



**Third Annual C.W. Bill Young
Federal R&D Agency Workshop**
U.S. Capitol, Washington, D.C.
October 8-9, 2015

Summary report by Grace Kranstover, Public Policy Fellow

The third annual Federal Research and Development Agency Workshop was held at the United States Capitol Visitor's Center on October 8th and 9th by the State University System of Florida. The workshop's first day was planned to focus on high risk, high reward research, and the second day on marine, coastal, water, and ocean sciences. The workshop sought to inform and discuss federal programs and opportunities in these two fields that Florida universities might be able to take advantage of and benefit from.

While both days focused on different research topics, one of the main themes to emerge from each speaker was the desire for universities and agencies represented to engage together. Many of the agency representatives who spoke encouraged university researchers to reach out to program managers to begin conversations about their current research or research ideas and the possibility of funding opportunities.

Thursday October 8 – High Risk, High Reward Focus

The first day began Thursday morning with Vice Chancellor for Academic and Student Affairs, Jan Ignash welcoming all attending and providing an overview of the schedule. She then proceeded to introduce the workshop's keynote speaker, Kei Koizumi, Assistant Director of Federal Research and Development at the White House Office of Science and Technology Policy (OSTP).

Koizumi presented an outlook for federal research and development investments in high risk, high reward research programs during which he highlighted programs within the federal government that focus on high risk, high reward research in various areas of focus including DARPA for national security, the NIH's BRAIN Initiative for federal health, and STEM education research for the Department of Education. Koizumi also spoke of the regulatory and funding challenges that the OSTP and agencies face in the 2016 fiscal year in order to continue funding high risk, high reward research.

Next to speak was Stefanie Tompkins, Director of the Defense Sciences Office in the Defense Advanced Research Projects Agency (DARPA) at the Department of Defense. Tompkins briefly summarized the history of DARPA within the Department of Defense, explaining its origins along the context of the then Soviet Union's successful launch of Sputnik and the United States' desire to stay ahead of "technological surprises." As a result, DARPA at the Department of Defense works on developing technologies for national security research and development. Tompkins also described the DARPA office's "seedlings"



projects that aim to provide funding for seemingly “impossible” research ideas that have shown some sort of “doubt” and possibility for development. The emphasis on these seedling projects, Tompkins stated, is to rethink complex technologies.

Continuing along similar lines, Jason Matheny, Director of the Intelligence Advanced Research Projects Activity (IARPA) also spoke about developing innovative intelligence technologies and the need for high risk, high reward research in order to do so. Matheny also provided brief descriptions of each of IARPA’s four research and development offices; Analysis, Collection, Operations, and Anticipatory Intelligence to bring attention to the various fields of research the universities might be able to engage with IARPA.

Shifting focus, the next speaker, Russell Shilling, presented the argument for developing an Advanced Research Projects Agency (ARPA) for the Department of Education, a request that has been suggested by President Obama, but has yet to be realized. Shilling, the Executive Director of STEM at the Department of Education stated that the biggest threat to our national security today is our education system, pointing out that only 30% of today’s public high schools have physics classes, and 50% do not offer calculus. He also spoke about the possibilities of high risk, high reward research in developing effective education programs, particularly those that focus on STEM. Shilling is still hopeful that despite the current political obstacles in Congress, an ARPA-Ed could still be created in the near future.

Ellen Williams, Director of the Advanced Research Projects Agency at the Department of Energy (ARPA-E) discussed the impact of energy and its security on the U.S economy. In terms of high risk, high reward research within the department, Williams spoke of its importance in regards to overcoming long term and high risk technology barriers in energy development. Such barriers include reducing emissions, reducing energy imports, and improving energy efficiency.

Grace Wang also provided an insightful discussion into accelerating the commercialization of high risk, high reward research at the National Science Foundation. She described innovation as the “creation and delivery of surprising new knowledge (products and services) that have sustainable value for society” and noted the importance of fundamentally understanding how things are designed, how they are formed, and how they work. High risk, high reward research, is therefore essential to innovation. Wang also addressed the need to cultivate a culture of innovation in the United States, encouraging tech start ups, accelerating innovation research, as well as building innovation capability to facilitate this.

From the Department of Homeland Security’s Science and Technology Directorate at its Homeland Security Advanced Research Projects Agency (HSARPA), Patrick Carrick, spoke about the role of his office in greater context. Innovative technology, insights, solutions developed by high risk, high reward research is critical to address the ever changing needs of the Department of Homeland Security. Research and development at Carrick’s office of Science and Technology often work with creating effective airport security, cyber security, and “disaster proofing society.” Universities, Carrick described, are important collaborators and can often engage with HSARPA through their “centers of excellence”



which are consortiums of multiple universities who help research and develop technologies alongside the agency.

The next speaker, Ravi Basavappa, came from the Division of Program Coordination, Planning, and Strategic Initiatives at the National Institutes of Health (NIH). Basavappa spoke of the various awards that the NIH offers many researchers that place a high emphasis on innovation, uniqueness, and crosscutting research. In recent years, the NIH has developed four different awards to encourage innovation and new thinking in the health science field. He then broke down the requirements and spoke of the application process for the four awards; The Pioneer Award, the Early Independence Award, the Transformative Research Award, and the New Innovator Award. Some awards, as he explained, are more restrictive in their requirements. However, he encouraged universities to support their faculty and students to apply to these awards, particularly for young Ph.D students which the NIH is looking to give more resources to.

Camylle Coley was the final speaker of the day. Coley was another representative of the Department of Defense. However, she spoke about the Department's Office of Basic Research and its focus on research that doesn't necessarily have an end goal in sight. As a result, Coley's office advocates more for discovery rather than development. However, the Basic Research Office still highly regards the importance of high risk, high reward research. Research and development in the Office focuses on certain areas, such as human social behavior sciences, neuroscience, quantum information science, and engineering materials. In order to collaborate with others, particularly universities, the Office of Basic Research also offers a variety of grants and funding that encourage innovation, such as the Rapid Innovation Fund. Coley, like many of the speakers before her, therefore encouraged universities to reach out to project managers at the Department's Office of Basic Research in order to learn more about possible ways to coordinate and engage in high risk, high reward research.

Friday October 9 - Marine, Coastal, Water, & Ocean Sciences Research & Development Focus

The second day of the Federal Research and Development workshop began early with breakfast and coffee with some brief remarks from Jan Ignash setting the stage for the day's discussion. Soon after, the first speaker Jane Mckee Smith opened up the days focus on marine, coastal, water, and ocean sciences research, an area of great interest, importance, and research in Florida.

Smith, a Senior Research Hydraulic Engineer from the U.S Army Engineer Research and Development Center, highlighted the various areas of importance and of interest to her division of the Army's Corp of Engineers. She also discussed future areas of interest for her division that universities might be able to collaborate with, such as urban flooding, habitat restoration, and resilient coastal systems. Smith spoke about the importance of ensuring data accessibility to benefit researchers at places like universities that may want to conduct research. Before finishing her presentation, Smith made sure to emphasize and



encourage universities to reach out to project managers at division of Coastal and Hydraulics Laboratory to discuss opportunities to engage and research with her team.

Richard Spinrad, Chief Scientist from the National Oceanic and Atmospheric Administration (NOAA), was next to speak of the issue. Spinrad began his discussion by dispelling the notion that NOAA's sole focus lie only on weather prediction, but also works on coastal, national fishery, and even space issues. Spinrad, like the previous speaker, also spoke about improving data accessibility so ordinary citizens and researchers alike might be able to access their findings and in some cases, even contribute to them. Spinrad also tailored his discussion towards areas of research that NOAA currently engages in in the state of Florida. For instance, other than tracking hurricanes, NOAA tracks red algae blooms on the Gulf coast of the state, as well oil spill resilience. However, he also pointed out other areas of focus that Florida universities could also collaborate with NOAA in order to develop more sophisticated research and technologies.

The third speaker of the day was director of the Office of Naval Research's Office of Research Discovery and Intervention division. Lawrence Schuette gave a lively discussion about the type of work his office does, equating his division to "venture capitalists" who work for the Navy and fund projects. Schuette also described the importance of universities to his division of discovery and intervention. As a result, the Naval Research Office offers a wide variety of grants and opportunities for universities and their researchers to apply for that deal with issues that overlap with theirs. Schuette also emphasized the importance and sometimes even the advantage of international collaboration at the academic university level with research, and encouraging universities to use such opportunities.

Richard Murray, Director of the Division of Ocean Sciences at the National Science Foundation talked about his work's priorities and studies. One of the main issues of focus in his division, as with other ocean science research centers, has been rising ocean levels and climate change. Still, other areas of importance included ocean biochemistry and physics, coastal ecosystems and linkages, ocean basins, and biodiversity to just name a few. Murray described his office's short and long term goals, and then shifted focus to how universities might be able to support interdisciplinary science. His suggestions included avoiding ivory tower values, supporting all disciplines, and having interdisciplinary goals and techniques in place.

Last to speak at the workshop was John Haines, current Acting Associate Director of the Natural Hazards Mission Area for the U.S Geological Survey's office at the Department of the Interior. Haines' presentation focused on research and development concerning coastal zones. He described some of the programs that the Geological Survey has, such as regional cooperative studies and its Coastal Marine Program. Universities are able to participate in such programs in conjunction with the Department and other universities working on the same issues. This, Haines stated, ensures maximum impact and helps bring together innovative ideas for exploration. Haines, like other speakers, also spoke about the



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importance and challenge of making his office's data accessible. Currently, the U.S Geological Survey is working to create user friendly portals and data available to the public to widen its impact.

To conclude the last day of the State University System of Florida's workshop, Jan Ignash provided closing remarks thanking all attendees and speakers for participating in such a stimulating conversation.