

“Unmanned Systems: The Value of Innovation”

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This is an exciting time for this forum. Each week seems to bring another news story of an unmanned or autonomous system demonstrating its value in the air, on the land, or, with growing frequency, at sea. And the importance of this forum will grow over time because the importance of unmanned systems will continue to grow.

For those of us in the technology industry, there can be no greater satisfaction than being associated with the design, construction, and refinement of a complex piece of technology that eventually becomes indispensable in the affairs of humans. Not every technological innovation can make that claim. But I believe that unmanned systems, as a class of technology, can.

No longer are these systems confined to military uses. No longer are they curiosities of limited capability. No longer are they unreliable or unaffordable. Unmanned systems have demonstrated their value and today, they truly are indispensable in the conduct of so many vital missions.

The company I am privileged to lead has been building such systems for many years now. And I'm proud to report that one of our key systems – Global Hawk – has reached its tenth anniversary this year. Like virtually every other unmanned system that has been around for any period of time, Global Hawk has experienced an evolution in capabilities, uses, and service that were unimagined at the time it was unveiled.

In fact, unmanned systems originally designed for military uses are today routinely being adapted to humanitarian service. They have been indispensable over areas devastated by natural disasters – places such as Indonesia, Haiti and Japan. And not just over these areas, but these systems are also peering deep within the wreckage of collapsed buildings and even toxic nuclear reactor sites.

The same basic technologies that are disarming IEDs for our troops are also disarming bombs for our domestic first responders, or crawling through earthquake rubble on humanitarian missions around the world. This is the value of adaptability, and it has saved military and civilian lives alike.

These systems have joined the fight against illegal drug smuggling, rampant forest fires, drought, and environmental degradation. They are now employed by scientists and researchers to study our atmosphere, oceans and animal habitats. I think an important story here is that the non-military uses for these systems represent a tremendous opportunity that has yet to be fully developed.

Of course, for most of these systems today, national security uses are still their primary employers, as well as the primary drivers of their research and development. This reflects their attributes, which are dramatic and growing despite the difficulty of the problems to be solved.

And difficult they are. Air-to-air refueling and the autonomous launching and landing of unmanned aircraft aboard a pitching carrier deck are two such examples. These are largely problems of computing power and systems engineering – and they will be solved. And doing so will bring huge advances in capabilities for the users of these systems. Solving the autonomous launching and landing problem alone will revolutionize the aircraft carrier, and carrier operations in general.

Ours is an age in which insurgencies and military contingency operations in nearly every corner of the globe have displaced large scale, geographically predictable conventional threats as our primary security concern. Likewise, situational awareness continues to displace boots on the ground as today's central national security commodity. More and more of that situational awareness is being provided by unmanned systems in the air, on the ground, and at sea – at less cost, with greater endurance, and comparatively little risk.

And it might just be risk reduction that offers the most direct advantage to our troops – and to their families. In June, a Fire Scout unmanned helicopter was lost in action in Libya. But no pilot was lost.

This is indeed a golden age for these technologies, and the U.S. currently leads in this area. Of course, none of this is lost on the rest of the world. Last month the Washington Post ran an article titled, “Global Rush is on to Match U.S. Drones.” It noted that more than 50 countries have purchased surveillance UASs. The article quotes a law professor who studies these technologies, saying, “This is the direction all aviation is going.

The article pointed out that in the coming decade global spending on unmanned systems will reach \$94 billion, and that several other nations are working hard to ramp up their unmanned R&D programs – nations that have no export controls preventing them from selling their systems abroad.

Let me be clear: Export restrictions are hurting this industry in America without making us any safer. And they could cause the U.S. to relinquish to other nations its lead in these technologies. We have certainly seen this before with satellites. Years ago, we were so concerned about others gaining the “force multiplier” benefit of satellite communications that we essentially made it impossible for U.S. companies to sell communications satellites to our allies.

We somehow thought that we had a corner on that technology, but we were badly mistaken. The very policies that were intended to keep this technology secure for us actually encouraged others who could not buy it from us to develop their own. In fact, they even marketed their products as “ITAR free.” America lost valuable export opportunities and we are no safer as a result.

Today, the U.S. is struggling to sell unmanned aircraft to its allies while other nations prepare to jump into the marketplace with both feet. In a repeat of the satellite example, the thinking seems

to be that our allies will neither build their own, nor buy them from those who will be motivated, by the perversity of our policies, to build them themselves. However, as that Washington Post article observes, earlier this year India announced it will begin development of its own unmanned attack capability.

The good news is that the defense department is promoting what is clearly the best export reform policy – build higher walls around fewer things. For this they deserve credit and encouragement. Their primary motive for such reforms makes eminent sense: to better support our allies, and to codify the technology sharing that occurs every day on the battlefield and in the joint training we perform.

This common sense approach recognizes the clear advantages of solidifying a common capability with like-minded allies. After all, our allies will seek to field those capabilities. It is my point of view that it is in our nation's interests to ensure our allies have the best systems available, procured with as much fiscal efficiency as possible.

There is progress being made in this area. I'm happy to report that our nation and the government of Germany are collaborating on common uses for Global Hawk. And there is potential for similar collaboration with NATO and the governments of several other key allies. These are positive signs that perhaps we will not repeat the mistakes that were made with satellites.

Another positive by-product of export reform is that it also stands to promote new alliances. Earlier this year I was in the United Arab Emirates at their higher college of technology. I was there to present awards to the winners of their unmanned Rodeo Challenge. This was a contest among teams of engineering students to design, build and test an unmanned aircraft using only the materials and tools supplied to them. Since each team started with the same resources, the qualities that determined success or failure were such things as innovation, imagination, dedication, persistence, teamwork, and good, old-fashioned hard work.

Northrop Grumman worked very closely with the UAE's Ministry of Education to help develop the contest. Their interest was to promote science, technology, engineering and math across their country – disciplines that they correctly see as the foundation of their nation's ability to compete successfully in our high-tech world.

And we are delighted that representatives from the winning team of the UAE Rodeo have joined us here at this conference.

This story brings me to one more characteristic of unmanned systems to keep in mind as we forge ahead with these technologies. Unmanned though they are, we should never be allowed to forget that these technologies did not invent themselves. These systems are expressions in metal and circuitry of human ingenuity, human perseverance, and human vision. They are not so much credits to engineering as they are credits to engineers – and scientists, and mathematicians, and public policymakers, and business people. The qualities that imagined them, designed them, built, tested and refined them are the qualities that move a nation, an industry, or a company forward.

Collectively they express the value of intellectual capital – without doubt the most precious and important commodity of our age – and the commodity that will drive the future growth and development of every nation. It is in all our best interests to cultivate these talents and skills among our youth.

Like nations, companies like the ones represented in this room also need to nurture and grow the intellectual capital for our futures. One way is to support the AUVSI Foundation, which is dedicated to STEM initiatives. Northrop Grumman is proud to be a founding partner of the Foundation.

We are also sponsoring the Student Competition Pavilion, here at this event. And we sponsor the AUVSI Robo-sub competition because we believe that ten years from now, unmanned underwater systems will be as important as unmanned aircraft and land-based systems are today. But the engineers and scientists who will turn that vision into reality have to come from somewhere, and cultivating them is all of our responsibility.

I stated at the beginning of my talk today that the value of these state-of-the-art systems – be they air, land or sea – will only grow in the future. But we need to help our customers develop these systems in an efficient and affordable manner.

Our nation's appropriators are under tremendous pressure to spend no more than is absolutely necessary. They understand that the most important assets available to our national security are our men and women in uniform. And they are committed to enable those warfighters in their duties as efficiently and effectively as possible – through the lever of technology.

The global security environment will serve to increase the value of these technologies. When I was growing up during the Cold War, the security model was one of massive military forces controlled by nation-states in an essentially bi-polar world. Today, we still have to prepare for such contingencies. But we must also meet the challenges of adversaries not connected with familiar nation-states, who strike unconventionally from any place, at any time, against any target, without regard to familiar military rules or restrictions, or even their own lives.

All in all, as valuable as our men and women in uniform are today, their value will grow even more. And those technologies that free them from the dull, dirty, and dangerous jobs, to allow them to perform more complex tasks, will likewise become more and more valuable. Against this growing need, it is difficult to imagine another category of technologies that promises greater versatility, flexibility, effectiveness, cost-efficiency – in a word, value – than unmanned systems.

What a wonderful time it is to be associated with these technologies, and with the people and organizations in this room. I can tell you that I am thankful for AUVSI, which, like these technologies themselves, does good work in the service of good causes. I look forward to the coming years for unmanned systems and technologies. They are going to be exciting times.