PERSPECTIVE

ASP
American Security Project

National Security & America's Space Challenge

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IN BRIEF:

- America's long-term strategic advantage and economic security depend on space policies creating safe, reliable and affordable satellite launch capabilities.
- Russia's incursion into the Crimea provides an opportunity to reassess the national security implications of current space programs.
- The U.S. aerospace and defense industry currently has the capability to revitalize America's space initiatives, particularly with commercial entrants.
- Rather than buying or licensing Russian rocket engines, the U.S. government should aggressively seek domestic alternatives. This is an opportunity to boost the aerospace industrial base and American competitiveness.
- American competitiveness and aerospace know-how depend on encouraging private sector investment in defense and space engineering.

NATIONAL SECURITY AND SPACE

Introduction

During the Cold War, Americans looked to the heavens and grappled with near-existential questions about our country's pursuit of technical superiority over its primary foe, the Soviet Union. The emerging space domain was, to use the phrase later popularized by the Star Trek series, the final frontier. The Soviet Sputnik satellite launch in 1957 jolted the American political consciousness and dented a sense of inevitable technological advantage in the post-war world. Space quickly became the high ground militarily, technologically, and morally speaking for the United States to take back.

Five years after Sputnik's orbit, President John F. Kennedy made clear that America's future in space was intertwined with its destiny as a nation. "In short, our leadership in science and in industry, our hopes for peace and security, our obligations to ourselves as well as others, all require us to make this effort, to solve these mysteries, to solve them for the good of all men, and to become the world's leading space-faring nation," he said during a speech at Rice University.[1]

Those words ring true today. Yet more than 50 years since President Kennedy's speech, space is essentially an afterthought to most Americans. For example, elementary schoolchildren no longer pause their day to watch a Space Shuttle launch since the program ended in 2011. However, many would be lost, literally, in their daily lives without the ability draw upon the GPS constellation for directions or satellite TV to follow favorite sports teams.

The U.S. military and intelligence community is even more dependent on its satellite capabilities, much of it classified, to do everything from securely communicating to targeting precision weapons. Billions of taxpayer dollars are spent trying to expand and protect this strategic edge.

Unlike the public, military planners cannot afford to take space for granted, nor can they cede ground to the foe that has dogged the Pentagon and NASA since the start of the Space Age: affordability.

Space remains the strategic high ground, and after more than a decade of war in the Middle East and Central Asia, it is important to acknowledge the direct tactical connections to America's armed forces. As remotely piloted aircraft become a staple of U.S. military and intelligence operations, their links to pilots thousands of

miles away depend on satellite technology. This is just another indicator that as America navigates a post-war period, U.S. power cannot be measured in the 21st Century without accounting for the safety and security of our military space access.

Strategic risks

As Russian forces drive the Ukrainian military from the Crimea, the increasingly tense situation offers an avenue to look at the some of the strategic vulnerabilities that have been allowed to develop in U.S. space policy.

Among the current ties, the U.S. relies on Russia to ferry astronauts to the International Space Station. There is an obvious shared interest in the scientific virtues of space research that so far transcends any geopolitical machinations.[2] Hopefully, that will continue without interruption.

In another less visible area, it is far easier to understand the risks of relying on a nation that changes its relationship to be a partner or a problem depending on what suits its opportunistic leadership in Moscow.

The Defense Department has potentially jeopardized its space-based military and intelligence advantage by relying on Russia for a critical element: the main engine on one of the Pentagon's key space-launch vehicles. The slowly tipping balance toward a simmering, steady state antagonism in the international arena between Russia and the U.S. should worry officials responsible for safeguarding America's strategic edge.

In this case, the Pentagon relies on Russia's RD-180 main rocket engine to power the Atlas V rocket, part of a joint venture program between U.S. companies contracted to send America's most secret satellites into orbit. The liquid propulsion RD-180 engine is manufactured by Russia's NPO Energomash, which is essentially state owned. Even as Russian forces lock down the Crimean peninsula, the Air Force is currently counting on an Atlas V rocket powered by the RD-180 for its latest launch of a classified National Reconnaissance Office satellite. Such space-based assets monitor troops massing on a border or intercept battle plans as they are being hammered out between generals.

"I don't think it takes much more explaining to see why having these programs launch on Russian engines isn't just counterproductive, but also a direct link to U.S. insecurity in the international community," said American Security Project Chief Executive Officer Steve Cheney.[3] "When considering the key role that NRO satellites have played in history, this fact is more than simple irony, it's an undermining of our nation's security for the sake of the status quo."

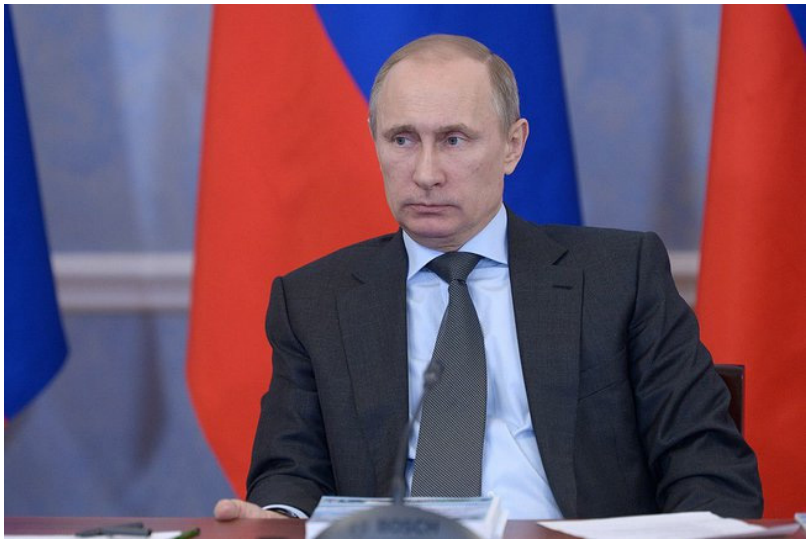
Threats from above and below

If the U.S. finds itself in an escalating confrontation with an adversary such as Russia, perhaps over Ukraine itself and not just the Crimea, or a spat with China over territory in the Pacific, then it would be forced to confront a very difficult situation. Both countries have demonstrated anti-satellite capabilities with clear intentions, according to U.S. policymakers.

"Chinese and Russian military leaders understand the unique information advantages afforded by space systems and are developing capabilities to disrupt U.S. use of space in a conflict," wrote Director of National Intelligence James Clapper in an unclassified 2014 threat assessment.[4]

Were such anti-satellite operations to be conducted against U.S. assets on a large scale, the effect on American warfighting and intelligence gathering capabilities would be devastating. When a key satellite is damaged or destroyed, a replacement should be launched as soon as possible.

This puts the U.S. in a bind. With one hand, Russia is supplying the U.S. with critical technology and hardware for our military satellite launch program. With the other, it is actively working on technologies designed to destroy and degrade those very systems. That is because being able to rapidly place military satellites in orbit is a battlefield discriminator today.



One of the strongest cases for reconsidering Russia's reliability comes from President Vladimir Putin himself. As he told Russia's parliament March 19, "we have every reason to assume that the infamous policy of containment, led in the 18th, 19th and 20th Centuries, continues today. They are constantly trying to sweep us into a corner because we have an independent position, because we maintain it and because we call things like they are and do not engage in hypocrisy. But there is a limit to everything."[5]

Relations look to get worse before they improve, if at all. That they should escalate to the point of open conflict is not the

immediate concern. The tit-for-tat sanctions are certain to become more biting for both sides and risk fouling once stable relationships.

Moreover, America's European allies have not missed the historic scope of the current crisis as portending something potentially more difficult to manage during the coming years. "This is the most serious risk to European security we have seen so far in the 21st Century," wrote British Foreign Secretary William Hague in a recent Daily Telegraph editorial.[6]

Aerospace and defense industrial implications

The Russian situation in Crimea, which evokes memories of the 2008 incursion into Georgia, also forces U.S. policymakers and aerospace industry executives to reassess fundamental assumptions and the realities of the current American defense and aerospace industrial base.

Currently, the U.S. uses two different rockets to launch its military satellites under a contract called the Evolved Expendable Launch Vehicles (EELV) program run by the U.S. Air Force. The Delta IV rocket uses a U.S.-made engine while the Atlas V relies on the Russian RD-180. Launches are split up between the two designs.

The Air Force accepts the use of the Russian engines because they are proven to be reliable and the idea of developing an alternative has been batted down as too costly an investment. Earlier commitments to produce the Russian design in the U.S. never panned out, leading to the continued import today.

U.S. officials are starting to say they aware of the potential for problems with RD-180 supply. Defense Secretary Chuck Hagel has told Congress the department is looking into it.[7] This is an important step, but one that risks being outpaced by a truculent Putin. Thinking that because something will not become a problem because it is not yet one is a sign of the kind of short-term mindset that undercuts American strategy.

American officials continue to place confidence in Russia's willingness to supply U.S. companies with the engines necessary to continue launching American military satellites. There is also the matter of cost. Producing the RD-180 under license in the U.S. would cost approximately $1 billion.[8]

While some may see licensing as an appealing short-term solution, it overlooks the benefit of encouraging competition and contributing to improving American competitiveness by investing that taxpayer money in U.S. capabilities, not Russian industry.

Weighing competition

Fortunately, if the Defense Department is spurred to act by a reframed view of Russia's role in U.S. military space efforts, it will do so amid signs of progress that the U.S. government is at least attempting to capture the dynamism and potential efficiency of having more players compete for military space launch contracts.

The Government Accountability Office recently looked into the Defense Department's progress introducing more competition into U.S. space launch, particularly the EELV program.

"According to DOD, the EELV program was focused on mission success in the ensuing years, until 2010, when DOD officials predicted EELV program costs would increase at an unsustainable rate," the GAO wrote in a recent report. "In light of new EELV program costs estimates, DOD recognized the need to reorganize the way it acquired launch services." Approximately $9.5 billion has been budgeted for the program during the next five years, according to the GAO.[9]

The tally rises in the coming decades, and so do the stakes for taxpayers. Some $70 billion will be spent through 2030, the GAO found, citing Defense Department cost estimators.[10]

It is an admittedly tricky balance between risk and surety when launching satellites that can take years to build and cost billions of dollars to develop. The only thing worse than an adversary destroying a satellite would be losing one during a botched launch. But even the pursuit of perfection can go too far, more so in the current budget climate where a dollar spent unnecessarily on an unneeded capability means a dollar taken away from another vital program. For the U.S. Air Force, weighing costly aircraft programs such as the Long-Range Bomber and the Joint Strike Fighter, there are many trades to be made in the coming years, and it is through such a lens that this issue can also be seen.

The economic challenges for companies examining the business case for the space launch market are very real. When it comes to launching U.S. military satellites, there is essentially one customer that has a demanding sweep of regulations and rules. Trying to take a business model for a government customer to the commercial satellite launch market can be a very tough sell because of costs. Moreover, increasing global competition for satellite launch capability is forcing U.S. companies, as well as those in Asia and Europe, to focus on driving down price.[11]

Fortunately, the Defense Department has options in the commercial sector that comply with the strict rules on sourcing U.S. launch capabilities; the Atlas V use of the RD-180 is allowed an exemption.[12] Considering alternatives from the commercial space launch market requires revisiting assumptions about the flows of technology to and from the commercial market, a dynamic at the core of the future of the defense industry and American competitiveness.

Conclusion

At a moment when the stage has been dramatically set for a degraded relationship with Putin's Russia, it is time for the Defense Department to push harder to ensure safe, reliable and affordable U.S. access to space.

This goal seems a pragmatic one. But, as President Kennedy tied our efforts with the space program to larger national values and ambitions, solving this problem is about much more than a fix for bad policy. America needs to be the kind of country that leads in the development of such aerospace technologies. This is about national narrative and identity as much as engineering, making it a matter of national security as well as American competiveness. Forfeiting our will to tackle the kind of hurdle Putin's Russia presents is not an option. Our country should be one that can quickly bring to bear its most innovative and effective elements when faced with an obvious challenge to its national security.

Doing so requires investing in U.S. technology and research and development, deepening the commitment to competition within the government space sector, and ensuring a truly independent military launch capability.

Moreover, Putin may run again for president in 2018.[13] Questions about Russia's regard for the international system have shifted from wondering if an incursion such as the Crimean operation will happen again to when and where the next one will be. Meanwhile, if the U.S. is to stay ahead of such developments, one thing is sure: space assets will play a crucial role.

About the Author:

August Cole, a writer and analyst specializing in national security issues, is an adjunct fellow at the American Security Project. From 2007 to 2010, August reported on the defense industry for the Wall Street Journal. He has also worked as an editor and reporter at MarketWatch.com where he covered the aerospace and defense business, among other responsibilities. August is also a member of the International Institute for Strategic Studies.

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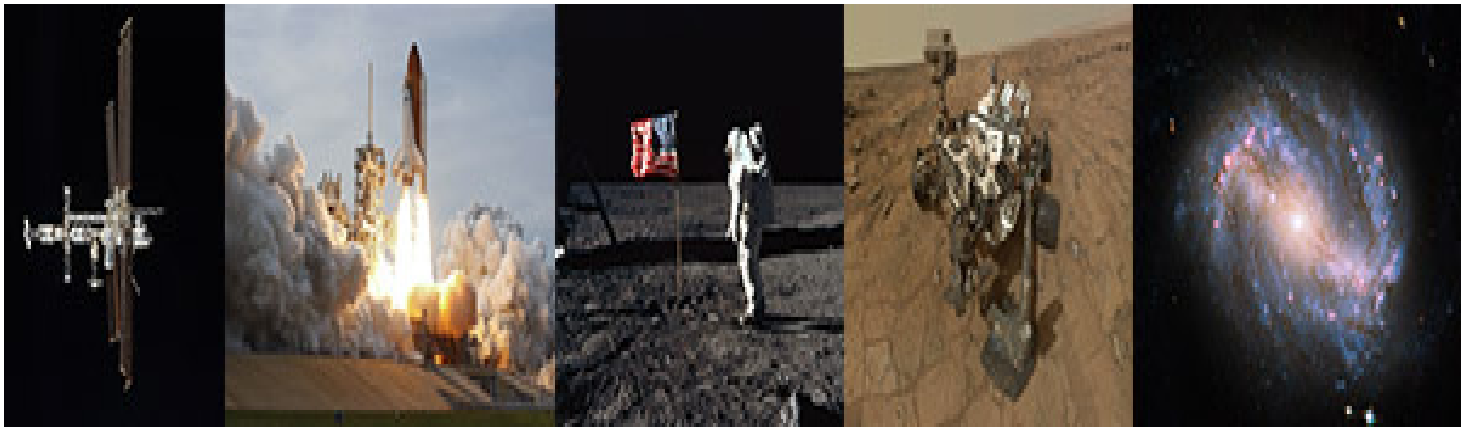

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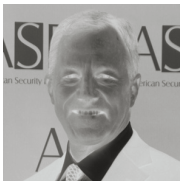

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Gone are the days when a nation's security could be measured by bombers and battleships. Security in this new era requires harnessing all of America's strengths: the force of our diplomacy; the might of our military; the vigor and competitiveness of our economy; and the power of our ideals.

We believe that America must lead in the pursuit of our common goals and shared security. We must confront international challenges with our partners and with all the tools at our disposal and address emerging problems before they become security crises. And to do this we must forge a bipartisan consensus here at home.

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We live in a time when the threats to our security are as complex and diverse as terrorism, nuclear proliferation, climate change, energy challenges, and our economic wellbeing. Partisan bickering and age old solutions simply won't solve our problems. America – and the world - needs an honest dialogue about security that is as robust as it is realistic.

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