Succeeding in the Remaining Years of the Obama Administration

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Federal Outlook-Administration

• Two remaining years to take advantage of the Obama Administration’s priorities
• White House facing numerous policy challenges:
  – Republican Congress: Pending sequestration and fiscally constrained by Congress
  – Continuing pressure to address immigration
  – Cabinet level vacancies
  – Climate change issues and responses to natural disasters
  – Title IX/sexual assault on campuses
  – National infrastructure pressures (roads, bridges, etc.)
  – Economic outlook and need for economic development
Federal Outlook- Congress

- Continuing issues of oversight and partisan fighting
- Overall Congress supports the federal science agencies, but wants more say in spending within the agencies in this constrained budget environment:
  - House 21st Century Cures activities
  - NSF FIRST Act - reauthorization of NSF, NIST and congressional actions to cut social and behavioral science
- These legislative proposals have significant implications for universities:
  - Comprehensive Tax Reform - charitable giving, higher education tax credits, athletics
  - Comprehensive Immigration Reform - DREAM Act, highly-skilled worker provisions
  - Higher Education Act reauthorization - College Access, Accountability, Completion, Federal Student Aid, Indebtedness, Campus Safety/Sexual Assault
  - MAP-21 reauthorization - sets spending on surface transportation programs, including University Transportation Centers
  - Patent Reform - efforts to crackdown on patent trolls and to spur increased business development from innovation

Federal Outlook-Funding

- FY 2015 Budget Request/Appropriations
  - President’s budget request supportive of research in time of fiscal constraint
  - Both House and Senate supportive of research overall
  - House and Senate passed a Continuing Resolution (CR) to fund the government through December 11 at the current annual cap rate of $1.012 trillion
  - Controversy of how to move forward on FY 2015 appropriations—omnibus, CRomnibus, year-long CR, short-term CR
  - President’s immigration proposal affecting progress
- Sequestration
  - Bipartisan Budget Act provided $63 billion in sequester relief over two years
  - Unless Congress can come to an agreement, FY 2016 will see cuts once again
- Undetermined path for mandatory spending reductions for healthcare, education, etc.
FY 2015 Research Funding

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<th>FY 2015 House</th>
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Interagency Priorities - Revisited

- Evaluation and Assessment
- Advanced Manufacturing
- Materials Research
- Big Data
- Innovation and Commercialization
- Health IT
- Graduate Education
- Cybersecurity
- Humanities/Social Science
- International
- Health Disparities and Diversity
- Energy, Environment, and Water
- Resilience
- Neuroscience
- Urban Opportunity
- Drug Discovery, Development, and Translation
- College Access and Affordability
- STEM Education
- Education Research
Innovation & Commercialization

- Opportunities still exist at the federal level:
  - EDA Regional Innovation Strategies program (RISP): Priority in President’s FY 2015 budget request - $15 million for three grants: i6 Challenge (POC and commercialization focus); research park support; and cluster grants for seed capital funds – Applications were due Nov 3
  - NIST Centers of Excellence (current solicitation focuses on Forensic Science – Due Dec 11)
  - Large public-private partnerships with NNMI (next DOD center in integrated photonics—solicitation released November 5; DOD still deciding on next center based on RFI due in late October—flexible electronics; textiles/fibers are possibilities)
  - NIH Accelerating Medicines Partnership (expecting public-private RFI for Alzheimer’s research); NIH REACH
  - Innovation training (NSF and new NIH I-Corps programs)
  - Translational science/drug development at NIH
  - DOE ARPA-E (accelerated commercialization of energy technologies) received backing in FY 2015 budget request
  - DOE seeking partnerships for STTR program

Education Research

- Administration interested in getting education research to practitioners and demonstrating how research is used in classrooms
- Institute of Education Sciences (IES)
  - Only one competition for NCER and NCSER in FY 2015; IES will continue with one competition in future years
  - IES Director John Easton stepped down in July; White House has not signaled any rush to appoint new director
  - Congress currently considering reauthorization legislation
- Investing in Innovation (i3) and Race to the Top (RttT) will continue for the rest of the Obama Administration
  - Focus on Administration policy priorities: STEM, Early Learning, Higher Education/College Cost/Completion
  - LEA must lead or be a close partner
- White House continues to propose Advanced Research Projects Agency-Education (ARPA-ED), but Congress unlikely to fund
  - Focus on funding to address specific identified problems in education (e.g. digital tutors; self-improving courses; compelling educational software)
STEM Education

- Budget request continues to propose consolidation of many federal STEM programs into new initiatives at Department of Education (K-12), NSF (undergraduate and graduate), and Smithsonian (informal)
  - For K-12 and informal, funding shifted to prioritize dissemination and state level education innovations – STEM Innovation Networks
  - Biggest consolidations at NASA, DOD, and NIH; NSF EHR programs protected
- Across agencies, undergraduate education remains a priority:
  - Focus on first two years of college and STEM major retention
  - New NSF umbrella IUSE incorporates all areas of improving undergrad education
  - New Professional Formation of Engineers Initiative – seeks radical transformation of engineering and computer science departments
  - Continued interest in promotion of early research experiences, implementing best practices from education research and improving math gateways

Humanities/Social Sciences

- Humanities, arts, and social sciences continue to be targeted for federal funding cuts
- Increasing pressure on research agencies to show value/results for using tax-payer dollars
- Continued emphasis on leveraging funds (ex: matching requirements in grants)
- Federal agencies taking interdisciplinary approaches to solving nation’s challenges – partnerships across disciplines increasingly important
- Traditional agencies like NEH and NEA continue regular programs whose guidelines don’t change year to year—this gives faculty time to plan and they are encouraged to contact program managers to discuss their ideas
- DOD released its yearly social science solicitation in September
  - White papers were due November 10, full proposals February 10
Neuroscience

- Administration-wide Brain Research through Advancing Innovative Neurotechnologies (BRAIN) initiative to revolutionize understanding of the brain and brain diseases:
  - DARPA: Biological Technologies Office (BTO) BAA highlights neuro
  - NIH: 58 FY 2014 grants totaling approximately $46 million
  - NSF: Dear Colleague letters on ideas labs, I/UCRCs, international collaborations, EAGERs to enable neurotechnologies, computational neuroscience and cognition
  - NIH strategic plan issued in June establishes 10-year goals and milestones, calls for $45 billion by 2025
  - Broader DOD focus on cognitive science; new MURIs, ONR, ARO, and AFOSR programs morphing to leverage
  - IARPA (multidisciplinary approaches to brain cognition and computation) and FDA (enhance the transparency of the approval process for neurological medical devices) to join BRAIN Initiative
    - New IARPA programs: Knowledge to Representation in Neural Systems, Strengthening Adaptive Reasoning and Problem-solving, and Machine Intelligence from Cortical Networks

Big Data

- NSF activities span directorates:
  - New NSF Research Traineeships focused on big data science and engineering
  - RFI on Big Data Regional Innovation Hubs
  - Host of NSF-wide and Directorate-specific activities as part of CIF21 (DIBBS, Earth Cube, CDSE, SI)
  - Future focus on foundational research, new tools, research community needs, scale and sustainability, and education
- NIH Big Data to Knowledge initiative ramps up
  - Training opportunities to enhance computational skills of biomedical workforce
  - New RFI on data-related standards (responses were due September 30)
  - First round of Centers of Excellence was extremely competitive, 11 awards announced Oct. 9
- DARPA continues emphasis with new programs
  - SIMPLEX (proposals – strong math emphasis – were due November 1)
Energy, Environment, and Water

- Administration remains focused on development of clean energy technologies to spur economic growth and climate agenda
  - New areas of emphasis: Earth Observation and Bio-Resilience
- NSF sustainability initiative (SEES) sunsets in FY 2017
  - Leadership indicates hazards focus will endure
  - Anticipated food-water-energy nexus program (INFEWS)
- NSF (STC) competition currently open - themes include clean energy and food security (preliminary proposals due December 11)
- Possible future NAS study on volcano research
- DOD investing in renewable energy technologies to enhance energy security and stabilize budgeting
- Intense Congressional scrutiny of EPA rulemaking and authority
- New leadership at NOAA – focus on coastal resilience and oceans
- New ARPA-E focused solicitations: Advanced Research in Dry-Cooling and Transportation Energy Resources from Renewable Agriculture

Resilience

- Several signature university programs announced earlier this year around resiliency:
  - NIST Center of Excellence in Community Disaster Resilience—major computational/modeling focus to evaluate community resiliency
  - NIST developing its Disaster Framework with stakeholder input through national workshops; opportunity to shape federal resilience policy
  - DHS Center of Excellence in Critical Infrastructure
- NSF continues funding to address disasters and infrastructure
  - New PREEVENTS program (Prediction and Resilience against Extreme Events)
  - Natural Hazards Engineering Research Infrastructure (NHERI)—chance to set research and education agenda in hazards engineering
  - Final round of Hazard SEES (proposals due Dec. 3)
- DHS S&T Directorate FY 2014 Office Wide BAA: focus areas include infrastructure/resiliency standards; sensor network and alert systems; social sciences to improve disaster preparedness, response, and recovery; and risk analysis
- NOAA FY 2015 Climate Research Competition—includes focus on coastal and climate resilience
International

• Agencies taking varied approaches to international collaboration amidst budget constraints
  – NSF and DOD – globalization an opportunity to leverage limited dollars, enhance international partnerships (MURI)
  – DOD DDRE released new international strategy in July – focused on leveraging partner investments
  – Agencies looking for low-cost ways to promote collaboration (e.g. NSF role in Global Research Council)
• Opportunities exist beyond research to exert global influence
  – State Department convening bilateral and regional dialogues; looking to highlight examples of university/scientific/cultural collaboration
  – Policymakers thinking broadly about the role of science and technology in diplomacy and development; National Academies study underway
• USAID consolidates science and innovation programs into new Global Development Lab
  – Includes programs like HESN, Development Innovation Ventures, and Grand Challenges for Development
  – No plan for a future round of HESN; opportunities to partner with current awardees

Materials Research

• DOD, NSF, DOE, NASA, NIST leading federal efforts
• Focus still on integrating computational and experimental tools to speed material design
  – New for FY 2015 – DOE Computational Materials Sciences – support for integrated teams working on MGI goals
• National Nanotechnology Initiative continues
  – Focus on commercialization and founding of new industries
  – Signature initiatives in nanomanufacturing, sensors, knowledge infrastructure, solar energy, and nanoelectronics
  – Successor to NNIN: National Nanotechnology Coordinated Infrastructure (NNCI) solicitation released November 19, funding for individual university user facility sites, LOI due February 2, 2015
• NSF considering new materials platforms to support characterization and instrumentation development
Agency Priorities

National Science Foundation

- Director France Córdova’s vision:
  - Increase public knowledge of NSF impact
  - Broaden participation by women and minorities in future workforce
  - Expand partnerships to leverage outside funding and address scalability, “15 in 15”
- Policy issues continue:
  - Congressional interference
  - Open access
  - Administrative burdens on researchers
  - High staff turnover
- NSF priorities continue to reflect Obama Administration priorities:
  - Clean energy/SEES
  - Cognitive Science/Neuroscience/BioMaPS
  - STEM education
  - Advanced manufacturing
  - Big data
  - Securing critical infrastructure
  - Innovation
- Increased focus on protecting core support
  - use of proposal pressure to determine balance in some directorates
- NEW program emphasis expected in areas of hazards/resilience and Food/Energy/Water Systems
Department of Energy

- DOE planning new community engagement to drive changes in BES/BER
- DOE working more with pharmaceutical companies as “users” of DOE facilities (e.g. light sources)
- DOE Office of Science plans computational materials sciences initiative for FY 2015 to develop community codes and research-oriented software for predictive design of functional materials
- ARPA-E has several new programs -- preparatory workshops held on:
  - transportation network optimization
  - microscale concentrated photovoltaics
  - advanced dry power plant cooling
  - efficient small engines for combined heat and power
  - plant phenotyping
  - the grid of the future: from vertical to flat
- Ongoing conversation about future of national laboratories – more decentralized system

U.S. Department of Agriculture

- USDA’s core mission (food and nutrition) a high priority for Administration
  - Priorities include: climate change, food safety, global food security, sustainable bioenergy, and childhood obesity prevention (First Lady)
  - NRC AFRI report (Sept. 2014) calls for more investment overall and more focus on foundational research programs and less on the larger Coordinated Agricultural Project (CAP) grants
- AFRI has support in Congress, despite the fiscal climate
  - UO designation as Non-Land-Grant College of Agriculture (NLGCA)
  - 2014 Farm Bill established Foundation for Food and Agriculture Research (FFAR), $200 million in mandatory funding to be matched by industry—FFAR is still being developed but will yield new opportunities for researchers
- AFRI supported these programs in FY 2014, will see same programs in FY 2015 though scope may change for some: Foundational Program; NIFA Fellowships; Agricultural and Natural Resources Science for Climate Variability and Change; Food Safety; Food Security; Sustainable Bioenergy; Childhood Obesity Prevention; Water for Agriculture
Department of Defense

- DOD basic research under increasing pressure from Administration; Congress remains supportive
- Service research offices, OSD, and DARPA releasing new BAAAs to coincide with end of FY 2014 and start of FY 2015
  - New DARPA BTO office: repair soldiers, enhance training, neutralize threats
- Priorities still focused on quantum sciences, synthetic biology, advanced materials
- When pitching—milestones and vision is key—what will this idea do to enhance DOD’s mission?

National Institutes of Health

- Translational research still emphasized; NIH directors reassuring extramural community that basic science is priority
- Award trends:
  - NIGMS/NCI moving forward with mechanisms to support people and allow flexibility in pursuing research avenues; other Institutes exploring similar options
  - To maximize limited funding, milestone-driven, collaborative “U” award mechanism utilized more
  - Special consideration for first-time applicants continues; new concerns over achieving second grants
- NIH structure and policies:
  - Internal review of peer review process to increase innovative projects and improve diversity of grantees
  - Focus on ensuring reproducibility of pre-clinical research
PCORI

- Assists patients, caregivers and providers in making informed evidence-based decisions about health care through funding for clinical effectiveness research
  - Research should answer real world questions that matter to the patient and caregivers, result in improved outcomes, address research gaps, and be likely to change practice
- Funded research supports PCORI’s National Priorities for Research and its Research Agenda
- PCORI funds both investigator-initiated and “targeted” proposals
- PCORI continue to refine its research agenda
  - In 2014 a new third path created: Pragmatic clinical studies and large simple trials
- Recommendations:
  - Be sure to contact PCORI before drafting a proposal
  - Consult PCORI Methodology Report
  - Use PCORI’s tools
- Moving to more specific, focused, high-priority research questions, which will continue in 2015

Cultural Agencies

NEH:
- Two Endowment-wide Initiatives:
  - Bridging Cultures, priority of former NEH Chairman Jim Leach; not embraced by Congress
  - Standing Together, new initiative focused on the experience of war
- Funds individuals and organizations through fellowships, seminars, Challenge Grants, Summer Stipends, and public programs

NEA:
- Supports projects in the arts, music, dance, literature, design, theater, film, and digital art
- With the exception of Creative Writing Fellowships and Translation Projects, grants are made to institutions and not to individuals
- Like NEH, NEA program guidelines typically do not change, providing ample time to plan

Smithsonian:
- Does not support projects independent of itself; but opportunity to collaborate
- Community Grants Program funds exhibits (e.g. lecture/film series, workshops, school tours)
- Fellowship Programs fund variety of opportunities within Smithsonian units

IMLS:
- Funds librarian training, grants for museum and library collections, conservation, and public programs
- Grants provided for library and museum operations, not for research
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<th>Questions?</th>
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