CMMI Reorganization & Merger History*

CMS (FY 2006)
- $88.4 Million
- 12 Programs
- 10 Program Directors
- ~1400 Proposals

DMI (FY 2006)
- $66.1 Million
- 7 Programs
- 7 Program Directors
- 1,126 Proposals

CMMI FY 2009
- $232.6 Million**
- 4 Clusters
- 20 Programs
- 18 Program Directors
- 17 Staff Members
- 2,923 Proposals

*Just completed third year
**Includes ARRA
Current CMMI Research Clusters
Advanced Manufacturing

• Research leading to transformative advances in manufacturing and building technologies, with emphases on efficiency, economy, and sustainability

• Supporting programs
  – Manufacturing and Construction Equipment
  – Manufacturing Enterprise Systems
  – Materials Processing and Engineering
  – Nanomanufacturing
Current CMMI Research Clusters
Mechanics and Engineering Materials

• Research aimed at advances in the transformation and use of engineering materials efficiently, economically, and sustainably

• Supporting programs
  – Geomechanics and Geomaterials
  – Materials and Surface Engineering
  – Mechanics of Materials
  – Nano/Bio Mechanics
  – Structural Materials and Mechanics
Current CMMI Research Clusters
Resilient and Sustainable Infrastructures

- Research to advance fundamental knowledge and innovation for resilient and sustainable civil infrastructure and distributed infrastructure networks

- Supporting programs
  - Civil Infrastructure Systems
  - NEES – Ops and Research
  - Geotechnical Engineering
  - Hazard Mitigation and Structural Engineering
  - Infrastructure Mgt. and Extreme Events

Discovery, learning, research infrastructure, and stewardship
Current CMMI Research Clusters

Systems Engineering and Design

• **Research on the decision-making aspects of engineering, including design, control, and optimization**

• **Supporting programs**
  – Control Systems
  – Dynamical Systems
  – Engineering Design and Innovation
  – Operations Research
  – Sensors and Sensing Systems
  – Service Enterprise Systems
CMMI FY 2009 Funding at a Glance
Cluster by Cluster Data

- Advanced Manufacturing
  - Number of Proposals: 790
  - Awards (with ARRA Funding): 172
  - FY 2009 Core Funding Awards: 21.2%
  - Success Rate (Core Funding): 21.2%
  - Success Rate (Including ARRA): 15.7%

- Mechanics and Engineering Materials
  - Number of Proposals: 757
  - Awards (with ARRA Funding): 335
  - FY 2009 Core Funding Awards: 23.7%
  - Success Rate (Core Funding): 23.7%
  - Success Rate (Including ARRA): 15.7%

- Systems, Engineering and Design
  - Number of Proposals: 714
  - Awards (with ARRA Funding): 147
  - FY 2009 Core Funding Awards: 19.6%
  - Success Rate (Core Funding): 19.6%
  - Success Rate (Including ARRA): 24.5%

- Resilient and Sustainable Infrastructures
  - Number of Proposals: 489
  - Awards (with ARRA Funding): 111
  - FY 2009 Core Funding Awards: 16.2%
  - Success Rate (Core Funding): 16.2%
  - Success Rate (Including ARRA): 16.2%
CMMI Broadening Participation Activities

- **CAREER Proposal Writing Workshops**
  - Sponsored & participated in by CMMI PDs

- **BRIGE program**
  - Increased BRIGE awards from 8 in 2008 to 14 awards in 2009

- **Graduate Research Supplements (GRS)**
  - Doubled the level of funds and increased the number of supplements to 9 awards in 2009

- **REU supplements to existing awards**
  - Two undergraduate student supplements if one is a woman/underrepresented group member

*Discovery, learning, research infrastructure, and stewardship*
Future Directions

Broad Opportunities

• Novel materials, processes, and manufacturing technologies
• Sustainability
• Simulation-based engineering and science
• Engineering applied to service-based enterprises and the human dimension
• Innovative product and complex system design – underlying theories of design
Proposal Submissions
What We (and Reviewers) Want to Know

• What are your research and educational objectives?
  – This is what directs your proposal to the appropriate program

• What is your approach?
  – Outline — just a few sentences

• What is the specific research contribution you will make to the knowledge base (the intellectual merit)?

• If successful, what will be the benefit to society (the broader impact)?
Thank You!
Backups
12 Steps to a Better Proposal

1. Know yourself - strengths/weaknesses
2. Know the program from which you seek support
3. Read the program announcement and GPG
4. Formulate clear and appropriate research and education objectives
5. Develop a viable plan
6. State your objectives up front in your proposal
7. Frame your project around the work of others
12 Steps to a Better Proposal

8. Grammar and spelling count  
9. Format and brevity are important  
10. Know the review process  
11. Proof read the proposal before you submit it  
12. Submit your proposal early and proof read it after you submit it

Writing a good proposal takes common sense and effort—it’s not magic