Remarks by the Honorable Ray Mabus
Secretary of the Navy
Sea-Air-Space Exposition
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Thanks so much, Jim, and thank you to all of you here today. For 50 years the Navy

League, through Sea-Air-Space, has showcased new concepts and technology aimed at

enhancing our platforms, systems and warfighting. These ideas and many more have made the

United States Navy and Marine Corps what we are today: the most formidable expeditionary

force the world has ever known.

We uniquely provide presence around the globe, around the clock – ensuring stability,

deterring adversaries, and providing the nation's leaders with options in times of crisis. The

Navy and Marine Corps are "America's away team" because of the ability of Sailors and

Marines, equally in times of peace and war, not only to be in the right place at the right time, but

in the right place all the time. We can be on station faster, we can stay longer, we bring

whatever we need with us, and we don't have to ask anybody's permission to do what needs to

be done.

Our ability to provide that presence is built on four fundamentals: People, our Sailors and

Marines; Platforms, numbers of ships and aircraft; Power, how we fuel those platforms; and

Partnerships, our strong relationships with industry and our partners around the world. Today I

want to speak to you about an idea that encompasses each one of those fundamentals – and that's

innovation.

The superiority – in technology and concepts – the Navy and Marine Corps have on,

over, under and coming from the sea did not just happen. There have been more than two

centuries of collaboration and experimentation among people in and out of uniform, in

government and industry, redefining what is possible. In so many cases, we have taken seemingly impossible ideas and made them real.

During the Civil War, the Navy worked with inventor John Ericsson to build the ironclad USS Monitor in the face of skeptics and naysayers. We bought, built and fought this ship in just three months. Then, at the beginning of the 20th century, LT William Sims revolutionized Navy gunnery tactics. And during WW II, Admiral Grace Hopper pioneered computers, forever changing the way the Navy, and America, operates.

Whether it's technology like steel ships and Aegis, conceptual revolutions like the use of carriers and the Marines' development of amphibious warfare, or the seemingly impossible science of harnessing nuclear power for propulsion, innovation is a part of our tradition and has been the trademark of our maritime superiority.

Today, the world we live in is defined by speed and information sharing. The pace with which technology is developed, employed, then changed and developed anew, drives everything we do. Information is shared everywhere in seconds. Social media is a revolution and has started revolutions.

Technology is no longer available just to the few—to governments and nations—but to everyone. Our adversaries can be nations, or not, and can appear at the speed of connectivity. They can adapt and employ technology as fast as the commercial world develops it. They can be unburdened by policies and processes. The array of cyber-attacks and the variety of both attackers and targets are just one, very visible and very disturbing example.

The world is getting faster, more nimble and is changing exponentially—the world that is with, too often, the exception of the United States military. If we do not free ourselves from the

ever expanding, ever tightening coils of bureaucracy, if we do not set the pace on adopting change, if we continue to think and do in the same ways we have for so long, then our days as the world's pre-eminent maritime force are surely numbered—and that number is small and shrinking.

As Lincoln said 103 years ago: "As our case is new, so we must think anew and act anew…."

We must be faster, much more innovative and quicker or we can – we will – lose.

To try to achieve the seemingly contradictory goal of making a very large organization agile by using parts of that same organization, in January, I established the Navy's Task Force Innovation: a group from across the department comprising thinkers, experts, and warfighters with diverse backgrounds and from every level. We have a long tradition of creativity, and we have exceptionally talented people in the Navy and Marine Corps. I've charged this Task Force with harnessing that creative energy of our Sailors and Marines and infusing the ideas that come forward into our operations.

This isn't just about producing new platforms or weapons. It is a huge cultural change. It's not only about what we make, it's about how we think. It is about risk, and accepting risk by trying new ideas, some of which most assuredly will not work. Sometimes you fail, that's why it's called risk and not certainty. We have to move away from the notion of zero-defect, never-failing individuals and organizations. And that's very hard. Because when you fail, people inside the organization will be ready to pounce to try and take advantage of a failure for personal or institutional advancement. People outside – in the media and Congress and elsewhere – will indulge in the Washington game of finger-pointing and blame assigning.

But we must try, and for all our sakes, we must succeed. We must succeed at embracing risk and at accepting and learning from some failure.

During the past few months, the members of Task Force Innovation have gone out to the Fleet and sat down with Sailors and Marines, watched them work, and listened to their input. They have gone outside the Department of the Navy and outside the government to see what things successful organizations are employing that may be worth adopting, and, later today, you'll hear a panel from three of the TFI principles, Vice Admiral Cullom, Brigadier General Killea, and Mr. Tom Hicks, Deputy Under Secretary of the Navy (Management).   I encourage you to listen and participate, as they have great ideas to share, and we need yours too.   With their input, along with the other members of TFI, I've come up with five specific focus areas aimed at reinvigorating the culture of innovation that lies too dormant within our force.

The first is to build an innovation network for the Department of the Navy. Right now, there are examples of innovation occurring in pockets all over the Fleet. For example, crewmembers onboard USS Benfold started Project Athena, a grassroots innovation campaign onboard their ship. They meet weekly to discuss new ideas to make their ship and the Navy better. And the program expanded to ships in Everett, Washington and in Norfolk, Virginia, bringing innovative Sailors together on the waterfront. They even have competitions for Sailors to pitch their ideas to a crowd. This can't be a one-off type thing. We owe all our Sailors, Marines and civilians a platform by which their ideas can reach the decision makers.

Business is increasingly using "crowdsourcing" for innovation in strategy, in new products, in financing. We need to put this arrow in our quiver too.

This innovation network will be the scaffolding used to ensure coordination and get rid of barriers to progress. It has a web site www.secnav.navy.mil/innovation, that will have a crowdsourcing element, where ideas can be submitted, debated and evaluated, and where innovators connect to each other and resources. I'm sure you will all appreciate that, since this is a DOD website, we're still working through some DOD red tape on getting it up-and-running. So this is a great place to start making things easier and faster. The best we have been able to do is a beta version that is up now for you to visit, with a more comprehensive platform to follow soon.

The second is to reform how we manage our workforce and its talent. With the diversity of thought and expertise in the Department of the Navy, our community of warfighters is growing far beyond the conventional definition of the word.   Modernizing our personnel system is critical to our ability to attract, develop and retain the people with the skillsets we're looking for in the future. That means better recognizing and rewarding performance, implementing far more flexibility into career paths, and ensuring the skills resident in our force are being put to their best use.

For military members, promotions and advancements follow an outdated performance evaluation system of basically "checking the box" that does not do a good enough job showcasing individual talents or skills. We need to be evaluating and rewarding our top performers appropriately to show them we value the knowledge, talent and risk-taking they bring to the fight.

In May, I will be speaking at the Navy Yard and at the Naval Academy about some of the new initiatives we are working on with our personnel. Promotions based on merit as opposed to

year group and expanding career intermission opportunities are a couple of the ideas. Innovation has to be more than about technology, it applies to everything we do, especially people.

Third is to use our information better. In today's environment, data provides us an unparalleled military advantage, and data in the wrong hands can be catastrophic. The platforms of the future are increasingly reliant on the ability to collect, analyze, and disseminate data. This requires the understanding that data has intrinsic value outside of the systems and platforms that contain it. We need to measure what matters-- the content of data and how it is used.

We collect more data than the entire content of the Library of Congress, and we do that every day. We have to extract knowledge from these incredibly huge amounts of data using "Big Data" analytics and advanced computing. Just collecting this data is useless unless we devise ways to use it. Data is a strategic asset and we need to treat it as such both for defense and offense.

Admiral Grace Hopper once said, "Someday, on the corporate balance sheet, there will be an entry which reads, 'Information;' for in most cases, the information is more valuable than the hardware which processes it."

Fourth is to get emerging operational capabilities to the Fleet much more quickly. Too many new assets are mired in outdated bureaucratic practices that were developed for another era. As we enter the age of cyber, unmanned systems and advanced manufacturing, we cannot allow these overly complex, form-over-substance, often useless, and too often harmful, practices to slow or prevent development of some game changers, while simultaneously giving our potential adversaries the competitive advantage. We have bound ourselves with rules and

requirements that have nothing to do with the ultimate outcome of getting something to the warfighter and everything with protecting bureaucratic fiefdoms.

This is about getting ideas from the Naval Research Lab to the hands of the warfighter faster. The electromagnetic railgun will finally be onboard a U.S. Navy ship in 2016, but only for testing, and only after several decades of development – that's too long. Similarly, it is about getting ideas from the Fleet to the top faster. We had a chief onboard a submarine submit an idea to ONR in 2003, that we switch out all the lights onboard Navy ships to LED lighting, an idea that saves us dramatically on cost, labor and energy use. We are only just now in the process of doing that, 12 years later. Again, we just can't afford to lose that much time because our bureaucracy and our processes were designed for equipment and technology from a different era. Or, perhaps more accurately, were not designed at all but just grew up over time like a briar patch. And, like a briar patch, they make progress painful and slow.

For example, with unmanned technology, removing a human from the machine can open up room to experiment with more risk, improve systems faster and get them to the fleet quicker. While unmanned technology itself is not new, the potential impact these systems will have on the way we operate is almost incalculable. For example, LT Rollie Wicks developed a way for an unmanned ground vehicle to communicate seamlessly with an unmanned air vehicle, autonomously identify a target, and perform a mission. We need to give ideas like this one a place to flourish, and that's why, in the coming months, we will be making some pretty substantial changes to how the Department is organized to ensure the structure is in place to help incorporate this capability more fluidly into our operations.

I will appoint a new Deputy Assistant Secretary of the Navy for Unmanned Systems, who will help bring together all the many stakeholders and operators who are currently working on this technology in order to streamline their efforts. Additionally, the Navy Staff will add a new office for unmanned in the N-9, the N-Code for Warfare Systems, so that all aspects of unmanned – in all domains – over, on and under the sea and coming from the sea to operate on land – will be coordinated and championed. Unmanned systems, particularly autonomous ones, have to be the new normal in ever-increasing areas. For example, as good as it is, and as much as we need it and look forward to having it in the fleet for many years, the F-35 should be, and almost certainly will be, the last manned strike fighter aircraft the Department of the Navy will ever buy or fly.

In the field of advanced manufacturing – 3D printing – there are innumerable potential applications throughout our Navy and Marine Corps. The only limit to what this new technology can do for us is our imagination.

We've already seen incredible examples of this. LT Tracy Lewis and a group of Sailors onboard USS Essex used advanced manufacturing to create the parts for an unmanned aerial vehicle that they then built and flew, all while onboard the ship. This is the kind of initiative that demonstrates the creativity and capability of the Fleet and the type of ingenuity that keeps us the best.

And we are putting some of these concepts into action. This Close-In Autonomous Disposable Aircraft (CICADA) *(hold up glider)* can be made with a 3D printer, and is a GPS-guided disposable unmanned aerial vehicle that can be deployed in large numbers to "seed" an area with miniature electronic payloads, such as communication nodes or sensors.

The potential for technology like this- and the fact that we can print them -- make them – ourselves, almost anywhere, is incredible. This is going to fundamentally change manufacturing and logistics, not just in the Department of the Navy, but also in the entire U.S.

Imagine not carrying any spare parts and not having to fly any out, but instead making everything needed onboard ship.

Finally, we must create breakthrough warfighting concepts. The wargaming programs we currently have allow us to avoid both operational and technological surprise, but there are multiple new warfighting concepts, such as adaptive force packaging, electronic maneuver warfare and unmanned swarming, that need to be more fully integrated into our operational plans.

As each idea we successfully implement improves our force, we need to ask ourselves, "What next?" For example, we have already taken a modular triage medical facility and placed it on a Joint High Speed Vessel, vastly changing that ship's effectiveness. Now the question is what else can we do? What other things can we put on this completely new kind and type of ship and how will those things help in the fight?

New modeling and simulation capabilities allow us to try new concepts without bending steel. They allow us to look at things like asymmetrical concepts without going through the tortuous, sometimes years-long acquisition process. And, when one of these concepts shows promise, to move from idea to fielding much, much more quickly.

As you can see with these five areas, innovation is something that can happen at any level, in almost any capacity. We have a lot of "gee-whiz" technology in the Navy—some public, some not. We will continue to work on these very advanced technologies—things like

fuel from sea water and organic material, laser weapons, rail guns. But this innovation effort has to be about so much more than just the headline-grabbing, YouTube-moment breakout technologies – it has to be about the impact that the advance makes. The hundreds of changes, like placing a medical module on the HSV, that are to come – and will come – out of this incredible effort have, when taken together, the potential to be as profoundly altering as the most cutting edge new technology.

It is for this reason that, starting today and for several months, the Department of the Navy will be highlighting our culture of innovation with something specific to the Fleet EVERY day. There will be new guidance and profiles of the people and ideas that are already changing the way we operate, and best practices on how to be better and more efficient. And we'll be coming up with ways to reward innovation no matter where it occurs – and announcing them.

For seven decades, the presence of the Navy and Marine Corps has maintained stability and security, and promoted prosperity by keeping sea lanes open around the world. Today, increasing global demands, coupled with tighter budgets, mean maintaining our presence in more complex environments and more difficult ways. We need those good ideas to percolate up through the ranks, and not be stifled by bureaucracy. There is no better time than now to encourage that culture of innovation that is intrinsic in our people. As Sailors and Marines, as Americans, our creativity, adaptability and willingness to take risks have always been our hallmarks. Those attributes are deep within us, in our very DNA. Those attributes have allowed us to build this unmatched nation and have inspired almost inconceivable achievement. That has been our tradition; it must also be our future.

Thank you.

From the Marine Corps, Semper Fidelis…Always Faithful.

From the Navy, Semper Fortis…Always Courageous.