REFLECTIONS ON DISCOVERY GRANTS

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INTRODUCTION

The MacArthur Foundation's Discovery Grants program supported promising approaches to important social problems and other transformative projects that did not fit within the Foundation's existing programs and strategies. Between 2012 and 2015, it made 35 awards to 34 projects and organizations, and considered more than 150 other ideas offered by staff, Board members, current and past grantees, academics, students, and entrepreneurs.

This paper summarizes the goals, processes, achievements, failures, and lessons from that experience with the intention of identifying replicable approaches to finding and funding new ideas and to cross-Foundation collaborative work.

TAKEAWAYS

- The discovery process benefits from cultivating multiple sources of ideas and projects but getting the right rate of flow — enough to offer choice but without overwhelming selection capacity — is challenging.
- Discovery and innovation programs can bridge between programs within organizations. Cross-program staffing for discovery and innovation programs allows consideration of new ideas from multiple perspectives.
- High levels of intellectual and emotional trust between participants are needed to support the kinds of robust and critical discussions innovation programs require. High trust allows programs to function based on rough consensus; governance of these programs cannot be effective if it is top-down.
- Even when programs have explicitly stated criteria, the first few grants will reflect implicit selection criteria and send signals to potential grantees.
- Discovery programs often address diverse hopes within an organization, but there is a danger in overburdening a discovery process with multiple objectives, e.g. between exploring selected topics and making exceptions and opportunistic grants.
- Peripheral vision complements focus. A process for making grants outside existing program guidelines and strategies can provide surprising insights into institutional work and culture.

GOALS AND PURPOSES

Discovery Grants began in early 2012 as an effort to help the Foundation become more receptive to good ideas, whatever their source, and to demonstrate this openness to others. This initial program mission represented an evolution from prior efforts, including the New Ideas program implemented by the Foundation in the early 2000s and the early work of the General Program of the 1990s.

This mission soon expanded to include providing a means for staff to consider and fund projects and organizations that fell outside Foundation strategies and areas of interest; to address a leadership goal of then President Robert Gallucci, who wanted to encourage a culture within the Foundation of "collaboration and dissent;" to improve management of inquiries sent to the President, Board members, and staff; to encourage collaboration between different programs and people who did not typically communicate with each other; and to experiment with new or different approaches to grantmaking, such as open calls, investments in commercial enterprises, or "scaled" investments, in which the most successful projects would receive larger, follow-on rounds of support.

All of these purposes were debated at length, and the tension between keeping many possibilities open and making choices in a timely way remained an issue over the life of the program. Discovery's reliance on voluntary staff participation encouraged this breadth of ambitions though it sometimes slowed decision making.

STARTING UP

Fairly quickly, it became apparent that many of the goals of the Discovery program would be well served by creating a cross-Foundation group that could draw on the diverse perspectives of different programs. The "Discovery Grants Committee" thus included participants from all areas of the Foundation at that time (Media, Culture, and Special Initiatives; U.S. Programs; International Programs; Fellows, legal, the library, and finance), and from every level of seniority, from the President to administrative assistants. This diversity of perspectives was integral to the tone and culture of the effort, and very useful to developing a wide range of possibilities and to the subsequent decisions about project selection and funding.

The Committee began meeting to consider particular projects and proposals while still facing critical choices

about its goals and processes. Should Discovery be an innovation fund for new programs? A counterweight to strategic approaches to philanthropy operating in other areas of the Foundation? A chance to experiment with new methods of grantmaking? A seed fund for exceptionally creative people, projects, and ideas? A signal to the field about MacArthur's intentions?

SURVEYING THE FIELD

An early task for Discovery staff was a survey of comparable innovation programs at peer foundations, including Rockefeller, Robert Wood Johnson, Gates, and the National Science Foundation.

This survey revealed a set of issues common to other efforts like Discovery grants. How is it possible to rationalize the pursuit of innovation? What is the best way to find new possibilities and to select among them? Is it appropriate to pursue work and projects based only on the significance of a problem, without a well-articulated remedy, solution, or theory of change? And if projects don't work immediately as expected, is it better to move on, or does supporting innovation require long-term commitments?

A universal concern was the relationship between these (often small) innovation programs and other areas of an organization; some operated very independently, while others actively facilitated collaboration with and between programs. Some were tasked with helping to create new programs, others focused on small grants, while others existed to challenge existing programs or hedge against larger strategies.

These programs grappled with opposing forces and organizational needs — to take risks but to consider how the failure of any one grant may reflect on a funder and its grantees; to take the long view but to fail fast; to remain open to everything but to keep some focus. Some programs were designed to provide services to larger programs within their home foundations, while others were deliberately segregated from existing work, directed to avoid topics of potential interest to existing programs.

We also heard concerns about risk in the field of philanthropy — whether foundations tend to support only safe projects, create hidden disincentives for staff to make risky grants, or lack the ability to accept failure as a necessary price for innovative work.

Participation in an "innovation funders" group formed and led by the Monitor Institute (now a part of Deloitte Consulting) provided other useful introductions and insights, particularly regarding grant and program life cycles, specifically how (1) new possibilities are sourced and identified, (2) candidate projects are selected for funding, (3) foundations can best interact with grantees, and (4) successful projects are expected to grow or remain sustainable.

All of these findings provided grounds for group discussion and helped to shape Discovery grants at MacArthur.

SOURCING NEW POSSIBILITIES: FINDING AND IDENTIFYING POSSIBLE PROJECTS

We began looking for potential grants close to home: soliciting recommendations from Foundation staff. We reasoned that this would advance the cultural changes (particularly collaboration and open dialogue) intended by Foundation leadership, would have a low risk of sending confusing signals to the field, and would allow us to refine our grantmaking criteria and committee processes before making the work more public.

Over time, we broadened the variety of sources for fundable ideas and projects. We opened the program to suggestions from the Board, and later, from the Fellows selection committee. We began to get referrals from selected MacArthur grantees and from program staff at other foundations with programs similar to Discovery grants, and we learned of some interesting possibilities that way. We reviewed unsolicited inquiries sent to the President's Office and MacArthur's general delivery mailbox, conference and trip reports from Foundation staff, selected media, and meetings organized by other programs at the Foundation.

We also considered other potential sources of new proposals, such as competitions, research networks,

business networks that highlighted investments in for-profit rather than nonprofit organizations, and partnerships with other funders or online marketplaces through which we might share proposals under consideration. At various times we pursued all of these options opportunistically, though never in a sustained or systematic way.

At some points, translation of ideas and concerns between participants took a significant amount of energy. This was not only due to differing levels of subject matter expertise but also to different sensibilities in grantmaking practices. Program staff were typically more sensitive about implicit signals sent to the public by off-strategy grants and how these signals might be received or misinterpreted by would-be grantees. But over time, the group established a high degree of trust, a series of norms regarding its deliberative process, and a reputation of openness to any Foundation staff member who wished to attend and comment on proposals under consideration (this was appealing to non-grantmaking staff yet occasionally vexing to those who saw themselves as more skilled in grantmaking decisions and processes). These positive social factors helped to make some of the tensions described elsewhere more acceptable.

By the end of 2012, Discovery had a small but fairly steady flow of possibilities. Typically, the Committee would consider five to eight proposals per month and fund one, sometimes two, even as selection criteria and deliberative processes continued to evolve. But for the life of the program, the question of how best to source possibilities and the optimal flow of new proposals remained open; the section below on "Challenges, Shortcomings, and Constraints" offers some further observations on this point.

SELECTION CRITERIA, DECISIONS, AND CHOICES

Translating a set of general aspirations – to be open to risk, to make intelligent exceptions, to be more responsive to new people and possibilities, to provide some peripheral vision as a complement to the focus of programs – into grant criteria proved surprisingly difficult. Based on broad agreement that Discovery Grants should support promising approaches to important social problems and that awards should go to projects that did not fit into the Foundation's existing programs and strategies, the group developed five criteria against which ideas could be judged:

- Important addresses an important social issue in a domain in which the Foundation can have an impact
- Timely responds to an urgent problem or opportunity
- Testable promises definite results, for example, a prototype or other proof of concept, with outcomes that can be assessed
- Bold ambitious but prepared to learn from interesting failure
- Anticipatory showing awareness of future trends and needs

Although we did not include "quality of project leadership" on our list of criteria, it was almost always a factor. Similarly, project feasibility and the reputation of the organization proposing a new idea were also factors in decision making.

Projects that addressed concerns familiar to Foundation staff were also privileged in certain ways; these projects benefitted from advocacy by senior executives and a greater understanding of their merits. A few grants were effectively service grants for other parts of the Foundation that were exploring new possibilities; for example, several early awards supported work on climate change, which has since become a primary focus for the Foundation. Others, such as an early grant for urban green spaces, also encouraged cross-program collaboration, collegial relations, and new expectations about the role of non-program staff.

Because these criteria and qualities were so general, applying them was challenging. Grant decisions were heavily dependent on the Discovery Grants Committee's monthly meetings, where proposals were debated. Decisions were based on rough consensus, sometimes supplemented by informal votes or polls of the group.

The tone and tenor of these meetings was critical to the functioning of the program. Meetings were inclusive and open to all staff. Meeting participants were free to weigh in on any proposal, and many participants noted the discussions had broad educational value. Debates were sometimes intense; anticipating the discussions, we often provided guidance for staff offering ideas with warnings that that we "strive to be supportive of new possibilities but rigorous in our questions." Some proposals engendered split decisions; others passed

by acclaim almost immediately; while a few were immediately rejected. Most were sent back to the staff person who brought the idea with questions to be answered that reflect a degree of collective interest or skepticism.

In practice, some meetings were heavily influenced by the presence or support of senior staff, though there were no guarantees: projects offered by President Gallucci were among those turned down. This reflected a commitment to avoid top-down approaches to decisions. At the same time, the group also benefitted enormously from the perspective of non-program staff from areas such as legal, finance, public affairs, and the library and archives, who had special skills and interests as well as a sense of the Foundation's entire body of work.

One of the early expectations was that the project qualities we were seeking would become evident over time through exemplary awards, naturally emergent themes, and clusters of grants of that were representative of both stated and unstated aspirations. This proved to be the case: by 2013, we began to see an organic emergence of themes from the grants made over the first year of the program.

In hindsight, grants fell into one or more of a small number of patterns and categories. Most concerned new conceptual approaches to important social problems. Often, but not always, these explored social implications of rapidly emerging technologies or sought in some way to channel corporate or commercial behavior to social ends (e.g. accounting for green costs and benefits or improvements in labor practices). "Technology & Society" was identified as a specific theme we pursued, making grants concerning artificial intelligence, robotics, gene editing, privacy, and surrogacy. Later in the life of the program, we also vigorously pursued the issue of open access publishing.

Other grants concerned worthy extensions to the existing guidelines of other programs. These included projects intended to provide better lives for vulnerable populations, including immigrants, farm workers, and inmates. Given MacArthur's historic commitment to Chicago, it is perhaps unsurprising that many of the early grants went to local organizations. On occasion, proposals were brought to Discovery by staff holding a minority (but favorable) opinion within their program regarding the quality of an idea.

SUPPORTING ORGANIZATIONS AND WORKING WITH GRANTEES

Most Discovery grants provided general operating support, though work housed in larger institutions, particularly universities, was by necessity project support. This preference for general operating support reflected the exploratory nature of the proposals that were funded and a desire to provide maximum flexibility for grant recipients doing exploratory work.

The athematic nature of the program, particularly in its first two years, limited our inclination to treat grant recipients as a cohort. Generally, we did not attempt to convene Discovery grantees (since they were working on diverse topics), nor did we actively attempt to strongly influence their work.

The initial design for the program suggested that we would winnow our portfolio and provide follow-on funding for the most successful projects, but fairly early on we had a major discussion about follow-on grants and determined that we would instead presume that all grants would be one time.

RESULTS

Given the myriad goals and an essentially opportunistic approach – one without explicit causal pathways, a limited set of activities, and a general sense of values, ends, and means – any discussion of "achievements" could be discounted by skeptics as post hoc justification.

Yet Discovery helped Foundation staff see patterns and types of problems philanthropy might address, including encouraging better corporate behavior; closing the gap between technologists and policy-makers; solving collective action dilemmas; building observational systems; and investing in other than 501c3 organizations. Often, these "problem types" were identified through particular grants, and, indeed, the quality and success of the best of the Discovery grantees may be the most meaningful or identifiable achievement.

Several grants stimulated new thinking, broke new ground, or advanced and improved the quality of debate. These included awards for the first major public discussion of the gene editing technology CRISPR, the first academic center focused on the sociology of masculinity, and a series of grants about drones and robotics (see Appendix I). We found that

open calls for ideas without thematic restrictions can lead to effective grants and projects.

Discovery was often the first institutional funder for new projects, and subsequent additional funding by other foundations or by government sources may be viewed as validation of our choices. Several of our peer foundations, including the Arnold, Mellon, and Helmsley Foundations, as well as the National Science Foundation, followed up on our initial awards with support of their own.

Several grants allowed for collaboration between different MacArthur programs, as in between Media and Justice for Jail Education Solutions, while others, like those to the Open Access Collaborative and the Authors Alliance, supported the Foundation's explorations regarding its own Open Access policy. A few grants provided a way for us to collaborate with other funders, as with the Ford Foundation on a study of the pipeline for engineering talent (see A Future of Failure: The Flow of Technology Talent into Government and Civil Society).

Other projects grew remarkably in scope or scale. The Human Vaccines Project has received more than \$20 million in funding from other sources; the Justice Entrepreneurs Project has been replicated in other cities; Edovo has gone on to raise more than \$10 million and now operates in 20 states and in over 50 facilities and has served educational materials to over 50,000 people.

A surprising number of grantees received significant media attention. Although we never counted this as success or rigorously estimated the monetary value of this media coverage, it seems likely that its dollar value exceeded the total grant awards if valued in terms of advertising value equivalency (see Appendix III).

As in any program, the grants awarded sometimes had an effect on the careers of particular individuals and institutions. Though this was something we did not track systematically, the credibility conferred through MacArthur funding was noted by several recipients as being very substantial, particularly for new organizations. To pick just one example, the principal investigator in the exploration of the ethics of semi-autonomous artificial intelligence programs became an ethicist for Google, and now leads a \$27 million fund devoted to exploring the ethics of AI.

The overall effect on Foundation culture is hard to assess. Discovery Grants provided a way for everyone in the Foundation to participate in the grantmaking process, and, at times, extra consideration was given to projects proposed by non-program staff. The openness of the monthly meetings and regular participation by senior staff including the President also opened some lines of communications. At the same time, trying to factor general concerns about Foundation culture or the enthusiasm of individual staff members into grant decisions may have muted more critical voices.

Discovery also allowed for exploration of other methods of sourcing ideas, including competitions and prizes, to identify new projects. For example, we hosted representatives from the Gates, Knight, Kresge, Joyce, Case, Sloan, and Mozilla Foundations, along with representatives from the White House, to discuss open calls and competitions as an approach to grantmaking. This informed some of the *100&Change* work that followed.

CHALLENGES, SHORTCOMINGS, AND CONSTRAINTS

Several of the challenges facing Discovery grants persisted throughout the life of the program. These challenges were interrelated in complex ways, but they might be grouped roughly into program management, capacity, and external relations.

Program Management

Among the challenges in program management were focus, consistency, and sourcing of new proposals. Looking backward, it was also clear we missed some opportunities because of these challenges.

Focus. As initially designed, the program was explicitly athematic, with some hope or recognition that certain themes might emerge. Eventually, this did occur, and beginning in 2014, we began to work more thematically and with small clusters of grants. Reversing our initial practice, starting work with problems and concepts, and then making small clusters of grants provided more focus and, if pursued further, might have served as a way to explore potential big bets. Overall, we found that evaluating work in many unfamiliar areas is difficult and time intensive but, given our intent to provide some peripheral vision for the Foundation, somewhat unavoidable.

Consistency. Applying broadly defined criteria in a consensus-driven process is difficult to do consistently. Allowing the meetings to remain open to all staff meant that the character of meetings changed as attendance fluctuated; new arrivals did not always share the tacit understandings developed by long time members of the group. With the explicit willingness, especially in the early years of the program, to consider exceptions, it was hard to avoid some appearance – or reality – of arbitrary or random decision making. Early exceptions to satisfy interest of non-program staff or proposals from less senior people also contributed to the difficulty of maintaining consistency. "You know it when you see it," is not a perfect guide to grantmaking decisions (but then neither is anything else).

Sourcing. Although our intent was to be open to new ideas from whatever their source, in practice, the origin of a suggested proposal or idea was often an important factor in accepting or rejecting it. Ideas from grantees already known to staff, from tier-one research universities, or former staff were sometimes given more benefit of the doubt than those from unknown organizations. This may be an almost unavoidable outcome for any diverse group considering unfamiliar ideas.

Missed opportunities. Two projects (the Sustainability Accounting Standards Board and Crisis Text Line) were considered but not funded, though both projects were well known to program staff. The Sustainability Accounting Standards Board was rejected for lack of staff support, while Crisis Text Line was rejected due to an abundance of it — it had been funded by another program. Both of these organizations went on to demonstrate considerable effectiveness and to secure funding from other sources. While that might suggest that MacArthur's support proved unnecessary, the decision not to fund these organizations was based on a mix of valid concerns and what hindsight says was excessive skepticism regarding the worth of these efforts.

Capacity and Constraints

Discovery was never more than a very modest program: it was limited in staffing, scale, the size of grants awarded, and the Discovery program's appetite for risk.

Staffing. No staff members were devoted full time to Discovery, and most participation in the effort was voluntary. This may have been insufficient; certainly, it limited our ability to work with grantees and others, to develop concepts, and to seek new possibilities more

systematically. Most, but not all, of the grants approved were for proposals that were already well-formed. Our ability to document and monitor progress on individual grants was limited.

Scale. While some of the issues addressed were big, most of the actual projects were not. All but one of the grants were under \$500,000, and no single theme or cluster of grants received more than \$2 million. At such levels of funding, exploration and proofs of concept are possible, as is attracting support from other sources. Though the idea of supporting the best performers with larger rounds of funding was considered from the beginning, it only happened on one occasion. For all the merits of an experimental, athematic, "little bets" approach to discovering and testing new possibilities (often applied in other MacArthur programs as well), it is notable that MacArthur's subsequent search for new ideas, 100&Change, focused on those needing \$100 million in funding.

Risk. Some participants in discussions did not frame considerations in terms of risk at all, while for others having sufficient risk was almost a qualifying criterion. Generally, discussions were not framed explicitly in terms of risk, yet different appetites for risk led us to forego grants to some projects. These perceived risks were various and ranged from basic feasibility to reputational risk to the Foundation and other grantees.

Relations within and outside the Foundation

Relations with other programs, with staff within MacArthur, and with the other institutions and the public were key to Discovery's operations.

Relations with other programs were nearly always constructive. At its best, Discovery provided a way to support exceptionally creative projects that were nonetheless outside program eligibility guidelines or provided space for two different programs to collaborate. On occasion however, Discovery was asked to cease work in a particular area for fear of confusing the field or encroaching on territory under consideration by large programs.

Addressing staff concerns (and turning down staff ideas) sometimes proved difficult. Discovery Grants was a program in which ideas competed and the strongest were pursued. On occasion, projects that were passionately promoted by staff were not approved, yet our work to allow broader participation

led some people to expect that their personal passions would be funded. Communication of this reality was challenging, particularly given the flexibility of eligibility guidelines.

Public visibility affected relations with both internal and external groups. A few Discovery grants and projects, such as Retraction Watch and a project with the Ford Foundation to study technology in government, received a great deal of public attention. Yet the program itself generally tried to remain fairly low profile in order to limit the number of unsolicited proposals received. Increasing program visibility might have brought a greater flow of ideas to us or helped us communicate the Board's ambitions for us to be bold.

SOME SUBJECTIVE COMMENTARY AND CONCLUSIONS

The preceding sections have been (or were intended to be) fact based and logically structured; the following more subjective reflections and observations are not. Yet they represent some of the harder-to-classify and harder-to-prove aspects of Discovery Grants, and knowledge of them would have been useful to have at the start of the program.

- Innovation programs can benefit from adopting more than one approach to program design and to grantmaking. There are in fact many viable choices about how to build an innovation or discovery program. A diversity of approaches—to how ideas are sourced and prioritized, how they are funded, what institutional needs are addressed, and so on—can be a program strength, rather than a distraction or evidence of a lack of rigor. Many of these approaches to innovation funding are well documented in professional literature, though the difference between reading about them and applying them is enormous.
- High levels of intellectual and emotional trust between participants are needed to support the kinds of robust and critical discussions innovation programs require. Given looser program guidelines, the emotional tone and intellectual attitudes prevalent within meetings and in other communications are unusually crucial to program success. Selecting participants for temperament can be as important as selecting for expertise.
- Accounting for the varying tenor of each meeting and for the changes in the types of questions posed as a proposal is examined is critical. Generally, openness

and curiosity during initial discussions of a new idea, followed by closer scrutiny and greater skepticism prior to a final decision seems to be the most effective way of both weeding out relatively weak proposals and strengthening projects that are not fully mature.

- Though the presence of senior staff at times inhibits free discussion by less senior participants, understanding the needs of the organization, obtaining permission to take certain risks, and resolving issues with other program areas are much easier with Presidential or Vice-Presidential participation.
- Insisting on the use of plain English by staff and applicants, and a commitment to resisting jargon can help programs addressing a broad range of topics be more effective. A requirement for plain English provides a screen against poorly conceived proposals, and enables collaboration between staff with diverse expertise. "Articulate your objectives using absolutely no jargon" was one of the first requirements of one of the 20th century's great research managers, George Heilmeier, whose "Heilmeier Catechism" still guides decisions at the Defense Advanced Research Projects Agency at the Department of Defense and other research labs.
- Innovation and discovery programs can function based on rough consensus, but split decisions are fine and sometimes desirable. The genuine merits of a new idea are not always apparent to everyone simultaneously. "Champion-based review," in which a single well-informed advocate may approve a project despite broad skepticism among her or his colleagues sometimes results in the best grants – at least in those cases where genuine merit is recognized by a minority.
- Some experienced program staff have an almost uncanny intuition regarding grant proposals. To the extent grantmaking involves pattern matching, or a sense of aesthetics, long experience in diverse fields provides a unique source of great insight. Of course, at other times, experience can induce unnecessary skepticism regarding new ideas, but a rich set of comparisons concerning past endeavors in philanthropy can be extremely useful, and is sometimes undervalued, particularly in cultures with an avowed focus on innovation.
- Programs designed to make occasional exceptions can provide surprising insights into Foundation

processes and culture. We found approaches to considering prospective grants varied widely between members of the Discovery Grants Committee; particularly notable were the different cultures of different programs. Watching these diverse approaches to evaluating prospective grants was of benefit to all involved.

A few remaining Discovery Grants ran through 2017. As the program winds down, we continue to work with grantees, collect grant products, and monitor public discussions and media coverage. The full set of proposals received, meeting minutes, and other records are being passed to the Foundation's archives.

Discovery was one of several explicitly athematic programs run by the Foundation. The General Program, New Ideas, Targets of Opportunity grants, and 100&Change were all designed to address problems with certain characteristics (such as timelineness or durability) rather than to address a defined subject. Though all of these programs are quite distinct, they have also shared certain aspirations – for exploration, learning, impact, and risk – that represent enduring interests of the Foundation and, perhaps, the field of philanthropy as a whole.

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APPENDIX I: REPRESENTATIVE GRANTS

Following are more detailed descriptions of selected grants that were particularly representative of the program.

NATIONAL ACADEMY OF SCIENCES: Human Gene Editing, \$200,000 over two years, November 2015

This project addresses the global risks, opportunities, and ethical implications of advanced research into a gene editing technique called CRISPR/Cas9. Though less than four years old, Crispr/Cas9 has already been used to make cells impervious to the AIDS virus, to reverse a genetic mutation that causes blindness, and to introduce heritable characteristics into human embryos. The potential social consequences are far reaching; while Crispr/Cas9 may provide enormous savings for health care systems by eliminating chronic diseases, it also threatens a future in which extraordinary powers to change future generations of people will reside with a small number of individuals. The project will help researchers, funders, and policy makers understand and respond to the ethical implications regarding this research.

AMERICAN ACADEMY OF ARTS AND SCIENCES: \$250,000 over two years, January 2015

This award supports a multidisciplinary study group on new ethical dilemmas arising from the intersection of contemporary political developments and changes in military technology, including the use of drones and autonomous weapons systems that operate independently of human control and make complex decisions about how to seek, identify, and attack targets. The project addresses the legal, moral and policy concerns that will help shape the debate about these weapons, which are likely to be in regular use within the next decade, and will help to build a common understanding of autonomous weapons systems, and ensure that policy makers are well informed about their options.

THE EQUITABLE FOOD INITIATIVE: \$1,000,000 over two years, December 2014

The Equitable Food Initiative is a new organization,

incubated as a project of Oxfam America, that is pioneering a multi-stakeholder approach to advancing worker protections, food safety, and environmental sustainability in the \$140 billion fresh produce industry. This award supports the scale-up of the Initiative's voluntary scheme for certifying fresh produce farms that meet a rigorous set of standards for worker conditions, food safety practices, and responsible pesticide use. Through this program, farmworkers are trained to meet these standards and help identify and correct violations. The resulting reduction in unsalable, wasted produce will lead to greater margins for growers and higher wages for workers. A consumer-facing Equitable Food Initiative label, piloted by leading food retailers, will help drive consumer demand for produce from certified farms.

JUSTICE ENTREPRENEURS PROJECT: \$400,000 over two years, December 2014

The Chicago Bar Foundation (CBF) is the charitable arm of The Chicago Bar Association. Its Justice Entrepreneurs Project (the Project) is an initiative of the CBF to address a failure of the market for legal assistance for low- and moderate-income people in the Chicago area. The Project serves as a small business incubator for recent law school graduates starting socially conscious law practices intended to serve those with too much income to qualify for free legal aid, but without the means to pay for market rate legal services.

RETRACTION WATCH: \$400,000 over two years, August 2014

Retraction Watch is a research organization that works to improve practices in science, publishing, research funding, and peer review by collecting and analyzing notices issued by leading academic journals, publishers, and scientific societies regarding acknowledged errors, corrections, and retractions. It publishes its findings via its website, RetractionWatch.com, which serves roughly 100,000 readers per month, many of whom actively contribute information to the site about scientific controversies, errors, and misconduct. The proposed grant will provide project support for a comprehensive database of retractions, and for a series of long form reports about errors in scientific research and publishing.

THE DATA & SOCIETY RESEARCH INSTITUTE: \$400,000 over two years, May 2014

The Data & Society Research Institute is dedicated to

addressing social, technical, ethical, legal, and policy issues created by emerging data-centric technologies. This grant will explore the legal, economic, and cultural implications of "intelligent systems," software that exercises judgment and control in lieu of human management, in fields such as medicine, finance, transportation, and security. It will seek underlying principles that can be applied across these fields, build networks between legal, technical, and economic experts, develop specific legal recommendations, and respond to the needs of policy makers.

THE LADY MECHANIC INITIATIVE: \$340,000 over two years January, 2014

The Lady Mechanic Initiative is a Nigeria-based non-governmental organization dedicated to equipping young women with economically valuable skills and attitudes. The Discovery Grants Committee recommended this project because it challenges traditional gender roles and perceptions by giving women skills in traditionally male-dominated and well-paid professions, and in its new work with the secondary school system in Nigeria, has the potential to scale up. The grant will help the organization to continue its out-of-school training in auto mechanics and motor repair, start a pilot on training in generator and water pump repairs, create a pilot strategy to work with girls in the formal secondary school education sector in Nigeria, and begin a program to train girls as professional drivers.

STATE UNIVERSITY AT STONY BROOK: Masculinity Studies, \$300,000 over two years, December 2012

This grant provides seed funding to establish a center for the study of men and masculinities at State University of New York (SUNY) at Stony Brook. Gender Studies is one of the fastest growing interdisciplinary fields, yet its historical origins have meant that most programs have been by and about women. The center will conduct research and interdisciplinary scholarship, create a Master's degree program, and serve as a resource for nonprofit organizations concerned with a wide range of social problems that might be addressed through a deeper understanding of masculinity. The Committee recommended a grant based on the project's potential to increase public discussion of important social issues, and to inform work in other areas of the Foundation on topics ranging from violence to maternal mortality.

APPENDIX II: ALL DISCOVERY GRANTS

GRANTEE	GRANT Amount	SOURCE OF IDEA	START Date	END DATE	PURPOSE
Openlands	\$90,660	Admin staff	6/1/12	5/31/13	To create a system for citywide expansion of community and school food gardens.
George Washington University, Elliott School of International Affairs	\$20,000	Human Rights Program Staff	6/1/12	5/31/13	To support work on Internet governance.
International Living Future Institute	\$100,000	Green Committee Program Staff	10/1/12	9/30/13	To develop and deploy a new environmentally-sound investment model for the real estate industry.
Oxfam America	\$300,000	Migration program	10/1/12	12/31/14	To pilot the EquiTABLE Food Initiative, a multi-stakeholder effort to enhance the safety and sustainability of U.S. food production while improving conditions for farm workers.
State University of New York at Stony Brook Office of Grants and Contracts	\$300,000	Maternal Health Program Staff	1/1/13	12/31/15	To establish and inaugurate a new center for the study of men and masculinities.
Elevate Energy	\$100,000	Green Committee Program Staff	1/16/13	1/15/14	To develop and deploy a new application to simplify the process of planning environmentally-sustainable events and meetings in Chicago.
Chicago Architecture Foundation	\$100,000	Program Staff	2/14/13	8/13/14	To support the City of Big Data initiative.
Hunt Alternatives Fund	\$150,000	US programs	5/20/13	5/19/14	To support the Demand Abolition program, a project aimed at reducing the illegal sex trade.
Massachusetts Institute of Technology Office of Sponsored Programs	\$50,000	Outside consultant to arts and culture	5/1/13	4/30/14	To support the Evolving Culture of Science Engagement workshop.
New York University School of Law Engelberg Center on Innovation Law and Policy	\$60,000	Other grantee (Mozilla)	6/27/13	6/26/14	To support a conference on the topic of drones and aerial robotics.
Jail Education Solutions	\$325,000	Public event & program staff	9/13/13	9/12/14	In support of the production of original video content targeted to people in jail, the development of an interactive website, and an independent evaluation of the project.
Columbia University	\$500,000	HR Program Staff	1/1/14	9/12/15	In support of the Declassification Engine project.
Natural Resources Defense Council	\$400,000	IPS Program Staff	10/10/13	10/9/15	To support the Pilot Citizen Radiation Monitoring Network.
Lady Mechanic Initiative	\$340,000	Nigeria Office Program Staff	1/1/14	8/26/16	In support of a project to help women acquire economically valuable skills in male dominated professions in Nigeria.
Tides Center	\$200,000	Former grantee	1/15/14	1/14/16	In support of the project, Center for Genetics and Society, to develop information resources related to assisted reproductive technologies.

GRANTEE	GRANT Amount	SOURCE OF IDEA	START Date	END DATE	PURPOSE
National Academy of Sciences Institute of Medicine	\$50,000	LOI to president	6/20/14	6/19/16	In support of the project, Gain-of-Function Research with Avian Influenza: A Symposium.
Electronic Privacy Information Center	\$82,500	LOI	4/17/14	4/16/15	In support the project, A Plan for Action: Visions of Privacy in the Modern Age.
Data & Society Research Institute	\$400,000	LOI	7/1/14	6/30/16	In support of the project, Social Architecture of Intelligent Systems.
Equitable Food Initiative	\$1,000,000	Program Staff	4/1/15	3/31/17	To support a voluntary certification program for labor standards, food safety, and safe pesticide use in the fresh produce industry.
Center for a New American Security	\$100,000	Program Staff	8/13/14	8/12/16	In support of the project, Ethical Autonomy: Legal, Moral, and Policy Concerns Regarding Autonomous Weapons.
Chicago Bar Foundation	\$400,000	Program Staff	12/16/14	12/15/16	To support the Justice Entrepreneurs Project.
American Academy of Arts and Sciences	\$250,000	Former president Fanton	1/1/15	12/31/16	In support of the project, New Dilemmas in Ethics, Technology and War.
Center for Scientific Integrity	\$400,000	Media grantee & Arnold Fnd	8/13/14	8/12/16	To support the Retraction Watch database, a project to investigate errors in scientific research and publishing.
Asylum Access	\$400,000	Migration program	12/16/14	12/15/16	To support The Refugee Rights Toolkit project.
Authors Alliance	\$325,000	Former Felllow	4/20/15	4/19/17	In support of general operations.
Stanford University Graduate School of Education	\$460,000	Program Staff	5/15/15	5/14/17	In support of An Open Access Cooperative: Assessing the Viability for Libraries, Journal, Societies, Presses, and Funders.
National Academy of Sciences	\$200,000	Former grantee	12/1/15	11/30/17	To support of policy development regarding global risks, opportunities, and ethical implications of a new gene editing technique, CRISPR/Cas9.
Human Vaccines Project	\$425,000	Fellows program	12/1/15	11/30/17	For the Ethics and Policy Initiative of the Human Vaccines Project.
Harvard University Office for Sponsored Programs	\$425,000	Luce Fnd, MacArthur Board member	8/10/15	8/9/17	In support of ShariaSource.
Illinois Institute of Technology, Center for the Study of Ethics in the Professions	\$200,000	Discovery program staff	12/1/15	11/30/17	To support development of the Ethics Codes Collection, and research based upon it.
Creative Commons	\$25,000	Human Rights Program Staff	10/2015	10/2015	Travel to and participation the Creative Commons Global Summit.
Rensselaer Polytechnic Institute	\$215,000	Open Access Working Group	12/1/15	11/30/16	For the Research Data Alliance, a standardization process intended to bridge the gaps between related data sets.
Refugee Services of Texas	\$325,000	Migration program	3/1/16	6/30/17	For a technology-based demonstration program to facilitate the integration of refugees in the United States.

APPENDIX III: PRESS COVERAGE

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