

Opening Remarks from the TEDCO Showcase – September 4, 2003 (Johns Hopkins Applied Physics Laboratory)

Wayne Swann, Director of Technology Transfer at APL:

It is my pleasure to welcome you to a TECDO Technology Transfer Showcase. Today it is entitled 'Applications for New Communication Technology, Innovation and Imagination'.

This morning I am very pleased to see a number of familiar faces and even more pleased to see a number of unfamiliar faces. Although I don't have time to recognize everyone, I did want to thank Pam College from Senator Mikulski's office, and Heather Campbell from Congressman Cardin's office for joining us today.

Many of the new faces might not know that APL was the site of the first TEDCO Showcase about three years ago. I have to say that I am personally very proud to continue to have TEDCO as an economic development partner in the great state of Maryland.

APL has its roots in making innovative contributions to this nation. It's been doing it since 1942. Today it continues that tradition in developing innovations at a rate of one every other workday. At this time I'd like to introduce the man at the helm of all of that innovation, the Director of APL, Dr. Rich Roca.

Dr. Richard Roca, Director of the Applied Physics Laboratory

Thank you, Wayne. As far as the dreary weather goes, if that's what it takes to get the Orioles to hit, then we'll take the drizzle that comes along with it.

APL was started in 1942 in order to commercialize technology that was transferred. It's ironic, we're almost at the end of a loop, or spiral, of development that is now so current within the government. But, in the late '30s, several British scientists came over to the United States with inventions that were based on microwave technology that they thought would be appropriate for the war effort and accelerate the development of it and also to make sure it was kept out of the hands of their enemies.

They brought these technologies over and one of them was presented by Vannevar Bush to the organization that eventually turned into APL in order to make a proximity fuze. From that invention, after 60 years, you have both a combination of probably five or six thousand people over time who have made their living in this organization – six or seven thousand people. There are thirty five hundred right now.

But, also, we have sparked a series of innovations in both war fighting and in space science and technology that have done the country well. Satellite-based navigation originated in this place. Network communications for air defense originated in this place, among others.

So, the initial spark that sets something off is awfully important. I don't know which of you out there are the next APL that sixty years from now you will be talking about your equivalent of satellite navigation or your equivalent of sensor networks, and how many thousands or tens of thousands of jobs you will have created. But, it will be because of activities such as this, or ones similar to it.

We're awfully proud to be able to help here. It's somewhat like passing a baton. It's important to the success of the region. It's important to the success of the nation as a whole. So, thank you for taking the time. If there is anything that any of us can do to make this more successful, please get a hold of us. Thank you.

Wayne Swann: Thank you Rich. Well, an event like this doesn't just happen. It takes a lot of hard work by a special group of dedicated individuals. First and foremost I want to thank the individuals who put forth their time and effort to prepare the presentations, the posters, the materials – of course, the innovators themselves, and the presenters.

Second, I want to thank the OTT staff and the organizing team of Kristin Gray, Heather Bulkin, Rae Mason and a very special thank you to Heather Prettyman, who is sitting right here, for effort above and beyond. Heather is going to be our timekeeper today, so the presenters should be wary of this person when she holds up her hand.

Finally, I want to thank TEDCO and their fine staff of professionals for, once again, giving us an opportunity to showcase a very small fraction of the innovations and the imagination that is generated at APL.

It is now my pleasure to introduce the person at the helm of TEDCO, the Executive Director of TEDCO, Phillip Singerman.

Phillip Singerman, Executive Director of TEDCO:

Thank you, Wayne. I also want to thank Rich Roca for joining us today. Rich had to squeeze us into his schedule because he's rushing down to the Mall to see Britney Spears and the NFL; but we really appreciate his taking his time to do that, to join us. Seriously, thank you very much for joining us this morning.

Maryland's Technology Development Corporation is the state's non-profit corporation created by the General Assembly in 1998 to promote business development through the commercialization of technology.

The Maryland Innovation and Technology Index of 2003 demonstrated that R&D is the driver of Maryland's economy. Indeed, in terms of its contribution to the gross product of the state, R&D in Maryland is equivalent to what R&D is in Massachusetts, the recognized national leader.

Maryland's companies, universities and federal labs receive more than \$8.3 billion annually in federal R&D funding; on a per capita basis, more than any other state

in the nation. The R&D performed by Maryland's 60 federal labs, such as NIH, NIST, the Army and Navy research labs, NASA, Goddard – just to mention a few, is more on an absolute basis by a factor of two than in any other state.

Johns Hopkins University receives more federal funds annually – over a \$1 billion a year – than any other university in the country, and nearly half of that is attributable to the work performed here by the Applied Physics Lab. However, although R&D assets make us a national leader, our R&D performance puts us in the middle of the pack.

In our R&D capability we resemble Massachusetts. In the commercialization of that research we resemble Missouri. It is for this reason that TEDCO has organized technology showcases with our federal laboratories. Since our first showcase here three years ago at APL, thousands of investors, entrepreneurs, and researchers have attended 20 showcases across the state.

We are returning to APL because they are a leader. Indeed, they are the state's leader in the commercialization of technology. Under the direction of Rich Roca and Wayne Swann they have set the standard among universities for technology commercialization.

I had the privilege of joining Wayne for last year's inventors award and he reported to the group that he was receiving a disclosure every other day from his researchers -- setting the standard, really, for the state. This institution is really a fine institution and organization for the state, and we're very pleased to be working with them.

We're also returning to APL to make a special announcement today. We are renewing and extending our 3-year Technology Transfer memorandum. Through this memorandum TEDCO will assist companies to access APL's technology and provide funding for such activities.

Before I close, I want to thank the staff of the Technology Council of Maryland, Angie Bergeron and Dyan Brasington, the President – is Dyan here – somewhere in the back? Thank you, Dyan.

Dyan's organization is organizing a series of programs connecting companies with funding opportunities at federal agencies. I would encourage you to look in the binder that has been provided for information, and also to look on their website.

Finally, I would like to read a letter of greeting from Senator Sarbanes and then ask Pamela College, a representative of Senator Mikulski, to offer some remarks. This is particularly important because none of this is really possible without the leadership and the advocacy of our congressional delegation. The federal funding that comes into Maryland's institutions comes as a result of the quality of work that is being done here; but also the extraordinary efforts made by our congressional delegation to provide that funding.

The **Letter from Senator Sarbanes**, I'll just summarize.

Dear friends, I am most pleased to extend warm greetings on the occasion of the Technology Showcase sponsored by TEDCO and Johns Hopkins Applied Physics Lab.

The important notion of technology transfer is an area where Maryland is faced by both major challenges and tremendous opportunities. Today's event is another installment in TEDCO's continuing series of federal laboratory showcases and represents one of the most important real efforts to bring together the expertise of federal laboratories and Maryland's entrepreneurial community.

I would also like to recognize the important work of Johns Hopkins APL, which is a national model of successful partnership between the federal government and academic community.

I have vigorously supported APL's work over the years and I can think of no better place to hold an event that highlights both the partnership and cutting edge technologies we can jointly harness in the state of Maryland.

Please accept my warmest wishes for a productive and enjoyable day.

Sincerely, Paul S. Sarbanes, United States Senator.

Now I would like to ask Pamela College to join us.

Pam College - representing Senator Mikulski:

First of all, it is my pleasure to be here today -- not only at APL -- I kind of enjoy this particular agency -- but, also, it is an honor to represent Senator Mikulski. She is very sorry that she can't be here today. She's had her recess rest and now she's pounding the pavements of the Capital to make sure you have the funding to continue the technology advances you've made through the years. On her behalf I'd like to read a letter from her.

Letter from Senator Mikulski:

Thank you for the opportunity to extend my greetings to the sponsors and participants of the TEDCO and APL technology partnering showcase. This unique cooperative effort is exactly what we need to advance the application of new innovations to the nation's technological needs of the 21st century. I wish I could be there to get an up close look for myself.

Congratulations to TEDCO and APL on the occasion of the renewal of the Memorandum of Understanding which provides the foundation for another three years of joint accomplishments. This agreement between APL and TEDCO is a model for bringing the best and the brightest together from the private and public sectors. That's the kind of partnership we need to keep America strong and safe.

This agreement makes it easier for Maryland companies to take advantage of all the resources at our federal labs. I'm so proud of the men and women of Maryland's technology industry and our renowned facilities, like the Applied Physics Laboratory, which is a vital partner in our nation's space program and a leader in developing defense technology.

Best wishes for a successful event and continued progress in all your future endeavors.

Sincerely, Barbara A. Mikulski, United States Senator

Wayne Swann: To be able to provide you with all of the presentations on, what I will call today, is a very fast track – these are five minute presentations – I ask that the audience refrain from asking questions until either the break after Session I, or at the luncheon when we're doing the networking.

I also ask that all the cell phones in the audience be turned off and I also ask that each presenter proceed to the podium immediately following the previous presentation.

You'll notice that when Heather Prettyman will cue the next presentation stands up and gets up here. At this time I would like to stay right on time and call for the first presentation of Session I. Thank you very much.

[Seven inventors give presentations.]

Success Story

Wayne Swann: Our next presenter has arrived through the rain and the storms. This is a little bit different. This is a success story, of the Laboratory working with TEDCO with a small Maryland company. Blake, we're ready.

Blake Henke of North Star Science and Technology, LLC

Good morning. I was told to be prepared to talk for only five minutes, so this is very brief. We consider ourselves a success story, although the success is, hopefully, soon to come, as I'll explain.

We're a small company in Maryland. We licensed some technology from the Applied Physics Lab a couple of years ago and APL suggested that we apply for a TEDCO grant. We did that, and pursued it, and we're very grateful and thankful to TEDCO for providing the grant to us, which, as I'll explain has really accelerated our project here.

Just to summarize, this is a map of Alaska, obviously; this is the technology that we licensed. There is a scientist here named Ray Sterner who is a wizard at making

maps. He's really a mathematician, but he's kind of a software guru. He works in mapping software and he creates shaded relief maps, 3-D maps, all kinds of maps and satellite images, using raw kind of numbers, data. It's really fascinating to work with Ray.

Anyway, that's what we licensed. We licensed all of Ray's mapping content, all of his images, etc. This image itself, actually, can be blown up to a huge poster without losing any resolution. It's really, really detailed.

Ray also has a website. It's posted here on one of the APL servers. It gets 5,000 hits a day, which is astounding. It offers all kinds of mapping information maps – satellite images, that kind of thing, for free. The content really was put in about '95 and '96 and it has remained unchanged. Ray has not added anything to it; he's not done anything different and, yet, he still gets 5,000 hits a day on this website.

He also gets a great deal of interest from various companies – publishing companies, museums, software companies, schools, etc., to use and license the various images that he's created.

Our idea was to create a whole lot of new content, since nothing has really changed on Ray's site since '96, and to charge something for it. We decided to try and offer subscriptions, and, also, a fee for download for new maps and information.

The TEDCO funding really just enabled us to accelerate this. We would have done this anyway, but it would have taken us two or three years being the kind of small company that we are. We're probably going to accomplish all this in about nine months, thanks to the TEDCO funding.

These are just some examples. I'll run through these really quickly, but we also have some posters, and I have some posters.

This is a shaded relief map of the United States and these are just vibrant, very attractive images – schools love these, for example.

Here is some other stuff that Ray has created. This, on the left, is an 1895 map of California. On the right is a satellite image, actually, of the Gulf Stream currents, which Ray also creates on a regular basis.

Anyway, again, our idea. Create new content. Okay, what's that new content going to be? Well, 3-D versions of the 50 states, very high resolution versions of the 50 states, registered versions which are maps that can be plunked into a GIS program and used immediately.

We've got posters; we're going to offer CD's; we're going to offer subscriptions and individual map downloads. The website is www.landforms.biz. It's supposed to go live, probably, next month.

Finally, this is just one last example – this is another thing that Ray can do – this is Hurricane Lilly. He gets this data from down linking satellites and he creates these very vibrant images. There's a whole range of material that we're going to be offering and we're very indebted to the TEDCO folks for providing some funds to help us out. Thank you.