CMMI Reorganization & Merger History*

**Just completed third year**

**Includes ARRA**

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

**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
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
The CMMI Research Community: Awards Made

- Mechanical Engineering, 37%
- Civil & Environmental Engineering, 14%
- Civil Engineering, 8%
- Industrial Engineering/Operations Research/Manufacturing Engineering, 12%
- Materials Science & Engineering, 6%
- Computer Science, 1%
- Electrical & Computer Engineering, 4%
- Environmental Engineering, 0%
- General Engineering, 0%
- Environmental Science & Policy, 1%
- Aerospace Engineering, 1%
- Applied Mathematics, 1%
- Bioengineering/Biomedical Engineering/Biology, 2%
- Business, 1%
- Chemical Engineering, 2%
- Chemistry, 2%
- Polymer, Fiber & Textiles Engineering, 1%
- Physics, 2%
- Other, 1%
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

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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!
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