

**DARPA Tech, DARPA's 25th Systems and Technology Symposium
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Teleprompter Script for Dr. Tony Tether, Director, DARPA**

DARPA Tech 2007 Welcoming Speech

Dr. Tony Tether, Director
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Good morning!

Welcome to DARPA Tech 2007

The largest ever,

With over 3000 attendees!

-- and --

Welcome back to the Far Side!

The Far Side?

Those of you who are familiar with DARPA know what I am talking about!

And for the one thousand nine hundred and sixty of you who were not at our last DARPA Tech

Welcome to our world!

A world where imagination and ideas enable DARPA to "Bridge the Gap."

The gap between the Far-Side possibilities of tomorrow, and the Near Side capabilities of today.

Because many of you are new, let me take a moment to explain DARPA, where we fit, our culture, and the types of ideas DARPA funds

Why?

The reason is simple

The more we understand each other the more likely we will both be successful

This chart depicts the Department of Defense's S&T investment where the terms Near, Mid, and Far signify the time-to-go before an idea becomes an acquisition program.

Service investments in science and technology generally emphasize the Near to Mid-side....

This is great S&T.

It makes RADARs more sensitive, and jet engines more efficient.

But the money is usually spent on concepts and systems that we know about.

On the other hand, the Far Side is about new concepts and systems whose feasibility is still unknown and risky.

Sometimes in order for FAR side ideas to be funded they almost have to be like electrons, and tunnel their way through that gap.

What DARPA does, and does extremely well, is mine the Far Side.

We search for those ideas world-wide that may make a tremendous difference, and whose time has come to bring them to the near side as fast as possible.

DARPA bridges the gap between fundamental discoveries and new military capabilities and has been doing so since our beginning.

In fact, this conference marks a special occasion – the kickoff of DARPA's 50th year anniversary celebration.

Imagine that, fifty years!

The idea of a DARPA started with a surprise on Friday, October 4, 1957.

On that day, the Soviets launched Sputnik, the world's first satellite.

The Soviets beat us to space, and in so doing showed they could build rockets powerful enough to reach and threaten the US.

A game changer.

We didn't like it.

Sputnik's simple BEEP changed the world.

I know, I was there.

President Eisenhower created a commission to find out how this happened.

It turned out there was NO good reason.

At the time, a space launch, while talked about, wasn't a high priority.

But there WERE people on the Far side, people like you, who said that they could have done it but they needed to be given the resources.

DARPA was created by President Eisenhower to mine the Far Side so that never again would the U.S. be surprised.

DARPA's first tasks were to accelerate the development of U.S. space launch and satellite capabilities.

DARPA started the Saturn rocket engine program that gave the US an ability to go to the Moon less than 10 years later.

DARPA also started satellite projects such as Discoverer and Corona – classified programs that kept Presidents informed on Soviet activities for years.

DARPA was not only preventing surprise but was now creating surprise for our adversaries.

During the conference we will be showing a movie, in three parts, that chronicles DARPA's work, as told through the experiences of former DARPA Directors

Some are here today to celebrate the anniversary kickoff.

Try and meet them.

The Exhibit Hall which opens this afternoon has a 50th anniversary

exhibit which displays a timeline of DARPA accomplishments and DARPA's original charter, a simple two-page document.

I'm proud to say that DARPA has kept true to the key idea in that original charter.

An organization willing to take a bet on an idea long before it is proven.

A place for people with ideas too crazy, too far out, too risky, even considered by some as bad, that have turned out to be major game changers for the U.S.

Over the past 50 years, the U.S. has established strategic and tactical dominance in many areas.

If the technology was a game-changer, chances are that DARPA had a role.

Some are well known.

For example, everyone has heard of the ARPANET, a 1960's idea that originally had only a few connections.

It led to the Internet, now approaching billions of connections.

Or Stealth airplanes, such as Have Blue, which fundamentally changed air warfare; and, the Predator and Global Hawk, unmanned air vehicles flying today in Iraq.

But some of DARPA's past accomplishments are not so well known.

For example, new materials such as Gallium Arsenide, used in high-speed circuits; new metals, such as Beryllium, stronger than steel but

lighter than aluminum; solid state photon detectors, from the visible to the long wavelength, which led to night vision capabilities allowing us to “own the night.” MIMICS – the essence of our cell phones and miniature GPS receivers; lithography which allowed the number of transistors to reach 100 billion on a chip smaller than the size of your thumb nail.

In addition, there are DARPA recent accomplishments giving our forces fundamentally new capabilities.

You have heard me say that the key to success in future military operations is the network.

That the network would become the most vital and critical capability for our forces, exceeding even that of the platforms it supports.

I was with the troops in Iraq and Afghanistan last year.

From what I saw and heard, I believe even more in the power of networks.

DARPA has been busy developing a number of network centric capabilities

Some are deployed, and the warfighters tell me they are making a difference

For example, The Command Post of the Future, or CPOF.

CPOF turns a computer into a powerful planning and collaboration tool, so powerful that with CPOF, the computer becomes a virtual command post with one big advantage: commanders and platoon leaders can stay where they are to conduct operations.

CPOF eliminates their commute to headquarters.

The time saved traveling allows them to react much more quickly to events and keeps them out of Harm's way

Another game changer is our Network Centric Radio System.

This technology provides a capability that enables incompatible radios to communicate with each other requiring no effort by the Warfighter user.

An Army soldier can now talk to a Marine, or to an Air Force aircraft, or a Navy ship.

Another DARPA technology making a difference is the WASP micro air vehicle.

WASP is small, weighs less than a pound, and can be launched with a simple hand-throw.

It has a camera that sends high quality video directly to the warfighter; real-time information on locations important to them.

Marines use WASP today, they call it their Guardian Angel.

It watches over and protects them.

There are many more game changers under development.

I have no doubt that some future DARPA Director, he or she, will take credit for them, as I have taken credit for projects started by former Directors-

If they were successful of course.

Some examples of these future game changers are:

Military grade titanium at \$3.50 a pound, instead of \$35 a pound.

High quality military jet fuel processed from crops grown in the U.S.

A machine capable of rapidly translating foreign language speech and text as well, if not better than, experienced linguists.

Aircraft that can autonomously refuel and remain airborne for very long periods, perhaps as long as five years, or more.

A prosthetic to replace an arm lost in combat, so capable, that the soldier could learn to play Dixieland on the piano.

A computer that can process at a rate faster than one Billion Million Instructions per Second.

When I first started using computers, admittedly a very long time ago,

The fastest computer could process at a rate of only one hundred thousand instructions per second.

The new computers will be 10 billion times faster than what I had to work with.

This new capability will dramatically reduce the time it takes to design, test, and bring an idea to reality, giving us a great Strategic and tactical advantage over the rest of the world.

These are just a few examples.

There is much more going on at DARPA as you will see in the exhibit hall.

Over the past 50 years, DARPA has worked hard to meet President Eisenhower's challenge that America never again be surprised.

Since 1958 our nation has faced many uncertainties, many challenges.

Now, as we meet here in Anaheim nearly 50 years later the Soviet Union no longer poses a threat; but we are confronting new adversaries and new threats spread throughout the world that range from traditional nation-state forces, to small groups, who use modern networks, and act in new and sometimes devastating ways,

Such as 9-11.

In this time of uncertainty, DARPA's mission remains constant:

Anticipate all challenges and discover the technical means to conquer these challenges.

How will DARPA succeed?

How do we prepare for what no one can predict?

The purpose of this DARPATech is to detail how we do this.

The presentations by DARPA's program managers are all designed with one clear purpose:

To tell you where new ideas are needed in order to meet the

unpredictable future.

Each program manager will challenge existing beliefs about what's possible.

They are also looking to you for ideas.

They also need you to help them implement the ideas.

You hold the keys to their success.

I have been asked by leaders from around the world, to reveal DARPA's "secret sauce."

I always tell them that it is a simple recipe,

Hire people who generate creative ideas,

who can recognize and accept good ideas

regardless where they come from

And, most importantly

DON'T KEEP THEM TOO LONG.

DARPA's program managers know they are not at DARPA for a career.

They are only here for 4-6 years,

So they have nothing to lose!

It is the freedom to FAIL that gives them the boldness to go for the big

payoffs.

And fail we do!

But that's OK, failure sometimes happens when you're bringing new capabilities into reality;

But you only really fail if you don't learn what happened, and stop trying to succeed.

You have to try again

And again

And again

Every now and then, someone will ask me to describe the Program Managers who work at DARPA.

I always reply that the Program Managers do not work at DARPA,

THEY ARE DARPA.

While a stint at DARPA is not a career, it is the best thing you can do for your career.

At DARPA you can express your creativity, try out your entrepreneurial spirit, pursue your dream to push a technology-

All the while serving your country!

So consider joining us if you have ideas that seem difficult to get done where you are.

But don't take MY word for it!

Go ask a DARPA PM!

They are all here at the conference.

Or listen to what they have to say about life at DARPA on our website, or at our Human Resources exhibit.

Learn for yourself how exciting it can be –

to take a walk

“on the Far Side.”

If we all do our part, we will celebrate at the next DARPA Tech, hard obstacles overcome, great missions accomplished breakthroughs ready to happen.

Perhaps even vehicles that drive themselves.

After the last DARPA Tech, we held the Grand Challenge.

The goal was to accelerate autonomous ground vehicle technology to be used to remove our forces from harm's way and save lives on the battlefield.

We offered a 2 million dollar prize to the fastest vehicle that finished a 132 mile desert course in under 10 hours.

It was a very difficult course for totally autonomous vehicles.

Always turning, sometimes hairpin turns with obstacles.

The vehicles were allowed only two commands:
Start and Stop.

Nearly 200 teams applied for a shot at the prize.

They came from across the country...

from companies,

from universities,

from high schools.

The Grand Challenge inspired scientists worldwide and perhaps more importantly it inspired young people that science and engineering are exciting fields.

Five vehicles finished the course.

Stanford's 'Stanley' finished the fastest, averaging nearly 20 miles per hour.

But DARPA as usual was not satisfied.

After all, the obstacles were FIXED.

So we created a new challenge:

The URBAN CHALLENGE

Because in the real-world the autonomous vehicles would be confronted

with TRAFFIC.

This is a tough challenge and it is not clear that anyone will succeed.

We again decided to award prizes.

The grand prize is \$2 million dollars as before.

But with a sweetener for 2nd and 3rd place.

The winning vehicles must drive 60 miles in city-like traffic in under 6 hours as well, or better than a licensed driver.

On Thursday we'll announce the teams selected to compete in the semi-finals.

The final event will be November 3rd in a still undisclosed city in the Western part of the United States; undisclosed until this Thursday at a location perhaps not even too far from here!

By the way, if you don't have plans for November 3rd, we are looking for volunteers.

We have plenty of moving vehicles, but we are short on Pedestrians.

So I come to the end of my opening remarks.

The End!

Is there really an end?

Not at DARPA.

By the next DARPATech many changes will have occurred.

But DARPA will always be DARPA and still helping our Nation prepare for an uncertain future, using the power of ideas to bridge the gap.

That's how it will always be, regardless of who is standing here.

Thank you for coming, and enjoy the conference.