Rear Admiral William E. Landay III

Presentation

IFPA-Fletcher Conference

REAR ADMIRAL WILLIAM E. LANDAY III, USN: Well, good afternoon. It's certainly a pleasure to be part of this conference and part of this panel, most of whom I've spent a good part of my later time in the Navy working with. So it's particularly an honor to be up here with these folks.

You know, I was struck, when we talked about how we liked to always improve our processes, and work on our processes, in Larry's example of the first ironclad being built in 108 days. Now I have never seen a ship built in 108 days, but I did once almost see a requirements document get through the chop chain in 108 days, so I think we're trying to continue down that model, but….

What I would like to talk about in the course of my discussion is a focus on technology from where I sit, as the Chief of Naval Research, and how we see the concepts that have been discussed here over the last two days in this maritime strategy in terms of partnerships really affecting us. Not only from the areas that we've talked about, such as cooperation and working together, but how they're really going to affect us, from a technology perspective.

If you think of the broad vision of which the maritime strategy is a piece, I would contend there are really three key things, foundations that we tend to focus on, as a military.

The first is the quality of our people and their ability to lead other people within the mission. The second is the strength of our strategy, our tactics, and our procedures. And, again, the talk that we've had about maritime strategy is a key piece of it. And the third is the ability of technology to enable those first two things. And you really need some

combination of the three of those for your vision to be executed and your strategy to be effective.

I'm going to focus on that third piece, the technology, which is really where I sit as the Chief of Naval Research. So, let me give you an example of how we already see the concepts being discussed from the maritime strategy playing out, and the implications that we potentially see of that strategy as it gets invoked.

I refer you up to the picture on the screen. The two guys in the center, United States Marines today, I would contend to you, are the most capable warriors that the world has ever seen. These two guys have the ability to speak from any point on the face of the earth to any other point on the face of the earth. These two guys have the ability to access a world-wide intelligence gathering network, netted together, all the things that Bran was talking about, maybe not quite as well, but those same concepts. Take billions of bits of data, sort through that data, and actually come up with actionable intelligence. These two guys have the ability to fix their position on the face of the earth to a degree of accuracy that we have never seen before, and when you combine the three things together: the ability to communicate, the ability to get actionable intelligence, and the ability to know where you and all of your buddies are, then it enables you, from a warfare perspective, to be able to inflict damage, or influence in other ways, the enemy in ways that we've never been able to do it before.

And these two guys are outfitted with this capability by the best minds and the best science that organizations like the Office of Naval Research, and defense contractors, like many of the folks who are sitting up here, are able to provide. And we're very proud of what we're able to do.

Now let's talk about a current adversary. I contend that this adversary that you see up here is the most technologically advanced adversary we have ever faced. This guy has the ability to talk from any point on the face of the earth to any other point on the face of the earth. He has access to an intelligence gathering, data gathering, netted network that can

collect billions of bits of information, can sort and process that information and, potentially, give him actionable intelligence – it is called the internet. He can locate his position on the face of the earth to a precision that we have never seen an adversary be able to do before, and when he brings all three of those things together, he has an ability to influence and potentially engage our folks. And he is outfitted by the best technology that the best minds in companies like Nokia, Sanyo, IBM, Hewlett-Packard, and others in the global technology environment, can provide him.

So, from a military perspective, as you think about Global Technology Movement, that can be a challenge but, in the end, that's exactly what the maritime strategy is about. The maritime strategy is about the global economy, it's about partnering people together, and it's about sharing opportunities, benefits, wealth, economic power, all those kinds of things. It's really that partnership piece. But with that partnership, also come some real challenges to us as a military, but those challenges are opportunities to us as a nation.

When you see charts like this, people will often say, "This is really bad because the amount of R&D investment, or the percentage of R&D investment in the United States, and in our typical allies, generally in Western Europe, is going down, and there's a significant growth in R&D, and science and technology in other parts of the world, like China and India, and that's very true. But the key thing is there has been an 83 percent increase in the amount of R&D funded around the world in the last eight years. This global economy, of which the maritime strategy is particularly focused on trying to support, is moving out from an R&D perspective, at a rate that we've never seen before. And this is good. This is positive for us.

So as a nation, we want to be able to take advantage of what this global economy can provide to us, but we've got to figure out, as a military, how we're going to engage in it because, in the end, we still need to be able to provide ourselves a technological superiority in those areas that are important to us from the military perspective.

And so, as we think about strategy, the maritime strategy, and global security strategy, and the implications of that from one of those three pillars, which is technical dominance, it creates an opportunity and it creates a challenge for us. Our tendency is generally to always go after the challenge. And I think one of the themes that we've already heard from the folks here, is our tendency in going after the challenge is to try to stop this, or to try to make sure that we're the only people that benefit from this, and put in place those restrictions that really don't allow us to take advantage of what I contend the maritime strategy is eventually trying to get us to. But that restrictive mindset – from an acquisition, engagement and in searching for technology, can get in the way of where we want to go as a nation and a member of this global economy.

Let's look at commercial R&D around the world. We always tend to think about U. S. companies that are overseas, and we're worried about technology transfer overseas from our companies, and that, in fact, happens. I had the opportunity this morning to spend two hours with GE's global research network and have this discussion, and they very much are out looking for technology around the world to support the GE business.

But you know, interestingly, we forget about the fact that many other global businesses are also looking back into the United States and are bringing their technology and processes into the U.S. So technology is not a one-way path. It's a two-way path, unless you don't take advantage of both sides of that path, and I think as a military, as we're trying to figure out how we're going to exist and remain dominant from a military perspective, how we take advantage of both paths is something that we need to think about.

Now, from the perspective of the Office of Naval Research, and I think all of the Department of Defense science and technology, and R&D agencies, we're actually doing a lot of this. We're actually working global technology movement very hard. Those dark orange countries that you see up there, are countries that I currently have, through the Office of Naval Research, active, ongoing, research engagements with somebody or some entity in that country. One of a thousand universities, non-profits, small and innovative

companies, large companies, all of them people who we see having technology, science, or innovative ideas, that we think can potentially support where the United States Navy, and the Department of Defense, want to go.

Our problem is not only finding it, though, it's getting the ability to bring that innovative technology into our systems. We need to take advantage of what we are trying to do with this maritime partnership – to enhance the global economy to the benefit of the United States, to the benefit of the U. K., to the benefit of Australia, to the benefit of all the folks who are partnering in it, and do the same thing in our military systems, especially when it can also impact your military strength in a negative way? And that, quite frankly, is the challenge that we're dealing with at ONR and, I think, the collective group up here is dealing with.

I can tell you my perspective of this is, there isn't anybody here, certainly any of the folks who are in the defense contractors, who aren't interested in going and getting that technology. The problem is, I'm largely preventing them from being able to do it because I'm requiring that it be U. S. vendors, U. S. scientists, U. S. students. So, when we think about this maritime partnership, and what we really want to get out of it, and if you think back of all the discussions we've had about partnership, it's not just a partnership about being able to figure out who's in the maritime environment. It really is about a partnership of how we are going to share ideas, innovation, and technologies, while retaining the critical aspects of national security.

And I would contend, as we look at the strategy, it is both a great opportunity and really a hard thing, and I wish I could tell you I knew how to do it. But what I do know is that there are some things that we have got to figure out how to get around for us to be able to take advantage of this from a technology and a science perspective. And these are some thoughts that I would throw out to serve as topics as we go to the question and answer period, but something that you ought to think about.

We have to better engage with innovative companies and inventive people, large and small who are not Defense contractors. Here lies my challenge. I have exactly, the same contracting and legal requirements to do a five hundred thousand dollar S&T contract with a small, innovative company that we have to DDG-1000 with a large defense contractor.

We've got to figure out where technology ideas are being developed, how we can get that technology, and then unleash the power in the big defense contractors to take that technology and turn it to our advantage for a military capability. But we can't treat all groups the same, if we really want to be able to leverage this. We need to figure out how to more easily bring international technology into U. S. weapons systems. And I contend every country out here has exactly that same set of challenges.

It doesn't mean that you're outsourcing your weapons systems. We need to figure out where there's good technology and how you bring it in. We also need to be able to tap into bright foreign students, who we are educating in U. S. universities, but who we almost exclusively prevent from working on really good science and technology for us. So, when I go to a school like MIT, and I want to talk to some of the brightest computer scientists and electrical engineers up there, I really can't always do business with them. There is an opportunity there that we're missing. An opportunity that this partnership, this strategy, wants us to be able to engage in, but we're preventing ourselves from being able to do.

Finally, with our key Defense partners, we must improve how we engage with them, from an IRAD perspective, and how we align our processes to meet the industry's needs. We must drive the technology requirements process, but we also have to help enable them in order to be able to go forward to do the things that we want them to do.

So, from my perspective, as the technology guy, working science and technology, particularly future science and technology for the Navy and the Marine Corps, I think the things we talk about in maritime strategy and maritime partnership, are absolutely

exciting. There are some real challenges for us that we're going to have to go deal with in terms of how we will stay on the front end of this technology movement, even as the movement gets bigger, faster, and more aggressive than we've ever seen. We have to accept the fact that what you want to do in the strategy is to our benefit as a nation and a military, and we have to figure out how to use what comes out of the strategy, not try to get in the way of it. Because, if we do not figure out how to succeed in this global technology environment, then I believe we are going to lose out as a military power.

So, with that, I look forward to any questions that you have at the end of the panel. Thank you very much.

Q&A for Entire Panel

DOMBROWSKI: Well, I think that was the first set of presentations that raised a whole lot of issues that I'm sure there's many questions on, so I'd like to open the floor to start. And please identify yourself and where you're from, and if you have a particular person you want to identify, direct your question to. Please, from the floor, in the middle, in the yellow tie. I'm sorry.

TONY LEGWRICK: Hi. Tony Legwrick (?), former classmate of Robbie, if that's worth anything. I was intrigued by Mr. Ferren's ideas, particularly as a game changer, so the question is really for my compadre, Admiral Landay. If you're in the game changing business, are you investing, at the S&T level, in 6-1, 6-2, in ideas like Mr. Ferren's here, that would have potential, as a game changer?

ADMIRAL LANDAY: I think so, yes. The question, of course, is what are the other potential game-changing ideas that maybe you haven't invested in. We are always actively looking for ideas and technology solutions and, you know, my job is really to be that naval incubator of ideas. We are, in fact, taking a look at the whole concept of sensors, and how you think about sensors. So, I would say, "Yes, I think we are," but, again, there's probably other ones out there, as well, that we're not, and it's generally because we haven't found them yet.

LEGWRICK: Thanks. While I've got the mike, a second question, if I might. Of the notion that there's the "We, them," and it's government and it's not government, and this sort of an opportunity to comment. I'd suggest that there are actually three parties out there. The "We" is actually two. There are those who were in acquisition. There are those who were not in acquisition. And then there is industry. Each of us has been painted differently. And then, would you think about, for a moment, and comment on the fact that we have a great enthusiasm for the non-acquisition guys to be in charge, and if they are in charge, they'll fix it. If you would comment.

DUMBROWSKI: Does anybody have a comment on the second question?

A: Tony, I'll comment. Number one, if there's only three, we're lucky. Number two is, I don't know about a lot of, and I don't resonate with a lot of fever around the non-acquisition guys. I think it's fairly clear; we have issues in the acquisition world that have to be cleaned up and have to relate. You can read the Washington Post any day and see a new announcement. So, my whole message is, we have to work together, whether you're on the waterfront, you're in the Pentagon, or you're in the Washington Navy Yard, to make these things work together. And you can't just write an over-arching document that says, you know, my "Hope is not a strategy" comment. It's got to have some meat to it.

DUMBROWSKI: I saw Robbie Harris next, and I'm catching eyes.

ROBBIE HARRIS: Robbie Harris, classmates of Tony and Larry Cavaiola. A question for Admiral Landay. Sir, what's this strategy, this new strategy, you've rolled out? How do you align the S&T community, and its priorities, with this new strategy, and how do you fold industry into that?

ADMIRAL LANDAY: Well, from a science and technology community answer, first, that is exactly our mission and our goal. We've just recently updated our strategy in advance of the maritime strategy, and we'll update it again as needed once this latest

version of the maritime strategy comes out. As we worked the S&T strategy, we particularly focused on what were driving the requirements and investments we were making in science and technology. And what we found, as we looked at it last time, is there were a lot of different inputs and masters that we were trying to satisfy. So we made a decision in this last strategy, which I think prepared us very well for this maritime strategy, to say, "It's really only three customers for me." It's the CNO, the Commandant, and the Secretary of the Navy.

The CNO, the Commandant, and the Secretary of the Navy, will figure out the role of the Navy and the Marine Corps, in the joint fight, the national security policy, the maritime strategy. That's what we're paying them to do, and I believe they do it pretty well.

What we're going to do is align the science and technology strategy to those key elements that they believe are important, to support their visions for the Navy and the Marine Corps. So our current strategy is aligned very specifically, based on inputs from Sea Power 21, the POM-08 Naval Strategic Plan, Marine Corps 21, Marine Corps S&T Strategy, and Enterprise S&T Strategies. When this maritime strategy rolls out, one of the tasks that we already have in place is to go take a look at where the strategy wants to drive us, and do a course correction in S&T if required – but I believe those changes will be minor.

Our goal is that we should, in most cases, try to be out ahead of the strategy. And so, hopefully, what we're going to find is that many of the areas that the strategy wants to go, we've already started some work in those areas. And it's more a matter of a reallocation of resources to further emphasize other areas. But, absolutely, for us to be effective, we have got to align ourselves to the maritime strategy. And that's what really prompted my comments that the strategy really is going to have a significant impact in the whole way that we think about science and technology. And I think we're well equipped to do that. We've spent the last year taking a hard look internally at many of these issues, to prepare ourselves for whatever comes out of the strategy.

Q: ...(inaudible)

ADMIRAL LANDAY: I think, again, one of the key things that we've tried to do, from a naval S&T perspective is to explain to people where we wanted to go. Where we thought science and technology should go, in support of the CNO, and the Commandant, and the Secretary. In the past, you had to figure it out yourselves. And sometimes you did it well, and sometimes you didn't, because we weren't really doing a good job of telling you. In our current strategy, we're trying to be very open, to say, "This is what's important to us. This is where we're making our investment in science and technology. This is how we see those investments furthering the Navy and the Marine Corps, consistent with where they want to go." And if you think we've got it wrong, we'd love to have that dialogue with you. The kind of discussion that we're trying to have with industry, you know-- The folks up here and others-- Is really one that says, "Here's what the vision is, as we see it. Where does the defense industry see it?" Because we contend we don't have the market on all good thought. So we very much want to sit down and collectively decide where we think we need to go, from a science and technology perspective.

But I believe we have to lay out the starting position in that discussion. I have to say, "This is where we are going. If you agree with it, great. Let's do it together. If you disagree with it, then come in and let's have a discussion on it." I think in the past we probably have not done that as well as we could have. And we'll do the same thing with the maritime strategy. When it comes out, we'll have a discussion with ourselves, and everybody else, of whether we're aligned. If we don't think we're aligned, where we think we need to change, and we will promulgate that, and say, "This is where we're going now, and let's have a discussion if you think we've got it wrong."

SMITH: Could I comment on that? Because I think there may be a difference in the way the government looks, and the way industry looks. When we do planning for investments and, please, any of my colleagues jump in, but in my world, we develop the strategy, and then we target our investments to fulfill the strategy. We don't develop the technologies,

those kind-- We don't invest to develop the technologies and then say, where can that take us? That's how we used to do it. Because we used to go to guys like Bill Landay and say, "I got this great black box, and you need to figure out how to use it."

But, over the years, as we've gone through this consolidation, etc., we started (?) to change the mode and tried to set up the strategy as the driver to where you place your investments. And that might be a difference now in how we work at a disconnect, in trying to make the collaboration.

ADMIRAL LANDAY: If I could jump in. I don't think that's necessarily different than the approach that we're taking. In the Navy, we've made a commitment that we're going to have a significant investment in basic research. There are pieces of this where you're trying to advance the technology, maybe in advance of the strategy. Because, in some cases, you're trying to help the Navy understand that, through some possible uses of technology, it may influence your strategy. But other than in some of those basic research investments, that's exactly what we've been certainly trying to do in the last year. It really is about the vision of the CNO, and the Commandant, and the Secretary, and where they want to take the Navy and the Marine Corps, and then what is our contribution to their visions. We're a piece of it. But I agree with you, Dan. I mean, that's exactly right, and that's why we felt it was important to articulate it, so that not only did we understand it ourselves, but the Navy and Marine Corps understood it, industry understood it, and if people thought we had it wrong, we could then recalibrate ourselves. So, I think we're very much consistent with your thinking... (inaudible)

A: Could be.

DUMBROWSKI: Another question from the floor? At the risk of delaying Bob Pfaltzgraff's closing, I will take my prerogative as chair, since we have a couple of minutes left, and just ask two general questions. I guess one prompted by Dan Smith's comments, and you raise the issue of systems engineering. I've heard that talk both at dinners, and lunch, and around the corridors. What I'd like to ask you, and this is an

academic perspective remember, is who should do the systems engineering for many of these programs? Is this an industry function, is this a government function, is it an SSFFIBC function, or is it some admixture? Because, it seems to me, there are delicate choices there, with big implications for how successful we are in the long run.

The second question is prompted by Bran Ferren, but I guess it's also more general. Is-- You propose sort of an alternative way of actually looking at the entire problem of acquiring the sensors necessary to implement the strategy in the long run. To me, and this is a non-expert, the traditional-- You haven't answered some of the traditional objections. For example, about the security questions associated with that, the question of the proprietary. How do you make money under such a system? Now I know this, in the GPS world, and in the Internet world. Some of these things have been solved, and some haven't. And I wonder if you could address those and, at least if you see where I'm coming from, or anybody else in the audience. So, with that, I'll get off the stage and let you answer, and then I'd like to have a round of applause for the panel and their excellent work at the end of the day. Then I'll turn it over to Bob Pfaltzgraff. So, please, if anybody has any thoughts they'd like to share.

A: I guess, since I fostered the question, and as I copied it down, the question was, "Who should do the system engineering?" And my simple answer is, "We should." Because it's not as simple as saying, "The lab should…." Or, "Industry should…." Or "Small industry should…." Because if you get down to that level of question, you've already failed to system engineer the problem. And you've got to system engineer the problem from the top. And I'm talking about system engineering much more as a thought process and a methodology, than a guy who comes out of MIT with a system engineering degree. Or a guy who comes out of any other university, or a guy who comes up through the fleet and gets all of his navy schools and does all this stuff, and may make the best system engineer in the world. But he didn't get the degree that he needed to be called an engineer. So it's a whole different thought process we need to put in this. I mean, that's my take on that question.

A: I'd reinforce that, in another odd Lockheed-Raytheon agreement.

A: When we talk, we agree a lot.

A: Where we fail, where we get into trouble, is when we don't work the system engineering assets. Let's mention a multi-faceted problem. All right? When we fail, it's when we don't engage as a "we" in the engineering of whatever it is we're trying to do. One party has more responsibility than is warranted, or what have you. So I fully endorse what Dan said about "It's a 'we'" and I don't think you can break it down.

FERREN: Relative to the questions of security, mandating labeling doesn't change anything about security because you either can control the access or not, just the way you have in the past. What I would argue is, when you start believing in network effects, you want to share and you wish to share, providing you have controls in place. The notion is the netted data gives you those controls to basically say, "You have access to this. You don't have access to this."

But that's not fixed. It's dynamic. So, for instance, in time of war, you might flip a war switch, and all the rules change, based upon a pre-determined set of conditions, or such. So, on one level, security doesn't change. Two, if you look at the business of intelligence and communications, the points of the other speakers, there is no line anymore between open source, etc. The vision of all sources is how you have to look at everything and, as a result, the ability to play well in an all-source environment directly affects your ability to extract value from it. And, clearly, if you have this notion of ubiquitous labeling, and opportunistic, agent-based functions that can work against that, that makes that better.

Finally, I would argue, if we start thinking, every time you are responsible for a sensor system, of what is the queue, what is the load factor, meaning what contribution does your sensor make, not just to solving your problem, but to the greater good. And, in fact, you fund against that, so that the funding profile's in a truly joint basis, or directly tied to the metrics that say, "This is the contribution it makes." Doesn't preclude you from being

able to have your own stove pipe that connects to nobody, but don't expect a lot of help in paying for it.

At the same time that the other sensor, which satisfies what you need to do. You say, by the way, this is a missile defense sensor, so at a certain moment when we're using it for that, nobody has access to it, go away, we're doing our job, great. But in exchange for that, the rest of the time, you all can use it to drive down the costs of your program and drive up the national capability, and the global capability. I would argue that there's a very strong economic model behind it, as well as, frankly, to the points of how do you get new little companies, and other folks, involved. You end up with an open standard which anyone can invent against and apply. The government, the entities involved, still has ultimate control. They can flip the switches to make it available, share it or not, and I would argue the experience from the commercial world, and now in the intelligence community, dictates that there's an enormous pressure to share, because the perception is that there are enormous benefits to do that.

DUMBROWSKI: Thank you very much. Without further ado, please join me in giving a hand to our panelists, and I guess I give you Doctor Bob Pfaltzgraff of Fletcher School and IFPA.