 'Cybersecurity of

particular of conventional precision-strike capabilities, is much more immediate. As such, the remainder of this paper deals with kinetic strategic non-nuclear weapons.

A closer look at Cold War history reveals that the blurring of the conventional and nuclear domains and the emergence of strategic non-nuclear weapons is not as new a phenomenon as the contemporary literature sometimes suggests. During the Cold War, the 'blurring' metaphor was regularly invoked to describe the dual-capability of warfighting systems, such as dual-capable fixed-wing aircraft or Warsaw Pact theater-range missiles. In addition, already during the Cold War, and especially toward its end, analysts were concerned about the strategic stability implications of advanced conventional weaponry, especially with regard to undermining the enemy's second-strike capability.[4] Also the 1988 Iklé-Wohlstetter report on integrated long-term strategy foreshadowed the potential use of non-nuclear capabilities for strategic ends.[5] Following the end of the Cold War, and from the early 2000s onwards, strategic non-nuclear weapons have often been discussed in the context of 'Conventional Prompt Global Strike' and the United States' ambition to deliver conventional warheads around globe within minutes or hours.[6]

Test of the common hypersonic glide body, Kaui, Hawaii, 19 March 2020. Credits: US Navy

As becomes apparent, the issue of strategic non-nuclear weapons is far from novel. Nevertheless, several relatively recent developments render the strategic stability threat of strategic non-nuclear weapons potentially much more serious today. First, improved midcourse and terminal guidance allow contemporary precision-strike capabilities to engage their targets with pinpoint accuracy, often with a circular error probable (CEP) of one meter or less. Second, advanced warhead technology, such as highly effective penetrator and multi-effect warheads have increased the hard-target kill capability of conventional precision-strike weapons to a considerable extent. As such, these weapons may nowadays more credibly threaten hardened strategic targets, such as missile silos or underground command-and-control bunkers.[7] Third, efficient propulsion systems, such as turbojet and turbofan engines, have proliferated widely throughout the last few decades, allowing an increasing number of states to design and deploy

Nuclear Weapons Systems Threats, Vulnerabilities and Consequences,' *Chatham House*, 2018 ; Erik Gartzke and Jon R Lindsay, 'Thermonuclear Cyberwar,' *Journal of Cyber Security*, vol. 3, no. 1 (2017), 37–48.

[4] See, for example, Richard Burt, 'The Cruise Missile and Arms Control,' *Survival* , vol. 18, no. 1, 1976, 10–17; Alexander R. Vershbow, 'The Cruise Missile: The End of Arms Control?,' *Foreign Affairs*, vol. 55, no. 1, 1976, 133–46; Carl Builder *et al.*, 'The RAND Winter Study on Nonnuclear Strategic Weapons: Executive Summary,' *RAND*, Santa Monica, 1984.

[5] Fred C. Iklé and Albert Wohlstetter, 'Discriminate Deterrence: Report of the Commission on Integrated Long-Term Strategy,' *Air Force Mag*, Washington D.C., 1988, 65..

[6] On Conventional Prompt Global Strike, see James M. Acton, 'Silver Bullet? Asking the Right Questions about Conventional Prompt Global Strike,' *Carnegie Endowment for International Peace*, Washington D.C., 2013.

[7] Fabian Hoffmann, 'Cruise Missile Proliferation: Trends, Strategic Implications, and Counterproliferation,' *European Leadership Network*, London, 2021, 9-10.

weapon systems capable of threatening targets deep inside enemy territory. Fourth, increasing speed of conventional weapon systems, and the potential proliferation of super- and hypersonic conventional weapons, has compressed the battlespace, and may allow states to launch disarming conventional attacks with short to no warning times, especially in regional contexts.[8] Fifth and finally, conventional long-range strike weapons are nowadays increasingly being integrated into maturing 'precision-strike regimes.' States not only deploy a growing number of precision-strike weapons but enhance their capabilities through the deployment of precision-strike-enabling technologies, in particular advanced intelligence, surveillance, and reconnaissance (ISR) systems.[9] In addition, states have come a long way since the 1990s in integrating precision-strike weapons into their military doctrines, and have adapted their strategic planning to render the deployment of long-range strike weapons more effective.[10] As a result, states today are capable of presenting their enemies with sophisticated 'kill chains' – the ability to efficiently collect information, make decisions, and execute them decidedly –, potentially allowing them to deliver a preemptive conventional knock-out blow.[11] With the advent of AI-enhanced data-processing and command-and-control capabilities, this scenario may become even more credible.[12]

Overall, these technological and doctrinal developments have rendered advanced conventional precision-strike capabilities much more potent, turning them into credible strategic non-nuclear weapons, potentially capable of conducting or supporting counterforce and/or countervalue missions.

Especially in China and Russia, concerns related to the counterforce capability of strategic non-nuclear weapons seem to have become more prevalent in the last few years. Decision-makers in both of these countries worry about the threat American and European conventional precision-strike capabilities may pose to their nuclear deterrents.[13] Next to that, several Western analysts have recently warned about the potential use of Russian precision-strike capabilities as part of a preemptive countervalue strike against key socio-economic targets in Europe, intended to destroy NATO's warfighting potential at the outset of a conflict.[14] This

[8] Alan Cummings, 'Hypersonic Weapons: Tactical Uses and Strategic Goals,' *War on The Rocks*, 2019.

[9] In fact, ISR capabilities are absolutely crucial to the employment of any type of strategic non-nuclear weapon. While the limited scope of this paper does not allow for a comprehensive discussion in this regard, the enabling role and, in fact, the dependence of strategic non-nuclear weapons on continued access to high-quality ISR data, both during mission planning and the mission itself, should be kept in mind.

[10] On Russia entering the precision-strike regime, see, for example, Roger N. McDermott and Tor Bukkvoll, 'Russia in the Precision-Strike Regime - Military Theory, Procurement and Operational Impact,' *Norwegian Defence Research Establishment*, Kjeller, 2017; Roger N. McDermott and Tor Bukkvoll, 'Tools of Future Wars — Russia Is Entering the Precision-Strike Regime,' *The Journal of Slavic Military Studies* , vol. 31, no. 2 (2018), 191–213.

[11] Christopher Brose, *The Kill Chain: Defending America in the Future of High-Tech Warfare*, New York: Hachette Books, 2020.

[12] Michael C. Horowitz, 'Artificial Intelligence, International Competition, and the Balance of Power,' *Texas National Security Review* , vol. 1, no. 3, 2018, 38–42.

[13] Tong Zhao, 'Conventional Long-Range Strike Weapons of US Allies and China's Concerns of Strategic Instability,' *Nonproliferation Review*, 2020, 2-7; Dmitry Stefanovich, 'Proliferation and Threats of Reconnaissance-Strike Systems: A Russian Perspective,' *Nonproliferation Review*, 2020, 2.

[14] See, for example, Dave Johnson, 'Russia's Conventional Precision Strike Capabilities, Regional Crises, and Nuclear Thresholds,' *Lawrence Livermore National Laboratory*, 2018, 52-55; Fabian Hoffmann, *op. cit.*, 22-23; Corentin Brustlein, 'The Erosion of Strategic Stability and the Future of Arms Control in Europe,' *IFRI*, Paris, 2018, 48–49.

being said, with continued improvements in Russia and China's precision-strike capabilities, including the potential future deployment of precision-strike weapons with enhanced hard-target kill capability, the counterforce threat emanating from the Russian and Chinese strategic non-nuclear arsenals may increase as well.[15]

While these considerations have figured prominently, both researchers and decision-makers have found it difficult to engage the issue of strategic non-nuclear weapons constructively and to alleviate risks that arise from their proliferation. For one thing, this is due to the broader current geopolitical environment, which renders the adoption of comprehensive arms control agreements a remote possibility. Second, it relates to the nature of strategic non-nuclear weapons themselves. As conventional weapons which play crucial roles in the conventional deterrence postures of states, the latter are hesitant to regulate or limit their deployment and use. In addition, unlike nuclear weapons, there is no precedent with regard to strategic non-nuclear weapons and arms control.

In order to make progress on strategic non-nuclear weapons, providing a better technical understanding of the weapon systems themselves would be useful. Doing so would help lift the 'veil of mystique' that seems to surround this weapons category in ongoing discussions, and allow nuclear weapon states to reach better informed conclusions about the impact of strategic non-nuclear weapons on their nuclear deterrence postures. In return, this may mitigate some of the strategic stability pressures arising from their deployment, especially when their impact is otherwise overestimated due to a lack of technical understanding. It is therefore argued that a proper delineation of the term 'strategic non-nuclear weapon' would be helpful and may stabilize relations between nuclear weapon states, including the P5. The next section explores how such a delineation may look like and what variables and parameters play a key role when approaching the term.

Delineating 'Strategic Non-Nuclear Weapon'

Even though strategic non-nuclear weapons have been subject to increasing debate, our understanding of what constitutes a strategic non-nuclear weapon lags behind. In many ways, the current debate is moved by a certain hype surrounding this weapons category, and detailed technical analysis of advanced conventional weapon systems is essentially non-existent. This section explores some of the key variables and parameters that are important when differentiating advanced conventional weapons from strategic non-nuclear weapons, as well as delineating different types of strategic non-nuclear weapons.

As outlined above, the term 'strategic non-nuclear weapon' refers to a category of advanced conventional weaponry capable of contributing to counterforce and/or countervalue strikes. Two variables are key when assessing the strategic utility (i.e. the capability to fulfil counterforce and countervalue functions) of a conventional weapon system: range and hard-target kill capability. The first variable, range, is straight forward. Non-strategic weapons, intended for battlefield use, usually have a shorter range than strategic weapon systems. Long range allows strategic weapons to reach targets deep inside enemy territory, rendering them capable of

[15] The procurement of advanced penetrator warheads is a repeated theme in Chinese writings. See, for example, Weiguang Zhang et al., 'Study on the Dynamic Response Characteristics of a Fuse under the Excitation of the Detonation Field,' Fourth International Conference on Machinery, Hangzhou, 2016.

destroying important objects outside the immediate vicinity of the battlefield, such as command-and-control structures, infrastructure nodes, or missile silos. Range depends on the missile's configurations, especially its propulsion system and the size of its fuel tank, and can usually be inferred with relative ease.

The second variable refers to hard-target kill capability. As outlined above, a key function of strategic weapons may be to destroy strategic weapons of the enemy, i.e. to pursue counterforce missions. However, due to their military significance, such strategic targets are usually well-protected. Important command-and-control structures, for example, are frequently buried deep underground. Nuclear weapons are often located in missile silos and protected by layers of reinforced concrete, designed to survive significant overpressures (up to 3000 pounds per square inch, or approximately 210 kilograms per square centimeter).[16] Penetrability, the ability to penetrate and damage such hardened strategic targets, is thus key to counterforce and may, as a result, constitute a defining feature of strategic non-nuclear weapons. This being said, the fact that an advanced conventional weapon is not capable of destroying hardened strategic targets, does not necessarily deny its existence as a strategic non-nuclear weapon. Depending on their capabilities, these weapon systems may still be used to engage 'softer' targets, such as infrastructure nodes or road-mobile missile launchers, for example, which are often located above ground and less well protected. As a result, they may still be employed during countervalue strikes or against other types of counterforce targets.

The ability to engage hardened strategic targets and, as such, the capability of certain advanced conventional weapons to pursue more comprehensive counterforce functions, depends on a number of factors. Among the most important variables to take into account are the weapon's warhead type, its payload, the kinetic energy transferred during the detonation, and the weapon's accuracy. Without doubt, certain types of warheads are more useful when engaging hardened strategic targets. For example, a simple fragmentation warhead will usually not be able to penetrate underground or hardened structures.[17] Penetrator or multi-effect warheads, on the other hand, which are specifically designed to engage such targets, are more likely to have hard-target kill capability. Looking at the weapon's payload, the larger the amount of explosives carried, the larger the potential damage it may cause. Kinetic energy is important for fast weapons, especially those hitting their targets at hypersonic velocity (such as hypersonic glide vehicles and ballistic missile warheads). Notwithstanding a smaller payload or an unsophisticated warhead, the kinetic energy released during the impact may be sufficient to penetrate the structure. Finally, accuracy is extremely important as well because, unlike nuclear weapons, conventional weapons do not unfold their destructive effects over a large area of impact. To destroy hardened strategic targets, the overpressure created through the explosion of the warhead must be channeled at as small an area as possible.

[16] Keir A. Lieber and Daryl G. Press, *The Myth of the Nuclear Revolution: Power Politics in the Atomic Age*, Ithaca: Cornell University Press, 2020, 78.

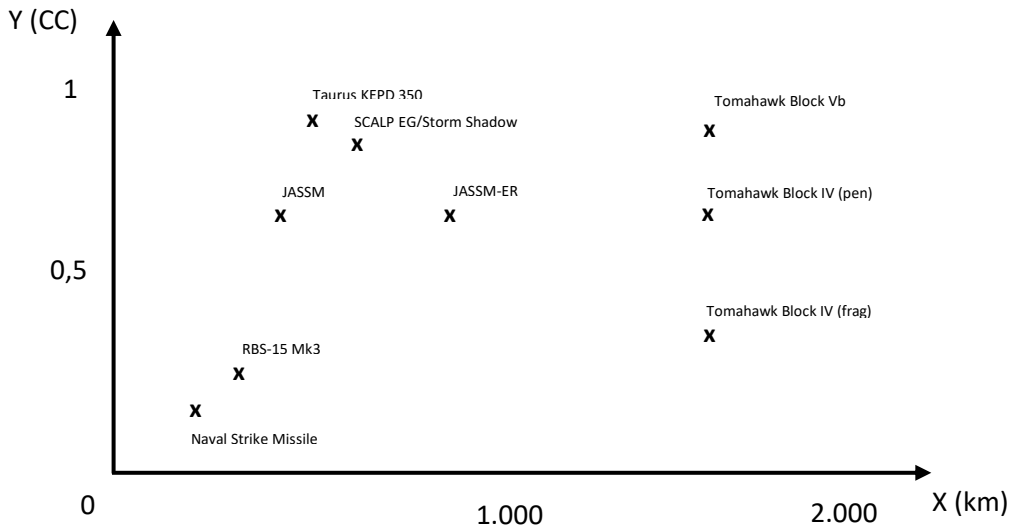
[17] This is a lesson the United States already had to learn during Operation Desert Storm when its Block III Tomahawks, armed with fragmentation warheads, were unable to penetrate Iraqi bunkers. See Dennis M. Gormley, *Missile Contagion: Cruise Missile Proliferation and the Threat to International Security*, Annapolis: Naval Institute Press, 2008, 50.

Together, these variables can indicate the hard-target capability of conventional weapon systems and, as such, determine the weapon system's counterforce utility. Each advanced conventional weapon X can thus be said to have a 'counterforce coefficient' Y which is determined by the variables outlined above. This can be expressed mathematically by the function

$$CCx = f(Wx, Px, Kx, Ax)$$

Whereby CCx refers to the counterforce coefficient of weapon X {0,1}, determined by its warhead, payload, kinetic energy, and accuracy.[18]

By plotting range and counterforce coefficient along an x- and y-axis, we can illustrate the strategic utility of different advanced conventional weapons according to their counterforce potential.



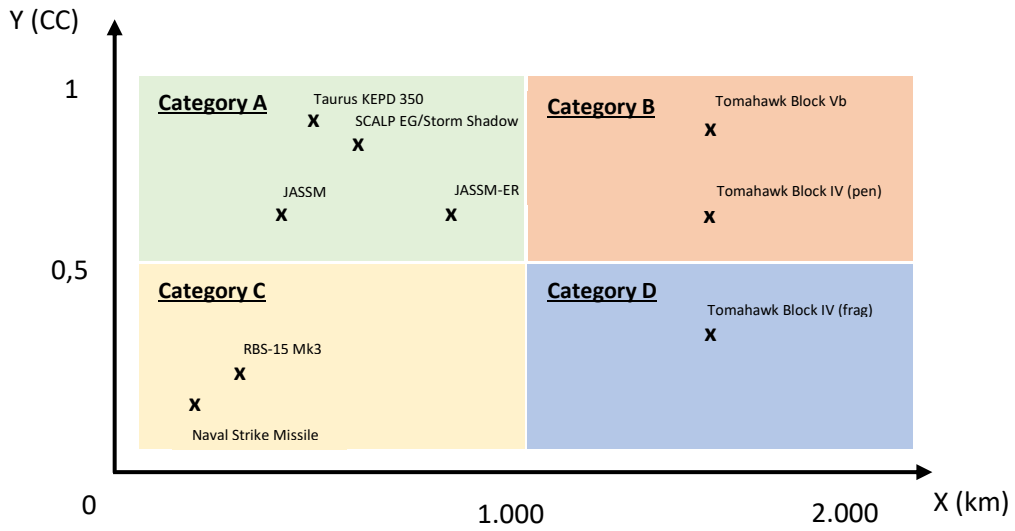
Graphic 1: Strategic counterforce utility of precision-strike capabilities deployed in Europe

Graphic 1 depicts some of the conventional precision-strike capabilities deployed (or soon to be deployed) by NATO member states in Europe and displays them according to their strategic utility. Please note that the locations of the different precision-strike capabilities on the graph are not yet the result of precise calculations, but constitute estimations based on prior research conducted, including several expert interviews with missile and warhead engineers, taking into account the key variables identified above. Nevertheless, the graph provides some indication of the differing strategic utility of distinct advanced conventional weapon systems. Importantly, the fact that the graph only depicts cruise missiles deployed by NATO member states does not mean that the latter are the only ones deploying such systems. In fact, a growing number of states, including Russia, China, South Korea, Japan, and Australia, among others, deploy or procure systems that could potentially be classified as strategic non-nuclear weapons. In addition, these weapon systems are not restricted to cruise missile capabilities alone and

[18] It is important to note that the counterforce coefficient measures the qualitative capability of different weapon systems. In practice, lack in quality may be compensated by quantity. In the case of precision-strike capabilities, for example, this may occur through the employment of large numbers of missiles as part of salvo attacks.

include conventionally-armed hypersonic glide vehicles and ballistic missiles, for example. Yet, the limited scope of this paper does not allow for an exhaustive listing of all strategic non-nuclear weapons currently deployed.

Graph 2 delineates the selection of precision-strike capabilities included in the graph into different types of strategic non-nuclear weapons. The area encompassed by the x- and y-aches in Graph 2 is divided into four quadrants, each representing a unique category of strategic non-nuclear weapons.



Graphic 2: Categories of advanced conventional weapons

Category A includes weapon systems with a relatively short range but a high counterforce coefficient. As a result, these weapon systems are located in the top left corner of the graph. They include, for example, the Taurus and Storm Shadow land-attack cruise missiles which are armed with powerful multi-effect warheads maximizing their penetrability. In addition, this category also includes the JASSM and JASSM-ER cruise missiles, for example, which are armed with a regular penetrator warhead. The weapon systems located in this area of the graph may credibly threaten hardened strategic targets. Due to the limited range of these weapon systems, however, their potential effectiveness is restricted to targets in the relative vicinity of their deployment area.

Category B weapons differ insofar that they not only have a high counterforce coefficient, but also a high range. As a result, they may be used to engage hardened strategic targets, deeper inside enemy territory. This category includes, for example, the Tomahawk Block Vb cruise missile which recently entered into service with the US Navy and may soon be deployed on surface and sub-surface vessels in the European theater. This variant combines the Tomahawk's traditionally long range (1.600 km) with a multi-effect warhead, providing it with significant counterforce potential. Also the Tomahawk Block IV variant armed with a penetrator warhead falls under this category. Unlike the Block Vb, however, this Tomahawk variant is equipped with a simpler penetrator warhead that does not achieve the same penetrative effect. However, its penetrability is still much improved over that of a fragmentation warhead. As a result, the

Tomahawk Block IV penetrator variant may provide effectiveness against hardened strategic targets, though more limited compared to the Block Vb variant.

Categories C and D include advanced conventional weapons with a low counterforce coefficient. As a result, they are located in the bottom right and bottom left corners of the graph, respectively. Category C weapons include shorter-range cruise missiles, such as the RBS-15 Mk3 or the Naval Strike Missile, for example. Both missiles are primarily intended to engage maritime targets, but also have land-attack capability. However, because they are armed with fragmentation warheads and carry relatively small payloads, their effectiveness against hardened targets is low to non-existent. Weapon systems in Category D have a similarly low Counterforce coefficient, but a higher range. This category includes the Tomahawk Block IV variant armed with a fragmentation warhead, for example. Although the weapon's payload is larger than that of the anti-ship cruise missiles found in Category C, its effectiveness against hardened strategic targets is still limited.

Tomahawk Block IV, 10 November 2002. Credits: US Navy

The graphs above show that important differences between distinct types of strategic non-nuclear weapons exist. While some weapon systems may be effective against hardened strategic targets, not all of them can be said to do so. Importantly, just because these weapons cannot fulfil comprehensive counterforce functions, this does not mean that they serve no strategic functions at all. As outlined above, they may still be used to target the enemy's socio-economic base and can thus be employed as part of countervalue strikes. In addition, hard-target kill capability may not be required against adversaries relying on 'softer' launchers for their nuclear weapons, most notably above-ground mobile missile launchers. As such, they can still constitute strategic weapons, capable of conducting countervalue and more limited counterforce strikes.

Overall, the analysis shows, however, that when it comes to strategic non-nuclear weapons, technical details – informing the weapon's capability profile – matter. The fact that these technical details are often overlooked is regrettable, given that different types of strategic non-nuclear weapons follow different functions and, as a result, have distinct implications with regard to strategic stability.

Strategic non-nuclear weapons, the P5, and strategic stability

What do these findings mean with regard to the P5 process and strategic stability? First, because different kinds of strategic non-nuclear weapons exist, advanced conventional weapon systems falling under this category should not be lumped together. Although all strategic non-nuclear weapons are highly capable, not all of them can be employed with

comprehensive counterforce objectives in mind. The current discussion seems to reject such a differentiated view, however, and remains kindled by a certain hype surrounding these weapon systems. This is unfortunate, as it results in strategic non-nuclear weapons being perceived as potentially more destabilizing than their actual capabilities often warrant. Only one type of strategic non-nuclear weapon, Category B items with a high counterforce coefficient and a long range, are capable of threatening hardened strategic targets deep inside enemy territory. As long as these weapons do not start to proliferate uncontrollably, the impact of strategic non-nuclear weapons on strategic stability will likely remain limited, at least with regard to first strike stability and threatening the survivability of the adversary state's strategic deterrent. The horizontal and vertical proliferation of Category A items may also be concerning, though their impact is mitigated by their limited range. This being said, the proliferation of Category D items should not be ignored either. Notwithstanding their low counterforce coefficient, they may still be used to engage softer strategic targets, such as mobile missile launchers. However, their counterforce utility depends on more than the technical configurations of the missile system alone and is qualified by the state's ISR capabilities and its ability to track mobile targets and reroute precision-strike capabilities midair. Overall, therefore, from a first-strike stability perspective, analysts and decision-makers should thus be particularly concerned by the deployment of long-range precision-strike capabilities with high hard-target capability.[19] While other types of strategic non-nuclear weapons may also threaten the adversary state's nuclear deterrent, especially in the form of its mobile assets, their ability to do so is more context-dependent, requiring continued access to high-quality surveillance and reconnaissance data, and/or peace-time deployments to areas in the vicinity of their potential targets.

Second, the above shows that delineating different types of strategic non-nuclear weapons constitutes a useful exercise. Doing so provides transparency and allows for a more nuanced analysis of the issue. The P5 states should therefore consider carrying this idea further. As stated above, this paper's measurement of the counterforce coefficient of different types of advanced conventional weapons constitutes an estimation based on expert interviews and prior research. However, reaching a more detailed understanding of the different variables at play would be a worthwhile objective and is certainly possible. Cold War nuclear policy planners were capable of formulating and applying complex mathematical models of nuclear war, which provided detailed insights into the destructive potential of different nuclear capabilities, and helped nuclear weapon states determine force structure requirements based on factual data, rather than speculation alone.[20] There is no reason why the P5 should not be able to provide similar models for advanced conventional weapons. To this end, the P5, potentially in cooperation with other states, should consider establishing an interdisciplinary panel of experts on strategic non-nuclear weapons with delegates from each participating state, with the aim of providing an objective analysis of different conventional weapon types and their impact on nuclear planning. This would provide for improved transparency and, if necessary, allow states to adapt their deterrence postures based on facts, rather than fear. Should these discussions

[19] For the moment, this is especially the case in the European theater where NATO strategic non-nuclear weapons could, in theory, threaten Russian silo-based nuclear weapons. As stated above, however, with the deployment of improved precision-strike capabilities by China and Russia, this threat may become more mutual.

[20] This does, of course, not mean that nuclear weapon states always acted entirely rational during the Cold War in terms of nuclear weapon deployments.

prove too contentious at the inter-governmental level, the P5 should consider outsourcing them to third actors, such as university departments, think tanks, and NGOs, advancing these discussions as part of track 1.5 or track 2 dialogues.

Another key benefit of this exercise relates to the fact that it can help bridge the gap between the 'haves and have nots' in terms of nuclear weapons, and involve non-nuclear weapon states in the P5 and strategic stability process. A large part of the current stockpile of strategic non-nuclear weapons resides in the hands of non-nuclear weapon states. In Europe these include countries like Germany, Italy, Sweden, Norway, and Greece, for example. In the Indo-Pacific region, the same holds true for countries like South Korea, Japan, and Australia, among others. As such, in order to make progress on the issue of strategic non-nuclear weapons and to mitigate strategic stability pressures arising from their proliferation, the participation of non-nuclear weapon states is not only desirable but also necessary. On the one hand, this will likely exacerbate the negotiation process due to the proliferation of actors and opinions. On the other hand, engaging in these types of discussions could rekindle a cooperative spirit between the P5 and the broader international community. This seems especially important at a time where a rising number of non-nuclear weapon states grow increasingly frustrated with the P5 who they believe have made insufficient progress on their Article 6 obligations under the Non-Proliferation Treaty, which requires them to work towards nuclear disarmament in good faith. This rift has expanded recently in light of the entry into force of the Treaty on the Prohibition of Nuclear Weapons, which sets out to ban the development, possession, and use of nuclear weapons. The Ban Treaty has further pitted the P5 (and the other nuclear weapon states) against the treaty's signatories (86 in November 2021). Renewed dialogue between the P5 and non-nuclear weapons states is therefore needed. The objective of making progress on strategic non-nuclear weapons could provide impetus in this regard and help reconcile the two groups by engaging them in cooperative risk reduction measures.

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