NAVIGATING THE RESEARCH FUNDING LANDSCAPE

Prepared for University of Connecticut

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HANOVER RESEARCH

PRESENTER

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PRESENTATION OVERVIEW

PART 1

THE GOVERNMENT FUNDING LANDSCAPE

PART 2

THE PRIVATE FUNDING LANDSCAPE

PART 3

PROSPECTING: WHERE TO FIND OPPORTUNITIES

PART 4

PROSPECTING: FINDING THE RIGHT FIT

OVERVIEW

What is the funding landscape for faculty research? In addition to NSF and NIH and other traditional funders, this training will explore some of the less traditional funding sources, how to identify funding prospects, and how to determine if a funding mechanism is a good fit for your research.

PRIVATE VS. GOVERNMENT GRANTMAKERS

They have very little in common beyond a mandate to give away money with strings attached.

GOVERNMENT GRANTMAKERS

- ❑ Get their funding from **taxpayers**
- ❑ Are responsible to **legislators** and administrations
- ❑ Are required to be **transparent** in their activities
- ❑ Follow **clearly defined criteria** and processes

PRIVATE GRANTMAKERS

- ❑ Get their funding from **donors**
- ❑ Are responsible to **trustees**
- ❑ Are **not required to explain** their decisions to the public
- ❑ Often **lack clear definition** for their criteria and processes, or **choose not to follow** those they adopt

THE GOVERNMENT FUNDING LANDSCAPE

HR GRANTS

GOVERNMENT GRANTMAKING

Government agencies and organizations fund a variety of projects, programs, research, and product development through grants. Each agency exists to advance a specific agenda. This agenda is typically outlined in a public document called a strategic plan.

KEY FEDERAL GRANTS STATS

26

TOTAL FEDERAL GRANTMAKING AGENCIES

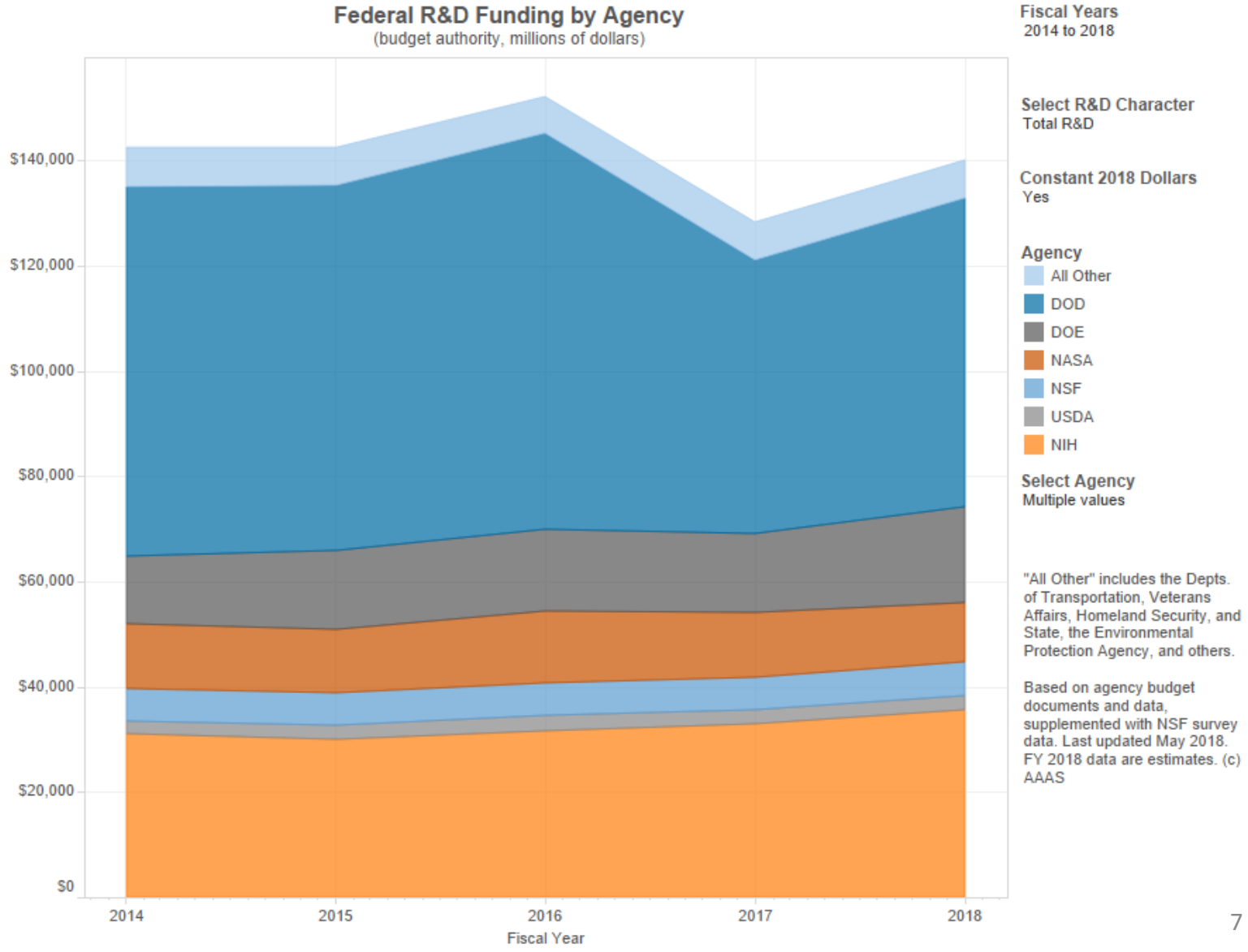
1,000+

TOTAL GRANT PROGRAMS ACROSS ALL AGENCIES

$662.7 Billion

TOTAL FEDERAL SPENDING FOR GRANTS IN FY 2016

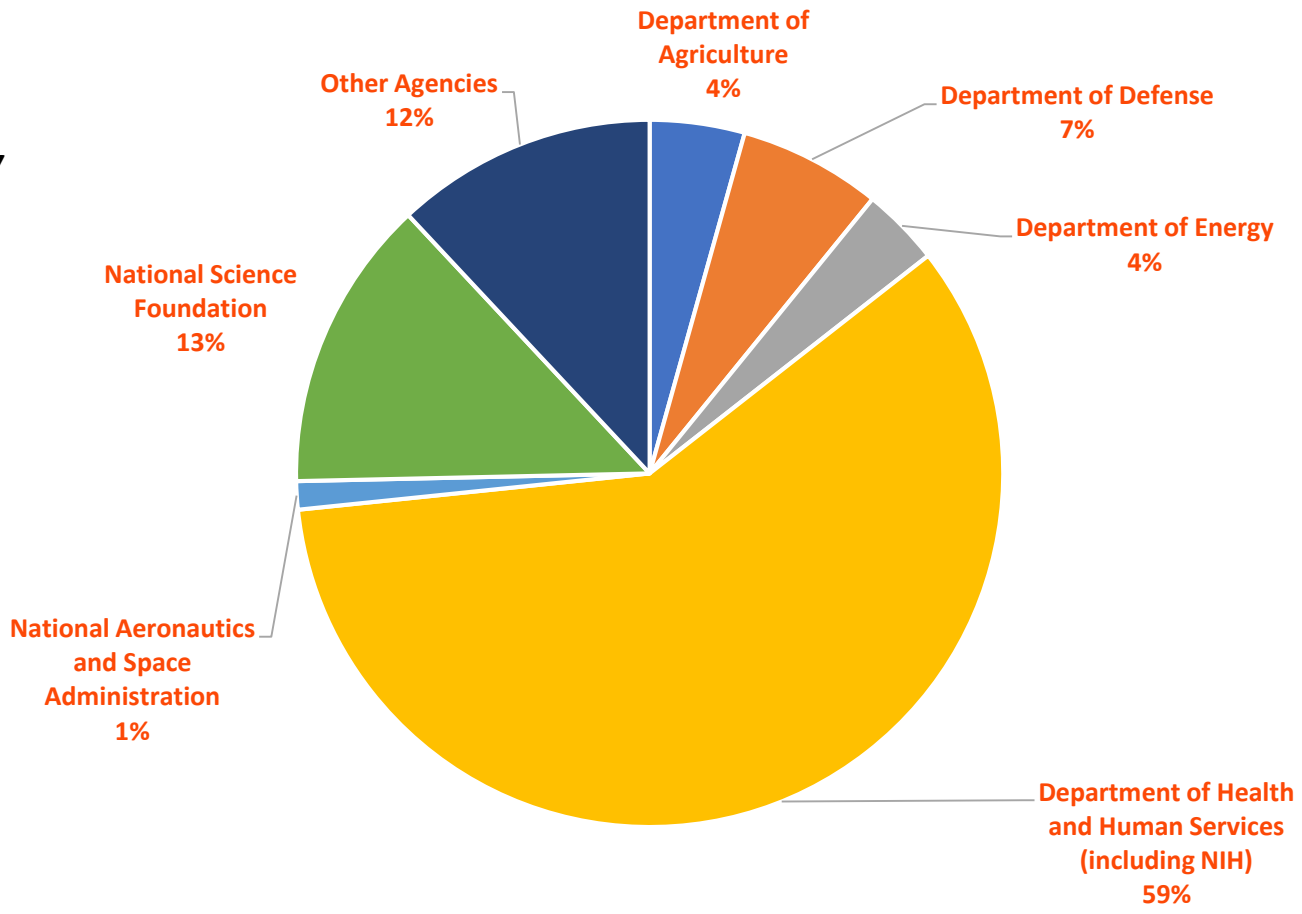
GRANT FUNDING BY AGENCY



Source:
[AAAS Federal R&D Budget Dashboard]

UCONN'S R&D EXPENDITURES

FEDERALLY FUNDED R&D EXPENDITURES BY FEDERAL AGENCY (2016–07)



SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Higher Education R&D Survey

WHAT DOES THE GOV'T LOOK FOR WHEN GRANTMAKING?

"O.K., let's slowly lower in the grant money."

Grants.gov publishes an overview of all federal grantmaking agencies along with information on key grant programs

Each federal grant-making agency will define its rating criteria in the Program Solicitation (RFP, RFA, etc.) or in public documents made available on the agency's website.

Understanding the rating criteria and/or scoring formula, system and procedures, and drafting a narrative that aligns with it is key to winning a federal grant award.

Technical compliance with required specifications for application format and structure, and submission of grant applications that are inclusive of all required documents and attachments is also imperative to success.

NATIONAL INSTITUTES OF HEALTH

NIH is the largest public funder of biomedical research in the world, investing more than $32 billion a year to enhance life, and reduce illness and disability.

Each Institute within NIH has a distinct mission that focuses on a specific disease area, organ system, or stage of life.

- National Cancer Institute (NCI)
- National Eye Institute (NEI)
- National Heart, Lung, and Blood Institute (NHLBI)
- National Human Genome Research Institute (NHGRI)
- National Institute on Aging (NIA)
- National Institute on Alcohol Abuse and Alcoholism (NIAAA)
- National Institute of Allergy and Infectious Diseases (NIAID)
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
- National Institute of Biomedical Imaging and Bioengineering (NIBIB)
- Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
- National Institute on Deafness and Other Communication Disorders (NIDCD)
- National Institute of Dental and Craniofacial Research (NIDCR)
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
- National Institute on Drug Abuse (NIDA)
- National Institute of Environmental Health Sciences (NIEHS)
- National Institute of General Medical Sciences (NIGMS)
- National Institute of Mental Health (NIMH)
- National Institute on Minority Health and Health Disparities (NIMHD)
- National Institute of Neurological Disorders and Stroke (NINDS)
- National Institute of Nursing Research (NINR)
- National Library of Medicine (NLM)

NATIONAL INSTITUTES OF HEALTH (CONT'D)

NIH uses activity codes to differentiate the wide variety of research-related programs it supports. NIH Institutes and Centers may vary in the way they use activity codes.

TYPES OF GRANT PROGRAMS

- Research Grants (R Series)
- Career Development Awards (K Series)
- Research Training And Fellowships (T & F Series)
- Program Project/Center Grants (P Series)
- Resource Grants (Various Series)
- Trans-NIH Programs

Research Project Success Rate for 2017: 18.7%

NATIONAL INSTITUTES OF HEALTH (CONT'D)

Different NIH research project activity codes are aligned to investigators at different stages of their research careers

NIH ACADEMIC RESEARCH ENHANCEMENT AWARD (AREA) (R15)

- **Small research projects** conducted by undergraduate and/or graduate students and faculty in institutions that have not been major recipients of NIH research grant funds
- Direct cost limited to $300,000 over entire project period
- Project period limited to up to 3 years

NIH EXPLORATORY/ DEVELOPMENTAL RESEARCH GRANT AWARD (R21)

- Encourages new, exploratory and developmental research projects by providing support for the early stages of project development.
- Sometimes used for **pilot and feasibility** studies.
- Limited to up to two years of funding
- Combined budget for direct costs for the two year project period usually may not exceed $275,000.
- No preliminary data generally required

NIH RESEARCH PROJECT GRANT PROGRAM (R01)

- Used to support a discrete, specified, circumscribed research project
- NIH's most commonly used grant program
- No specific dollar limit
- Generally awarded for 3 - 5 years
- Utilized by all ICs

In 2017, NIH awarded 54,005 Research Projects Grants: **R01**s accounted for 30,516; **R15**s accounted for 1,680; **R21**s accounted for 13,493

NATIONAL SCIENCE FOUNDATION

- Funds research and education in most fields of science and engineering.
- Awards grants, and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the United States.
- Accounts for about one-fourth of federal support to academic institutions for basic research.
- Receives ~40,000 proposals each year for research, education and training projects, of which ~11,000 are funded.

NATIONAL SCIENCE FOUNDATION

NSF is divided into the seven directorates that support science and engineering research and education

Biological Sciences (BIO)
- Biological Infrastructure (DBI)
- Environmental Biology (DEB)
- Emerging Frontiers (EF)
- Integrative Organismal Systems (IOS)
- Molecular and Cellular Biosciences (MCB)

Computer and Information Science and Engineering (CISE)
- Office of Advanced Cyberinfrastructure (OAC)
- Computing and Communication Foundations (CCF)
- Computer and Network Systems (CNS)
- Information and Intelligent Systems (IIS)

Education and Human Resources (EHR)
- Graduate Education (DGE)
- Research on Learning in Formal and Informal Settings (DRL)
- Undergraduate Education (DUE)
- Human Resource Development (HRD)

Engineering (ENG)
- Chemical, Bioengineering, Environmental and Transport Systems (CBET)
- Civil, Mechanical and Manufacturing Innovation (CMMI)
- Electrical, Communications and Cyber Systems (ECCS)
- Engineering Education and Centers (EEC)
- Emerging Frontiers and Multidisciplinary Activities (EFMA)
- Industrial Innovation and Partnerships (IIP)

Geosciences (GEO)
- Atmospheric and Geospace Sciences (AGS)
- Earth Sciences (EAR)
- Ocean Sciences (OCE)
- Office of Polar Programs (OPP)

Mathematical and Physical Sciences (MPS)
- Astronomical Sciences (AST)
- Chemistry (CHE)
- Materials Research (DMR)
- Mathematical Sciences (DMS)
- Physics (PHY)
- Office of Multidisciplinary Activities (OMA)

Social, Behavioral and Economic Sciences (SBE)
- Behavioral and Cognitive Sciences (BCS)
- National Center for Science and Engineering Statistics (NCSES)
- Social and Economic Sciences (SES)
- SBE Office of Multidisciplinary Activities (SMA)

NATIONAL SCIENCE FOUNDATION

EDUCATION & HUMAN RESOURCES (EHR) - GOALS

1. Prepare the **next generation of STEM professionals** and attract and retain more Americans to STEM careers.
2. Develop a robust research community that can conduct **rigorous research and evaluation** that will support excellence in STEM education and that **integrates research and education.**
3. Increase **the technological, scientific and quantitative literacy** of all Americans so that they can exercise responsible citizenship and live productive lives in an increasingly technological society.
4. Broaden participation **(individuals, geographic regions, types of institutions, STEM disciplines)** and close achievement gaps in all STEM fields.

NOTABLE NSF PROGRAMS

- **Faculty Early Career Development (CAREER) Program**
- **Improving Undergraduate STEM Education (IUSE)**
- **Major Research Instrumentation (MRI) Program**
- **NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)**
- **Research Experiences for Undergraduates**

U.S. DEPARTMENT OF AGRICULTURE

Provides leadership on food, agriculture, natural resources, rural development, nutrition, and related issues

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

- Supports agricultural research, education, and extension to solve societal challenges.
- Invests in transformative science directly support the long-term prosperity and global preeminence of U.S. agriculture.

NOTABLE USDA PROGRAM:

The **Agriculture and Food Research Initiative** is America's flagship competitive grants program that provides funding for fundamental and applied research, education, and extension projects in the food and agricultural sciences.

U.S. DEPARTMENT OF DEFENSE

Provides the military forces needed to deter war and to protect the security of our country.

NOTABLE DOD AGENCIES SUPPORTING RESEARCH

- **US Army Medical Research and Materiel Command (USAMRMC)** - Responsible for medical research, development, and acquisition and medical logistics management.
- **Office of Naval Research** – Research to enable future naval power and the preservation of national security.
- **Defense Advanced Research Projects Agency (DARPA)** – Supports fundamental and applied research in a variety of areas that may lead to experimental results and reusable technology of benefit to multiple governmental and nongovernmental entities.
- **Air Force Research Laboratory** - Funds research within AFRL, universities, and industry laboratories to support USAF needs.
- **Air Force Office of Scientific Research -** Supports basic research efforts for the Air Force in relevant scientific areas.
- **Congressionally Directed Medical Research Programs (CDMRP)** - Manages Congressional Special Interest Medical Research Programs (CSI) encompassing breast, prostate, and ovarian cancers, neurofibromatosis, military health, and other specified areas.

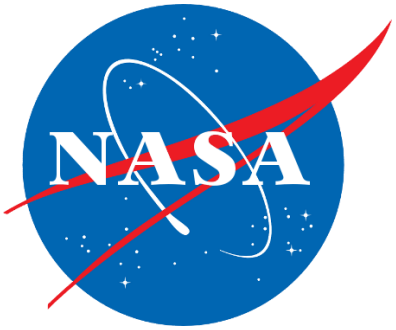
U.S. DEPARTMENT OF ENERGY

Addresses U.S. energy, environmental and nuclear challenges through transformative science and technology solutions.

NOTABLE DOE AGENCIES SUPPORTING RESEARCH

- **Advanced Research Projects Agency – Energy**: Advances high-potential, high-impact energy technologies that are too early for private-sector investment.
- **National Energy Technology Laboratory:** Implements a broad spectrum of energy and environmental research and development (R&D) programs.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



Oversees U.S. space exploration and aeronautics research.

NOTABLE NASA PROGRAMS:

- **Minority University Research and Education Project (MUREP) Aerospace Academy (MAA)** - Support to MSIs to recruit and retain underrepresented and underserved students, including women and girls, and persons with disabilities, into STEM fields.
- **Early Career Faculty (ECF)** – Supporting outstanding faculty researchers early in their careers.
- **Early Stage Innovations (ESI)** – Supporting research to accelerate the development of groundbreaking, high-risk/high-payoff space technologies to support the future space science and exploration needs

STATE FUNDING AGENCIES

- Many state agencies maintain grant programs relevant to postsecondary institutions.
- States vary significantly in the amount of competitive funding offered.
- State agencies often serve as pass-throughs for federal grant funding, holding their own statewide competitions.

CSDE
CONNECTICUT STATE DEPARTMENT OF EDUCATION

THE PRIVATE FUNDING LANDSCAPE

HR GRANTS

FOUNDATION GRANTMAKING

WHAT IS A FOUNDATION?

A foundation is a non-governmental entity that is established as a nonprofit corporation or a charitable trust, with a principal purpose of making grants to unrelated organizations, institutions, or individuals for scientific, educational, cultural, religious, or other charitable purposes.

(SOURCE: FOUNDATION CENTER)

Alfred P. Sloan FOUNDATION

BILL & MELINDA GATES foundation

W.K. KELLOGG FOUNDATION

FORD FOUNDATION

KEY FOUNDATION STATS

87,142

TOTAL NUMBER OF FOUNDATIONS

$55.26 Billion

TOTAL AMOUNT OF GIVING

$798.18 Billion

TOTAL FOUNDATION ASSETS

(SOURCE: FOUNDATION CENTER, 2012)

FOUNDATION DIVERSITY

FOUNDATIONS ARE NOT LIKE ONE ANOTHER

WHAT DO FOUNDATIONS HAVE IN COMMON?

- ✓ They have money.
- ✓ They are required to give some away.

WHAT DO FOUNDATIONS NOT HAVE IN COMMON?

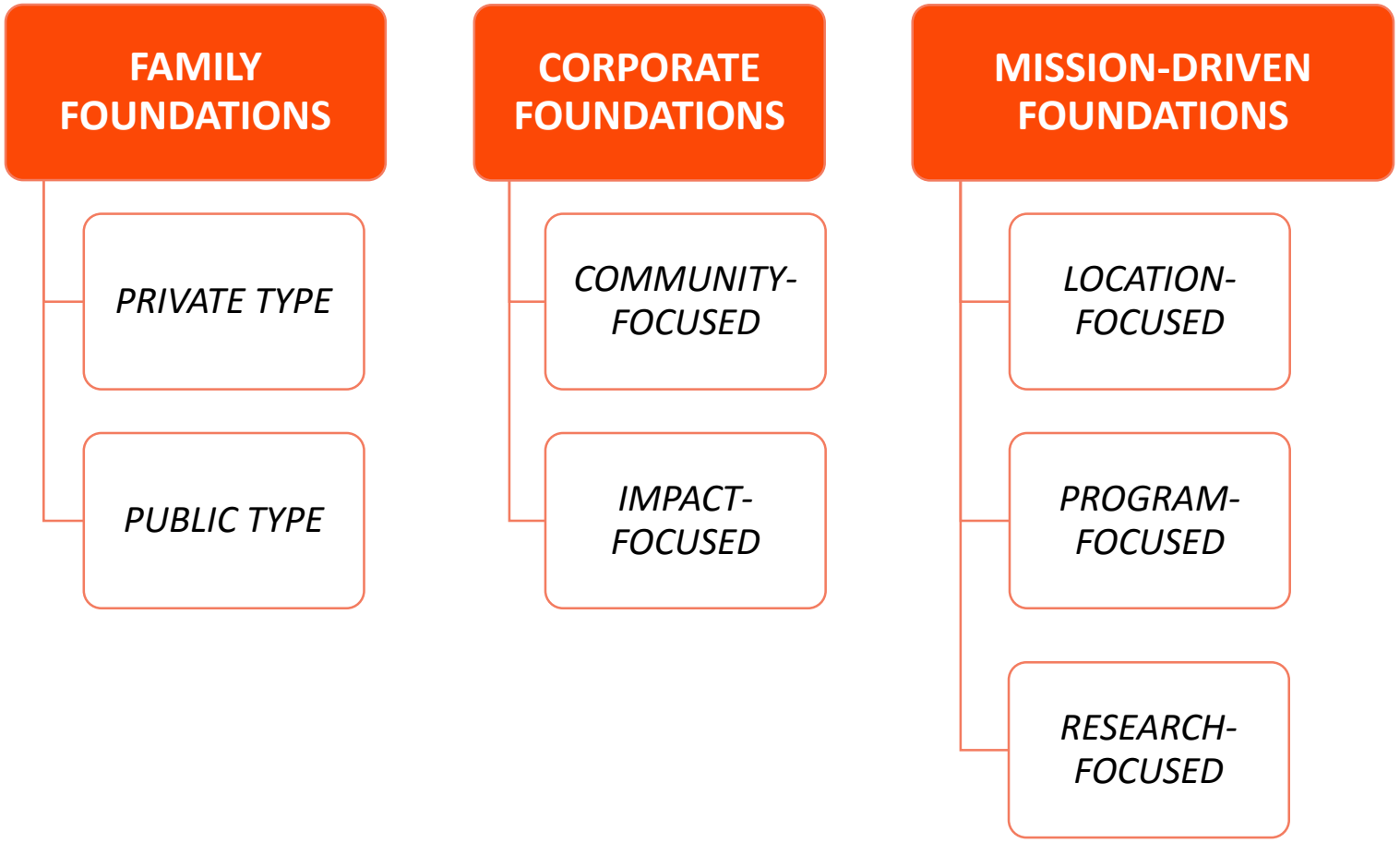
- × How much money they have.
- × How much they give.
- × To whom they give.
- × How they decide to give.

FOUNDATION PERSONALITIES

Foundations are like people, and therefore must be cultivated like people. They both:

- Have personalities and quirks
- Have preferences and opinions
- May not be logical
- May say one thing and do another
- Are liable to change without warning
- **Are more likely to give money to people and organizations they know**

FOUNDATION TYPE WILL INFLUENCE APPROACH



FAMILY FOUNDATIONS

Family foundations are founded and managed by a family, to advance the family's charitable interests. They:

- Are often managed by a group of family members, which may include the original donors and/or their descendants.
- May or may not have a well-defined focus or mission.
- May be varied or inconsistent in their giving, depending on the interests of family members involved.

FAMILY FOUNDATION TYPES

"Private type" family foundations support organizations and causes that are well known to family members.

"Public type" family foundations support causes they believe will have an important impact on their field of interest.

CONNECTIONS ARE ESSENTIAL FOR FAMILY FOUNDATION GRANTSEEKING AT ANY LEVEL

CORPORATE FOUNDATIONS

Corporate foundations are founded and managed by a business, to advance the business's charitable interests. They:

- Always have a focus on advancing the business's reputation, whether or not that motivation is prominent.
- May focus on communities in which they work, or give nationally (or internationally) according to select priorities.
- May make direct donations to charitable causes as well as making formal grants through associated foundations.

CORPORATE FOUNDATION TYPES

Community-focused corporate foundations support organizations and causes in the communities in which they work.

Impact-focused corporate foundations support work that advances a specific selected agenda.

PUBLICITY OPPORTUNITIES ARE AN ESSENTIAL ELEMENT OF ANY CORPORATE GRANT

MISSION-DRIVEN FOUNDATIONS

Mission-driven foundations are independent organizations charged with distributing funding to support specific kinds of work. They:

- Have prescribed structures within which staff and trustees work to advance the mission.
- May focus on specific locations, specific fields, specific kinds of organizations, or specific kinds of projects.
- Are more professional and staff-driven than other types of foundations.

MISSION-DRIVEN FOUNDATION TYPES

Location-focused foundations, usually called community foundations, support work in a specific location or community.

Program-focused foundations work to advance a specific societal mission by funding programs or services.

Research-focused foundations work to advance knowledge or solve problems by funding research work.

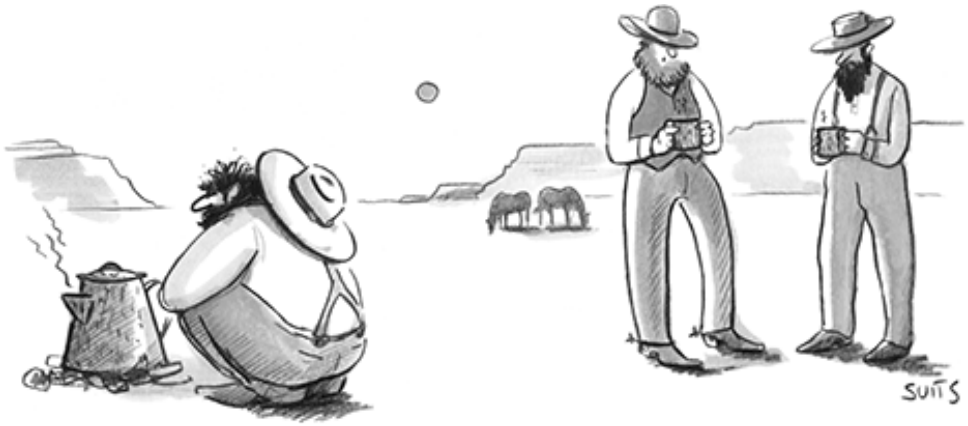
MISSION-DRIVEN FOUNDATIONS WANT TO FUND THE BEST WORK IN THE FIELD

PROSPECTING: WHERE TO FIND OPPORTUNITIES

HR | GRANTS

WHO WILL FUND YOUR WORK?

Prospecting is the art of matching projects with likely funders.



"His coffee's always crap for about a week after the MacArthur genius-grant winners are announced."

WHO IS FUNDING SIMILAR WORK?

To identify prospective funders, start by finding out who is doing similar work.

- Use industry/discipline publications, as well as online searches.
- Find similar or thematically aligned projects.
- Include projects in your local area and around the country, as appropriate.
- Find out who is funding the identified projects.
    - Look for acknowledgements and statements of thanks.
    - Contact project staff if appropriate.

WHO IS FUNDING SIMILAR WORK?

Funders' stated priorities provide a means for identifying prospects.

- Use multiple databases and search tools.
- Search for keywords that relate to your mission and project.
- Search by funder type, funding type, and funding region.
- Note funding restrictions.
- Note typical funding amounts.
- Note key deadlines and other timing constraints.

Identify promising prospects—or types of prospects—for your work.

PROSPECTING RESOURCES

Types of Prospecting Resources

- **Foundation Databases** catalog past foundation grant awards and provide funder background information
- **Federal Funding Databases** contain information on past, current, and future funding opportunities, in addition to information on funded projects.
- **Funder Award Databases** provide detail on the projects supported by a grantmaker.
- **Funder Websites** contain background on active programs, giving interests, past giving, and guidelines for proposals.

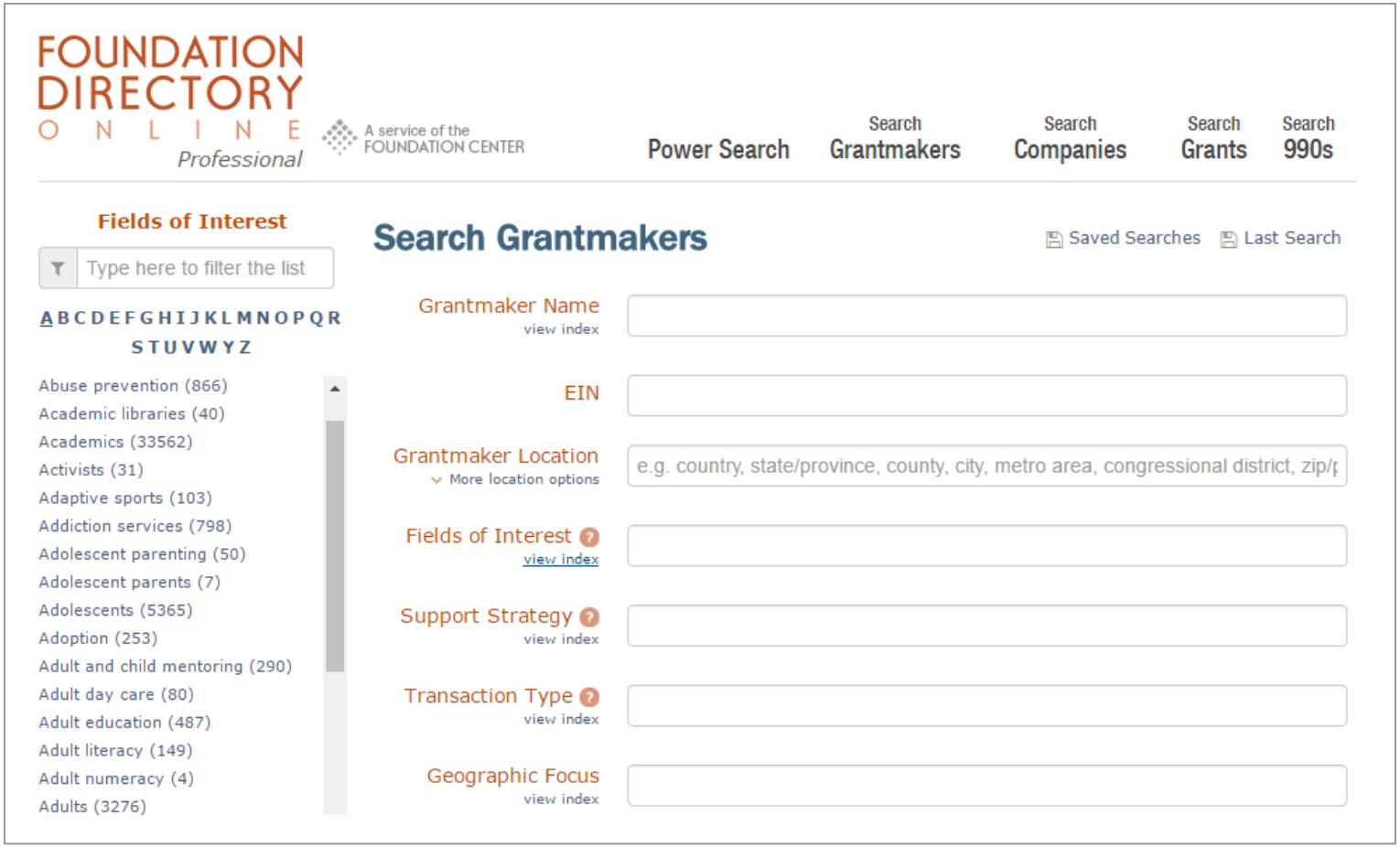
The University of Connecticut's Office of the Vice President for Research provides a range of grantseeking resources and funding databases.

PROSPECTING RESOURCES: PIVOT

- Integrates funding and collaborator discovery into one tool so researchers can effectively collaborate with their colleagues, as well as quickly discover the right funding opportunities.
- Provides discovery of new funding sources and customized searches that can be tailored to specific needs and connected to weekly alerts.
- Provides access to ~$44 billion in funding opportunities and more than 3 million detailed scholar profiles.

PROSPECTING RESOURCES: FOUNDATION DIRECTORY ONLINE

Foundation Directory Online has a flexible and powerful search interface.



Demonstration: Foundation Directory Online

PROSPECTING RESOURCES: FOUNDATION DATABASES

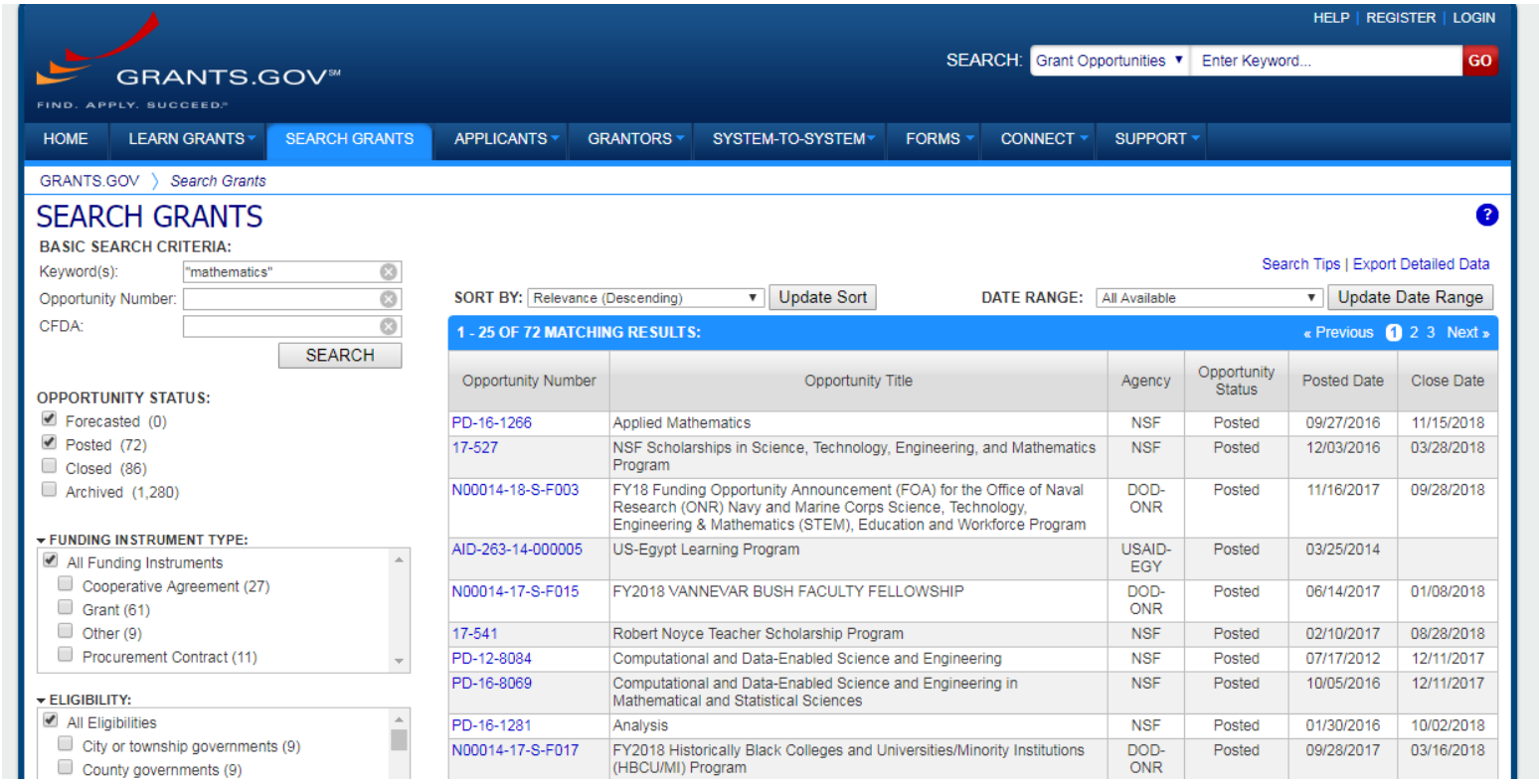
Foundation grant databases catalog the grants awarded by foundations and collect background info on funders. Data is broken down to help users discover grants in line with certain project types, geographic scopes, recipient types, areas of interest, funding amounts, etc.

TIPS

- Focusing on a funder's **grantmaking history** is the recommend first step.
- Look for **as many indicators as you can find** of a good fit. Has a foundation supported applicants like you, in your region, doing similar work?
- Foundation databases source their information primarily from 990 tax filings. Therefore "recent" award data is not always reflective of current funder priorities.

PROSPECTING RESOURCES: GRANTS.GOV

Grants.gov is a key resource for learning about grant competitions

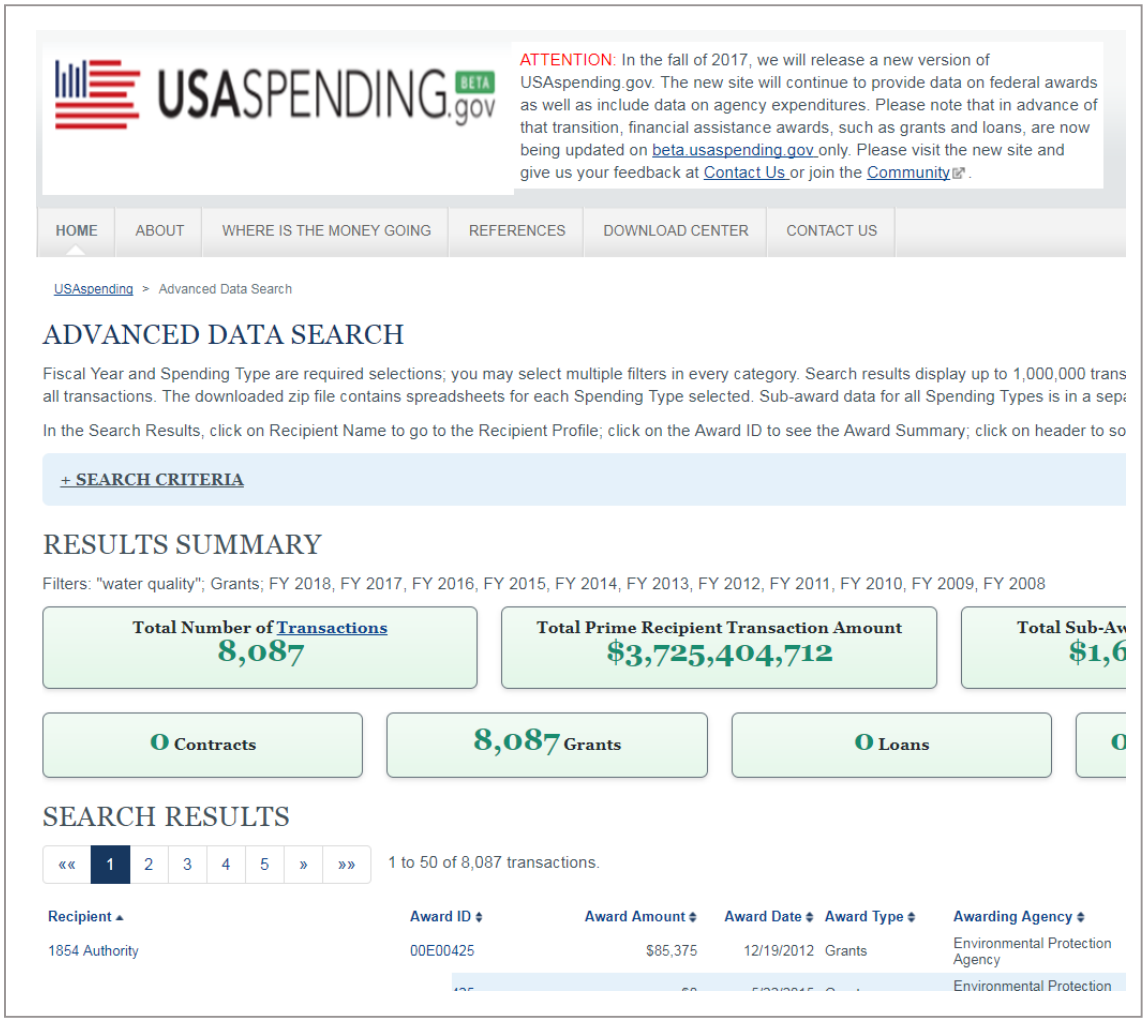


Demonstration: Grants.gov

PROSPECTING RESOURCES: USASPENDING.GOV

USASpending.gov houses a massive database with information on US-funded grants

Demonstration:
USAspending.gov



PROSPECTING: FEDERAL DATABASE TIPS

Be patient! ***Government grants databases deal with large amounts of data and are not very user-friendly. It can be a challenge to easily find what you are looking for right away. Decide what key data points you're seeking and make sure to leverage companion resources for greater depth.***

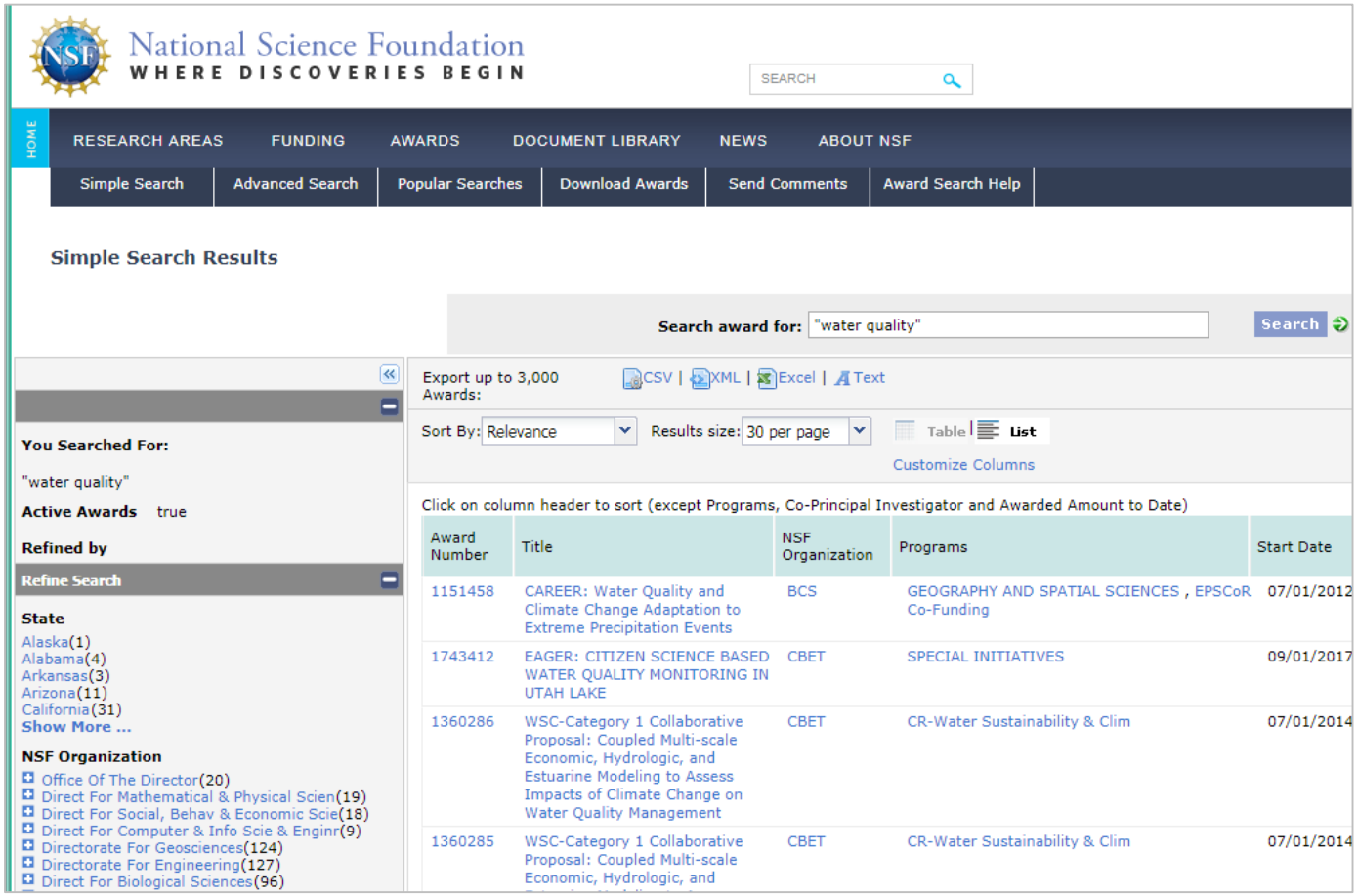
GRANTS.GOV

- Put search terms **in "quotes."**
- Check off **closed and/or expired opportunities** in your search.

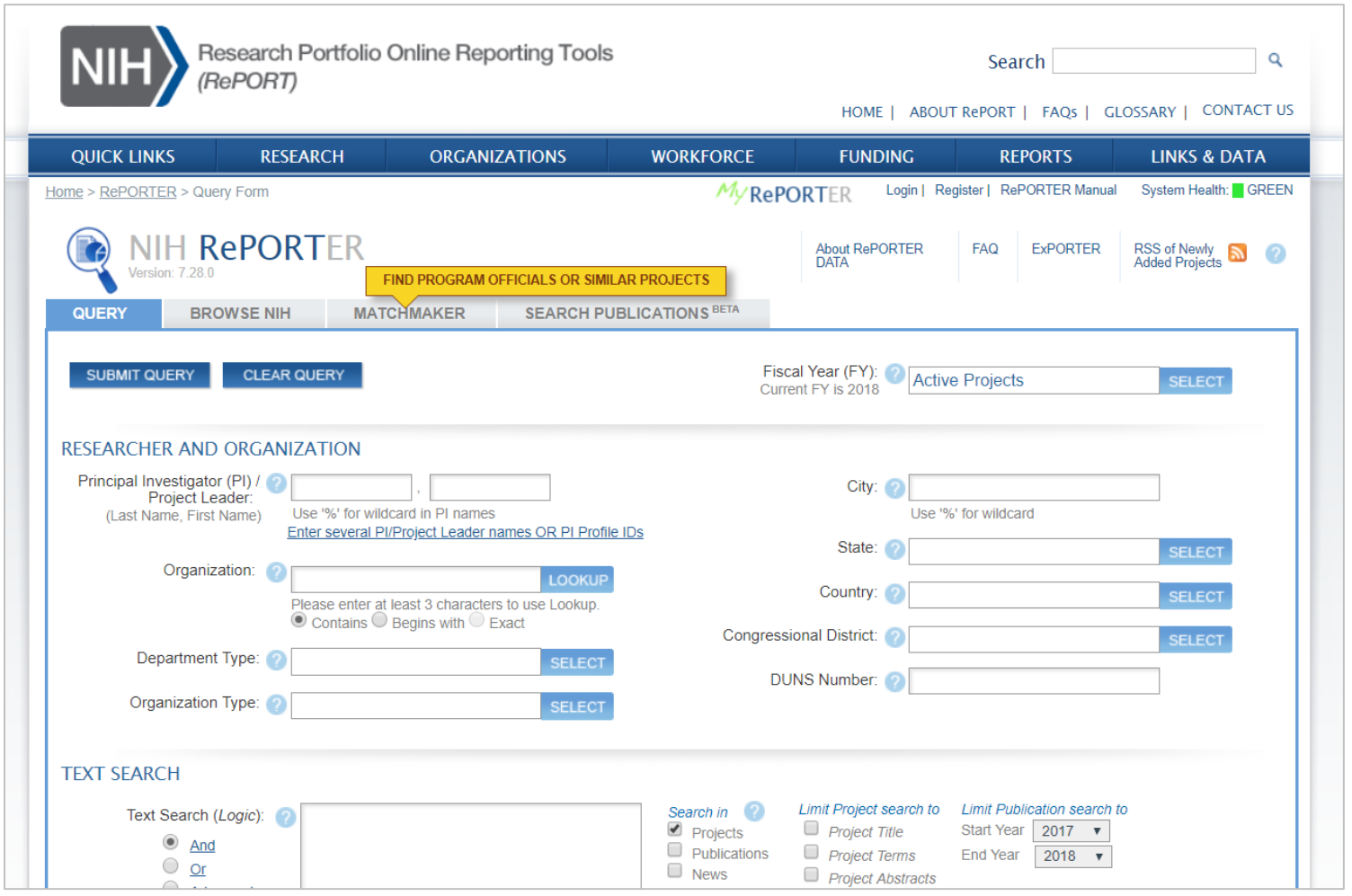
USASPENDING.GOV

- **Export the raw data** and reduce it to key data points.

PROSPECTING RESOURCES: FUNDER AWARD DATABASES



PROSPECTING RESOURCES: FUNDER AWARD DATABASES



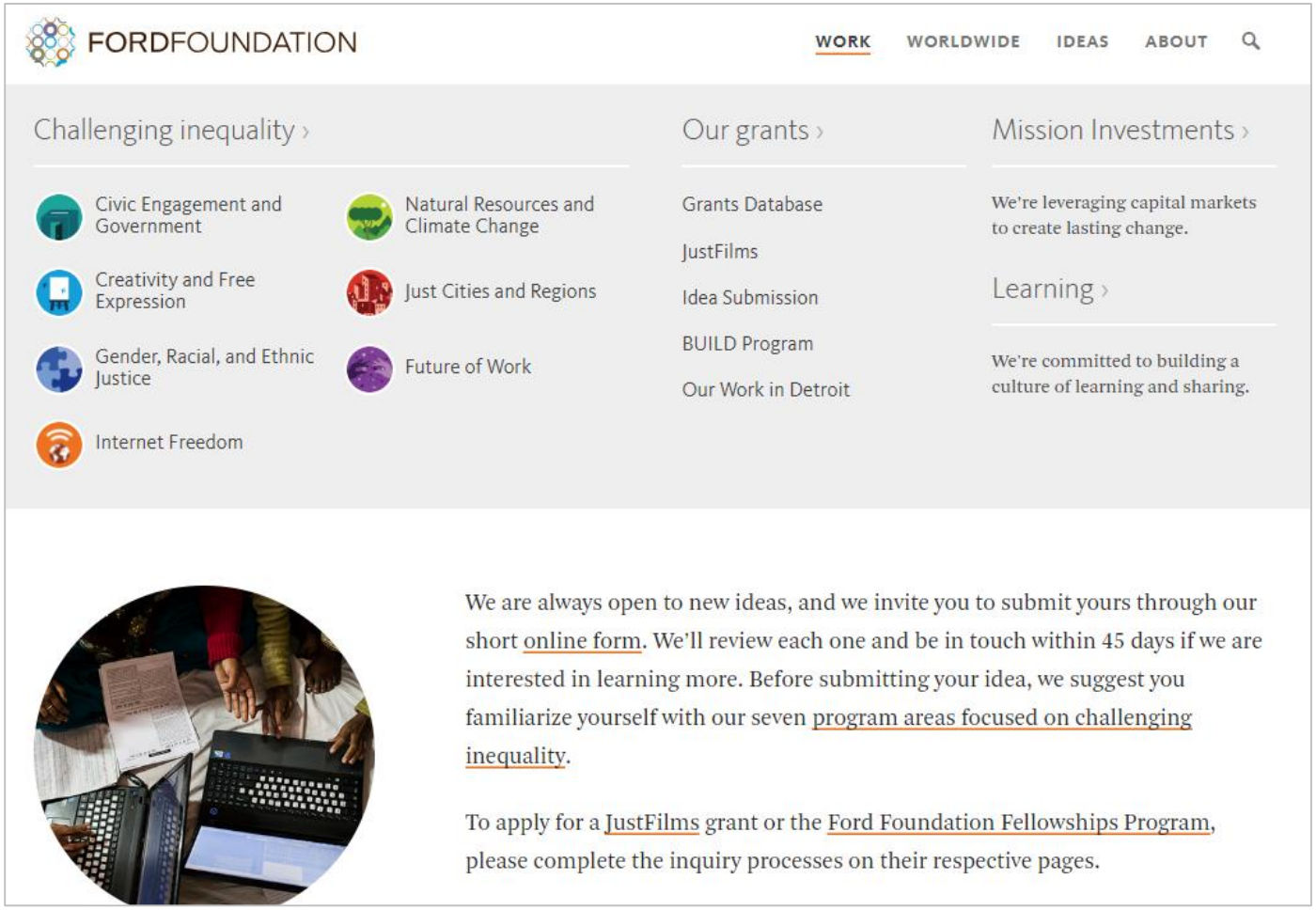
PROSPECTING RESOURCES: AWARD DATABASE TIPS

Funder-maintained grant databases are almost always more detailed and current than external sources tracking grants. Giving history is also often presented within the context of funding priorities, which allows grantseekers to understand the best pathways for different types of projects.

TIPS

- **Not all federal agencies maintain their own award databases**, and there is variation in the breadth/depth of information about funded projects.
- **Large national foundations are more likely to maintain their own giving databases** than small local foundations.
- Use keywords, but also **look for examples of peer investigators** – what projects are they getting funded?

PROSPECTING RESOURCES: FUNDER WEBSITES



PROSPECTING RESOURCES: FUNDER WEBSITE TIPS

Most funders maintain a website with details on their programs, priorities, and giving history. Outside of direct contact with funders, their websites are the best resources for up-to-date information.

TIPS

- **Look for the most recent grant examples on funder websites**.
- **Get a feel for the mission of the funder.** If you're only seeking funding for an individual program or RFP, consider how it fits into a larger context.
- **Learn the character and quirks of the funder.** How do they present their guidelines? How does their presentation communicate how they operate?
- **Find the FAQ page!**

PROSPECTING: FINDING THE RIGHT FIT

HR | GRANTS

GATHER PROSPECT INFORMATION

Keep notes in a list, spreadsheet, or database for further analysis.

- ✓ Funder type and mission
- ✓ Eligibility restrictions
- ✓ Allowable costs/activities
- ✓ Award information
- ✓ Relevant grantmaking history
- ✓ Key Contacts, Staff and Trustee names and profiles
- ✓ Funding process (e.g., eligibility, timing, amounts, requirements)
- ✓ Indicators of competitiveness
- ✓ Opportunities for connection and communication

EVALUATING OPPORTUNITIES

GOOD PROSPECTIVE FUNDERS HAVE:

- ✓ A mission that aligns with your mission
- ✓ A history of funding similar or related projects
- ✓ Stated priorities that encompass your project area
- ✓ No restrictions that would preclude funding your project

HOWEVER, NOTE THAT:

- Funding history is not always a good predictor of future funding.
- Stated priorities are not always current (especially for foundations).
- Finding good prospects sometimes requires reading between the lines.

Prioritize prospects based on alignment, potential benefit, ease of pursuit, and timeline urgency

WHAT MAKES A GOOD GOV'T PROSPECT?

EVALUATE PROSPECT ALIGNMENT

- ❑ Does the program align with the goals of my project?
- ❑ Does the program support activities I plan to pursue in my project?
- ❑ Does the program grant enough funding to support my project?
- ❑ Is there evidence of past support to projects similar to mine?
- ❑ Is the opportunity well-suited to the stage of my research?
- ❑ Has the program officer confirmed alignment with the program's goals?

WHAT MAKES A GOOD PRIVATE PROSPECT?

EVALUATE PROSPECT ALIGNMENT

- ❑ Are your mission and the funder's mission well-aligned?
- ❑ What is the long-term potential of the relationship?
- ❑ How challenging will it be to develop a relationship with the funder?
- ❑ Is there evidence of past support to projects similar to mine?
- ❑ Are there existing relationships I can leverage through my colleagues or through my institution to cultivate a relationship?

COMMUNICATING WITH FUNDERS

Evidence suggests that most funded proposals involve contact with the program officers at the funding agency

FIND THE BEST CONTACT

- Look at program websites and/or published solicitations for a designated contact
- Search foundation websites or tax filings for the appropriate contact

READ THEIR GUIDELINES

- Many funders provide guidelines or indicate preferences about how people get in touch with them.
- Follow their directions!

WHY COMMUNICATING MATTERS

- **Program staff influence funding decisions.**
  - In the business of making investments
  - Can guide applicants to more suitable funding opportunity or agency
  - Can be incredible resources both in terms of information but also proposal review and award management

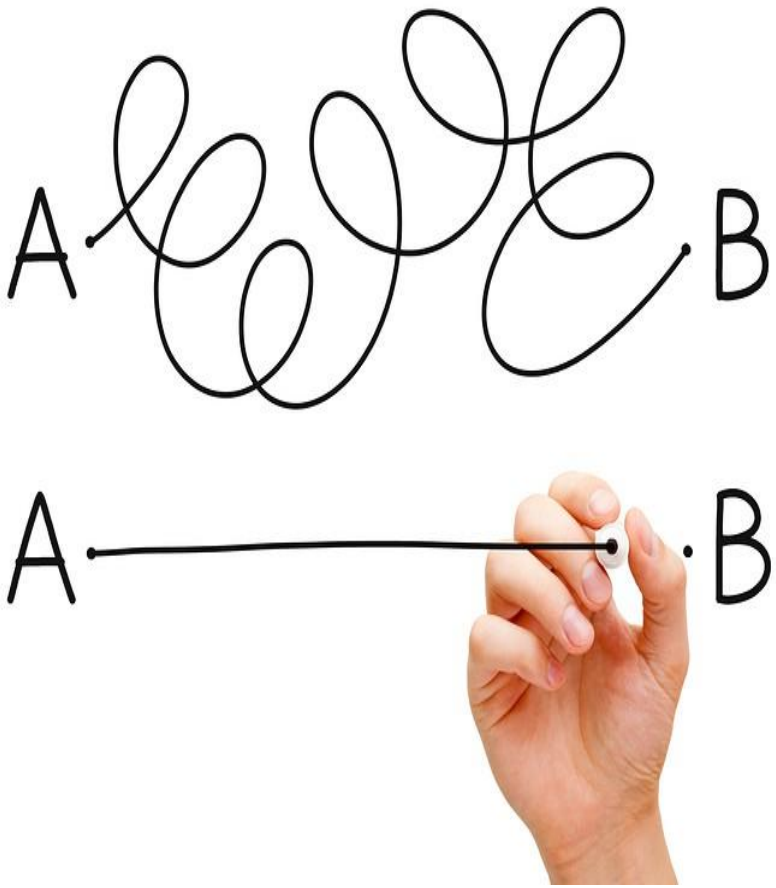
- **Pre-proposal communication helps to establish a relationship with the sponsor.**

- **The program officer's immediate response to a project is a good predictor (although not a guarantee) of success/denial.**
  - Confirming if a proposed idea fits with the program's objective is especially important.
  - Many proposals are rejected because they don't align with program objectives.

REASONS TO CONTACT A PROGRAM OFFICER

- To confirm if a **project idea fits** with the sponsor's and the program's objectives.
- To obtain **guidance about a project's design**, collaboration, budget, and timeline.
- To **discover** underlying considerations, methodology trends, preferences, dislikes, and shifting priorities that do not appear in published material.
- To ask for **clarification** of stated guidelines or an RFP.
- To discuss ways to **strengthen the project** if a prior application was not successful.

Program Officers are busy! Be prepared when you sit down to make the call.



KEY TAKEAWAYS

QUESTIONS?