National Science Foundation
Business and Operations Advisory Committee
Meeting Minutes – Fall 2015 Meeting
December 8-9, 2015

Committee Members in Attendance

James Barbret	Wayne State University
Lee Cheatham	Brookhaven National Lab
Marti Dunne	New York University
Charles Grimes	Consultant
Michael Holland	New York University
Cindy Hope	University of Alabama
Greg Jackson	Consultant
Jan Jones	Retired
John Kamensky	IBM Center for the Business of Government
John Palguta	Partnership for Public Service
Susan Sedwick	Attain LLC
Stephanie Short	US Department of Energy, Office of Science
David Spencer	WTe Corporation
John Tao	O-Innovation Advisors LLC
David Trinkle	University of California-Berkeley
Doug Webster	US Agency for International Development

Welcome/Introductions/Review – Greg Jackson and Susan Sedwick

Announcements

Susan Sedwick welcomed Stephanie Short to the BOAC who is replacing Devon Street. Marty Rubenstein recognized Marti Dunne and Greg Jackson who were attending their last meeting as members of the BOAC. It was announced that Chuck Grimes has accepted the invitation to serve as the new BOAC co-chair, replacing Greg Jackson.

It was noted that the National Science Board recently released a statement on policy regarding the recompetition of major facilities. That statement was strongly influenced by and recognized the importance of the Report of the Subcommittee on Recompetition of Major Research Facilities of the BOAC in January 2012.

Updates from OIRM and BFA

OIRM Update: Joanne Tornow introduced Donna Butler as the new Deputy Head of OIRM, and Brian McDonald, Senior Project Manager for the relocation project. Joanne reported that the negotiations between GSA and the owners of the new NSF headquarters building about amending the lease agreement have been successfully resolved and the NSF move is scheduled for September of 2017.

Joanne reviewed the results of the Federal Employee Viewpoint Survey (FEVS) noting the following.

- NSF scores are continuing a positive trend.
- NSF had second highest response rate in 2015 with its highest response rate ever at 78%.
- NSF directorates and offices are working on action plans in response to the FEVS results.
- NSF increased its score on the Partnership for Public Service's Best Places to Work in the Federal Government index, but NSF's ranking remained at number 11 (out of 24) among mid-sized agencies.
- For the first time in the history of the index, NSF's directorates and offices were ranked. Four of the nine were in top 10 percent of scores and BFA received an award for ranking in the top 5 of all sub-components out of 320 subcomponents.
- Joanne mentioned the scores place NSF in good company with its peer agencies (e.g., NIH, NIST, NOAA, and USGS).

John Palguta, BOAC member from the Partnership for Public Service, provided a broader perspective on Partnership for Public Service's Best Places to Work in the Federal Government (BPTW) index. He congratulated NSF on their work and rankings and distributed booklets summarizing the most recent survey. He highlighted three main points:

1) The data do not provide answers; smart agencies ask why they are getting certain scores on the FEVS;
2) Improvement in agency scores aren't accidental, they're purposeful; and
3) Employees respond to the FEVS if they see that an organization is doing something with the results.

Joanne reported on the highly publicized cybersecurity data breach at Office of Personnel Management (OPM) indicating that almost all NSF staff were impacted by the breach. In the wake of the breach, NSF has communicated with employees and OPM has provided information about the breach via a continually updated website. NSF has pushed to improve cybersecurity and Joanne discussed how NSF has met the goals of OMB's "Cyber Sprint" and met OMB's 30 day requirements to improve security of IT systems.

BFA Update: Marty Rubenstein introduced new staff Teresa Grancorvitz (Deputy Head), Matt Hawkins (Deputy Director, Large Facilities Office) and Michael Wetklow (Division Direction, Division of Financial Management). Dale Bell has been appointed as Division Director of the Division of Institution and Award Support. NSF received its 18th consecutive unmodified ("clean") audit opinion following the FY 2015 Financial Statement Audit, affirming the agency's financial statements for the year ending September 30, 2015. Marty indicated that the new financial system, iTRAK successfully completed its first year of operations.

OLPA Update: Tony Gibson from the Office of Legislative Affairs reminded the Committee of the federal government's continuing resolution. He was not sure of how riders are influencing the negotiations and was hopeful that a week-long continuing resolution would be passed before the end of the week (December 11). There is some hope that Congress will work through the weekend to reach a final budget deal. The new appropriations bill asks for 1% more funding for

NSF. Tony indicated that there is legislation being discussed that might require the majority of funding for NSF (~ 70%) go to directorates other than GEO and SBE.

NSF Headquarters Relocation Update
Presenter: Brian MacDonald (OIRM)

Brian MacDonald provided an update on the NSF HQ Relocation. Committee members were provided a matrix in the handouts that covers recommendations and actions taken for the relocation. Construction has progressed to the point that large cranes are gone and the building will be weatherproofed by end of year. Elevators are being installed and once completed, all materials will be coming into buildings by elevators. Drywall is being installed in the building core and utilities and mechanical systems are being installed.

GSA and the building owners agreed on a revised project schedule, with a completion date of September 1, 2017. The final estimate of design and construction costs should come in January or February 2016. Brian indicated that choke points were being considered in terms of how they impact move scenarios with four potential scenarios modeled ranging from 1 to 2 months. The Integrated Project Schedule contains more than 1,000 items to address and covers all actions that need to be done to completely move out of the current NSF building and into the new building. This schedule assigns responsibility for each task. NSF is hiring a person to manage the project schedule and project software. NSF is now in a position to be able to develop communications for employees about the move and Brian indicated two-way communication modes are both desired and needed.

Phase 2 of negotiations with the union are complete. Those negotiations included furniture design and seating assignments. Phase 3 negotiations are scheduled to start in early 2016. A high level review of the budget was completed and covered sources of funds to include lease concessions and annual appropriations. An independent review of the NSF budget estimates for construction was conducted and that independent review validated the NSF estimate.

Committee discussion:

- What items will be on the table for Phase 3 negotiations with the union? NSF response: Parking allocation, cafeteria, and issues related to the physical relocation will be at the forefront.
- How will price increases be handled as final design costs are determined? NSF response: Can deal with unexpected costs by 1) requesting additional funds; 2) using value engineering to reduce costs; and/or 3) using unique acquisition strategies e.g., financing furniture.
- What is the contingency level? NSF response: 10% contingency or approximately $12.5 million. This is a comfortable level given the current design.
- What are the business advantages of new building over the current location? NSF response: the new building would provide several new benefits:
  - Combined conference rooms on two adjacent floors rather than two buildings, new rooms for remote conferences, better IT and AV systems and capabilities.
  - For employees - a cafeteria, places for meetings in the cafeteria, better WiFi and IT systems. The space will be more functional and easier to use.

    - Enhanced security methods and structure in place for visitors and for employees.
- Has NSF done a formal risk management plan? NSF response: a risk management analysis was conducted on the budget, procurements, leadership and employee buy-in. All rated high, medium or low. All are discussed in bi-weekly staff meetings.
- What about other services and amenities in the area of the new building? NSF response: The building/developer website has information on what sort of developments are planned in that area. The city of Alexandria wants to improve the area around the new building.
- What about Metro service? NSF response: Yellow and Blue line stations are nearby. NSF has had talks with WMATA and Alexandria about transit options and another meeting is upcoming.

Joanne indicated a tour of the new building might be possible when the BOAC holds its spring meeting and BOAC members who cycle off before opening could be invited to the grand opening.

Modernizing the Workforce – IT Driven Change Management

Presenter: Judy Sunley (OIRM); Discussant: Chuck Grimes

Judy began by stating that NSF needed to think about what sort of qualities are required in its workforce to better utilize existing and newer IT business systems (e.g., iTRAK, eJacket). She discussed briefly how the systems and methods NSF uses have evolved over time and how these changes have altered the sort of work NSF staff perform and consequently altered the types of knowledge, skills and abilities needed by current and future staff. The Committee was asked to share advice and guidance from experiences they might have had related to managing such an organizational adaptation.

Committee discussion:

- How is NSF utilizing data and science analytic tools to make data available for data driven management, with users having access to these analytic tools? NSF response: There are program evaluation programs in several units (OIA, ENG, EHR) but still work to be done in other areas. NSF's Chief Information Officer, Amy Northcutt, is leading the thought process on providing data that program officers need. Amy and Dorothy Aronson (Division Director, Division of Information Systems) discussed what has been done or what is planned with the enterprise data warehouse. Dorothy indicated that governance bodies play a role in what is considered with analytics and systems. Committees and working groups also play a role in working through how the systems work independently and together, and how regulations and governance influence analytics. Security requirements also impact what can be done in IT.
- Consider that future program managers will be able to program and therefore application interfaces (API) are likely more important than the programs or applications. In the future, data use rules may become more important than system development. NSF response: NSF is concerned now with data standards and that the end goal is to get out of the business of creating interfaces, but we need the right workforce to help NSF get to this state.

- Has NSF looked into companies that offer data driven decision making capabilities? NSF response: NSF is using ORACLE with iTRAK. Some of the systems offered are commercial off-the-shelf and can be used right away and some require development.
- The Committee noted that there are challenges in adapting to changing workforce needs. In one example cited, job descriptions were rewritten with an emphasis on skill sets needed for work versus more traditional position description formats. For example, analyzing invoices versus entering invoices or figuring out why something is going wrong versus just entering data.
- Beyond IT, there are three factors that can influence work and staffing: 1) work is shifting from data entry to data analytics and troubleshooting; 2) processes and work roles are changing with traditional work roles being altered by technology and access to information; and 3) people/workers are moving to communities that are interconnected by systems and networks versus physical location. The Committee urges NSF to think about how its communities will change as a result of how IT, information access and systems change over time.
- What is NSF doing to increase employee comfort levels with technology changes and new systems? NSF response: Dorothy Aronson mentioned that taking time to lead folks into new systems is a useful approach to increase adoption. The Committee cautioned NSF to pay close attention to this training imperative since employees will seek work-arounds that inhibit optimized benefit from electronic systems.
- Stressed that different customers have different needs e.g. practitioners need a different level of access than senior management. Standardized reports get created and never go away so it is important to assess periodically to delete obsolete reports. Automated doesn't mean more efficient.
- Has NSF ascertained how prevalent is the use of shadow systems? An example was shared regarding the use of external tools and systems that could be used to manage work and data. NSF response: Amy Northcutt indicated the general trend is more of a "get out of the way" rather than command and control approach when considering systems and how to prepare NSF staff. She stated that local innovators are a great resource as they point the way to go with IT and related systems/methods. The Committee indicated agreement with these points.
- The Committee indicated that changes at NSF impact universities and that including representatives from universities on the teams that develop and govern systems is needed. NSF response: Dorothy Aronson mentioned that some sort of minimum certification of shadow systems could be a useful way to involve the folks behind those systems while examining which approaches, formal or shadow, might be the most effective. She also made the point that the development of the proposal submission process started with a survey of external parties and that she hopes for continued involvement of external parties in development work.
- Joanne Tornow made the point that administrative burden reduction was a consideration at NSF and that there also were government-wide efforts to reduce reporting and work burden on end users.

NSF Document Management and Digitization Project
Presenter: Wonzie Gardner (OIRM); Discussant: Jim Barbret

Wonzie noted that there are two drivers, external and internal, that are leading NSF to address records management at this time:

1. Compliance with Presidential Memorandum M-12-18 to "Reform Records Management Policies and Practices and to Develop a 21st-century Framework for the Management of Government Records" by December 31, 2019; and
2. NSF's impending relocation to Alexandria since the space allocation will not allow the same central filing space as in the current headquarters, therefore mandating a shift away from hard copy records.

NSF is currently working on a pilot focusing on the document management and digitization of non-grant records. The goal is to recommend an electronic system that will best meet NSF's needs by reducing paper working files. Wonzie reported that records that originated in digital form are easy. Digitizing other records and acceptance of digitized records are a larger challenge as is making the determination of what needs to be retained permanently or what can be maintained temporarily, with the latter having the additional challenge of determining for how long the record must be retained. The challenge is exacerbated by the fact that people don't embrace change and NSF has a culture of being paper centric. Effective document management must address three core needs: retention, storage and retrieval.

Committee discussion:

- Will files be retrievable as well as searchable? NSF response: Yes. Wonzie stated that NSF is working toward these goals.
- The challenge is less of a technology problem and more a people problem and the physical move offers NSF a great opportunity to "purge". This would include setting schedules to clean up and discarding unnecessary records. Should also address email storage and attachments (which can be quite large), and special concern with corrupted attachments as a potential serious problem. Strategies for changing mindsets would be to "call out" people who are e-pack rats and to have younger employees (millennials) mentor older employees, who tend to be more dependent on paper. These initiatives need to come from top management as an imperative, not a suggestion.
- Another challenge is the prevalence of multiple copies of the same document.
- NSF should prioritize the education process in helping staff understand the danger of keeping things they don't need. Even if a document was not required to have been retained; if it has been retained it is subject to FOIA and audit. The agency should make sure that everyone knows what a record is, and that all non-records are not created equal. Outdated or superseded versions of documents could give impression that there was a problem when there was none. NSF should consider setting aside time for staff to focus on the paper purge.
- An example was cited where storage area was flooded and much paper was lost. People didn't even miss most of what was lost, validating the fact that much of it was unneeded.
- NSF should make sure that NSF employees know what the required retention schedule is for each type of record. NSF response: NSF has always had very clear retention rules for grant and proposal documents, but is less clear on the retention requirements of other

types of documents. However, formal training has been developed to inform employees of proper record retention rules. The problem is not so much on the rules themselves, but rather the designation of what is a record and what isn't. The determination of what is to be kept is a programmatic decision. It's up to each program to determine if it's a permanent record or a temporary record, and the default is to make it a permanent record which has exacerbated the problem.

- The Committee suggested a lesson learned from the intelligence community: when the record is created, categorize it as temporary or permanent. Also suggested to limit access to physical storage (forcing storage to computer files/mobile devices) and the use of SharePoint tools and collaboration rooms for version control.
- Three main elements to consider on this issue:
  1) Electronic storage simply means that it can be accessed; the longer a record is retained, the bigger the challenge of transferring it into a usable format. Electronic retrieval systems evolve and just because a record is retained doesn't mean it can be read or retrieved.
  2) Making a record searchable is not the same as taxonomy; taxonomy does not equal searchable. Making a record searchable makes it much more useful in the future, but is also more expensive.
  3) By and large, the most expensive part of this process will be the judgment in deciding what records to keep. Judging what to scan will be more expensive to NSF than the scanning itself. But while scanning is cheaper than storage, the real cost to be borne will the time it takes to decide what records should be kept. In these cases, it may be easier and cheaper to scan all of it and deal with the judgement piece later on. A cautionary example was provided where a university had retained many years of records that were no longer in readable format. In an audit, the university was forced to transfer files to a readable format at a significant cost. Now the university only retains these records for 90 days.

RECOMMENDATION:

1. The BOAC recommends that wherever NSF ultimately decides to "go" in regards to this area, that NSF realizes that employee behavior will largely be based on the systems provided and personal preference. Changes to systems may also result in the maintenance of shadow systems, which also must be given consideration.

CLOSED SESSION: Discussion on the National Academy of Public Administration (NAPA) Study of NSF's Use of Cooperative Agreements to Support Large Scale Investments in Science and Technology.

Presenter: Fae Korsmo (OD)

Preparation for Discussion with Dr. Córdova and Dr. Buckius

Greg Jackson led the discussion which resulted in the articulation of the specific recommendations from the day one discussions and session as follows.

Discussion with Dr. Córdova and Dr. Buckius

Dr. Córdova reported on the National Research Council special committee preliminary report entitled, "Optimizing the Nation's Investment in Academic Research: A New Regulatory Framework for the 21st Century, Part 1" on reducing administrative burdens. Both NSF and NSTC have held meetings on the report especially regarding the recommendation on the need for harmonization of federal regulations. NSF is making strides to reduce administrative burden for its proposers (see latest revision of the Proposal and Award Policies and Procedures Guide, NSF 16-1).

Dr. Córdova also noted that in the interest of transparency and accountability between the agency and its own OIG, NSF is now going to be preparing formal agency responses to OIG semi-annual reports and will be posting them online. The goal of these responses is to further explain how the agency views the OIG's audit reports and audit findings.

Finally, NSF just completed its financial statement audit and has only one remaining significant deficiency around oversight of Large Facilities. Dr. Córdova stated that she hopes this finding will be resolved next year. In general, the auditors were happy with NSF's progress in tackling issues, addressing findings, and making substantial progress.

Chuck Grimes as the discussant for the session on **Modernizing the Workforce** provided a summary of that discussion. Maximizing the increased efficiency that can be afforded by information technology is impacted by adoption by the workforce with a shift to more self-service data analysis. Younger employees have an entirely different mindset on using technology and are much more accepting in a paperless environment. Data use and access rules are critical and it is imperative that NSF focus on strategies to operationalize new systems include training and an acknowledgement of how shadow systems are utilized as workarounds. Understanding why employees use shadow systems can inform the process. Chuck also noted the Committee discussion on how physical communities have shifted to networked communities as a result of social media and IT systems. As the use of networked communities increases, communication styles will need to change. In addition, the Committee discussed the role of Human Resources in the process, and whether new Position Descriptions (PDs) should be drafted to emphasize talent and capability, rather than credentials. The Committee discussed that future employees not only need to be able to use the new systems, but also analyze the data they are working with (not enough to just enter data anymore). PDs would then need to be updated to reflect this new requirement.

As the discussant for the session on **Document Management and Digitization of NSF Records**. Jim Barbret provided the report. He cited an understanding that digitization is not valuable if good archival practices to enable retrievable are not enabled. The cost of digital storage is low with the largest cost associated with the judgment of what gets scanned and whether the records should be retained permanently or temporarily. NSF may decide to scan everything (saves sorting costs), or NSF may become more selective about what it decides to scan, digitize, and keep. The BOAC urged NSF to create and enforce clear schedules for records retention. The BOAC also suggested that NSF dedicate "Dumpster Days" to encourage purging of unnecessary paper. Finally, the BOAC noted that the initiative be a "top down" approach –

the message must come from the top that the initiative is not only a priority, but a mandated initiative.

The following **formal recommendations** were made throughout these reports:

1. Job descriptions need to be reviewed and rewritten to ensure the skills needed are included and outdated requirements (e.g. typing v. keyboarding tests) are deleted or updated.
2. Recognize that shadow systems exist and are being utilized as workarounds for current deficiencies. Conduct an inventory of shadow systems/workarounds to inform the needs for new systems.
3. An important component of change strategies is the need to help people "unlearn". Unlearning involves modifying behavior and changing habits and one strategy is to identify the experts/shadow system users in the current processes and targeting those individuals for training in new processes/systems to gain buy-in. Another strategy for employees to "unlearn" old habits in regards to saving paper. It is not enough to say that there's a new document management or digitization process. Employees need to be convinced not to keep paper copies "just in case."
4. Not all records need to be maintained indefinitely. Categorizing the records retention needs for digitized data is facilitated by identifying the status (permanent, temporary) at the time of creation. Temporary records should be destroyed at the earliest point allowed. Formal schedules must be created, with goals and consequence. Recognize that digitization is not valuable if we don't have good archival practices to enable the ability to retrieve.
5. Because the NSF BOAC has the expertise and structure to serve in an advisory capacity for questions on large facility management and oversight, it is recommended that the BOAC establish a subcommittee constituted with representation from the operational and technical perspectives to advise the NSF on how to best manage large facilities throughout the funded life cycle. Part of that charge is to consider organization structure for large facility oversight and that NSF hire a full time person who has successful experience in managing high risk projects who would be in charge of large facility oversight.

Committee discussion:

David Spencer restated his strong belief that there is a need for a new position that would have oversight of the Large Scale Facilities program and should be "disruptive" and require a direct reporting line to senior agency management. A brief discussion followed. Dr. Córdova expressed concern that such a position would be seen as a "sniffer" and would have a very hard time gaining the trust of those s/he was hired to assist. Greg Jackson stressed that the focus of the BOAC's discussions was not so much the issue of making sure that information is relayed to the top, but rather the qualifications of someone who could bring a new set of eyes to existing Cooperative Agreements (CAs) and that would allow the program to have a renewed focus of working together. The anticipated outcome of this process would be that management has better information, but the goal would also be better projects and thus less problems to report.

Marti Dunne cautioned that one individual may not possess all the skills needed, but that NSF should focus on the business expertise needed. This person could be different than the one who might oversee construction. However, this position should definitely possess budget acumen and an extensive knowledge of federal rules and regulations.

Greg Jackson clarified that there is a difference between oversight, advice and monitoring. The focus of the suggested subcommittee would be on the overarching process itself, not on the specific project. It would not be the role of the subcommittee to look at the science, but rather the business processes that guide or fail to guide the projects. The subcommittee should include those with a knowledge of high-risk, "never been done before projects" and scientists.

Dr. Córdova expressed her thanks to the Committee for their comments and recommendations, and found the BOAC to be a very thoughtful group. Dr. Córdova stated that she is very proud of our agency and its progress, but reiterated that we are always looking for ways to improve. Dr. Córdova also thanked Marty Rubenstein and Joanne Tornow for their leadership.

John Palguta highlighted that NSF's Office of Budget, Finance and Award Management (BFA) was ranked 5th out of 320 agency subcomponents in the recent "Best Places to Work in the Federal Government" which is published by The Partnership for Public Service.

Finally, Greg Jackson added when he first joined the Committee, NSF did not feel like a vibrant enterprise, but that this has changed. Current discussions are now focused on the Foundation looking forward into the future, rather than the ways it was always done in the past.

Presidential Transitions: What Agencies Can Do to Prepare

Presenters: Michael Sieverts and Pamela O'Neil (BFA); Discussant: John Kamensky

Michael Sieverts discussed what NSF is doing now to prepare and update NSF's new strategic plan for the next presidential administration. Agencies will update these plans by February 2018 for the FY 2019 Congressional budget. NSF is seeking to find effective ways to productively make the change in administration as smooth as possible.

Pamela O'Neil offered some strategies for advance preparation. Having a strategic plan is an advantage but caution is advised in initiating long term goals in advance. It is important to understand that there are sometimes competing forces as the old administration transitions out while the new administration transitions in. Transitions for NSF will have fewer challenges than large departments because the agency director is on a term appointment.

John Kamensky (Committee discussant) provided an interesting viewpoint on how transitions evolve for an incoming president and her/his staff: there are four phases of the transition process which begin with the candidacy, before a new president is even elected. John noted the odd dynamic of people angling for jobs (i.e., political appointees looking for permanent positions) and that the post-inauguration period leaves career people to handle the strategic planning for a four year cycle and the actual transition itself. Laying the groundwork in advance is critical and to that end, John suggested two points for NSF to consider: 1) What policy and management issues do you see that will be critical regardless of who is elected? and 2) Have you identified the

potential impact of campaign commitments? Timing for addressing these would be best served post-conventions once the candidates are selected, utilizing scenarios and briefing books. John urged NSF to take advantage of the fact that transition team members will look for outside resources to gather information and do some advance planning in anticipation. NSF should take a look at federal employee viewpoint survey results and have a plan of action. The transition is about building new relationships with Congress, appropriations committees, and the new administration. Make sure NSF staff members are prepared to interact with the transition team.

Committee discussion:

- OMB and OSTP changes might be an area on which to focus. Prepare by paying attention to the campaign rhetoric.
- Make sure the OMB examiner knows what NSF wants and offer solutions to problems NSF wants addressed. Send the examiner NSF's wish lists. It is highly likely that this will be the first government job for new political appointees and science is different and unique.
- A successful transition process is an art rather than a science dependent upon the transition teams, especially the incoming administration's. Post-conventions, start learning about both teams. Do your homework on who will be your liaison. When developing briefing materials, remember less is more. Focus on what's working well; what's at risk/vulnerabilities; and what problems and issues are going to hit the new administration. Be open and honest especially about the risks. Scan the landscape for external counterparts who might be utilized by new administration and get their insights. Transition is about building relationships in Congress.

The meeting was adjourned.