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http://enhancing-peer-review.nih.gov/

PRAC
December 3, 2007

Lawrence A. Tabak, D.D.S., Ph.D.
On behalf of:
ACD WG on Peer Review
SC WG on Peer Review

http://enhancing-peer-review.nih.gov/

A Self-Study by the NIH in Partnership with the Scientific Community to Strengthen Peer Review in Changing Times

Principles Behind the Study

- **The increasing breadth, complexity, and interdisciplinary nature of biomedical science are creating new challenges for the system used by NIH to support biomedical and behavioral research**
- **Peer review is a key component of this system**

The Charge:

"Fund the best science, by the best scientists, with the least administrative burden…"

Study has been driven by two Working Groups

ACD WG on Peer Review

- Keith Yamamoto, Ph.D., UCSF, Co-Chair, ACD, Boundaries Report
- Lawrence Tabak, D.D.S., Ph.D., NIDCR, Co-Chair
- Syed Ahmed, MD, MPH, Dr. PH, MWC COPR
- Bruce Alberts, Ph.D., UCSF, Chair, Boundaries Report
- Mary Beckerle, Ph.D., U. Utah, ACD
- David Botstein, Ph.D. , Princeton, ACD
- Helen Hobbs, M.D., UTSW, HHMI
- Erich Jarvis, Ph.D., Duke
- Alan Leshner, Ph.D., AAAS, ACD
- Philippa Marrack, Ph.D., Natl. Jewish Med., HHMI, Boundaries Report
- Edward Pugh, Ph.D., U. Penn., PRAC
- Tadataka Yamada, M.D., Gates Foundation, ACD

Ex officio

- Norka Ruiz Bravo, Ph.D., OD/OER
- Toni Scarpa, M.D., Ph.D., CSR

SC WG on Peer Review

- Jeremy Berg, Ph.D., NIGMS, Co-Chair
- Lawrence Tabak, D.D.S., Ph.D., NIDCR, Co-Chair
- Marvin Kalt, Ph.D., NIAID
- Story Landis, Ph.D., NINDS (Co-chair EAWG)
- Roderic Pettigrew, Ph.D., M.D., NIBIB
- Norka Ruiz Bravo, Ph.D., OD/OER (Co-chair EAWG)
- Toni Scarpa, M.D., Ph.D., CSR
- Lana Skirboll, Ph.D., OD/OSP
- Brent Stanfield, Ph.D., NIDDK
- Jane Steinberg, Ph.D., NIMH
- Betty Tai, Ph.D., NIDA

Ex officio

- John Bartrum, OD/OB
- Jack Jones, Ph.D., Acting CIO
- Catherine Manzi, OGC
- Jennifer Spaeth, OD

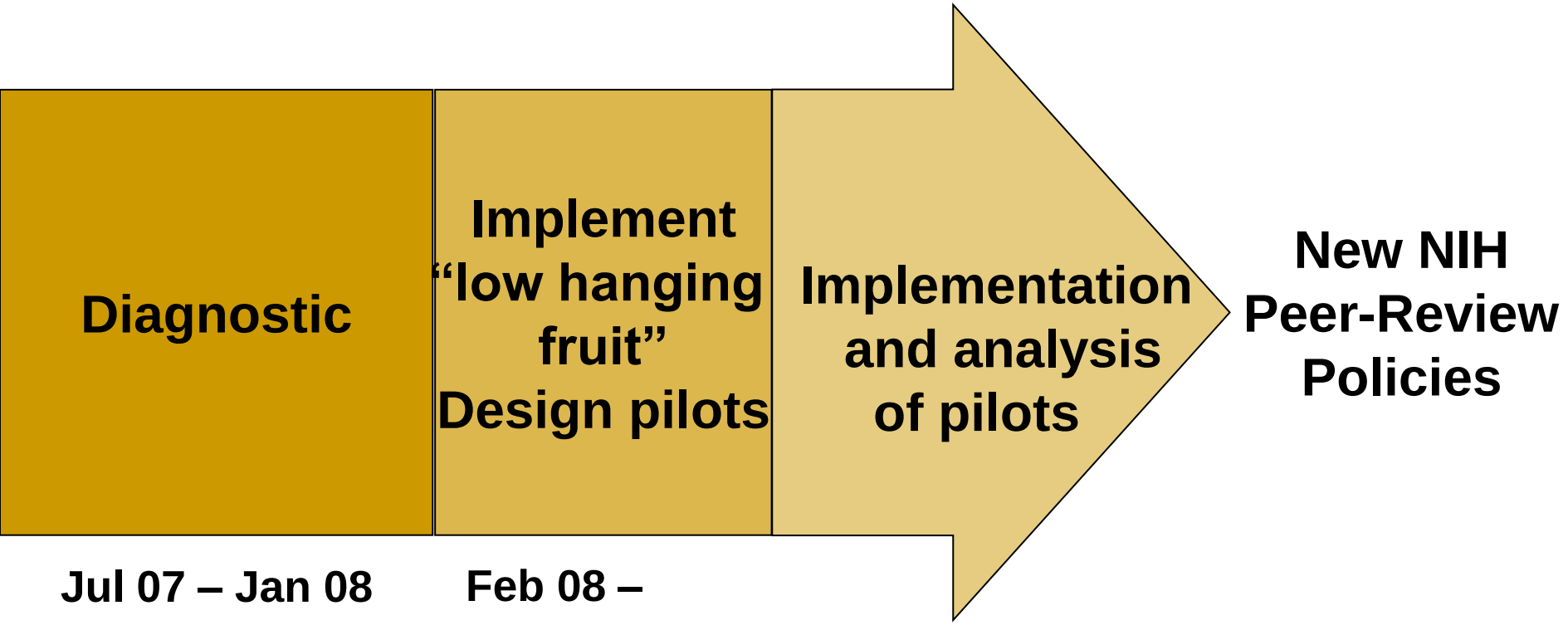
center for scientific review

Some Current CSR Initiatives

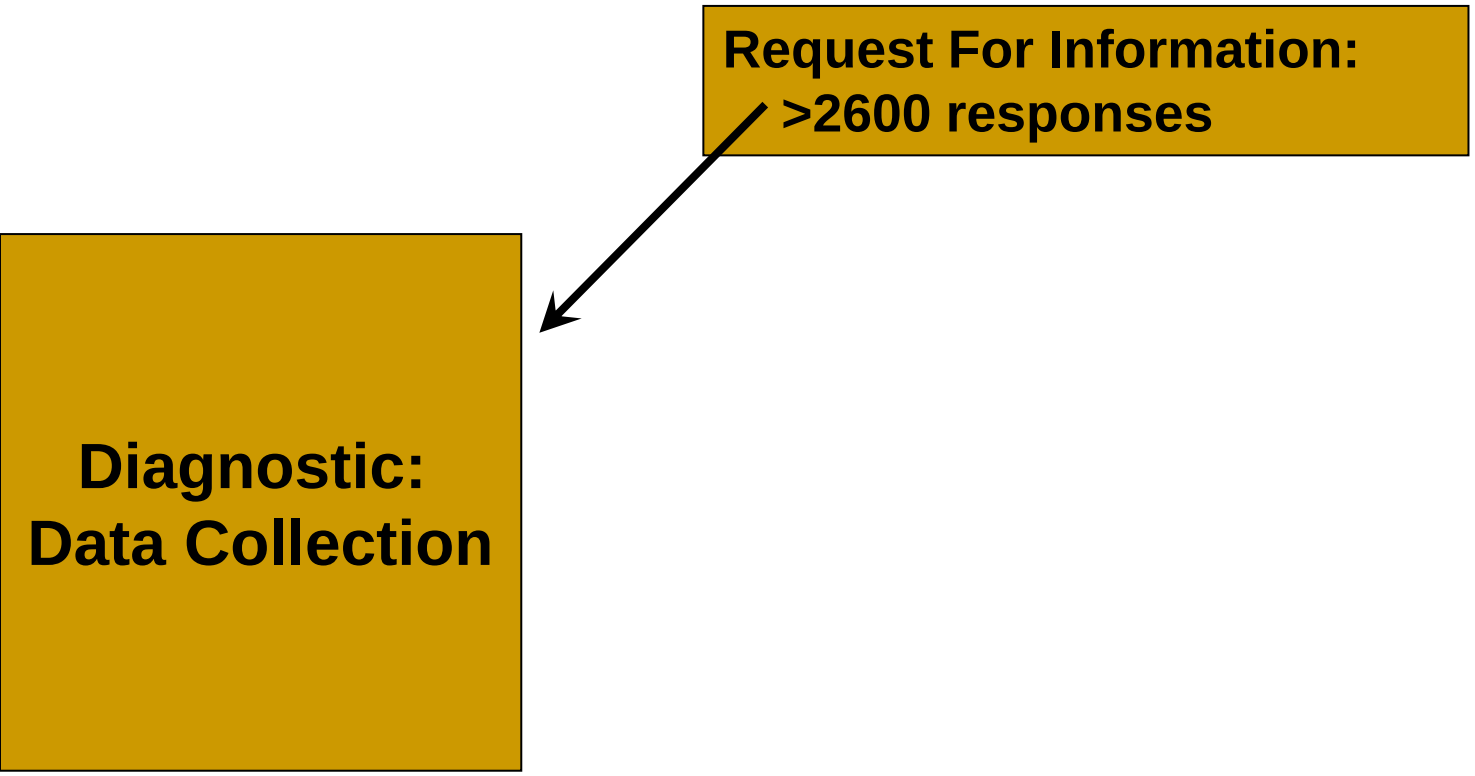
1. **Shortening the Review Cycle**
2. **Immediate Assignment of Applications to IRGs**
3. **Realignment of Study Sections**
4. **Electronic Reviews**
5. **Shortening the Size of Applications**

The Steering Committee WG is coordinating their efforts with CSR's initiatives

Project Phases



Project Phases



Jul 07 – Jan 08

Project Phases

- **Diagnostic Phase**
  - **NIH received strong response to a Request for Information**

Information Requested
NIH and the Working Group welcome your comments on these CSR's current activities; however, we would particularly like your opinion, as a reviewer, applicant, or member of the public, on how to enhance the system employed by NIH to support biomedical and behavioral research, including the peer review process. The NIH is especially interested in creative, concrete suggestions to the following questions, for strengthening over the long term any and all aspects of our system for identifying the most meritorious and innovative research for support:

1. **Challenges of NIH System of Research Support**
   Please describe any specific challenges presented by NIH's support of biomedical and behavioral research such as the current array of grant mechanisms, number of grants awarded per investigator, and the duration of grants.

2. **Challenges of NIH Peer Review Process**
   Please describe any specific challenges presented by the current peer review process at NIH.

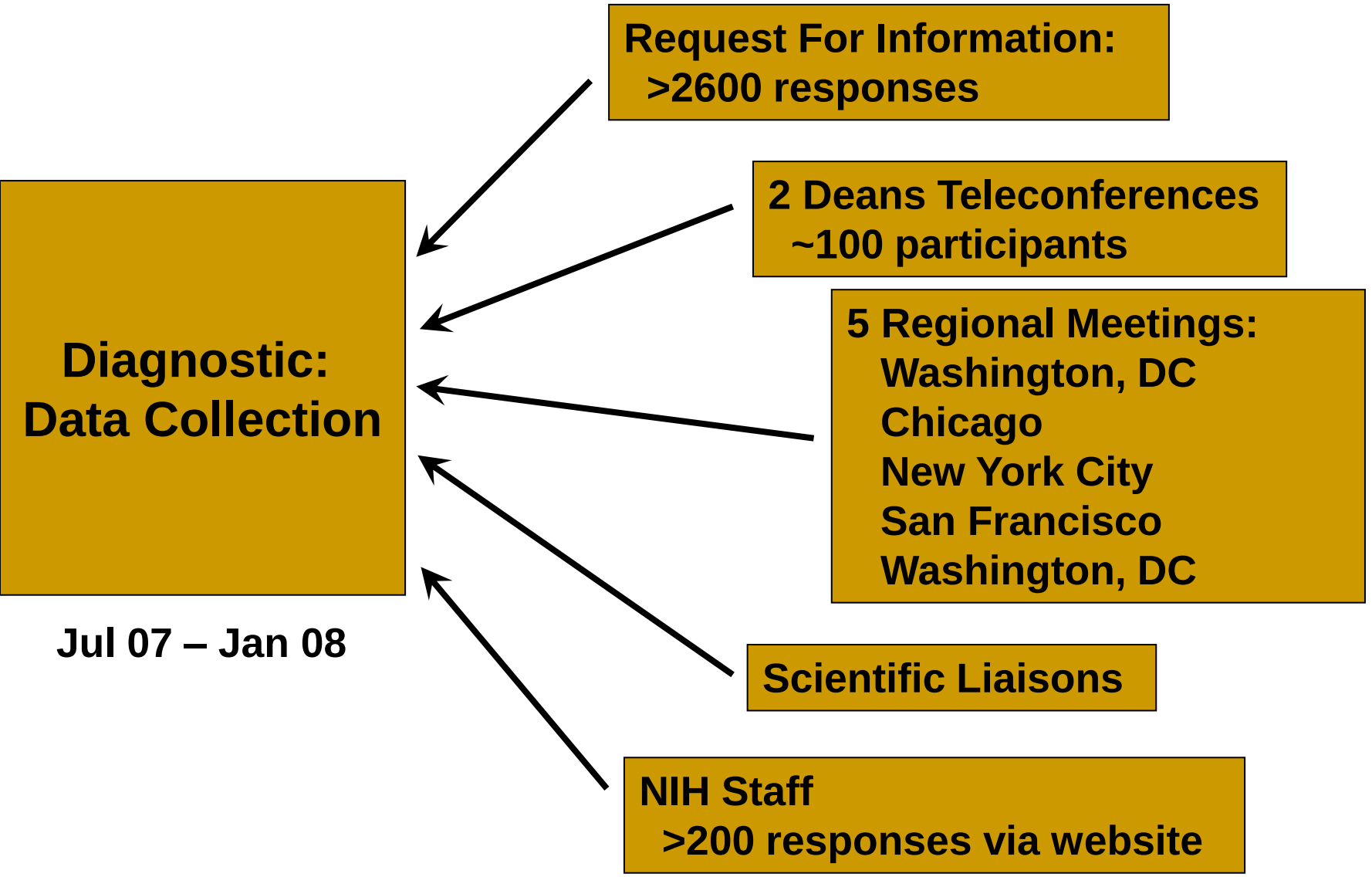
3. **Solutions to Challenges**
   Please concisely describe specific approaches or concepts that would address any of the above challenges, even if it involves a radical change to the current approach.

4. **Core Values of NIH Peer Review Process**
   Please describe the core values of NIH peer review that must be maintained or enhanced.

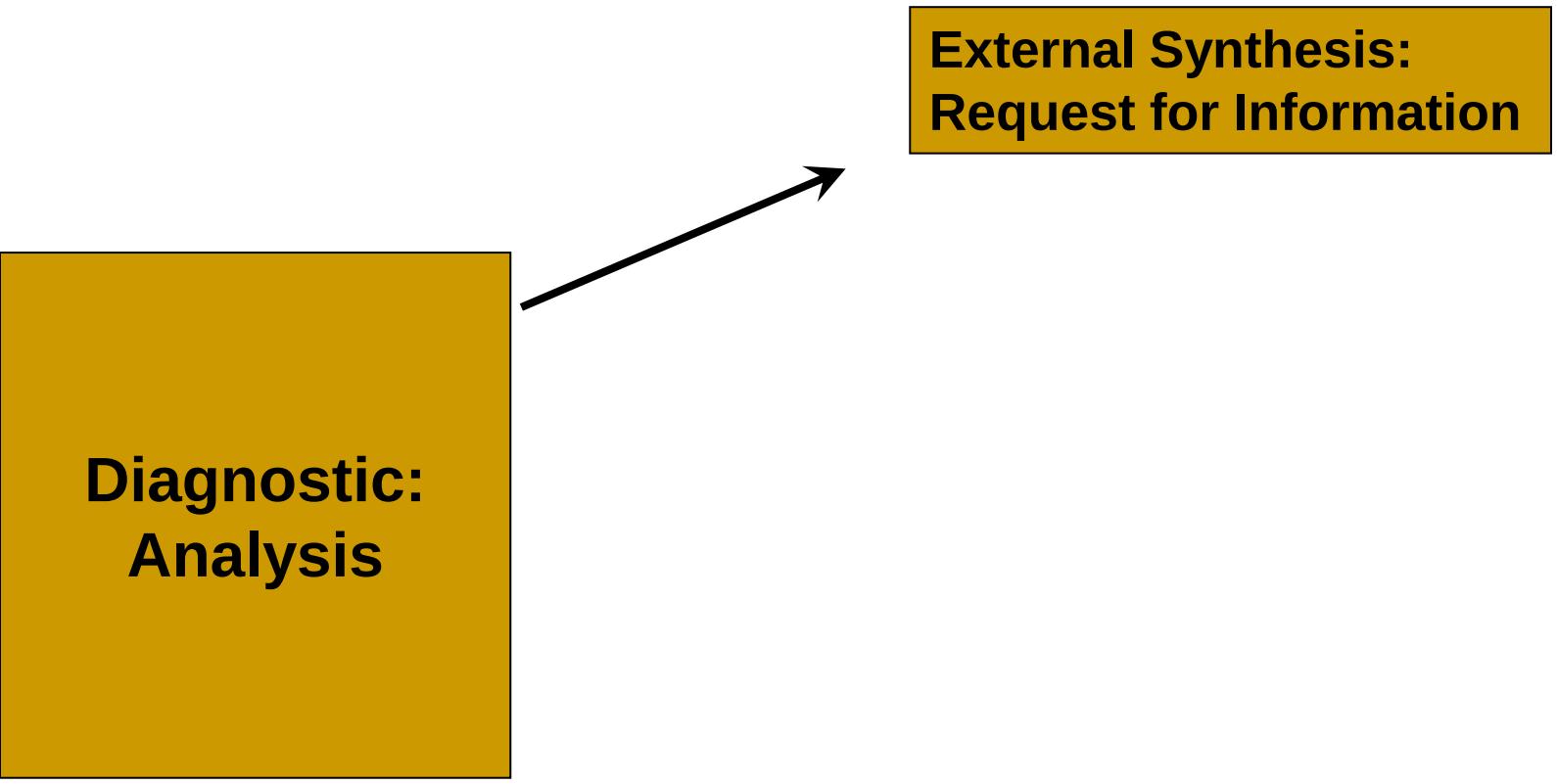
5. **Peer Review Criteria and Scoring**
   Are the appropriate criteria (http://grants.nih.gov/grants/guide/notice-files/NOT-OD-05-002.html) and scoring procedures (http://cms.csr.nih.gov/NR/rdonlyres/B2CFE17E-AA1C-46E5-BADB-FDBF2FBBEE80/11892/CSRScoringProcedure090706.pdf) being used by NIH to evaluate applications during peer review? If not, are there changes in either that you would recommend?

6. **Career Pathways**
   Is the current peer review process for investigators at specific stages in their career appropriate? If not, what changes would you recommend?

Project Phases

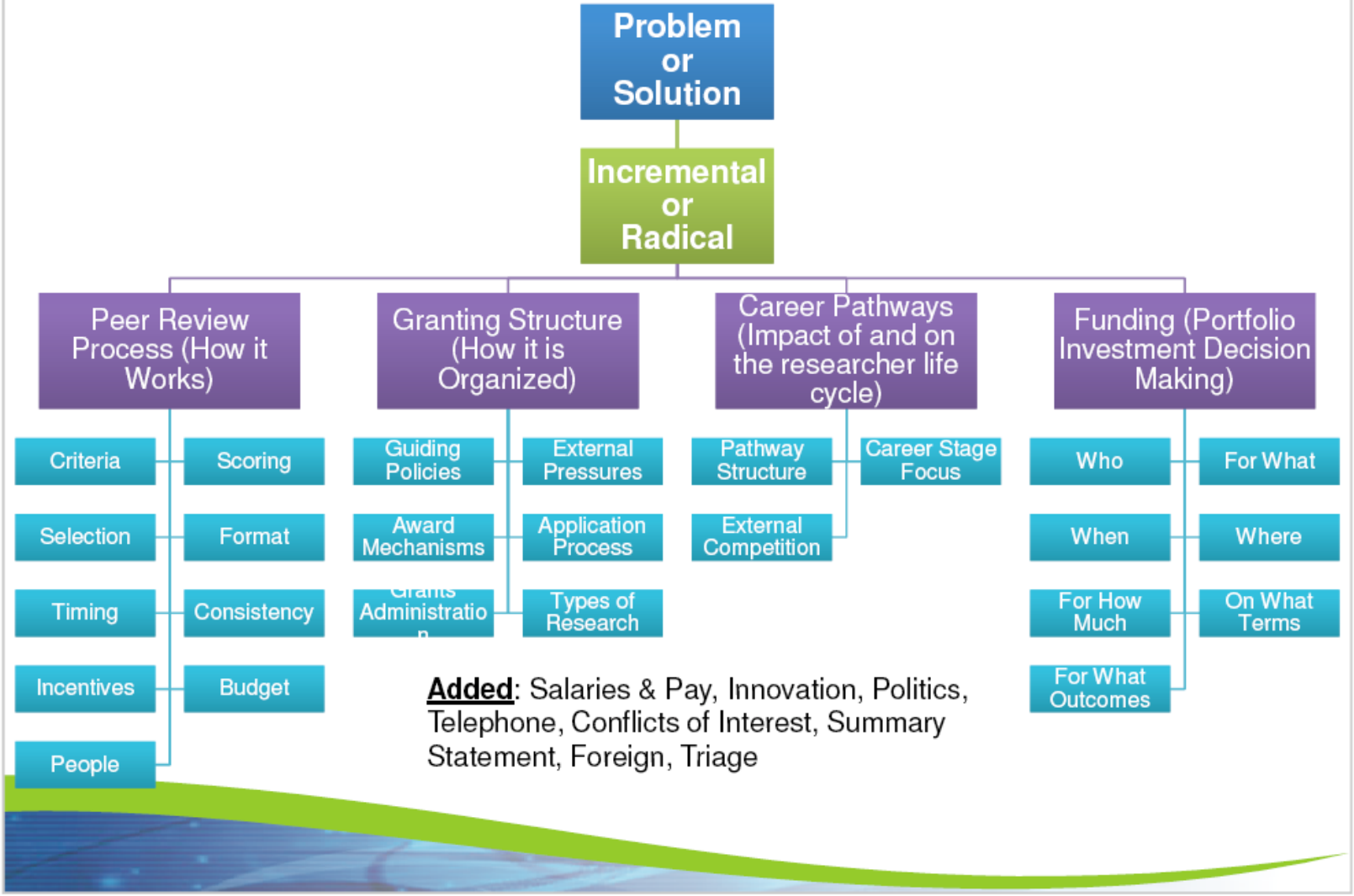


Project Phases

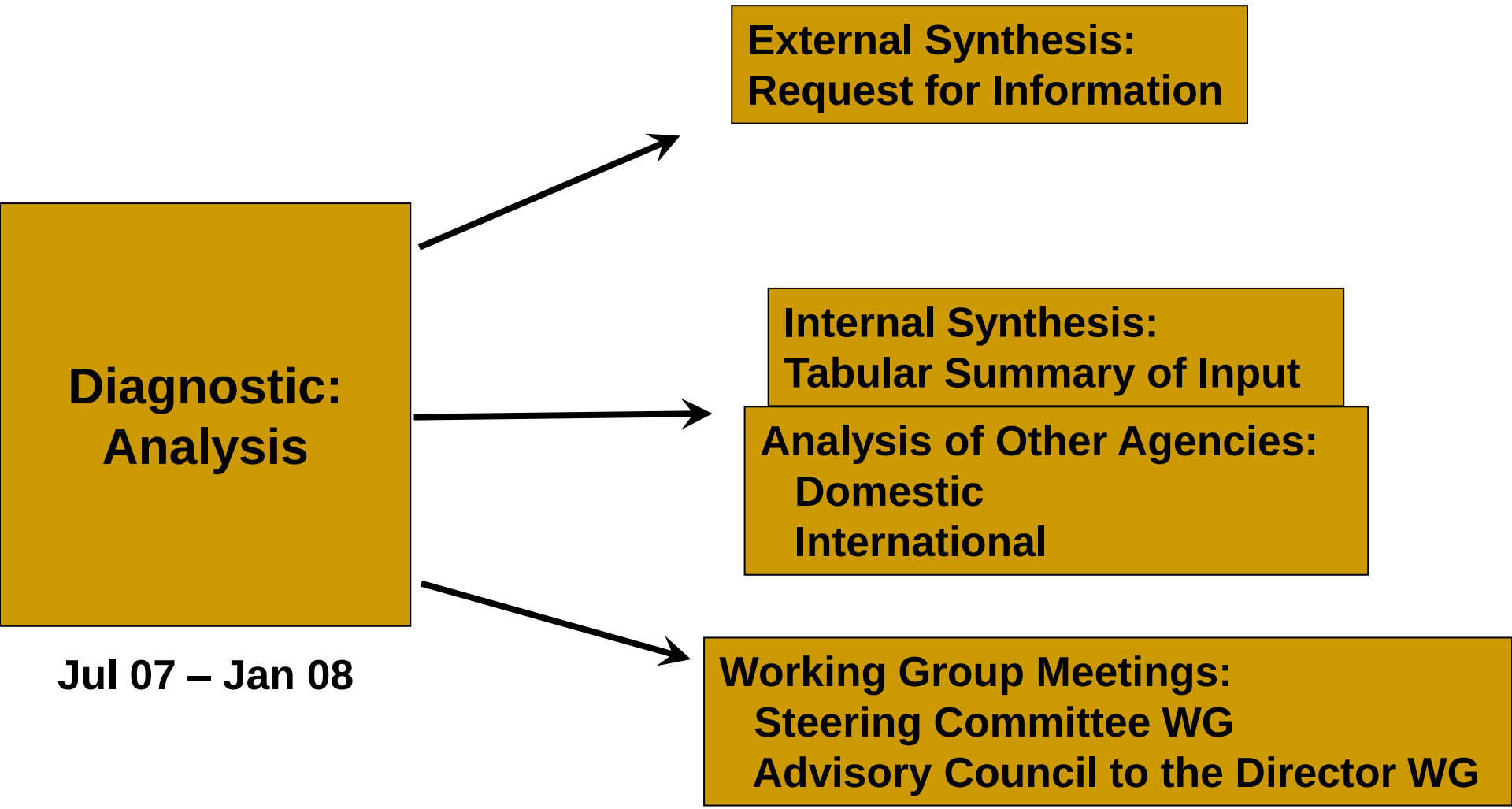


Jul 07 – Jan 08

Final Coding Schema



Project Phases



Jul 07 – Jan 08

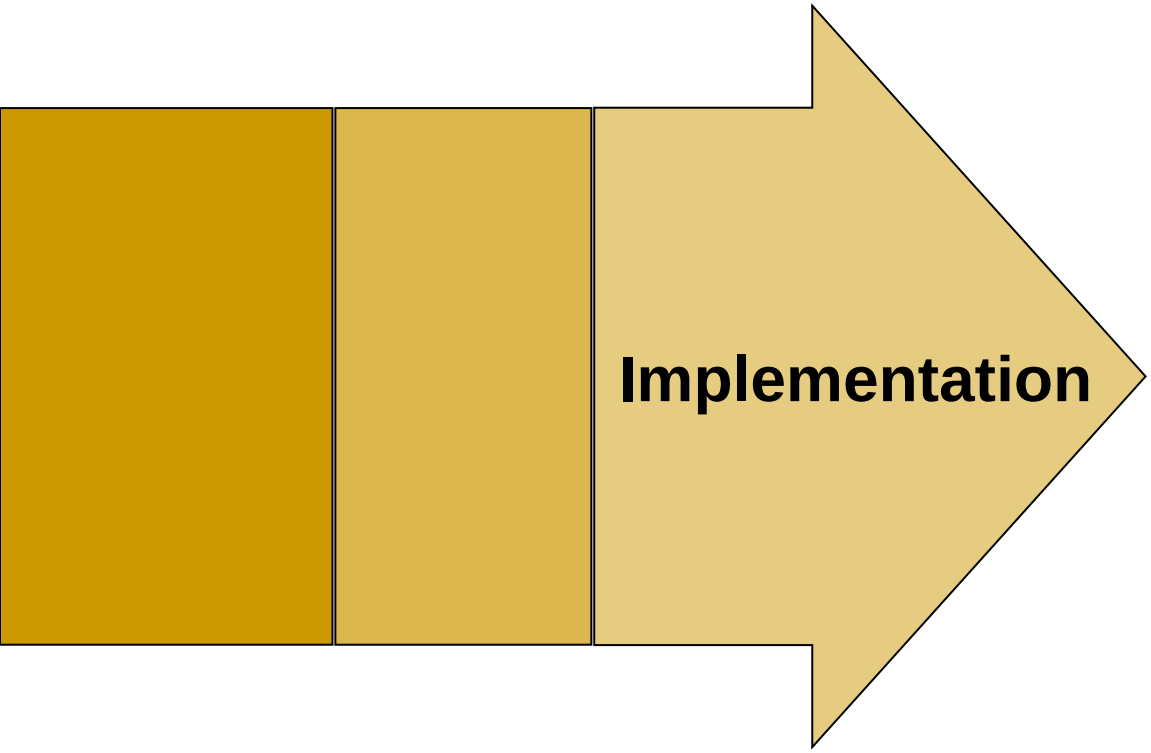
Project Phases

Feb 08 –

February 2008:
NIH Leadership determines next steps, including pilots

March 2008:
Design and initiation of pilots and associated evaluations commence

Project Phases



Implementation plan
Briefings
Expansion of successful Pilots

New NIH Peer-Review Policies

http://enhancing-peer-review.nih.gov/

Some Emerging Ideas*

***Please note: These are not in any priority order. They are presented only to facilitate discussion and feedback and to encourage attendees to think of additional issues**
In addition, selection of ideas for follow-up is not predicated on the "Village vote"

Some emerging ideas

- **Review Criteria**
  - **Reviewing the project versus the person**
    - **Retrospective versus prospective reviews for competing applications**
  - **Many suggestions about how to change review criteria to increase risk taking/"innovation"/impact or public health focus**
    - **Matrix scoring to evaluate multiple dimensions of an application**
  - **Too much emphasis on methodology and preliminary data**
    - **R21's have become "mini R01's"**
    - **Kills innovative/risky ideas that typically have minimal precedent**

Some emerging ideas (cont.)

- **New Models of Review**

  - **New models of review**
    - **The "Wisdom of the Crowd"**
      - **Even though many lament that there are too many people on study sections - more, rather than fewer people should review applications**
      - **Electronic review / asynchronous discussion / blogs**
      - **Two stage review: editorial board model**
    - **Establish applicant/reviewer dialogue to correct factual errors**
    - **Reviewers should be blinded to applicant identity during first phase of review; "environment" and investigators are rarely an issue**
    - **Different types of review for different types of science**
      - **Clinical/Community-based research**
        - **requires involvement of patients/community members in the review**

Some emerging ideas (cont.)

- **Maximization of Review(er) quality**
  - **Provide in depth training for reviewers**
  - **Incentives to attract and retain most qualified reviewers**
    - **Add time to extant grants**
    - **Supplement extant grant for p/t administrative help**
    - **Make service more flexible - 2 rather than 3 times per year**
    - **Increase honorarium to reflect effort required**
  - **Rate the Reviewers/Scientific Review Officers**
  - **Don't publish reviewer ID (e.g. NSF)// Identify reviewers**
  - **Place an ombudsperson on each study section**

Some emerging ideas (cont.)

- **Reviewer Mechanisms/Mechanics**

  - **Rethink design of an original submission in view of low A0 success rates- "clogs" queue**
    - **Pre-applications to provide rapid identification and separation of competitive from non-competitive ideas, and meaningful advice to A0 applicants**
      - **Locus of pre-application review: electronic review by Peers -- NIH staff**
    - **Administratively consider those applications that can contain minor, easily correctable deficiencies, for funding, rather than placing them back into the queue**
  - **Provide more useful feedback to applicants**
    - **Provide scores to applications currently "un-scored"or score and discuss all applications (particularly for new investigators)**
    - **Tell applicants, unambiguously, if the application is "NR"- not recommended for revision and resubmission**

Some emerging ideas (cont.)

- **Peer Review Culture**
  - **Do "peers" make the best reviewers?**
  - **How can we re-capture the prestige of being a reviewer?**
  - **How much "context" should Reviewers be provided ("firewall")**
    - **Portfolio analysis of the Institute/NIH current investment in area?**
    - **NIH/Institute priorities?**
    - **Should there be a "third" level of review assessing public health and societal impact?**
  - **"Face-to-face" versus "virtual" dynamics**
  - **Change evaluation to focus on strengths not weaknesses**
    - **Focus on the potential impact of the proposal and not the methodology**
    - **Role is not to "re-write" proposal but to review it's merit**

Some emerging ideas (cont.)

- **Scoring**
  - **Have study section rank each proposal reviewed at the end of the meeting (and then revisit scores to each to ensure consistency and fairness)**
    - **All members must remain to have their vote "count"**
  - **Completely redo scoring system to break old habits**
  - **Use a 7 point scale rather than the 150 (de facto) point scale**
  - **Use matrix scores for each criteria or dimension**
    - **For example, two scores - application as received/best potential score**
    - **Criteria could be weighted (e.g. Public health impact)**

Some emerging ideas (cont.)

- **Mechanisms**

  - **Reinstitute mechanism for new investigators (R23/29) that is reviewed separately and is appropriately resourced**
  - **Review different mechanisms in different study sections or at different times of the meeting**
  - **Sharply reduce the number of mechanisms - too confusing and used for different things by different Ics**
  - **Do we need different mechanisms for scientists at different stages of their careers?**
    - **New investigators - entry into the system**
    - **"Established" investigators - stability**
    - **Senior investigators - giving back**
  - **Make the NIH system more accessible for "non academic" organization**

Some emerging ideas (cont.)

- **Other issues related to system used to support research**
  - **How many R01's is enough?**
    - **Too many overlapping R01's**
    - **Require minimum percent effort as PI (20/25/33/40%) with no transfer to junior associates allowed except in extraordinary circumstances (illness; PI is leaving academia and is relinquishing all grants)**
  - **Should R01s remain the "gold standard" of investigator success? - (Support for R01s vs. "top down"/"big" science)**
  - **Indirect costs**