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## **New Military Technologies and Survivability of Nuclear Deterrence in US-Russia Relations**

*A paper for the Harriman Institute US-Russia Security Workshop, June 2019, Final Draft*

Almost three years ago, just a few weeks after his victory at the 2016 presidential elections, then President-elect Donald Trump famously stressed that the United States “must greatly strengthen and expand its nuclear capacity”<sup>1</sup>. This statement marked a notable reversal of the nuclear policy that was pursued earlier by the Obama administration and was centered around nuclear disarmament with an ultimate goal of achieving a world free of nuclear weapons.

Since that time many things have happened, the most significant of which were the US withdrawal from the nuclear deal with Iran and the announcement of American withdrawal from the INF treaty, which confirmed the seriousness of the Trump’s administration intent to revisit previous American nuclear policy. One of the results of this revision was an increased concern about the future of arms control, which, in turn, actualized the issue of successful maintenance of nuclear deterrence in a changing world. The most distinguishing features of this world will be dismantlement of the legally-binding constraints that prevents states from advancing their military capabilities and a simultaneous rapid technological development.

This trend might have a major impact on the US-Russian relations, where nuclear deterrence is traditionally perceived to be a cornerstone of the strategic stability since the Cold War. However, it is important to emphasize, that despite the fact that mutual nuclear deterrence indeed can be considered one of the most distinctive features and well-studied features of the relations between the United States and Russia, there are significant differences in perception of this phenomenon by the political leadership of two countries.

Soviet and then Russian leaders always fundamentally recognized the state of vulnerability of their country’s territory in the face of a strategic nuclear strike from the United States. For American leadership such an acceptance turned out to be relative, since historically their country enjoyed much higher degree of security against foreign hostilities towards its national territory.

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<sup>1</sup> Donald Trump (realDonaldTrump). “The United States must greatly strengthen and expand its nuclear capability until such time as the world comes to its senses regarding nukes”. 22 December 2016, 08:50. Tweet.

A good way to prove this is to look at the Ronald Reagan's strive to achieve "nuclear superiority" over the Soviet Union, which replaced the Nixon-Kissinger policy of détente that implied acceptance of the Soviet second nuclear strike capability. As Francis Gavin shows, American "nuclear forces built in the decades after the SALT and ABM treaties made little sense if the United States had fully embraced the consequences of mutual vulnerability"<sup>2</sup>.

Today technology is frequently considered to be a major gamechanger that has potential to close the "vulnerability gap" that exists in the US-Russia relations. In their International Security article Keir Lieber and Daryl Press argue that "changes in technology ... are eroding the foundation of nuclear deterrence"<sup>3</sup>. Commonly these changes are associated with the phenomenon of the so-called "fourth industrial revolution", which acts as an umbrella term to characterize the ongoing processes of fusion of physical, digital and biological worlds within single technological developments<sup>4</sup>. In the realm of military affairs, the most notable of those developments will be offensive cyber capabilities, missile defense, lethal autonomous weapon system, drones, hypersonic offensive weapons, direct energy weapons and a number of others.

There is a possibility to argue that at least some of those technologies were put in the field long before the fourth technological revolution, for example direct energy weapons. This is true, but the problem here is that the development of the contemporary technological environment might greatly augment the power that stand behind these technologies. For instance, one of the problems with strategic defense lasers (Project Excalibur) was that back in the 1980-s when the project was developed within the Strategic Defense Initiative it was impossible to provide an effective targeting within a short period of time when the missile was flying outside the atmosphere, due to the immaturity of computer and radar technologies. But now computing power has advanced a lot, which promises to ease this challenge in the visible future, thereby greatly enhancing the military potential of these weapons, whereupon we can clearly trace the repercussions of the fourth industrial revolution on this technology.

As it was already stressed above, a number of experts argue that new military technologies that are emerging as a result of the fourth industrial revolution, would have a great impact on the nuclear deterrence already in the foreseeable future. For example, a report issued two years ago by the RAND Corporation on hypersonic weapons stated that these types of weapons present "new challenges to global security" because of their potential to "disarm target forces before they can react"<sup>5</sup>. Similar claims are being made about offensive cyber capabilities,

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<sup>2</sup> Gavin, Francis J. Rethinking the Bomb: Nuclear Weapons and American Grand Strategy. Texas National Security Review, Volume 2, Issue 1 (November 2018), p. 81

<sup>3</sup> Lieber, Keir A. & Press, Daryl G. The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence. International Security, 41(4), 2017, p. 9

<sup>4</sup> Schwab, Klaus. The Fourth Industrial Revolution. World Economic Forum, 2016.

<sup>5</sup> Speier, Richard H., Nacouzi G., Lee, Carrie A., Moore Richard M. Hypersonic Missile Proliferation: Hindering the Spread of a New Class of Weapons. RAND Corporation, 2017. p. XI

where scholars indicate a possibility to use them against command and control systems of the strategic nuclear forces, thereby depriving a state of his second-strike capability<sup>6</sup>.

However, in making such an argument, security experts at least partially ignore the unique nature of nuclear weapons, which arises from their enormous destructive capacity. This capacity is such, that the damage from strategic nuclear strike cannot be reduced to an acceptable level through simple endurance and absorption.

This argument was stressed back in 1946 by the notable defense strategist Bernard Brodie in his book “The Absolute Weapon: Atomic Power and World Order”<sup>7</sup>. Brodie argued that nuclear weapons present a completely new military challenge that cannot be countered by a defense system that has relative efficacy.

In the Absolute Weapon he illustrated this notion with a following passage: “It has simply become customary to consider ‘answer’ satisfactory when it merely diminishes or qualifies the effectiveness of the weapon against which it is devised, and that kind of custom will not do for the atomic bomb”<sup>8</sup>. In other words, he stressed that none of the existing or future defense or counter-offense systems will have the capacity that will be sufficient to bring the damage from strategic nuclear strike to an acceptable level.

The enormous destructive capacity of nuclear weapons will always present a challenge for the person who is about to employ counterforce capabilities that are provided by new military technologies against them. In order to succeed in this action, he needs to be absolutely sure, that those capabilities will affect all of the adversary’s strategic nuclear weapons, thereby completely eliminating his second-strike nuclear capability. Otherwise, there are few chances for the aggressor to bring the damage from the adversaries’ retaliatory strike to an acceptable level.

Here it is worthwhile to reflect a little on the parameters that make damage from a strategic nuclear attack acceptable or unacceptable. Back in 1960 there were huge debates in order to establish the boundaries between those two types of damage. Those debates came to their logical end in 1967 when US Secretary of Defense Robert McNamara outlined the so-called “McNamara Criterion”, which codified an unacceptable damage as a destruction of 25% population and 60% of industrial capacity<sup>9</sup>. This criterion was generally accepted by the military planners of both the US and the Soviet Union/Russia, as it corresponded with a generally accepted proposition that the adversary would not be able to reconstitute as a power after a destruction of such scale.

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<sup>6</sup> Sharikov, Pavel. Artificial Intelligence, Cyberattack, and Nuclear Weapons – A Dangerous Combination. Bulletin of the Atomic Scientists, November 2018. P. 4

<sup>7</sup> The Absolute Weapon: Atomic Power and World Order / edited by Bernard Brodie. Harcourt Brace, 1946.

<sup>8</sup> Ibid, p. 17

<sup>9</sup> Krepon, Michael. Assured Destruction. Arms Control Wonk. 8 March 2011. URL: <https://www.armscontrolwonk.com/archive/403058/assured-destruction/>

The fact that since that time until today there was almost no debate about the adjustment of the above-mentioned parameters, we can assume that they have not increased in number and even most likely decreased, perhaps significantly.

At the same period of time the destructive capacity of nuclear weapons increased dramatically, primarily due to the appearance of missiles with multiple warheads and sophisticated penetration aids. First MIRVed missiles were first put into service in 1969, two years after the McNamara statement.

That said, there is an open possibility to criticize the proponents of the idea that new military technologies can undermine the mutual nuclear deterrence of the US-Russia relations by addressing them with a question, if they can guarantee that those technologies can diminish the damage from the strategic nuclear strike to a level, on which it will become acceptable for the modern state to endure. If they cannot guarantee this, it means that those technologies do not have a potential to seriously transform or alter the existing nuclear deterrence between the United States and Russia, especially in a situation when the amount of acceptable damage from a strategic nuclear strike has probably diminished and the destructive capacity of nuclear weapons has in turn multiplied.

That said, it possible to conclude, that new military technologies do not bear a potential to eliminate or seriously undermine nuclear deterrence component of the US-Russian relations. Thereby, in order to "dampen the heat" around the possible impact of these technologies of the Russian-American relations, it is necessary to create a platform for discussion of these issues.

It was a historic precedent when the United States and the Soviet reached a principal legal agreement to hold consultations on the potential impact of new military technologies on the strategic stability within the framework of the Standing Consultative Commission of the ABM Treaty of 1972. The Treaty was accompanied by a number of agreed statements, one of which (Statement D) was dedicated to the emerging technologies:

“In order to insure fulfillment of the obligation not to deploy ABM systems and their components except as provided in Article III of the Treaty, the Parties agree that in the event ABM systems based on other physical principles (*say hi to defense lasers*) and including components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars are created in the future, specific limitations on such systems and their components would be subject to discussion in accordance with Article XIII and agreement in accordance with Article XIV of the Treaty”<sup>10</sup>.

Article XIII of the treaty was the about the establishment and operation of a Standing Consultative Commission and Article XIV grants the parties a right to amend the treaty. Although the treaty is no longer in force, that format perhaps can be reestablished as a separate

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<sup>10</sup> Agreed Statement D to the ABM Treaty. Under Secretary of Defense for Acquisition & Sustainment. n.d. URL: <https://www.acq.osd.mil/tc/abm/ABMtext.htm#agreed>

institution today. Despite the fact that it is difficult to image such a step in the nearest future because of the high mutual tensions, on the long term it might be the only effective way to reincarnate a framework of mutual understanding in US-Russia relations without provoking a major crisis and unnecessary escalation.

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