

The implications of evolution of military technologies  
remarks for the OSCE Security Chat panel on June 16, 2021

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Secretary General, Ambassador, distinguished panelists and attendees, it's an honor to be here and join you today. Thank you so much to the organizers for their kind invitation.

My remarks will focus on how some of the capabilities that parties in the Euro-Atlantic already have today are challenging the region's interlocking and mutually reinforcing arms control architecture. These include long-range precision strike, hypersonic systems, air/missile defense, counter-space, and electronic warfare. These are not emerging technologies. They are capabilities that are already under deployment and constitute essential parts of deterrence architectures and warfighting plans.

Modern warfare is multi-domain and relies on a spectrum of kinetic and non-kinetic capabilities. To-date, the conventional arms control architecture has largely focused on land and air forces of the participant states (across five well-known categories) and has excluded naval forces. But warfare has evolved as capabilities and employment concepts have moved away from ground-based heavy armor and firepower, central to Cold War warfare. As I will discuss shortly, today, naval forces have long-range precise missiles to inflict extensive damage targets on ground targets.

The quality of weapons, and the ability to derive synergistic effects from numerous systems, has also become much more important than quantity that is the feature of the current arms control architecture. Modern warfare is highly information-intensive, meaning that it cannot be fought without reliable Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance infrastructure that is located on the ground, at sea, in the air, and in space and provides constant awareness of the battlespace.

While firepower remains important to warfare on the whole, in the decisive early phases of conflict, opponents can inflict significant damage and disorganization on an opponent's command and control infrastructure through electronic warfare, cyber, and counter-space capabilities.

As has already been stated today, in the past, warfare was about seizing and holding territory. Modern warfare is also highly dynamic and it relies on increased mobility, ability to quickly deploy forces, and extensive military logistics to supply them. The current arms control architecture does not take these elements into account and this limits its ability to provide transparency and predictability. But let me discuss the key capabilities in greater detail.

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<sup>1</sup> These remarks are the personal opinion of the author.

The first set of capabilities is long-range precision strike, based primarily in the air and at sea. We can think of these as conventional weapons with potential to provide strategic effects or conventional weapons that can perform strategic tasks. The utility of stealthy precision strike cruise missiles was first demonstrated during the Gulf War and the last several decades has seen the proliferation of these capabilities across the globe. And, as we've seen from military operations over the last decade, naval forces play an instrumental role in warfare because of the ability of sea-based long-range precision-guided missiles to damage targets on land. The current regime does not limit these in numbers, geography, and does not provide for information exchanges.

A subset of long-range precision strike are hypersonic systems, maneuvering weapons that fly at speeds of at least Mach 5. Capable of conducting conventional counterforce operations at potentially intercontinental ranges, hypersonic capabilities have no transparency measures.

With the evolution of air power and precision strike, parties have continued to develop air/missile defense systems for aerospace defense tasks. If layered in a way that includes systems able to engage adversary systems of various ranges, these are able to engage a variety of targets ranging from aircraft, helicopters, precision munitions, cruise missiles and UAVs. These are intended to defend critical infrastructure and command and control systems. Some of these systems can be highly mobile and, though defensive, they can also be used as part of offensive military operations.

Some new aerospace defense capabilities are counterspace. We may think of these capabilities as highly futuristic, but some systems like directed energy/laser systems are already being deployed today to perform aerospace defense tasks. The development of these new technologies or systems like railguns has not yet been taken into account at all.

As warfare continues to become more information-intensive and networked, parties are able to derive greater benefits from disorganizing an opponent's command and control, early in a conflict or in the initial period of war. This thwarts an opponent's ability to communicate with forces or understand what's happening on the battlefield. Capabilities implicated here include electronic warfare, cyber, and counter-space systems, all aimed potentially to achieve for oneself or deny an opponent information superiority.

There have been ideas to update the Conventional Forces in Europe and to broaden the Vienna document to include some of these systems or information exchanges on them. There is a need for dialogue and opportunities for creativity to get us to a place where we're able to develop new measures for transparency and predictability.