AI, UAV, Hypersonics and Autonomous Systems:
Emerging Technologies and Euro-Atlantic Security

Testimony of Chris Jenks, SMU Dedman School of Law

United States Commission on Security and Cooperation in Europe

January 22, 2020

I want to thank the U.S. Commission on Security and Cooperation in Europe and in particular Congressman Veasey and his staff for the opportunity to discuss emerging technologies and euro-Atlantic security.

My statement seeks to highlight the significance of artificial intelligence (AI) and autonomy to our national and collective trans-Atlantic security. I served in the U.S. military in Germany and Korea and on operational deployments to Bosnia, Kuwait, and Iraq and I've researched and written on emerging military technologies. I am familiar with the current security challenges facing the United States and our allies and I can unequivocally state that developing and operationalizing AI and autonomous systems is a legal and moral imperative. As I will later explain, more accurate wording would be to *continue* to develop and operationalize as depending on how one parses the definitions, we have fielded such systems for decades.

I will briefly summarize the definitional and taxonomical challenges AI and autonomy pose before providing the Commission my assessment of how the U.S. is doing at present and then suggest where and how we need to change. To preview my bottom line, our current approach to AI and autonomy is appropriate but considerably more thinking on how the U.S. will conduct military operations in the future is needed. With that thinking will come changes, changes which may need to be Congressionally directed.

In terms of how we think of AI and autonomy, there are widely varied approaches but no consensus on what either term means or even their relationship to the other. This in turn leads to two important points. The first is that many tech discussions are reduced to a veritable tower of Babel. The second is that under a number of definitions or understandings, the U.S. has fielded systems which use AI and/or perform functions autonomously for decades. In terms of AI, President Reagan's 1983 Strategic Defense Initiative incorporated aspects of what was then thought to be AI, notably expert systems AI which was developed in the 70s. The Defense Satellite Communication System and the Navy's submarine force, to name just two more contemporary programs, rely in part of AI as well as machine learning. In terms of autonomous systems, the Army's Patriot Missile and the Navy's Close in Weapons System or CIWS, incorporate autonomy into functions, including the selection and engagement of targets. And we fielded the Patriot starting in 1981 and the CIWS since 1980.

Shifting to an assessment of how the United States is doing in terms of AI and autonomy strategy and development, the current U.S. approach is appropriate. Between the Defense Advanced Research Projects Agency, the relatively new Joint AI Center and each of the military services, research, testing and fielding of systems is ongoing. While enabling personnel to exercise appropriate levels of human judgment, these developments may improve the military's efficacy while strengthen the implementation of the law of armed conduct. This may include reducing the risk of civilian casualties and the armed forces, facilitating the investigation or reporting of incidents involving violations, enhancing the ability to implement corrective actions and automatically generating and disseminating information on unexploded ordnance.

While the United States has a moral duty to continue to develop systems which limit the effects of armed conflict, there may well be a legal duty. Certainly for our European allies who are States Parties to Additional Protocol I of the 1949

Geneva Conventions there is an obligation that "in the conduct of military operations, constant care shall be taken to spare the civilian population, civilians and civilian objects." Thus if autonomous vehicles achieved a degree of sophistication and safety such that they were less likely to crash into civilians and civilian property than human operated vehicles, a country employing such vehicles might be required to use them during military operations as a result of the constant care obligation.

At the same time the U.S. Department of Defense developed and released a policy on autonomy in weapons systems and the Defense Innovation Board and the recently established National Security Commission on Artificial Intelligence are working with both government and non-governmental organizations and industry to develop recommendations.

Also appropriate is the United States participation in the ongoing United Nations meetings on autonomous weapons. The working papers and interventions from the U.S. delegation have significantly advanced those ongoing discussions. At the same time, it is also appropriate that the United States has resisted fear mongering NGO attempts at sweeping regulation or even a ban. At a minimum it is premature to consider sweeping regulation when there is nothing close to consensus on what is even meant by AI and autonomy. And as I previously mentioned, depending on how you define AI and autonomy, any number of systems fielded by the US and our allies for decades would be implicated.

In terms of where and how we need to change, minimal if any attention has been paid to demarcating scientific and arms control mechanisms and much more thinking on how the U.S. will conduct military operations in the future is needed. This later point is not so much a tech problem as it is a process problem.

The U.S. military is the personification of a hierarchical organization. Is such a structure capable of conducting the decentralized or distributed operations in general let alone in an environment in which communications are denied by the adversary? How will command and control, authorizations and delegations of authorization work? What about resolving dueling or competing authorities? While the Defense Department operates jointly, how effectively is DoD able to conduct joint military operations involving AI and autonomy without sharing a common backbone network?

By way of example, consider the hierarchical way in which an air tasking order or ATO is developed in a military operation. An ATO is the sole method by which air strikes are planned, executed and assessed and involves multiple levels of command and staff and varying timelines and authorities. Now imagine a future environment in which no level of command is able to effectively communicate with the other, there are AI enabled systems able to perform a number of the ATO functions and ground forces require air support.

Between military service cultures and organizational inertia, DoD is unlikely to make the significant changes required to effectively conduct the distributed, netcentric, military operations many experts believe will be required. The question then becomes what would force DoD to make those changes?

Changes to how the U.S. military is structured and operates do not come quickly or easily. Ultimately, I submit that the U.S. Congress may need to direct that change.

I suggest the Commission and the Congress consider the Goldwater-Nichols Act of 1986. The need for the Act arose during interservice rivalries in the Vietnam War, which later tragically manifested themselves in the 1980 failed attempt to rescue U.S. hostages in Iran and in the 1983 U.S. invasion of Grenada.

I believe emerging technologies may require Goldwater-Nichols 2.0, though preferably more quickly and without a precipitating armed conflict involving AI in which the U.S. fares less well than it could or should have.

Thank you for your attention and I welcome your questions.