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Graduated IUCRCs: Proposed Follow-up Study

Lindsey McGowen & Denis Gray

IUCRC Directors Meeting

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Outline

- Brief Review of the Graduated Centers Study
 - Quantitative Analyses
 - Qualitative Case Studies
- Some unanswered questions
- Proposed study
 - Sustainability Over Time
 - Fidelity vs. Reinvention
 - New Ivs
 - Phase 3
 - Qualitative
- Questions & Suggestions

Graduated Centers: Quantitative Analysis



Goals:

Descriptive

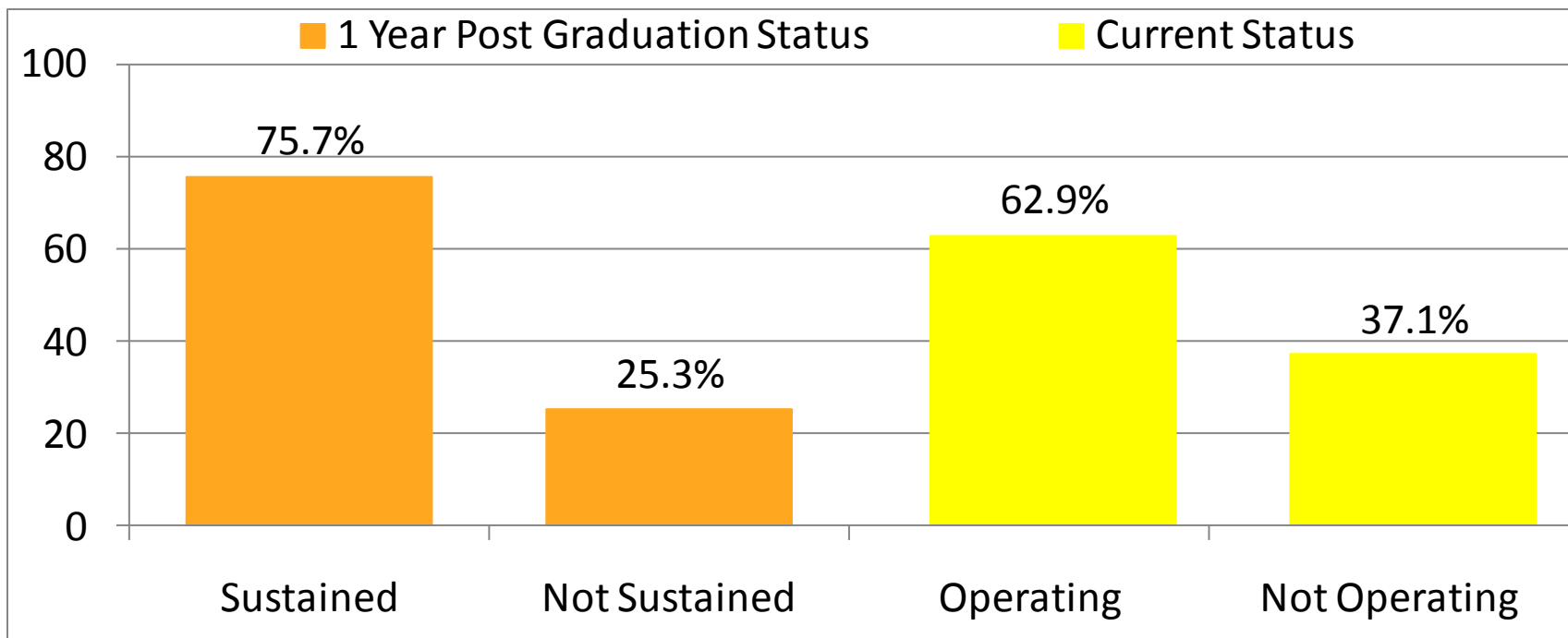
- ✓ To determine the status of I/UCRCs post-funding
- ✓ To determine how much fidelity to the I/UCRC model sustained centers exhibit
- ✓ To determine the level of sustainability centers have achieved in terms of continued program activities, structures, and outcomes

Predictive

- ✓ To determine what factors predict center status
- ✓ To determine what factors predict fidelity to the IUCRC model
- ✓ To determine what factors predict the level of sustainability centers have achieved in terms of continued program activities, structures, and outcomes



Graduated Centers: Post-funding Status



1 Year Post Graduation Status:

53 sustained; 17 not sustained

Current status:

44 operating; 26 not operating

Data from 2009 report. Another 12 centers have since graduated...



Graduated Centers: Fidelity

	%
industrial support	96.2
university based	94.3
Tech Transfer	94.3
Structural Fidelity Mean: 0.75	
stakeholder meetings	69.8
membership fees	67.9
IAB	67.9
consortial results dissemination	64.2
consortial project selection	50.9
Assessment Fidelity Mean: 0.21	
Evaluator	17.0
LIFE	17.0

- Industry support, university based, and tech transfer are almost universal across sustained centers
- EFA yielded a 2 factor solution, but...
- **These measures of fidelity may not fully capture the various organizational forms and identities of formerly funded I/UCRCs....**



Graduated Centers: Predictive Findings

	Grad status	Grad budget	Grad members	Grad students	Grad Univ. expenditures on R&D	Grad in-kind	Grad Industry support for outside research
Post-grad status		+					
Current status	+	+					+
Assessment fidelity		+					
Structural fidelity	+	+				-	
Current members			+				
Current budget			+				
Current IP							-
Current grad students graduating				+			

- **Based on quantitative analyses, we learned a lot about the rate of sustainability but just a little about why/how of success/failure...**



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Qualitative Case Studies

Graduated Centers: Cases

Goals:

- ✓ Get a better understanding why some centers sustain
- ✓ Get a better understanding how centers sustain

Methodology

- 4 failure cases; 4 success case
 - *Success cases still in progress*
- Structured interviews



Triple Helix Unravels

- Centers Sustain or Don't for a number of reasons:
 - Multiple Flaws
 - Structural weaknesses
 - No doctoral programs
 - External factors
 - Industry with exclusive IP interests
 - lack of absorptive capacity in firms
 - Lack of institutional support
 - especially during transitions
 - **Lack of leadership/ Botched succession planning**
 - Transformation
 - Minor tweaks → **Major reinvention**

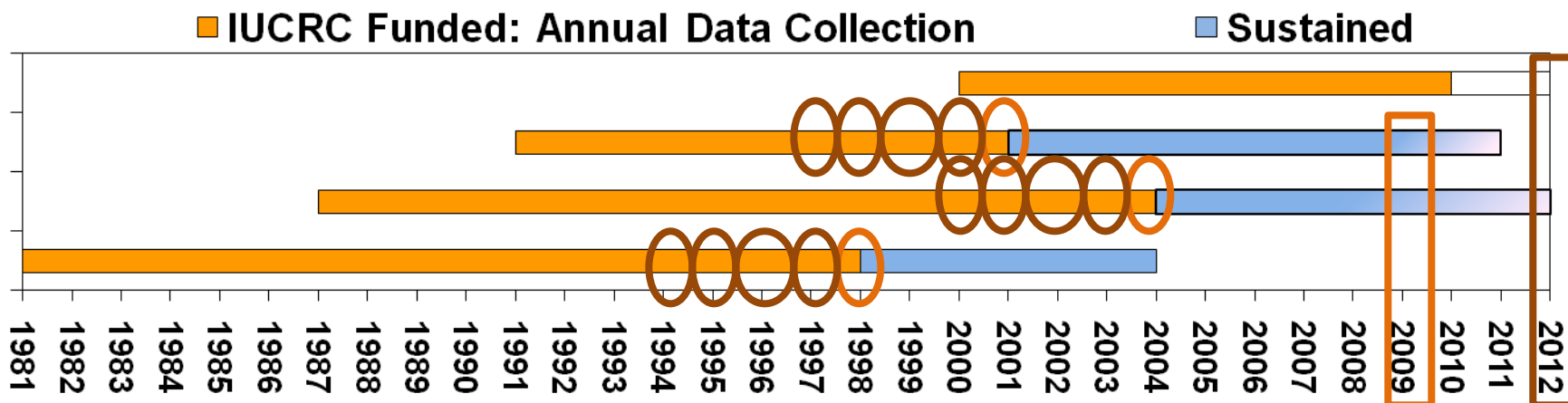


Some Unanswered Questions

- What is the status of graduated centers now?
 - Is sustainability maintained over time?
 - What about the new cohort of graduated centers?
- How do graduated centers operate?
 - We know how they fair in terms of fidelity to the IUCRC program model, but what about additional programmatic innovations?
 - Can we identify various operational types?
- What other factors predict sustainability?
 - Leadership transitions, industry specific predictors, stakeholder support/satisfaction, reinvention



Sustainability Over Time



- Data collected annually while IUCRC funded and in 2009
- Proposed:
 - Collect 2012 data & use multiple pre-grad data points
 - Changes over time
 - Sustain. for new graduates
 - Data collection began 12/13/11; N = 18
- Research Questions:
 - What is the likelihood that center status will change after funding ends?
 - What are the sustainability trajectories of formerly funded centers in terms of budget, members, etc?
- Analysis: MLM (Raudenbush & Bryk, 2002)



Fidelity vs. Reinvention

- Research Question:
 - What organizational forms do formerly funded IUCRCs take?
- Data Sources
 - 2009 Interview transcripts: fidelity items & open-ended question
 - 2012 survey, includes fidelity items, open-ended question, AND:
 - *19. The following is a list of possible structural changes your Center may have made since graduating from IUCRC support. Please check all that apply:**
 - Center has become a site or merged with a currently NSF funded IUCRC
 - Center works as a contract research entity, engaging in one-on-one research with industry
 - Center has received major funding from another source and been re-branded under a new identity (e.g., ERC, State Center)
 - Center activities continue, but have been absorbed by a larger Pre-Existing entity (i.e. another center or institute)
 - Center has made a significant discontinuous change in our research focus (e.g., addressing a new research area)
 - Center has added a function to aid commercialization and/or economic development
 - None of the Above
- Analysis: Cluster (Aldenderfer, 1984)
 - Determine if centers group into discernable types based on fidelity & reinvention items



Predicting Sustainability: New IVs

- So budget & members predict sustainability: **Big whoop! What else?**
- Data Sources:
 - P/O: industry & faculty satisfaction, benefits, commitment
 - CD: leadership transitions (Gray, Sundstrom, Tornatzky, & McGowen, 2011)
 - 2009 & 2012 Responses: fidelity & reinvention scores
 - Public Access: Industry specific predictors (nsf.gov/statistics, 2011):

***8. What industrial areas are served by your Center? Check all that apply.**

- | | |
|---|--|
| <input type="checkbox"/> Advanced Electronics | <input type="checkbox"/> Energy & Environment |
| <input type="checkbox"/> Advanced Manufacturing | <input type="checkbox"/> Fabrication & Processing Technology |
| <input type="checkbox"/> Advanced Materials | <input type="checkbox"/> Health & Safety |
| <input type="checkbox"/> Biotechnology | <input type="checkbox"/> Information, Communication, & Computing |
| <input type="checkbox"/> Civil Infrastructure Systems | <input type="checkbox"/> System Design & Simulation |
| <input type="checkbox"/> Other (please specify) | |

*Categories based on NSF IUCRC Center classification system (<http://www.nsf.gov/eng/iip/iucrc/>).



Phase 3

- Formerly funded centers need to secure new funding to survive.
 - Reapplication to the same funding source is often used as a sustainability strategy (Scheirer, 2005).
 - Given that NSF has implemented Phase 3 funding, it will be important to examine why some centers chose to take advantage of this opportunity while others do not.
- Research Questions:
 - Why do/don't formerly funded IUCRCs reapply for Phase 3 funding?
 - What impact does Phase 3 funding have on graduated IUCRCs?



The Qualitative Gold Mine

- 2009 Questions with rich answers:
 - What were the primary challenges your Center faced transitioning from I/UCRC grant support?
 - What factors, in your opinion contributed to your center sustaining/not sustaining itself after the IUCRC grant ended?
 - In your opinion, has there been any positive or negative impacts of having and IUCRC for the center, the university, and/or for faculty involved in the center, such as technology transfer, spawning new centers, spin off companies, awards, economic impacts, etc?
 - Do you have any advice to offer other Center directors making the transition from I/UCRC support to self-sustainability?



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Questions & Suggestions