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Related Categories: Cybersecurity and Cyberwarfare; Democracy and Governance; Intelligence and Counterintelligence; Science and Technology; China; Russia

RUSSIA'S 6TH GENERATION FIGHTER WEAPONRY
Despite variable funding, Russia's defense sector continues to press ahead with new innovative technologies to incorporate with their sixth-generation fighter jets. Reportedly, a number of supporting technologies are currently being considered, including manned/unmanned squadrons, directed energy weapons, radar and sensor improvements. In particular, Radio-photonic radar is said to be a major focus of these efforts, because it will be more difficult to jam and allow for faster identification of enemy craft and their respective armaments. In a recent interview with the TASS news agency, Vladimir Mikheyev, an advisor to defense contractor KRET, stated that, "the radio-photonic radar will be able to see farther than existing radars, in our estimates. And, as we irradiate an enemy in an unprecedentedly wide range of frequencies, we'll know its position with the highest accuracy and after processing we'll get an almost photographic image of it - radio vision." Better target discrimination and identification, coupled with new laser weapons, will also supposedly allow drones or advanced fighter aircraft to "physically destroy attacking missiles' homing heads." However, it remains unclear how quickly the technology will come online, or be incorporated into Russian battle systems. (*The National Interest*, March 4, 2019)

EMP ON THE RADAR... FINALLY
Should an electromagnetic pulse (EMP) event occur, either due to a large solar flare or a nuclear weapon detonation, the U.S. remains wholly unprepared for the consequences. Despite persistent warnings by experts and analysts, policymakers have tended to treat the possibility of an EMP event as something resembling a "black swan," and failed to move resolutely to put protections in place for the country. Now, however, attention to the threat posed by EMP is growing, both in Washington and in European capitals.

In mid-March, the NATO alliance kicked off an "innovation challenge" competition designed to foster solutions to EMP that “mitigate the effects on critical infrastructure and capabilities, and ensure rapid recovery." Subsequently, in late March, the Trump administration issued a first of its kind Executive Order dealing with "coordinating national resilience" to EMP events. The Order maps out a plan across the U.S. federal government to strengthen critical infrastructure and processes against the possibility of EMP events. (North Atlantic Treaty Organization, March 12, 2019; White House, March 26, 2019)

[EDITORS' NOTE: To learn more about the science behind EMP, and the danger such events hold for the United States, you can read AFPC's *Strategic Primer* on the issue. The *Primer* can be accessed here.]

THE PENTAGON EYES SPACE-BASED DEFENSE
The weaponization of space remains a hotly-contested issue, but various countries are nonetheless pushing forward technologies designed to introduce weapons, both defensive and offensive, into orbit. The Pentagon is focusing on the former, and is now working on developing space platforms with directed energy weapon payloads by 2023. DoD has requested $304 million in the 2020 budget to develop these directed energy systems as part of a global missile defense shield against evolving threats from Russia, China, Iran, and North Korea. In addition to powerful lasers, defense planners included funding for a neutral particle beam, which disables missiles by shooting a stream of subatomic particles toward them at near light-speed. (*Defense One*, March 14, 2019)

CHINA'S COMMERCIAL MISSILE FORCE
The geostrategic implications of China's trillion-dollar Belt and Road Initiative (BRI), which has Beijing investing in ports and transit routes across the globe, has already given U.S. defense planners pause. Now, reports are surfacing of a potential militarization of the BRI in the form of clandestine missiles in cargo containers. China is developing a long-range cruise missile known as the YJ-18C, modeled after the Russian Club-K, that uses a launcher designed as a shipping container. This new capability has the potential to allow China's large freighter fleet to take on a military role, and may transform China's strategically located commercial ports into missile bases across the globe.

According to Rick Fisher, a senior fellow at the International Assessment and Strategy Center, "it fits with China's penchant for seeking asymmetric advantages against its enemies... Shipping container missile launchers can be smuggled through ports or via highway ports of entry and stored for years in a climate-controlled building within range of U.S. military bases, and taken out when needed for military operations." If perfected, the containers could also be used for missile proliferation to Iran and North Korea, and will require the U.S. to adopt new types of screening for all commercial ships traveling to American ports. (*Washington Free Beacon*, March 27, 2019)

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