

Remarks by  
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Dr. Tether, thank you for that kind introduction, and thank you for your work leading an institution that has been critical to US national security since its creation in 1958.

With great successes in achieving military technology breakthroughs, DARPA has earned a reputation as an organization where brilliant minds gather to solve problems that once seemed insurmountable.

Our nation has benefited from DARPA's work, but this is no time for DARPA to rest on its laurels.

The enemy we face today makes no secret of his goals and intentions.

It should hardly be necessary to review the countless statements of global jihadists who have called—repeatedly—for our destruction.

The single most dangerous and naïve idea that blinds some to the dangers we face is that very American idea of “live and let live”—that if only we are nice to the tiger, the tiger will leave us alone.

No, the tiger cannot be persuaded to let us live in peace.

It is not in his nature.

Similarly, there is no evidence that the nature of our enemy can somehow be changed or persuaded by words.

The enemy's actions—from the Beirut bombings to Khobar Towers to USS COLE to 9/11—make it clear that he will come after us, regardless of changes in our policies.

And so, if you believe that America is worth defending, and that the achievements of Western civilization are valuable and precious, then we must defend ourselves against those who wish to do us harm.

Here DARPA can, once again, play a heroic role in the defense of the nation.

Over the years, DARPA's scientists and technologists have often met with leaders of the defense community and asked them, "What keeps you up at night?"

Today, I would like to share with you some of my thoughts on sleepless nights.

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Our enemy today is very different from enemies we have faced in the past, and will look different from enemies we will face in the future.

And, significantly, the old rules of war no longer apply.

The terrorism challenge we face, however, is not one of a stronger enemy or an enemy with a technological advantage.

9/11 and IED's, for example, were not technology surprises.

Rather, they were unanticipated tactics and uses of technology, not unlike the use of kamikaze pilots in World War II.

This situation is further complicated by the Information Warfare/Public Relations offensive enabled by the enemy's creative use of the internet.

But the use of technology is not even the main point.

We are dealing with a media-savvy enemy whose focus on killing Americans and other Westerners is combined with a very sophisticated media perspective.

Attacks are timed, designed, and located in order to maximize the media impact of their acts of mass murder.

Indeed, the enemy exploits the worldwide media to win in the court of public opinion.

Here we note a rather astonishing, even bizarre phenomenon.

How is it possible, as the columnist Thomas Friedman recently asked, that we could be losing a Public Relations war against people who blow up school buses, deliberately murder civilians, take people hostage, behead innocents, admire Hitler, and recruit new terrorists by making videos of their crimes?

Conceiving of an enemy more evil, more inhumane, more morally repugnant would be difficult, if not impossible.

And yet, moral confusion still reigns in certain quarters.

Nevertheless, for those who believe that America has a right to defend itself, we must focus on ways to use technology—one of our greatest strengths—to our advantage.

America's technological superiority, however, has thus far not proven decisive in this war.

Indeed, a key difference between today's war and past conflicts is, in fact, the role of technology.

Much technology is available—often simultaneously—to all parties.

It knows no boundaries, and is limited to no one.

The same age of the internet and wireless communications that allows a teenager in Sacramento to chat with a friend in Sydney has also put innovative technologies into the very back-pocket of our adversaries.

Because of the stark differences in literacy rates, in economic development, and in technological advances between those seen in the West and the rest, we have a tendency to underestimate the ability of the enemy—whether a country or a non-state actor—to use technology.

Our image of a terrorist is, too often, that of an evildoer in a cave, not a sophisticated, well-educated engineer in a lab.

That image is very misleading, and it is very dangerous.

TV images often give us the impression of a few militants in Baghdad setting off crude devices that kill our soldiers and innocent bystanders.

On the contrary, we are seeing very sophisticated methods of recruitment, training, financing, and targeting—with video productions in support of their terrorist campaign that reflect a degree of PR expertise that is simply first-rate.

Do not forget that there are elements of the insurgency that are comprised of career intelligence officers and assassins who have decades of professional experience in running a police state.

Our image of the terrorist enemy as unsophisticated or ignorant is also misleading in another way.

People forget how much impact even just one man—take A.Q. Khan, for example—can have on the fate of nations and of the world.

Highly specialized technical knowledge, in the wrong hands, can be instantly transferred to masterminds whose lives are devoted to plotting our destruction.

With the simple click of a mouse, terrorists can transmit blueprints of attack

across the globe to millions of individuals.

This technology enables them to train their followers not only in military tactics such as suicide bombings, it also allows the propagation of an ideology whose end state is our complete demise.

We must find innovative ways to defeat, disrupt, and deter their communications—and their use of asymmetric technology to attack our forces.

We need to defeat this enemy's ability to make tactical use of technology to strategic effect.

But, as we focus on the challenges of today's enemy, we must not ignore the possibility of future enemies or peer competitors.

In one sense, this may be our biggest challenge of all, as future adversaries have access to militarily useful technology as readily as we do.

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Given these conditions, how then do we achieve technological differentiation across a wide spectrum of potential or actual enemies?

During the Cold War, the difficulty of acquiring the technology was a daunting obstacle to all but the richest and most advanced countries.

Due to the enormous resources that one needed to invest, and the limited applications of the technology, the military sector actually led the civilian sector in most areas relating to weaponry.

The capital investment required to build, for example, an ICBM missile—let alone a nuclear warhead—was huge.

The strongest economy, over time, would almost certainly prevail.

Which is precisely what happened.

What finally defeated the Soviet Union was the wide and growing gap that emerged in the technology race, coincident with the evolving economic gap.

Big science, it turned out, could be a game-changer.

In contrast to the role of technology in that epic struggle, however, today's technologies are often available commercially.

In addition, the enormous increase in computing power capability has reduced the technical hurdles that once challenged our development of advanced weapons systems

such as ICBMs.

During the Cold War, that technological achievement was produced over many years by our brightest minds.

With today's computers, the technology edge produced by years of research has, in many cases, almost entirely evaporated due to advances in computing power alone.

We are near parity in many areas, and not differentiating ourselves as in the past based on our early access to key technologies that we translated into warfighting capability.

Today our enemies and potential adversaries have wide access to technology combined with significant financial resources, and they are developing novel ways to deploy technology before we develop new ways to counter it.

Indeed, in some areas, novel ways of deploying technology is providing a differentiator for the enemy!

There is tremendous irony in this situation—the most technologically advanced country in the world is finding that its technological edge is not always a decisive advantage.

That technological edge has been eroded by those who are not competitive in technology development, but who are focused on the application and employment of technology.

The playing field has thus been leveled, and technological differentiation takes on a new context in today's world.

The enemy's access to and use of technology holds true whether the enemy is a state or a non-state actor, for it is the asymmetric aspect of this competition that is the critical issue.

Not only does the enemy enjoy freedom from any legal or moral restraints, but it also benefits from a revolution in command and control possibilities in the age of the internet.

We painstakingly built a command and control infrastructure costing billions of dollars, using satellite technology and highly sophisticated systems of communication.

Non-state actors could not hope to even get in the game, at least on a global scale.

But with the internet, the barriers to entry have collapsed.

Even a worldwide insurgency is now possible.

Thus, we must come to the inescapable conclusion that technology may not always be a decisive differentiator for us, at least in the war on terrorist enemies.

With computing power, the ability to buy technology, geographical dispersion, and the internet, fourth-rate powers willing to adopt barbaric tactics can challenge a country whose GDP now stands at over \$13 trillion.

Truly, this a sobering thought, but one which should inspire us to find a more promising way forward.

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Given this reality, our challenge—and DARPA’s challenge, therefore, is: How do we re-establish our advantage? Since DARPA is in the technology business, this implies, how do we re-establish our advantage using technology?

That, of course, assumes that we can.

Based on America’s ability to surmount great odds in the past, and our enormously resourceful and creative population, I believe that we can—and we must.

Our efforts must continue to be aimed at preventing technology surprise.

We must also prevent or counter potential enemies from gaining an advantage by using commercially available technologies.

Many of the weapons that threaten us today are different from those that threatened us in the past, although the weapons produced by big science are still with us.

From the suicide bomber to nuclear weapons, we must be prepared to counter them, and the Department of the Navy continues to look to DARPA for solutions.

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Clearly, there are a number of areas where DARPA could help us address the challenges posed by today’s enemy and tomorrow’s potential adversaries—some of whom openly speak of challenging us through “unrestricted warfare.”

The very fact that we must confront today’s enemy—while simultaneously building the future fleet—means that we must focus on both long and short-term challenges.

The obvious conclusion from this brief discussion—aside from the fact that sleepless nights are part of my job description—is that I think we need to do a lot more to

use technology to our advantage.

Technology has thus far not been the decisive factor in this war.

But I do believe that technology has the potential to help us win this war, and that DARPA can be an enormously valuable asset in this great struggle against an enemy that threatens every liberty we hold dear.

We need you, and we need DARPA to again play the heroic role it played in bringing the Cold War to an end in helping us fight today's war on the terrorists who threaten us.

With your help, I remain confident that the side whose people have possessed a can-do spirit from its very birth will find a way to overcome the dangers in our midst.

Thank you for all your hard work, and may God bless America.