



# Metrics from the IUCRC Evaluation Project: A Review and New Directions for Evaluating Benefits for Center Stakeholders

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[www.ncsu.edu/iucrc](http://www.ncsu.edu/iucrc)

NSF Industry/University Cooperative Research Centers Program



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# Goals

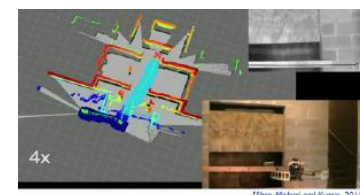
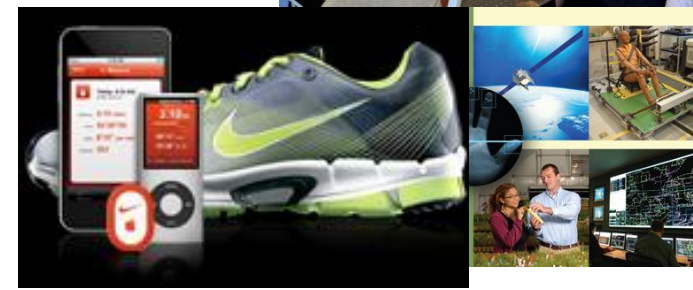
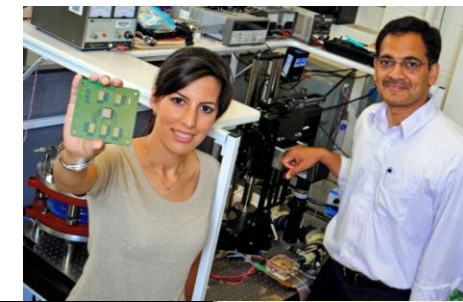
- Provide an overview of metrics for the evaluation of the NSF IUCRC Program
  - Formative, improvement-oriented evaluation metrics
  - Center health metrics
  - Economic impact metrics
- Stimulate some discussion about new metrics and measurement approaches being developed for the IUCRC program
  - Metrics for multi-stakeholder decision-making
- Note: Focus on metrics of industry impact



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# Very Big Picture Overview

- IUCRC Program
  - Partnership-Based Center Program
    - Conceptual-level: team science, triple helix, open innovation
    - Structural:
      - NSF: catalyst, seed funding, technical assistance & evaluation
      - University: research performers
      - Industry: shared funder; research guidance
  - University-based R&D consortium
    - Shared influence and research
  - Pre-competitive research
  - Multi-university preference
- Unique multi-faceted, improvement-focused evaluation





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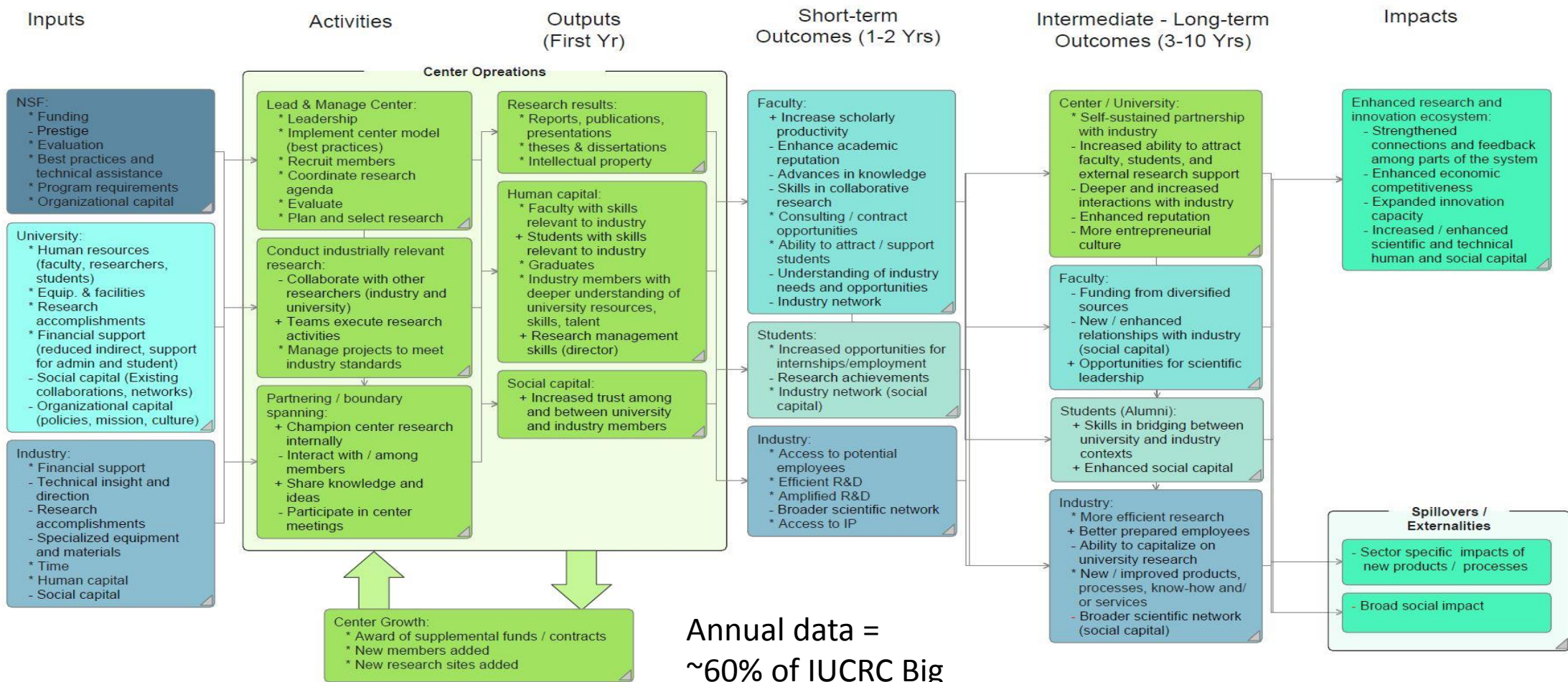
# Evaluation Challenge

- IUCRCs are administratively challenging
  - Team-based; multi-disciplinary; cross-sector; consortial; cross-university; seed funding investment
- Multiple stakeholders (Triple Helix): win-win-win
  - University: faculty and students
  - **Members: firms; industry; labs**
  - Government: national; state; local
- Multiple paths for impacting innovation: scientific & technical human capital impacts, R&D impacts, commercialization impacts
- Few existing cooperative center models when program was established
- Faculty, universities, industry members may not have experience starting, managing, engaging in consortial-based partnering

How do and should they work?



# IUCRC Logic Model: Data Big Picture



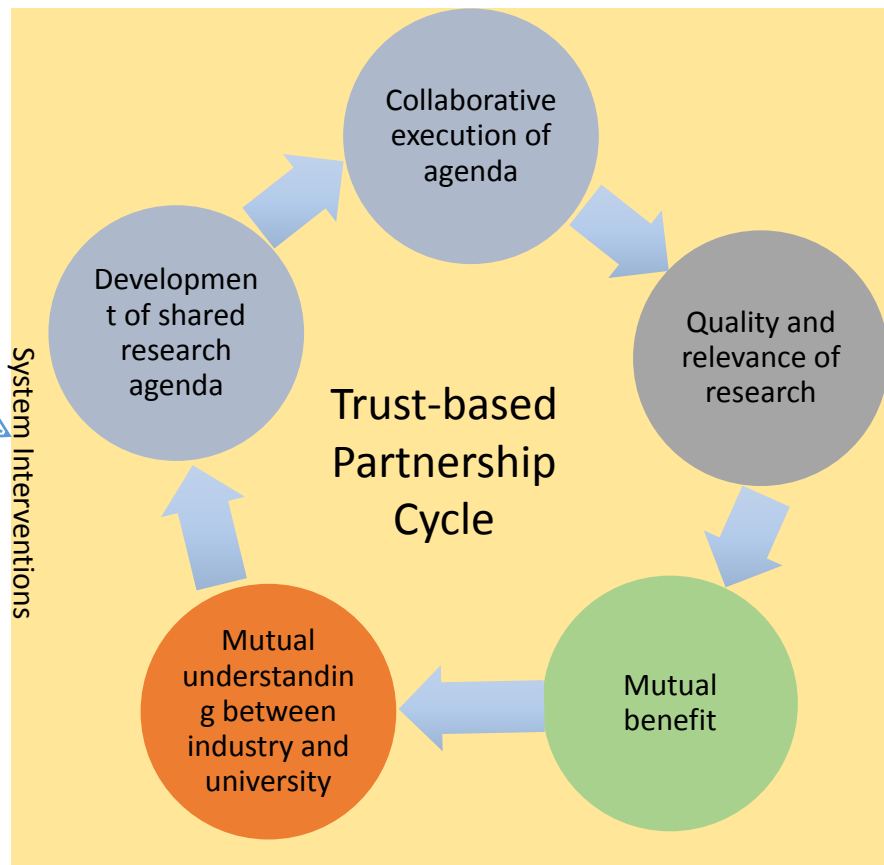
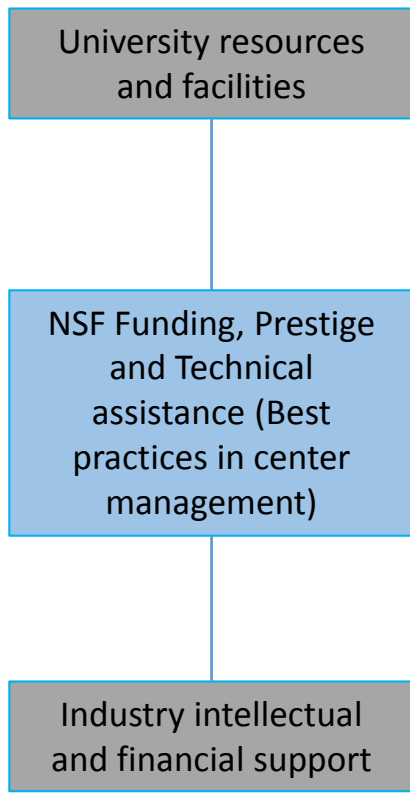
University Research

**Key:**  
 - No research to date  
 + Previous research may need to be updated  
 \* Sufficient current research

IUCRCs: BUILDING AN ENHANCED RESEARCH AND INNOVATION ECOSYSTEM



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- Impacts on Students**
- Increased opportunities for internships/employment
  - Ideas / funding for thesis / dissertation research
  - Industry network
  - Skills in bridging industry / academy

- Impacts on Faculty : Short-term**  
Increased:
- Scholarly productivity & reputation
  - Advances in knowledge
  - Skills in collaborative research
  - Consulting / contract opportunities
  - Ability to attract / support students
  - Understanding of industry needs and opportunities
  - Industry network
- Impacts on Faculty: Long-term**
- Funding from diversified sources
  - New / enhanced relationships with industry (social capital)
  - Opportunities for scientific leadership

- Impacts on Industry: Short-term**
- Access to potential employees
  - Amplified R&D
  - Broader scientific network
  - Access to IP
- Impacts on Industry: Long-term**
- More efficient research
  - Better prepared employees
  - Ability to capitalize on university research
  - New / improved products, processes, know-how and/or services
  - Broader scientific network (social capital)

IUCRCs are a SYSTEM level intervention – targeted support creates a self-reinforcing network of relationships.



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# Metrics from IUCRC Evaluation



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# Formative Metrics for Consortial Project Selection Methodology

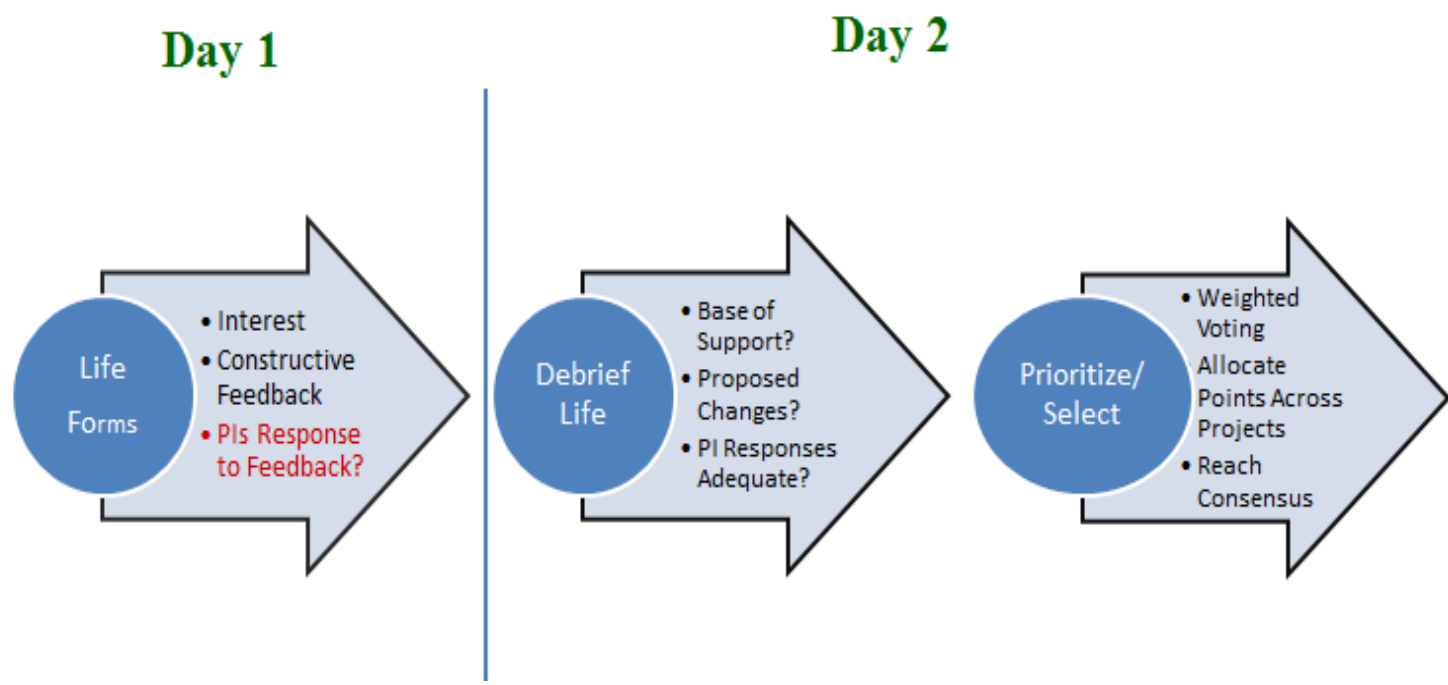
- Question: What's the best way to select projects in a lean consortia?
- Motivation: Project selection can be a very controversial and conflict-ridden process in a consortia if not handled correctly
- Methodology:
  - Participant observation by evaluators
    - What approaches were working well?
    - Level of Interest and Feedback Evaluation (LIFE) + weighted voting process
  - Dissemination and technical assistance by NSF





# Formative Evaluation Metrics

## LIFE Feedback and Project Selection Process



### Example Feedback

**Project A**

- **Very Interested 5**
- **Interested: 2**
- **Interested with change: 1**
- **Not interested: 1**

**Comments:**

- What might be the limitations to type and breadth of signal classes?
- How does the architecture proposed enable scaling to either (a) larger problems of the same nature and (b) different types of problem i.e. implementation of different algorithms?
- What is the bandwidth of each signal?
- What are assumptions/limitations on signal classes?

What is accuracy of algorithm? Optimization methods using HW acceleration is good but are the algorithm assumptions realistic?

We would be even more interested if the project investigated how a single set of code could be deployed onto different compute engines and the performance compared e.g. single core i86, multi-core, GPU and FPGA and combinations of each.

The challenge we are most interested in are how to dynamically use a heterogeneous compute engine to most efficiently solve a variety of signal processing functions

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# Member Turnover & Retention

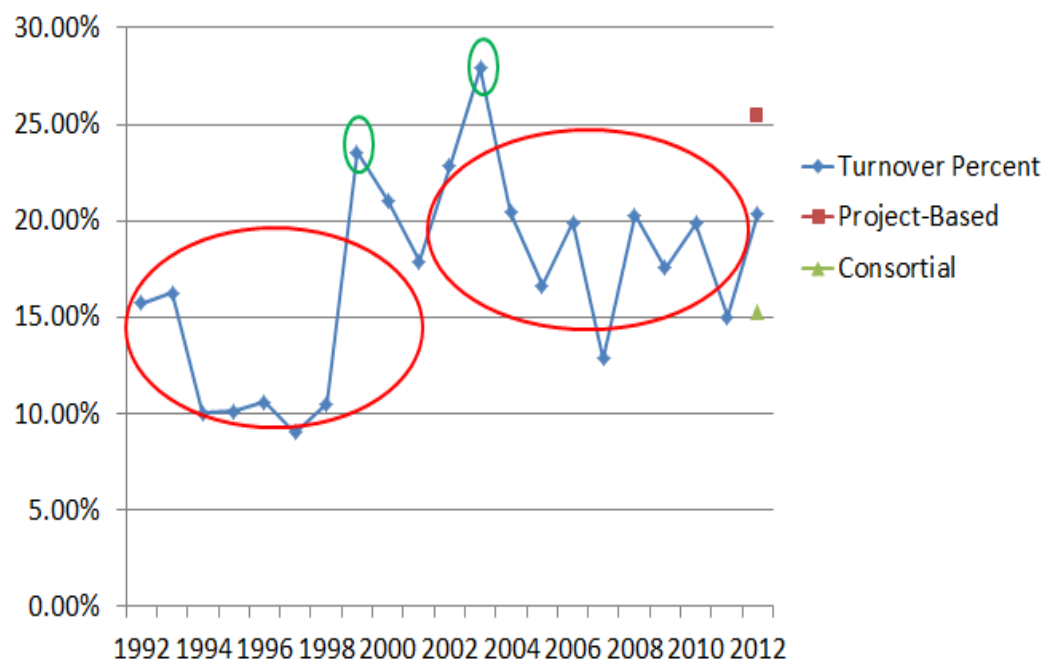
- Question: How much turnover is there in Center membership? Do members intend to remain a member over multiple years? How long do they actually continue their membership?
- Motivation: Member continuing commitment to center is a key to the stability and survival of center; Proxy for effectiveness
- Methodology:
  - Question on the annual Process/Outcome survey
  - Collected from program records
  - Subject of targeted analysis using existing metrics



# Industry Member Turnover

- Intention to renew hovers around 80%
- Actual turnover has varied with the economy
  - Lower in consortial center
- Predicting intention to renew:
  - Research relevance
  - Satisfaction with Center administration
  - Social capital

### Member Turnover Rate – New Normal

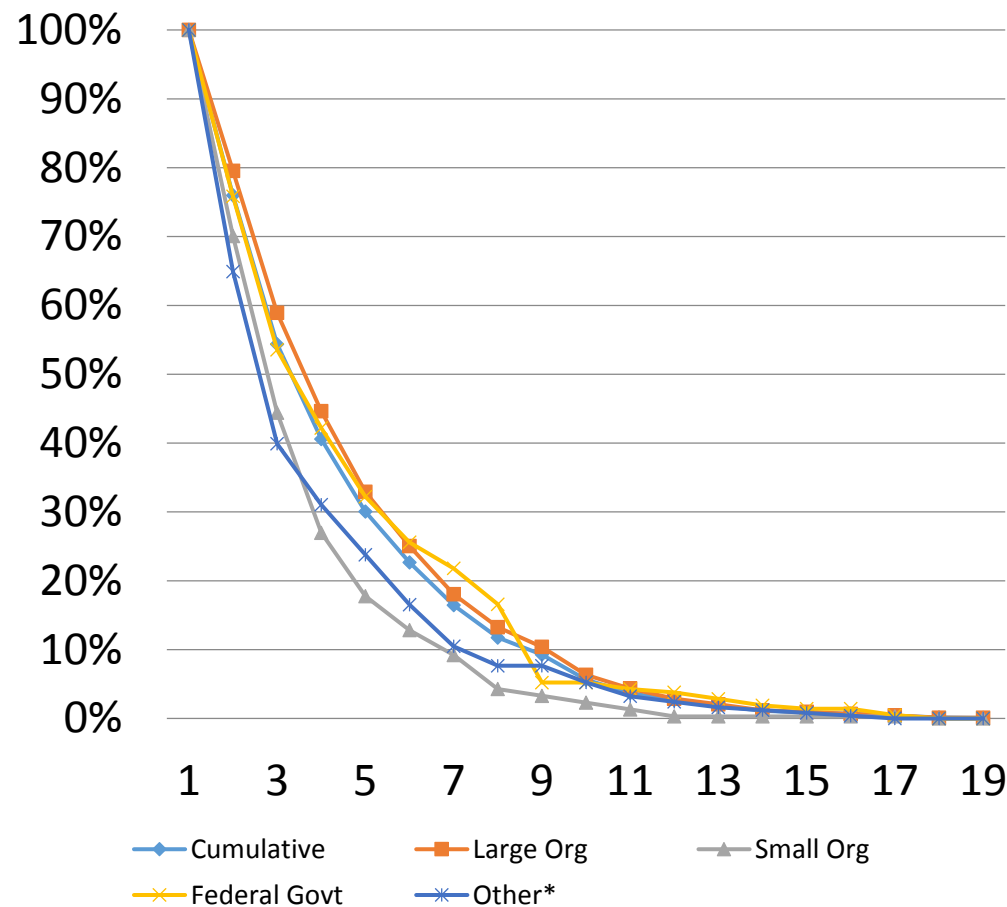


Turnover % = Members terminated in year X+1 / Total members in year X



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# Industry Member Retention



## Multiple indicator strategy for dwell rate

- Percentage maintaining membership steadily declines over time
- Average Dwell Time = 3.8 years
- Average member stays 32% of Center life
- Large businesses and government members tend to have higher average dwell time than other types of members
- Centers with higher membership fees tend to have members with lower dwell rate



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# Metrics for Relevance of Center Research for Industry

- Question: How relevant is Center research to the current and future needs of industry members?
- Motivation: Project relevance is critical for recruiting and retaining members, and achieving tangible benefits for members
- Methodology:
  - Measure % of relevant projects, high priority projects on industry survey
  - Use complementary datasets to calculate various levels of relevance



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# Metrics for Relevance of Center Research for Industry: FY 2015-2016

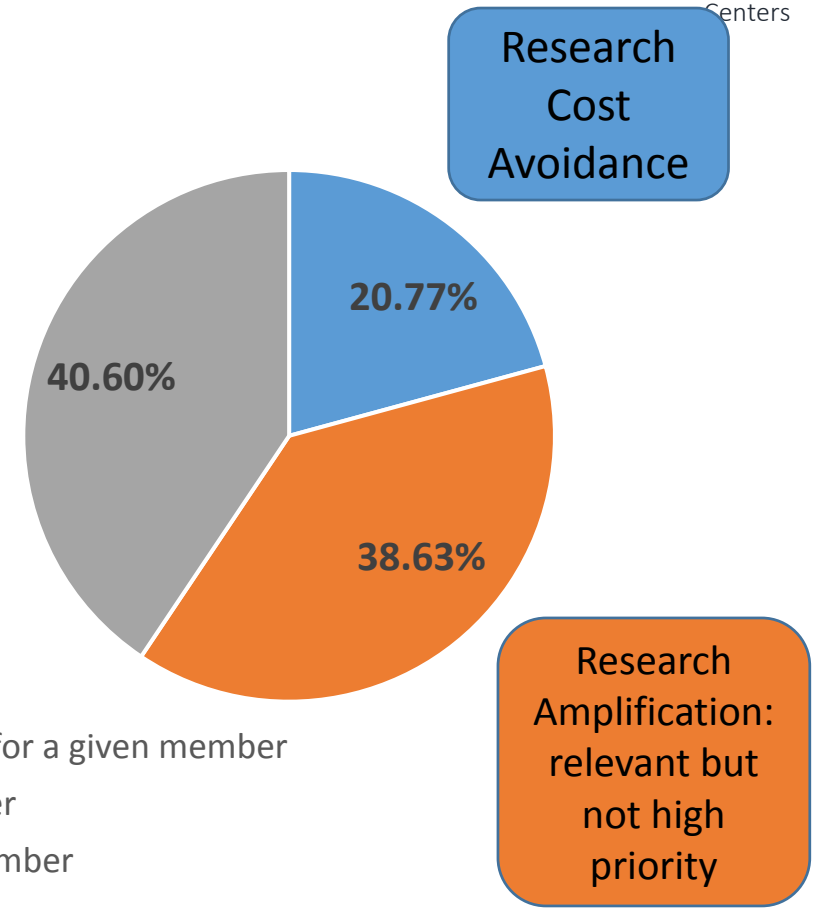
What % of the Center's Currently funded projects do you consider relevant to your organizations current or future needs?

How many of the currently supported projects are so high priority that your organization would have almost certainly conducted the same or very similar project internally or by contract with in the next couple of years?

$N \text{ priority proj.} / \text{Total } N \text{ projs.} = \% \text{ High priority}$

$\% \text{ Relevant} - \% \text{ high priority} = \text{research amplification}$

- Relevant and high priority for a given member
- Relevant to a given member
- Not relevant to a given member





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# Metrics for Economic Impact on Members

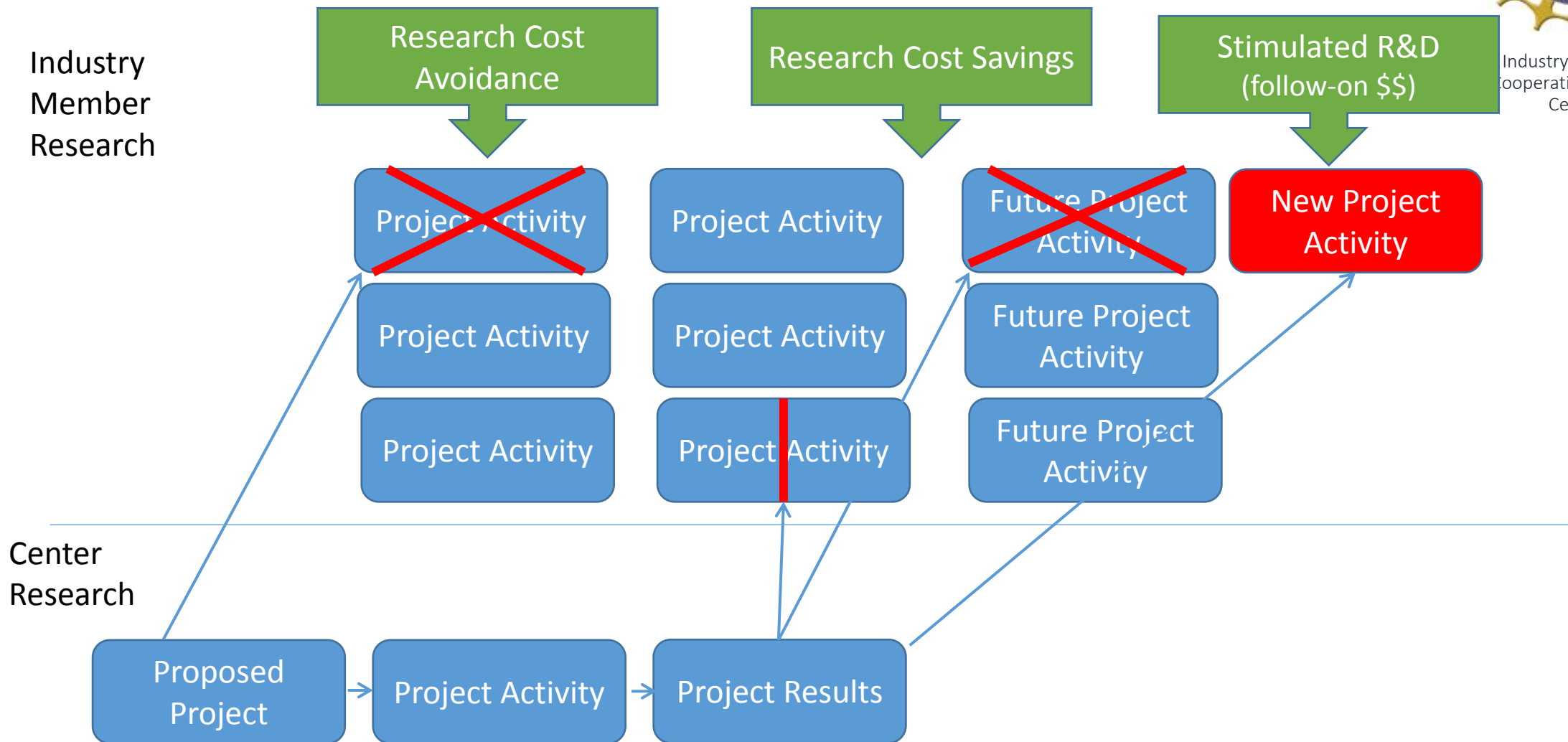
- Question: Do firms that participate in IUCRCs receive a quantifiable economic impact?
- Motivation: It is an implied program objective; NSF wants to know; Congress wants to know; Would-be members want to know
- Methodology:
  - Data collected on annual Process/Outcome questionnaires
    - Too short a time-frame to get complete picture
    - Response rate of ~40%
  - Targeted study of 3 mature, high performing centers (5 members/center)
    - Personal confidential interviews of firm representatives





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# Defining Research Efficiency Metrics







# Calculation of Economic Impacts (\$)

- Research amplification (Q1 & Q2a)
  - *Percent Rel. x N of Center Proj. x Scien. Months x \$/Scien. Month (Gray & Steenhuis, 2003)*
- R&D Cost Avoidance (Q2b & 2a)
  - *(N of Proj. Avoid x Scien. Months x \$/Scien. Months) – Mem. Fee (Gray & Steenhuis, 2003)*
- R&D Cost Savings
- Accelerated R&D savings (5a):
  - *\$ saved by accelerated projects*
- Avoided R&D (5b):
  - *\$ avoided by not starting projects*
- Stimulated R&D (5c):
  - *\$ invested in new or revised R&D directions*



# Summary of R&D Efficiency Impacts

	Member Level Mean	Center Level Mean	Program Total
Research Cost Avoidance	\$751,170	\$4,089,610	\$219,902,286
Research Cost Savings	\$127,260	\$916,280	\$45,814,000
Stimulated Research Projects	\$99,670	\$740,690	\$37,775,000

- Notes:**
- Since Research Cost Avoidance and Research Cost Savings are “savings” and Stimulated Research Projects involves “costs” indices should not be added
  - Since these data only involve feedback from about 40% of members they almost certainly underestimate impacts at both the Center and Program level



# Commercial Economic Impact: Three Center Study

*Table 10.4 Summary of impacts for IMS, BSAC and IUCS (in 2010 US\$)*

	<b>IMS</b>	<b>BSAC</b>	<b>IUCS</b>
Total benefits (present value)	\$846.7M	\$410.7M	\$9.6M
Total investments (present value)	\$3.1M	\$13.3M	\$3.2M
Benefit:Cost Ratio (BCR) =	270.2:1	31.0:1	3.0:1
Net Present Value (NPV) =	\$843.6M	\$397.5M	\$6.4M

IMS Example Impact: \$500M annually; This company is deploying IMS-based knowledge and technology throughout its global network of manufacturing facilities. Improvements in predictive maintenance and machine performance have resulted in an estimated several million dollars per plant in savings, or about half a billion dollars annually.

BSAC Example Impact: \$48M annually; This company has a long standing relationship with BSAC, and includes multiple student hires and licensed technology. The informant estimates that as much as 50% of the company’s MEMS business could be attributable to BSAC research. We conservatively estimate that the company generates nearly \$100M in MEMS revenue.



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# Industry Survey Revisions



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# Industry Member Survey

- Objectives
  - Inform NSF about health of the membership
  - Monitor member satisfaction with center research and operations
  - Document impact of participation on member Human Capital, Research, and Commercialization outcomes
  - Provide improvement-oriented real-time feedback to CDs



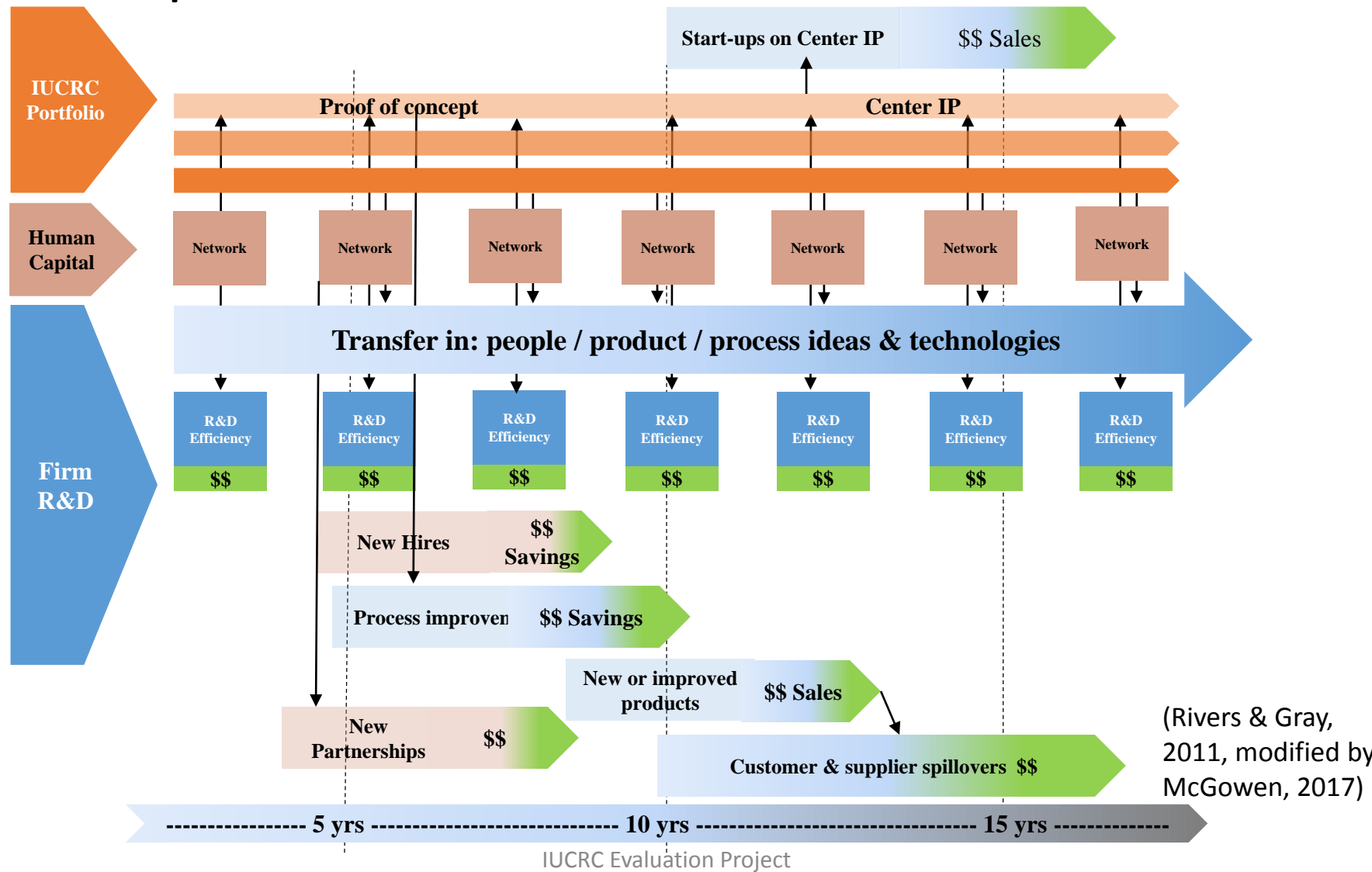
# Industry Member Survey

- Issues with the current survey
  - Response rate hovers around 40% - program low of 33% this year!
    - Survey is extensive and requires mental work to complete
  - Impact estimates from the sample to the population vary widely
  - Program level means on a number of metrics are flat
    - Primarily useful as a benchmarking tool for comparing local center to national norms



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# IUCRC Impacts Model





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# Proposed Solution

- **Pulse Survey**
  - Goal is to get improvement oriented feedback
  - Very short (5 questions)
  - Administered annually, at first IAB meeting of each year
- **Member Benefits Inventory**
  - Goal is to assess impact if participation for member firms
  - Designed to be a tool for members in assessing benefits of participation in the Center
  - Administered annually, at second IAB meeting of each year
- Could be used as a trigger for more in depth impact evaluation





# Piloted Pulse Survey (Response Rate = 62%)

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<b>Center Name:</b>	(drop down menu)				
<b>Organization Name:</b>					
<b>Please rate your level of satisfaction with the following:</b>					
	Not Satisfied (1)	Slightly Satisfied (2)	Somewhat Satisfied (3)	Satisfied (4)	Very Satisfied (5)
Center Research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Center Administration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Center Meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>How can the Center improve? Please recommend the <u>top three</u> areas for improvement over the next 12-month period.</b>					
a. Planning the Research Program (1)	e. Dissemination of Results via Publications (5)		i. IAB Meetings (9)		
b. Project Selection (2)	f. Transfer of Technology to Members (6)		j. Communication (10)		
c. Project Development & Management (3)	g. Intellectual Property Management (7)		k. Center Personnel (11)		
d. Project Results Reporting (4)	h. Fundraising and Recruit. of New Members (8)		l. Other (12) _____		
<b>How can these area(s) be improved? Please identify by letter if listed above, and comment.</b>					
<b>Will your organization renew its membership next year?</b>					
	Definitely Not (1)	Probably Not (2)	Uncertain (3)	Probably Yes (4)	Definitely yes (5)
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Do you have any comments about the Center you would like shared directly with NSF? Your response to this question will only be shared with NSF program directors.</b>					



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# Proposed Member Benefits Inventory

The goal of this survey is to identify and document the Center membership benefits your organization has received during the current membership period. This information is helpful for center evaluation. It may also help your organization characterize the benefit of your investment in the center, and justify continued membership. Upon completion of the survey, you may download a copy of your organization’s benefit inventory for internal use.

Center Name: \_\_\_\_\_

IAB members provide funding to an IUCRC on a 12-month or annual basis. This brief survey is about the types of benefits your organization has realized during your current 12-month membership year.



# Proposed Member Benefits Inventory

## Networking Benefits

Please indicate which of the following networking benefits listed below, if any, were realized by your organization, during the current membership year.

- In the current membership year, your organization has established new, valuable *connections* with other Center participants (industry, government, faculty, students, others)

In the current membership year, has your organization started to explore or initiated a *partnership* with any of the following individuals or groups, as a result of your involvement in the center? Check all that apply.

- Developed partnerships with other IAB members (e.g., research partnership, collaboration, joint investment)
- Developed partnerships with university faculty or research scientists (e.g. one-to-one research contract, collaboration on a grant, consulting)
- Hired any students working on center research projects as a full-time employee, contractor, or intern. If so, how many students? \_\_\_\_\_
- Other (please describe below)
- None of these

How have these new connections and partnerships benefited your organization (e.g. new business opportunities, access to resources or information, enhanced research capability, etc.)?



# Proposed Member Benefits Inventory

## Research & Development Benefits

Please indicate the R&D benefits your organization has received from access to Center research, by estimating what percentage of the projects funded during the current membership year, fall into each of the following categories (Total must sum to 100%):

- \_\_\_\_% Not Relevant Research: % of projects that are probably not relevant to your organization’s current or future needs
- \_\_\_\_% Adjacent Research: % of projects that are potentially relevant to your organization’s current or future needs, but in an area that is outside your organization’s current focus
- \_\_\_\_% Core Research: % of projects so relevant to your organization’s current or future needs that your organization would almost certainly have conducted or contracted out a similar project within the next couple years
- \_\_\_\_% Transformational Research: % of projects that are potentially relevant to your organization’s current or future needs, but too risky/blue sky for internal investment



# Proposed Member Benefits Inventory

## Research & Development Benefits (continued)

Consider the center’s research portfolio and specifically the projects in which your organization is most interested. In which of these ways, if any, have the center's research findings and outputs (including those from this year and any prior years) affected your organization's internal R&D *in the current membership year*? Check all that apply.

Center research findings and outputs have:

- Helped accelerate the pace and/or completion of some R&D projects now underway at (or contracted by) your organization
- Helped your organization decide against starting one or more new R&D projects that otherwise would have been initiated
- Triggered development of new R&D projects, or significantly redirected pending projects within your organization?
- Helped advanced the Technology Readiness Level of technology being developed within your organization
- None of the above

Thinking about the R&D benefits experienced by your organization, what has been the most important or significant impact? Please describe. If possible, provide a quantifiable measure of the economic value of that benefit (e.g., time saved, \$ saved, \$ invested, etc.).



# Proposed Member Benefits Inventory

## Technology Translation Benefits

During the current membership year, has your organization realized any technology or knowledge transfer benefits related to your participation in the Center? Check all that apply.

- Accessed capabilities and insights (center facilities, equipment, faculty or student capabilities, or insights from other members) to which your firm would not otherwise have access
- Licensed center's IP
- Produced your own IP related to research at the center
- Helped your organization identify new applications for technology you are trying to develop
- Helped your organization anticipate or address some regulatory issues in your industry
- None of these



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# Proposed Member Benefits Inventory

## Technology Translation Benefits (continued)

During the current membership year, has your organization realized any commercial or financial benefit that involved the translation of the center's current or prior years' research findings and outputs? Check all that apply.

- Launch new products or services based on what you learned from the center
- Improve existing products or services based on what you learned from the center
- Improve operational or manufacturing processes based on what you learned from the center
- None of these

[If Yes to any] Would these commercial or financial benefits have been realized in the absence of the center?

- No, the center played a critical role in realizing these benefits
- Yes, but the benefits would have been delayed without the center's involvement
- Yes, the center had only limited influence on our ability to realize these benefits



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# Proposed Member Benefits Inventory

**Technology Translation Benefits** (continued)

Have any of these technology translation-related benefits contributed to the addition of new jobs at your organization?

Yes       No

Thinking about the technology translation benefits experienced by your organization, what has been the most important or significant impact? Please describe. If possible, provide a quantifiable measure of the economic value of that benefit (e.g., \$s saved, time saved, waste/scrap reduced, etc.).

**Member Information**

Organization Name: \_\_\_\_\_

How many years has your organization been a member in this center? \_\_\_\_\_

What is your organization type?

Large (> 500 employees)	Small (11-500 employees)	For Profit-Micro (<10 Employees)	Government (Fed/state/local)	Other
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>





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# 1 Year Pilot

- Use the Pulse Survey and Member Benefits Inventory at upcoming center meetings
  - Considering experimental analysis of impact of economic indicators on response rate
- Inform respondents of new value-added approach
- Encourage and monitor responses to maximize response rate
- Evaluate new survey performance – data quality, response rate
- Refine and finalize for FY2018



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# Summary

- Process matters
  - Centers that ignore member retention suffer
  - Centers that use ad hoc or ill conceived project selection processes suffer
- Logic Model
  - Helps us target where the holes are
- IUCRC Evaluation is not for every I-U program
  - IUCRC stakeholders have “bought into” improvement evaluation
    - Nuisance, time consuming but a net positive



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# Summary

- Improvement evaluation can lead to quicker recognition of problems and help identify best practices
- Embedded evaluation can enable studies that could not be done by an outsider
- Need to tailor evaluation approach to expected outcomes
  - 80% of big impacts accrue to 10% of stakeholders
- Need to consider cost/benefit of metrics
  - Economic impact data is hard to get
- Evaluation as value-added decision tool for UI stakeholders



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# Questions?

This material is based upon work supported in part by the IUCRC Program of the National Science Foundation.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.



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# Extra Support Slides



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# Brief History of IUCRC

- 1930: Institute of Optics University of Rochester
  - University Research Center (URC) Invented
- 1950s & 60s: MIT refines and perfects the industrial affiliates URC

Pre-IUCRC

- 1973: NSF ERDIP Evaluates 3 forms of IU Cooperation
  - Dr. Suh MIT Polymer Processing IUCRC
- 1980: NSF IUCRC Program Created
  - First three IUCRCs funded

IUCRC Pilot & Launch

- Evaluation begins
- 1980s:
  - NSF ERC Program Started
  - States begin funding Centers of Excellence
  - NSF STC Program Started

IUCRC Diffusion

- 1994: Cohen, Florida Sloan Foundation Report
  - 1200 IUCs in the U.S.

- 2009: 125<sup>th</sup> IUCRC funded
  - CISE Becomes full partner

IUCRC Evaluation Project

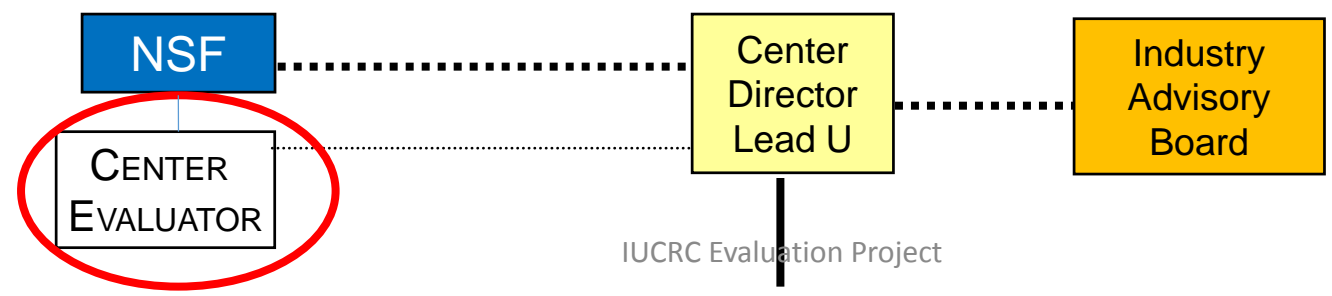


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# Background

- Evaluation system initiated in 1980s
  - Lou Tornatzky, NSF IPR
  - Evolved and refined over the years; has been emergent!
- Key features:
  - Standardized evaluation protocol across centers
    - Process/Outcome Questionnaire: industry and faculty
    - Managed by NC State Evaluation Team
  - Targeted studies
  - Multi-method (qualitative and quantitative)
  - Processes, Outcomes and Impacts
  - **Implemented by on-site evaluators (embedded evaluator)**
    - Dual role:
      - Objective data collection
      - Organizational capacity building
- Strong emphasis on “improvement-focused” evaluation local and national-level (Patton, 1997)

[www.ncsu.edu/iucrc](http://www.ncsu.edu/iucrc)

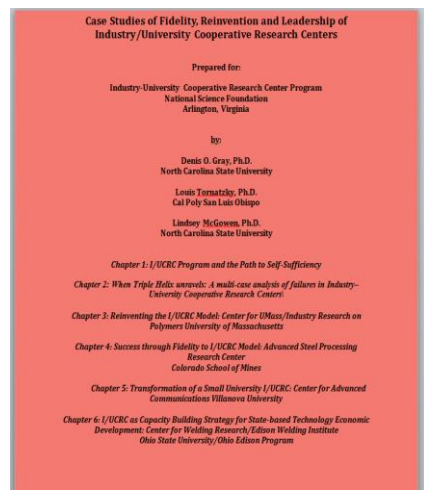


# Recent Evaluation Work Products

I/UCRC Evaluation Project [www.ncsu.edu/iucrc](http://www.ncsu.edu/iucrc)

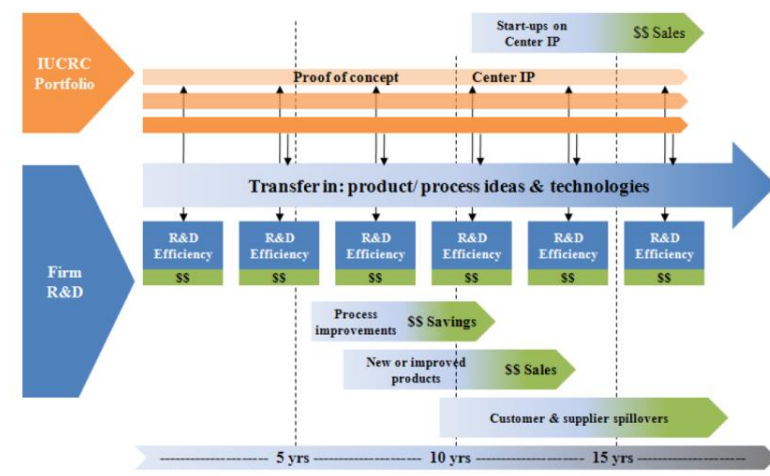


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Graduated Center Case Studies

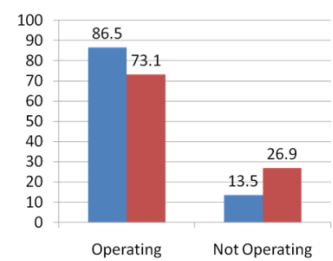
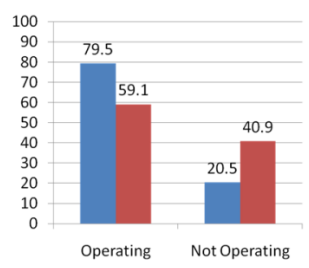
Figure 8: Model of the Types of IUCRC Impacts



IUCRC Economic Impacts



CRCs and Technical Innovation

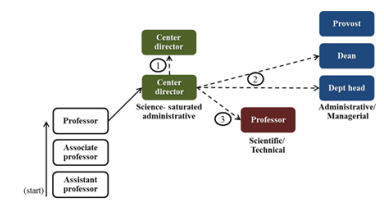


Sustainability Study

### Supplemental study: Social and Human Capital Impacts of the I/UCRC Program on Faculty Directors



- Focus: Career paths of faculty directors and the role of the I/UCRC program
- Explored human and social capital benefits of the program, as well as contextual factors influencing career outcomes
- Full report available at: [www.ncsu.edu/iucrc](http://www.ncsu.edu/iucrc)



Directors & Human Capital Report



## Industry/University Cooperative Research Centers Program Evaluation Project



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### Leadership

#### Publications

Bryant, J.L. (2008). Effects of leader relationship quality (LMX), supervisor support, and upward influence in National Science Foundation Industry/University Cooperative Research Centers. Dissertation submitted to Old dominion University.

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#### Reports

[Process Outcome Reports](#): See Table 3, Questions 7 and 8 of the annual Industry Process Outcome Report, and Table 4, Question 6 of The Faculty Process Outcome Report for data on satisfaction with center administration. Older versions of the survey may use different question numbers.

Social and Human Capital Impacts of the IUCRC Program on Faculty Directors: [Final Report](#)

#### Presentations

Presentation at the January 2012 Directors Meeting: IUCRC Director's Career & Human Capital - [Rivers & Gray](#)

Presentation at the June 2012 Evaluators Meeting: IUCRC Leadership, Career Impacts & Social Capital: [Rivers](#)

Presentation at the January 2011 Director's Meeting: Career & Economic Impacts Projects - [Rivers & Gray](#)

Presentation at the January 2010 Director's Meeting: Impact of IUCRC Directorship on Career Paths & Achievement - [Rivers & Gray](#)



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**Measuring the Economic Impacts of the NSF Industry/University Cooperative Research Centers Program: A Feasibility Study**

Prepared for:  
Industry-University Cooperative Research Center Program  
National Science Foundation  
Arlington, Virginia

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Under: EEC-0631414 (supplement)

**Final Report**  
(Revised May 2012)

**Chapter 5  
Cooperative Research Centers  
and Faculty Satisfaction: Multi-level  
Predictive Analysis**

**Beth M. Coberly and Denis O. Gray**

**Abstract** This chapter contribution to the edited volume acknowledges that there is little empirical research focused on the benefits and risks that academic faculty may expose themselves to while participating in these partnership arrangements. Beth M. Coberly and Denis O. Gray address three questions: What outcomes do faculty experience from their participation in a cooperative research center (CRC)? To what extent is faculty satisfaction with their involvement in CRCs explained by variables at different levels of analysis? The use of quantitative and qualitative questionnaire data from 275 faculty involved in federally-funded CRCs. Their descriptive findings suggest participating faculty receive a mix of tangible and intangible benefits and few report negative consequences. Predictive analysis indicated faculty satisfaction is explained by variables operating at the organizational (university research funding), center (primary discipline), and individual level (faculty benefits and symmetry with industry). Qualitative analysis of respondent concerns highlighted some promising new predictors. Implications for future research and policy are discussed. For a complementary examination of faculty benefits and challenges when participating in centers, see the chapter contribution by Garrett-Jones and colleagues on role conflict amongst academic faculty working in Australian CRCs.

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**Chapter 8  
Cooperative Research Centers as Small  
Business: Uncovering the Marketing  
and Recruiting Practices of University-Based  
Cooperative Research Centers**

**Drew Rivers and Denis O. Gray**

**Abstract** This chapter contribution to the edited volume addresses the importance of the ability of leaders in cooperative research centers to attract and retain industrial firms as members. Drew Rivers and Denis O. Gray recognize that despite centers' reliance on industry funding, there has been very little work to understand how cooperative research centers market their services to and recruit new industry members. Their study takes a systematic look at the marketing practices of centers in the National Science Foundation Industry-University Cooperative Research Center program. In the absence of a directly relevant literature base, they review the inter-organizational relationship and relationship marketing literatures for help in understanding and interpreting marketing practices in the cooperative research centers context. Based on survey responses from center directors, they argue that cooperative research centers can be characterized as small businesses. Marketing practices tend to be informal and interactive, relying heavily on networking and relationship building to secure new members. More traditional, transaction-oriented marketing practices are less often utilized, though data suggest these practices could enhance marketing and recruiting outcomes. Implications, limitations, and avenues for future research are discussed. For a complementary examination, see the chapter by Hayton and colleagues on determinants of formalized firm memberships in cooperative research centers.


**8.1 Introduction**

As the introductory chapter to this volume highlights, CRCs are organizations that "promote, directly or indirectly, cross-sector collaboration, knowledge and technology transfer, and ultimately innovation." Thus, at a fundamental level CRCs are

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**National Science Foundation  
Industry/University  
Cooperative Research Centers**



**Final  
June 2014**

**2012-2013 Process Outcome Survey Results**

**Descriptive Statistics Compiled from Industry and Faculty Surveys**

**D.O. Gray, O. Leonchuk, L.C. McGowen, & T. Michaelis**  
**Department of Psychology**  
**Psychology in the Public Interest Program**  
**North Carolina State University**

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**IUCRC Evaluation Project**

**Predictors of Cooperative Research Center Post-Graduation Survival and Success**

Presented as part of a Thematic Workshop:  
Understanding Cooperative Research Centers: Learning from Success and Failure  
Triple Helix Conference, 2010

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**Abstract**

Like other cooperative research centers around the world, Industry/University Cooperative Research Centers (IUCRCs) are supported by funding from government, but are expected to achieve self-sufficiency after a fixed term. However, there is little research-based evidence about the extent to which government funded center programs, and especially triple helix based programs, are able to make this transition. This study attempts to identify the factors that predict center survival and success after they have graduated from National Science Foundation (NSF) funding. Program sustainability refers to the degree to which a program is able to sustain itself once the initial grant funding comes to an end. It is defined as the continuation of program benefits, activities, and infrastructure (Shehadi, Rizkallah & Bone, 1998). Program sustainability is predicted by environmental, organizational, program, and individual level factors. Results showed that 50% of IUCRCs that receive the full 10 years of IUCRC grant support are still operating in some form today. Likewise, sustained graduated centers are highly successful, maintaining the size and scope of their programs. Presentation will highlight environmental, organizational, and program level variables also identified as predictors that differentiate successful from unsuccessful graduated IUCRCs. Implications of these findings for program management and public policy will be discussed.

**Keywords:** program sustainability, centers, program evaluation

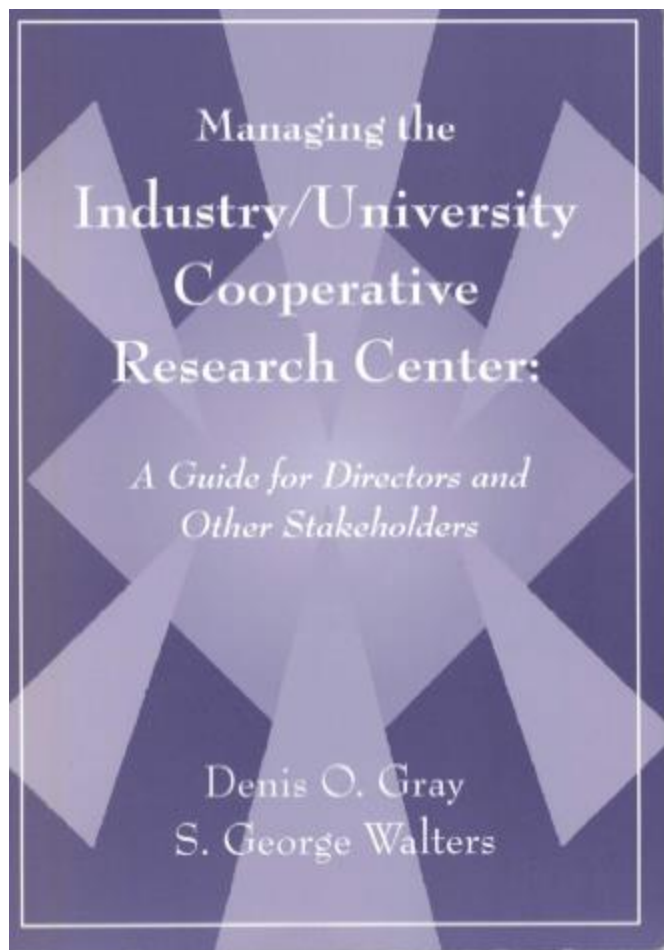
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# Best Practice Manual



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