Winning Large NSF Proposals

Keith Roper - ERC program leader
NSF 24% of federal support for basic research in U.S. Universities
U.S. Lags globally in R&D
Federal support for R&D leveling
Center-scale funding internationally is growing substantially, that are 5-10 years of dedicated funding
Provides a "recipe" for winning large NSF proposals - his slide presentation
Good slide showing funding statistics for ERC’s and funding of other center types
Other slides on matching proposals to programs (how to do this), and other useful slides on timelines for planning the proposal process, and then awards.
Normally a 90-day window between announcement and due date. Good to contact program officer well in advance to start planning. He presents these for ERCs and STCs.
Slides on addressing Proposal Review Criteria - Intellectual Merit (~12-13 pages), and Broader Impacts (~2-3 pages), but check the Proposal Guide because things change.
Gives example of NCS specific review criteria
Also provides ERC-specific Review Criteria
Also for NRT-specific Review Criteria
List of Competitive Proposal Ingredients - this list is helpful for all NSF proposals, not just large center proposals
Slide - Goal for T-shaped graduate - very interesting (from Jim Spohrer, IBM Labs)
Also nice slide on Workforce Development
Great presentation!

David Schiraldi - Case Western Reserve University - Developing a successful center
Clear that everyone agrees that if we wait until solicitation comes out. They started meeting weekly for lunch to brainstorm for ~12 months on the overarching theme. Developed an idea for a month and then change to
new idea, then 2 months with that one, then finally found the right idea. Described idea and approach, and their timeline
1 month before the site visit, they had a "dress rehearsal" to do things exactly to see how it would work out. They actually did 2 dress rehearsals, and invited in external people from other centers. They received 100 bullet points of things to fix/change. Helpful feedback.
Even after pre-proposal, need to start on full proposal while waiting to hear.
Leadership team of 3 faculty, plus another 3 key faculty as thrust area leaders.
Many other slides on process and outcomes

Faye Farmer - Arizona State University - Director, Office of Research Development
Slides on "how to" with ERC-like proposals
Developed 3 full proposals to the NSF concurrently - they submitted 3 of the 18 full proposals that NSF took in, and they won 1.
They are 1 of 2 universities with 2 ERCs
They submitted 7 pre proposals, 3 full proposals, had 1 site visit, and then 1 award
She provides a lot of useful insights
VERY GOOD
SHE MAY BE WILLING TO COME IN TO TALK WITH US IF WE THINK THIS WOULD BE HELPFUL.
Has to be done well in advance.
One idea - invite faculty with ideas to a meeting and have them give a "TED" talk to panel making a decision on which ones the university will support.
Each of their 3 full proposal teams had a proposal manager and a budget person
$50K budget for proposal development incidentals, additional funds available after site visit, but this did not include staff time (that was already covered)
Pink & Red teams completed for all 3 teams
Treated all 3 proposals equitably in terms of cost-share & institutional support
Focus on strengths, host interest meetings (bring people in)
SWOT analysis for identifying partner universities (they need to have
something to give to be brought in)
Dissect solicitation - Calendar, checklist, shell document (complex solicitation, so this is really needed)
Internal staff team meetings - help train center leadership about how to do these things (presentations, running meetings) - not all faculty are good at these things
Identify team members - PI _ co-PIs + Education Director + Diversity Director, plus additional people listed on this slide (too many to type)
LOTS of good slides
External messaging - made brochure to present to industry to recruit partners, it was useful to send out and didn’t take too long or too much money. Did something similar for educational partners.
Team building events - research retreats, help with management strengths and weaknesses
Site visit - lots of useful info, where to seat people; NSF representatives, PI and co-PI, especially who speaks with whom, women and minorities, etc.; do practice, with coaches, videos, many people they had practice 3x per week leading up to site visit
Even more useful info on site visit
Slide on Reverse Site Visit
Faculty members - resisted coaching, but it was needed and ultimately helpful
VERY GOOD PRESENTATION

Jagannathan Sankar - NC A&T State University - Director of NSF/ERC on metallic bio materials
Gave brief overview of center
Idea has to be revolutionary - they had biodegradable metal for various stent areas
Using metal like Mg that body will eventually use
Talked about lessons learned - need dynamic team, very agile, team needs to work together and trust each other; other item - sustainable infrastructure.
Provided a lot of information, although he was a little more difficult to follow than the previous presentations. Still, slides may be useful to look through.
Did a webinar every Friday at 4 pm (with all partner institutions, etc.). Every Friday morning had a leadership meeting.
General Q&A portion of the panel:
How to identify a leader for a center? ASU person: tell them - if you start this, it will be a BIG part of your life for 10 years. Let them know what they are getting into. They are more centrally-driven. ASU is launching a leadership academy, 30 people per year and run them through training for a year in academic leadership. Another school (Case Western), they drove it more from the faculty.
Cost-share at NSF is prohibited, but institution support is required. What are ways for to have institutional support that would not be "cost share"? Recent ERC solicitations now require cost-share, that scales with the size of the institution. Cost-share is required to ensure considerable buy-in from the institution - they have skin in the game. Also to provide the necessary infrastructure (one center said they needed 25,000 sq.ft.). Some possible cost-share items: additional faculty, staff or additional space. NSF is looking at sustainability - will the center be able to survive after $35-40M of investment by the NSF.
ERC and other major centers are cooperative agreements and not grants. What is the size and structure of Faye Farmer's organization at ASU? She is in Research Operations office, and not involved in post-award efforts. One proposal manager, and 2 other people as permanent staff for limited submissions, etc. She is working on growing a larger staff.
What are the challenges at academic institutions in promoting and sustaining "team science"? One response - having university administrators understand science and how things work. At Utah, we are fortunate since senior leadership are engineers/scientists and "get it" so we don't really have issues. Another - issues about "credit" for RPT kinds of issues. At Case Western, they don't see it as a big deal. He thinks it is different than it was 10 or more years ago. Also NC State - they think it is more based on impact, than just publications, etc. Patents, technology development, it can be many things to show productivity and impact for a young faculty member. If industry is involved, and a student is integral to the project, and their is joint IP, faculty have to learn that this is OK and can be good for universities, faculty and students. Many companies see this as a new paradigm.
ASU - more voices at the table, and gets you further down the road. As ASU has increased its acceptance level with more in-state diverse students, and by bringing these students into these large centers, it
provides opportunities for women and diverse students who may not have had this type of experience.