

I/UCRC Evaluators' Meeting

June 9, 2010

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Welcome to the Industry/University
Cooperative Research Centers

Outline

- Staff update
- What's New: IUCRC opportunities
- Center status
- Status of Proposals Received in March 2011
- Proposed changes in the various solicitations
- Others:
 - LH's observations and recommendations
 - IUCRC Best practices (LH)
 - DIMS update (LH)



Staff Update

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What is New: Other Opportunities for I/UCRCs

- Research Experience for Veterans (REV)
 - June 3 was deadline
- Accelerating Innovation Research (\$8M for Research Alliance Competition): NSF 10-608
 - intended to foster a collaborative effort between an NSF-funded innovation research alliance (including consortia such as ERC, I/UCRC, PFI, STC, NSEC, MRSEC grantees) and at least one partner entity to form a **synergistic relationship** that will accelerate the innovation of a product, a process or system
 - 3 IUCRCs under consideration for funding
 - President Obama announces winners on June 24



What is New: Other Opportunities for I/UCRCs

- 16 Green Challenge (May 26 deadline)

This year's competition focuses on promoting Proof of Concept Centers, which support all aspects of the entrepreneurship process, from assisting with technology feasibility and business plan development, to providing access to early-stage capital and mentors to offer critical guidance to innovators. Centers allow emerging technologies to mature and demonstrate their market potential, making them more attractive to investors and helping entrepreneurs turn their idea or technology into a business.

The Federal Funding Opportunity notice and application information on i6 Green is available at www.eda.gov/i6

- Jobs and Innovation Accelerator Challenge

An initiative of 16 Federal agencies and bureaus to accelerate innovation-fueled job creation and economic prosperity through public-private partnerships.

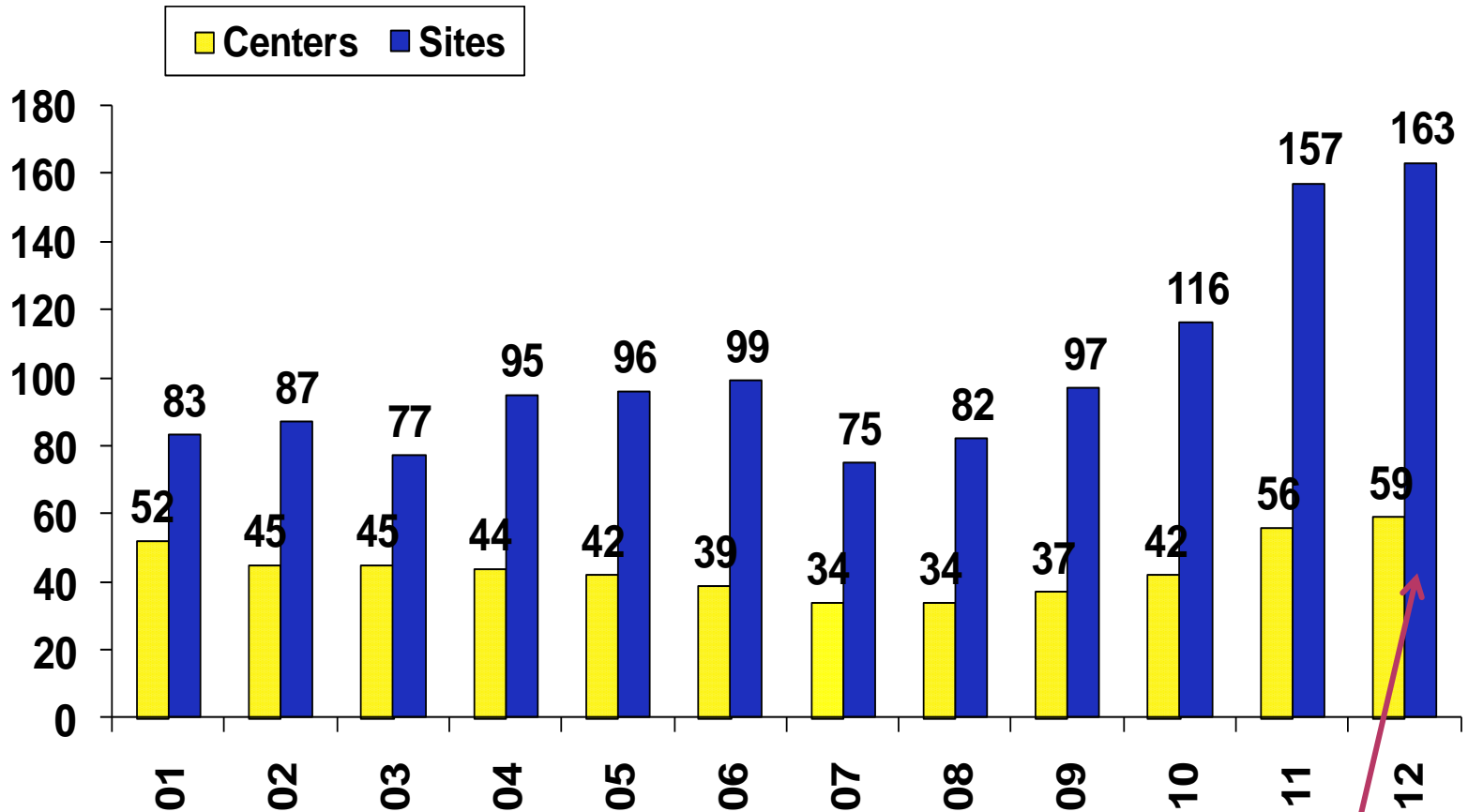
–\$33 million in direct Federal support from EDA, ETA and SBA



EXISTING CENTERS & SITES
&
POTENTIAL CENTERS & SITES



Active Centers and Sites by Year



43 ENG
16 CISE



Industry/University Cooperative Research Centers

ENG Multi-University Centers

1. Advanced Forestry
2. **Advanced Packaging and Processing (III)**
3. Bio Energy R & D
4. Composites Infrastructure
5. Ceramics Composites Optical Materials Center
6. Computational Materials Design
7. **Design of Analog Digital Integrated Circuits (III)**
8. **Dielectrics?**
9. Electromagnetic Compatibility
10. Energy Harvesting
11. Friction Stir Processing
12. Fuel Cells
13. Grid-Connected Adv Power Elec
14. Health Org. & Transformation
15. Integrative Joining of Materials for Energy Applications
16. Laser and Plasma for Adv. Mfg.
17. Logistics and Distribution
18. Membrane Science, Engineering & Technology
19. **Minimally Invasive Diagnostics**

ENG Multi -University Centers

20. Next Generation Photovoltaics
21. Particulate and Surfactants
22. Pharmaceutical Development
23. Plug-In Hybrid Electric Vehicles
24. **Precision Forming**
25. **Power Systems Engineering Research Center (III)**
26. Resource Recovery & Recycling
27. **Sensors and Actuators (III)**
28. Smart Vehicles Concepts
29. Silicon Solar
30. Small Satellite Technology
31. Connection One
32. Water and Environmental Technology
33. Water and Equipment Policy
34. Wood Based Composites
35. **Metamaterials (2011)**
36. **Biophotonics Sensors and Systems (2011)**

ENG Single-University Centers

37. **Agricultural, Biomedical, and Pharmaceutical Nanotechnology (2011)**
38. **Advanced Cutting Tools**
39. **Advanced Vehicle Electronics (III)**
40. **Biomolecular Interaction?**
41. Child Injury Studies
42. Electronic Micro-Cooling
43. **Non-Destructive Evaluation (III)**

43 ACTIVE ENG CENTERS



Industry/University Cooperative Research Centers

CISE Multi-University Centers

1. Advanced Knowledge Enablement
2. Autonomic Computing
3. **Dynamic Data Analysis (2011)**
4. e-Design
5. Embedded Systems
6. Experimental Computer Systems
7. Hybrid Multicore Productivity
8. **Identification Technology (2011)**
9. Intelligent Maintenance
10. Intelligent Storage
11. Net-Centrics Systems
12. Reconfigurable Computers
13. Search & Rescue Robots
14. Security and Software Engineering Research Center
15. Surveillance Theory
16. Wireless Internet

**16 ACTIVE COMPUTER AND INFORMATION
SCIENCE AND ENGINEERING (CISE) CENTERS**



New Sites Joining Existing IUCRCs (FY 2011)

- **Laser and Plasma in Advanced Manufacturing**
 - *2 (Planning Grants under Consideration)*
- **Next Generation Photovoltaics**
 - *1 (Full Proposal under Consideration)*
- **Plug-in Hybrid Electric Vehicles**
 - *1 (Planning Grant under Consideration)*
- **Safety, Security and Rescue (CISE)**
 - *1 (Planning Grant under Consideration)*
- **Security and Software Engineering Research Center (CISE)**
 - *1 (Full Proposal under Consideration)*



New Sites Joining Existing IUCRCs (FY 2011)

- **Center for Excellence in Logistics and Distribution**
 - *UC-Berkeley (awarded)*
 - *1 (Planning Grant under Consideration)*
- **Optical Wireless**
 - *1 (Planning Grant under Consideration)*
- **Health and Organization Transformation**
 - *PSU*
- **Child Injury Prevention Studies**
 - *1 (Full Proposal under Consideration)*
- **e-Design (CISE)**
 - *University of Buffalo, BYU*



Full and Planning Grant Proposals Under Consideration (FY 2011)

- **Center Proposals:**
 - Energy Efficient Systems (3)
 - Advanced Non-Ferrous Structural Alloys (2)
 - Connection One (Phase II Renewal; 2)
 - Wireless Internet Center for Advanced Technology (Phase II Renewal; 1)
 - Intelligent Maintenance Systems (Phase III, Phase II Renewal; 3)
 - Pharmaceutical and Biopharmaceutical Processing Research (Phase III Renewal; 2)
- **Planning Grant Proposals:**
 - Center for Macromolecular Topology (CMT): (2)
 - Cyber-Physical Systems for the Hospital Operating Room (2)



Likely “NEW” Center Proposals (FY 2012)

- ❑ **Sustainably Integrated Buildings and Sites (completed Planning Grant workshop; DM is the center evaluator)**
 - UNCC, ASU, CMU, CUNY?

- ❑ **Industrial Painting and Coating (Planning Grant workshop planned for Oct 11; need a center evaluator)**
 - UKY, Clemson

- ❑ **Optical Wireless**
 - PSU, Tufts and UC-Riverside (Planning Grant workshop completed; SM is the center evaluator)
 - An additional site seeking to join



Likely “NEW” Center Proposals (FY 2012)

- ❑ **Tire Center (Planning Grant workshop completed; Dee Hoffman is the center evaluator)**
 - VT, University of Akron

- ❑ **Unmanned Aircraft Systems (Planning Grant workshop planned for June 11; Eric S is the center evaluator)**

- ❑ **Architecting Socio-Technical Ecosystems (Planning Grant workshop planned for July 2011; Dee Hoffman is the center evaluator)**
 - CMU, UM



Changes in Planning Grant (In Effect)

- ❑ **Boot camp for Planning Grantees at NSF (NSF 10-595)**
- ❑ **Planning grant agenda to be reviewed and approved by NSF**
- ❑ **Must complete planning grant workshop prior to submission of a full proposal**
- ❑ **Presentation at Planning Grant Workshops**
- ❑ **Planning grant workshop deliverables:**
 - **List of ALL POTENTIAL RELEVANT RESEARCH PROJECTS sent to ALL POTENTIAL SPONSORS**
 - **Must include EXECUTIVE SUMMARIES & BACK-UP MATERIAL (if needed)**
 - **Must include VISION and MISSION Statement of the proposed Center**
 - **Sponsors prioritize and send back list to PIs (5+ top research projects)****
 - **PIs sort through and identify the top 5+ research projects**
 - **PIs report back RESULTS to NSF & ALL POTENTIAL SPONSORS**
 - **PIs list these TOP 5+ projects in the FULL PROPOSAL**
 - **If awarded, these VETTED research projects now effectively start the first IAB meeting**



Proposed Changes in Solicitation

- NSF's expectation of "cooperative" operation for an IUCRC
- Include role & responsibilities of the IAB
- Provide additional funds for Operations/Dissemination/Communication and Marketing
- Refine responsibilities of evaluators: DIMS and Impact data
- Provide more clarity in renewal proposals; greater clarity regarding NSF's expectations from Phase I, Phase II & Phase III completions
- Examples of Center organizational models



Other Important Items

- Fundamental Research proposal - ongoing
- SBIR membership in IUCRCs - ongoing
- **CORBI – ongoing**
- Center Fact Sheet (operational)
- MIPR – complete information on the IUCRC homepage
- Annual report
 - Evaluator’s report**
 - Membership certification**
- Evaluator absence
 - What if the evaluator cannot attend the meeting, what then?
 - What if the meeting is held electronically?
- DIMS
- LIFE forms
 - Role of NCSU (new item)
 - UCF has transferred the database to NSF’s contractor

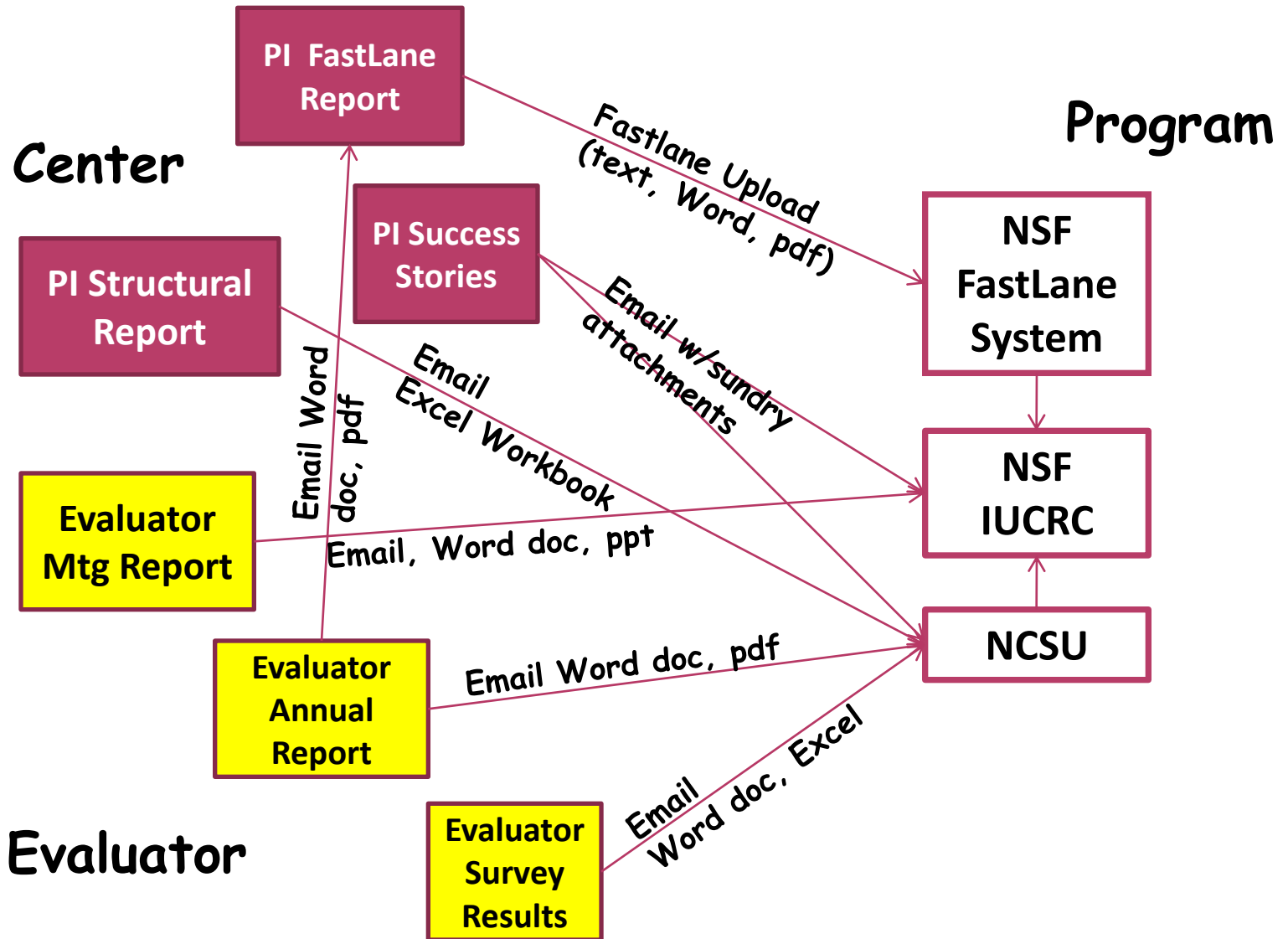


Expectations from Evaluators

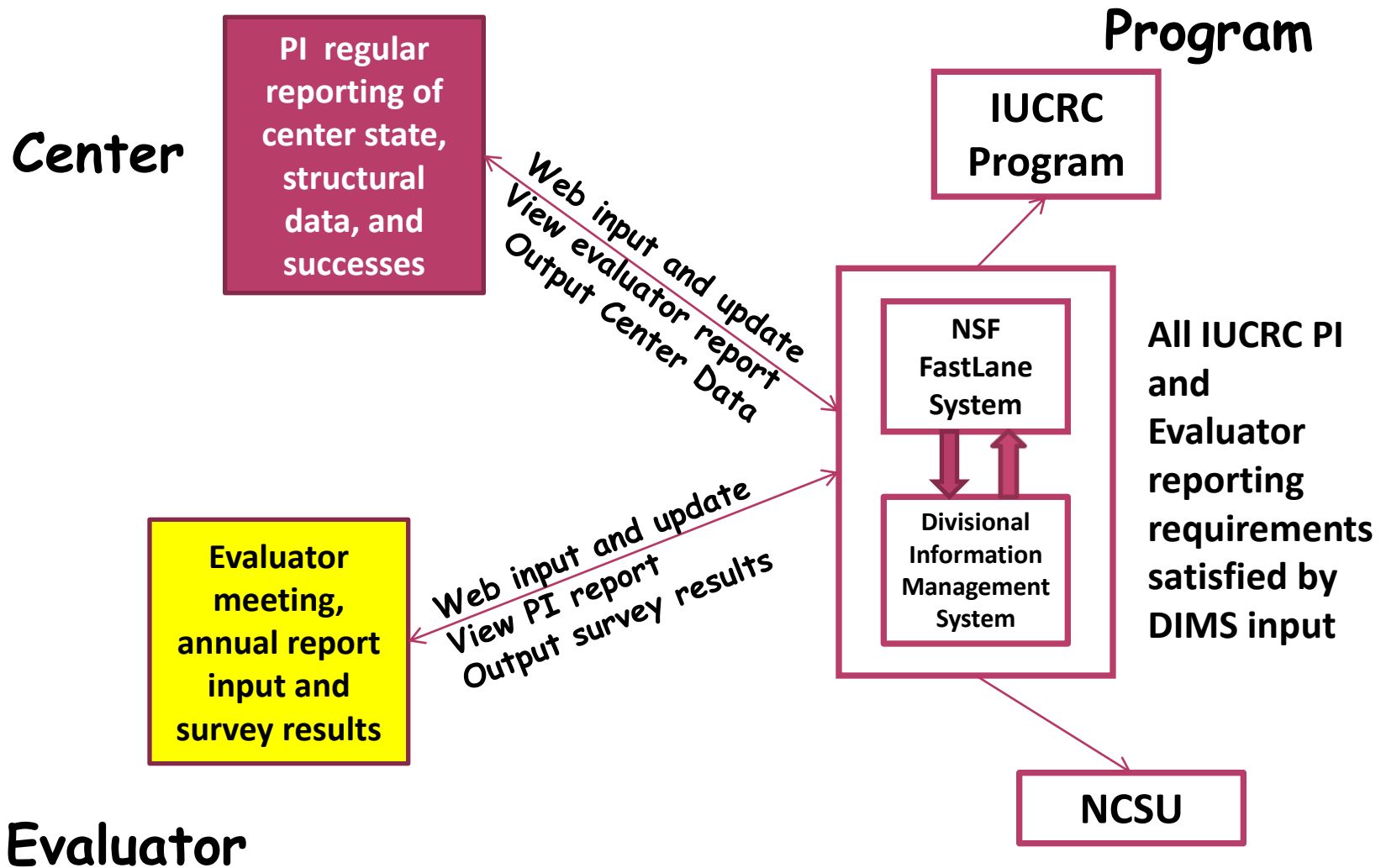
- In the absence of NSF PDs, summarize
 - center membership status per site (note changes)
 - attendance (particularly members per site)
 - Cooperative Operation (Mode, Dynamic)
 - CONCERNS**, if any (is this the time NSF PD should get involved?)
 - SUCCESS** stories (particularly impact)
 - others
- Standardized ANNUAL CENTER evaluator report
 - center membership status per site
 - Membership fees per site (in-kind and cash)
 - SWOT Analysis of the Health of the Center's Cooperative
 - CONCERNS**, if any (is this the time NSF PD should get involved?)
 - SUCCESS** stories (particularly impact)
 - Others



Current Data Flow, Types & Retention



DIMS-Targeted Future Configuration



Collection via DIMS

- **Intended Benefits**
 - *Unify disparate collection sources, formats*
 - *Consolidate reporting for the PI, evaluator*
 - *Enable rapid, comprehensive data access, analysis*
 - *Support improved director – evaluator interaction*
 - *Enable center access to its historical information*
 - IAB financial statements, long term analysis, marketing, etc.
- **Data Update Frequency**
 - Structure to enable input quarterly
 - Achieve alignment with NSF award anniversary and IAB mtg reporting
 - Enable rapid capture of leads for pursuit of success stories
 - **PI:** Require biannual update prior to IAB meetings
 - **Evaluator:** Require biannual update after IAB meetings
- **Use**
 - No change to annual determination of “good standing”
 - Biannual knowledge enables proactive action with center



Observations and Recommendations

... from the other side

- **Since joining NSF**
 - Completed 28 center Site visits since October 2010
 - Logged Over 40,000 miles and counting...
 - Experienced the diversity of I/UCRCs and sectors served
- **IUCRCs are all about trusted relationships and the value derived from those relationships**
 - Trust grounded (1) in technical capability, (2) the ability to define and deliver value drawing on that capability
 - 1st is necessary but alone is insufficient w/o 2nd
- **Cooperative operation builds trusted relationships**
 - Different flavors based on sector, but same characteristics
 - Cooperation at all levels – universities and IAB
 - Respect for needs of those in the relationship, with regular opportunities to show it
 - Structured, consistent business processes so all parties can regularly contribute and reap value from the relationship
 - Best practice adoption/adaptation & continuous use



Observations and Recommendations

- **What thwarts the cooperative? Inability to build trust through the rhythm of IUCRC Processes**
 - Affiliate Mode of operation (inherited or chosen)
 - Giving new members their own projects
 - Sewing up all funds with multiyear projects
 - Fencing of funds around sites
 - Weak organization and operation at the site and center level
 - Unsuccessful marriages
- **Observed Outcomes**
 - No lively, informed discussion of projects at meetings
 - No relationships built among the IAB
 - No value to attending IAB meetings
 - Inactive/weak IAB
 - Engagement with faculty, students no better than one-off projects
 - IAB drawn into site/center management or \$ allocation issues



Observations and Recommendations

- **Recommendation for Consideration – Remove structural barriers to establishing and maintaining a cooperative relationship between academia and industry in I/UCRCs**
 - View, assess, and fund centers holistically rather than as sites.
 - X universities and Y min members yields Z dollar award
 - Lead University certifies memberships
 - Cooperative operation consistent with IUCRC Agreement
 - Require center-wide management and operations plans and corresponding budgets
 - Require universities establish MOUs that share responsibilities and facilitate cooperative operation
 - Suggest new university sites to existing centers show they can live together (e.g. via subaward, MOU initially)



Observations and Recommendations

Center Evaluators

- Have new evaluator training include a tour in two very different but fully cooperatively run centers.
- Consider *Optional Responsibilities* on the IUCRC Evaluation Home Page www.ncsu.edu/iucrc
 - Evaluators may collect data in addition to the data required by the evaluation effort....
 - Evaluators may offer to assist the Center Director ...
“Examples of these activities include assisting in planning semi-annual Industrial Advisory Board meetings, developing marketing plans, preparing or contributing to the newsletter, and providing general management consulting”



Best Practices Document

- **Revised and Updated to further benefit Center Directors**
 - Input and comments welcome
- **Emphasis on good business processes**
 - Establishing a routine via center processes that builds trusted relationships both between the IAB and Center and within the IAB.
- **Organized wrt Biannual Rhythm of Center Meetings**
 - Pre-meeting
 - Meeting
 - IAB Meeting
 - Post-Meeting
- **Added, Process-Oriented Elements including**
 - RFP, meeting planning, information dissemination
 - Key content for Director “State of the Center” Presentations
 - Post meeting communications

