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Tools of Future Wars — Russia is Entering the Precision-Strike Regime

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ABSTRACT

Conventional high-precision weapons play an increasingly important role in the defense of Russia. They may also in the future be important in bilateral conflicts where Russia wants to force its will through. In general, the Russian debate on these weapons is more preoccupied with defensive than offensive scenarios. However, there are also those who argue that (a) conventional high-precision weapons are likely to increase the role of military force in foreign policy generally around the world; (b) for Russia they may be particularly efficient in conflicts with highly developed states, since these states are especially vulnerable because of their high concentration of critical stationary installations; and (c) these weapons may be particularly efficient in combination with other military capabilities.

Introduction

The development of precision-strike capabilities has given the West, and in particular the United States, a military-technological edge in comparison with most other international actors since the early 1990s. This lead, however, is now eroding. Both state and non-state actors are currently busy trying to acquire this capability. How these new possessors of conventional precision-strike capabilities think about when, how, and where to use these weapons therefore becomes an issue of major importance in international security studies.

The present study analyses Russia’s entry into the precision-strike regime. In particular, it discusses how the Russian military and military theorists envisage how this new capability will fit into defensive and offensive scenarios for the future use of force.

It is to some extent a paradox that Russia is only now fully entering this regime, since one of the pioneers in thinking about the revolutionary character of precision strike was the late Soviet Marshal Nikolai Ogarkov in the mid-1980s. Soviet engineers were at that time working on designs for a first generation of domestic precision-strike weapons, but the fall of Communism...
and the Soviet Union meant that development was seriously delayed. Thus, for example, Russia did not have cruise missiles with conventional warheads for land attack operational until 2010. Now, however, precision-strike capabilities are at the forefront both in the military theory and in procurement plans. A combination of strong economic growth in the 2000s and seriously deteriorating relations with the West, especially since the annexation of Crimea in 2014, seem to be two of the main drivers.

Confirmation of the growing importance attached to high-precision weapons in Russian military planning was provided during the strategic-operational exercise ‘Zapad 2017’ staged jointly with Belarus, 14–20 September 2017, witnessing the involvement of high-precision weapons — or in Russian abbreviation VTO — throughout the exercise. Russia’s array of high-precision strike systems came into play early in the exercise and also featured across its military districts in parallel exercises; this included launches of Iskander-M, as well as various cruise missiles against hypothetical enemy targets. The VTO featured using land, sea, and air platforms, with a number of scenario vignettes to suggest rehearsal of escalation control dominance against a high-technology opponent. The prominence afforded to these weapons during ‘Zapad 2017’ underscores the extent to which the General Staff sees these as providing a range of capability options for use in varied conflict situations, including in defense and offense. This trend is likely to further develop in future strategic exercises as more high-precision systems are procured and as the Russian military experiments with their potential use in combat.

The article is roughly divided into three parts. The first part traces the historical Russian interest in high-precision weapons and shows how this intellectual legacy is still important. The second part analyzes how Russian military and defense intellectuals envision the role of high-precision weapons in defensive operations, and the third part does the same for offensive operations. Much of the detailed planning for the use of precision-strike weapons will obviously be classified. Thus, the two latter parts are therefore based on a mix of open-source Russian military writings and on the authors’ rational-choice-inspired expectations of what dilemmas Russian decision makers may face when deciding on the potential use of these weapons. Finally, the main findings are summarized in a conclusion.

Russia’s historical interest in high-precision weapons

Moscow’s interest in developing high-precision conventional strike capability is not new. The current priority assigned to the further introduction of such
systems in the Table of Organization and Equipment (TO&E) as part of Russia’s ongoing military modernization represents a distinctive evolution within a specifically Russian military and strategic context. To understand this at a deeper level requires some sense of historical developments, advances in Soviet and Russian military theory, and reference to the concepts involved. It is crucial to recognize that there are terminological differences between Russia and the USA and NATO in this regard.

Precision-Guided Weapons or Precision-Guided Munitions originated as Western concepts that entered Russian military parlance due to translation of the Western terms. The correct Russian usage of the term referring to systems broadly designed to accurately strike an enemy target at distance is high-precision weapons (vysokotochnoye oruzhiye — VTO). We will use this Russian abbreviation in the rest of this article. The official defense ministry definition of the term is as follows:

The current VTO system is a complex of systems and combat support systems and resources, including: the intelligence system, communication channels, control centers, computer facilities, means of delivery and guided munitions. Depending on the management structure and the type of ammunition the VTO could solve tactical, operational-tactical, operational and strategic objectives. The VTO system includes: reconnaissance and strike and reconnaissance-fire complexes; air- and sea-launched cruise missiles; some types of short-range missiles; anti-aircraft and anti-missile systems; aircraft guided missiles, cartridges and bombs; separate samples of artillery systems and ASW complexes.

In Russian military references to high-precision weapons since the 1990s, the key developmental and conceptual terms have been: reconnaissance-strike complex (razvedyvatel’no-udarnyy kompleks — RUK) or the reconnaissance-fire complex (razvedyvatel’no-ognevoy kompleks — ROK). These are the areas into which such weapons would more readily fit. In the early 2000s Russian military scientists added the reconnaissance-strike system (razvedyvatel’no-udarnaya sistema — RUS), the reconnaissance-fire system (razvedyvatel’no-ognevaya sistema — ROS), and the reconnaissance-fire operation (razvedyvatel’no-ognevaya operatsiya — ROO) to augment the RUK and ROK concepts. It is

unsurprising, therefore, to see reference to ROK in the official defense ministry definition of the VTO system.

**Soviet interest**

The later Soviet interest in these systems evolved alongside shifts in Soviet military theory and their consideration of the strategic environment and particularly future warfare and deterrence theory. A number of Soviet military specialists, consequently, noted the actual origin of the state interest in high-precision conventional strike capability as a response to developments within the US military, especially the use of precision weapons in the latter part of the Vietnam conflict. Moreover, as US advances continued in this area in the aftermath of the Vietnam War, Soviet military theorists began to see that conventional systems might take on strategic value in certain situations. They came to realize that by advances in technology, these weapons could in the future be perceived to be on a par with nuclear weapons in terms of the danger presented by their use.\(^5\)

At the forefront of such strategic thinking was the late Marshal Nikolai Ogarkov, an advocate of military transformation, known as the Revolution in Military Affairs (RMA). Soviet and later Russian interest in VTO is inseparable from this intellectual inheritance. Ogarkov’s contribution to stimulating state level interest in VTO is unparalleled, and his writings in the 1970s and 1980s serve as guidelines even today for further advancement in high-level conventional capability. A generation of Soviet and Russian military theorists was influenced by Ogarkov’s RMA, and this trend seems set to continue.\(^6\)

In Ogarkov’s RMA, conventional warfare was undergoing a *revolution* in its means and methods. This fact had important messages for Soviet strategy. The country could no longer rely solely upon nuclear deterrence. Increasingly in Ogarkov’s work and among his supporters there was reference to achieving progress toward non-nuclear deterrent capability. One commentary on Ogarkov notes: ‘He stressed the impact of new technologies associated with automated command and control, electronic warfare, precision strike, and weapons based on new physical principles upon the conduct of war’.\(^7\) The profound impact of Ogarkov not only on Soviet and subsequent Russian strategic planning but also on the creation of new capabilities in the US militaries should certainly not be underestimated.\(^8\)

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The idea of a conventional strike capability had become embedded already by the early 1990s. A statement issued by the Presidium of the Russian Federation Supreme Soviet On Priorities in Russian Federation Military Policy, dated 1 April 1992, reads as follows, ‘Forces with high-precision weapons and delivery systems for them should become the main factor of deterring large-scale conflicts and local wars from breaking out against Russia and the other CIS member states’.

**Russian interest**

If Soviet interest in such weapons systems was triggered by US usage in Vietnam and its potential strategic implications for Soviet defense planning, the next catalyst for late Soviet and Russian military officers and theorists was provided by the US and coalition use of precision weapons in the 1991 Persian Gulf War. The impact of this war on Russian military theory, however, was to some extent delayed by the hegemony of traditionalist Russian military analysts. This in particular concerns the work of the Army-General (retired) Makhmut Gareev. Gareev was in his analysis more guided by practice than military theory. He came to effectively represent the conservative military thinking of the Soviet military hierarchy. Gareev’s 1983 book on combined-arms warfare is a monolithic tribute to Soviet military conservatism. Other theorists such as Army-General I.E. Shavrov and Colonel-General M.I. Galkin were seeking to incorporate a wider intellectual framework into their analysis and work; military exercises for them were more than mere training but an opportunity to test and refine concepts. Equally, Shavrov and Galkin paid closer attention to war games and field testing equipment.

In the 1990s and early 2000s, however, a group of Russian military theorists provided ground-breaking studies that contributed to the development of ‘military systemology’ (voyennaya sistemologiya) in military science. This was a new discipline, relying on modeling and cybernetics to establish a relevant theory of combat systems among other forecasting techniques. A case in point is the late Major-General Viktor Riabchuk’s article in Voennaia Mysl’ in 2001 under the title: ‘The Theory and Praxis. The Theory of Military Science and the Methodology of Military Science’, [Voyennaya teoriya i

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Riabchuk was arguing against the accepted norms of the military establishment, and like him, Major-General Vladimir Slipchenko and Captain Edvard Shevelev became devout proponents of military systemology, which offered a greater role to information management in command and control. They advocated cybernetics and the RMA, arguing that the infusion of information systems into weapons had wrecked the traditional analyses of correlation of forces as a means of resolving combat outcomes in war gaming. They had modeled the US-led coalition operation to liberate Kuwait in 1991 (‘Desert Storm’) and achieved the correct outcome, although they wrongly anticipated greater coalition losses.

Slipchenko’s work in this area cannot be overestimated. As early as 1999 he argued that science and technological developments are the key variables that determine the type of warfare being conducted at any given time. He classified wars into six categories: from ancient wars (first-generation) to the use of advanced conventional precision weapons having the destructive potential of tactical nuclear weapons (sixth-generation). He suggested that sixth-generation wars would be denoted by offensive aerospace operations, led by unmanned aerial vehicles or UAVs and preceded by electronic warfare (EW) operations and with only a supporting role for ground forces. This development might render nuclear weapons obsolete, since operational and strategic objectives could be achieved by massive precision bombings.

Slipchenko noted in October 2002:

Any future war will be a non-contact war. It will come from the air and space. Guidance and control will come from space, and the strike will be conducted from the air and from the seas using a large quantity of precision weaponry.

Following the US-led intervention in Iraq in 2003, Slipchenko was a leading advocate of Russia adopting ‘network-centric warfare’ (setetsentricheskaia voina) capability, using the term bezkontaktnaia voina (‘non-contact warfare’).

An interconnected development in Russian military thinking since the RMA was expounded in detail by former Deputy Defence Minister Andrei Kokoshin, coining the phrase ‘non-nuclear deterrence’ (neyadernogo sderzhivaniya) or ‘pre-nuclear deterrence’ (pred’iadernoe sderzhivaniya), which in 2010 entered the lexicon of Russia’s Military Doctrine (see the following

16Ibid.
Thus, any realistic assessment of Russia’s continued and future interest in VTO must take account of the historical intellectual context in which it emerged. The country was and is ultimately driven by concern over maintaining strategic deterrence and developing new capabilities to meet modern warfare challenges through a range of potential conflicts.

The role of high-precision weapons in defensive operations — Protecting Russia

Plans to strengthen the combat capability of the Missile and Artillery Troops by 2021 by, among other factors, increasing the ratio of VTO in their armory, is an important factor in seriously activating the idea of the ‘pre-nuclear’ deterrence conventional component proposed by Andrei Kokoshin.

In February 2017, Colonel-General (retired) Vladimir Shamanov, the head of the Duma defense committee and former Commander of the Airborne Forces, said that the conventional element of the pre-nuclear or non-nuclear deterrence would depend on ‘quadrupling’ the size of the Rocket and Artillery Forces (Raketnyye Voyska i Artilleriya or RV&A) and specifically referred to high-precision weapons. In Shamanov’s view this would lessen Russia’s dependence on nuclear deterrence against a conventional attack. This was a follow-up to Defense Minister Sergei Shoigu’s statement in January 2017 that ‘the development of high-precision weapons may allow us to leave nuclear deterrence in favor of conventional deterrence’.

Pre-nuclear deterrence — From tactical nukes to conventional precision-guided missiles?

The Russian de-escalation strike doctrine emerged in response to the NATO bombing of Serbia in 1999. That out-of-area operation raised concerns in Russian security circles about how the United States and its allies might regard the second Chechnya War. Russian policy makers to date remain heavily influenced by these events, reinforced by the recent history of other

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alliance out-of-area operations.\textsuperscript{21} The military exercise ‘Zapad 1999’, with its ‘demonstration strike’ rehearsing a nuclear assault on alliance territory, embodied the whole concept of nuclear first use to ‘demonstrate’ intent to the adversary and coerce a solution. This has remained a feature of Russia’s strategic military exercises. Russian sensitivity to a sudden foreign attack is rooted in the historical events of June 1941 and rekindled by NATO’s air campaign in 1999 in the Balkans. ‘Vostok 2010’, for example, witnessed rehearsed use of nuclear land mines to stop rapidly advancing formations.\textsuperscript{22}

This section deals with Russian ideas of pre-nuclear deterrence and the relative roles of tactical nuclear weapons and conventional precision-guided missiles within that paradigm. Understanding the concepts to which Shamanov referred previously necessitates awareness of innovation though theoretical developments in Russia’s military doctrine, how these concepts are used, and the role they play in the wider context of Russia’s overall strategic deterrence. To do this, it is also necessary to understand the role played by tactical nuclear weapons in Moscow’s efforts to deter an adversary. A critical role in Russian nuclear capability and deterrence is played by sizeable numbers of Tactical Nuclear Weapons (\textit{Takticheskoye Yadernoye Oruzhiye} — TYaO). Consequently, Moscow has proved disinterested in overtures by Washington to discuss the complex issues related to a possible reduction or elimination of such weapons. Their numbers and locations on Russian territory are secret.\textsuperscript{23} TYaO capability in Russia’s military is inexorably linked to the development in late 1990s of the unofficial doctrine of ‘de-escalation’, meaning use of tactical or battlefield nuclear weapons to prevent further escalation. In Russia it is frequently referred to as ‘escalate-to-de-escalate’, since it involves perhaps a single first use of low-yield nuclear weapons. Although there is no clear support for this de-escalation strike principle in Russia’s recent military doctrines, either in 2010 or its updated version of 2014, there are no grounds to conclude that the Putin regime has abandoned this idea.\textsuperscript{24}

In recent years, an innovative element in Russia’s military doctrine is reference to non-nuclear deterrence. This has evolved from its earliest

\begin{itemize}
\item \textsuperscript{23}‘Russia Will Not Disclose Tactical Nuclear Weapons’ Quantities or Location’, \textit{Interfax}, 3 February 2014.
\end{itemize}
reference in the 2010 version to become more codified in the 2014 iteration. The concept is seen as a mixture of military and non-military mechanisms to convince an adversary that further escalation would entail too much risk. The concept has, at its heart, a conventional component, mixed with diplomatic, legal, information, and other features. However, Russian defense specialists have expressed concern that the doctrine of pre-nuclear deterrence would not be credible in the estimation of a potential adversary unless its conventional element itself is credible: Here, the reference is to VTO.25

Long before these references appeared at a doctrinal level, the leading Russian defense intellectual Andrei Kokoshin had expressed deep anxiety about over-reliance on nuclear deterrence. In 2003, Kokoshin published a book on nuclear conflicts in the 21st century that addressed strategic stability and the likely evolution of nuclear deterrence.26 He examined the risk of conflict among new members of the nuclear club and explored tensions on nuclear issues between the three main nuclear powers: Russia and the United States and the United States and China. Turning to the development of advanced conventional high-precision weapons, which could have an impact similar to nuclear weapons, Kokoshin concluded that there exist clear limits to nuclear deterrence and called for the Russian state to invest in the future development of a credible ‘pre-nuclear deterrence’.27 Yet Kokoshin did not see this as a fully fledged alternative to nuclear deterrence. He simply wanted to add an extra layer of deterrence to buy time during a crisis and avoiding further escalation. Elsewhere, Kokoshin reiterated his warning that excessive reliance upon nuclear deterrence could prove harmful or dangerous. By developing pre-nuclear deterrence based on conventional high-precision strike systems, this would act as a ‘last resort’, before nuclear use, and would be an important factor in preventing escalation dominance by the opponent.28

**Pre-nuclear deterrence in escalation dominance**

A number of factors appear to indicate that the Russian General Staff, though increasingly convinced of the need for pre-nuclear deterrence, do not believe they have developed this to credible levels. The first factor is the constant reference to nuclear deterrence throughout the Ukraine crisis to send a strategic message. The second factor is that if it is fully developed, there

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27Ibid., p. 90.

would be no underlying need to boost the VTO component of the RV&A. In addition, though Russian defense specialists have marketed the idea of pre-nuclear deterrence, there is no clear sense of where this fits into Russia’s wider deterrence strategy, especially in terms of escalation during a crisis and the need to maintain escalation dominance.

Other than patterns in Russian strategic military exercises involving recourse to rehearsal of ‘de-escalation’ strikes or the ‘pre-emptive’ use of Iskander-M, there is little to offer guidance on Russian perspectives on escalation. One exception is Sergey Brezkun, Professor in the Academy of Military Sciences, who attempted to address the lack of clear theoretical guidelines for the political leadership in relation to the risk of nuclear use during escalation. A similar lack of theory underlies the role of pre-nuclear deterrence. Brezkun outlined the work of the nuclear analyst Herman Khan in the mid-1960s, who examined the possibility of nuclear conflict by framing an ‘escalation ladder’, consisting of 44 steps and seven stages. Brezkun ridiculed that conceptual approach but suggested that the Russian leadership needs a ‘de-escalation ladder’ to help shape its decision making.29 It is important to note, in passing, that the Russian General Staff may not in reality think or react in terms of a ‘ladder of escalation’, more likely proving to be adaptive to the unique contours of a given crisis and seeking to control its escalation.

Brezkun returns to the theme of the ‘demonstration strike’, which has resonance for the likely use of conventional systems as part of deterrence and escalation control, and he argues that it must have the following features:

- The strike must be nuclear;
- It must minimize the risk of immediate or long-term catastrophic consequences (environment);
- It should be clearly interpreted by the other side and must be psychologically effective;
- It must demonstrate the willingness of the Russian leadership to further escalate the nuclear conflict, if necessary.30

The de-escalation strike’s effectiveness would depend on a number of factors, including how well the adversary is known, how their psychological reaction might influence decision making, and others. The author argues that a demonstration strike close to Russia’s borders, and in response to perceived aggression, would mean that the strike would be more acceptable to the international community. For the purposes of considering the de-escalation

30Ibid.
ladder, Brezkun suggests that this occurs in response to non-nuclear aggression against Russia by either a nuclear or non-nuclear state — its initial phase engaging Russia’s Armed Forces by non-nuclear means. The demonstration strike, which the author believes could follow within a period of only a few hours, would target enemy formations or aim to degrade the adversary’s military-economic potential. It is highly unlikely that de-escalation using conventional high-precision weapons as the preferred option would differ substantively.

Brezkun believes that there is no set of guidelines governing the potential demonstration strike to help guide Russia’s political decision-making apparatus in the event of such a crisis. The only caveat is that the Russian political leadership may be more familiar with the war gaming of these scenarios than Western counterparts. He suggests that such a framework is needed, but many of the themes arising from the de-escalation strike apply to pre-nuclear deterrence. Talk of ladders of escalation as a model in use by the Russian General Staff appears two dimensional. It is also unknown how Russia’s leadership or a future leadership would act in circumstances when it is judged that the conflict escalation dominance is lost.

The future credible emergence of Russia’s pre-nuclear deterrence will undoubtedly have important strategic implications, not least if it actually lessens dependence upon nuclear deterrence and in turn results in shift in policy over tactical nuclear weapons or the de-escalation strike issue. Moreover, it may have implications for future arms control negotiations and raises the issue as to how far Moscow might be willing to go in such a process, especially after considerable investment in design and development of conventional high-precision weapons with increased range and accuracy.

There is also a whole swathe of questions that emerge from the Russian pre-nuclear deterrence theory applied in an escalating conflict. At what point does this come into play? Is the use of conventional high-precision weapons seen by both sides as a ‘last resort’ warning of nuclear escalation to follow? How is the detectable launched missile perceived by the adversary; with minutes to decide on a response, how is the adversary to determine if the warhead is conventional or otherwise? Is this a single launch, like a demonstration strike, or would it be part of a wider campaign to target enemy C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance)? If so, how is the adversary to know that the intent to go nuclear is missing from the unfolding escalation?

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31 Ibid.

The role of high-precision weapons in offensive operations – Enforcing Russia’s will

This section investigates how Russia may use VTOs in regional conflicts where the country wants an opponent to change its policy on one or more topics. Russia may in fact still in certain situations see such operations as defensive, but the potential victim and large parts of the international community are likely to see them as offensive.

While Russia may choose to use VTOs against a wide variety of regional opponents, the discussion here is limited to the potential use of such weapons in a bilateral conflict with a NATO country. The probability of collective NATO response has consequences of its own for the Russian strategic calculations that are different from what would be the case with non-aligned countries.

The Russian literature on VTOs is dominated by the questions raised in the previous section. For example, in terms of cruise missiles, Dennis Gormley points out that while US specialists tend to focus on the tactical strike capabilities of cruise missiles, the Russian specialists tend to prioritize their strategic strike capabilities. Still, some of the Russian writings are also concerned with how Russia could use VTOs in regional settings. In fact, the head of the Russian Center for Military and Political Studies at MGIMO University, Alexei Podberezkin, thinks that

The arrival of new non-nuclear arms (PGW) first of all means that the whole approach to military force as an instrument of foreign policy is changing. Military force is again about to become a more normal and ‘usable’ foreign policy instrument. Furthermore, this is true, first of all, in regional and even ‘local’ conflicts.

Thus, Podberezkin predicts both that the resort to military forces for political purposes becomes more prevalent because of the availability of VTOs, and in contrast to much of Russian writing on the issue, he emphasizes their particular relevance in regional and local conflicts. In a similar vein, V.I. Litvinenko and I.P. Rusanov argue that if you fight the enemy’s forces in order to impose your will upon him, VTOs make it much easier to strike against the right mix of military and civilian targets at different locations within his territory.

Podberezkin’s thinking echoes statements made by Western scholars. Thomas H. Mahnken, for instance, argues that

Because invasion and conquest are becoming increasingly difficult, wars in a mature precision-strike regime will likely focus on coercion and limited political objectives. In this world, the ability to punish an adversary to force him to concede — what Thomas Schelling dubbed the ‘power to hurt’ — is likely to become an increasingly popular theory of victory.36

Why go through the strains and complexities of putting boots on the ground when you are at least as likely to achieve your political goals vis-à-vis this enemy by using or threatening to use VTOs from afar?

Despite the constant military-theoretical focus discussed previously, the actual development of Russian VTOs in post-Soviet times has until recently been slow. Several programs for development were initiated in the 1990s and 2000s, but according to Dmitry Kornev, Russia up until 2010 had no cruise missiles with conventional warheads in service.37 After that, however, it took only five years from their procurement until their first use in Syria in the autumn of 2015.

Still, even now that Russia has acquired this capability, there will remain a number of questions concerning their usefulness for offensive regional political purposes. These uncertainties in particular concern such issues as targeting, costs, and production capacity, and when and how they are most likely to lead to the desired political outcome. In addition, the Russian leadership will also have to consider the pros and cons of VTOs against the pros and cons of other military capabilities at hand for achieving the same goals.

**Targets**

Two targeting issues are of particular importance with regard to the effect of using VTOs in bilateral conflicts. First, it is a question of whether one should give priority to military or civilian targets, and second, it plays a big role whether one needs to engage targets that are stationary or mobile. The latter are a magnitude harder to hit than the former.

Slipchenko was very clear that civilian targets would be the main priority in future war.38 This was both because they tend to be stationary, thus easy to hit, and because they potentially could have even greater effect on the political will of the opponent than military ones. This latter point may of course vary with the opponent. Leaders of some countries may be less averse to civilian losses than the leaders of other countries, but it seems fair to assume that the leaders of most NATO countries will be very adverse. Slipchenko’s convictions on this point continue to feature in the Russian

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37D. Kornev,'Russian High-Precision Weapons in Syria', Moscow Defence Brief, no. 3 (2016), p. 15.
38V. Slipchenko,Voiny novogo pokolenia — Distantsiionnye i bezkontaktnye, Olma-Press, Moscow, 2006, p. 94.
military debate. S.G. Chekinov and S.A. Bogdanov, for example, emphasize the expanded opportunities VTOs give to ‘strike in a selective and measured way a wide range of targets of the opponent’s economic and military infrastructure’.\textsuperscript{39}

Mobile targets, however, represent a far more difficult challenge than stationary ones. The former can also be taken out by VTOs. However, as pointed out by Davit Watts, the successful destruction of mobile targets demands effective battle networks that ‘have proven extraordinarily difficult to establish and sustain under actual combat conditions’.\textsuperscript{40} While there is now little doubt that Russia possesses several types of VTOs, the country is at least as likely as the United States to struggle to establish and sustain the battle networks necessary for these munitions to successfully strike mobile targets. This is probably true despite the Russian advances in system integration with the help of the GLONASS system recently demonstrated in Syria.\textsuperscript{41}

Some observers compare the Russian first use of cruise missiles in 2015 to the US use of similar missiles in the first Gulf war and draw the conclusion that Russia roughly is on the technological level in this area that the United States was in 1991. If the United States in 2013 still found it challenging to establish and sustain effective battle networks for use against mobile targets, it is reasonable to assume that this currently is even more difficult for Russia.

\textbf{Costs and production capacity}

Because of their price, many VTOs, and in particular cruise missiles, are likely to continue to be a capacity in limited supply, even for great powers. Russian Defense Minister Sergey Shoigu has promised that Russia will increase its stock of VTOs 30 times by 2020,\textsuperscript{42} but Barry D. Watts writes that ‘even in the case of very inexpensive PGMs [Precision-Guided Munitions], resource constraints and institutional preferences can confront even a major power with the prospect of running out during high-intensity operations.’\textsuperscript{43} If this is true for the United States, it is, despite Shoigu’s promises, most likely true also for Russia. It is a question both of costs and production capacity.

For example, the \textit{Kalibr} missile has only one producer — Novator in St. Petersburg. According to military observer Sergei Ischenko, in the first six months of 2016 \textit{Novator} was able to provide the Russian armed forces

\begin{footnotesize}
\begin{enumerate}
\item B.D. Watts, 2013, op.cit., p. 23.
\end{enumerate}
\end{footnotesize}
with 47 Kalibr missiles. The same author has calculated that with the current plans for naval platforms to carry Kalibr missiles, Russia will need about 1,500 missiles ready for service at any time. That number should further be multiplied by three or four in order to have enough missiles for testing and training. Thus, if Russia will need about 5,000 Kalibr missiles to fully supply all naval platforms that are supposed to carry this weapon, then a production rate of between 50 and 100 a year is not much. Of course, Russia may decide to expand the capacity of Novator or branch out production also to other facilities, but that will take resources away from other procurement plans.

Ischenko’s calculations may not necessarily be accurate, and other companies in the Russian arms industry also produce cruise missiles of similar use, but the main point here is that both price and production restrictions will be part of the calculations when Russia decides where and how to use such VTO weapons in regional conflicts. The use of these missiles in the Syrian conflict should not necessarily be seen as a blueprint of what is to come. Their deployment in that fight was not justified first and foremost by their military impact on that particular conflict. Instead, the main reasons for their use were probably to combat test the missiles themselves and to attempt to boost Russian great power status.

Much will of course depend on the character of the regional opponent. If, as in the case of rebel groups in Syria, the opponent is without air and missile defense, and without powerful allies that may come to his rescue, then a relatively minor number of missiles may be enough to achieve the political goals. However, if the opponent has some capacity for defense against VTOs, and if there is a chance that the conflict will escalate through the involvement of the opponent’s allies, then the calculations become very different. In this case, Russia will need to be able and ready to expend enough missiles to overwhelm the opponent’s anti-air and -missile capabilities, while at the same time keep enough in reserve to be ready for possible conflict escalation. This situation puts a much higher price on the use of such missiles in the types of conflict discussed here than was the case in Syria.

**Political effects**

To what extent the use of VTOs is likely to result in Russia achieving its political goal(s) in any particular regional conflict is, as discussed previously, dependent both on the character of the opponent and the conflict. Decentralized, relatively low-tech opponents, such as in Syria, with a high readiness to sustain losses, may not be the best targets for

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the use of high-cost VTOs. A similar point has been raised with regard to then-President Obama’s use of Tomahawk cruise missiles against ISIL in Eastern Syria in 2014.\textsuperscript{45}

On the other hand, regional opponents with a high number of stationary high-value targets are more promising. The US use of cruise missiles in the initial stages of the 2003 Iraq war may be an example here. Opponents with a much lower acceptance of both material and human losses than terrorist groups such as ISIL would especially be ideal. In this sense, advanced NATO countries may provide far more promising targets for the use of high-cost VTOs than opponents similar to the anti-Assad forces in Syria.

Such reflections can also be gleaned from the Russian debate on VTOs. Chekinov and Bogdanov see European countries as especially vulnerable in this regard. This is because they ‘contain an especially high density of targets that are essential for their societies to function’\textsuperscript{46}. Here, these authors in particular include systems of civilian and military governance, major industrial and energy-related facilities, critical communication objects, and targets that can create considerable damage if hit, such as nuclear and chemical plants.\textsuperscript{47} Litvinenko and Rusanov follow up by pointing out that the aims of such attacks are not necessarily to create as much destruction as possible but instead to crush the opponent’s morale and willingness to fight back by striking where he is the most vulnerable.\textsuperscript{48}

An issue here is also whether surprise attacks or threats of attacks would be the best option. A surprise attack is obviously likely to be the most military destructive, but it may not be the best option in terms of ‘crushing the opponent’s morale’. In case of surprise, damage precedes negotiations, and this is likely to incur in the opponent a desire for revenge. While Russia’s opponent still has to fear further attacks, especially because there will no longer be any reason to doubt the attacker’s willingness to use these means, the outrage in the target country about what has already take place may be stronger than the fear of new attacks.

It is furthermore not entirely clear what the effects of a surprise attack with VTOs may be on allies if the target country is a NATO country. On the one hand, damage has already been done, and alliance guarantees cannot undo that. If allies then conclude that further attacks are unlikely, they may find that there is little they can do about the situation and decide against intervening. On the other hand, the target country is not likely to give in to the political demands unless the surprise attack is followed up with threats of more attacks. In that case allies will most likely get engaged, since use of force has already taken place and more may come.

Alternatively, if Russia instead of surprise only threatens with the use of VTOs, the opponent will have time to make preparations that will reduce the impact of the attack. Thus, the potential damage is reduced. If the opponent has military allies, these may also mobilize. This means that the downsides for Russia of starting by only threatening to use VTOs are both that the potential military effects of their use may be reduced and that the opponent’s allies will have time to mobilize. Together, these two factors substantially increase the potential costs of this kind of aggressive behavior. On the other hand, the certainty that allies will come to the rescue of the attacked country may be smaller than in the case of a surprise attack. Military action has not yet taken place, and allies may conclude that there is still room for a political settlement. Thus, they may put the target country under substantial political pressure to reach a settlement to avoid escalation. The extent to which allies may engage in such behavior is of course dependent on the character of the Russian political demands. The more these are seen as unreasonable, the less likely allies are to pressure the government of the target country and the more likely they are to initiate military preparations for assistance.

It is not clear from this discussion whether surprise attack or threats of attack would be the best option for Russia. It is further interesting to note that discussions of this dilemma also seem rather absent from the Russian military literature on the use of VTOs. At least, that is the case for the open-source literature that has been available to the authors of this study.

**VTOs vs. boots on the ground**

Instead of VTO ‘contactless’ warfare, it is of course also possible to use old-fashioned temporary control of enemy territory to force through a political settlement favorable to Russia. This is, for example, exactly what Russia is trying to do in Ukraine today, although there the intervention is partly disguised as a Ukrainian civil war. If Ukraine concedes to the Russian demands for federalization of the country and declaration of neutrality (i.e., no to joining NATO), Russia will most likely pull out the troops and advisors it now has in Donbas. The fact that this use of limited war was possible to partially disguise as a civil war was probably one of the main reasons for the choice of this particular type of warfare. This means that boots on the ground is more suitable for Russia in some settings than in others.

Moreover, Russian theorists and senior officers tend not see VTO ‘contactless’ warfare and boots on the ground as in any way mutually exclusive. On the contrary, several writers see a combination of the two as especially

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49This is not to deny that there is a significant element of civil war in the Donbas conflict. Indeed it is, but the shots are still called in Moscow, and the rebellion would most likely by now have been defeated by the Ukrainian military unless held up by Russia, including with the on and off use of regular Russian troops.
promising in situations where Russia is in need of military force to achieve political ends.

It should be noted that there seems to be an increasing trend in the Russian military literature to question the usefulness of ‘boots on the ground’. In fact, several authors in the contemporary Russian military literature emphasize the likely diminishing role of this type of warfare. For example, Litvinenko and Rusanov write that ‘one of the main tendencies in contemporary warfare is the relative decline in the importance of traditional land forces, and the rise of VTOs and others weapons based on new physical principles’, ⁵⁰ and Chekinov and Bogdanov state that

Such measures as seizure and holding of enemy territory will no longer always be necessary. That strategy will be reserved only for those cases where the political gains can be achieved with minimal military losses, or where the strategic goals cannot be otherwise achieved. ⁵¹

These writings do not at all suggest that seizure and control of enemy territory is rendered obsolete by VTOs, but they do suggest that VTOs are emerging as a very significant alternative to land seizure for pressuring foreign governments.

If Russia was to use land forces instead of VTOs to get its way in a regional conflict, speed would probably still be of the essence. Outpacing the enemy is almost always an advantage, and this is especially the case where there is a significant chance that the conflict could escalate through the involvement of enemy allies. The faster Russian troops could establish a fait accompli on the ground, the more likely it is that potential allies may have second thoughts about getting involved. In terms of NATO members, any uninvited Russian boots on the ground would be a cause for allied assistance under Article 5, but such assistance is never automatic. In particular, one could imagine at least three conditions under which allies may be reluctant to forward such assistance:

- If the Russian political demands to some degree were seen as justified by allied countries;
- If Russia stated clearly and convincingly that no further use of force is contemplated;
- If Russia established anti-access capabilities (A2/AD) around its military presence that significantly increased the potential military costs of allied engagement.

The question is then what military capabilities, other than VTOs, Russia would find best suited to succeed with such an operation. The rather obvious

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answers would probably be Special Forces, if we are talking about a limited object or a range of objects, or the Airborne Forces if we are talking about a larger object or piece of territory.

**VTOs in combination with special operations forces**

Russian special forces, and in particular the newly formed Special Forces Command *Sil Spetsialnykh Operatsii* (SSO), would be ideal for limited operations of this kind. In fact, one of the main reasons for the establishment of the SSO was to give Russian politicians a highly potent military instrument to defend Russian interests in situations where some military force is needed but where the likelihood of further military engagements is relatively limited. However, these forces do not have much capacity for self-defense if engaged, and given enough time, their defeat would probably be within reach of many countries. Thus, successful use of Special Forces alone in a limited war scenario would be the best option mostly in situations where the target country needs to find a solution to the political problem faster than it can bring its own forces to the theater of operations.

Another possibility for the use of Special Forces discussed in the Russian literature is to combine the use of such forces with VTOs. This includes both their role in pre-combat reconnaissance, in aiding VTOs to their targets, and their ability to enforce the opponent’s feeling of being attacked everywhere at the same time. Chekinov and Bogdanov point out that simultaneous use of VTOs and sabotage-reconnaissance groups on enemy territory may be a particularly efficient way of demonstrating to the opponent country that opposing Russian demands has serious consequences.

**VTOs in combination with the Airborne Forces**

For larger, but still limited, operations, the Airborne Forces are a very relevant capability. According to Rod Thornton, these forces are likely to ‘form the vanguard for any interventionary operation beyond Russia’s border’. According to Russian officers O. S. Tanenia and V. N Uriupin, the Airborne Forces’ main roles, independent of whether they operate alone or as part of a larger operations, are:

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• Destruction of the opponents’ ability to perform governmental and military functions;
• Destruction of important military, economic, or communication objects;
• Prevention of the movements of strategic and operational reserves, and others.\textsuperscript{56}

Under Colonel-General Vladimir Shamanov (2009–2016), the Russian Airborne Forces were supplied with capabilities that made them more able to conduct operations on their own than previously. At the same time, I.I. Vorobiev and V. A. Kiselev point out that despite their increased strength, these forces are still mostly a military tool for conflicts with significantly weaker opponents. In conflicts with peer-like opponents, especially if these possess advanced fighter aircraft and strong air defenses, the use of the Airborne Forces is less advisable.\textsuperscript{57} This fact for some time led the Russian General staff to suggest that the Airborne Forces first of all should be an anti-insurgency instrument.\textsuperscript{58} However, in 2012 General Shamanov firmly stated:

The argument that the airborne forces first of all should be used against irregular formations — militants and partisans — has no foundation in reality. Our enemy is as before, regular, well-armed and well trained troops. This fact is independent of whom they belong to.\textsuperscript{59}

This means that the Airborne Forces will most likely continue to have a significant role in Russian doctrines for how to fight in regional conflicts. Their main advantage over a VTO attack would be that they could, if successfully deployed, establish the necessary political pressure on a target government with at least initially very little destruction. Contrary to the situation with the use of VTOs, it would be up to Russia’s opponent to initiate combat. This was in essence what happened in Crimea in 2014. A combination of Special Forces, Airborne Forces, and other support elements took control over the peninsula in a surprise attack, and the Ukrainian government in the end decided not to fight. In the case of a surprise VTO attack, on the other hand, the target government will not have the possibility to avoid serious damage by choosing not to fight. Such damage has already taken place. They will of course have the option of avoiding further damage by accepting Russian demands, but that is still a very different situation from having the possibility of avoiding damage more or less entirely. Accepting Russian demands will be more tempting in the latter case.

Furthermore, as in the case with the Special Forces, Russian military analysts also here see the combination with VTOs as especially potent. O.S.

\textsuperscript{57}V.A. Kiselev and I.N.Vorobiev, 2016, op. cit., p. 19.
\textsuperscript{59}Ibid.
Tanenia and V.N. Uriupin emphasize this as one variety of an operational concept they call ‘all-round support of VDV operations’. It may be, however, that these considerations are mostly valid in scenarios where significant conflict has already commenced and not in the context discussed here, where Russia tries to use limited force very quickly to gain political concessions and at the same time avoid further military escalation.

**Conclusions**

As demonstrated by this study, Russia has long considered high-precision weapons an indispensable element of modern warfare. In fact, some of the pioneer thinking on how these weapons would impact future combat was done by Russians. Their problem was that they were thinking on behalf of a country that fell apart. The economic collapse of the 1990s, combined with strongly improved relations with the West, made the indigenous development of VTOs both financially difficult and politically less necessary. However, the ascent of the Putin era gradually changed this situation. Russia experienced strong economic growth throughout the 2000s because of high oil prices, and the country’s relations with the West gradually deteriorated. In 2011 Russia tripled the funds set aside for military procurement, and in 2014 Russia annexed Crimea and instigated an armed rebellion in Eastern Ukraine.

In the post-Maidan world, high-precision weapons are a main priority in Russian military modernization. While neither the production capacity nor the technological sophistication are currently at Western standards, there is little doubt that the Russian arms industry is able to deliver at least to a considerable extent what the military desires in terms of VTOs. Nevertheless, VTOs are expensive to produce in Russia as elsewhere. As discussed, no country, including major powers, is going to have an unlimited supply of these weapons any time soon. This means that in most contingencies considerations of cost and availability will have to figure in the discussions of how and when to use VTOs.

Furthermore, the role of VTOs is still subject to ongoing experimentation and discussion within the Russian military. They may be used alone, but more likely their utility in future conflicts will be calculated based upon how they blend into a force mix tailored to suit the needs of the operational environment in question. Thus, their role as force multipliers has been accentuated by several Russian theorists. In particular, their use in combination with Special Forces and the Airborne Forces has been emphasized.

In 2015, Russia for the first time used long-range cruise missiles in combat. The sea- and air-launched missiles used against targets in Syria

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demonstrated to the world that Russia both had and was willing to use this capacity. Their military utility in that particular conflict has justly been questioned. Russia could easily, and more cheaply, have destroyed the same targets with its own fighter aircraft stationed in the area. However, as a demonstration of the new capacity, they did their job. Russian sources suggest that in this case the Russian political leadership itself was impressed by the performance. Sergei Ischenko indicates a certain *Kalibr*-fetishism in Russia after the launches against Syria.  

Thus, based on this, it should be no surprise that VTOs currently figure prominently in Russian military thinking. They now have a prominent place in the plans for the defense of the country, and as stated previously, Defense Minister Shoigu has even alluded to the possibility that they in the future may supplant nuclear weapons as the main means of deterrence. This is not at all an immediate prospect, and nuclear weapons are still the mainstay of Russian deterrence, but the fact that this possibility has been publicly proposed says something about how important these weapons are seen in Russia today.

For the foreseeable future, however, the VTOs will mainly provide Russia with what in the Russian literature is called a ‘pre-nuclear’ deterrence capability. This is basically just another layer of deterrence in addition to the nuclear weapons but still seen as being of vital importance by the Russian military. The 2008 Serdiukov military reforms to a large extent singled out nuclear weapons as more or less the only deterrent against the West. This strategic choice was never very popular with the officer corps. They thought that overreliance on nuclear weapons would limit Russia’s room for maneuvering in a potential conflict with the West to an unacceptable degree. To put it starkly, if a conflict should occur, Russia would have the choice of doing nothing or start Armageddon. This was the reason why conventional deterrence was reintroduced in the new edition of the military doctrine in 2014. In this context, VTOs fit very well into the renewed emphasis on non-nuclear capabilities.

In fact, the VTOs’ role in strategic deterrence to a large extent dominate the Russian military literature on this issue. As pointed out by Bruce Watts, this is to some extent in contrast to the thinking on VTOs in the United States, which tends to be more occupied with their tactical than strategic utility. However, the Russian military literature also to some extent discusses the tactical side of VTOs, and here we may talk about a more offensive use of these weapons. The Russian military analysts who write about the tactical aspects in particular propose that:

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With the advent of VTOs the use of military force may again become a more normal and usable instrument of foreign policy (Podberezkin);

- VTOs may be particularly efficient in conflicts with highly developed countries because of their high number of targets critical for the functioning of their societies and because of their loss-averseness (Chekinov and Bogdanov; Litvinenko and Rusanov);
- VTOs may be efficient in local conflicts on their own, but their combination with other forces, first of all Special Forces or the Airborne Forces, would probably be better.

Still, as discussed previously, there are likely to be many dilemmas in terms of targeting, timing, and cost-benefit analysis that make the potential use of VTOs in regional conflicts far from straightforward.

We have in this study analyzed Russian thinking on the role of VTOs in future combat. We have also discussed their priority in military procurement, and we have tried to estimate how their introduction is likely to impact future Russian military operations — both defensive and offensive. Many of the questions raised will undoubtedly be in need of further research and the conclusions presented in need of further refinement, but our hope is that this study will provide one useful point of departure for such investigations and revisions.

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