Innovative Ideas From Innovative Managing Directors

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About Our Center

Center currently has <u>4</u> Sites:

University of North Texas (UNT), Lead Site

University of Texas at Dallas (UTD)

Arizona State University (ASU)

Missouri University of Science and Technology (MST)

Center Vision and Mission:

Research is aimed at <u>restructuring net-centric and cloud computing software</u> and focuses on modeling, analysis, design, implementation, verification and validation, testing, deployment and evolution of cloud-based and net-centric software and systems.

Center History:

- Established in February 2009 and Phase 2 awarded in April 2014

Some Center Statistics (since startup):

- 82 unique projects submitted for funding consideration
- ~40 projects funded and executed through October 2014 (> $1.4M)
- 36 contributing PI's from among 5 university partners (at peak)
- >26 industry sponsors to date

IMD Background

What was your role prior to becoming an IMD?

- Raytheon Company, Senior Software Technologist (retired Nov 2012)

Were you already involved in Center operations?

- Raytheon was one of the founding industrial members of the NCSS I/UCRC
- Served as IAB Chair during first 3 years of Center operation

Were you hired from the outside specifically for the IMD position?

- Volunteered to write the IMD proposal (pro bono) in response to the RFP and then develop the IMD model if awarded

What prompted your application for the IMD supplement?

- Prior association with the Center
- Familiarity with Center operations as IAB Chair
- Interest in a continuing relationship with the universities
- Availability

Effect of IMD on Center Structure

What effect, if any, has your position as IMD had on the structure of your Center?

- No *structural* changes to date (IMD model is in development)
- Current focus is on <u>correcting operational gaps and issues </u>that would otherwise distract an IMD from core responsibilities (e.g., recruiting)

- IMD model development has focused on:
  - Improving Center operations in 3 key process areas
  - Unification of geographically distributed sites
    - Building a "one center" mentality
  - Defining and deploying common processes
    - Seeking to overcome siloed behavior and operation
  - Strengthening credibility with current and potential members
    - Clearly defined core competencies
    - Thoughtfully constructed portfolio of <u>relevant</u> research projects
    - Objective evidence of <u>substantive project outcomes</u>

Innovative Ideas

Example(s) of some innovative things you have done as an IMD?

Features of the IMD model we are building…

- Based on introspective <u>Self-Assessment</u> of Center
    - Operational issues and gaps (29) identified from evaluator reports and member feedback
- <u>Implements 3 Key Process Areas</u> (KPAs) needed to close gaps
    - Components of an emerging *maturity grid*
        - Project Evaluation, Selection and Management (ESM)
        - Membership, Recruiting and Marketing (MRM)
        - Site Cooperation (SCO)
- Center <u>competencies and capabilities characterized</u> based on projects executed or submitted during first 5 years of Center operation
- Supporting processes, use cases, and implementation guidance for each KPA
- New <u>Project *Quality Attributes*</u> defined to objectify project selection
- New <u>Project Proposal templates</u> developed to be responsive to project diversity concerns and <u>objective evaluation/selection</u>
- New *<u>Sponsor Involvement Scale</u>* defined to set expectations for project mentoring, participation in Center activities, etc.
- Center <u>value proposition and Objective Evidence</u> criteria defined

Outcomes

What are some outcomes (both good and/or bad) resulting from some thing(s) you have implemented as an IMD?

- **Good**
  - Site Directors are generally supportive of process piloting activities
  - Of IAB members expressing an opinion and participating in peer reviews, all have supported the intent and direction of proposed process changes
  - Feedback from NSF has been positive on our approach and progress

- **Not So Good**
  - Limited participation of overall membership in peer reviews
  - Substantive support of peer reviews and participation in process deployment activities is too dependent on the pro bono contributions of members
    - Members are generally uncompensated for involvement in Center activities
  - No eminent authority to help encourage adoption of desired behaviors

Logic Model

Are you following a Logic Model to evaluate the effectiveness of the IMD?

- Measures of success are defined that become relevant when the model (still in development) is deployed.

If so, can you tell us about the Logic Model imposed by the addition of the IMD?

- N/A

Thoughts on the Logic Model:

➕ Somewhat helpful during development of Phase 2 proposal
➕ Served as checklist for planned vs. actual tasks and progress

➖ Effort to develop the model seemed to exceed value returned
➖ Expected LM to facilitate periodic progress reviews with sponsor, but none were scheduled; served primarily as snapshot of initial plan
➖ No feedback received from stakeholders after initial submission

Closing Words of Wisdom (continued)

- NSF wants an IMD Model with these features:
  - Applicable to any I/UCRC
  - Emphasizes member recruitment and retention and building a vibrant I/UCRC ecosystem
  - Successful implementation within the developing center's organization

- Our IMD Model derives from lessons learned during Phase 1 of our Center:
  - I/UCRC's have many independent thinkers that often prefer to run "process free"
  - Most operational gaps and issues come from lack of unified processes and procedures
  - Lack of repeatable processes and a "one Center" mentality (siloing) absolutely kills productivity and invites rework
  - The Center needs to be run more like a business (at least for the parts that make sense):
    - Accountability for project costs and schedule
    - Collection and periodic review of metrics to quantify performance trends for stakeholders
    - Consider that a team almost always does a better job when it collaborates (encourage PI's to be proactive about this by understanding the Center's core competencies and capabilities)
    - Center Management must be vigilant for potential opportunities to connect like-minded PI's and sponsors
    - Rewards and recognition for good performance and proactive Center-wide "help" for non-performers
  - An unambiguous and clear value proposition backed by high-impact objective evidence is key to successful marketing (emphasize *hard* vs. soft benefits)
  - Industry sponsors need to periodically update academic researchers on their IR&D roadmaps to ensure that PI's propose projects that are timely and relevant (IR&D plans are seldom static from year to year)