

Graduated I/UCRCs: Project Update

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IUCRC Evaluation Project

Outline



- Background
- Purpose
- Methodology
- Quick Recaps
 - Center Status
 - Success
- New Results
 - Fidelity
 - Case Study Project
- Next Steps

Background



- Federally supported research centers including IUCRCs are typically funded for a time-limited period ~ 10 years
 - Concerns about entitlement
- An explicit goal of IUCRCs is to create “self-sustaining” centers
 - “NSF intends to seed partnered approaches to ... research, not to sustain the Centers indefinitely. The Foundation intends for Centers gradually to become fully supported by university, industry, state, and/or other non-NSF sponsors.” (NSF I/UCRC website)

Purpose of Research

- To assess the extent to which graduated IUCRC centers become self-sustaining - DONE
- To determine the level of sustainability achieved by graduated I/UCRCs – how successful are they - DONE
- To determine the indirect impact of the I/UCRC program achieved by graduated centers – DONE
- To determine what factors predict center sustainability post graduation from NSF support – IN PROGRESS
- To assess the extent to which graduated Centers maintain fidelity to the program model – IN PROGRESS
- Obtain an in-depth understanding of the processes involved in becoming a successful center – IN PROGRESS

General Model of Sustainability



- Definition (Shediac-Rizkallah & Bone, 1998):
 - Sustainability is understood as continued program activities, continued benefits to stakeholders, & organizational capacity to continue to support the program once initial federal support is exhausted
- Measure
 - Program activities
 - Benefits to key stakeholders
 - Infrastructure

Method



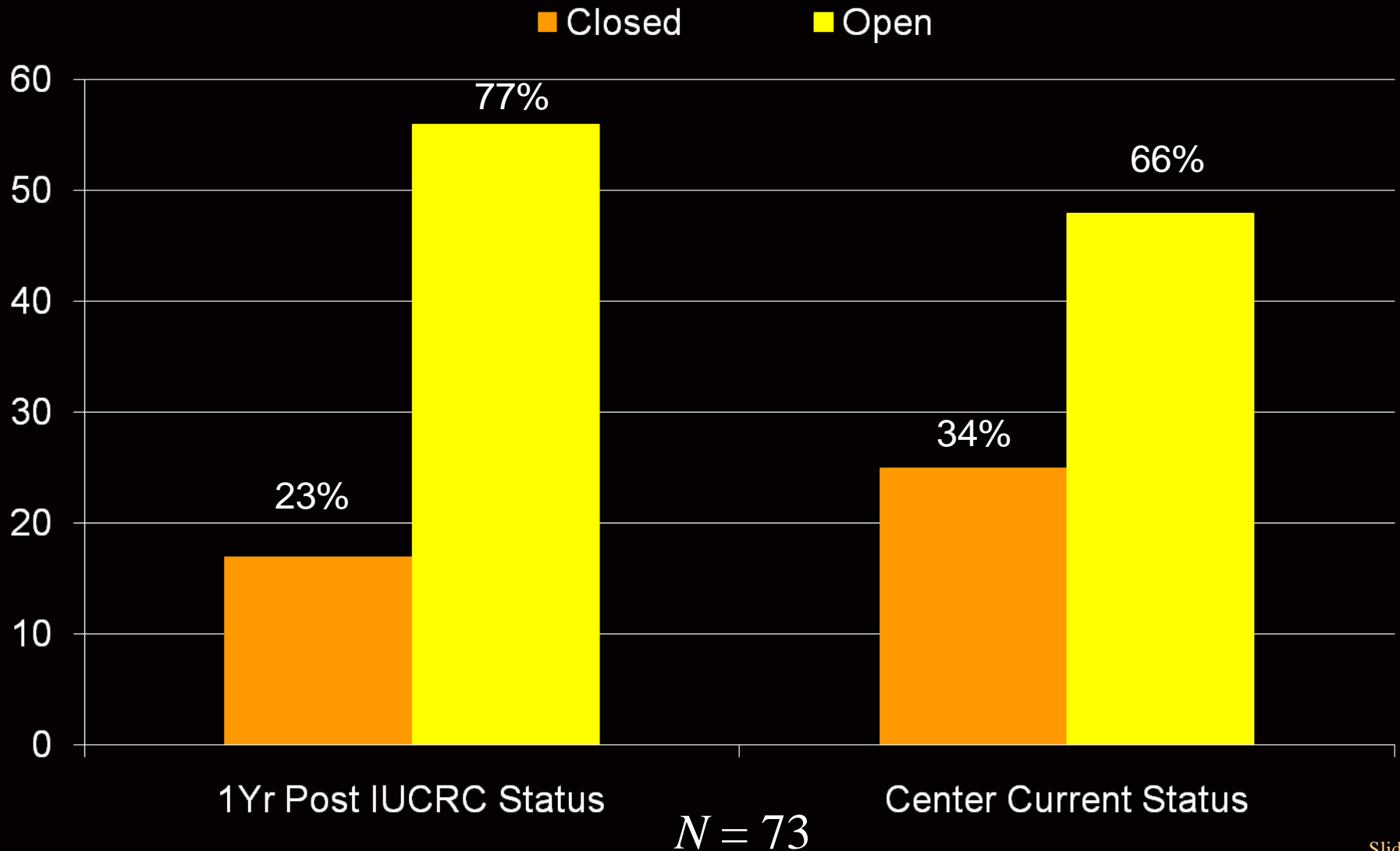
- Design
 - Semi-structured interview protocol
- Participants
 - Sampling Criteria
 - » Center received an NSF I/UCRC operating grant
 - » Center no longer funded by an NSF I/UCRC operating grant
 - » Center graduated and merged with a newer Center
 - » Center has not received NSF I/UCRC money for at least 1 year
 - » Population N = 73
 - Respondents
 - » Key Informant hierarchy
 - » 1) current director; 2) recent director; 3), director at the time of transition, 4) site director, 5) University official, and/or 6) involved faculty/staff

Center Outcome

Quick Recap:

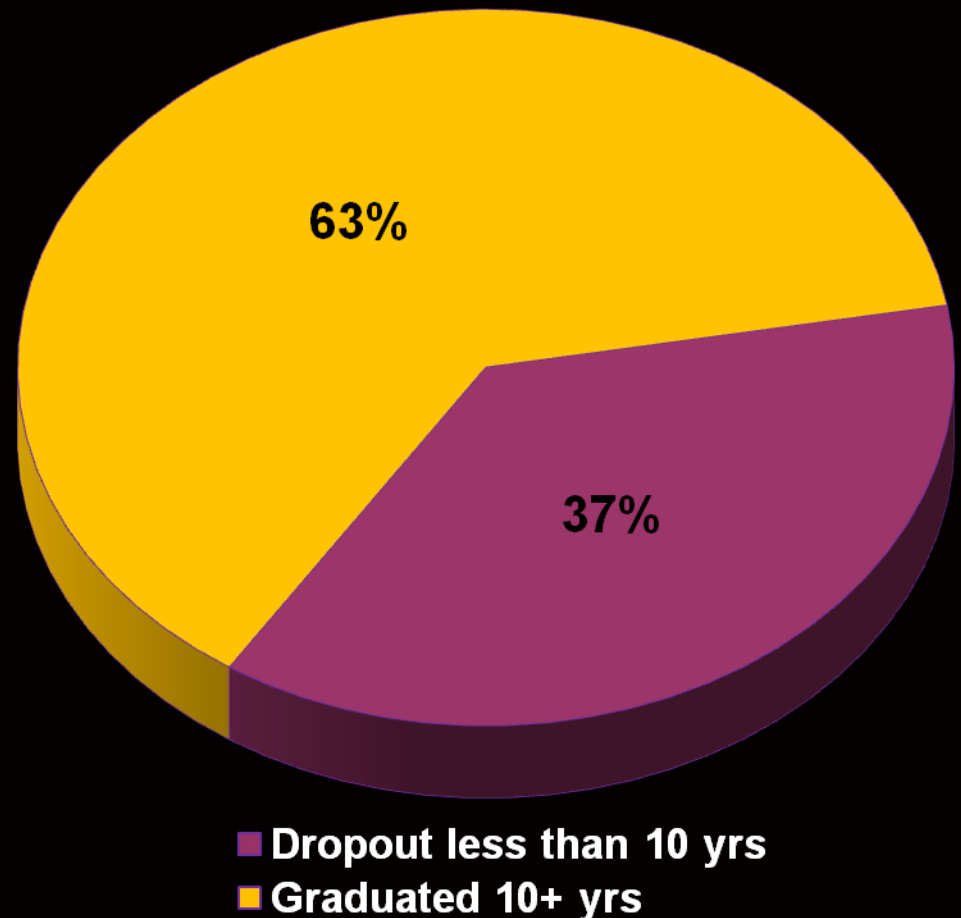
What is the Status of
Graduated Centers?

Center Status



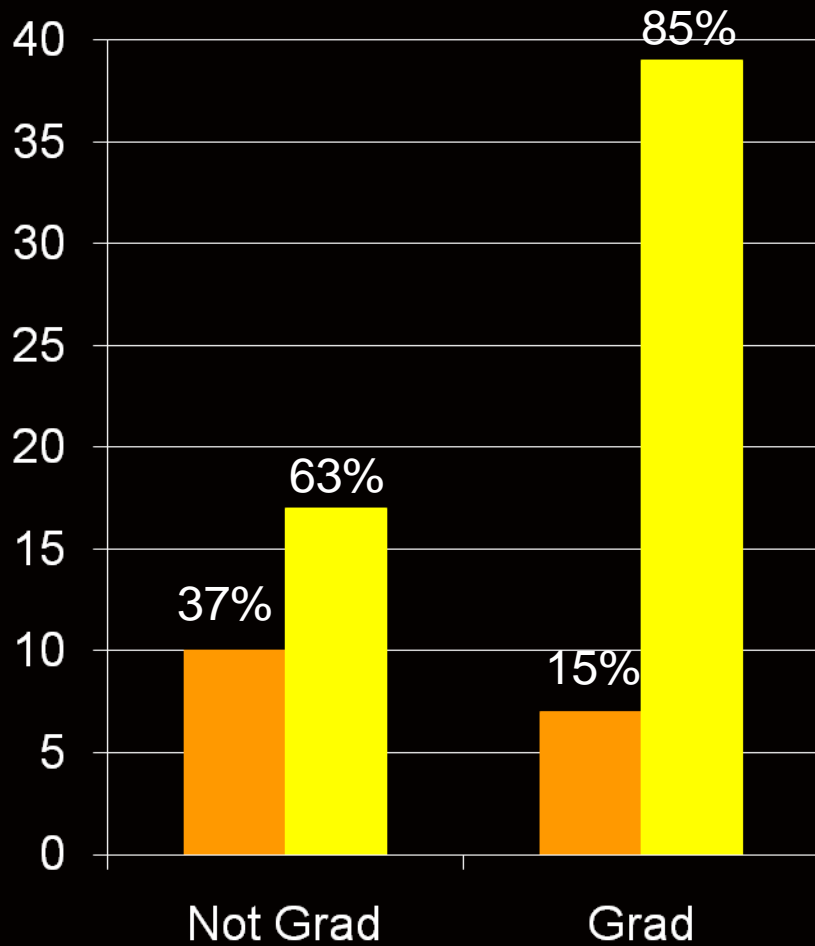
Graduation Status

- There are 73 Centers that were started and are no longer funded by the I/UCRC Program
 - 37% Do Not Graduate
 - » did not receive the full 10 yrs of NSF I/UCRC grant
 - 63% Graduate
 - » Received 10+ years of NSF I/UCRC grant support

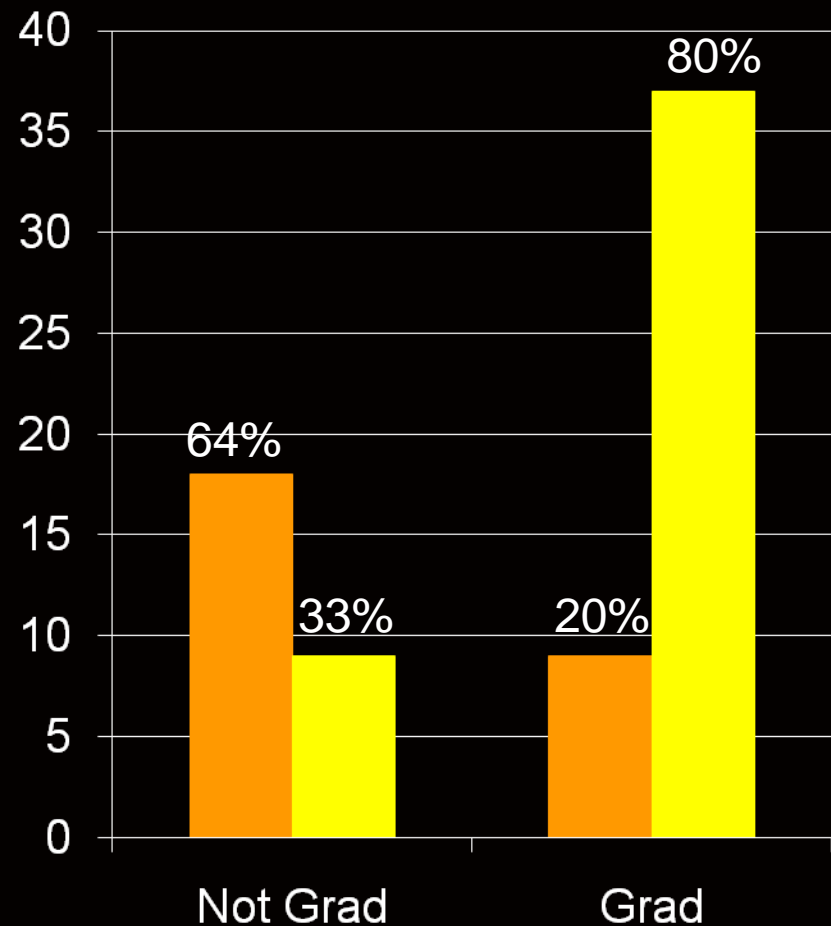


Center Status

1 Yr Post IUCRC Status



Current Status



$N = 73$

■ Closed ■ Operating

Center Outcomes

Quick Recap:

How successful are graduated
centers?

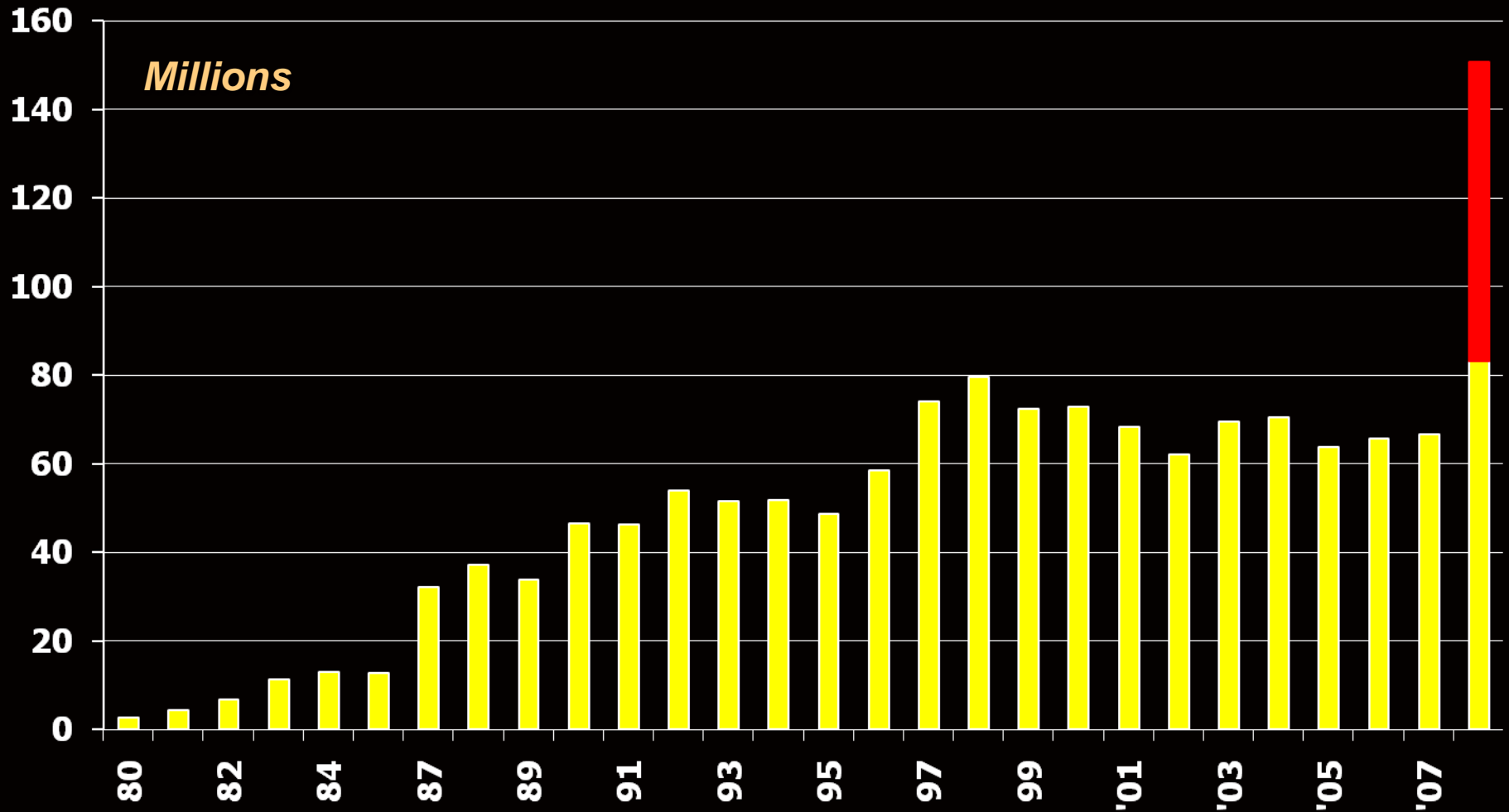
Center Level: Success Measures



	08-09 Active I/UCRCs	Graduated Active I/UCRCs
	Mean	Mean
Budget	\$2.4M	\$1.9M
Industry	\$846K	\$825K
University	\$201K	\$96K
Government	\$1.2M	\$768K
Members	20.6	15.2
Grad Students	30.3	32.5
Publications	25.0	31.3

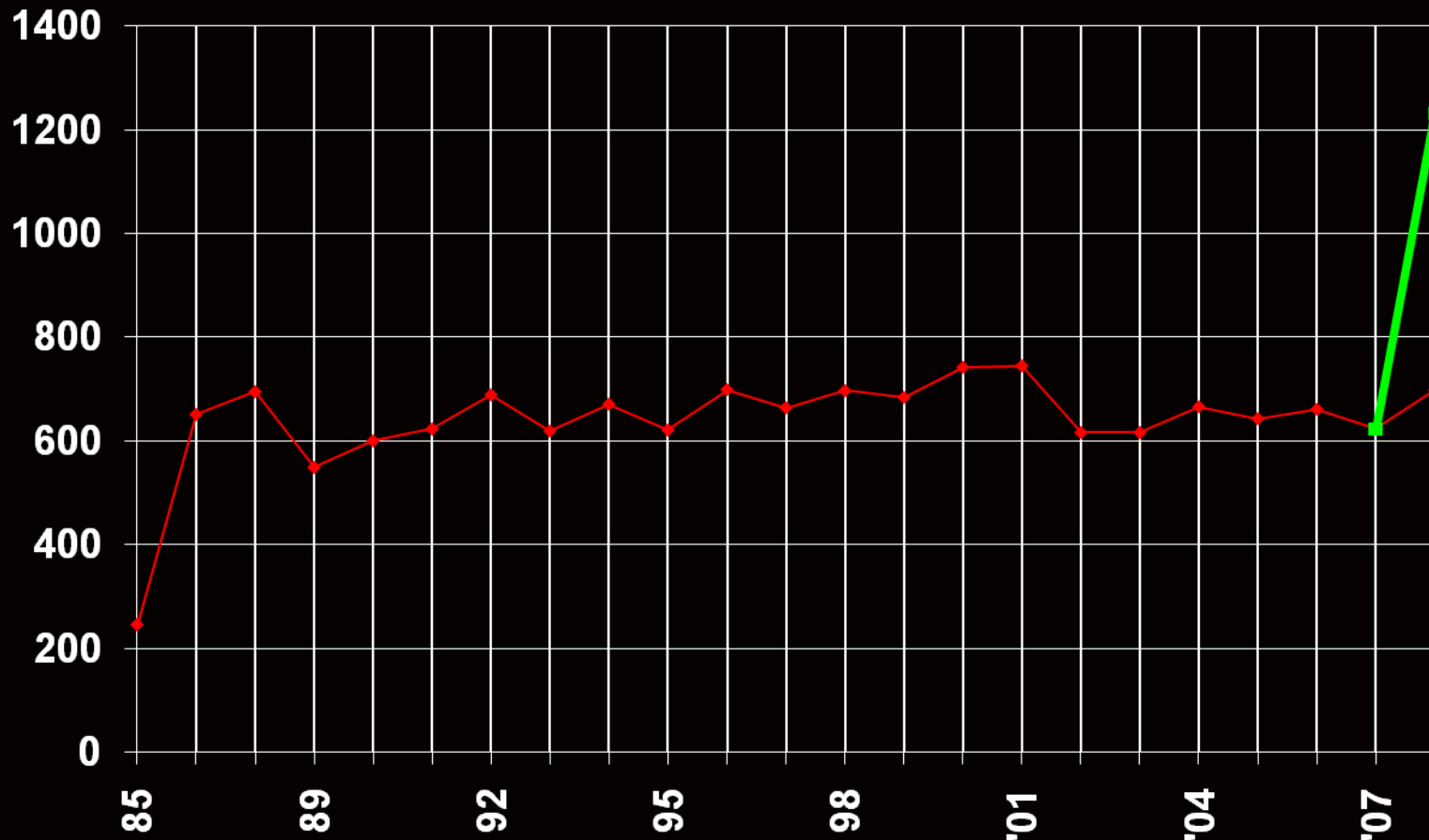
N = 36

Program Level: Funding



Program level: Membership

TOTAL NUMBER OF MEMBERS



*Does not include merged centers or those for which current member data is missing

New Results: Fidelity to the I/UCRC Model

How do Centers operate
post-I/UCRC funding?

Fidelity for Sustained Centers



- $N = 56$
- Criteria to be a Center
 - Conducts Research, External Funding, At least 3 faculty, at least 1 student
- I/UCRC Core Components
 - Industry Funded, University Based, Consortial Approach (project selection, results dissemination), Technology Transfer
- I/UCRC Secondary Components
 - IAB, Membership fee, Semi-annual meetings, LIFE forms, Evaluator, Multidisciplinary

Fidelity Descriptive

Criteria to be a Center

External Funding	98.2%
Conducts Research	96.4%
Minimum 1 Student	87.5%
Minimum 3 Faculty	85.7%

IUCRC Core Components

University Based	94.6%
Industry Funded	94.6%
Tech Transfer	94.6%
Consortia Format	50%

$N = 56$

Fidelity Descriptive

IUCRC Secondary Components

Multidisciplinary	71.4%
Semi-Annual Meetings	67.9%
Membership Fee	66.1%
IAB	66.1%
Evaluator	17.9%
LIFE Forms	16.1%

$N = 56$

Fidelity EFA

- 2 Factor Solution, 7 items
 - Structure accounts for 59.4% of variance
 - Assessment accounts for an additional 17.6%

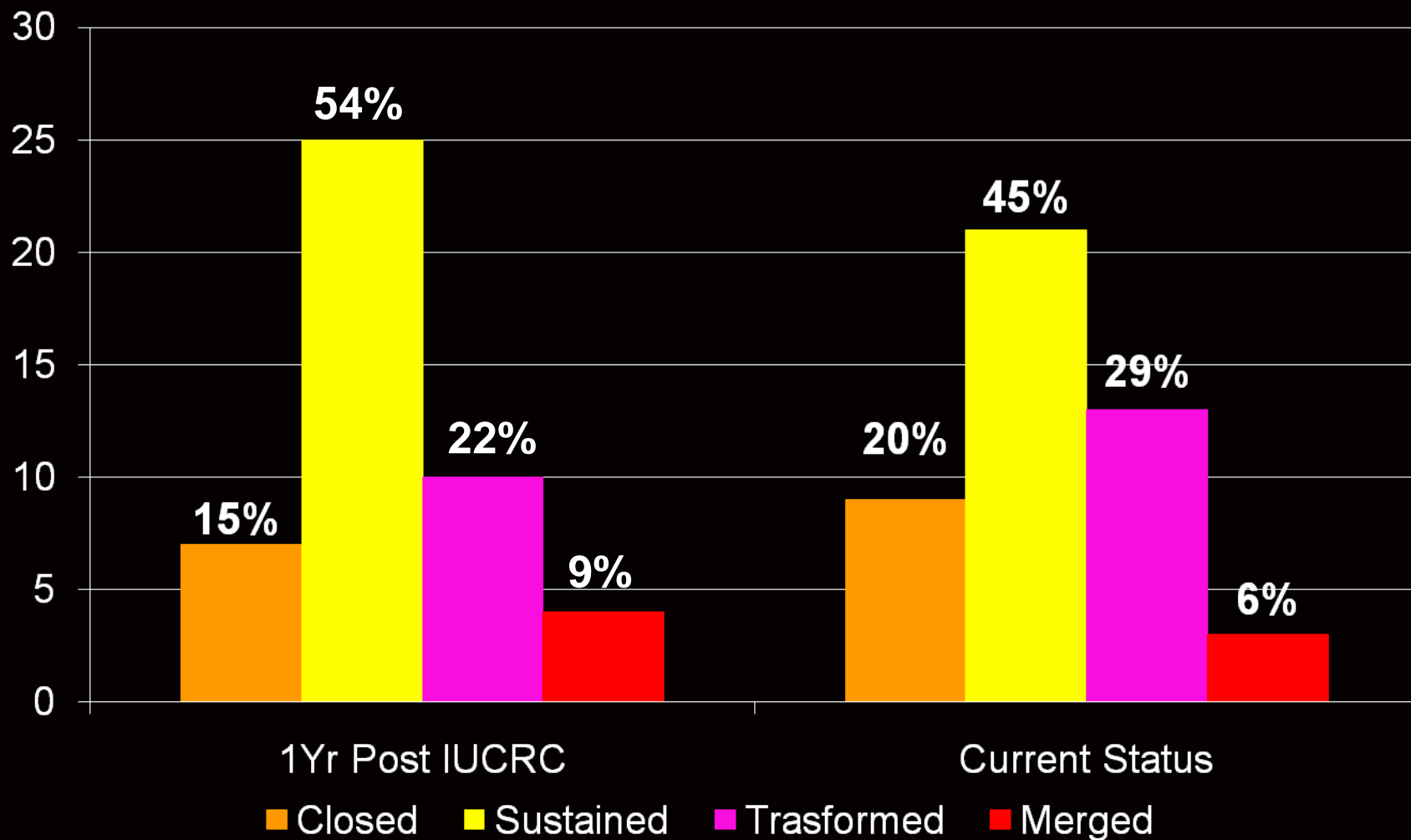
	Structure	Assessment
Membership Fee	.94	.18
IAB	.93	.15
Results Dissemination	.88	.14
Regular Meetings	.86	.10
Project Selection	.71	.19
LIFE	.13	.85
Evaluator	.16	.84

Sustained Center Categories



- Sustained with Fidelity: Continues to operate as a research entity, while maintaining at least 2 of the 4 core features of an I/UCRC
- Merged with Fidelity: Joined another existing/graduated I/UCRC
- Transformed: Continues to operate, but:
 - Funded under another program, i.e. branded as a new center
 - Absorbed and/or integrated into another pre-existing entity
 - Discontinuous change in research focus
 - Has not maintained at least 2 of the 4 core I/UCRC features

Graduated Center Status



Case Study Project

An in-depth look at some of the most
successful graduated I/UCRCs

Case Studies

Gray, McGowen, Tornatzky



- Goal: Obtain an in-depth understanding of the processes involved in becoming a successful center
 - 4-6 cases; Selected for success, lessons learned, diversity
- Case Study Outline
 - Introduction
 - Early History and Background (launch to pre-transition)
 - » technical focus, strategic goals, key partners, organizational characteristics, leadership, major facilities/equipment, fidelity to the IUCRC model, key events, accomplishments
 - Evolution and Transitioning Phase
 - » challenges, model modifications, opportunities capitalized, transition planning
 - Achieving Self-Sufficiency
 - » Contemporary Profile, organization/structure, leadership, equipment/facilities, funding, key partners, accomplishments and events
 - Conclusions
- Data Sources
 - McGowen CD interviews, follow-up CD interviews, interviews with key stakeholders, evaluator reports, historical profiles (1984), CD archive, center generated materials

Advanced Steel Processing & Products Research Center

Web Site: <http://aspprc.mines.edu/>



- **Years I/UCRC Funded:** 1984-1990
- **Host Univ:** Colorado School of Mines
- **Founding Dir:** George Krauss; **Current Dir:** David Matlock
- **Brief Description:** Center is highly successful, operates with high fidelity to the I/UCRC model, continues to adapt to industrial changes
 - does some side projects but only at industry request, not actively pursued
 - **Multiple thrust areas** to appeal to various member companies.
 - **organizational innovation:** IAB directs management of the center as a whole (funding, general direction) and then steering committees are thrust area specific
 - Director seems to have good insights on sustainability.
 - **Overcame consolidation and globalization in industry.**
 - Sees grad centers as an untapped asset for NSF.
 - Works with a traditional industry that may come back.

Center for Advanced Communications

Web Site: <http://www.villanova.edu/engineering/centers/cac/>



- **Years I/UCRC Funded:** 1991-2001
- **Host Univ:** Villanova University
- **Founding Dir:** Joseph DiGiacomo; **Current Dir:** Moeness Amin
- **Brief Description:** Transformed center that has had a positive impact on a small university, has increased partnering with other universities, and has substantial federal funding
 - Partners with other universities on a project basis. They are not official sites.
 - Dr. Amin said they will be applying for an new IUCRC grant in Acoustics
 - Funding changes resulted in a huge increase in budget while maintaining a strong partnering focus.
 - » Has DARPA SBIR, and Partnership for Innovation; working with industry on a contract basis.
 - Increased the research capacity of a small university by hiring 3 profs for research only.
 - Established 4 multimillion dollar labs with funding from the university.
 - Faculty have received awards.
 - Considering doing a spin-off.

Potential Cases



- Air Conditioning & Refrigeration Center (ACRC)
 - High fidelity, center continues to grow, research has evolved with industry needs, has a spin-off company
- Power Systems Engineering Research Center (PSERC)
 - Merged with ACEPS, maintained partnering with 13 universities, hot research area, has a spinoff company, has major DOD funding for shared research
- Center for Umass Industry Research on Polymers (CUMIRP)
 - High fidelity plus organizational innovations, huge impact on host univ. industry partnering, one of the oldest IUCRCs
- Edison Welding Institute (EWI)
 - The most successful graduated IUCRC in terms of size of operation (\$25M), operates as an independent research entity but still has connection to OSU

Next Steps

- Finish Quantitative Analysis
 - What predicts sustainability - In Progress
- Case Studies
 - Cases selected
 - Data Collection - In progress
 - Report at June 2010 Evaluator's Meeting
- Celebrate Defense!

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