

Mobilizing Ingenuity To Strengthen Global Security

Remarks

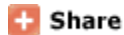
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Thank you so much for the introduction, Daniel and thank you all for being here. I'm really excited about being here in Austin at the South by Southwest Conference.

Now, I realize that being the government's chief arms control negotiator might seem a little out of place here. What can the tech community do to help get rid of the thousands and thousands of nuclear weapons still in the world? We worry about them getting into the hands of terrorists. Add to that the increased threat from chemical and biological agents – you can see the threat from CW in Syria -- and technologies that are easily

switched from peaceful to threatening purposes. We have a big problem on our hands.

In truth, I came here for your help. The United States has laid out a comprehensive approach to dealing with these threats. But we need new ideas, and the information revolution is an obvious place to look. I hope you come away from this session energized to help us in our efforts to combat the threats of weapons of mass destruction (WMD).

A Problem

Let me start by giving you a feel for our nuclear treaty verification problem. When signing our most recent treaty – New START – with the Russian Federation, the President said our next step would be to pursue reductions in all types of nuclear weapons, even nuclear weapons held in secret storage facilities. In the past, we focused on eliminating nuclear weapons on big missiles or bombers – items you could count from satellites in space. The idea was, eliminate the missile and you eliminate the threat of the warhead.

Now the President has said that is not good enough – if we're worried terrorists will get their hands on nuclear weapons, we have to reduce and eliminate those weapons, even if they're hidden away in storage. That is a big challenge for a nuclear arms controller: how can we monitor warheads, know where they are and that the other guys don't have hidden stashes somewhere?

For bomb-making material, these challenges only increase. This stuff is portable and easy to hide. Major ports have radiation detectors, but these systems are very sensitive and can pick up the radioactivity coming from everyday items like bananas, kitty litter and porcelain toilets. Bet you didn't know those things were radioactive.

For biological and chemical agents, the main problem comes from the dual-use nature of the work and technologies. How can we tell if work being done is good or bad? Or if we cannot, how do we build in activities to reassure people that the work being done is safe and peaceful?

So our goal is to devise and enhance systems for tracking and monitoring, as well as devise new ways to verify compliance with future agreements and treaties. Of course, as you who work in technology know, no system is ever 100% foolproof. To paraphrase Douglas Adams, foolproof systems tend to underestimate the ingenuity of complete fools and for that matter, highly motivated cheaters.

How do we even come close to 100% verification? In the treaty context, we are looking for effective verification. Paul Nitze, a brilliant, esteemed national security expert and long-serving government official, explained effective verification as follows:

"[I]f the other side moves beyond the limits of the treaty in any militarily significant way, we would be able to detect such violations in time to respond effectively and thereby deny the other side the benefit of the violation."

That's effective verification. Nitze's definition has been and continues to be the benchmark for verifying arms control treaties. But the world is changing, as I've described, and with it, the nature of what we need to monitor and verify. To help us meet the challenges ahead, we need your help.

A Light Bulb

New information tools are popping up everywhere and their potential impact is magnified by the global connectivity of the Internet. Our new reality is a smaller, increasingly networked world where the average citizen connects to other citizens in cyberspace hundreds of times each day. Today, any event, anywhere on the planet, could be broadcast globally in seconds. That means it is harder to hide things. When it is harder to hide things, it is easier to be caught. The neighborhood gaze is a powerful tool, and it can help us to verify the treaties and agreements we've created.

A New Plan

The way we at the State Department see it so far, there are two elements we are working with when it comes to incorporating the information age into WMD verification and monitoring – tools for inspectors and data acquisition and analysis.

Using Tools

First, it is already apparent that digital tools are revolutionizing the way diplomacy is conducted, much like the telegraph did in the 19th century. Email is a good example: it rapidly accelerated the pace of the negotiation of New START, in comparison with the 1991 Strategic Arms Reduction Treaty (START).

Information technologies could also be useful in the hands of a WMD inspector. Smartphone and tablet apps could be created for the express purpose of aiding in the verification and monitoring process. For example, by having all safeguards and verification sensors in an inspected facility wirelessly connected through the cloud to the inspector's tablet, he or she could note anomalies and flag specific items for closer inspections, as well as compare readings in real time and interpret them in context. In the 90s, U.S. weapons inspectors in Russia had to be able to cross country ski to do their jobs. They had to ski around the perimeters of facilities searching for things – with the kinds of tablet apps I mentioned, perhaps we could make the cardio optional.

Using the Crowd

The second way we could incorporate the new tools of the information age into WMD verification and monitoring is by harnessing of the power of the crowd to generate data and then analyze it.

Already, critical information generated through social networking is being incorporated into local safety systems in the United States. RAVEN911—the Regional Asset Verification & Emergency Network—is a multilayer mapping tool that supports emergency first response in

Cincinnati, Ohio and its regional neighbors. RAVEN911 uses live data feeds, geospatial imagery, and information gathered through Twitter and other public sources to provide details that cannot be shown on an everyday geographic map, such as the location of downed electric power lines and flooded roads. This helps emergency first responders get to where they need to go more quickly.

Sound far-fetched to extend such ideas to arms control? It shouldn't. There are apps that can convert your smartphone camera into a radiation detector. Your tablet could help detect nuclear explosions! Tablets have tiny accelerometers installed – that's what tells the tablet which way is up. But the accelerometers also have the capability to detect small earth tremors.

You can imagine a whole community of tablets, all containing an "earth tremor" app. Users are dispersed randomly around the country, their tablets connected to a centralized network. If the sensors all start shaking at once, you may have a natural occurrence – an earthquake – or you may have an illicit nuclear weapon test. Which is which would need to be confirmed with official sensors and analysis.

This kind of ubiquitous sensing I see as one of the most exciting areas for new arms control monitoring tools.

A Hitch?

So, we have a brand new set of exciting possibilities to pursue, but there is a hitch. For any of this to work, there are a lot of technical, legal, political, and diplomatic barriers ahead that would need to be overcome—never easy.

In the end, the goal of using information technology and social networks should add to our existing arms control monitoring and verification capabilities, not to supersede them.

A Challenge

Last summer, we launched our first Innovation in Arms Control Challenge and asked the American public, "How Can the Crowd Support Arms Control Transparency Efforts?" This challenge sought creative ideas from the public to use commonly available technologies to support arms control policy and education efforts.

We received interest from more than 500 people from across the United States with solutions that largely fell into four broad categories: smartphone apps, internet websites and games, sensor array schemes, and "big data" crunching.

Our first prize winner is Ms. Lovely Umayam, a graduate student from the Monterey Institute of International Studies in California. She developed "Bombshelltoe", an online education platform that examines the intersection of culture and nuclear issues in order to facilitate better public understanding. Mr. Allan Childers, an Aerospace/Defense industry consultant from Florida, was a runner-up with his proposal for a mobile application that provides a platform for users to connect and interact, as well as a rewards program for sharing information on various arms agreement regimes. Dr. Rudolph "Chip" Mappus, a research scientist at Georgia Tech Research Institute working on computational neurology and brain-machine interfaces, was also a runner up. He proposed a geographically based online game about verifying treaty compliance that experts and everyday citizens could play together.

This challenge was a first step focused on public education, and I am excited about the results and our prizewinners. This spring we're preparing to launch a second Innovation in Arms Control Challenge that will ask the American public to design an information technology tool that can aid arms control inspections, so please stay tuned to www.state.gov on that front. We would love to get submissions from SxSW Interactive attendees!

A Pitch

So now I am eager to hear from you. As many of you are aware, there is a grand tradition of citizen science in this country – two of the greatest were among our earliest diplomats: Thomas Jefferson and Ben Franklin. I hope that this State Department tradition continues as we tackle these enormous challenges. Experts like you, particularly experts outside of the Beltway, can help us think bigger and bolder. It is

sometimes strange to think that the government helped plant the seed of the information revolution, but at times seems to have no clue about how to harvest its rewards. That is why speaking to people like you is so important.

Thanks again for your attention and I would now love to take some questions and even better – to hear some ideas!