

**New Vision For SERC as a National Resource**

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**Chairman, SERC Advisory Board**

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**Thank you, Dr. Verma, for your welcome to this conference, and that fine introduction for me this morning.**

**Good morning to all, and as well, welcome to the Annual Systems Engineering Research Center Research Review. This will be a truly stimulating series of seminars into the sweep of the research being conducted nationwide under the Systems Engineering Research Center umbrella, and we greatly appreciate the research community sharing with us and the sponsors some results of the on going research. We offer an initial welcome and a proforma well done to the research community that is here this morning, and will both peer review and speak to all of us about the specifics of the research. A special shout out for Dr. Barry Boehm, the Chair for our Research Council, who properly nags us about the quality of the research.**

**In that regard, let me offer a special thanks to the Fraunhofer Institute at the University of Maryland for the continued relationship with the SERC; and a special thanks to the University as well for the development of our new President at Stevens. Frankly, there is no greater compliment for a successful organization than to have one of its members succeed to lofty positions elsewhere.**

**As well; a special welcome to our sponsors, especially Ms Kristen Baldwin, and Mr. Scott Lucero from the ASD(R&E), Mr. Nick Torelli, Director of Mission Assurance office in ASD(R&E); Ms. Victoria Cox from the FAA; Mr. Terry Edwards, Chief Systems Engineer for the US Army; Major Gen Nick Justice from the RDECommand, US Army; Col (sel) Lester Ogawa from the Chief Engineer office of the Air Force Acquisition, Technology & Logistics.**

**I don't see Mr. Mark Kryzko but want to thank him for his role in both creating and sustaining this vision for helping the Department of Defense continue to be efficient and effective in the primary mission of keeping America Free.**

**To these and any sponsors I've missed: A big thank you for coming to this review and offering renewed guidance for how we are doing and where we can further assist going forward. I**

**will forecast for you that we have used the resources both as you asked, and efficiently and effectively to meet our mission, which is to enhance and enable the Nation's Knowledge and Capability in Systems Engineering for the successful development, integration, testing and sustainability of complex systems, services, and enterprises.**

**This mission has served us well for the first nurturing years of the Systems Engineering Research Center and will underpin our future. We have been the beneficiaries of a continued vision by the ASD(R&E) Mr. Zack Lemnios, and his deputy for Systems Engineering, Mr. Steve Welby, who are relentless in desiring that the rigors of systems engineering design a better Research, Development and Acquisition future. In their speeches and in their professional writings they see that the ability to conceive of, design to, and develop complex systems in the right way on the first attempt remains the one method to faster, better, cheaper across the board. Following the quality standards from manufacturing that making it right the first time, every time, is the best approach to lowest cost.**

**Our focus has been on developing a cadre of experts from universities and colleges across America and connecting them**

**to sponsors to conduct high quality research into topics of interest. At the same time, we noted that we had a common interest with our sponsors to enhance the student experience and encourage American students to complete a curriculum in Science, Technology, Engineering and Mathematics, or STEM. As we discussed this, we realized that we could be effective only if we had a longer dwell time for the research and so have asked the community for essentially deeper probes into this domain. Our sponsors have responded well to this, but there remain issues surrounding a multi-year research topic.**

**Second, we wanted to be sure to have a diverse set of experts spread across Americas to accomplish this effort; and set in motion a unique bid process, monitored by both the SERC Research Council and the principal investigators to bring innovative thought to research topics of interest. Within Stevens, there was instant recognition that bringing a focus on talent, and assuring that we would better satisfy sponsors through a diverse approach involving multiple institutions led us to measure our success with a diversity metric.**

**We also took a look at where complex systems were developing within the US Government, and, with the support of our**

**immediate sponsors, began to reach out to other agencies, some of whom are here today, as the problems to be resolved through tools, templates, and processes are not confined within departments, and instead apply wherever complexity becomes a variable of choice to be used and constrained.**

**This led us to want to relook at the vision for the SERC and get all of us focused on this future and make sure that we were in synchrony. So with that background let me reveal a vision reached after much debate, and yet much apprehension, but underpinned by the same zealotry felt over the past three years.**

**Our Vision is in the brochure including the agenda and is:**

**The Networked National Resource to further systems research and its impact on issues of national and global significance.**

**We as well look at a bumper sticker or slogan which you see next:**

**The systems research and impact network**

**There is coupled to this a change to the mission that seeks to effect the vision in segments. I'll allow you to read that on your own, but did want to spend just a minute on the implications for our researchers.**

**We have come to believe in your talent, and thank you for that. Our sponsors as well have come to respect your talent. We now need to reflect it all back through the SERC and to our generous sponsors in a disciplined and respectful manner. So let's talk about governance, and giving some a recognition in addition to your Institution for the SERC when your great work is published. There should be and I'm sure will be discussions here about that as well.**

**Next, let's spend just a minute on the future. We all understand the design, and development of templates and tools, and the processes that underpin them. Where we want to go is to impact: we would like to be assured that our talents have resulted in the original intent which is in usage -- and the better effectiveness that we believe usage will bring. This will further require recognition, recognition that a particular tool or template in fact applies, and may further require some translation and training for application by the engineers, in some cases the systems engineers who are assigned to the**

**project to best implement the developed tools. As well, we'll need a feedback mechanism to frankly score ourselves on the impact we wanted to make. This in turn would give our sponsors some actual R—Return on the investment we have asked for and received. Yes, this return is in addition to solving the problem at hand and as well contributing to a better engineering workforce, and would result in the better defense acquisition system which is the real contribution of our efforts in the coming budget years.**

**This leads me back to governance: all to come; and the living nature of our vision and goals. We have laid them out for all to see and critique as needed, and hope during this review we hear back from you as to whether the vision and the future fit your views as well. Again, thanks to all for coming and sharing with us; and a special thanks to our sponsors for allowing us the freedom of debate and discussion in all these areas of research.**

**I'll now turn the gavel back to Dr. Verma, who will introduce our next speaker. Thank you for all you do.**