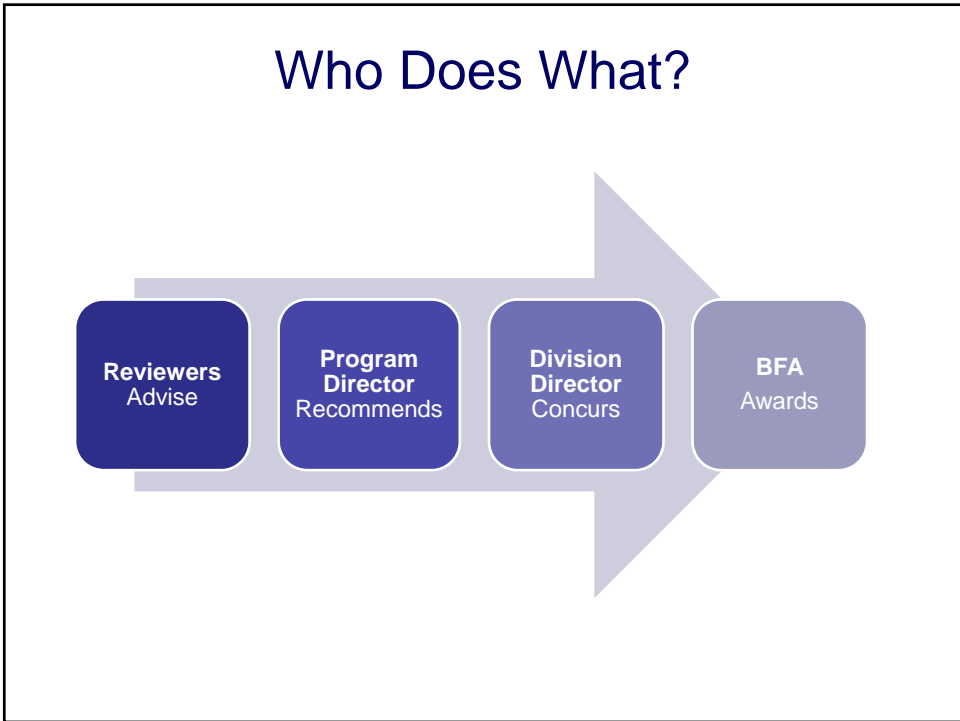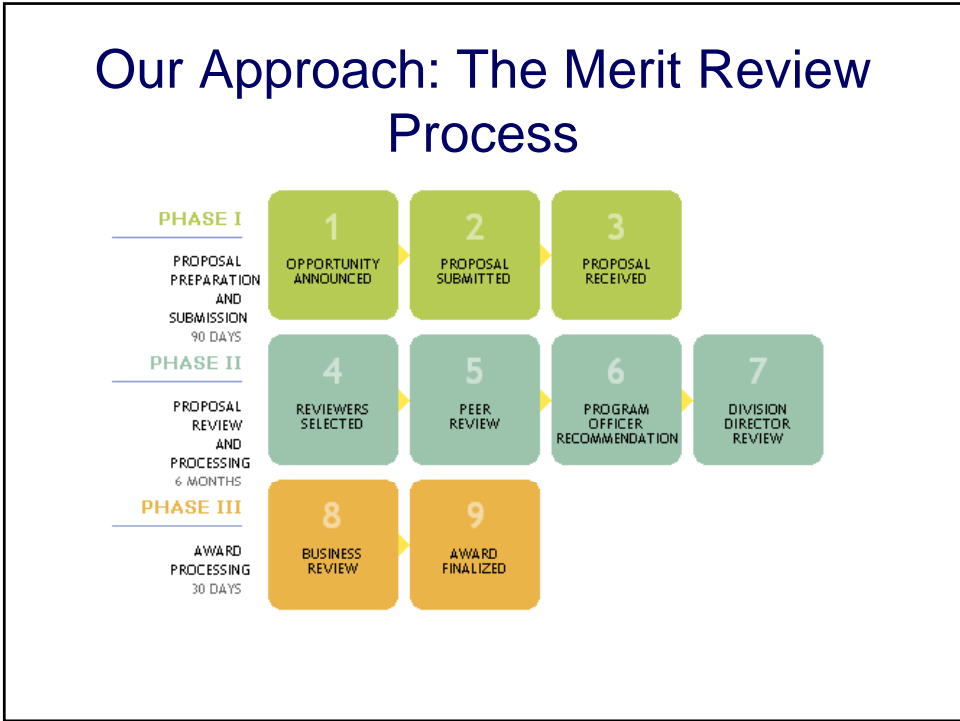# Reviews that Count

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- Overview of NSF review process (ad hoc & panel)
- Review Criteria
- What is most effective in arriving at a recommendation

Process

- CAREER: often ad hoc mail reviews
- Unsolicited proposals: often ad hoc mail, but panel in FY 2012
  - Incl. GOALI, FRG, RUI
- Materials World Network (MWN): often panel including reviewers from abroad; combined with regular proposals

- Other proposals:
  - Within DMR: varies
  - Outside DMR: often panel

Our Approach: The Merit Review Process

PHASE I

PROPOSAL PREPARATION AND SUBMISSION
90 DAYS

| 1 OPPORTUNITY ANNOUNCED | 2 PROPOSAL SUBMITTED | 3 PROPOSAL RECEIVED |

PHASE II

PROPOSAL REVIEW AND PROCESSING
6 MONTHS

| 4 REVIEWERS SELECTED | 5 PEER REVIEW | 6 PROGRAM OFFICER RECOMMENDATION | 7 DIVISION DIRECTOR REVIEW |

PHASE III

AWARD PROCESSING
30 DAYS

| 8 BUSINESS REVIEW | 9 AWARD FINALIZED |

Who Does What?

Reviewers Advise → **Program Director** Recommends → **Division Director** Concurs → **BFA** Awards

Reviewer Responsibilities

- Voice in process
- Evaluation
- Advice

Confidentiality Requirements

Outside the panel room,
do NOT discuss:

- Panelist/Review/PI demographics
- Names of PIs submitting proposal
- Declinations
- Proposal contents
- Anything that is not the review criteria

Examples of Implicit Bias

- Impact of Blind Auditions on Gender

- Impact of names on interview invitations

- Impact of Height on Salary

- Evaluation of Fellowship Applicants

Average rating of applicants as a function of their scientific productivity

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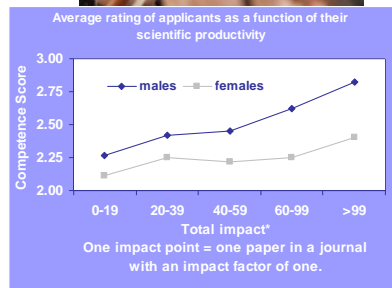
Overcoming Implicit Bias: Self-Awareness

Project Implicit®

← Discover your biases!

https://implicit.harvard.edu/implicit/

Program Director Responsibilities

- Select Appropriate Reviewers
- Guide Reviewers, as needed
- Use input from reviewers (unless external review is waived) and write Internal Review Analysis on every proposal
  - Summarize
  - Evaluate and Justify
  - Recommend
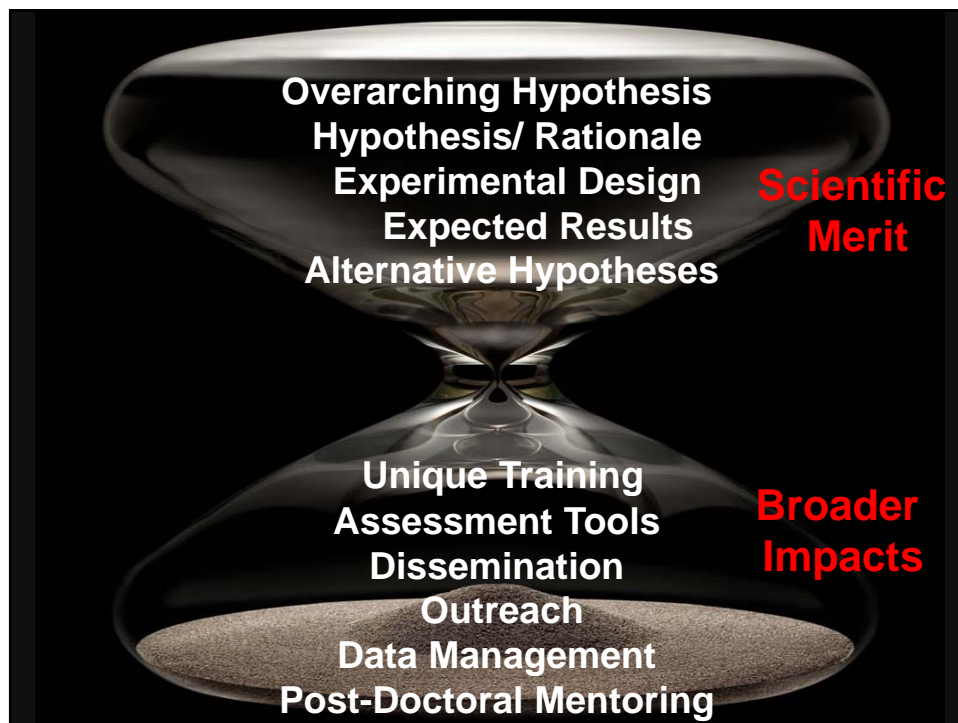 - Maintain a balanced budget and program portfolio

> Review budget & co-funding opportunities

Ensuring Diversity & Balance

- It's PD's responsibility to find reviewers of diverse backgrounds!
  - **Junior**/Senior
  - Geographic
  - Gender, **Race & Ethnicity**
  - Individuals with disabilities
  - Types of institution (**industry**, academia, government laboratories, etc.)
  - Expertise
  - **New** vs. Experienced Reviewers

Overcoming Implicit Bias:
Sensitivity & Structure

- Raise awareness
- Prime fairness
- Commit to merit review criteria
- Reduce time pressure & distractions
- Ask yourself and your reviewers, "What is the likelihood that this would be a concern for a <u>insert a different demographic</u>?"
- When necessary, stop the panel & address bias

Overarching Hypothesis
Hypothesis/ Rationale
Experimental Design   **Scientific**
Expected Results   **Merit**
Alternative Hypotheses

Unique Training
Assessment Tools   **Broader**
Dissemination   **Impacts**
Outreach
Data Management
Post-Doctoral Mentoring

Portfolio Balance

✓ High Impact
✓ Junior through to Senior PIs
✓ Program portfolio
✓ PI's other support
✓ Impact on Institution/State
✓ Diversity & Educational Impact
✓ Programmatic Consideration
✓ Launching vs. Maintaining

Program Director Recommendation Options

Award

Decline, or

(in rare cases) Hold

Communicating Awards

Pre-Award Options:
- Tentative to DD approval
- Award recommendation letter (sample letter)

**Division of Grants and Agreement's Award Letter
is the only official notification
of an award**

BFA/DGA Responsibilities

- Review for consistency with applicable laws, regulations, policies, and directives
- Obligate grant and agreement funds

It's a Team Effort!

Merit Review Criteria

The Grant Proposal Guide (GPG) contains a description of the Merit Review Criteria

- Intellectual Merit
- Broader Impacts
- Program specific criteria

Integration of Research & Education

Integrating Diversity into
NSF Programs, Projects & Activities;
Broadening Participation

Intellectual Merit Considerations

- Important to advancing knowledge and
  understanding within own field
  or across different fields?

- Qualifications of individual or team?

- Quality of prior work?

- Creative, original or potentially transformative
  concepts?

- Well-conceived and organized?
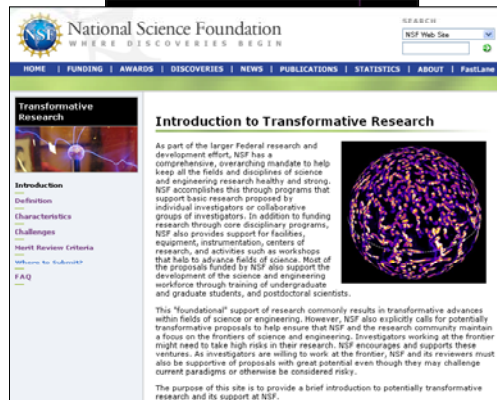
- Access to resources?

Tra**NSF**ormative
Research

…the capacity to
- **revolutionize** existing fields,
- create **new subfields**,
- cause **paradigm shifts**,
- support **discovery**, and
- lead to radically **new technologies**

Transformative Research Resources

- Enhancing Support of Transformative Research at the National Science Foundation

- NSF Transformative Research website

Broader Impacts Considerations

- Teaching, training, and learning
- Inclusion of underrepresented groups
- Improved infrastructure
- Broad dissemination
- Societal benefits

Materials World Network: (MWN)

NSF 10-588

- **Additional Review Criteria:**
- value added by the proposed international collaboration
- extent to which the collaboration integrates research and education, broadens participation of underrepresented groups, and creatively addresses broader impacts review criterion
- *Preference: where intellectual efforts in US and abroad are balanced and*
  where students and junior researchers participate in international research experiences.
- strong preference will be given to proposals with support from both NSF & the counterpart organization.

Broadening Participation

- Individuals
- Institutions
- Geographic Areas
- Organizations that Broaden Participation

Effectiveness in Reviewing

- When to question if you should do a review?
- What to Avoid in your reviews
- How effective is your review in molding the decision?
- Examples of effective and ineffective statements from reviews
- Lynnette's Wish List

Conflicts of Interest (COIs)

- Not at arms length
  - you and/or your spouse work at this institution, recently worked at it, or are being considered for positions at it), accepted $ from institution in past year, serve on board, ...
  - You are collaborating with PI/Co-PI and/or have published with them in past 4 years, co-editing past 2 years, business or family relationship, …
- You cannot be impartial
- If uncertain, ask me – reviews with COIs cannot be used or released to the PI

What NOT to Address

AVOID:

- Comments on the PI's career future (e.g., "coming up for tenure")

- Penalizing for failure to address previous reviewers comments -- each proposal is considered NEW.

Effective Reviews

- Provide a clear opinion
  (not a description of the proposal)
- Opinion is justified
  - Explanation
  - Published reference/s
  - Examples from proposal
- Opinions that cover many of the key components under intellectual merit, broader impacts, additional review criteria, diversity and/or education

Examples from Reviews

- <u>IM</u>: Further development of X will lead to the Y, which will allow studying various intrinsic Z properties.
  - Comment: Informative: puts work into a broad context.
- <u>BI</u>: The proposed research will also have a great impact on education, particular the graduate education.
  - Comment: It is unclear why there is an impact on education.
- <u>BI</u>: The broader impact of the proposed research program is obvious.
  - Comment: Reviewer needs to state anticipated impact of activities.

Examples from Reviews

- <u>IM</u>: Two investigators with complementary skills have come together for this effort.
  - Comment: Tells me why there are two researchers on this project.
- <u>BI</u>: The X is positive in this section but I expected a bit more from a Career proposal.
  - Comment: It is not clear what the expectation of this reviewer is.
- <u>BI</u>: The broader impact is typical with graduate and undergraduate research and curriculum development along with dissemination to industry and in the form of publications.
  - Comment: Interaction with industry is not usual. It is not clear whether this reviewer is positive or negative about the broader impacts.

Examples from Reviews

- <u>Summary</u>: Overall, this is an excellent proposal with clear and solid research goals. The experimental approach is unique and the PI's extensive previous experience has positioned her very well to carry out the planned research work.
  - Comment: Super – reviewer conveys overall opinion and justifies it.
- <u>BI</u>: Undergraduate students would have a chance to work on some of the proposed work.
  - Comment: Faint praise? Weak statement.

Lynnette's Fall Wish List

- **Write a great review & submit via fastlane within 6 weeks & suggest other reviewers, particularly ones from industry or underrepresented groups and include their email addresses**
- Write a great review within 6 weeks
- Write a review within 2 months
- Decline to review in fastlane within 2 weeks, but suggest other reviewers
- Decline to review & let me know somehow