



National Organization of Research Development Professionals

Data-Driven and Entrepreneurial Approaches to Research Strategy

May 24, 2016
NORDP



Entrepreneurial Approaches to Research Strategy

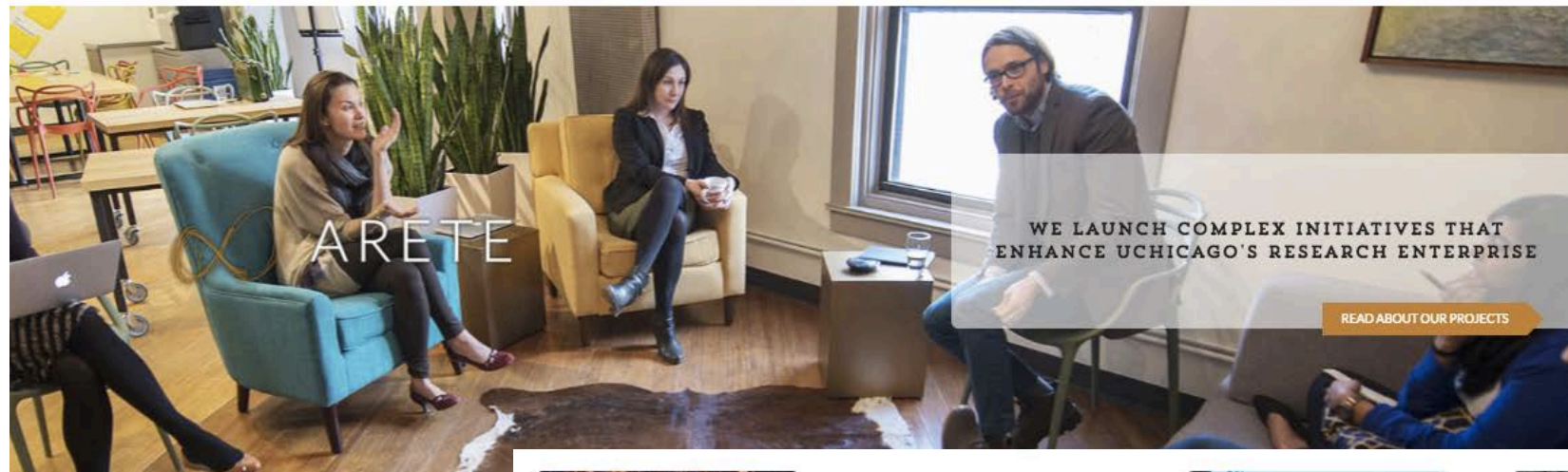


THE UNIVERSITY OF
CHICAGO

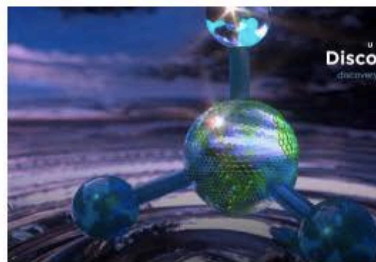
Can a university think like a startup?

Innovation resists traditional management tactics so:

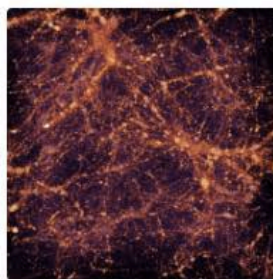
- How do we chase new ideas while avoiding innovation bureaucracies?
- How do we allow innovation to evolve naturally in a research setting?



FEATURED STORIES



UCHICAGO EXPERTS TO GIVE TED-ST' BREAKTHROUGHS IN MOLECULAR SC!



University-wide Computation Strategy

THE UNIVERSITY OF CHICAGO
KNOWLEDGE
LAB

The Knowledge Lab

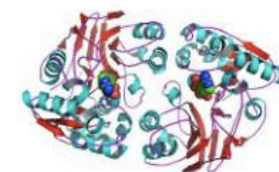


The Energy Policy Institute at the University of Chicago (EPIC)

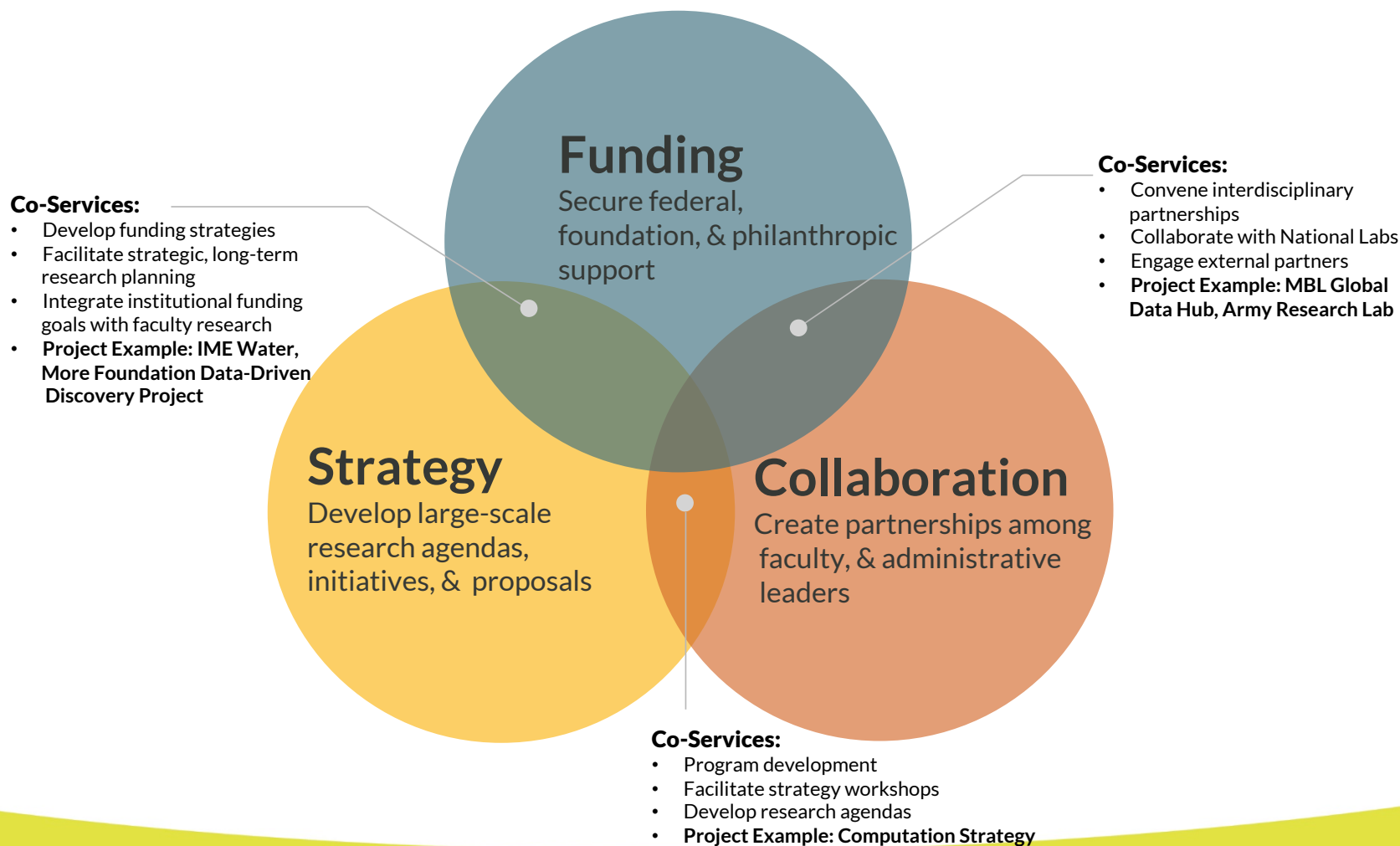


Institute for Molecular Engineering Water Research Initiative

Ci3

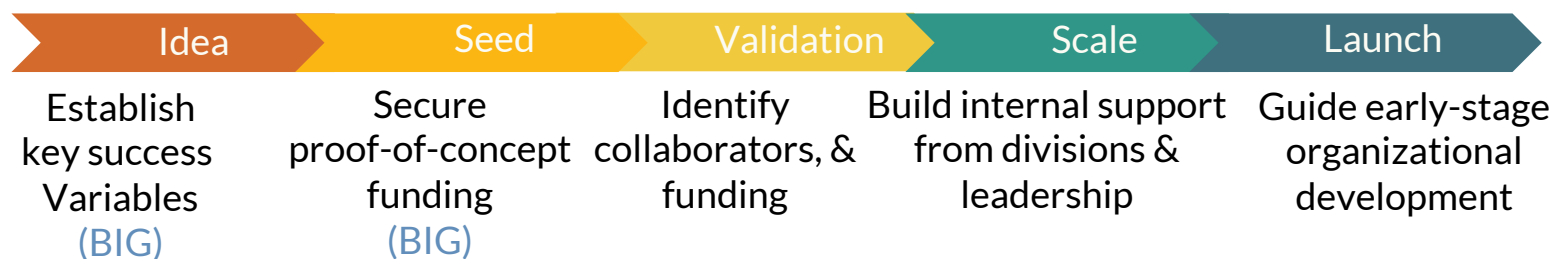


WHAT WE DO



OUR APPROACH

1. PROCESS



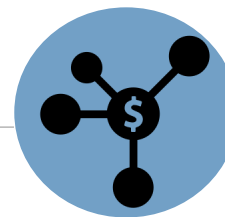
2. TEAM



FEDERAL



VPR



ARD

Our team is composed of members from three campus units: The Office of the Vice President for Research and National Laboratories (OVPRNL), Strategic Foundation Relations in the Office of Foundation and Corporate Relations (ARD), and the Office of Federal Relations.

Innovation Toolkit: Three Examples of Entrepreneurial Thinking in RD

	Efficiency	Ideas	Collaboration
What do you want to achieve?	Reduce institutional barriers for administrators	Catalyze new research ideas among faculty	Create a neutral, informal space for faculty
How can you structure the program?	Build powerful internal networks	Easy exposure to big ideas	Shared collaboration space
Key players	Talented administrators	Faculty, seed funders	University leadership
Examples:	Arete Network A rich fabric of connections with talented administrators from across campus who provide information, feedback, insight, resources.	BIG Chalk Talks Rapid-fire faculty presentations on intriguing problems from different fields	The Catalyst A collaborative co-working space for researchers and administrators.
How-to	<ol style="list-style-type: none"> 1. Identity key admin 2. Organize networking meeting twice a year 	<ol style="list-style-type: none"> 1. Identify intriguing topics 2. Invite faculty speakers 3. Organize around seed funding call 	<ol style="list-style-type: none"> 1. Identify potential space 2. Host events and meetings that bring people together



National Organization of Research Development Professionals

Incubating Interdisciplinary Partnerships: The Seed Funding Example



COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

Columbia University's Office of the Executive Vice President for Research



Objectives

Support High-Risk & High-Reward Research

Encourage Interdisciplinary Collaboration & Innovation

Increase Competitiveness with Funders by Enabling Researchers to Create Preliminary Data

Scope

Started by Executive Vice President for Research in 2004

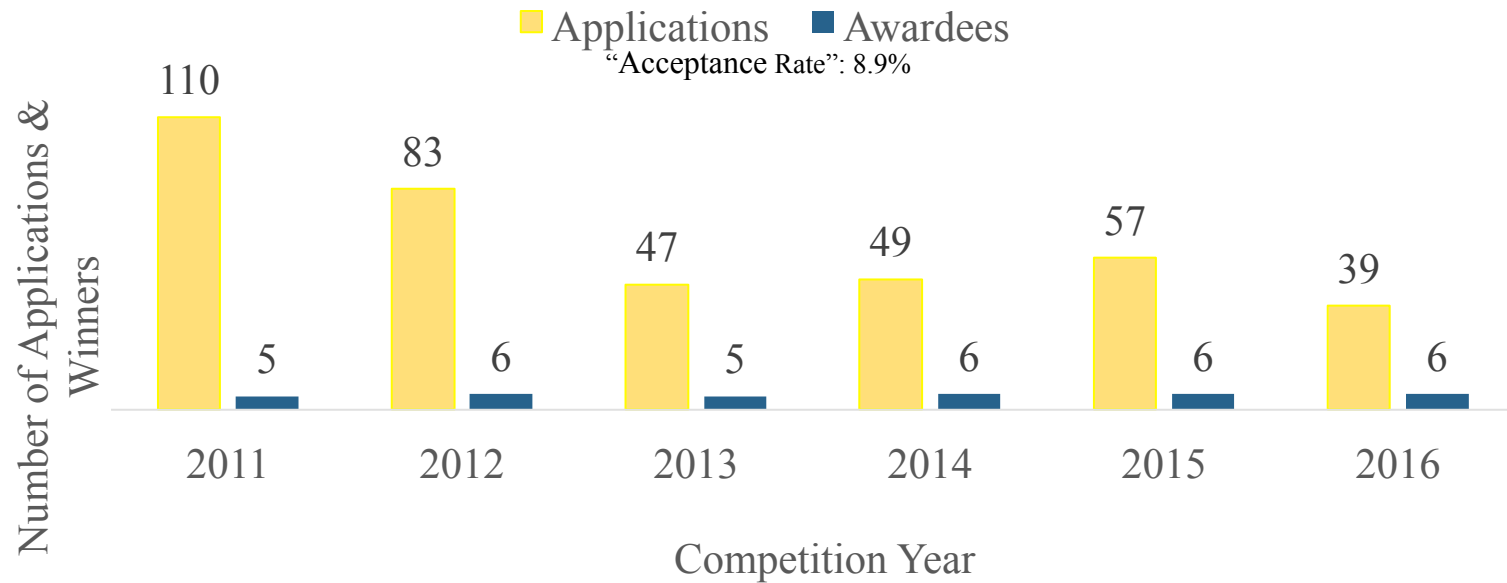
Selects 5-6 Teams Every Year to Receive **\$80,000** per Year (Maximum of Two Years)

Seeks to Fund Projects that Cannot be Funded Through *Any* Other Sources (Either Public or Private) Because They Are Viewed As:

- Too **Preliminary** (Not Enough Data)
- Too **Risky** (May Not Succeed)
- Too **Boundary-Pushing** (Not Within Traditional Disciplinary Limits; Unusual Disciplinary Marriages)

Funding Strengthens Initial Proof of Concept, Thereby Strengthening Future Proposals

Cross-Year Statistics: 2011 – 2016



2016 Application & Reviewer Statistics

Applications

39 Applications:

- 21 Biomedical
- 18 Non-Biomedical
- 6 *Ineligible (Too Applied/Clinical)*

Pls From:

- Arts & Sciences: 28
- Engineering: 24
- Lamont: 10
- Arts: 2
- Physicians & Surgeons: 45
- Public Health: 4

Reviewers

78 Reviewers Across All Science, Engineering & Medical Disciplines

Review Between 1-6 Applications

Confidentiality

Names of Reviewers are Never Released Under Any Circumstances

Reviewers Do Not Know Identities of Other Reviewers

Reviewers Anonymously Provide Feedback to Applicants

RISE Outcomes

Since 2004, **61** Projects Funded

Distributed **\$9 Million** to Date

Funded Projects Have Secured Subsequent Grants & Contracts Totaling Over **\$36 Million** (400% ROI)

<u>School</u>	<u>Winners</u>
Arts & Sciences	40
Engineering	43
Lamont-Doherty Earth Observatory	20
Physicians & Surgeons	32
Public Health	2

<u>Accomplishments</u>	<u>Number</u>
Publications	101
Publications In Review	12
Postdocs Trained	24
Grad Students Trained	59
Undergrad Students Trained	24
High School Students Trained	2



- Developed *Tornado Index* to Project Extreme Weather Variations One Month in Advance of Impact
 - Current Standard: 4 Days
- 3 Publications Accepted in American Meteorological Society's *Journal of Climate*
- Won \$300,000 Grant from NOAA's Climate Program Office (167% RoI)

Michael Tippett

2012 RISE Winner

With Suzana De Camargo
& Adam Sobel

*Towards Long-
Range Prediction of
Tornado Activity*



- Polarizing Helium-3 to Align with MRI's Magnetic Field, Thereby Imaging Lungs of COPD Patients (Without Radiation)
- Won \$450,000 R01 Grant (On the First Try) (250% RoI)

**Graham Barr &
Emlyn Hughes**
2011 RISE Winners

*Pilot Study of
Polarized
Helium-3 Lung
Imaging*



Ansaf Salleb-Aouissi
 2011 RISE Winner

With Rebecca Passonneau,
 David Waltz, Mary McCord,
 Harriet Gluck
 & Noemie Elhadad

Understanding Infantile Colic via Machine Learning

- Examines Pediatric Notes to Identify Commonalities in Colic Symptoms, Attempting to Identify Causes, Treatments, and Diagnoses from Evidence
- Outreach via Partnership with BabyCenter
- Won \$175,000 Grant from NSF EAGER Program

Experiments

New Eligibility Requirements

- Two PIs from Different Schools
- One Senior PI with One Junior PI
- Prescribing Research Themes (Rotating Per Year)

Challenges

- Condensing Timeline/Staying Competitive (Currently October – March)
- Is \$80k/Year for Two Years Adequate?
- What Can We Do to Help *Aside* from Giving Money?



National Organization of Research Development Professionals

Simple Data Driven Approaches to Enhance Research Strategy Using Institutional and Publicly Available Data



HARVARD

Faculty of Arts and Sciences

Harvard Faculty of Arts and Sciences



Faculty of Arts and Sciences (FAS)

- Largest division of Harvard University
- 800+faculty
- Harvard College (6700 students)
- Graduate School of Arts and Sciences (~14,500, includes professional schools)
- School of Engineering and Applied Sciences
- Division of Continuing Education

Objective: Sustain faculty research programs

Sponsored Data	Institutional Data	Other Financials	Other Variables
Federal and Non-Federal Direct	Assigned Square Footage (ASF)	Start-up spending	Direct Sponsored Expenditures per ASF
Federal and Non-Federal Overhead		Start-up balances	Overhead per ASF
Total Direct and Total Overhead			Overhead per Direct Sponsored Expenses
Total Sponsored Expenditures			

Strategy: use institutional data to develop strategies to assess financial status of programs and develop interventions

- Analyzing the data
- Key variables
- Strategies and outcomes

Objective: Develop resources and infrastructure to enhance proposal competitiveness

Data Collected	Data Source
Review panel data	Faculty Activity Report; in some cases, publicly available data; http://facadatabase.gov/rpt/membersbyagency.asp
Advisory committee data	Faculty Activity Report; publicly available data; http://facadatabase.gov/rpt/membersbyagency.asp
Proposal award winner data; award winning proposal narratives; non-disciplinary proposal components	Publicly available and university system of record
Advisory Panel/National Advisory Board positions and vacancies	Federal Register/Federal Relations

Strategy: use institutional and publicly available data to develop resources and tools

Strategies and Resources	Outcomes
Create a database of reviewers/board members by agency/foundation; connect applicants with reviewers	Applicants receive proposal advice/review; informal peer mentoring; insight into program priorities and research strategy; input and insight into agency strategic priorities
Creation of robust proposal library; develop non-disciplinary proposal components & templates; leverage institutional resources	Connecting award winners with applicants; informal mentoring; grantsmanship advice; harnessing institutional knowledge
Secure positions on federal advisory committees; national boards; partner with Federal Relations	Insight into strategic funding priorities; garner support for research funding; shaping national research agenda