

Committee of Visitors Report

Directorate of Engineering
Division of Civil, Mechanical and Manufacturing
Innovation (CMMI)

Chair: Louis A. Martin-Vega

Co-Chair: Tony Schmidt

October 21, 2015

Logistics

- Kick-Off Meeting – May 12, 2015
 - Oral presentations of programs and process
 - DD, DDD, and CMMI Pi's
 - CMMI Workbook
 - Copies of presentations, COV Report Template, CMMI Self-Study Data Book, 2012 CMMI COV Report & Division Response

- COV Review – July 7-8, 2015
 - FY 12- FY 14
 - 180 jackets (proposal actions) randomly and representatively selected over three year time period (84 A; 84 D; 12 O)
 - 2015 COV Report

CMMI Research

- Critical to International Competitiveness and Advancement of National Priorities for:
 - Domestic Manufacturing
 - Mitigation of Evolving Hazards
 - Development of Systems-Based Solutions for Broad Range of Techno-Societal Issues

- Organization --- Four Clusters
 - Advanced Manufacturing
 - Mechanics and Engineering Materials
 - Resilient and Sustainable Infrastructure
 - Operations, Design and Dynamical Systems

CMMI Research

- Cross Cutting Programs and Initiatives
 - NIST, DOE, DOD, EPA, Industry
 - SNM : Scalable Nanomanufacturing
 - DMREF: Designing Materials to Revolutionize and Engineer Our Future
 - CRISP: Critical Resilient Interdependent Infrastructure Systems and Processes
 - Various Others

- Large Scale Research Investment
 - NEES – Network for Earthquake Engineering & Simulation
 - A Bold, Innovative Investment in Research Infrastructure
 - Over \$260M investment since 2000
 - Challenges going forward

CMMI Management

- Complimented for continued successful management of Core Programs as well as CAREER, RAPID and EAGER
- COV very impressed by active and thoughtful management, organization and new CMMI initiatives
- COV commends Division Director on:
 - Outstanding team that has been assembled
 - All processes well managed
 - Staff morale appears high
 - Leadership and enthusiasm of DD, DDD, and CMMI PD's

CMMI Management

- Program Management
 - Professional and Collaborative
 - Work Shared Within and Across Clusters
 - Many Program Descriptions Emphasize Links to Other Divisions
 - CMMI Organization encourages proposals with multi/cross disciplinary dimensions
- Portfolio Award Size and Distribution
 - Overall balance of portfolio appears to be reasonable and appropriate
 - COV supports increase in CAREER Award funding

Other Observations & Recommendations

- CMMI Leadership Opportunities (@ NSF and beyond)
 - Advanced Manufacturing
 - Resiliency and Sustainability
 - Broadening Participation of Women in Engineering
 - Mechanical Engineering
- Responsiveness to Prior COV recommendations
 - In-person versus virtual reviews
 - Submission of High Quality Proposals
 - Diversity of Reviewer Pool – Industry Reviewers
 - Some 2012 challenges still persist and deserve attention

Other Observations & Recommendations (cont.)

- Understanding the Broader Impact Merit Review Criteria
 - Far more attention placed on Intellectual Merit than Broader Impacts in Review Evaluations
 - “Definition” of Broader Impacts still not understood by many of the reviewers
 - Need greater clarity as to whether “novelty” of Broader Impacts is a requirement for proposal success
 - Still a lack of understanding and confusion on this issue ---- communicating clear guidelines for evaluating Broader Impacts still needed to improve Panel Review process

Other Observations & Recommendations (cont.)

- Benchmarking and Best Practices
 - COV suggests comparison of CMMI to other NSF Divisions as well as comparable national/international funding agencies and private foundations
 - COV recommends that metrics be defined to assess the success of a particular program, including Intellectual Merit and Broader Impacts
 - COV recommends that Best Practices be captured and made available to new and ongoing PD's on ongoing basis

Other Observations and Recommendations (cont.)

- CMMI Grantees Conference
 - “Bring it back”
 - Efficient and Effective way of enhancing communication between PD’s and CMMI community and CMMI PI’s
 - COV understands obstacles but felt it was important to make the point nonetheless

COMMITTEE

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