



Industry/University
Cooperative
Research Centers

*Predictors of Cooperative
Research Centers Post-
Graduation Success:
Update*

by

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Outline



- Background & Purpose
- Literature
- Methodology
- Preliminary Findings
- Timeline

Purpose of Research

- To assess the extent to which graduated Centers become self-sustaining
- To determine what factors predict Center sustainability post graduation from NSF support
- To assess the extent to which graduated Centers maintain fidelity to their program model

What do we know about sustainability?

- Very little
 - Centers
 - » Tiny, inconclusive literature based on ERCs
 - » Ailes, Roessner, & Coward (2000): data collected at graduation
 - » Mudjamar (2005): ~ informal survey with 50% response rate
 - General literature
 - » Modest literature on program sustainability primarily from public health literature
 - » Meta analysis (Scherier, 2005)
 - » 19 studies; 2 multivariate

General Program Sustainability Model



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Organizational Factors:

Fit

- Formal structures
- Resources
- Admin.
- Technical expertise

Program Factors:

- Implementation quality
- Durability to adaptations**
- Proven effectiveness
- Benefits to clients**
- Ownership
- Funding
- Research Area

Individual Factors:

- Champion roles**
- Leadership actions

Environmental Factors:

- Stakeholder Involvement**
- Alignment
- Branding/Prestige

Sustainability:

- Outputs
- Activities
- Structures

Research Questions



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- Descriptive Questions
 - What is the status of graduated Industry-University Cooperative Research Centers (I/UCRCs)?
 - » Preliminary Results
 - How much sustainability do I/UCRCs achieve in terms of continued outcomes and operations?
 - » Data to be collected
 - How much fidelity to the I/UCRC model do graduated Centers maintain?
 - » Data to be collected
- Predictive Questions
 - What factors (environmental, program, organizational, individual) predict post-graduation status?
 - » Preliminary Results
 - What factors (environmental, program, organizational, individual) predict post-graduation sustainability?
 - » Data to be collected
 - What factors (environmental, program, organizational, individual) predict post-graduation fidelity?
 - » Data to be collected

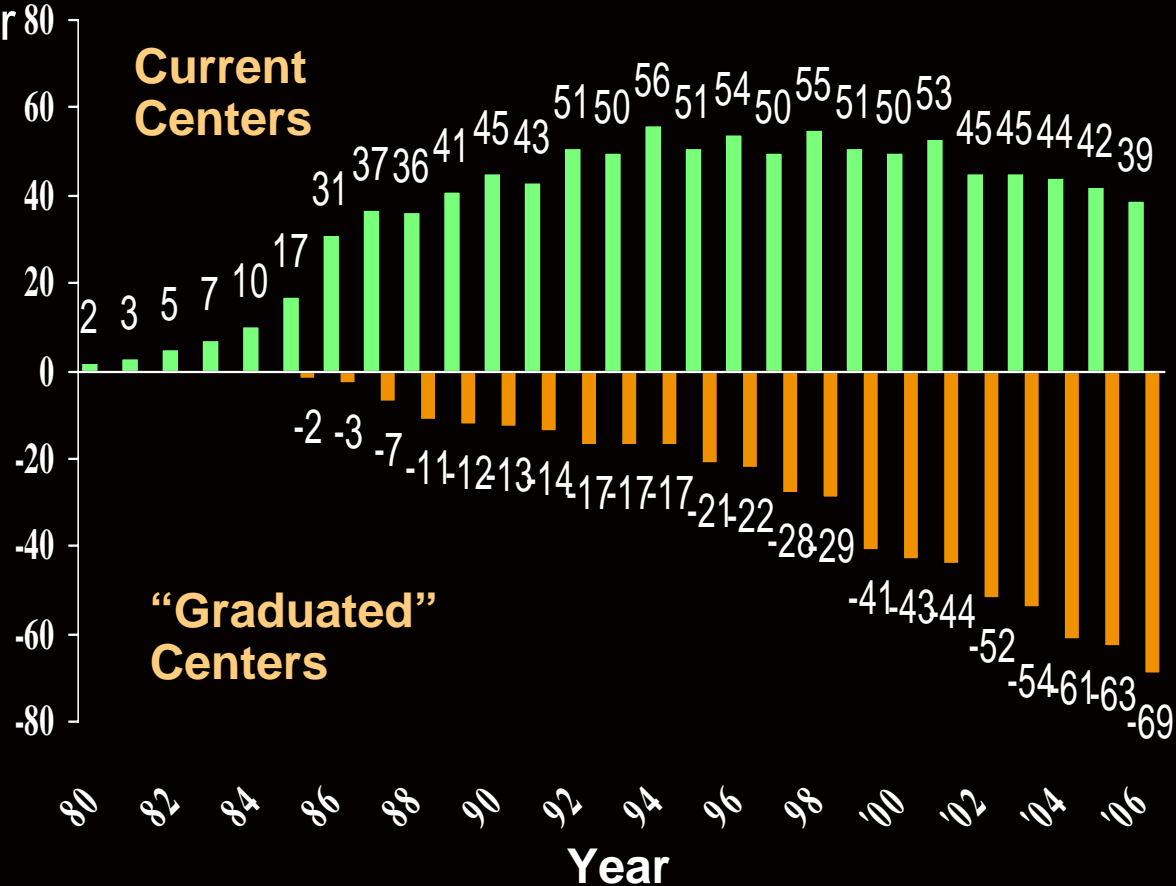
The current I/UCRC Population and Participants



Participants:

- Any NSF I/UCRC that is beyond the 10th year of funding and ...
 - » graduated (completed funding cycle)
 - » did not graduate but is no longer in the program
 - » graduated and was absorbed by another Center
- 1. N = 69

Center Life Cycle



Data Sources



- Archival
 - Center structure Reports
 - Process/Outcome database
 - National databases
- Primary Data
 - Key informant Interview
 - » Objective info.
 - » Source: Current Dir. > Last Dir. > Alex > Eval. > Dean > other
 - Evaluator questionnaire
 - » Objective & subjective ratings

Measuring Center Sustainability: DVs



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DV	Operationalization	Coding	Data Source
Status	Graduated (> 10 years) Drop out (< 10 yrs)	Yes/no	CD Report
	Survival: exists as a research entity with some extramural support and at least 3PIs and 1 student	- Alive, dead, merged - Years survived	Key Informant Interviews
Sustainability - Activities - Outputs	Funding Members Faculty Students Graduates Papers Presentations IP	Yes/no	Key Informant Interviews

Measuring Center Sustainability: DVs



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DV	Operationalization	Coding	Data Source
Fidelity	Core: University based industrial support consortia external finding multidisciplinary stakeholder meetings	Scale score	Key Informant Interviews
	Secondary: LIFE external evaluation industry selects research	Scale score	Key Informant Interviews

Validation of DV categories: What do these centers look like?



- **Drop Out**

- Alive

- » Hydrogen Center: dropped out after 7 years b/c firms did not like consortia approach; continued for years as a contract research org. with~ \$2M budget (low fidelity)

- Dead

- » Lymphocyte Tech. Center: dropped out after 4 years due to lack of industry support and terminated operations; sharing IP was a major obstacle

- **Graduated**

- Alive

- » CACC: recently celebrated its 25th anniversary, has 8 companies, ~\$1M/year; continues to be a catalyst for research and education (high fidelity)

- » Integrated Pest Management: recently passed 17th anniversary; performs research and provides services for federal agencies; ~\$2M/year (low fidelity)

- Dead

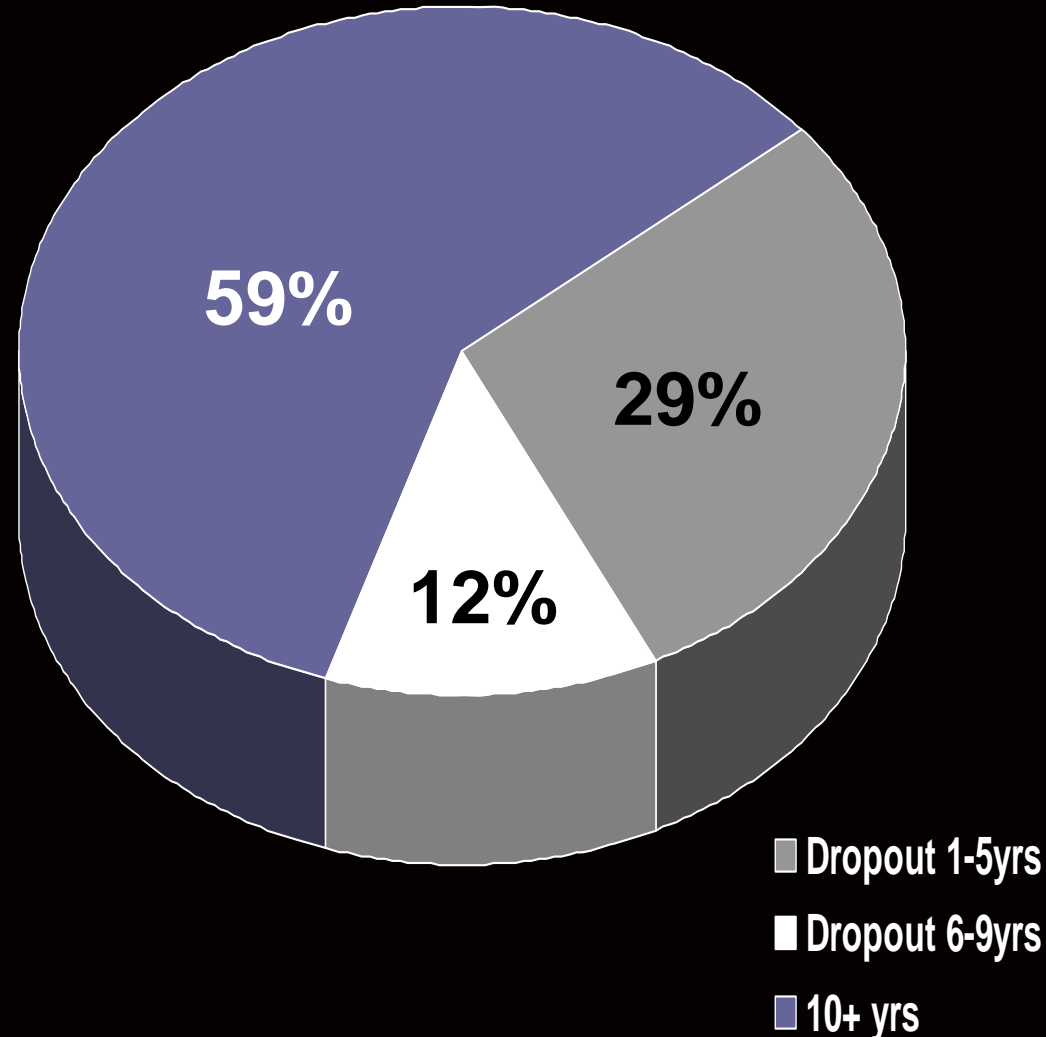
- » Robotics Center: graduated but terminated operations 1 year later; director left and industry went in a different direction

- Merged/ Absorbed

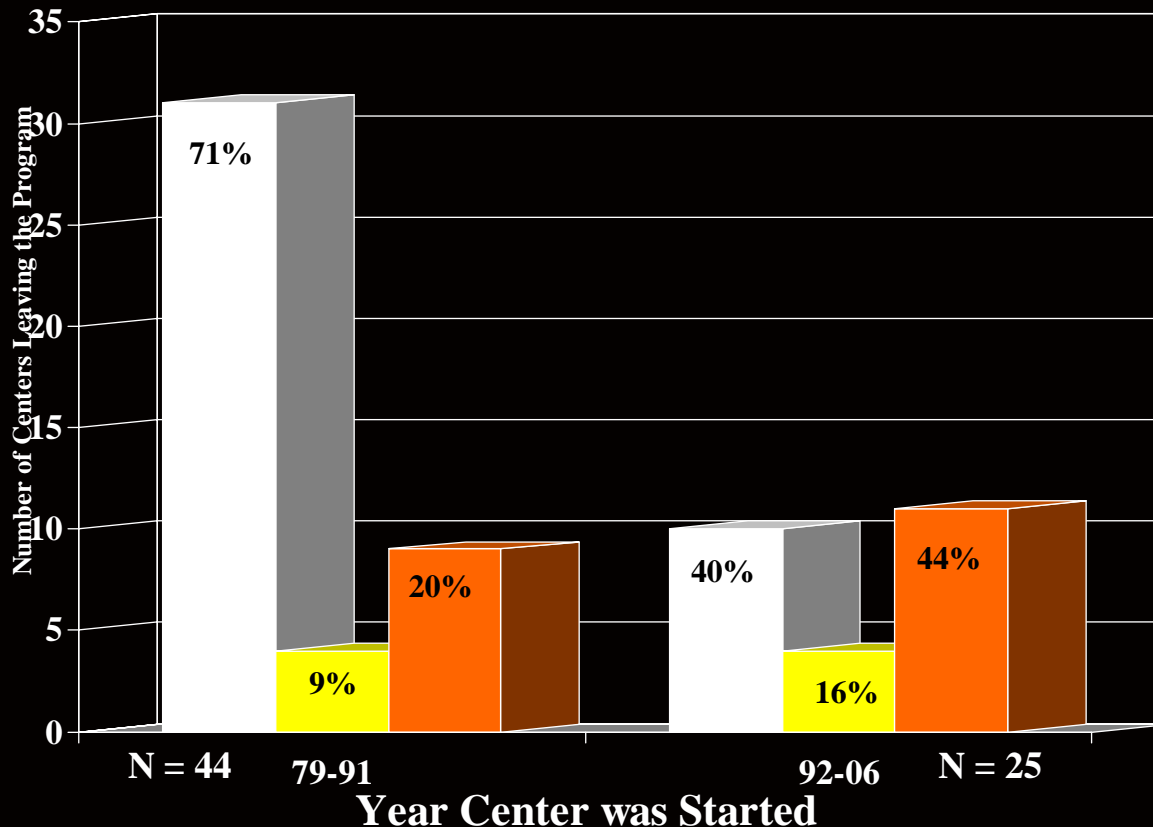
- » Ceramics Center: graduated and then merged with another center and successfully competed for a new IUCRC award; foci of combined centers was sufficiently different to justify a new award; \$4.6M in FY2006 (high fidelity)

Post-Graduation Status: Preliminary Results

- There are 69 Centers that were started and are no longer funded by the I/UCRC Program
 - 41% did not reach 10 year graduation
 - » 29% did not reach 5 year renewal
 - » 12% reached the 5 year renewal, but not 10 yr graduation
 - Post funding status will be determined based on future data collection



Preliminary Results: Cohort Effects



Early Adopters may be more likely to sustain the program post graduation. But why?

■ 10+ yrs ■ Dropout, 6-9 yrs ■ Dropout, 1-5 yrs

Predicting Sustainability Outcomes



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IV	Operationalization	Coding	Data Source
Environmental Factors:	Economic Climate: GDP in last year National R&D funding: US R&D spending in last year	O - N	US Dept of Commerce National Science & Engineering Indicators
Organizational Factors:	University Mission: Research focus Type University Cost-sharing University R&D Budget	Yes/no pub./private Yes/no % \$	Key Informant Interview University records
Program Factors:	Status at Last Year Funding: amount; source members transition planning multi-university faculty satisfaction Industry Satisfaction Fidelity at graduation	\$ count count yes/no, components count likert scale likert scale	CD Report PO Report Key informant Interviews Evaluator questionnaire
Individual Factors:	Director turnover Program champion Leadership	# yes/no likert scale	Key Informant Interviews Evaluator questionnaire

Timeline

- Approved - COMPLETE
- Archival Data Cleaning – COMPLETE
- Sample Identification - COMPLETE
- Literature review – COMPLETE
- Methods - In progress
- Proposal Defense: 2/08
- Data Collection: 2-3/08
- Analysis: 4/08
- Defend: 5/08