

President's Council of Advisors on Science and Technology (PCAST)

TWENTY-FIRST MEETING

September 7, 2012

MINUTES Washington DC

Members Present: John P. Holdren (Co-Chair), Eric Lander (Co-Chair), Maxine Savitz (Vice Chair), Rosina Bierbaum, Christine Cassel, S. James Gates Jr., Mark Gorenberg, Mario Molina, Ernest J. Moniz, Barbara Schaal, Daniel Schrag, Chris Chyba, David E. Shaw, Shirley Ann Jackson, Chad Mirkin

Members Absent: William Press (Vice Chair), Richard C. Levin, Craig Mundie, Ed Penhoet, Eric Schmidt, Ahmed Zewail.

Staff: Amber Hartman Scholz, Deborah Stine

Public Attendance: Approximately 40 observers attended.

Video Webcast Archive: The archive of the video webcast is available at www.whitehouse.gov/ostp/pcast.

The President's Council of Advisors on Science and Technology (PCAST) convened in open session at approximately 9:30 am with co-chairs Dr. John Holdren and Dr. Eric Lander presiding on Friday, September 7, 2012.

Agenda Item 1: Welcome from PCAST Co-Chairs

Dr. Holdren welcomed PCAST members, Office of Science & Technology Policy (OSTP) staff, members of the public in attendance, and those viewing online. Dr. Holdren specifically introduced two OSTP leaders joining PCAST members at the table during today's session — Dr. Pat Falcone, who was recently confirmed as Associate Director for the National Security and International Affairs Division, and Dr. Henry Kelly, who is leading the Environment and Energy Division as the Principle Assistant Director for Environment and Energy. Dr. Holdren also recognized and thanked Dr. Debbie Stine, who has served as executive director of PCAST since its inception, and congratulated her on her new faculty position at Carnegie Mellon University.

Dr. Lander expressed his tremendous thanks to Dr. Stine and welcomed the members of PCAST, individuals in attendance from the public, and all those joining on the web.

Agenda Item 2: PCAST Study Updates

Dr. Lander introduced the three co-chairs of the Networking & Information Technology R&D (NITRD) 2012 Study Working Group — David Shaw (PCAST Member), Susan Graham, and Peter Lee — to provide an interim update on the study’s progress. Shaw emphasized that the NITRD program is required by executive order to be reviewed every two years. He noted that the 2010 study included a full report of the program’s status and explained that the 2012 report will serve as a shorter, follow-up analysis to that report. Shaw noted that the co-chairs are almost finished with a draft report and hope to have the report ready for approval at the November meeting.

Graham contributed several updates on the issues addressed in the report. She explained that the co-chairs were tasked with the objective to review the recommendations provided in the 2010 report, provide additional recommendations in this new report, and identify some of the recent challenges and opportunities in this arena. In particular, she highlighted the role of networking and information technology over the past two years in expanding space missions, big data initiatives, and widespread online education.

Lee focused his discussion on a specific area highlighted as an “emerging phenomenon” in the 2010 report, namely, the collaboration between very large numbers of networked people and computers (often referred to as social computing). In particular, Lee noted one successful, post-2010 example of social computing: the DARPA manufacturing challenge, which has led to the successful crowd source design of a new military transport vehicle.

PCAST members asked about the current status of metrics in measuring networking and technology, the intersection of NITRD with the robotics roadmap, and the forward trajectory of “massive open online courses” (MOOCs).

Agenda Item 3: Innovation and Public-Private Partnerships

Dr. Lander then introduced Tom Kalil, Deputy Director for Policy, White House Office of Science and Technology Policy (OSTP), and panelists Michele Cahill, Vice President, National Program, and Program Director, Urban Education, Carnegie Corporation of New York, and Sue Spradley, Executive Director, US Ignite, to speak about the role of innovation and public-private partnerships as powerful ways to bring together talents of the Nation to meet the needs of the public.

Kalil provided an overview of the 100Kin10 and US Ignite partnership efforts that Cahill and Spradley are leading and offered his thoughts on key characteristics that make collaborations effective. He also explored areas of necessary improvement in multi-sector collaborations moving forward.

Cahill outlined the origins of the 100Kin10 initiative and examined the framework in which the program now operates. She highlighted that 100Kin10 currently consists of a growing alliance of 118 leading public, private, and nonprofit entities, organized around a distinct commitment to

promoting and developing high quality STEM education teachers. In facilitating these partnerships, the program sets a high bar for entry, develops vehicles for continuous learning opportunities among partners, and tries to identify unique capabilities among member organizations. Commitments are firmly focused on increasing the supply of and retaining excellence in STEM teachers, and building momentum to improve research and development goals.

Spradley provided an overview of the newly launched US Ignite program and discussed how partners from government, nonprofit, industry, and the entire technology and networking ecosystem are working together to achieve success. She explained the ways in which this public-private partnership is accelerating the development of applications and is taking advantage of next generation networks that are faster and have new functionalities.

Through presenting various application development examples and innovative ideas, Spradley emphasized that this partnership is crucial to addressing social challenges and providing new revenue models, improving upon and developing new technological infrastructures, and encouraging breakthrough technologies among the next-generation of developers and R&D experts.

PCAST members inquired about the role of PCAST in moving forward in these processes, Teach for America and its connection to 100Kin10, the concept of long and part-time teaching opportunities and their ability to strengthen 100Kin10, and how 100Kin10 partners are working together to enhance teacher retention rates.

Agenda Item 4: Innovation Inducement Prizes

Dr. Lander continued by introducing the following panelists: Cristin Dorgelo, Assistant Director, Grand Challenges, OSTP; Karim Lakhani, Associate Professor, Harvard Business School and Principal Investigator, Harvard-NASA Tournament Laboratory; and Gregory Downing, Executive Director for Innovation in the Immediate Office of the Secretary, Department of Health and Human Services (HHS).

Dorgelo explained the purpose of incentive prizes, examined how the Federal Government is using prizes, gave key science and technology examples, and identified lessons learned and best practices. She summarized by saying that problem definition, ideation, planning, and public-private partnerships are central to creating prize structures of public value.

Downing provided an overview of what is happening at HHS from an agency perspective, how prizes have been used as an effective tool, the value that new applications and technological platforms are adding to the agency, and where HHS is moving forward with these initiatives. He closed by highlighting that innovation challenges have served as a motivating force throughout the agency, engaged different communities of the public, engendered partnerships with various organizations, and tapped into networks that have allowed the agency to perform its work more effectively.

Lakhani contributed his research perspective on the logic of prizes and their impetus in driving innovation. He reviewed several examples and presented data on how to think about contests and their use in both industry and academic science. Lakhani concluded with a diagram evaluating the framework for open innovation, investigating contests' connections to solution knowledge and selection knowledge.

PCAST members asked the panel questions about drawbacks to prizes, challenges with implementing prizes in an agency context, intellectual property safeguards, and identifying important but latent problems. Each panelist then provided short closing remarks.

Agenda Item 5: Public Comment

Two members of the public provided comments to PCAST in person. The following individuals provided oral comment:

Joseph Anderson, Director of Technology and Innovation Policy, Telecommunication Industry Association

Jerome Dancies, University of Maryland


Dr. Holdren adjourned the meeting at approximately 12:30 pm.

Respectfully Submitted:



Amber Hartman Scholz
Acting Executive Director
President's Council of Advisors on Science and Technology

Approved:



John P. Holdren
Co-Chair
President's Council of Advisors on Science and Technology



Eric Lander
Co-Chair
President's Council of Advisors on Science and Technology