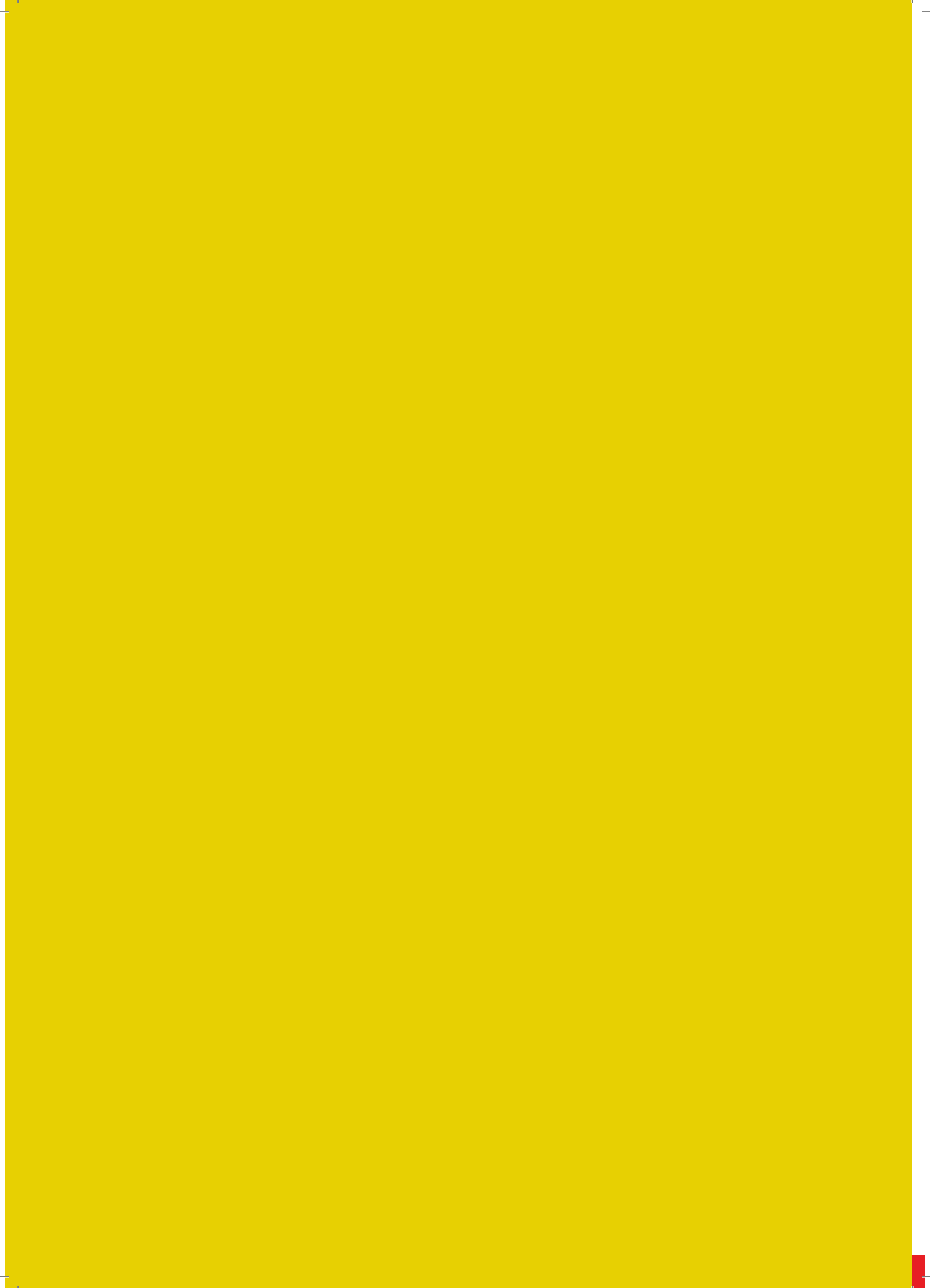




“And the winner is ...”

Capturing the promise of philanthropic prizes





Acknowledgements

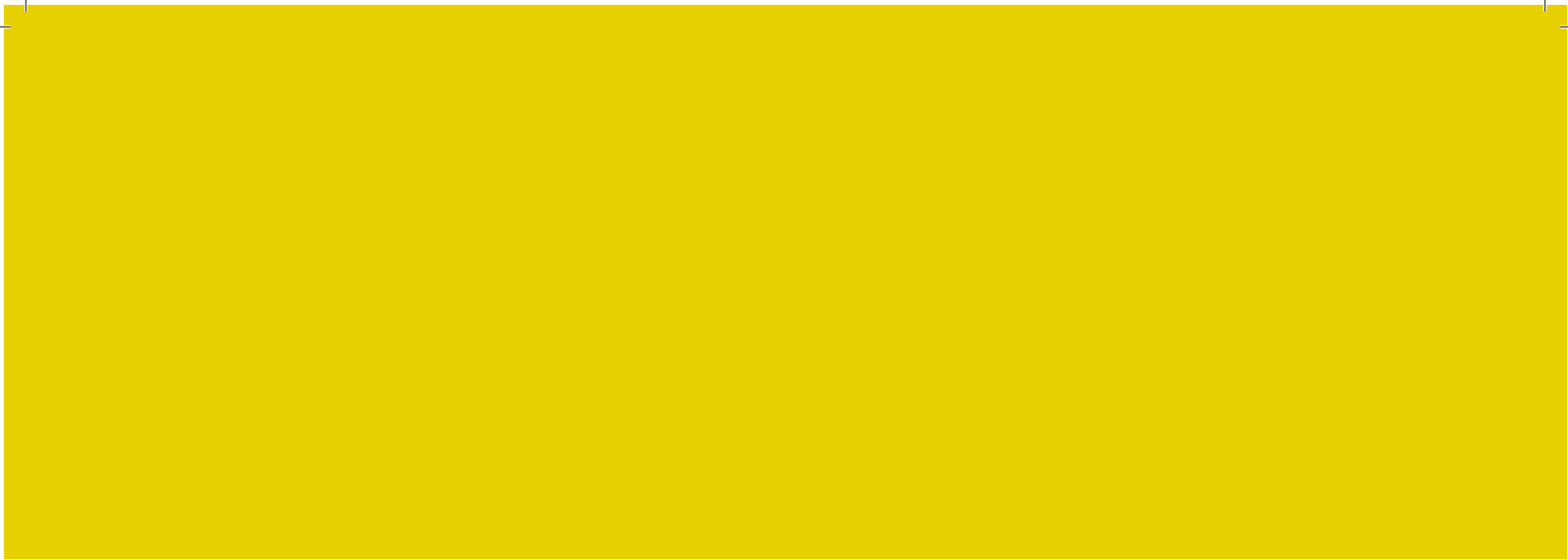
We would like to thank the many organizations and individuals who supported this research and without whom we would not have been able to undertake it.

We spoke to a wide range of analysts, sponsors, administrators, and competitors in the prize sector, who are listed in full in the appendix. We thank them all for their contributions. Twelve organizations that agreed to share their experiences in more depth deserve particular recognition. These organizations arranged interviews with multiple stakeholders within their programs and often hosted members of our team on site visits. We are grateful for their time, knowledge, and insight. These people (and the organization they are currently or formerly associated with) include Robert Benedict, Charlie Brown, Sushmita Ghosh, and Karin Hillhouse (Changemakers), Evie Dennis, Jerry Dickman, Jim Hayes, Yaroslav Hetman, Bill Hybl, Peter Kramer, and Peter Maiurro (El Pomar Foundation), Dotti Irving, Jonathan Taylor, and Ion Trewin (The Man Booker Prize), Paul Gudonis, Dean Kamen, William Miller, Cecilia Neumann, Dia Stolnitz, Wendy Trommer, and Vincent Wilczynski (FIRST), Nyssim Lefford and Anil Rathi (Idea Crossing), Craig Cooney, Aubrey de Grey, Dave Gobel and Kevin Perrott (The Methuselah Foundation), Lord Cairns, Hania Farhan, Hadeel Ibrahim and Nicholas Ulanov (The Mo Ibrahim Foundation), Doug Comstock, Ken Davidian and Andrew Petro (NASA), Jim Bennett, Reed Hastings, Jon Sanders and Steve Swasey (Netflix), Charles Harper, Gary Rosen, Arthur Schwartz, and John M. Templeton, Jr. (The John Templeton Foundation), Justin Cremer, Jan Douglas, Lisa Fleming, Judith Pim, Kenneth Quinn, and Frank Swoboda (The World Food Prize Foundation), and Peter Diamandis, Bard Geesaman, Brent Kocher, Cristin Lindsay, Jaison Morgan and Tom Vander Ark (The X PRIZE Foundation).

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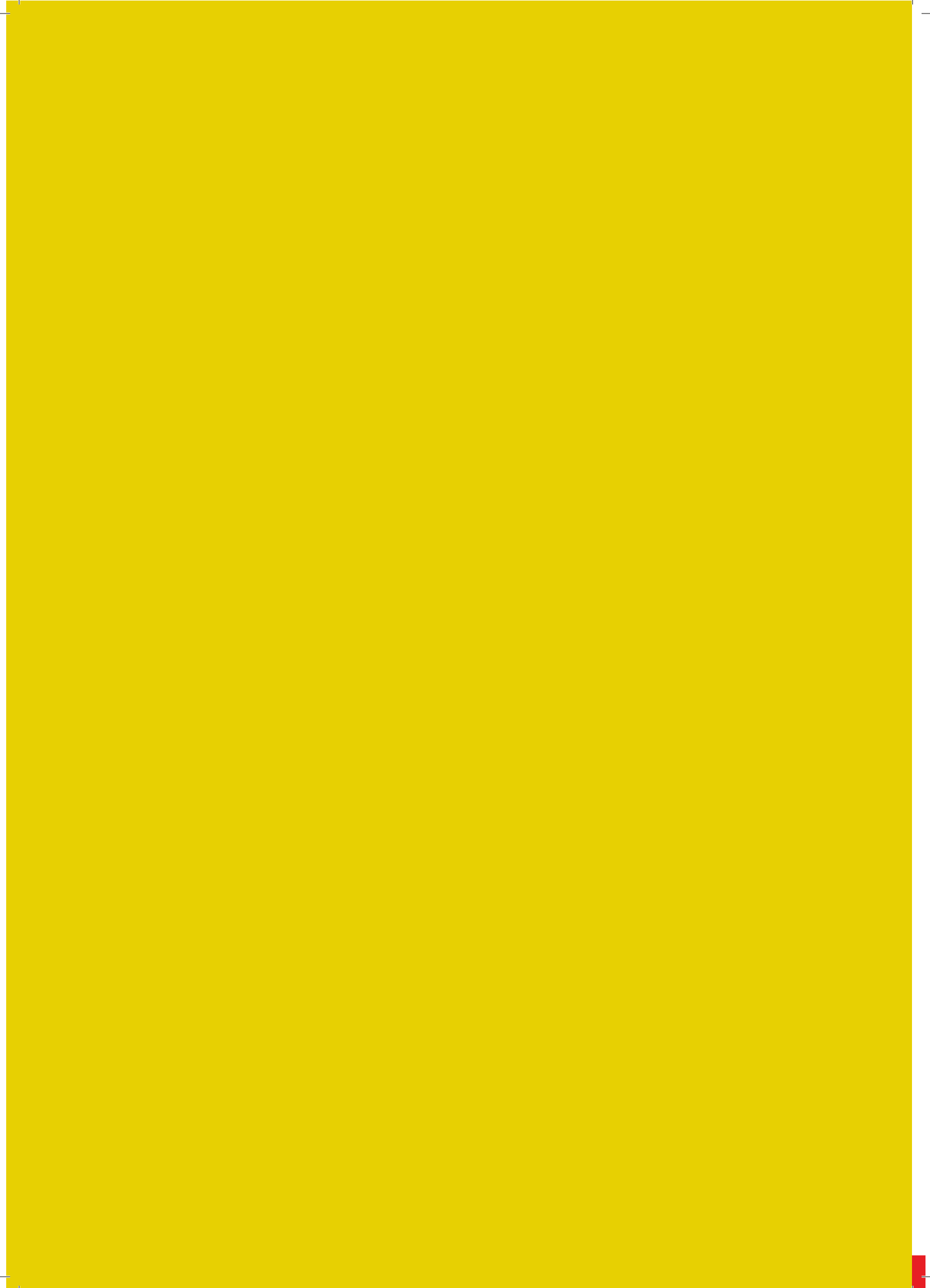
The John Templeton Foundation originally suggested the topic of this report to us, and we are grateful to the Foundation for funding the research.

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Executive summary

Philanthropists and governments have long used prizes to drive innovation and engagement to produce societal benefit, but the use of this powerful instrument is undergoing a renaissance. Philanthropic prizes are growing in number and size, are appearing in new forms, and are being applied to a wider range of societal objectives by a wider range of sponsors than ever before. Not all of the growth has been positive, however, as the many overlapping prizes and growing clutter of the sector attests. In response, current and potential participants are asking when they should use prizes, and how they can develop and deliver effective ones.

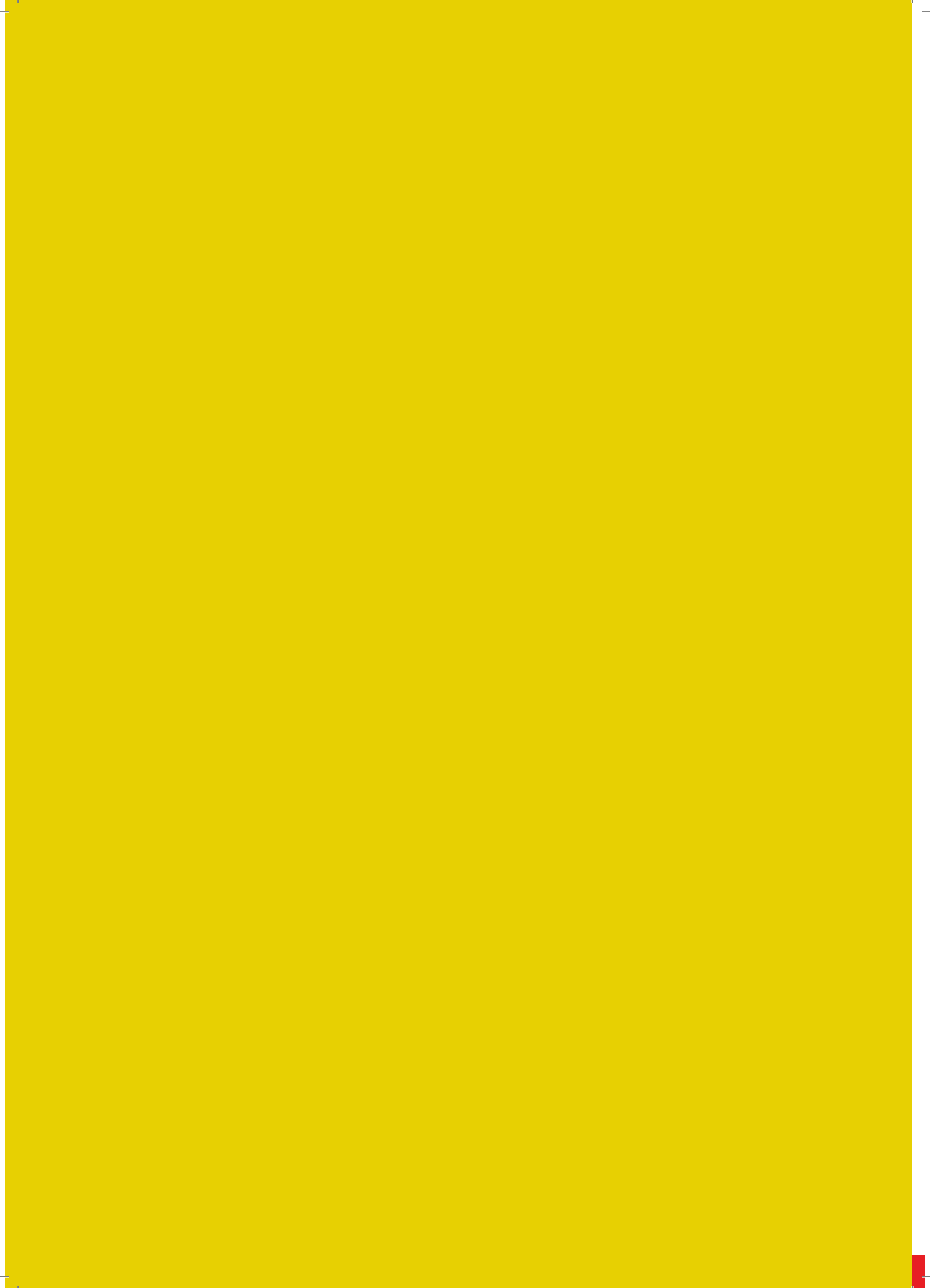
This report addresses these questions by drawing on academic literature, interviews with analysts and practitioners, surveys of prize sponsors and competitors, databases of small and large awards, and case studies of twelve effective prizes to produce lessons from a range of sectors, goals, and prize types. It aims to help improve current prizes and stimulate effective future use by developing a number of simple frameworks and compiling useful lessons for sponsors. While targeting the philanthropic sponsor, we believe these perspectives will also be helpful to governments and corporations considering prizes.

Our research found that prizes are a unique and powerful tool that should be in the basic toolkit of many of today's philanthropists. Their recent renaissance is largely due to a new appreciation for the multiple ways in which they can produce change: not only by identifying new levels of excellence and by encouraging specific innovations, but also by changing wider perceptions, improving the performance of communities of problem-solvers, building the skills of individuals, and mobilizing new talent or capital. These change drivers give prize sponsors compelling opportunities to use the open, competitive, and media-friendly attributes of prizes to stimulate attention and drive innovation in a highly leveraged and result-focused way. Recent prize growth is reinforced by powerful external trends such as the arrival of new philanthropic wealth, different attitudes to shifting risk, interest in open source approaches, and an increasingly networked, media-driven and technology-intensive world. We believe that the outlook for prizes is particularly strong because of the increased interest of philanthropists and the emergence of an industry of prize facilitators that is driving improvements in prize economics and improved practices for managing execution challenges and risks.

Designing and delivering successful prizes is hard work, but a number of promising practices have begun to emerge. First of all, prizes are best used when a philanthropist can match a clear goal with a relatively large number of potential solvers who are willing to absorb some risk, criteria that cover a range of common philanthropic challenges. Then, good prizes will start with a clearly-defined aspiration for societal benefit, which can be translated into specific prize objectives that are significant, motivational, actionable, results-focused, and time-bound. The strategy for achieving these objectives will employ one of at least six prize archetypes, each of which uses a different combination of levers to change problem-solvers' behavior. A good prize will then invest significant resources in its design, specifying the competitor pool, rules, and award attributes that will reinforce the strategy. An effective prize process is at least as important as prize design, reinforcing the strategy as it attracts candidates, manages the competition, celebrates winners, and publicizes the effort. Finally, a good sponsor will invest significant resources in post-prize activities that convert the award's result into longer-term societal impact.

We look forward to continued growth in prize use and further evolution of best practices. We anticipate the continued development of a global "prize industry" that will professionalize the management and support of prizes and make prizes more accessible to organizations with relatively small resources. We expect to see new ways to stimulate and allow collaboration among competitors, better vehicles for funneling developmental capital to competitors, more investment in prize development, and more creative collaboration between the social, private, and public sectors. And we believe that we will continue to see the emergence of new, creative prize types and change levers. In order to facilitate this growth and evolution, we also hope to see continued investment in understanding the field: sector conferences to share best practices and address common challenges, academic research into the underlying economics of prizes and the interplay between competition, innovation and collaboration, and philanthropic investment in the nascent industry.

A prize is an old idea that remains surprisingly powerful today. We believe that leading philanthropists should consider how they can best use prizes as part of their philanthropic portfolio, and should accept the challenge of finding innovative ways to harness the potential of this powerful instrument.





Introduction

Prizes are familiar to everyone. As children, we chase after gold stars and blue ribbons; as adults, we feel a vicarious thrill watching athletes compete for medals. The desire to compete and to celebrate victories—our own and those of others—is part of human psychology. At least since Homer recounted the prizes offered at the funeral games of Patroclus, humans have used prizes to spur achievement and recognize excellence.¹

Some prizes—such as the venerable Nobel Prizes or the recent pop culture phenomenon American Idol—are widely known.² Other prizes, like El Pomar Foundation's Awards for Excellence ("El Pomar Awards"), are prominent only within particular communities, but still exert significant influence. Receiving an award from El Pomar Foundation is not only an honor, but also a mark of distinction that can attract new funding for nonprofits in Colorado.

Achieving an accurate count of the number of extant prizes and awards is probably impossible, given their multiplicity and proliferation into so many corners of culture and society. The standard directory of awards, honors, and prizes lists about 30,000 worldwide,³ but one scholar of prizes recently concluded that "there must be millions of awards, prizes, and honors distributed in the United States each year."⁴ Another researcher described "a kind of cultural frenzy" as new awards inspire other prizes. Among other resulting absurdities, there are now more film awards bestowed each year than there are full-length feature films produced.⁵

At the same time, sponsors are becoming more ambitious, as they increasingly see prizes as a way to benefit society: by encouraging the development of technologies, skills, behaviors, or processes that address basic human needs in areas such as education, health, the

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- 1 Homer, *The Iliad, Book XXIII*, trans. Richard Lattimore, Chicago: University of Chicago Press, 1951. See also Lois V. Hinckley, "Patroclus' Funeral Games and Homer's Character Portrayal," *The Classical Journal*, 1986, Vol. 81, No. 3, pp. 209–221.
 - 2 Claire Atkinson, "'Idol' juggernaut passes \$2.5 billion and hits the gas," *Advertising Age*, January 8, 2007, Vol. 78, No. 2, pp. 1–29.
 - 3 Tara Atterbury, ed., *Awards, Honors & Prizes*, 28th Ed., Gale Cengage, 2008.
 - 4 Joel Best, "Prize Proliferation," *Sociological Forum*, March 2008, Vol. 23, No. 1, p. 6.
 - 5 James English, *The Economy of Prestige: Prizes, Awards, and the Circulation of Cultural Value*, Cambridge: Harvard University Press, 2005, pp. 18, 323.

environment, or security. Sponsors have proposed prizes aimed to induce progress toward societal goals such as ending human trafficking, reducing American dependency on foreign oil, reducing smoking and obesity rates, improving African governance, providing clean water in the developing world, inspiring and educating children about technology, and improving collaboration among nonprofits.

Despite growing interest and investment in philanthropic prizes, many questions remain about their effectiveness at creating societal benefit. Some prizes are at best weak forces for change. Does a medal presented at the end of a career really change behavior? Do new or overlapping prizes dilute the effectiveness of others? Is there any guarantee that a prize for new ideas will stimulate commercialization and widespread adoption critical to improving lives on a large scale? At the same time, some prize sponsors have trouble identifying “best practices in prize giving”, raising the question of whether they—and society at large—are getting the most out of their considerable investment in prizes. Sponsors commonly ask: when is the best time to create or discontinue a prize? What are appropriate objectives for a prize? And what is it that makes a prize effective at achieving them?

In response to this growing interest in philanthropic prizes, and to the number of unresolved issues about how sponsors can and should use them, we sought to answer two primary questions:

■ **When should philanthropists consider using prizes as a means of creating societal benefit?**

■ **How should sponsors develop and deliver effective prizes?**

To answer these questions, we took a close look at the prize sector and related fields including innovation strategy, intellectual property, and incentive and motivation theory. While our focus was the philanthropic use of prizes to achieve societal benefit, we also studied a range of actors—from the public and private sectors—seeking to achieve other goals through similar methods. We found that much of what they are doing applies to philanthropic prizes, and much of what works for philanthropic prizes applies to these other sectors as well.

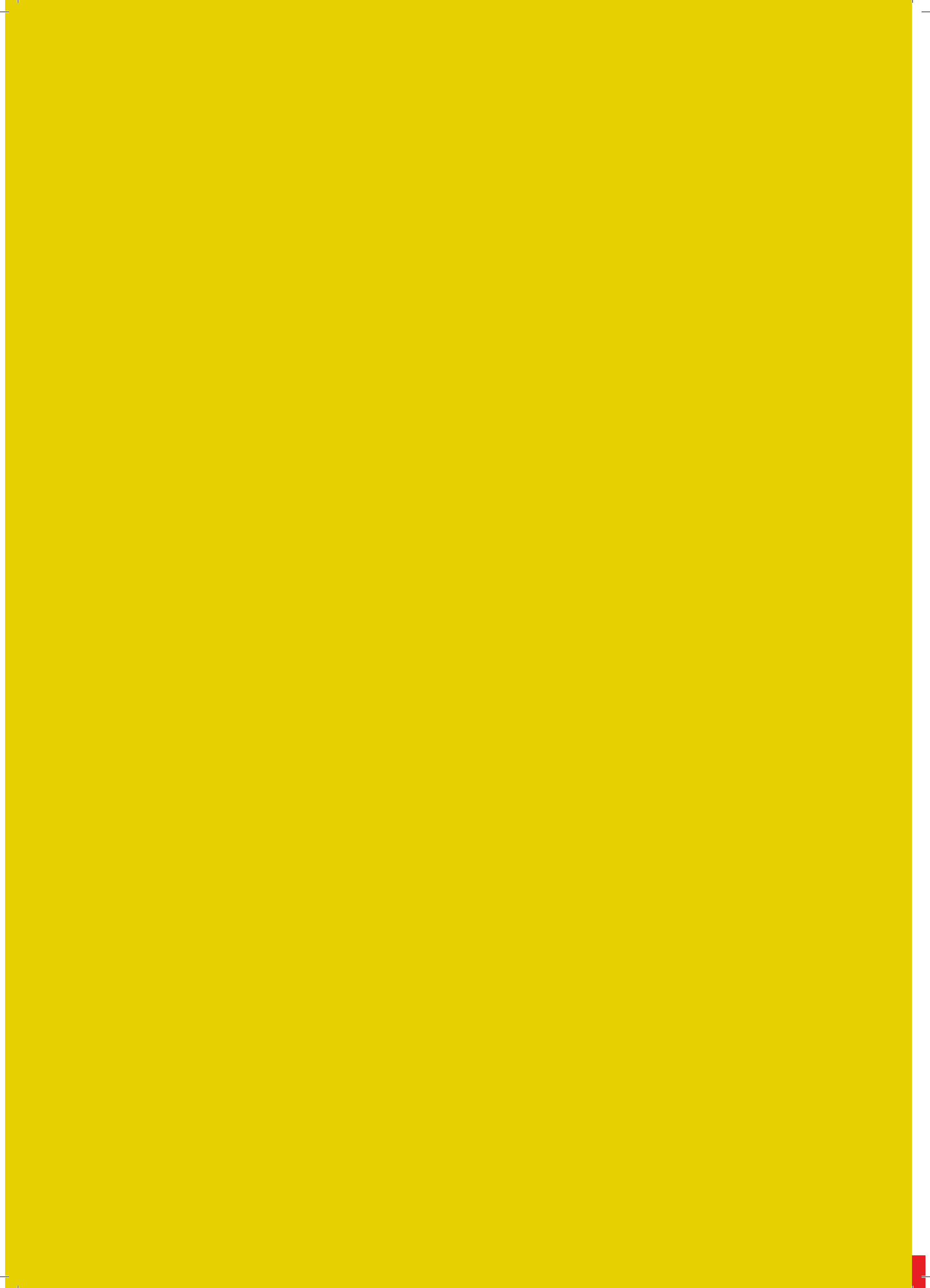
We read broadly in the scholarly literature, interviewed experts in related fields, surveyed prize sponsors and competitors, and compiled a database of 219 large prizes (worth \$100,000 or more), which we analyzed alongside a commercial database of more than 30,000 awards, honors, and prizes. Finally, we met with sponsors and administrators of twelve prizes across the spectrum to discuss how they design, manage, and evaluate prizes (*see Exhibit 1; there are full profiles of each case study in Appendix 1*).

Exhibit 1: Case studies

Prize	Field	Prize type	Sponsor type
Changemakers (portfolio)	Humanitarian	Point solution	Various
El Pomar Awards	Humanitarian	Network	Foundation
Man Booker Prize	Literature	Exemplar	Corporate
FIRST Robotics Competition	Technology	Participation	Foundation
Idea Crossing (portfolio)	Multiple	Point solution	Various
Methuselah Mouse Prize	Science	Point solution	Foundation
Mo Ibrahim Prize	Government	Exemplar	Foundation
NASA Centennial Challenges	Aviation/space	Point solution	Government
Netflix Prize	IT	Point solution	Corporate
Templeton Prize	Spirituality	Exemplar	Foundation
World Food Prize	Environment	Exemplar	Foundation
X PRIZES (portfolio)	Multiple	Point solution Market stimulation Network	Various

Source: Literature review; interviews

We argue that the unique attributes of prizes make them well-suited to achieving a number of philanthropic goals and they should be in the basic toolkit of many of today’s philanthropists. We also argue that designing and awarding prizes can be broken down into clear steps; the practices of our case study subjects (and some others we touch on but did not study in depth) offer valuable lessons on how to create and bestow an effective prize. Overall, we are optimistic that intelligent investment in prizes can create more and more distinctive societal benefit, and we believe that a growing “prize sector” and attendant infrastructure will increase this impact and make prizes a viable option for more sponsors.





The potential of prizes to achieve societal benefit

Prizes have great power to benefit society. They can be the spur that produces a revolutionary solution. In 1714, the British Parliament established the Longitude Prize, which inspired the clockmaker John Harrison to develop the marine chronometer, an instrument that solved the problem of measuring longitude at sea.⁶ Prizes can also change a group's behavior. *The Biggest Loser*, a “reality TV” show that gives \$250,000 to the contestant who loses the highest percentage of starting body weight, has enlisted thousands of viewers in a group competition to lose collectively more than a million pounds.⁷ Or prizes can set the standard for an entire field. T.S. Eliot famously grumbled that winning the Nobel was like “a ticket to one's own funeral,” but universities regularly measure their influence and prestige by the number of winners on their faculty.⁸ It is hard to imagine a grant or service contract achieving similarly diverse kinds of impact.

In this chapter we examine prizes' potential as philanthropic instruments: the recent surge in their use, the underlying sources of their power to produce benefit for society, and the reasons why prizes are likely to continue to grow in use and efficacy as the “prize industry” develops.

A celebrated history; a recent renaissance

Prizes have a long history that includes many examples of award-driven change. For centuries, they were a core instrument of sovereigns, royal societies, and private benefactors alike who sought to solve pressing societal problems and idiosyncratic technical challenges. Famous examples (in addition to the Longitude Prize) include the Food Preservation Prize—one of several prizes established in Revolutionary and Napoleonic France—designed to help supply the army. The winner established the basic method still in use today for canned foods.⁹ Similar

6 Dava Sobel, *Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time*, New York: Walker & Co., 1995.

7 Elizabeth Weil, “Big Losers, but Can Viewers Keep Pace,” *New York Times*, October 18, 2007; Bob Trott, “Losing One Million Pounds, One City at a Time,” *MSN Health & Fitness*, available at <http://health.msn.com/weight-loss/articlepage.aspx?cp-documentid=100188465>.

8 Dean Keith Simonton, *Greatness: Who Makes History and Why*, New York: Guilford Press, 1994, 57.

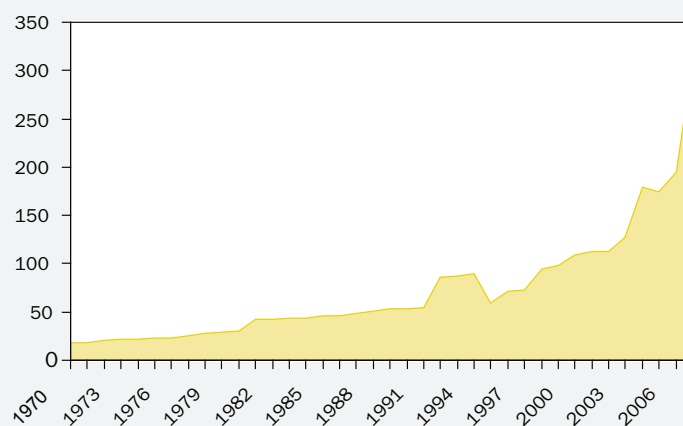
9 James Burke, *Connections*, New York: Little & Brown, 1995, pp. 234–35.

awards have been sponsored privately, for instance the Orteig Prize for the first nonstop flight between New York and Paris (claimed by Charles Lindbergh). The most prestigious awards, such as the Nobel Prizes, have demonstrated their continuing hold on the public's imagination.¹⁰ But in the modern era, as patents and grants have continued to mature, prizes became to some extent peripheral instruments for encouraging innovation.

Today, however, prizes are booming once again. Both their value and their absolute numbers have risen sharply. We tracked 219 current prizes with award values of more than \$100,000; over the last 35 years, the total value of that group has increased more than 15-fold (see Exhibit 2).

Exhibit 2: Aggregate prize purse, prizes over \$100,000

US Dollars, millions



Source: McKinsey dataset of 219 prizes worth \$100,000 or more

More than 60 of these prizes have debuted since 2000, representing almost \$250 million in new prize money. And the total funds available from large prizes have more than tripled over the last decade to surpass \$375 million.¹¹ Even-larger prizes may be on the way: several political leaders have recently proposed massive inducement prizes ranging from a \$300 million award for the creation of high performance car batteries to a staggering \$80 billion pool of prize money to encourage the development of new drugs.¹² Many prizes are not captured in the databases covering the prize sector, nor are management costs and volunteer time factored in. Taking all this into account, we judge that the total prize sector could already be worth as much as \$1 to 2 billion.

The ambition of prize sponsors is growing at the same time. More and more, they are applying prizes to problems and opportunities that (in their opinion) have not responded well to instruments such as advocacy and grants. These new prizes seek to effect greater and more complex change than the traditional goal of recognizing intellectual achievement or encouraging a specific technological breakthrough. Sponsors also seek to address challenging problems such as group behavior, skill-building, and market stimulation.

10 "Win-win," *Economist*, September 8, 2008.

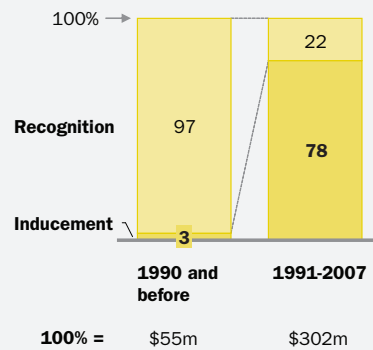
11 McKinsey database of 219 "big purse" (>\$100k) prizes.

12 United States Cong. House. *Medical Innovation Prize Act of 2007*. 110th Cong., 1st Sess. S.2210. Washington: GPO, 2007.

This renewed emphasis on problem-solving is apparent in the evolving makeup of the prize sector. Before 1991, 97% of the value of the big-prize purses that we analyzed was dedicated to awards that recognize prior achievement, such as the Nobel and Pulitzer Prizes. But since 1991, 78% of new prize money in this data set has been dedicated to inducement-style prizes that focus on achieving a specific, future goal (see Exhibit 3).

Exhibit 3: Growth in inducement prizes

Percentage of announces purses

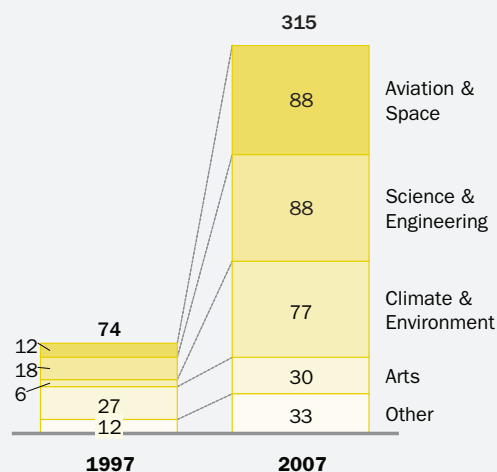


Note: No data for 2 prizes
Source: McKinsey dataset of 219 prizes worth \$100,000 or more

In parallel, prizes are shifting away from traditional arenas such as the arts, which only ten years ago claimed nearly one-third of the large prize purses that we tracked. Today, the arts and humanities-oriented prizes make up less than 10% of the total. By contrast, prize purses focused on climate and the environment, science and engineering, and aviation and space have increased seven-fold—and most of that new money goes to those who solve defined problems (see Exhibit 4).

Exhibit 4: Large prize purses by sector

US Dollars, millions

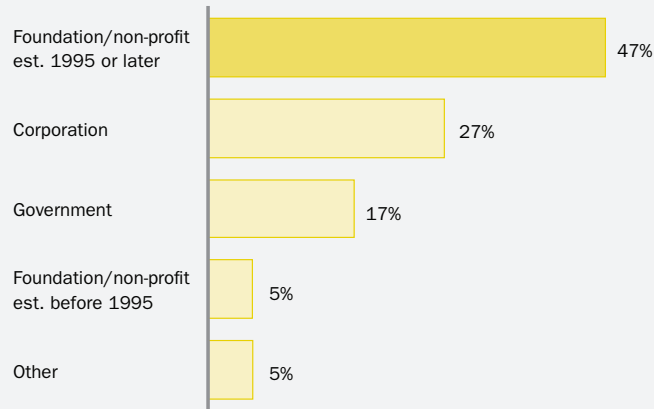


Source: McKinsey dataset of 219 prizes worth \$100,000 or more

This refocusing is partly driven by the changing make-up of large prize sponsors. Corporations and new philanthropists have provided more than two thirds of total prize capital since 2000 and are pursuing arenas closely linked to their commercial interests or individual philanthropic passions (see *Exhibit 5*).

Exhibit 5: Sources of prize capital since 2000

% of new prize capital*



* May not add to 100% due to rounding
 Source: McKinsey dataset of 219 prizes worth \$100,000 or more

Finally, sponsors are increasingly innovative in the types of prizes they create and bestow. Prizes used to be easy to categorize into one of two major types—those that pay for a specific result (“incentive” prizes) and those that recognize achievement more generally (“recognition” prizes, or “awards”).¹³ But prizes such as Ashoka’s Changemakers initiative (“Changemakers”) or the FIRST Robotics competition are blurring this boundary. The most successful create a demonstration effect for philanthropists looking for compelling new ways that prizes can produce societal benefit. The high-profile success of the Ansari X PRIZE, for example—which went further than a traditional incentive prize and aimed to stimulate a market in spaceflight—has “provided a focal point for [prize] innovation,” in the words of one observer, and has clearly been emulated by others.¹⁴ We believe that at least six different prize types have emerged, each with unique strengths for driving change. This largely welcome development provides exciting options for the sponsors of prizes, but also complicates the challenge of designing effective prizes.

In sum, a broader range of sponsors is using larger prizes more often—and in more innovative ways—to address a wider array of objectives. Many factors have contributed to this change, including the arrival of new wealth outside of established philanthropic channels, a frustration with conventional approaches to change, different approaches to allocating risk in the development of new ideas and technologies, greater global interconnectedness through the Internet, and an increasingly multi-media and technology intensive world. Prizes have several distinctive attributes allowing them to take advantage of all these trends:

13 See e.g., Thomas Kalil, “Prizes for Technological Innovation,” Brookings Institution Discussion Paper, 2006.

14 Interview, Lee Stein, December 11, 2008.

Expressiveness: Prizes embody aspirations, priorities, values, and a commitment to desired changes. Well designed prizes carry a strong element of theater that makes them newsworthy and media friendly. This messaging and brand-building potential is attractive to corporations looking to burnish their image or wealthy donors seeking to signal their arrival. Competitors for the prize benefit, too—even those who don't win. A high profile competition helps participants attract sponsors willing to finance their efforts, and stimulates investment in the field. As Peter Diamandis, the Chairman and CEO of the X PRIZE Foundation, observed to us, this means at the extreme that prizes can produce a “paradigm change”: they “can change what people believe is possible, which is the first step to any innovation.”¹⁵

Flexibility: At their best, prizes inspire people and teams to push their efforts beyond conventional limits. Freed from an overreliance on narrowly commercial incentives, competitors can turn their efforts to addressing issues that the market may overlook. Prizes also add additional layers of motivation beyond money, such as prestige and intellectual curiosity. In an era when more and more people want to see solutions to societal problems that have proved resistant to pure market solutions, prizes—and their flexibility to address a range of issues—are increasingly valuable for the social entrepreneurs who benefit from prize money and for prize sponsors seeking change.

Openness: Prizes attract diverse groups of experts, practitioners, and laypeople—regardless of formal credentials—to attempt to solve difficult problems. The citizen-inventor working out of a garage is a cherished part of prize lore. Technology may make this iconic figure more common. Low-cost computing power, the research capabilities of the Internet, and the many ways the information technology enables cheap and easy collaboration are working together to dramatically expand the pool of potential solvers and lower the cost of attempting or recognizing solutions.

Success-contingent rewards: Prizes shift risk from prize sponsors to competitors (or their sponsors) by only paying for successful achievement of a defined goal. No success, no prize. Peter Diamandis calls this the “efficiency” of prizes: in a way, they are “fixed cost science or engineering.”¹⁶ For philanthropists, government departments or corporations looking to improve return on investment, in many situations this contingent rather than guaranteed payout can be a much more attractive proposition than a conventional grant or contract. Likewise, for competitors, success-contingent rewards combine with the theater of a well-staged competition to create an urgency that delivers previously unachievable levels of focus and creativity, with real innovation as the ultimate result.

These distinctive attributes of prizes and the external trends that reinforce them help explain why prizes are becoming so popular. But their intrinsic value is only part of the story. More valuable still is the way these attributes combine to form powerful change levers that can transform people's actions and perceptions. This renewed and strengthened ability to affect positive change is perhaps the fundamental reason for the prize renaissance of recent years.

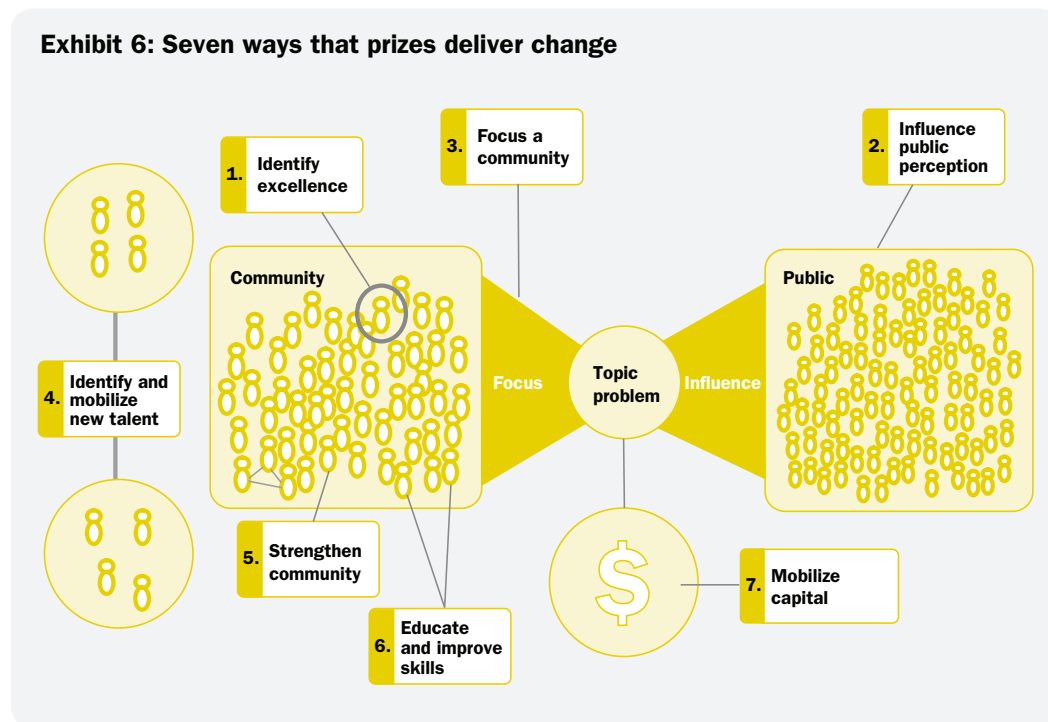
15 Interview, Peter Diamandis, December 5, 2008.

16 Interview, Peter Diamandis, December 5, 2008.

A powerful tool for change

Prizes achieve the change their sponsors seek by influencing society or specific communities and individuals in as many as seven different ways (see Exhibit 6):

- Identifying excellence
- Influencing public perception
- Focusing communities on specific problems
- Mobilizing new talent
- Strengthening problem-solving communities
- Educating individuals
- Mobilizing capital



We believe that these seven levers, used correctly (and, frequently, in combination), give prizes great power to produce positive change.

1 Identifying excellence

Identifying excellence is one of the oldest and most recognized functions of prizes. Indeed, the ancient Greeks identified the celebration and cultivation of *arête* (“virtue” or “excellence”) as the essential purpose of the Olympic Games.¹⁷ Prizes highlight and elevate superlative behaviors, ideas, and achievements in order to motivate, guide, and inspire others. Identifying excellence remains the cornerstone of many prizes—the essence of their power to produce change. In our survey of 48 large-prize sponsors, out of all the change levers “identifying excellence” was cited most often—by nearly 80% of respondents—as an essential attribute of their prizes.

17 Lincoln Barnett, “All for Arete,” *Sports Illustrated*, November 19, 1956.

By identifying excellence, prizes can help shape goals, highlight exemplars, and create a powerful motivation to excel. Traditional prizes, such as the Nobels, do so by identifying those who “have conferred the greatest benefit to mankind” in well-established disciplines like chemistry, physics, economics, medicine, or literature. Others define excellence in more specialized areas, such as the Mo Ibrahim Foundation’s annual Prize for Achievement in African Leadership, or the Methuselah Mouse Prize (“Mprize”) for extending lifespan in mice.

Regardless of the field or problem, a prize’s ability to identify excellence credibly can be critical to its ability to tap into the six other sources of change. Consistently evocative (or at least respected) definitions of excellence enhance a prize’s prestige in ways that make it easier to mobilize talent and capital, to influence public perception, and to strengthen, educate, and focus communities.

2 Influencing public perception

Prizes offer sponsors a powerful loudspeaker. As Kevin Bolduc of the Center for Effective Philanthropy has noted, prizes can be “successful in part because they are big and loud.”¹⁸ For many philanthropists, the ability of prizes to grab attention and influence public perception of a topic or discipline is deeply attractive. There are many examples of well-crafted prizes, backed by a relatively small amount of capital, establishing the importance of a field, catalyzing market demand, shaping public debate, and even changing the image of sponsors.

A number of prizes have helped to establish the importance and legitimacy of a field. In his article, “Prize Proliferation,” sociologist Joel Best argues that much of the recent prize explosion is owing to the sub-segmenting of “social worlds” which turn to prizes to “justify their existence, both to their members and to outsiders” and assert “that the contributions of the field are now worthy of public acclaim.”¹⁹ The Pulitzer Prizes are a classic example, resulting from their founder’s concern and interest “in the progress and elevation of journalism.” The Pulitzers, first awarded in 1917, helped restore credibility to a newspaper industry discredited by sensational and irresponsible “yellow journalism” at the turn of the century.²⁰

Prizes can also catalyze market demand. The Man Booker Prize (“Booker Prize”) was established “to encourage the wider reading of the very best in fiction across the UK and the Commonwealth,” and has achieved that end. The demand effects of the Booker Prize can be substantial, with some winners enjoying a six-fold increase in book sales.²¹ The X PRIZE Foundation, in turn, designs some prizes specifically to alter the supply and demand dynamics of particular markets, seeking to drive down supply barriers while generating extensive press and media attention that helps expose latent public demand. Perhaps most famously, the Ansari X PRIZE helped catalyze the development of the personal space travel market. Today, more than 300 people have signed up for \$200,000 trips aboard SpaceShipTwo, the commercial successor to the winning entrant of the Ansari X PRIZE for Suborbital Flight.²²

Prizes can also make powerful public statements of political or social commitment. The Nobel Committee has famously (and at times controversially) used its Peace Prize to influence a variety of political, social, cultural, and intellectual debates, with the express intent of supporting particular individuals or causes. Many other prizes are geared to do the same, from

18 Interview, Kevin Bolduc, July 25, 2008.

19 Joel Best, “Prize Proliferation,” p. 15, quoting William J. Goode.

20 Seymour Topping, “Forward,” *Who’s Who of Pulitzer Prize Winners*, Phoenix: The Oryx Press, 1998.

21 Sylvia Brownrigg, “Making Book on the Booker,” *Salon*, October 29, 1998.

22 “Virgin Galactic unveils model of SpaceShipTwo,” *New Scientist*, January 23, 2008.

the Magsaysay Awards in Asia (honoring “persons and organizations as exemplars of selfless leadership, whose lives and work make Asia truly a better place”) to the Bradley Prize in the United States (given annually to individuals who “have made contributions of excellence” consistent with values including “limited, competent government,” “democratic capitalism,” and “a vigorous defense, at home and abroad, of American ideas and institutions”). Each of these prizes has at times attracted loud criticism, but all are still far more effective at building support for their causes than any number of advertisements or editorials.

Finally, prizes can shape the public’s perception of sponsors. The Nobel Prizes today represent profoundly humanist ideals, fulfilling the ambitions of Alfred Nobel, who—some historians argue—established the prizes to avoid being remembered as a “merchant of death” for his invention of dynamite and involvement in the arms industry.²³ Corporations engage in philanthropy for a variety of reasons, one of which is to communicate their corporate values and burnish their image. Typically, they seek philanthropic opportunities that maximize potential benefit for a relatively small investment, and that can make an impact in a relatively short time. Prizes are thus especially attractive means for doing so. Indeed, corporations fund almost a third of the big-purse prizes that we tracked, such as the prizes sponsored by Progressive Insurance and Google.²⁴

3 Focus a community

Prizes can be particularly effective at shaping the agendas and behavior of groups and guiding (directly or indirectly) the activity of individuals, institutions, and even whole disciplines. The most obvious manifestation is when a prize focuses a problem-solving community on a specific, well-defined challenge. This was the core intent of historic prizes like France’s Food Preservation Prize and Britain’s Longitude Prize, but there are many more recent examples. The \$1 million Netflix Prize, for instance, challenges data mining programmers to improve the company’s online movie recommendation algorithm by 10%. Partly by releasing proprietary data of interest to data miners, Netflix has attracted more than 34,000 entrants (many of whom have spent significant hours on the task) and is now within reach of its target. Ashoka’s Changemakers program seeks a similar objective in a different way, using an open source “discovery framework” to frame a set of social problems, such as access to water or sanitation, focusing the problem-solving efforts of a growing community of social entrepreneurs.

Other prizes are less concerned with specific problems than with setting the broad direction of a discipline’s or a community’s efforts. For instance, the El Pomar Awards are designed to encourage organizational excellence among Colorado nonprofits by recognizing effective fiscal and organizational skills—as demonstrated by an engaged board, a balanced budget, a vibrant volunteer community, and so on. Similarly, by highlighting the specific research interests and achievements of individuals in a broader field, the Nobel Prizes have—to quote Michael Sohlman of the Nobel Foundation—“in a number of cases, strengthened the direction” of those research areas.²⁵

While some of the most famous prizes owe their fame to their having successfully focused a community, this approach is not without risk. A number of large prizes created to produce focus only managed to generate a small amount of activity. Indeed, one of the largest prizes

23 John Bankston, *Alfred Nobel and the Story of the Nobel Prize*, New York: Mitchell Lane Publishers, 2003.

24 McKinsey database of 219 “big purse” (>\$100k) prizes.

25 Interview, Michael Sohlman, August 26, 2008.

ever announced—the \$50 million Space Prize sponsored by Bigelow Enterprises—failed to capture the attention of the space research and development community and now no longer exists. High-value prizes also sometimes distract individuals from more important activities. As a National Academy of Engineering study pointed out, large prizes of this type could “create a bandwagon effect, drawing effort to one particular challenge to the neglect of potentially more important or urgent challenges.”²⁶

4 Identify and mobilize new talent

A core power of prizes derives from their openness: their ability to attract diverse talent, generate unexpected approaches, and reveal unusual perspectives in the face of a problem or challenge. This can take the form of “cross-disciplinary solutions” that involve collaboration among unlikely partners, or even of “crowd-sourcing genius,” the attraction of talented individuals who are outside established systems of innovation.²⁷ Compared with other incentive instruments such as grants and scholarships, prizes reduce bureaucratic barriers to entry for participants and need not screen for conventional qualifications. In the words of Thomas Kalil, a former Deputy Assistant to President Clinton for Technology and Economic Policy, prizes allow sponsors, “to engage a set of innovators [that they] would not get to through a traditional grant-making or procurement process.”²⁸

The ability of prizes to mobilize new talent is an important driver of innovation. The history of science is replete with instances of outsiders proposing novel and ultimately revolutionary solutions to problems that had vexed insiders. A recent Harvard Business School report, *The Value of Openness in Scientific Problem Solving*, found that “the further the problem was from the solver’s expertise, the more likely they were to solve it.”²⁹

There are many examples of prizes attracting unexpected yet effective talent. NASA’s Astronaut Glove Challenge was won by Peter Homer, at the time an unemployed engineer.³⁰ At InnoCentive, an Internet-based problem-solving platform, the winners of one challenge in polymer design included a drug delivery system engineer, an aerospace engineer, a veterinarian, and the owner of a small agriculture business.³¹ And despite Netflix’s focus on the existing data mining community, a psychologist with the screen name “just a guy in a garage” recently cracked the top ten leaders in contention for the company’s prize.

Prizes’ ability to mobilize new talent is uniquely suited to the Internet age, a period of open source information and wide open innovation that makes it easier for prizes to reach unexpected places and people. Google hosts an annual “Code Jam” in which student and professional programmers from around the world solve “complex algorithmic challenges” in a series of on-line rounds. InnoCentive has taken this approach even further to create a prize-driven innovation platform, posting ideation and technical problems on its website linked to prizes ranging from \$5,000 to \$1,000,000. Hosting more than 1,000 challenges to date, InnoCentive has amassed a network of more than 165,000 potential solvers, most of whom are individuals that foundations and companies would not have been able to find using

26 National Academies of Engineering, *Concerning Federally Sponsored Inducement Prizes in Engineering and Science*, Washington, D.C.: National Academies Press, 1999.

27 Interview, Peter Diamandis, December 5, 2008.

28 Interview, Thomas Kalil, July 9, 2008.

29 Karim R. Lakhani, et al., “The Value of Openness in Scientific Problem Solving,” Harvard Business School working paper, 2007, p.9.

30 Tariq Malik, “Homemade Space Glove Wins NASA Contest,” *Space.com*, May 4, 2007.

31 Randy Burge, “Using Crowd Power for R&D,” *Wired*, July 13, 2007.

traditional approaches. In fact, Alph Bingham, one of InnoCentive's founders, believes that "a significant percentage of people—who solve the challenge—you wouldn't hire, given their credentials."³² Nevertheless, their work has led to the award of more than \$3 million in prizes for solutions for clients ranging from Eli Lilly to the Rockefeller Foundation to the International AIDS Vaccine Initiative.

5 Strengthen community

It is easy to focus excessively on the competitive element of prizes—on who wins the award—and ignore their ability to bring together powerful networks that enable members to share ideas, approaches, and best practices. More than two-thirds of the prize sponsors we surveyed see prizes as means for strengthening the problem-solving community—not only to help solve a specific problem, but also to bring ideas and people together to encourage future collaboration and innovation. In many cases, prizes' greatest societal benefit derives not from the specific achievements that win the awards but rather from the conferences, judging panels, and competitor networks that follow as an integral part of the prize process.

El Pomar Foundation's "Awards for Excellence," for instance, were designed in part to realize the foundation's belief that "prizes are best at strengthening community." Its prize program strengthens the Colorado non-profit community not only through cash awards, but also by running conferences in the far corners of the state to educate and identify less well known nonprofits, and by bringing together the state's non-profit community annually for a large televised awards ceremony. Its Selection Commission is filled with non-profit, business, and community leaders who often subsequently collaborate on other projects,

Similarly, more than 2,300 of America's top K-12th grade teachers, principals, and specialists have won the prestigious \$25,000 Milken Educator Award, making them members of the Milken Educator Network. The award program, started in 1985, strengthens communities at multiple levels. Each class of Milken Educators is brought together at the annual Milken National Education Conference, a forum to share ideas and build relationships with other leading educators and policy makers, as well as influential leaders from business and the community. As members of the Milken Educator Network, they are "given a voice [and] frequently invited to join state committees [or] national commissions, giving them an opportunity to have influence far beyond the classroom," says Dr. Jane Foley of the Milken Family Foundation.³³

The very structure of prizes provides opportunities for sponsors to strengthen communities. Prize winners share a common experience and can band together as a community of influence. As Nicholas Ulanov of the Mo Ibrahim Foundation explains, this is part of the "transformational component of prizes." The Foundation's Ibrahim Prize seeks to "empower winners to create an active group among themselves, since these types of communities can have great moral suasion and political influence."³⁴ In turn, the prize process often links up stakeholders who want access to each other (e.g., participants and sponsors). The Internet is strengthening the ability of prizes to build communities. Ashoka uses event-based social networking tools to connect competitors and social entrepreneurs worldwide. The Netflix Prize online forum has more than 7,000 posts and enables people to help each other and share ideas and solutions. And InnoCentive is rolling out a suite of Web 2.0 tools to connect problem solvers and enable closer collaboration.

32 Interview, Alph Bingham, June 15, 2008.

33 Interview, Jane Foley, August 7, 2007.

34 Interview, Nicholas Ulanov, August 19, 2008.

6 Educate and improve skills

Prizes often educate the public and improve the skills of participants, welcome byproducts of the competitive process. Some sponsors harness this power to design prizes for which the process is at least as important as the outcome; for these prizes, developing skills is itself a principal goal of the program. This is an under-utilized lever: although many prizes have learning or skill-building elements, few prize sponsors see this as an area of focus. Indeed, only 35% of prize sponsors we surveyed actively sought to educate and improve skills through their program.

Nonetheless, our review found good examples of prizes oriented around educating and improving skills. Rather than seeking particular solutions, these prizes encourage mass participation and seek to shape the life trajectory and commitments of individual participants.

The FIRST Robotics Competition is a national high school “sport of the mind,” with the ambitious vision “to transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology heroes.” The competition gives teams six weeks to build a robot from a standard kit of parts in order to compete in different robotics challenges. Teams receive awards for “excellence in design, demonstrated team spirit, gracious professionalism and the ability to overcome obstacles.” Participation is high, with 175,000 students, 16,000 robots, 53,000 mentors, and 33,000 event volunteers projected to take part in all of FIRST’s K-12 programs from 2008/2009. The effect of FIRST Robotics on these participants is equally impressive: a study commissioned by the organization found that team members were three times more likely than peers from similar backgrounds to go on to major in engineering, and twice as likely to perform community service.³⁵

Although FIRST Robotics’ success is exceptional, its model is more familiar than some might recognize. Many competitions that involve young participants—from the national Academic Decathlon scholastic competition to the worldwide creative problem-solving challenges of Odyssey of the Mind—actively seek to educate participants and prize-winners alike. The same model could also be seen in the now-defunct Yale-Goldman Sachs Nonprofit Business Plan Competition, in which participants were coached during the competition, enabling them to learn valuable lessons regardless of the formal outcome.

7 Mobilize capital

Finally, prizes can provide valuable leverage for a sponsor’s investment by mobilizing further financial or intellectual capital in support of a solution. This leverage takes two principal forms. First, by shifting risk from sponsors to participants, prizes attract investments of capital and time from motivated competitors. Second, when prizes produce vetted solutions they can attract further investment in a particular field.

The Ansari X PRIZE for Suborbital Flight illustrates the first phenomenon. A case study of the Ansari X PRIZE reported that competitors collectively spent more than \$100 million in pursuit of a \$10 million award. While few prizes can mirror that level of success, the same effect is apparent in other cases. The NASA Centennial Challenge competitors working to develop lunar landers, regolith excavators, and astronaut gloves commit their own time and assets to pursue prizes whose value typically represents “about one-third of the amount [that] it takes to win.”³⁶

35 Alan Melchior, Faye Cohen, Tracy Cutter, and Thomas Leavitt, “More than Robots: An Evaluation of the FIRST Robotics Competition Participant and Institutional Impacts,” Brandeis University, 2005, available at http://www.usfirst.org/uploadedFiles/Who/Impact/Brandeis_Studies/FRC_eval_finalrpt.pdf.

36 Interview, Ken Davidian, August 2, 2008.

And prizes can attract intellectual capital as well: at Netflix, the team that won its Progress Prize for best incremental improvement in 2007 was from AT&T Labs and drew on that institution's world-class infrastructure. Of course, AT&T will benefit from the winning research, but Netflix also benefits from the use of AT&T's resources to create an innovation that might not have existed without the competition.

Given the often high costs of participation and slim likelihood of success, it may seem irrational for competitors to spend so much time and money on speculative awards. But many factors beyond money motivate aspiring innovators. First, as Peter Diamandis, Chairman and founder of the X PRIZE Foundation observed, prize competitors are typically confident and risk-loving individuals; hence they tend to systematically overestimate their chances of winning.³⁷ Indeed, many of the participants that we interviewed were absolutely convinced they were going to win, if not this year, then surely the next. Second, prizes often signal a potential market that competitors might capitalize on if their ideas are part of an eventual commercial offering. Many of the initial competitors in the Ansari X PRIZE are now part of the burgeoning personal space travel market. Third, many competitors are motivated for intrinsic reasons: the opportunity to compete, to solve a difficult problem, to learn, to develop a network of like-minded inventors, or simply to be a part of history. Finally, the recognition accompanying a prize can be very valuable in itself. For the winners of the Goldcorp Challenge—which focused on finding new veins of gold in an old mine—the \$575,000 in prize money barely covered the cost of the project. But the publicity impact was enormous. In the words of winner Nick Archibald, “it would have taken [our company] years to get the recognition in North America that this [single] project gave us overnight.”³⁸

Of equal interest to philanthropists is the way that prizes can jump-start the flow of capital to a solution by acting as a vetting mechanism. Ashoka's Changemakers initiative, for instance, is in some ways an “idea factory” in which social entrepreneurs develop concepts that outlive and transcend the competition itself. Changemakers judges are also potential investors, so by requiring participants to post ideas publicly and by selecting a relatively large finalist class, Changemakers can help match participants to new funding, essentially building a marketplace for innovation in an issue-area in just a few months. El Pomar Foundation, in turn, sees its prize competition partly as a screen for identifying and strengthening promising new nonprofits in the state of Colorado, with whom the foundation can develop a long-term grant-giving relationship. And of course there is the interesting case of the Methuselah Mouse Prize, a competition focused on new methods of slowing or reversing the damage of the aging process, which is raising much of its prize capital *during* the competition—already over \$4 million from an Internet-enabled network of supporters.

37 Interview, Peter Diamandis, August 26, 2008.

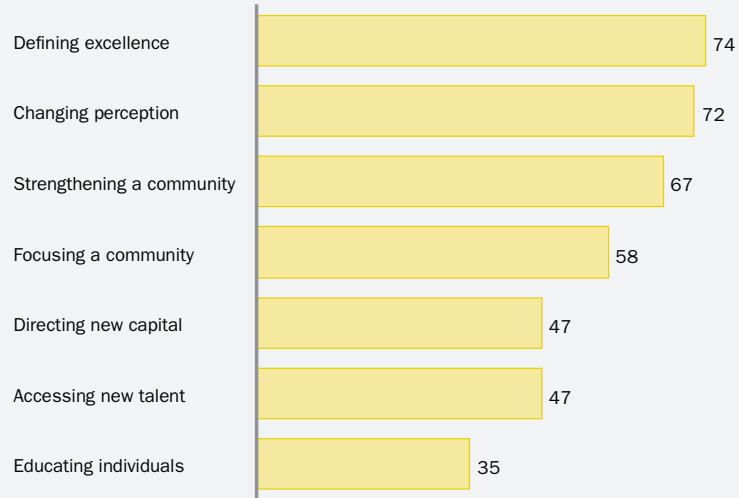
38 Quoted in Linda Tischler, “He Struck Gold on the Net (Really),” *Fast Company*, May, 2002.

* * *

During our research, we surveyed 48 sponsors of big-purse prizes in order to understand which of these seven change levers they were employing and with what success (see *Exhibit 7*).

Exhibit 7: Has your prize been somewhat or significantly successful...

Percent (100% = 48 responses)



Source: McKinsey survey of organizations awarding prizes over \$50,000

Perhaps not surprisingly, most felt that their prizes had been most successful at setting standards of excellence and influencing perceptions of a field—the chief purposes of many long-established prizes like the Nobels. The respondents felt that they had less success with some of the more creative applications of prizes, such as mobilizing unusual sources of talent, or using the prize competition to improve the skills of its participants. But the examples that we reviewed suggest that all seven of these change levers, properly employed, have the power to produce significant changes in skills, behavior, and outcomes, and by extension, significant societal benefit.

A promising future

We believe that future developments will only enhance prizes' potential as instruments of change. We expect to see three key trends shape the future of prizes:

- **More activity:** We anticipate that existing sponsors will invest more in prizes, and we expect more non-traditional sponsors—such as governments, corporations, and venture philanthropists—to get into the game. These new sponsors will in turn expand the range of fields in which prizes act as instruments of change.
- **Improvement in prizes' economic productivity:** We expect that the emergence of a prize industry, improved collaboration techniques, and a more compelling and widely-shared set of best practices will make prizes more economically productive.
- **Better management of risks and challenges:** We expect greater recognition of—and more attempts to address—the remaining risks and uncertainties surrounding prizes.

1 More activity

Prizes' share of philanthropic giving is increasing. While annual charitable giving in the United States alone (about \$300 billion in 2007) dwarfs the current prize sector (estimated at one or two billion dollars), contributions to prizes appear to be growing much more rapidly than philanthropy in general. For more than a decade, the total value of the new prizes that we tracked has grown at roughly 18% per year, far surpassing the 2.5% annual growth in charitable giving in the United States.³⁹ Indeed, few respondents in our survey of prize-givers intend to reduce their investment in prizes, and nearly a third plan to increase it; of that group, a further third project increases of 50% or more in the next three years. The recent credit and financial crises resulting in economic upheaval and declines in investment values may of course constrain this growth in the short-term. However, prizes are attractive in situations of limited resources, because they take advantage of other sources of capital and pay for performance.

In the longer run, the willingness of existing sponsors to invest more will be augmented by the arrival of new players. In the 18th and 19th centuries, the bulk of prize capital came from the state or through royal academies and societies.⁴⁰ Today, this terrain has shifted considerably.

Corporate-sponsored prizes, although well established, may be one source of growth: they already account for 30% of the capital in the “big purse” prizes we examined, and further expansion is possible, and even likely. Some companies like Netflix, sponsor and run their own contests, but others are getting in on the action through partnerships with a new class of professional intermediaries. For instance, Ashoka's Changemakers competitions have been sponsored by well-known brands including Citibank, Staples, National Geographic, and Nike, whose managers hope to engage with grassroots social entrepreneurs and innovators. Google is embracing prizes, using them to help design applications for its new phone, develop private robotic lunar rovers that can explore the Moon's surface (the \$30 million Google Lunar X PRIZE), and find world changing ideas (its \$10 million prize called Project 10[^]100). These new prize funders and partners frequently use open models, and embrace the expressive power of prizes to communicate beyond competitors to a wider audience. The benefits accrue to society as well as to the sponsor's brand equity.

39 Analysis of McKinsey large prize database and *Awards, Honors & Prizes; Giving USA 2008*, Giving USA Foundation, 2008.

40 William A. Masters and Benoit Delbecq, “Accelerating innovation with prize rewards: History and typology of technology prizes and a new contest design for innovation in African agriculture” Purdue University, 2008.

At the same time, the makeup of private funders is changing. Philanthropy has changed significantly over the last 10 to 15 years as some of the new wealth created in the late 1990s is committed to societal causes. Much of this new money was earned in the high-tech boom, and its donors are entrepreneurs comfortable with experimentation, risk, and innovation, and who prefer measurable, tangible results. Prizes are a natural fit for such an outlook: sponsors pay only for winning solutions; can engage more closely with a community than by simply writing a check; and can diversify their portfolio of philanthropic instruments. HopeLab, founded by board chair Pam Omidyar, wife of eBay founder Pierre Omidyar, used its “RuckusNation” challenge to source ideas for products to get kids more physically active. The competition was one element in a bigger strategy to develop fun, effective products that will help address childhood obesity. “An idea competition is a wonderful arrow in the quiver which we might pull out from time to time,” in the words of HopeLab’s President & CEO.⁴¹ Tom Siebel, a software mogul, is launching a \$20 million prize designed to create homes with minimal environmental impact at a cost similar to that of building a house today.

Finally, governments themselves may be re-entering the arena. For much of the 20th century, the U.S. federal government’s preference was to pay for innovation through grants, competitively-bid contracts, and the patent system. But now there are signs of a shift back to prizes, driven by the belief that inducement prizes can be as—or more—effective at catalyzing innovation. A widely-cited 2006 Brookings Institution report highlighted prizes’ strengths relative to traditional government instruments: they reduce risk, engage a large and diverse pool of problem-solvers, and can be managed more efficiently than traditional grants. The author proposed hundreds of millions of dollars in potential government prizes, suggested that NASA eventually dedicate 2–3% of its budget to prizes, and proposed that up to \$4 billion in prize and advance market commitment funding be dedicated to vaccination research.⁴² Other influential organizations in Washington have echoed this argument, including the National Academy of Engineering (NAE), which called on Congress to add inducement prizes to its policy portfolio.⁴³

Perhaps sensing a shift in public opinion, members of Congress have explored prizes as a way to spur innovation. Recent prize proposals—\$80 billion for new drugs, \$300 million for car batteries, \$100 million for hydrogen energy—represent an important uptick in interest and suggest real potential for continued growth in the sector.

2 Improvement in prizes’ economic productivity

One of prizes’ great strengths is their ability to attract investments from competitors many times greater than the cost of delivering and awarding a prize. The growth of a prize industry, new collaboration techniques and an emerging set of best practices should improve the value proposition of prizes and hasten their application to an even wider set of situations.

The prize field has long been fragmented, with little in the way of widely recognized and implemented best practices or professional administration. Sponsors still routinely design and manage their own prize programs, despite having little relevant expertise. But in the course of our research, we also found that a discernable “prize industry” is starting to emerge, characterized by the development of a professionalized prize management sector,

41 Interview, Pat Christen, August 18, 2008.

42 Thomas Kalil, “Prizes for Technological Innovation,” Brookings Institution Working Paper, 2006.

43 National Academies of Engineering, *Concerning Federally Sponsored Inducement Prizes*, *supra* note 23.

and the emergence of professional prize competitors and new sources of capital for potential entrants.

Organizations like Idea Crossing, InnoCentive, NineSigma, Spigot, and BigCarrot.com can manage part or all of prize design and administration, in addition to providing guidance on everything from goal-setting to the minutiae of the process. Idea Crossing, for example, is close to launching a “turn-key” solution to hosting and managing prizes online, significantly simplifying the process for new sponsors and giving them more control over their prize program. InnoCentive runs a closely controlled and well-established system that can disseminate a sponsor’s innovation challenge to a proprietary community of more than 165,000 solvers from over 200 countries. Intermediaries also exist for larger-scale prizes. Based on the success of the \$10 million Ansari X PRIZE, the X PRIZE Foundation has expanded its charter to become a prize-focused “institute” that aims to drive best practices and launch about ten prizes of similar size over the next five to seven years. The Foundation is partnering with major corporate and philanthropic sponsors to design large-scale, co-branded inducement prizes (e.g., the Progressive Automotive X PRIZE, the Google Lunar X PRIZE, and the Archon X PRIZE for Genomics) supported with its own networks and in-house expertise. Prize Capital is another example. Aiming to produce “radical technological breakthroughs” in the field of energy and the environment, it uses a proprietary financing mechanism to link inducement prize competitions with parallel equity option investment funds.⁴⁴ This approach delivers crucial development capital to innovators while mitigating the risk to early-stage investors. Further development of these intermediaries should put lower-cost and more effective prizes within the grasp of non-specialist sponsors, or sponsors for whom a prize is only one part of a broader portfolio of efforts to induce change.

At the same time, interest in prizes is creating both formal and informal networks of sponsors and competitors, through which best practices are increasingly developed and shared. FIRST Robotics teams and Changemakers entrants are encouraged to participate in candid discussions of their entries and the prize process, and regularly do so, shaping the direction of both competitions. Not all conversations are so formal. At NASA’s Centennial Challenges, we met several participants who have begun competing for innovation prizes full-time. These professional competitors willingly compare the relative merits (and failures) of different competitions, share perspectives on which prize competitions are worth entering (and worth avoiding), and frequently collaborate on particularly complex challenges.

These developments point to the evolving prize landscape’s ability to overcome what has been considered one of prizes’ great weaknesses: their tendency to deter collaboration. Researchers have long argued that effective collaboration can increase innovation productivity as long as no one forces a premature convergence on one subset of ideas, and sponsors are increasingly experimenting with prize models beyond winner-take-all competitions.⁴⁵ Several prize sponsors now actively facilitate collaboration by creating competitor-only websites that allow teams to post needs, ask for help and even share prospective prize awards with contributors of key components. The Netflix Prize posts prize-winning algorithms on its competition site, allowing other innovators to build upon the progress of others so as to better reach the goal. The X PRIZE and FIRST Robotics use blogs and Facebook-style web applications to support healthy interaction between competitors. InnoCentive’s CEO, Dwayne Spradlin, plans experiments with techniques from the world of multiplayer online gaming to help distributed problem-solving teams to form, and then to distribute winnings fairly to winning teams. We believe that enabling collaboration

44 Interview, Lee Stein, September 8, 2008; see also US Patent Application #20080071658.

45 Interview, Melissa Schilling, May 30, 2008.

in these or other ways will become a standard feature of many prizes, one that will drive faster progress with lower total cost over time.

We also anticipate that work such as this report and additional academic research into the economics, applications, performance, and productivity of prizes will help create a rich set of best practices routinely available as a starting point for any entity considering the use of a prize.

Linking prizes with innovation

Do prizes really spur innovation? Experts have long thought so, but hard evidence has been lacking. A recent study by scholars at Harvard and the Norwegian Business School (NHH) is one of the first to establish an empirical link, by correlating awards for agricultural inventions with patents registered by winners.¹

In 1839, the Royal Agricultural Society of England (RASE) began “to encourage men of science to exert themselves in the improvement of agricultural implements” through the use of prizes and awards, ranging from prestigious gold medals to purses that would be worth more than £1 million today. In modern terms, these would be “point solution” prizes: the Society called on award-seekers to produce specific improvements, and announced the award a year before any were bestowed. The research team compared the nearly 2,000 awards presented between 1839 and 1939 with inventions registered with the British Patent Office, using the latter as a proxy for innovation. The analysis showed that award winners were indeed more likely to receive and renew patents. And those who entered but didn’t win nevertheless sought patents for more than 13,000 inventions. “Evidence suggests that the prizes led to significant improvements in the quality of technological invention,” the authors concluded.

Interestingly, a medal’s prestige seems to be a stronger motivator than cash. “People are much more induced by winning a medal award than by winning a monetary award,” says Tom Nicholas, one of the Harvard authors. He hypothesizes that “it’s much easier to market a product having won a medal.”² In the late 19th century, Cyrus H. McCormick—founder of the company that became International Harvester—learned that lesson: he prominently featured the gold medals he won from the Royal Society and other organizations in advertisements for his reaping and threshing machines.

1 Liam Brunt, Josh Lerner, and Tom Nicholas, “Inducement Prizes and Innovation,” Working Paper (Center for Economic Policy Research), 2008, available at <https://nber15.nber.org/c/2008/si2008/DAE/lerner.pdf>.

2 Interview, Tom Nicholas, July 22, 2008.

3 Better management of risks and challenges

The growth of prizes presents challenges as well as opportunities. New prizes often overlap with existing ones: more than one prize wants the nickname “The Nobel of Mathematics,” and several environmental awards claim to be the largest in their sector. More prizes mean more noise—and to break through that noise, some new prizes have offered ever-higher prize purses in hope of signaling their importance. The danger is that an arms race in prize amounts could deter all but the best-funded sponsors from participating. Serious involvement from governments, in particular, could change the sector considerably. For example, a hypothetical \$300 million government prize for improved car batteries would dwarf the \$10 million Progressive Automotive X PRIZE.

At the same time, the sophistication of prizes is not advancing as fast as it might. Since 1991, almost a quarter of the new big-purse prizes that we tracked have still been old-style recognition prizes. When designed well, a prize that celebrates excellence can provide broad motivation to a community, by convincing others and validating particular directions. But for every Ibrahim Prize with ambitions for transformation, there are many others that remain “foot-in-the-grave awards” not tied to a broader strategy for change. The inherent challenge of a recognition prize is to achieve impact without paying directly for performance, and this is difficult to do well. The overall effectiveness of the prize sector may suffer if too many new prizes are created in this category. We believe that the designers of any new prize of this type must work hard to include other change levers. In the words of Thomas Kalil, “the burden of proof is on people who say that we need another recognition prize.”⁴⁶

Of course, the current emphasis on prizes that encourage specific solutions to problems carries its own risks. For one, sponsors still need to do more work on making prize-driven solutions “stick”. For another, if solution prizes were to come to dominate the sector, they could crowd out other effective, but less glamorous change levers.

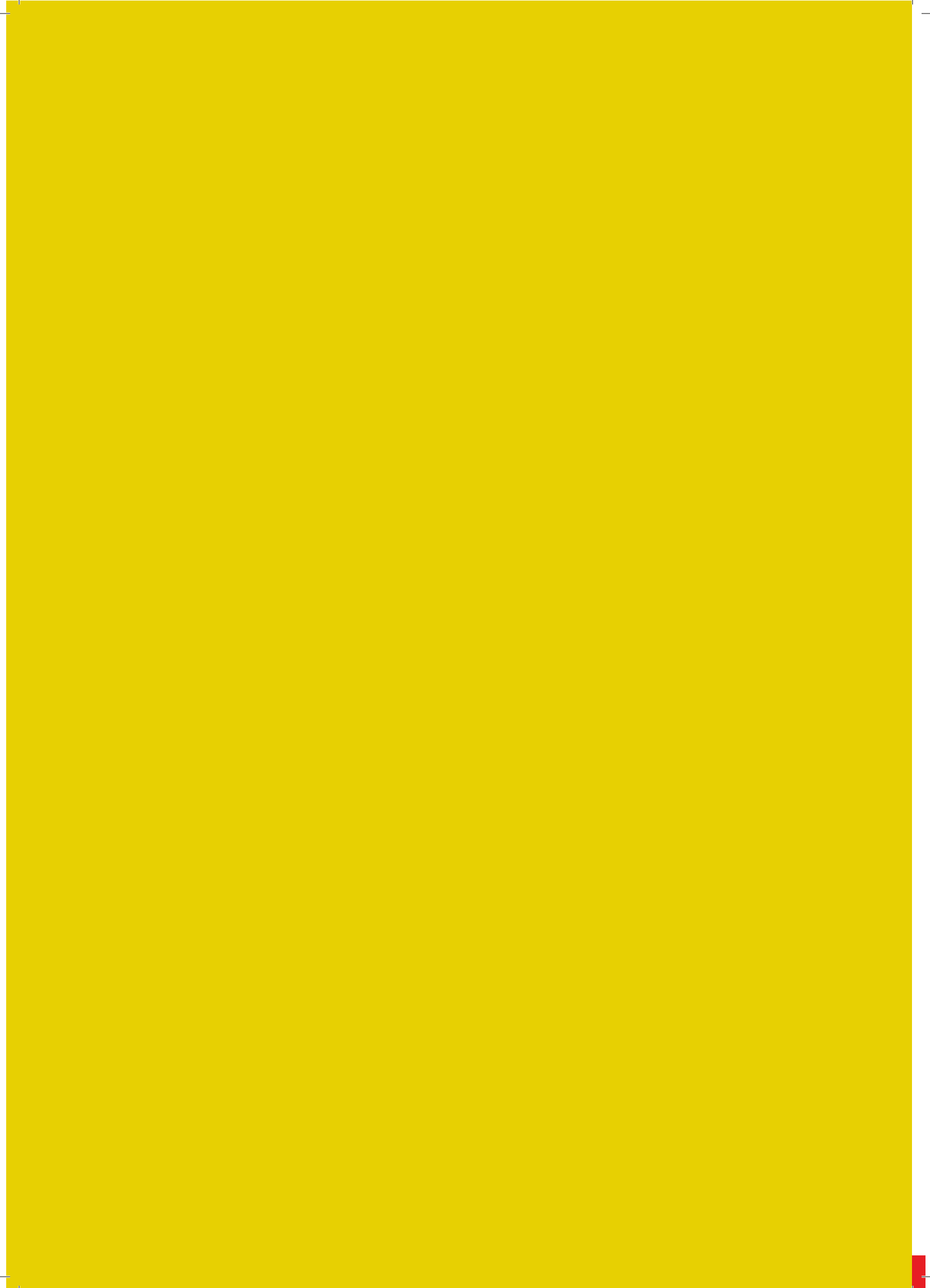
Finally, the industry’s evolving norms pose risks. For example, a difficult challenge for commercial and government prizes is handling the intellectual property rights to the solutions they generate: do competitors keep the rights to their ideas if they win? What if they lose? What if a competition exposes aspects of a design, leading to theft by other competitors? This may not seem immediately relevant to philanthropic prizes, but as new vehicles inject greater profit potential into the process, then norms around intellectual property management must also evolve, and may do so in a way that affects the power of prizes.

Regardless of strategy, with so much new investment and activity in prizes, high-profile failures of intent or execution are inevitable. The lack of widely-accepted best practices only increases the risk. Prize-givers will need to learn from and respond to these failures in ways that keeps the public, and their competitor pools, engaged.

46 Interview, Tom Kalil, July 9, 2008.

* * *

Despite some recent high-profile creations, the prize industry is still small relative to the philanthropic sector. Prizes are not appropriate for every societal goal. Like grants, contracts, investment in infrastructure, and other well-understood mechanisms, prizes are fundamentally instruments: they work in some cases but not in others. It is clear, however, that they have exciting potential as vehicles for societal benefit. They work better when facing a well-defined problem and can produce change in several powerful ways. There are thought-provoking examples of unusual and effective prizes, and there is plenty of room for experimentation. Prizes are likely to continue to attract attention and investment, supported by a maturing “industry” that should enhance their effectiveness. On that basis, we believe that prizes should be in the basic toolkit of today’s philanthropists, and that these philanthropists should approach them strategically, with a learning mindset, and a focus on effective implementation.





Developing and delivering effective prizes

Anyone can offer a prize, but creating a distinctive one—breaking through the noise to produce real benefit for society—is much harder. In our interviews and case studies, we learned four important lessons about how to create and deliver effective prizes.

First, prizes are only appropriate for certain kinds of problems—ones that can be identified by looking at the nature of the goal, the number of potential solvers, and the solvers' willingness to absorb risk. If the problem does not fit the prize criteria, other philanthropic instruments are likely to be more effective in addressing it.

Second, the strength of a prize is rarely derived from the size of its purse. More important is its underlying strategy to produce change and the way that strategy is implemented. As Professor Hayagreeva Rao of Stanford's Graduate School of Business told us, "an ineffective prize is simply giving people money without devoting any thought to [the] other symbolic and psychological elements of prize architecture."⁴⁷ Too many sponsors focus on the size of the award rather than other dimensions that can make a prize more compelling. A prize's goals, strategy, delivery and learning model are all critical to its impact.

Third, there are no short cuts. Prizes, as a past president of the X PRIZE Foundation told us, exist at the intersection of many fields, including engineering, intellectual property, marketing, public policy, and psychology.⁴⁸ Designing them is a complicated task. It is not possible to replicate the success of the Nobel Prizes, the Netflix Prize, or the X PRIZES without investing significant resources in the steps that make those so distinctive: the processes, design features, and strategies that the custodians of those prizes continue to refine. Some of the best prizes invest more than a year in initial prize development, and more time in later evaluation and refinement.

Finally, one size does not fit all. Thoughtful prize architecture demands that sponsors create a unique prize blueprint, driven by their aspirations and goals and shaped by the situation they face and the stakeholders they engage. There is no single formula for success, in part because of the tremendous variety in the objectives that prize sponsors seek and the flexibility

47 Interview, Hayagreeva Rao, June 13, 2008.

48 Interview, Tom Vander Ark, June 26, 2008.

inherent in the prize instrument. Yet much of this variety remains only potential; too many prize sponsors remain wedded to tried and true award-focused formulas.

In this section, we first discuss how a potential prize sponsor can determine if a prize is the right philanthropic instrument for furthering his or her desired goal. We then address each of the steps that a sponsor must take to develop and deliver an effective prize.

As one analyst told us, prizes fail when the sponsor does not understand how much effort and investment is required beyond the “economic capital” of the award itself.⁴⁹ Our research and case studies made it clear that developing and designing effective prizes is a difficult and resource-intensive process. Our goal for the pages that follow is to provide some structure to that process by highlighting the key issues and choices sponsors will invariably face. In each part of this “workbook,” we identify some of the promising practices, cautionary tales, and rules of thumb that we observed in our research and case studies.

When to use prizes

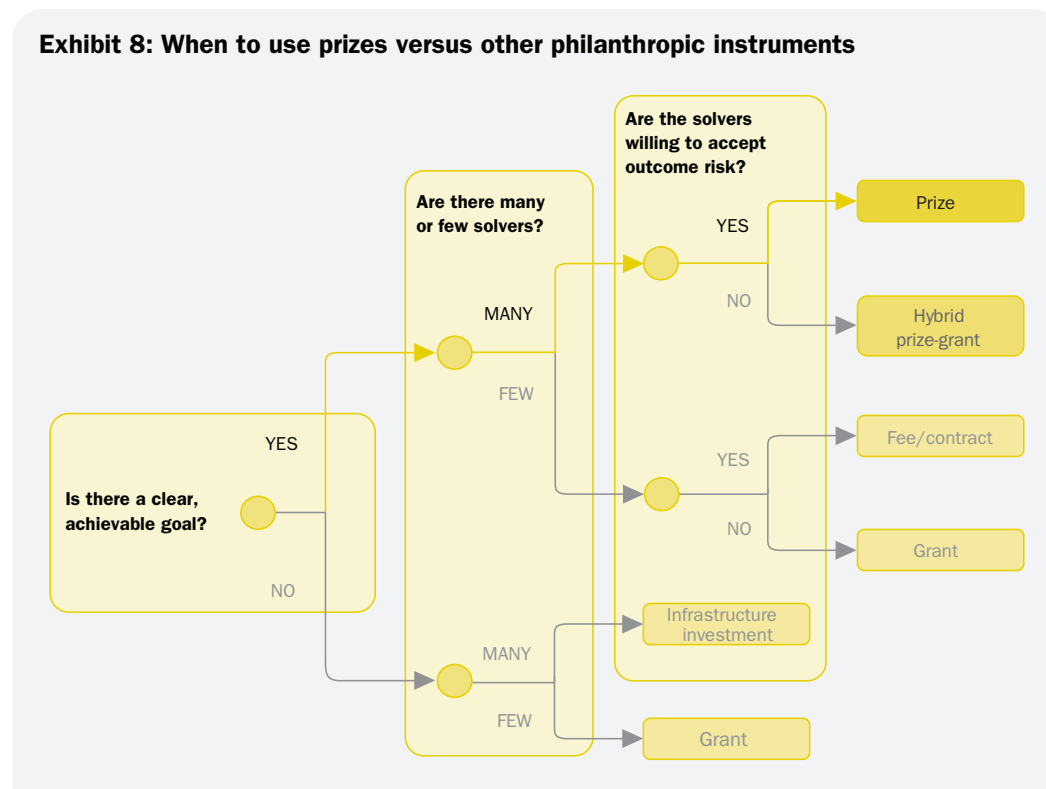
Four basic instruments are available to philanthropists seeking a specific societal benefit. All are broadly described as grants in a legal sense, but have important and material differences from a managerial perspective.

The most common type is the classic effort-based *grant*. That is, a philanthropist funds speculative efforts, such as the development of new approaches to pre-school education, or program activity, for instance the launch of an advocacy program. These grants guarantee effort—the recipient will be expected to perform the work proposed—but not outcomes; there is no guarantee of success. Second, a philanthropist may make an *investment* in a chosen field, for example by strengthening research institutions such as universities or by building capacity at implementing institutions such as nonprofits. This type of investment does not guarantee results either, and in fact rarely carries strict conditions on how the recipient can spend the money, but does create conditions that allow those receiving the support to pursue high-potential ideas or programs. Thirdly, a donor may structure a grant as a *fee* for the provision of an existing good or service from an established supplier. For instance, the manufacturer of insecticide-treated bednets who is contracted to deliver its product to homes in a poor region is paid just like any other business; only in this case, the payer is a philanthropist rather than the recipient of the goods. And finally, a donor may provide incentives such as *prizes* or advanced market commitments, which pay only if specific results are achieved.

A rule of thumb holds that prizes are useful tools for solving problems for which the objective is clear, but the way to achieve it is not. By attracting diverse talent and a range of potential solutions, prizes draw out many possible solutions, many of them unexpected, and steer the effort in directions that established experts might not go but where the solution may nonetheless lie.

49 Interview, James English, May 27, 2008.

This guideline needs to be more precise. Our research suggests that there are three essential questions that can help a philanthropist decide on which type of giving best fits the problem he or she seeks to address. First, what is the nature of the change sought? Second, how many problem solvers might commit themselves to the effort? Third, what is their willingness or ability to absorb the risk of the effort? Handled sequentially, these questions create a simple decision tree that will help lead philanthropists towards the right instrument for their goal (see *Exhibit 8*).



The first question a philanthropist should ask is whether their goal is a specific achievable outcome or a more general improvement. There are several ways of considering this question: for example, is the goal measurable? Is it of an “engineering” nature, rather than basic research? Can it be achieved in a reasonable time frame? “Yeses” to these questions indicate that a broad investment approach, whose impact might be too hard to predict or too long in coming, should be avoided for a problem of this kind.

The second question is whether the pool of potential problem-solvers for a given goal is large or small. This might be easy to gauge; for example, there might be a very small number of mathematicians expert enough to have any chance of proving a difficult conjecture. Specific goals that have few potential problem-solvers are perhaps best served by grants or fees for service, since the “overhead” of delivering a prize will not be justifiable compared to direct discussions with the few, likely solvers. But such ease in finding solvers is probably rare. Practical factors often complicate matters. For example, a philanthropy that lacks ample resources or is inexpert in a new field might find it difficult to identify the “best” problem solvers with any accuracy. In such cases, the ability of prizes to attract potential talent from far and wide can be an asset.

Finally, a philanthropist should ask whether potential solvers are willing and able to absorb risk by contributing their own resources to working on the problem. This calculation will depend on several factors: how much money and time problem-solvers can afford to commit, their weighing of those costs versus the potential reward (either from the prize itself, the commercial potential of the winning solution, or from the ancillary benefits of participation such as making valuable new contacts, or from the satisfaction of being part of a successful solution), and their view of the likelihood of success. Risk is the heart of the matter, and prizes that fail to attract an adequate number of contenders probably do not strike the risk/reward balance correctly. In such cases, the prize sponsor may need to experiment with a hybrid structure that uses grants or other forms of investment to give qualified participants the incremental support that they need to complete an effort.

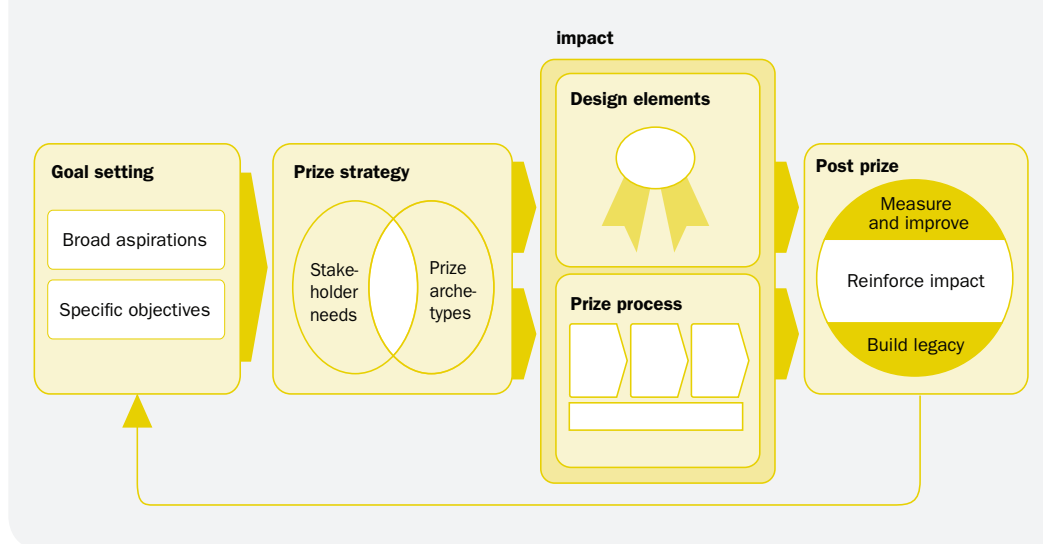
As this decision tree shows, prizes are a philanthropist's best choice when a clear goal can attract many potential solvers who are willing to absorb risk. This formula is most obvious in so-called "incentive" prizes. Problem-solving networks like InnoCentive are built around a series of specific ideation or technical challenges posed to a large community of problem solvers who invest their own resources in pursuit of a known reward. But the formula also holds for good "recognition" prizes like the Nobels. These set a consistent and widely-recognized standard of excellence in a field (a specific goal), are open to a relatively large number of candidates (the problem-solvers who can meet the goal), and these candidates invest their own resources or those raised from others in pursuit of the prize. This is true even though that pursuit may be more general or go on much longer—lifetimes, in some cases—than in the case of an incentive prize.

In short, prizes can be effective tools for achieving specific societal aims. But they are far from the only tool, and are not the most effective one for every problem or issue. Smart philanthropists should break down complex problems into solvable parts and use the appropriate instrument for each. When one or more of those parts meets the conditions that we have outlined above, prizes are a good fit.

A framework for prize development and design

Once the decision has been made to create a prize, five steps should be followed to develop and administer it effectively (see *Exhibit 9*). The sponsor must first formulate an often inchoate aspiration into a concrete set of prize objectives. Second, he must analyze the motivations of likely participants and develop a prize *strategy* that addresses them. This strategy, in turn, will shape a series of choices about the prize's *design and process*. Finally, sponsors and administrators must invest in the *post-prize* period, delivering the follow-up and evaluation that ensures that a prize program achieves its intended impact.

Exhibit 9: Stages of prize development and delivery



There is great potential for creativity and experimentation at almost every stage, from the type of prize to the manner of its delivery to the way that its impact is enhanced and institutionalized.

Goal-setting: Moving from aspirations to objectives

As recent activity shows, prizes can be used to produce or encourage a broad array of benefits for society. However, worthy aspirations only count for so much. Effective prizes work because they have sharply-defined, achievable goals. Formulating those goals well is not easy: our survey of prize administrators found that they consider “specifying the goal or mission” to be one of the most difficult aspects of effective prize-giving. Clarifying a prize’s goals is a two-part process. First, sponsors must define a broad and compelling aspiration (e.g., encouraging lunar exploration). Second, they must identify specific objectives that would advance the achievement of that aspiration and that a prize would help to fulfil (e.g., stimulating the emergence of innovative companies in the field).

1 Start with compelling aspirations

Prizes share with foundations and nonprofits a range of missions and aspirations as various as society itself. Among the high-performing prizes we studied, aspirations ranged from increasing lifespan (Mprize), to stimulating a market for private spaceflight (Ansari X PRIZE), to elevating the quality of literature consumed by the reading public (Booker Prize), to improving the governance of countries in sub-Saharan Africa (Ibrahim Prize).

In many cases, these aspirations are also personal expressions of a desire for change. The Pulitzer Prizes, Nobel Prizes, Ibrahim Prize, Templeton Prize, and Milken Educator Awards are all good examples of prizes whose missions are directly linked to a founder’s philanthropic passions.

The aspirations that underlie effective prizes share a few characteristics. First, they are close to the sponsor’s heart, ensuring a long-term commitment to change. Second, they are within the prize-giver’s capabilities: the individual or institution has the time, resources, and expertise (either their own or hired) to conduct the strategic planning necessary to build a prize with a real chance at fulfilling or least advancing their aspiration. Finally, sound aspirations must be legitimate in the eyes of the community that the sponsor seeks to influence. This legitimacy

energizes innovators and inspires potential judges, volunteers, media and observers. A good prize will not seek to do all the work itself, but to lay the groundwork for further impact by generating new ideas, innovations, capital, and interest in a topic.

2 Converting an aspiration into prize objectives

How well a broad aspiration translates into specific objectives determines a prize's success or failure more than any other single factor. A good prize should seek to produce or encourage specific achievements that fulfill or further the sponsor's aspiration. Formulating good objectives is also the last test of a prize's appropriateness for a given problem: if the aspiration does not translate into objectives that prizes can help realize, better to try something else rather than continue with a prize only to watch it fail.

The objective of the Netflix Prize was a 10% improvement in the company's online movie recommendation algorithm, which, when achieved, "could make a big difference to our customers and our business."⁵⁰ In the case of the Ansari X PRIZE, the primary objective was to get a privately-funded, low cost, reusable rocket into space, which in turn would help spur growth in the private space industry. Both of these objectives are admirably specific, which helps explain the success of those prizes.

Defining specific objectives is important for any innovation instrument, but critical for prizes, because, as one of our interviewees said, "all [that] a lot of institutions focus on is the input, [but] prizes focus on the output."⁵¹ The best prizes have—consciously or unconsciously—translated high-level aspirations into effective objectives in two ways: by identifying bottlenecks and barriers preventing change, and by designing objectives geared toward overcoming those barriers.

a Identifying the most important barriers to change

Prizes seek to effect positive change. Doing so requires clearly understanding the forces preventing that change. Prize-givers therefore need to invest heavily in identifying those barriers—in the words of InnoCentive's Alph Bingham, "extracting the essence of what's keeping us from conquering a challenge"—and then figuring out a way to translate their removal into practical prize objectives.⁵² This requires a detailed situation analysis.

There are good examples of prize-givers who think systematically about barriers to change. The X PRIZE Foundation has a prize development group dedicated to developing and testing prize goals. The foundation assembles perspectives and data on a problem from academics, analysts, and industry experts. It convenes groups of issue experts and prize competitors to discuss promising ideas, bottlenecks, and emerging questions. In fact, situation analysis is so important to the X PRIZE process that the foundation often seeks grants from potential sponsors dedicated solely to this phase, even though one outcome may be a decision against offering an X PRIZE.

A good situation analysis results from common approaches for identifying barriers, input from inside and outside the prize organization, and above all an appropriate investment of time.

Many tools can help disaggregate problems and identify barriers to change. Problem disaggregation is a particularly useful way to gauge the most effective levers for driving real

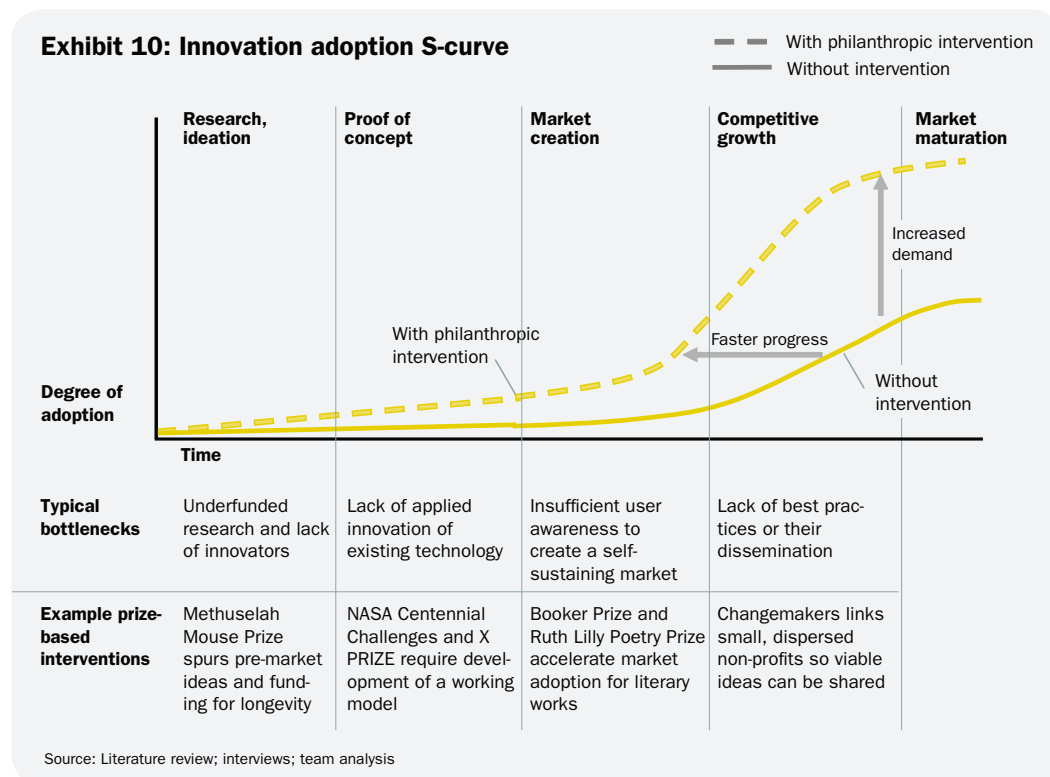
50 <http://www.netflixprize.com/rules>.

51 Interview, Andreas Widmer, June 25, 2008.

52 Interview, Alph Bingham, June 15, 2008.

change. For example, if the aspiration is to drive down mortality from cancer, then identifying the incidence and mortality rates of various types of cancer will illuminate where best to focus resources. Is there more power in preventing incidence or improving treatment of those already afflicted? Some types may be so prevalent that focusing there makes sense simply because of sheer numbers. But in other cases, highly prevalent types may be relatively easy to treat, and therefore resources committed to them might offer a smaller but more immediate impact on overall mortality rates.

Prize sponsors should also explore whether the principal barrier to realizing a societal benefit is the lack of the right solution, or merely the challenge of ensuring that large numbers of people adopt a proven approach, as illustrated by an adoption curve (see *Exhibit 10*). Underdeveloped demand or lack of best practices and supporting infrastructure can also be barriers to change that keep a proven concept from gaining the wide acceptance that it deserves.



Input for a situation analysis can come from several sources. Surveying the existing literature on the challenge at hand is an essential first step; supplementing that survey by consulting with subject matter experts and potential competitors in interviews or workshops usually provides the powerful fact base and set of hypotheses needed to test with potential competitors and sponsors. The design of the Progressive Automotive X PRIZE, for example, went through “multiple drafts in the course of [12 months of] R&D” based on outside input, according to the X PRIZE Foundation’s Cristin Lindsay.⁵³ Similarly, Changemakers works with a selection of more than 2,000 Ashoka Fellows and more than 3,500 past entrants to define a new competition. They provide input into a “discovery framework” that disaggregates the new problem into different barriers to change and different kinds of interventions and is then used as a basis for problem-solving during the competition.

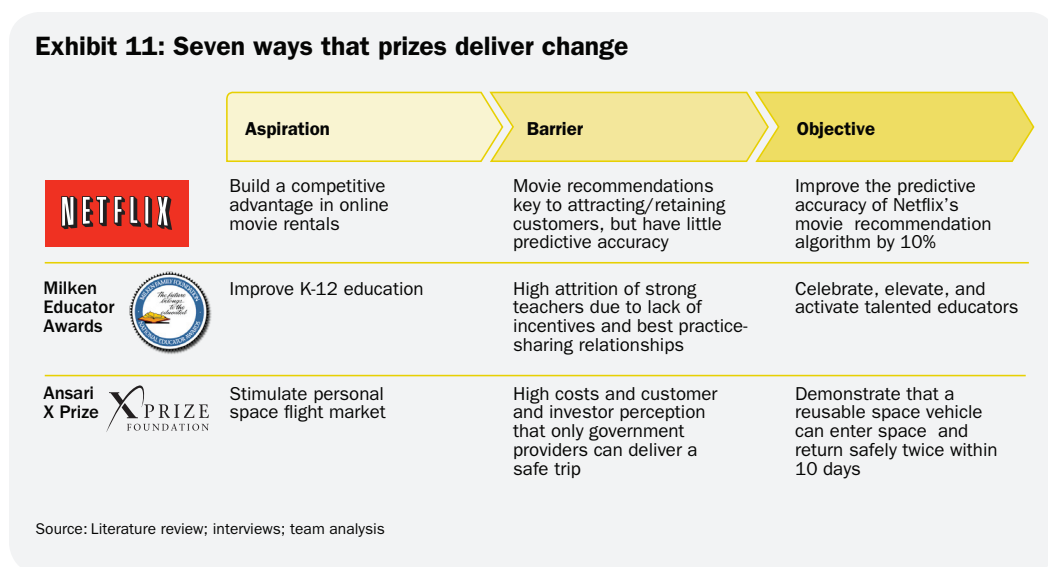
53 Interview, Cristin Lindsay, August 26, 2008.

The best prize-givers either have a comprehensive situation analysis on the shelf (drafted, perhaps, in support of their other grant making activities), or take the necessary time and commit the necessary resources to conduct one—particularly for complicated prizes or prizes with big purses. Both Changemakers and the X PRIZE Foundation can take anywhere from three to twelve months to complete a rigorous situation analysis. Of course, some goals are easier to set than others. But in all cases, a generous investment of time and resources at this early stage builds a strong fact base that improves the odds that later investments (in goal-setting, design, and administration) will pay off.

The extent of duplicated effort (and lack of collaboration) in the prize world suggests that this kind of rigorous situation analysis is relatively rare. Some fields have a number of prizes with overlapping objectives, which could lead to ignoring other paths or progress taking place on a narrow front. For example, there are several mathematics prizes with similar criteria, including the Abel, Shaw, and Wolf Prizes, as well as a host of independent literary awards that regularly honor the same books.⁵⁴ Good prize sponsors prefer to address situations where new effort will unlock change. As Jaison Morgan, the Director of Prize Development at the X PRIZE Foundation told us, “we work to recognize the difference between prizes that are inducing real outcomes and those that are simply stepping in front of a parade.”⁵⁵

b Setting objectives

Once the situation analysis identifies important barriers, a prize-giver’s next task is to identify the specific prize objectives that might break through those barriers (see *Exhibit 11*).



For Peter Diamandis of the X PRIZE Foundation, prizes need to be announced “above the line of ‘super credibility’ so they get global attention and attract credible teams. Challenges need to be audacious yet achievable, and seen by the public as worthwhile and inspirational.”⁵⁶ Put another way, good prize objectives will pass the “SMART” test, a checklist that asks if they are Significant, Motivational, Actionable, Results-focused, and Time-bound.

54 James English, *The Economy of Prestige*, pp. 65–66.

55 Interview, Jaison Morgan, August 26, 2008.

56 Interview, Peter Diamandis, December 5, 2008.

First, is the prize objective *significant*? Does it represent a meaningful step towards achieving a broader aspiration? The Progressive Automotive X PRIZE requires teams to develop marketable vehicles that can achieve 100 mpg (or equivalent) fuel efficiency while also meeting a variety of consumer- and safety-focused standards. The combination of a jump in fuel efficiency—about three times the current mandated minimum—combined with safety and consumer-friendly features would constitute a clear technical leap for the automotive industry. As the prize's Senior Director explains, "we want the teams to develop vehicles that will actually sell. They cannot be driven by recumbent 13 year-old kids in vehicles that look like coffins!" If achieved at scale, the prize's objective would significantly contribute to the Foundation's broader aspiration to "break our addiction to oil and stem the effects of climate change."⁵⁷

Second, does the objective *motivate* competitors and other stakeholders? Do they see how the goal fits into a bigger picture? The potential to win the prize and collect the purse need not be the only motivator. "We plan to give [competitors] a sticker for their cars saying that they met the standards" for mileage, explained Cristin Lindsay, Prize Operations. "This is one of those considerations that are important for new and old players alike since this is such an entrenched industry."⁵⁸ Also, by stressing "marketability" as an output, the X PRIZE Foundation allows competitors to focus on their core business of selling cars, rather than encouraging them to build arcane "test vehicles" that are unlikely to ever be found on a sales lot.

Third, is the objective *actionable*? Do individuals or teams know how to compete and see a reasonable probability of achievement? The Netflix Prize addressed this challenge by creating an online leader board. They regularly update the leader board with the performance of the most successful algorithms to date, demonstrating that competitors are making progress towards the prize and enabling competitors to build on strong interim solutions. The Progressive Automotive X PRIZE, in turn, chose a fuel efficiency goal that is highly ambitious, but which un-marketable test vehicles have already achieved. Over 60 teams have signed letters of intent to compete, with more expected to do so through the end of 2008.

Fourth, is the objective *results-focused*? Is there clarity about what candidates must achieve? The prize facilitating organization Idea Crossing spends a great deal of time and effort to focus and refine the description of its challenges, so that they express with utmost clarity what is at stake: in the words of Nyssim Lefford, Idea Crossing's VP of Production, "clear objectives make for a good experience—it's more fun and inspires better work."⁵⁹ Both the Netflix and the Progressive Automotive X PRIZES pose straightforward, objective metrics for success: a 10% improvement for the former, 100 mpg (or the equivalent) with clear safety and customer requirements for the latter. Recognition prizes—inherently more subjective than prizes that reward the achievement of a pre-defined goal—achieve clarity in a different way. By celebrating specific achievements year after year, prizes like the Nobel and the Booker set standards for the scope and excellence required to win.

Finally, are the winning criteria *time-bound*? A time limit is needed in many situations to maintain the attention of the solving community as well as the broader public. This is not as easy to accomplish as it may seem. As a former Netflix executive told us, their objective was hard to fix in time, because "the 10% figure was a shot in the dark—we had no idea if the challenge would fall in a week or never be solved."⁶⁰ They addressed this problem by adding annual \$50,000 "Progress Prizes" for the best result to date. Thus participants have

57 Interview, Cristin Lindsay, August 26, 2008.

58 Interview, Cristin Lindsay, August 26, 2008.

59 Interview, Nyssim Lefford, July 28, 2008.

60 Interview, Jim Bennett, July 9, 2008.

Goal setting at the X PRIZE Foundation



X PRIZE officials draw on several sources when choosing the topic for a new prize: the Foundation's Board and staff, their largest contributors, and funders who provide the Foundation with grants for exploring and planning new prizes. Once they have agreed on a general aspiration for a new prize, they launch a "highly iterative" research and goal-setting process, "with a number of stages and gates."¹ This research and development period can last as long as a year.

The prize development group begins by drafting a "problem statement" that lays out the areas that the prize will address. Officials seek guidance from external experts and their own team to focus the prize even further. A first set of meetings "bring[s] together experts in the field to brainstorm the domains we could potentially tackle and lay out facts about each one."²

A second set of meetings focus on generating specific prize ideas in each domain, as many as 10 to 14 per area. The team then conducts "one-on-one conversations with other experts to talk through the ideas we generated and figure out which ones are promising."³ These conversations help Foundation officials to create a draft set of goals and a set of rules governing how the prize will be administered. They test this rule set with their advisors in a last set of meetings, and then use it to launch discussions with potential sponsors and competitors.

Whatever problem definition they arrive at needs to be consistent with the X PRIZE Foundation's guiding principles, as articulated by Jaison Morgan, the X Prize Foundation's Senior Director of Prize Development:

"First, we focus on market failures. We want our prizes to be disruptive and help drive innovation and the entrance of new teams and new approaches into a stalled situation ... Second, we look for high leverage areas, places where a prize will inspire teams and commercial interests to invest 10 or more times the amount of the prize purse. This is the real power of prizes, harnessing our competitive nature and driving investment towards a singular goal. Third, we look for prizes that are telegenic and inspire tremendous public interest and capture mind share. We seek to design prizes that will not only inspire a niche of specialists but also those that will change public perceptions, so that as the narrative arc of each prize unfolds there is an active and eager marketplace prepared to adopt the winning solution. Our purpose is greater than merely funding a foot race, in which the winner goes home with a check. We want long-term and sustainable innovation, and the longevity of a prize outcome is best served when the public is engaged and everyone's perception of the challenge is shattered when the winning attempt is broadcast widely. Fourth, we see if there is an appropriate time horizon for winning the prize. We model a three to eight year timeline for every prize. We believe that if it is won in less than three years, then it would likely have happened without us. If it is won after eight years, then we are likely to lose the public's attention during the lifespan of the prize. Finally, we look at the potential of the purse size, starting at a minimum base of \$10 million ... we have a process in place for determining optimal size based on likely sponsors and the needs of our target competitors. We ultimately see [the problem definition] as a balance between audacity and achievability."⁴

1 Interview, Jaison Morgan, August 26, 2008.

2 Interview, Jaison Morgan, August 26, 2008.

3 Interview, Jaison Morgan, August 26, 2008.

4 Interview, Jaison Morgan, August 26, 2008.

an ongoing incentive to compete, even if their advances turned out to be incremental. (The Cinematch algorithm has improved by about 9% since the prize's launch in October, 2006.) The designers of the Progressive Automotive X PRIZE, by contrast, were keenly sensitive to what they described as “the social urgency of the goal,” and so set “2010 as an outer limit for how long we could afford to wait.”⁶¹ Rather than competing individually, teams will come together in that year to see who has made the most progress.

Building a prize strategy

Philanthropy can sometimes suffer from too narrow a strategy: as one analyst said, “foundations don't think outside the box, they think about the common strategies within circumscribed areas.”⁶² Because of this narrow thinking, philanthropic prizes tend to be under-used, and even when used, sponsors often fail to take full advantage of their unique strengths. The challenge for philanthropists is not to develop more and better ways to recognize excellence, but to find ways to make prizes more effective in achieving a societal objective. That, in turn, principally means increasing the number of change levers that a given prize utilizes.

Determining a prize's size and frequency—often the first topics sponsors want to think through—are really secondary concerns, best left for the end of the development process. Far more important is overall strategy. Intelligent sponsors start by developing a deep understanding of their prize's potential problem-solvers and other constituents; then they move on to consider (and possibly invent) the prize type that will best address their motivations. Without a strategy based on such thinking, it is very difficult to make good decisions about award size, frequency, criteria, or follow-up.

1 Understanding stakeholders

When Ashoka studied the competitors in its Changemakers initiative, it found that their primary motivation was not prize money. Changemakers competitors are more interested in reaching other potential funders and building links with other entrepreneurs. Armed with this insight, Ashoka has designed its prize process to include a heavy emphasis on networking opportunities, an approach that yields impressively high levels of entrepreneur participation and helps to build sustainable communities of interest.

In a different case, the success of the Mo Ibrahim Foundation's prize for high-quality African governance relies on many more people than just the potential recipients: governments, NGOs, academics, and the African public are all involved in one way or another in achieving its goals. Rather than focus narrowly on the motivations of potential recipients, the Foundation has sought to reinforce those motivations by establishing credibility with this much broader “problem-solving” community. First, the Foundation commissioned a team at Harvard's Kennedy School of Government to develop a quantitative index of African governance. The index not only serves to inform prize-related decisions, but it also increases the prize's credibility and prestige. Second, the Foundation took steps to ensure that its prize would not appear to be “a western audience sitting in judgment of African countries,” in the words of its Director, Hadeel Ibrahim.⁶³ Capital for the prize comes from wealth created in Africa (“an African-funded African foundation”); African luminaries such as Kofi Annan and Salim Ahmed

61 Interview, Jaison Morgan, August 26, 2008.

62 Interview, Joel Fleishman, July 10, 2008.

63 Interview, Hadeel Ibrahim, August 19, 2008.

Salim serve on the prize committee; and plans are underway to shift the production and updating of the index from Harvard to several African institutions.

For these two prizes, success depends on a deep understanding of who their stakeholders are and what motivates them. Importantly, this understanding is not merely a guess as to what might be motivating. Real insight is based on disciplined analytical thinking coupled with some inspired listening. Changemakers and the Ibrahim Prize demonstrate the need to be thorough and thoughtful in understanding a prize's stakeholders. But what does this mean in practical terms?

Thoroughness in identifying relevant stakeholders. When designing a good prize, a sponsor should consider a wide range of people who might have a stake in the prize and its outcome. A prize's most obvious stakeholders are current or potential competitors—the problem-solvers. But others may be involved, too: potential investors, policy makers, or even the general public. The Mprize, for example, focuses narrowly on an existing community of working scientists (particularly geneticists) for solving the prize, but funds for the awards come from a much broader group of social investors looking to support the cause. In the case of FIRST Robotics, the group is broader still—not only the students who compete, but also teachers, parents, community businesses, and engineers who have a passion for educating and mentoring teenagers. And finally, for the Booker Prize, the primary stakeholders are as much the book-buying public as the authors who “compete” for the prize.

We believe that sponsors can begin this analysis with four questions:

- Who might participate directly in the competition (e.g., potential competitors or nominees, nominators, judges)?
- Who might directly or indirectly influence participants to get involved (e.g., teachers/mentors, members of a larger community of interest)?
- Who might be willing to be a co-sponsor of competitors, the process, the award, or follow-on efforts (e.g., financial or other sponsors, investors in winning solutions)?
- Who might directly or indirectly benefit from the winning solution(s) (e.g., readers/filmgoers or others in a community of interest in the topic area, potential consumers of a winning solution)?

Thoughtfulness in understanding motivations. In the words of economist James Love, a successful prize is one that “stimulates people to do the things you want them to do.”⁶⁴ An organizational psychologist put it differently: “a successful prize gets people to do what they want to do anyways—it just helps them to do it more successfully.”⁶⁵ But either way, a prize only works when groups or individuals behave or think in a way that advances the sponsor's objectives.

Even if a prize has successfully identified its most important stakeholders, gaining insights into their motivation is “very hard to do and takes time,” according to Changemakers' Charlie Brown.⁶⁶ This is partly because stakeholders often have a wide range of motivations. As Ken Davidian, formerly of the NASA Challenges, puts it, there are at least four core rewards that drive participants to compete for prizes: “goal, glory, guts, and gold—and gold is usually

64 Interview, James Love, June 12, 2008.

65 Interview, Robert Sutton, October 22, 2008.

66 Interview, Charlie Brown, July 29, 2008.

last.”⁶⁷ Or to be more precise (if less memorable), competitors are motivated by the intrinsic interest of a challenge, the recognition or prestige accompanying a winner, the challenge of the problem-solving process itself, and any material incentive. Which motives matter most, and in what mix, will vary depending on the problem—and the problem solver.

Prize sponsors can assess this in several ways. The most basic approach is interviews with representative stakeholders or those that influence them—especially important for prizes that will be the first in their domain or community. Ongoing prizes can target the actual participants and beneficiaries more effectively. In either case, it is not sufficient to create a communication plan to increase awareness: the sponsor needs to learn enough about interests, motivations, backgrounds, ways of working, and competing incentives in order to design the prize appropriately.

The design and innovation community has developed a variety of frameworks and resources that can add insight and impact to a stakeholder analysis. These include tools for first-hand observation of stakeholders, such as spending time in the “field” watching how potential competitors go about similar tasks, and conducting debriefing interviews with them afterwards. There are also methods for testing prize designs with potential participants, oriented around rapid cycles of rough prototypes. These include persona/scenario modeling (which tests a process using a composite profile of a type of stakeholder), role-playing with a small set of representative competitors, and a variety of open source approaches.

Although frameworks can be helpful, effective stakeholder analysis is fundamentally about discipline—prizes who take the time to answer these questions well increase their chances of producing distinctive impact.





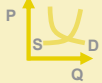

2 Choosing—or inventing—a prize archetype

Once potential prize-givers have a clear objective and an understanding of its stakeholders, they can focus on choosing the type of prize that best fits the problem and appeals to the problem-solvers’ motivations.

Prizes are not restricted to a simple division between “inducement” and “recognition” types, or a hybrid of the two. There are actually many more ways that a prize can combine the seven change levers identified in the first section of this report. The vast majority of current prizes fall into one of six archetypes: exemplar prizes, exposition prizes, network prizes, participation prizes, market stimulation prizes, and point solution prizes (see *Exhibit 12*). Each of these emphasizes two to four change levers, tapping several sources of change. For example, if the barrier to solving a particular problem is the lack of a specific innovation, then overcoming it would typically require bringing focus to a community, mobilizing new talent and new capital—a point solution prize. If the bottleneck is public awareness or demand, then the solution may require identifying excellence and influencing public perception—an exemplar prize.

67 Interview, Ken Davidian, August 2, 2008.

Exhibit 12: Six prize archetypes

Archetype	Goal of prize	Primary change levers
 Exemplar	<ul style="list-style-type: none"> Focus attention on, set standards in, and/or influence perception of a particular field or issue 	<ul style="list-style-type: none"> Identifying excellence Influencing perception
 Exposition	<ul style="list-style-type: none"> Highlight a range of best practices, ideas, or opportunities within a field 	<ul style="list-style-type: none"> Identifying excellence Mobilizing capital
 Network	<ul style="list-style-type: none"> Celebrate and strengthen a particular community 	<ul style="list-style-type: none"> Identifying excellence Strengthening community Mobilizing capital
 Participation	<ul style="list-style-type: none"> Educate and change behavior of participants through the prize process 	<ul style="list-style-type: none"> Strengthening community Educating/improving skills
 Market stimulation	<ul style="list-style-type: none"> Emulate market incentives, driving costs down through competition and exposing latent demand 	<ul style="list-style-type: none"> Identifying excellence Mobilizing talent, capital Focusing a community Influencing perception
 Point solution	<ul style="list-style-type: none"> Solve a challenging, well-defined problem requiring innovation 	<ul style="list-style-type: none"> Focusing a community Mobilizing talent

These six prize types are not exhaustive, and the growing prize industry will inevitably produce new variations in the coming years. But for most potential prize-givers, studying these archetypes can be helpful for choosing a strategy, and serve as templates that can help inform subsequent choices in prize design, process, and follow-up.

a Exemplar prizes

Exemplar prizes define excellence within an area. Such prizes are used to publicize endeavors, legitimize pursuits, set agendas within disciplines, make normative statements, and influence public opinion. The Nobel Prizes are the paradigms of this type. The science prizes stimulate appreciation of winners and encourage others to invest in understanding their achievements, while the Economics, Peace and Literature Prizes inspire global debates on policy and culture. The Prizes also give their Laureates a powerful pedestal that allows them to influence not only the direction and priorities of their own disciplines, but also broader public opinion. Exemplar prizes have limits, however. Recognition often trails the breakthrough by considerable amounts of time and overlapping prizes reduce the ability of any one prize to command attention and shape thinking.

b Exposition prizes

Exposition prizes are designed as much to highlight a broad list of promising ideas as to choose winners among them. They expose and compare new ideas and innovations in the manner of a World's Fair. The Royal Agricultural Society of England's 19th and 20th century medals for technical innovations are prime examples. Not surprisingly, this type of prize is now taking advantage of the Internet to develop open and inexpensive online forums for a mass audience. One example is the PICNIC Green Challenge in the Netherlands, which gathered 235 entries in 2008 to highlight products or services "that [reduce] the greenhouse effect in a consumer-friendly way and [contribute] to a sustainable lifestyle." Although the Challenge does select a winning idea, it works with other organizations that are interested in "helping to realize ideas that don't win."⁶⁸

68 <http://www.greenchallenge.info>

c Network prizes

Network prizes identify, celebrate, empower, and invest in prize participants and the broader stakeholder ecosystem. The goal is to build networks, strengthen communities by creating more forums for interaction, and assemble the next generation of leaders in a field. As we have discussed, the El Pomar Awards exemplify this type as they seek to identify top performing nonprofits, build connectedness within the Colorado non-profit community, and connect winners with potential funders. What the network chooses to do once it is connected is the key to achieving real impact and this choice needs to be reinforced by the prize process and the post-prize activities.

d Participation prizes

Participation prizes aim to inspire participants to change behaviors and even life trajectories, and are at least as concerned with building high participation rates as with identifying winners. One well-known example is NBC's reality television show "The Biggest Loser." Formally, the show chooses a winner based on who loses the highest percentage of starting body weight. But in a sense, all contestants who lose weight are winners, as are viewers inspired by the show to exercise and change their eating habits. Learning prizes like Odyssey of the Mind and FIRST Robotics—dedicated to improving skills and educating participants—are an important subset of this type of prize. As the inventor Dean Kamen, founder of FIRST Robotics, explained, "the winners we invite to the White House are not the ones with the most points, but the team, company, and school that worked best together and demonstrated the impact the program has had on attracting participants. I can tell you who won the Chairman's Award [honoring the team that best represents a model for other teams and best embodies the purpose of FIRST], but if you asked me who won the most points, I wouldn't necessarily be able to remember."⁶⁹

e Market stimulation prizes

Market stimulation prizes originate from some sort of market failure that, in the eyes of the sponsor, prevents the achievement of a desirable social outcome. Market failures can include a lack of investment, a limited supply base or poor consumer understanding of product potential. Market stimulation prizes emulate free market mechanisms by mobilizing unidentified talent, driving down product costs, attracting new suppliers, signaling market potential, and exposing latent demand. The most celebrated recent example is the \$10 million Ansari X PRIZE, launched in 1996. By launching a competition to create a reusable manned spacecraft, the prize helped spur the development of the private spaceflight industry. Twenty-six teams competed, investing more than \$100 million in combined research and development. Burt Rutan's SpaceShipOne ultimately claimed the prize in 2004, with financing help from billionaire Paul Allen. Investors have since dedicated more than \$1.5 billion to developing the private spaceflight industry.⁷⁰ Within a few years, any would-be astronaut who can afford the \$200,000 ticket will be able to take a trip to space on Virgin Galactic, based on technology developed for the Ansari X PRIZE.

69 Interview, Dean Kamen, June 23, 2008.

70 "Ansari X PRIZE," X PRIZE Foundation, available at <http://space.xprize.org/ansari-x-prize>.

Framing problems and solutions

Point solution prizes focus attention on solving specific problems—but the results depend entirely on the way the problem is framed. Describe a problem too broadly, and it may be hard to get people to participate or to know when somebody has won; define it too narrowly, and the prize may fail to turn up the unusual, insightful solution. Ashoka’s Changemakers initiative—a problem-solving organization that runs innovation competitions for a range of social issues—frames its challenges with what it calls the “Discovery Framework.” This powerful vehicle is an online map, created afresh for each competition, which disaggregates a broad problem into specific barriers to change and different ways to address them.

When developing a new prize challenge, Changemakers harnesses the collective voice of more than 2,000 Ashoka Fellows, a global community of social entrepreneurs previously identified by its parent organization, and over 3,500 past competition entrants. Using an online forum, they help create a two by two matrix that serves as that competition’s Discovery Framework (see below). The horizontal dimension defines four to seven systemic barriers inhibiting a particular prize outcome (such as lack of access to a market). The vertical dimension defines four to seven high-leverage design principles for solutions (such as aggregating demand).

Discovery framework: Seeking financial solutions for all

Design Principles:	Barriers:			
	Non-affluent are not valued customers	Lack of access to markets or products	Social benefit businesses not deemed investment worthy	Lack of skills and incentives to join formal economy
Leverage the stake individuals have in financial success of the group	Kapil Mondal Grameen Bank (microcredit industry)	John De Wit VirginMoney US*		Jarek Dominiack Jean Claude Rodriguez Salomón Raydan
Prove that social return doesn't preclude financial gain	Kiva.Org Chittenden Bank		responsAbility Triodos Bank John Sage	
Lower the entry threshold	Alou Keita Wizzit	Caixa Economica Tio Networks Lilian Do Prado Silva		Joseph Sekiku Avsha Saifuddin Winnie Lira
Turn hidden value into alternative markets	Cntrl Coast Local Exchange Moussa Kane Darin Gueneskera	Willy Foote Joaquim De Melo	Celso Grecco	Marcelo Caldano Felipe Vegara Timebanks.Org Timothy Jenkin
Aggregate demand or supply to influence market	Douglas Racionzer	Prosper Brownpages.Org	Bruce Cahan Vineet Raj	Maria Christina Porres José Díaz

During the course of a prize challenge, participants are required to position their entry publicly on the Discovery Framework. Seeing the range of solutions laid out so starkly is a powerful tool for organizing ideas, identifying opportunities for collaboration, and identifying gaps in the proposed solutions. By investing so much effort in framing the problem, Changemakers improves the odds of a high-quality result in the near-term, and may even improve the potential for impact over the long term. In the words of the program’s founder, Sushmita Ghosh, the Discovery Framework “helps shift the thinking of sponsors and investors, helping them change their thinking about the problem at hand.”¹

1 Interview, Sushmita Ghosh, June 17, 2008.

f Point solution prizes

Point solution prizes focus a community and mobilize talent and capital to solve well-defined problems with no clear path to a solution. Many existing and emerging “open innovation” platforms, such as InnoCentive and NineSigma, focus on point solution prizes, working on behalf of their clients (typically large companies and foundations) to pose ideation and technical “challenges” to their networks of solvers. In fact, many online business models are embracing point solution prizes. Threadless, a successful online T-shirt store, holds weekly competitions for the best shirt designs, awarding prizes of up to \$10,000. Local Motors, a “next generation car company,” is designing cars by harnessing external designers through online competitions. Point solution prizes are riding the emerging wave of “crowd sourcing,” the use of unknown innovators to solve problems or submit ideas, often through mass collaboration.

Designing a prize

Once a strategy has been developed and an archetype identified, the work of designing a prize in detail can begin. Four major tasks—determining the participants, defining participant rights, creating the competitions rules, and setting the awards—constitute prize design, and each of these encompasses a longer list of specific design elements and tradeoffs. The high number of choices to be made, and the way each choice affects so many others, makes prize design difficult. It can easily take many months or even multiple award cycles to get the design of a prize right.

Determining participants entails devising qualifications, setting the framework for teams, and determining the number of competitors. Defining participant rights addresses the ability of participants to fund and benefit from the prize experience, and of the sponsor to control how the prize is presented to the public. Creating the rules focuses on choices about timing and stages, criteria for winning, and allowable participant interaction. And setting the awards includes choices about the number, nature, and value of rewards conferred to the winners. *(For a more complete listing of design dimensions, see Appendix 2.)*

The change levers that a prize employs will strongly influence many of these decisions, such as the size of the prize. For example, prizes focused on educating and strengthening a community can make the size of the prize relatively small, and potentially non-monetary. But prizes focused on identifying excellence or influencing public perception may often need to create a higher-value award to attract the necessary media attention.

1 Determining participants

A prize’s strategy should largely determine the size and composition of its pool of problem-solvers. Exemplar prizes that identify excellence in a field—such as the Pritzker Prize in architecture, the Booker Prize in English literature, and the World Food Prize in food and agriculture—tend to be awarded only to nominated contributors. For market failure and point solution prizes, which succeed by mobilizing new talent and capital from unexpected sources, a more expansive view is more appropriate. If the board of the Longitude Prize had restricted its competitor pool to those whom they expected to solve the “longitude problem”—astronomers and cartographers—then John Harrison might never have developed his groundbreaking chronometers.⁷¹

71 Sobel, *Longitude*.

But choosing between a limited nomination process and casting a wide net is only the beginning. Many other tactical decisions must be made about a prize's participant pool. For example, a sponsor may want to limit the size and composition of the participant pool to reinforce other elements of the strategy. The Ibrahim Prize restricts its pool of candidates to African heads of state based on the theory that "inspired, effective leadership at the top" of government is the key to achieving better governance in Africa. Similarly, Fields Medal winners are always younger than 40 because, in the words of Fields medalist, Abel Prize recipient, and chair of the Shaw Prize's mathematics committee Michael Atiyah, "anyone who's going to be anyone will be known by the age of 40. The age restriction is therefore not particularly restrictive."⁷² The Progressive Automotive X PRIZE, in turn, has developed detailed technical and financial qualifications for competitors, and requires them to pay a non-refundable deposit, to attract only serious entrants and avoid wasting administrative time and energy.

Our case studies suggest that the default model for a successful prize should be to set few barriers to participation, since arbitrary restrictions can quickly reduce a prize's leverage and impact. For this reason, the high performing prizes that we observed nearly always articulated compelling reasons if they chose to limit their candidate field.

Another tactical decision concerns the form of participation: should a prize focus on individuals or teams, or remain agnostic on the matter? Many participation prizes, such as FIRST Robotics and Odyssey of the Mind, are designed around the belief that teams instill a spirit of collaboration and group problem-solving far more likely to educate participants than working alone. The X PRIZE Foundation has considered larger models where, for example, 1,000 households could register as a team and compete for the greatest reduction in energy consumption over a set period.⁷³

By contrast, the MacArthur Fellows Program is an exemplar prize dedicated to finding individual "geniuses" and "making their careers"—a decidedly atomistic goal, unsuited to groups or teams. Somewhere in between, exemplar prizes like the Nobel or the World Food Prize may select individual awardees, but build in flexibility to choose multiple individuals or even group winners, based on shared contributions or a history of collaboration on major breakthroughs.

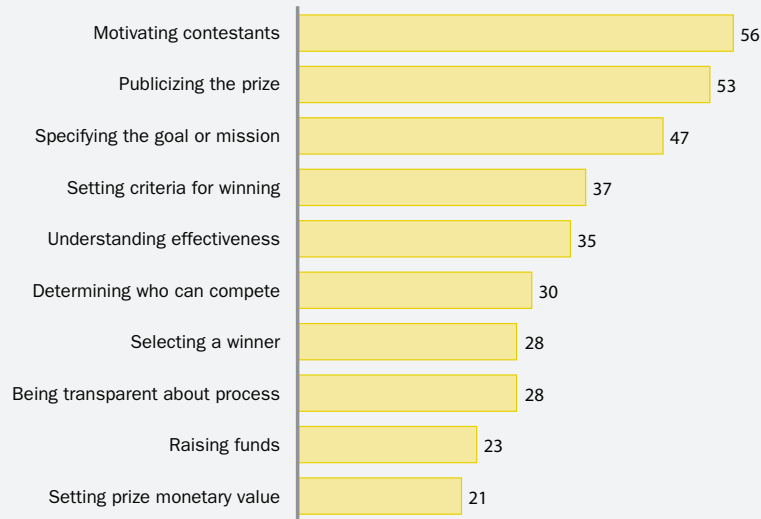
Having finalized the pool of participants (and with a good prior understanding of their interests), sponsors need to turn to the mechanics of motivating them—their rights, the rules of the competition, and the definition of the award itself. Although the award is the classic form of an incentive, all of these elements can be incentives in their way. In our survey of prize sponsors, they rated this concept—motivating contestants—as their most difficult challenge (see *Exhibit 13*).

72 Interview, Michael Atiyah, July 31, 2008.

73 Interview, Peter Diamandis, December 5, 2008.

Exhibit 13: Importance of design and delivery elements*

Percent ranking element in the top 3 (100% = 44 responses)



* Which of these aspects of prize-giving is most challenging?
Source: McKinsey survey of organizations awarding prizes over \$50,000

2 Defining participant rights

Prizes are grounded in a relationship between prize-giver and participant, each of whom can benefit in ways that transcend the prize itself. Some successful prizes focus on the participant experience, designing it to enhance motivation and improve the likelihood of good results. The Netflix Prize, for example, created substantial goodwill with participants by giving them access to a dataset of 100 million movie ratings, a kind of proprietary data that is fascinating to researchers but rarely available. Ashoka's Changemakers initiative gives participants access to each other's ideas, to a proprietary method of breaking down a problem into addressable elements, and to other competitors, all aspects that will increase participants' motivation during the competition and enhance their long-term effectiveness after it.

Teams competing for point solution, market stimulation, and exposition prizes disclose new ideas and innovations in exchange for an opportunity to win an award. Hence, for these types of prizes, defining intellectual property rights is essential. Some prize sponsors, particularly businesses using prizes to develop a new technology or innovation for their company, insist on controlling all IP rights—from patents to copyrights to trademarks. Philanthropies are less likely than businesses to want such control; for them, seeing that the innovation makes an impact is the point of the prize, not proprietarily controlling its use. Smart organizations such as the X PRIZE Foundation clearly codify all parties' IP rights and obligations in the form of Master Team Agreements.

There are many approaches to handling IP rights. Red Hat asks participants for exclusive licenses. NASA's Centennial Challenges oblige competitors to engage in good-faith negotiations for the right to use their innovations. Changemakers asks competitors to share all of the ideas entered in the competition. And for Netflix, it is a condition of the prize that the company has a non-exclusive license to the winning algorithms.

As a rule of thumb, the more IP that a prize-giver wants to control, the more lucrative the award will need to be to attract a strong group of competitors. At the extreme—when prize-givers demand that innovators relinquish all IP rights to claim an award—prize amounts will begin to mirror the theoretical “shadow price” of a patent monopoly.⁷⁴ Such prices can be prohibitively high (as much as hundreds of millions of dollars, depending on the nature of the innovation).

Similar considerations apply to sponsorship and media rights. The X PRIZE Foundation has paid particular attention to this issue. The Foundation allows competitors to sell various team sponsorship rights to raise money independently, but retains all media rights to the competition in order to build its prizes’ brands and shape the messaging that surrounds them.

3 Creating the rules

The rules for a prize competition typically include three elements: 1) criteria for winning; 2) the staging and timing of the competition; and 3) allowable interaction and collaboration (if any) among participants. These elements can vary widely depending on the type of the prize.

a Criteria for winning

More than a third of the prize sponsors we surveyed reported difficulty in creating criteria for winning. Achieving objectivity and simplicity are the biggest challenges. It is difficult to devise “fair” criteria for judging how well someone has fulfilled a partly or entirely subjective goal. Similarly, it is difficult to define winning conditions that produce the desired result without over-complicating the process or stifling innovation.

Subjectivity versus objectivity: For most prizes, objective success criteria are essential. The more difficult it is to understand what it takes to win, the more this will deter competitors from vying for the prize. Point solution prizes typically set a clear finish line that produces an objective winner. The Netflix Prize, for instance, uses Root Mean Square Error, a standard statistical criterion for accuracy improvement, to evaluate participants’ submissions, while the Ansari X PRIZE for space flight was awarded on relatively simple criteria about altitude and frequency of flight.

But achieving some measure of objectivity—even if it does not quite reach the level of mathematical certainty—is also important for other prize types. The success of the Ibrahim Prize in changing public expectations about governance, for example, owes much to the perception that its criteria and judges make credible judgments about leadership quality. A prestigious judging pool including leading African statesmen like Kofi Annan provides credibility, and is reinforced by the new Ibrahim Index, which provides a quantitative benchmark for the debate.

In a few cases, however, objectivity is impossible or may even be counterproductive—especially in inherently subjective fields. As John Sutherland, the Booker Prize Selection Committee Chair in 2005, told us, “there are as many opinions as there are people about what a good novel is. In law, you’ve got case law and precedents to help you. In literature, judges will see different things in the same novel.”⁷⁵ But it is also possible that the Booker Prize’s ability to stimulate the public’s interest is tied to this subjectivity. For example, public disagreements among Booker Prize judges (or even an occasional high-profile resignation) may make it more likely that the prize will achieve its broader goal of encouraging more people to talk about books.

74 For a general overview of the concept of shadow prices, see Gyorgy Simon, “Ex post examination of macro-economic shadow prices,” *Economics of Planning*, October 1965, Vol. 5, No. 3, pp. 80–93.

75 Interview, John Sutherland, August 7, 2008.

The story of the Ibrahim Index



Mo Ibrahim
FOUNDATION

Mo Ibrahim founded a prize to honor distinguished, effective African leadership in part to encourage the “professionalization of politics” in sub-Saharan Africa. Like CEOs in the private sector, he wanted African heads of state to “be judged by results.”¹ But determining objective criteria to judge results in a field as subjective as politics posed a challenge.

Ibrahim’s solution was to collaborate with Prof. Robert Rotberg at Harvard’s Kennedy School of Government on an “index” of African governance: a comprehensive ranking of countries based on how well they deliver on key issues of good governance, from safety and security to the rule of law, human rights, and human development. Ibrahim’s foundation funded Rotberg’s team and charged them with anchoring his prize on a set of measures that would be academically rigorous and politically unimpeachable.

The first Ibrahim Index of African Governance, based on 58 independent metrics, was released in 2007 and will be updated annually. The Index received tremendous press attention upon publication, with *The Economist* describing it as “a new league table that names, shames and sometimes praises African countries.”² As Foundation’ Director Hadeel Ibrahim, told us, the Index “took on a life of its own ... we did not initially expect it to be as important as it turned out.”³

While the fame and credibility of the Index have benefitted the Prize, the objectivity problem has not been fully solved. As Rotberg observes, governance and leadership “are not one and the same.”⁴ Haniah Farhan, who manages the Index for the Foundation, explained that “there are some things that leaders just cannot do with respect to governance ... there is a relationship, but it is not a direct causal relationship.”⁵ “We realized that leadership was comprised of many qualities,” continued Hadeel Ibrahim, “that couldn’t be easily distilled to objective metrics.”⁶ As a consequence, the Foundation treats the Index as a “threshold” for the Prize, one that “informs” the decision of the prestigious judging panel.

While the Ibrahim Index has not emerged as a stand-alone criterion for awarding the Ibrahim Prize, it has become critical to the Prize’s broader aim of changing public perceptions of governance—and eventually of changing leaders’ behavior. As one Board member says, the “objective metric is critical to create the debate on governance.”⁷ For that reason, Hadeel Ibrahim told us, “the Prize will remain our flagship, but the Index is most important thing we do.”⁸

1 Interview, Hadeel Ibrahim, August 22, 2008.

2 “It’s better to be out to sea,” *The Economist*, September 27, 2007.

3 Interview, Hadeel Ibrahim, August 19, 2008.

4 Interview, Robert Rotberg, July 29, 2008.

5 Interview, Haniah Farhan, August 22, 2008.

6 Interview, Hadeel Ibrahim, August 19, 2008.

7 Interview, Lord Cairns, August 28, 2008.

8 Interview, Hadeel Ibrahim, August 19, 2008.

Simplicity: Good prizes also pose clear, understandable, and simple criteria for success. The best criteria are geared to produce the desired result while leaving participants maximum room for creativity. Many prize-givers are tempted to over-engineer criteria to try to cover every eventuality or prevent cheating. But the more rules proliferate, the more potential entrants (or nominators) can become confused or discouraged, and competitors can find it increasingly difficult to craft coherent strategies. One rule of thumb for defining success criteria comes from Ken Davidian, a founder of NASA's Centennial Challenges, who believes that "ideally ... rules should be no longer than a page."⁷⁶

Concise criteria can also reduce unintended consequences, ensuring that core requirements, and not peripheral details, determine winners. NASA's Regolith Challenge, a contest to produce robots to dig through lunar soil, is an instructive example. All of the entries in the first year were based on an arm that rotated or oscillated around a fixed point, which was very different from the "autonomous toy truck" design that the NASA officials had envisioned. The following year, officials changed the rules to make it clear that the diggers needed to be mobile, but also required that they move autonomously, like their digging function. This additional technical requirement was arguably unnecessary since the engineers at NASA had already developed successful autonomous movement approaches. Unfortunately, autonomous movement, as opposed to competitor-controlled movement, is tremendously difficult for "citizen inventors" to deliver. And so for a second consecutive year, no team successfully completed the competition. Because of the autonomous movement requirement, the challenge became more about this requirement (something that competitors were unable to solve) than about digging regolith (something they appeared able to achieve). Sponsors must thus strike a balance between getting everything that they want from competitors and diverting them from the core task at hand. Before adding performance criteria, prize-givers should ask whether they are willing to see those features make or break their competitions.

Iteration: Finally, good success criteria evolve through many iterations. Successful prize-givers—from the X PRIZE Foundation to Idea Crossing—seek input on drafts from a wide range of stakeholders, including competitors, topic experts, and other prize-givers. Some use the Internet to create open-source forums to vet early proposals. It is not uncommon for prizes to go through three or more drafts before settling on a final version. The Progressive Automotive X PRIZE rule set, for instance, is currently in its sixth iteration.

b Staging and timing

Before deciding the timetables and schedules for an award, prize-givers should consider how the prize calendar can maximize what NASA's former program manager Ken Davidian calls "the power of the prize theater."⁷⁷ The first and fundamental decision is whether to establish a one-time prize or a recurring one. Each has advantages. The first is well suited to recognizing a unique achievement and maximizing its impact; point solution and market solution prizes fit this category well. The repetitive quality of the second—well suited for recognition prizes—can help build disciplines over time and reinforce networks of like-minded problem solvers.

But other hybrid solutions can also be effective in garnering publicity and shaping debate. Point solution and market solution prizes, which work well as one-time awards, can enhance their impact by adding subsidiary awards that recognize progress (and inject new capital into the competition). The Mprize, for example, added a second award to encourage continued effort after it became clear that the achievement of its main goal was likely several years in

76 Interview, Ken Davidian, August 2, 2008.

77 Interview, Ken Davidian, August 2, 2008.

the future. Maintaining only a single prize for a complete solution would have minimized the theatrical element of the competition, reducing competitor interest and possibly threatening a funding model that relies on a wide group of donors. The recurring prize for interim progress, however, provides a news hook that encourages continued press and participant interest, while also demonstrating movement towards the full solution. The X PRIZE Foundation employs a variety of models, from the open calendar of the Ansari X PRIZE (which lasted for eight years) to one in which important events (such as the date of the race for the Progressive Automotive X PRIZE) are set well in advance.

Another hybrid solution is a competition with stages, which can build interest and suspense while narrowing large participant fields. The classic example is the Booker Prize's management of consecutive "long lists" and "short lists" of nominees. By publishing the names of all the finalists, and then winnowing them down over time, the prize generates tremendous publicity and drives demand for all of the nominated books—not just the ones that make it to the short list. The same holds for Academy Award nominations, which prompt more than a few moviegoers to see all the best picture or leading actor nominees before the Academy hands out the Oscar. Stages can also be critical for participation prizes like the National Spelling Bee, the culmination of a long process in which participants progress from local spelling bees to regional competitions and ultimately to the nationally televised final. These layers of competition build the skills of thousands of students—including those who do not advance to the next round—while generating excitement in anticipation of seeing who will become the national champion.

C Participant interaction

The last major element of a prize's rule set covers interaction between participants. For some prize strategies, this is not a factor—many successful prizes either do not require participant interaction to achieve their goal (such as exemplar prizes like the Pulitzer), or could even be harmed by it (for example, if interaction would endanger intellectual property). But for others, some measure of collaboration is preferable to pure, unassisted competition.

Indeed, prizes need not be purely competitive. A great deal of research suggests that collaboration can substantially aid innovation, and point solution or market solution prizes might be designed to encourage this.⁷⁸ And collaboration is essential to participation and network prizes, which seek to strengthen communities, educate people, and/or improve their skills. Changemakers, a competition whose goal is as much to strengthen communities as to deliver point solutions, freely permits competitors to revise their entries—and many do so after reading other participants' submissions (all of which are visible to any visitor to the competition's website), or as a result of dialogue with others on the site.

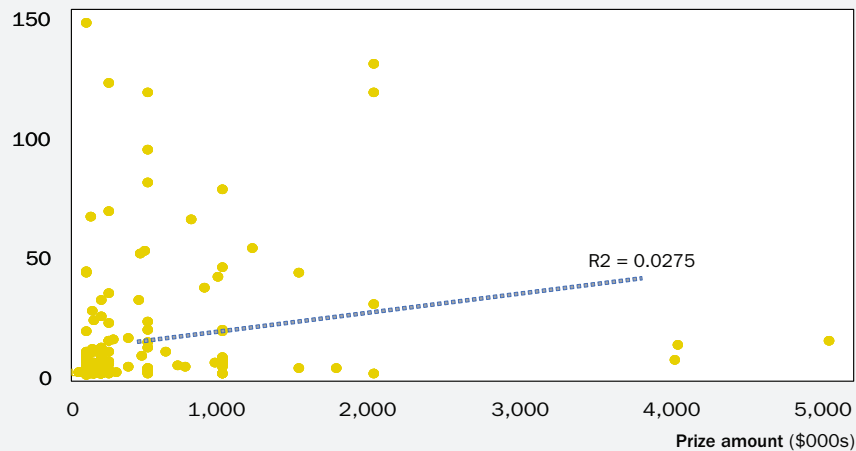
4 Setting the award(s)

After defining a participant pool, its rights, and the rules governing the competition, a prize sponsor's last major design decision is about the award itself. For many prize sponsors, this is entirely a question of cash value—they aim to offer a substantial cash award, on the assumption that doing so will generate more media coverage. And yet, in our study of big-purse prizes, we found no correlation between the size of a prize and the exposure that it receives, even when correcting for the longevity of a prize (see *Exhibit 14*).

78 See, for example, Christopher Freeman, "Network of innovators: a synthesis of research issues," *Policy Research*, 1991, Vol. 20, No. 5, pp. 499–514.

Exhibit 14: Award size and exposure

Frequency of online mentions (000s of Google search results)



Note: Prizes launched after 1950; extremes (hits >250 k and <250; prizes worth more than \$10,000,000) omitted for regression
Source: McKinsey dataset of 219 prizes worth \$100,000 or more

Indeed, the Pulitzer Prizes, which award a relatively paltry \$10,000 to each winner, receive more exposure than any other prize in the United States, as approximated by the number of mentions online. Effective prize-givers should widen their lens and consider all the elements of an award—kind, number, and value—and then choose the best for their particular strategy. Bigger may not always be better.

a Non-monetary incentives

The power of a prize is derived from more than its purse. The sociologist of science Robert Merton famously described the various motivations that guide scientists in research, and financial gain did not rank high among them.⁷⁹ As Ken Davidian argues, his participants at the NASA Challenges usually ranked the satisfaction of aiding space exploration and seeing their contribution used by NASA at the top of their list, while the size of the cash award usually came last.⁸⁰ Groups and individuals can find reward in a variety of ways; prizes should reflect this and communicate it clearly.

Glory, in particular, can be a remarkable source of leverage for prizes. Many young mathematicians obsess about winning the Fields Medal, even after receiving tenure and other important markers of recognition. Their yearning has little to do with the money. What they seek is the prestige that the medal confers within the discipline, which is more a function of longevity, press, prominent past winners, and celebrated judging pools. Glory is often a byproduct of a sponsor's investment in publicity and ability to create drama through the prize process regardless of purse amount. This is what Peter Diamandis, Chairman and CEO of the X PRIZE Foundation has described as the "hero-making" potential of prizes: they are capable of launching industries not only through a specific idea or innovation, but by breaking a barrier or proving a concept to be viable on a mass scale.⁸¹

79 Robert Merton, *The Sociology of Science*, 1973, Chicago: University of Chicago Press.

80 Interview, Ken Davidian, August 2, 2008.

81 Interview, Peter Diamandis, August 26, 2008.

b Number of prizes

The amount of money that a sponsor dedicates to an award often has far less impact on competitors than the number of awards available or what those awards recognize. For participation, network, and exposition prizes especially, the per-competitor award amount can run quite low, but the glory of winning and the benefits of participation—including being “certified” as notable in a chosen field—are nonetheless highly valued. Odyssey of the Mind and FIRST Robotics hand out only trophies and medals to the many winners of local and regional competitions, but despite the absence of big cash prizes have managed to mobilize mass participation among schoolchildren across the country. Moreover, their most prestigious awards are not for the “winners” of the competition itself, but for the teams that best embody the underlying values of the organizations: creativity in the case of Odyssey of the Mind; collaboration in the case of FIRST Robotics. What an award is for can have as much, if not more, expressive power than how much money accompanies it.

c Size of the prize

Nevertheless, many prizes of course take the form of cash or cash equivalents. The appropriate size for these purses depends on several variables: the resources required from participants, the magnitude of any post-prize benefits and the difficulty of capturing them, the motivation (and desired behavior) of the participants themselves, and the psychology of other stakeholders such as the general public. Sponsors need to consider each when developing a prize. Simply increasing the size of an award may do very little to impact the motivation of individual participants or the credibility of an award.

El Pomar Foundation, which runs a network prize, attaches \$50,000 to the annual Penrose Award, its highest annual honor for a Colorado nonprofit. When we asked why the foundation does not give more, officials explained, “we wanted an amount that was substantial, but not over the top.” “Fifty thousand dollars is a very substantial amount and is often life-changing for these nonprofits,” explains award commissioner James Hayes. “Giving more than \$50,000,” adds Bill Hybl, the foundation’s Chairman and CEO, “could easily create more trouble than it’s worth for a small nonprofit, especially with [the] tax regulations that apply to nonprofits.”⁸² Similarly, one reason that NASA sets relatively low award amounts for its Centennial Challenges is that it explicitly seeks “citizen inventors” and this practice discourages large industry players from taking over the competitions. Idea Crossing officials argue that for their Innovation Challenge® for MBA students, the top prize of \$20,000 is enough to make the content interesting, but not enough to make reward so valuable that it might damage the good-natured rivalry between teams or distract students from their coursework.

By contrast, in developing a prize for creating a cheap, deployable tuberculosis diagnostic, the X PRIZE Foundation realized that their target competitors were not unexpected entrants, but rather existing, well-known companies. They accordingly adjusted the size and structure of the prize, tying it to a distributor and an advanced market commitment (AMC) at a value of nearly \$50 million. As the Foundation’s former Executive Director, Life Sciences explains, “we knew that diagnostic companies were not interested given the cash flow predictions. So we looked at the size of prize needed to make them interested in a diagnostic platform competition, tied it to a good distributor, and offered an AMC. In other words, because we were not looking for new entrants, but existing diagnostic players, the result was a combination prize and AMC that increased the chances of small companies [winning the prize and being able to go] public at a better multiple.”⁸³

82 Interview, Bill Hybl, July 25, 2008.

83 Interview, Bard Geesaman, August 26, 2008.

In general, we see a far stronger rationale for large purses with point solution and market failure prizes, which sponsors nearly always employ to realign existing market forces. In such instances, the “right” size of a prize will be determined by the size and nature of existing markets and the potential to develop new ones. As Burton Lee, a Principal of Space Angels Network and an advisor to prize-giving organizations, pointed out to us, the larger that a follow-on market for an innovation is, the smaller that a prize amount will need to be to motivate a set of competitors to take on the problem.⁸⁴ Furthermore, if an industry is already investing immense resources to research and develop an advance with significant market potential, even prizes of hundreds of millions of dollars can end up being a proverbial drop in the bucket, affecting the direction or pace of innovation at the margin only a little, or not at all.

Creating and executing an effective prize process

Prizes derive much of their power from their theatricality. A prize is an easy-to-understand concept that maximizes and focuses excitement, giving visibility to ideas and providing emotional access to the public and potential participants. In the words of innovation author and business consultant Geoffrey Moore, prizes are “an ‘Arthurian romance’ that makes people feel that they can participate in the quest for a solution.”⁸⁵ Making the most out of this theatrical dimension is often a key task of a prize’s process. A well-designed and well-run process will attract quality participants, capture attention, passion, and innovation through competition, celebrate winners within a community and in the public eye, and ensure that the prize maximizes its potential impact. For some prizes, such as participation and network prizes, some or all of the desired impact occurs *during* the prize process, making that process arguably more important than the actual award. In our research, we came across too few examples of prizes that do an outstanding job of managing the theatrical element. As Jim English, the author of *The Economy of Prestige*, argues,

“prizes fail when the sponsor fails to understand how much effort and investment is required beyond the simple ‘economic capital’ of the award itself. A sponsor might imagine that a prize that carries cash value of, say, \$50,000 requires around \$60,000 or \$75,000 a year to run. But depending on the kind of prize and the field of endeavor, the actual costs might be \$500,000 or more when you include raising public awareness that a prize exists, inducing people to nominate and apply, mounting a publicity campaign, and administering the whole program.”⁸⁶

Echoing English, many prize experts we spoke to criticized the tendency of sponsors to underinvest in the prize process.

In this section we will lay out the factors sponsors must take into account and highlight some of the intriguing practices and variants we observed. For some prizes, the theatrical element plays out on a grand stage. President Paul R. Gudonis of FIRST Robotics estimates that process expenses would total nearly a half billion dollars if the in-kind efforts of volunteers were added to the production costs of its raucous live robot competitions.⁸⁷ While most prizes won’t have \$500 million processes, they all face a long list of design decisions. We group these into four related activities: 1) Attract; 2) Compete; 3) Celebrate; and 4) Publicize (see *Exhibit 15*).

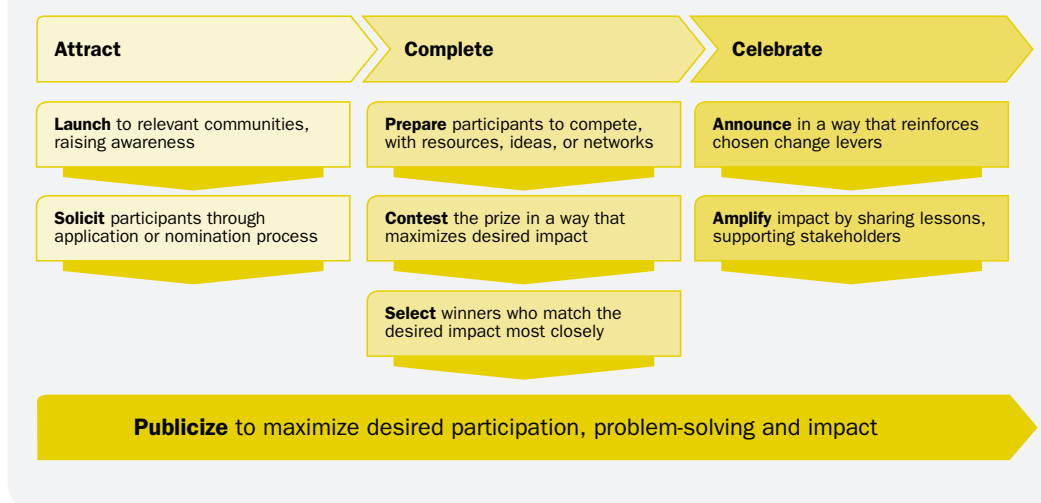
84 Interview, Burton Lee, August 12, 2008.

85 Interview, Geoffrey Moore, June 3, 2008.

86 Interview, James English, May 27, 2008.

87 Interview, Paul Gudonis, August 28, 2008.

Exhibit 15



Though we identify discrete activities, the prize process itself is not static, even within a single competitive cycle. For instance, if a prize is not attracting enough competitors, good prize-givers will consider cutting back on end-of-process expenses such as the awards gala and doubling-down on publicity. Sponsors should be ready to reconsider basic design choices when necessary, certainly before the start of a new prize cycle, but sometimes even in the middle of an ongoing process.

With the emergence of organizations such as Idea Crossing, InnoCentive, NineSigma, Spigot, and BigCarrot.com, prize sponsors have new options to outsource a prize's process, design, or even execution. These entities offer the experience of having hosted many prize competitions, in the process developing valuable insights into what works and creating new prize infrastructure such as on-line hosting and collaboration tools. Idea Crossing's expected launch of a "turn-key" solution to hosting and managing prizes online aims to give sponsors more control over their prize program while significantly simplifying the process. Such intermediaries are not always the right answer; they can be limited by the reach and flexibility of their infrastructure, the types of prizes they typically support, or the solver communities they have developed. Nonetheless, we have found that prize-giving is a learned skill, and lessons from past successes and failures enables intermediaries to provide meaningful, valuable guidance to prize sponsors.

Some prizes that we studied, including the Templeton Prize, the World Food Prize, and the NASA Centennial Challenges, encountered problems in outsourcing one or more steps of their processes, something that reflects the early development stage of the sector's infrastructure and practices. For the Templeton Foundation, outsourcing the judging reduced the Foundation's control over the quality of nominees and selections and made it harder to integrate the award with supporting efforts such as developing lectures around the selection; the Foundation has since taken steps to move judging in-house. NASA, in turn, has dedicated nearly its entire prize budget to purses, seeking leverage by partnering with nonprofits who agreed to run the competitions effectively for free. This has arguably led to underinvestment in publicity, and has limited the resources available for running competitions effectively.

Regardless of whether a sponsor finds a partner or outsources activities, it will have to be an active participant in planning and supporting each of the four process stages.

1 Attracting quality participants

The first phase of a prize process focuses on attracting participants. This activity essentially fills the wide end of a funnel in order to produce impact at the narrow end—the award stage. In the words of Anil Rathi, CEO of Idea Crossing, “getting the method of attracting and engaging participants right is *important*, because prizes can scale up if [that method] catches fire.”⁸⁸

As with other elements of a prize’s delivery, the right approach for finding candidates is a function of its overall strategy. For example, prizes that seek to change public perception of an issue can achieve great leverage by embracing a more transparent nomination process. Being a finalist for the Pulitzer Prize can reap dividends for writers, artists, and journalists, even if they do not end up winning the award. The same holds for books that make it to the publicly-announced longlist and shortlist for the Booker Prize—being included in either can have an impact on sales. However, for many prizes, the link between strategy and building the competitor pool will begin with a choice of nominating approach. An approach that relies on third-party nominations may be a better fit for prizes that want to reinforce a standard of excellence or a more general public perception by adding the weight of “expert” opinion. On the other hand, an approach where candidates are encouraged to nominate themselves may be a better fit for prizes that want to mobilize new talent, or focus, strengthen, or educate a problem-solving community.

There are several potential forms for third-party nominations, each with its advantages. Exemplar prizes like the Nobels, the Man Booker Prize, or the Ibrahim Prize depend on generating smaller pools of high-quality candidates and use public bodies of expert jurors to find them, an approach that strongly reinforces messages about the standard of excellence in play and may be very motivating to stakeholders who value the respect of their peers. The MacArthur Fellows Program, in contrast, relies on nominations from anonymous experts, an approach that may usefully enhance the “theater” of a prize program, but not necessarily the breadth of the candidate pool. MacArthur maintains diversity by choosing a new set of nominators every year, who are allowed to propose a handful of nominees only once in their lives. Being a nominator, then, is prestigious in itself, and ensures that a large number of nominators take the time and expend the effort to make only thoughtful selections. In another approach, the World Food Prize Foundation solicits nominations from a group they call their “Nominating Academy” made up of individuals and institutions that are contacted yearly and invited to submit a nomination. This approach normally yields 25 to 30 new viable nominees each year (as well as approximately 25 to 30 “return” candidates). Finally, administrators of the El Pomar Awards have developed a clever outreach program to ensure that they can find even small nonprofits in every corner of Colorado. Each year, the program holds an event that is part science fair, part beauty pageant in one of nine regions in the state, with every nonprofit in the region invited. At the event, prize judges discuss the El Pomar Awards and run a series of educational seminars on nonprofit management topics ranging from grant-writing to building a balance sheet. Non-profits are invited to set up booths and introduce themselves to conference attendees, with the ultimate ambition of receiving a nomination to be an El Pomar finalist.

Self-nominating approaches seek to make the most out of prizes’ ability to find unexpected participants and ideas. Attracting these participants and marshalling them through the registration process is, in business terms, a sales and marketing task, which can require

88 Interview, Anil Rathi, June 10, 2008.

active outreach and a customer-friendly interface. A participant outreach program must make clear who makes up the target groups of potential solvers, what messages will motivate them to consider competing, what channels will ensure that they see the message in a timely manner, and what steps they need to take to start engaging with the competitive process.

Competitor outreach need not be limited to a formal launch period or process. Although the Progressive Automotive X PRIZE has already attracted an impressive number of viable competitors, it continues to send staff members on global recruiting trips, often making “the sell” directly to executives at target companies. It also attends automotive industry conferences to pull in large manufacturers. The Google Lunar X PRIZE held a team conference in Europe to ensure that international competitors were aware of the prize and well represented in the competition.

Self-nomination approaches can also become significantly easier over time if prize sponsors take advantage of the networks that naturally emerge from past prizes. Several prize givers who have administered multiple prize cycles have built impressive networks of potential candidates and recruiters. For example, through past prizes, Idea Crossing has created relationships with business and engineering schools around the world. Officials encourage professors to build Idea Crossing challenges directly into their course curricula, ensuring a baseline number of student competitors. InnoCentive, in turn, has created a network of more than 165,000 problem solvers, giving the organization immediate access to a large pool of potential participants for every new prize.

Certainly, the costs associated with building and managing a competitor pool may cause some sponsors to restrict the number of entrants, and some may do so to create a sense of exclusivity in applications or nominations. But many prize types, especially point solution, market failure, participation, and exposition prizes, will have more impact if they are relatively open in admitting, or at least considering, participants. Making the process as easy as possible is critical. The World Food Prize accepts applications online. The X PRIZE Foundation’s website features an extensive list of frequently asked questions. And El Pomar Foundation requires potential competitors to submit only easily available information.

2 Competing

Not every prize will have a competition phase, but for those that do, the competition provides an excellent opportunity to fully exploit the theatrical potential of a good process, thereby encouraging competitor efforts and ingenuity. Sponsors can maximize that potential by making good decisions in three areas: preparing contestants to compete, contesting the prize, and selecting the winners.

a Preparing contestants to compete

A great deal must take place before the formal competition begins. For instance, most X PRIZE teams need months to find financing, dream up ideas, and create prototype innovations. For FIRST Robotics, teams have only six weeks to assemble their robot for the regional competition.

Effective prizes often, in advance of the competition, give participants some of the building blocks—from resources to information to specific tools to help building relationships to access to capital—needed to develop their ideas and concepts. FIRST Robotics, for example, provides teams with engineer mentors, robotics kits (for a fee), and assistance in raising funds. Cisco’s I-Prize for new business ideas provides participants with a suite of online collaboration tools. In both cases, providing a few building blocks for participants increases the potential impact of the prize.

Prizes based on a collaborative approach can benefit from encouraging collaboration from the moment that the competition begins. Changemakers obligates all competitors to post their entries on the shared online “discovery framework” that defines the problem, creating a “Linux open source for change in each thematic area.”⁸⁹ In the words of Ashoka’s former President, “when we asked sponsors what the most important thing was about the competition [to them], the answer we received was that ‘we poached ideas from every single entry’.”⁹⁰

b Contesting the prize

The competition phase encompasses factors such as timing, the competitive environment, and the support provided to participants. Together, these establish a prize’s character.

Changemakers, for example, designed a process that allows competitors to change their submissions over time. Combined with an open-source approach, this encourages collaboration between competitors and the integration of promising ideas—invaluable for a prize competition that aims to showcase runners-up as much as winners and to build a lasting community of problem solvers. Other prizes have avoided this collaborative style of process out of fear that it risks “groupthink” and encourages the early convergence on a suboptimal solution.

Whether a competition is remote or face-to-face can also affect the outcome of certain kinds of prizes. At Changemakers, the 12 to 15 finalists are often invited to a Change Summit hosted by the competition sponsor where they can meet and mingle with judges and potential investors, share ideas, cement existing relationships, and build new ones. The Progressive Automotive X PRIZE plans to host live competitions in cities around the United States. The aim is to attract media attention and begin to change public perceptions of the viability of a 100 mpg (or equivalent) vehicle.

c Selecting winners

The prizes we surveyed ranked the selection of winners as the second most important step in their process, after the actual design of the prize (see *Exhibit 16*). For some prizes, selecting winners is automated. The Netflix Prize asks competitors to submit their solutions online, which allows for them to be scored and posted on an automated leader board within minutes. But for most prizes, a group of judges selects the winners. Who these judges are, how they are prepared, and the design of their decision making process all matter a great deal—especially for the largest prizes.

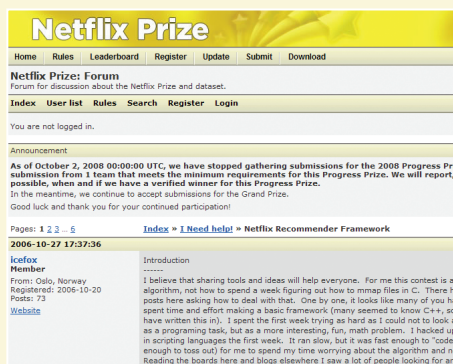
89 Interview, Sushmita Ghosh, June 17, 2008.

90 Interview, Sushmita Ghosh, June 17, 2008.

Efficient prize process brought to you by the Internet

How does the Netflix Prize manage 33,000 entries—dozens of which arrive daily—from more than 70 countries? How does it keep track of the hundreds of entrants who collaborate weekly on innovative ideas? Amazingly, it does all that with just a few web servers and the Netflixprize.com website. Many prize sponsors could learn from Netflix's success in driving down prize operating costs to an absolute minimum.

"This is a prize brought to you by the Internet," says Steve Swasey, Netflix's VP of Corporate Communications.¹ Netflix, an online movie rental service, is offering its eponymous prize to the data miner who can improve the accuracy of its movie recommendations algorithm by 10%.



Netflix Prize

Home Rules Leaderboard Register Update Submit Download

Netflix Prize: Forum
Forum for discussion about the Netflix Prize and dataset.

Index User list Rules Search Register Login

You are not logged in.

Announcement

As of October 2, 2008 00:00:00 UTC, we have stopped gathering submissions for the 2008 Progress Prize submission from 1 team that meets the minimum requirements for this Progress Prize. We will report, possible, when and if we have a verified winner for this Progress Prize. In the meantime, we continue to accept submissions for the Grand Prize. Good luck and thank you for your continued participation!

Pages: 1 2 3 4 5 Index * I Need help! * Netflix Recommender Framework

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icofex
Member

From: Oslo, Norway
Registered: 2006-10-20
Posts: 73
[Website](#)

Introduction

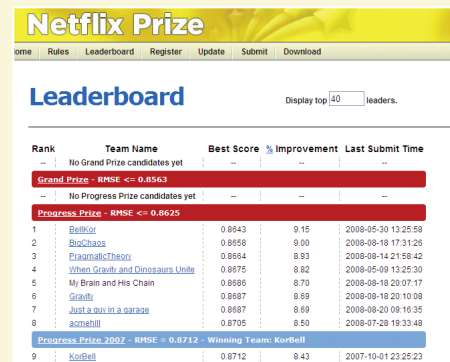
I believe that sharing tools and ideas will help everyone. For me this contest is an algorithm, not how to spend a week figuring out how to mmap files in C. There are posts here asking how to deal with that. One by one, it looks like many of you have spent time and effort making a basic framework (many seemed to know C++, so I have written this in). I spent the first week trying as hard as I could not to look at as a programming task, but as a more interesting, fun, math problem. I hacked up in scripting languages the first week. It ran slow, but it was fast enough to "code" enough to look out for me to spend my time worrying about the algorithm and not reading the boards here and blogs elsewhere I saw a lot of people looking for ans

Currently, Netflix conducts its entire prize process online, with no human interaction, and very little ongoing cost. Participants sign up online to get instant access to the 100 million movie rating data set. If they run into trouble, they can go to an online forum to collaborate with other participants on approaches, problems, and new ideas (see left).

Once a participant has a solution, he can submit it online where it is automatically

processed. The results instantly show up on the Netflix Leaderboard, which competitors closely follow, helping stoke competition (see below).

The online approach allowed the Netflix Prize to create a self-sustaining community of motivated participants, with thousands of online posts by competitors who have questions or want to share ideas with others. The success of the Netflix Prize suggests that many more prizes will embrace the Internet as the core platform for their prize process.



Netflix Prize

Home Rules Leaderboard Register Update Submit Download

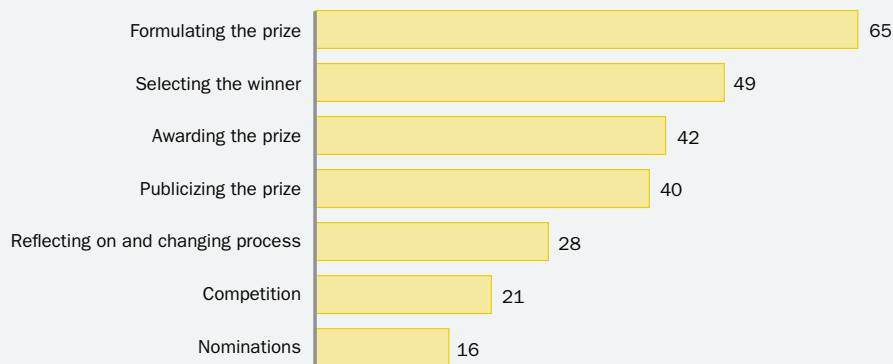
Leaderboard Display top 40 leaders.

Rank	Team Name	Best Score	% Improvement	Last Submit Time
--	No Grand Prize candidates yet	--	--	--
Grand Prize - RMSE <= 0.8563				
--	No Progress Prize candidates yet	--	--	--
Progress Prize - RMSE <= 0.8625				
1	Bellicor	0.8843	9.15	2008-05-30 13:25:58
2	BioChaos	0.8858	9.00	2008-08-18 17:31:25
3	PragmaticTheory	0.8864	8.93	2008-08-14 21:58:42
4	When Gravity and Dinosaurs Unite	0.8875	8.82	2008-05-09 13:25:30
5	My Brain and His Chain	0.8886	8.70	2008-08-18 20:07:17
6	Grault	0.8897	8.69	2008-08-18 20:10:08
7	Just a guy in a garage	0.8887	8.69	2008-08-20 09:16:35
8	icofex	0.8705	8.50	2008-07-28 19:33:48
Progress Prize 2007 - RMSE = 0.8712 - Winning Team: KorBell				
9	KorBell	0.8712	8.43	2007-10-01 23:25:23

1 Interview, Steve Swasey, July 9, 2008.

Exhibit 16: What are the most important steps in the prize process*?

Percent ranking in the top 3 (100% = 44 respondents)



* What is the most important aspect of prize-giving?

Source: McKinsey survey of organizations awarding prizes over \$50,000

Prize analyst Jim English argues that “how you pick the judges of [a] prize is critical, because that determines the outcome.”⁹¹ One key is to select judges whose expertise and experience are appropriate to the prizes’ change levers. Subjective exemplar prizes, for example, require a particularly credible set of judges. Prizes such as the Nobel, Ibrahim, and Pulitzer field impressive judging pools that bring instant credibility, publicity and prestige. For more objective point solution and market stimulation prizes, the identity of judges matters less, though their technical credentials can be important.

It is the sponsor’s role, throughout, to provide good guidance and to define key terms, even to eminent judges. If “innovation” and “leadership” are goals, how are they defined? Should judges consider multiple criteria, and if so, how should they weigh them?

For prizes that are not “first past the post,” sponsors should ensure that judges are fully engaged long before their formal role begins so that when it comes time to pick winners, they are as informed as they need to be. For instance, months before judging takes place, both the World Food Prize and the El Pomar Awards staffs create and send to judges thick binders that list the profiles of each competitor in tremendous depth (including details on budgets, organizational structure, and programs). The World Food Prize’s Director of Secretariat Operations works with student interns to manage this process. In a twist, Changemakers uses the judges to do this preliminary work, asking them to select 12 to 15 finalists; competitor peers in the online community of problem solvers vote the final award.

Finally, a good selection process seeks to support high-quality decisions. At the most basic level, this means being clear about criteria and consistent in their application. Some prizes conduct a training process for judges intended to maintain standards: FIRST Robotics and Odyssey of the Mind organize judging seminars to ensure that their prize maintains its standards consistently from contest to contest. Other prizes work to overcome turnover in the judging pool through recourse to institutional memory. Both the El Pomar Awards and the World Food Prize, for instance, have built up databases of every candidate ever nominated, to help judges put their decisions in context.

91 Interview, James English, May 27, 2008.

3 Celebrating winners and the prize

What's a prize without a celebration? Celebrating winners is not just a reward for the fortunate few; it's a way of thanking participants, judges, sponsors, and the community, in the process enabling further impact. There are two main elements: announcing the winners, and amplifying the messages and ideals of the prize.

a Announcing the winners

The method of announcement should complement a prize's intended change levers. Prizes focused on influencing public perception often create spectacles and celebrations likely to attract media coverage. For instance, winners of the Templeton Prize typically receive their awards from the Duke of Edinburgh in a ceremony at Buckingham Palace. Prizes focused on strengthening communities and educating individuals, on the other hand, tend to emphasize the winners less, preferring to bring all the stakeholders together to build relationships and exchange ideas. Ashoka's Change Summit helps to solidify networks of problem-solvers who stay in touch long after the prize is awarded.

Award ceremonies provide sponsors with an opportunity to publicly reiterate the ideals and purposes behind their prizes, and, critically, to articulate the reasons for a decision, which can be essential for capturing impact. Explaining why a judging panel has deemed a book or architect or aircraft to be excellent allows prize-givers to focus communities, influence perceptions, and set standards. This is perhaps why many award ceremonies are tied to conferences: the combination creates an opportunity for judges and prize administrators to articulate the reasons behind a prize winner's success.

b Amplifying the message and ideals of the prize

Celebration phases that end with the announcement of a prize deprive prize givers of an opportunity to amplify their prize's impact. We found that many sponsors do a good job of using post-announcement activities to disseminate their prize's lessons and increase the value of participation for all stakeholders. As elsewhere, the appropriate tactics and strategies vary by prize type. For market stimulation prizes, such as most X PRIZES, the formal outcome is only the first element of what the sponsor hopes will be a broader process of change. Ensuring that the lesson learned or new innovation is properly amplified requires publicity, efforts to solidify market demand, and sometimes working to influence policy makers.

The purpose and point of such dissemination is to ensure that the prize creates value for society. The administrators of the Nobel Prizes are particularly effective at propagating not just the names of winners, but the ideas that drove their selection, often yielding lengthy profiles in the pages of the *New York Times* and other important media outlets. For most recognition prizes, dissemination is *the* key step for achieving impact: it is *how* sponsors influence agendas, define standards for excellence, change perceptions, and focus communities. Prizes can only set an example if stakeholders hear about it.

A second way to amplify a prize's impact is to strengthen the community of its stakeholders, by enabling them to exchange ideas and build relationships. For network prizes, the more their stakeholders feel part of a special community, the more successful these prizes will be. All the annual recipients of the Milken Educator Awards are invited to a National Education Conference, where they can connect them with a broader community of educational leaders and promote idea-sharing within it.

4 Publicity

The need to communicate with target communities and the general public cuts across all phases of the prize process, from goal-setting at the beginning to what happens well after a prize has been awarded. The marketing basics of targeting an audience, crafting a compelling message, and using creative channels to deliver it are all essential to a prize's success, and must be funded accordingly.

The Booker Prize, administered by a public relations firm, is one of the best examples of the successful integration of publicity throughout a prize process. Other prize-givers also show real creativity in this area. Changemakers announces its competitions through a viral network of social activist blog sites, while FIRST Robotics broadcasts each year's competition launch announcement on NASA satellite TV and live Internet video, to energize potential teams at each participating high school.

Priming the public relations engine

When prize sponsors want to learn some of the best practices in prize PR, they should turn their attention to the PR machine of The Man Booker Prize, which annually identifies and celebrates the best novel written by an author from the Commonwealth of Nations. Every year, The Man Booker Prize creates a frenzied debate within the British media and the general public—with extensive television, print, and online coverage—about who should win. Reading groups and neighborhood pubs become battlegrounds arguing for favorites. Even bookmakers get into the action, handicapping the nominees.

Colman Getty, a public relations firm, runs the Man Booker Prize, carefully sparking an annual public debate from July to October. At the end of July, the judges announce the Booker Dozen, the top 12 or so novels chosen from over 100 submissions from publishers. Celebrities are

always part of the judging panel, giving it extra visibility. In 2008, the panel included a former member of Parliament, a television celebrity, and a well-known literary critic. In September, the judges announce (with much fanfare) the shortlist, the top five novels. To enhance the debate, the Prize publishes free audio and text excerpts of the shortlist to download to a computer, iPod, or mobile phone. The Prize itself embraces the debate, hosting online forums asking “did the judges get it right?” In the week leading up to the announcement in October, television coverage of the five contenders reaches a fever pitch before the process culminates in a televised awards ceremony, after which the bookmakers can close out their bets—until next year.



* * *

It is not possible to set a target budget for all of the process steps that we identified. In our interviews with a range of prize-givers, we found that non-award expenses are often as large as the prize amounts, even for fairly large prizes. For smaller awards, or for prize types that seek to achieve change through high participation or post-award networking, process costs can rise to many multiples of the award amounts given.

Post prize: Driving impact, legacy, and improvement

A prize's life cycle does not end the day the award is bestowed. On the contrary, much of a prize's impact can only be generated *after* the award is given. Further investment can reinforce winning ideas or take them to scale. The prize's community of problem solvers can disseminate ideas and use them to solve other problems. And the sponsor can learn and apply lessons from the prize's design and delivery that will improve its own impact in future competitions, or the impact of other prizes. Prizes not structured to reinforce impact in these ways may exert a positive effect on their own winners, but nonetheless fail or fall short of their sponsor's ultimate aspiration for change. We were consistently impressed by prizes that devote resources to the "life after the prize" phase but also discouraged to hear how few sponsors make a concerted effort in this area.

a Making societal benefit "stick"

Creating an innovative product or approach alone will not achieve broad societal benefit. For instance, low cost vaccines for many childhood illnesses have been available for years, but children around the world still die from measles, polio, and tuberculosis. As Thomas Kalil, the author of an influential Brookings Institution paper on prizes, argues, philanthropists should not "look at a prize in isolation, but [should instead] look at a portfolio of instruments and efforts of which prizes are a part."⁹² Prizes are but one part of an effective change strategy—they are useful where they are most effective, but rarely successful in isolation. Prize givers should work to extend a prize's impact by using the full portfolio of other instruments such as traditional grants, service programs, convenings, or infrastructure investments.

Extending impact can be as simple as using a prize as a screening mechanism for other forms of investment. The X PRIZE Foundation tied its proposed tuberculosis (TB) prize to advance market commitments to ensure that any new TB diagnostic developed through the prize process is adopted and propagated widely. The Changemakers competitions and the El Pomar Awards are designed, in part, to help winning social entrepreneurs gain access to other funding streams that are critical to scaling-up their high impact programs.

This principle can extend to other kinds of investment. For instance, to increase the societal impact of its award, the World Food Prize Foundation developed a youth institute and summer international internship program around food sustainability, established a well-attended global conference, at which that year's Laureate and past prize winners speak about sustainability issues with a variety of stakeholders, and created the Iowa Hunger Summit to connect the program's global issues with problems confronting the local community.

92 Interview, Thomas Kalil, July 9, 2008.

b Creating a legacy for future impact

No prize is born with the reputation of the Nobels and Pulitzers. But newer prizes can still look to some effective tactics to lay the groundwork for creating a brand and legacy that will enhance their ability to effect change in the future.

A strong prize “brand” hinges on several factors. First, a prize’s goals must evolve to stay relevant. Second, prize panels must choose compelling winners whose ideas and achievement credibly demonstrate why they were singled out. Finally, sponsors must effectively document the impact of their prize on winners and on society. Strong prize brands defend the use of their name and materials against infringement and are careful to avoid over-extension. And sponsors who ensure that participants have an enjoyable and rewarding experience, regardless of their success encourage others to compete in the future.

The legacy of a prize extends beyond the list of winners. The most successful prizes create a pool of intellectual and human capital that acts as a further instrument for change.

For instance, Changemakers organizes and synthesizes the pool of ideas and intellectual property created during its competitions into an online library, organized by topic. Whether the topic is water, slavery, or rural development, a rich set of thinking and resources is accessible to current and future generations of social entrepreneurs. Intermediaries such as the X PRIZE Foundation, InnoCentive, and Idea Crossing are learning from these successes and helping their clients build distinctive approaches and brands based on their extensive experience.

Sponsors can also mine the “cognitive capital” they identify in participants and winners alike. Two or three hundred competitors enter each Changemakers competition; most of them do not win, of course, but nearly all of them remain connected long after the award is bestowed. They may contribute to the “discovery frameworks” that provide the structure for subsequent competitions, propose solutions to new problems, and support social innovation by individual entrepreneurs. The Milken Educator Network is another vibrant community of top educators who share ideas, create their own grassroots groups to drive change, and influence state and national educational policy leaders.

Finally, prize winners themselves can become powerful sources of change, provided they are willing to accept some post-award obligations. The Mo Ibrahim Foundation, for instance, created its prize in order to develop a group of respected African statesmen who could speak in solidarity about political questions facing the continent. The award is structured to encourage winners to stay in this role. Rather than giving the full prize amount (\$5 million) all at once, the Foundation pays it out over the course of ten years, with the option of ending payments if a winner behaves counter to the values of good governance. After these ten years, the Foundation will continue to pay \$200,000 a year to the winner for the rest of their life, assuming that they continue to embody the same values. The Foundation also gives its judging panel the option of granting an additional \$200,000 annually to a past winner in order to fund other positive efforts that support the development of civil society.

C Measuring impact and improving a prize

Evaluating a prize's impact, and making refinements based on that evaluation, is fundamental to a prize's success. As Dean Kamen says, "how you define a prize, what you measure, determines whether it is a world class prize."⁹³ But our survey of prize givers indicated that few prizes regularly measure impact. Over 40% of respondents say they either "never" or "very rarely" evaluate the impact of their prizes, while a further 17% report doing so only "every few years." Only 23% evaluated the impact of their prizes annually. These findings were echoed in our discussions with high-performing prize sponsors, many of whom took surprisingly *ad hoc* approaches to evaluation and reform.

If, as we have argued, prize givers should be open to refining their prizes *during* a prize process, then they should certainly be willing—even eager—do so between prize cycles. Even well-established awards like the Booker Prize have made significant changes in their approach over the years. Prize-givers should periodically conduct a structured evaluation of the prize's success in achieving its core objectives. They should also assess the relative contributions of different elements of the strategy, design and process. It is easy to increase the size of a prize to keep up with inflation—harder, but even more essential, is to adjust the judging process, the structure of the competition, or even the type of prize to keep pace with a changing world.

Two prizes that we profiled are good examples of this approach. Changemakers tracks not only the number of submissions by participants but the number of conversations taking place on the website for each competition. Because the discussion areas remain open after the award, administrators can gain a sense of participants' engagement both during and after a challenge. Robert Benedict, who is responsible for metrics, told us that Changemakers also measures impact by, among other indicators, tracking how much money flows to the solutions that emerge from the prize process.⁹⁴

FIRST Robotics tracks a number of metrics, such as the proportion of teams that continue working together from year to year (currently at 92%), and sponsor retention (currently about 90%). The organization also commissioned a detailed impact evaluation from Brandeis University, which established not only that competitors disproportionately go on to major in science and technology in college, but also that they are by and large *not* the same students who would do so anyway.

Perhaps more importantly, FIRST staffers remain closely involved with the competition phase of the contest; in the 2002 season, this vigilance helped them to spot and correct a drift away from the prize's collaborative ideal. That year, a rule change made progressing to the national competition contingent on winning a regional competition. As a result, cooperation and the "gracious professionalism" promoted by FIRST declined sharply—a major problem in a competition that aims to produce both. An evaluation conducted by FIRST's Program Coordinator, Wendy Trommer, revealed that the number of awards available for the performance of robots had grown more quickly than the number for team attributes (such as inspiring costumes), contributions to the community, or innovation and creativity.⁹⁵ As a result, FIRST Robotics changed the mix of awards to re-emphasize the importance of collaboration and cooperation, which succeeded in delivering the desired impact.

93 Interview, Dean Kamen, June 23, 2008.

94 Interview, Robert Benedict, July 29, 2008.

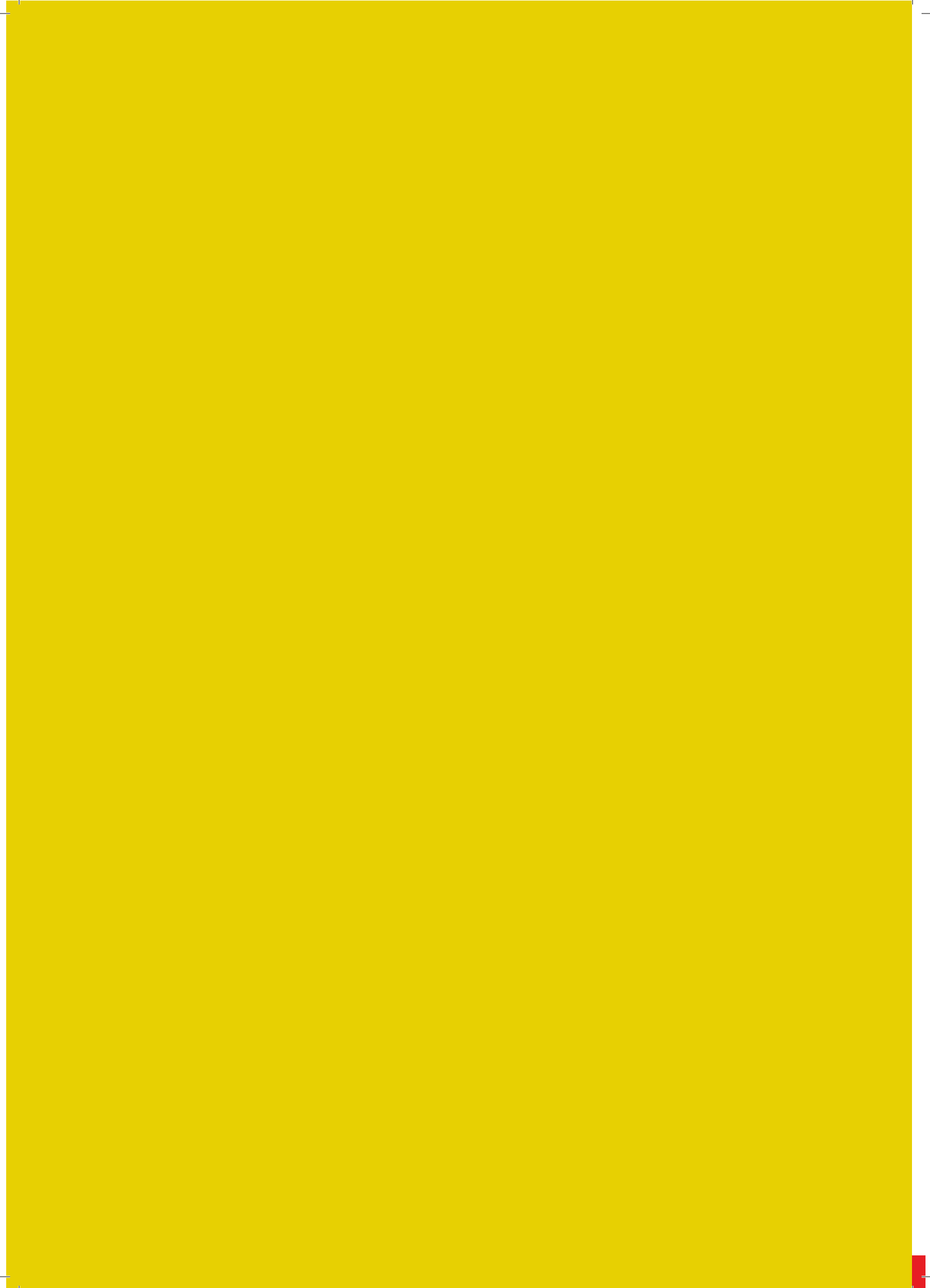
95 Interview, Wendy Trommer, August 26, 2008.

The importance of monitoring and measuring, therefore, cannot be overemphasized. Metrics to judge overall effectiveness will of course vary with prizes' goals, but specific change levers tend to be measurable through similar metrics no matter what the prize's goal. Exhibit 17 suggests a few metric types for each of the change levers that a prize sponsors might seek to employ.

Exhibit 17: Metrics by change lever

Change lever	Impact question	Example metrics
Identify excellence	<ul style="list-style-type: none"> Does the test of time suggest we are setting standards? 	<ul style="list-style-type: none"> Adoption rate of solution/approach Subsequent awards to winners
Influence public perception	<ul style="list-style-type: none"> Is our target public aware & adopting our perspective 	<ul style="list-style-type: none"> Unprompted awareness Changes in action (e.g., demand)
Focus a community	<ul style="list-style-type: none"> Is the challenge becoming a priority for our target community? 	<ul style="list-style-type: none"> Subsequent investment in area Time dedicated to issue area
Identify and mobilize new talent	<ul style="list-style-type: none"> Are non-traditional problem solvers participating? 	<ul style="list-style-type: none"> Number and variety of problem-solvers
Strengthen community	<ul style="list-style-type: none"> Are we connecting more problem solvers/funders & encouraging better outcomes? 	<ul style="list-style-type: none"> Growth of community/network Improvement in performance (e.g., idea-sharing, collaboration)
Educate and improve skills	<ul style="list-style-type: none"> Are we moving participants to higher skill & outcome levels? 	<ul style="list-style-type: none"> Number of participants Change in participants' skills or outcomes
Mobilize capital	<ul style="list-style-type: none"> Are we bringing new financial & other resources to the challenge? 	<ul style="list-style-type: none"> Investment in competition or follow on market development Self-sufficiency of sector

Source: Literature review; interviews





The future of philanthropic prizes

Prizes take many forms and have a long history mixed with triumphs and disappointments. At their best, they have helped the world meet some of society's greatest challenges, and overcome some of its most difficult problems. Prizes can be aspirational and inspirational, attract new and diverse participants, and (in many cases) “pay for performance” only when the result is achieved.

Designed and administered well, prizes can effect change in a number of powerful ways: by building skills, focusing and strengthening communities, and mobilizing talent and capital. The emergence of a number of prize types beyond the traditional exemplar and point solution prizes shows that prize-giving is a particularly vibrant and innovative field.

Successfully designing and delivering impact-focused prize “architecture” is challenging and knowledge-intensive, but we believe that enough best practices exist to constitute a guide for philanthropists; this report aims to gather, formulate and distill those lessons. While the focus of this work has been on philanthropic prizes, the distinctions between government-sponsored or even corporate-sponsored prizes are modest and many of the frameworks and prizes that we have identified are easily applicable in these arenas as well.

Continued evolution of prize giving

Philanthropic prizes are likely to attract expanding attention, investment, and participation. We anticipate the continued development of a global “prize industry” that will professionalize the management and support of prizes, helping to mitigate the biggest threats to prize effectiveness—in particular proliferation, and poor design and execution.

Several factors suggest that prizes will continue to multiply in increasingly narrow topic areas. Prizes are becoming easier for smaller-scale organizations to run, owing to the emergence of professional prize facilitators, to whom various tasks can be outsourced, and to the leveling effect of Internet-era communications, which makes it possible to connect with niche audiences in a way that would have been beyond the reach of a local or regional foundation just a decade ago.

Apart from new prize types and combinations of design features, we also expect more experimentation in other, more-specific areas of design:

- Prize administrators will increasingly develop and implement new ways to stimulate and facilitate collaboration among competitors. Prizes are beginning to use social networking sites such as Facebook, to incorporate virtual money to spur mini-markets of resources and ideas within competitions, and to employ suites of collaborative web 2.0 tools.
- Prize administrators will find new ways to manage “roadblock” areas, such as intellectual property in inducement prizes. Sponsors are experimenting with new IP models, such as stipulating that winners share their methods and solutions, creating option structures, and extracting proprietary IP from companies to use for prize competitions for a portion of the prize purse.
- Prize designs will become better at directing developmental capital to competitors, lessening the burden of fundraising and allowing these innovators to focus on what they do best.
- There will be more investment in prize development, to position new prizes for maximum impact. Prize sponsors are realizing that ambitious prizes need appropriate teams, resources, and time to develop an effective architecture, with some sponsors dedicating millions of dollars, dozens of people, and several months for development.
- The social, private, and public sectors, realizing that each has much to contribute to and gain from the others in pursuit of their own goals, will collaborate more often and more creatively on prize development and implementation.

The prize industry needs further investment

If the prize industry is to sustain its success and realize its potential, further investment from stakeholders will be required in order for it to mature. In our eyes, this represents a real opportunity for philanthropists and other sector observers to support and accelerate the sector’s evolution. We see several areas where further investment and thought is required.

While tens of thousands of prizes and awards are given out every year, we have been struck by the lack of conferences or professional associations to share best practices and facilitate collaboration. By contrast, the *Chronicle of Philanthropy* website lists hundreds of upcoming events to help foundations and non-profits to be more effective in their grant-making. Even more meetings and conferences serve the venture capital community.

While the general value of prizes has received some scholarly attention, we believe that more work is needed on areas such as prize design, competitor motivation and behavior, and the evaluation of prize effectiveness and impact. For example, while the impact of some prize types (such as participation prizes) is closely tied to their process, for others there is an honest debate about how often the innovations or standards that they produce are taken to scale. This report cites relevant examples and best practices, but there is still an opportunity for further study of how often various types of prizes lead to societal benefit at scale. As the authors of one of the most recent academic papers on innovation and prizes said, “the economic theory of prizes, and empirical justification for their use, rests on limited historical case studies.”⁹⁶

96 Liam Brunt, Josh Lerner, and Tom Nicholas, “Inducement Prizes and Innovation,” Working Paper (Center for Economic Policy Research), 2008, p. 2, available at <https://nber15.nber.org/c/2008/si2008/DAE/lerner.pdf>.

Finally, one research challenge is the lack of comprehensive and consistent data on prizes. Current directories and databases of prizes struggle to keep up with the flood of new and evolving contests and awards. For this report, we had to combine several existing databases to create our own set of large prizes to examine—and even then, it is still very difficult to claim comprehensiveness or measure the sector accurately.

* * *

A prize is an old idea that is surprisingly powerful in our modern society. We believe that every leading philanthropist should consider the opportunity to use prizes to help achieve their mission, and to accept the challenge of fully exploiting this powerful tool.

Appendix 1: Capsule case studies

BASIC DETAILS

About

An initiative to build “the world’s first global online ‘open source’ community that competes to surface the best social solutions, and then collaborates to refine, enrich, and implement those solutions.”

Program Details

- Started in 2004 by Ashoka: Innovators for the Public
- Competition topics have ranged from global slavery to clean water to geotourism
- Past sponsors have included Citi, the Robert Wood Johnson Foundation, Staples, and Nike

Design

- A “collaborative competition”—each competition begins with a “Discovery Framework” that “outlines the key barriers and insights for a particular problem, and then plots and identifies the most innovative solutions and innovation gaps”
- Prize size: \$5,000 for three winners, but the primary focus is on connecting finalists with investors

Process

- Application: Open, proposals submitted online
- Competition: Entries are “posted transparently online and available for anyone to view and collaborate with,” providing “information to be used in refining” entries up until the submission deadline
- Adjudication: Judges select twelve finalists, but the winners are chosen through a vote by the general public and Changemakers community

PRIMARY CHANGE LEVERS

- Focusing a community
- Identifying/mobilizing talent
- Strengthening community

PRIZE ARCHETYPES

- Point solution prizes

El Pomar Awards for Excellence

www.elpomar.org



BASIC DETAILS

About	An awards program to “recognize and reward Colorado nonprofit organizations, businesses, and individuals that serve their communities with distinction and excellence”
Program Details	<ul style="list-style-type: none">■ Founded in 1989 by El Pomar Foundation■ One program within a portfolio of efforts (combined with grants, leadership programs, and fellowships)■ Awards given in 11 nonprofit categories
Design	<ul style="list-style-type: none">■ Prize size: \$380,000 total is awarded to honourees<ul style="list-style-type: none">- \$7,500 per finalist; \$15,000 per category winner- \$50,000 for the Penrose Award winner■ Awards: 33 nonprofit finalists (3 per category); 11 category winners; one “Penrose Award” winner■ Competitor pool: Colorado-based nonprofits■ Timing: Annual awards program
Process	<ul style="list-style-type: none">■ Research: Annual outreach program goes into nine regions of Colorado to discover lesser-known nonprofits as potential candidates for the program■ Nomination & adjudication: Conducted entirely by the Selection Commission; members represent “a variety of interest and share a history of leadership”■ Amplification: Televised presentation in which honorees “are featured in video presentations that highlight their work and service;” the awards have a significant impact on the ability of nonprofits to secure future grants/funding

PRIMARY CHANGE LEVERS

- Identifying excellence
- Strengthening community
- Identifying/mobilizing talent

PRIZE ARCHETYPES

- Network prize

The Man Booker Prize

www.themanbookerprize.com



BASIC DETAILS

About

An annual award to celebrate and promote “the finest in fiction by rewarding the very best book of the year”

Program Details

- Founded in 1968 and sponsored by the Man Group plc
- Administered by the Booker Prize Foundation
- Annual Booker Prize has been complemented by a “Best of Booker” award (2008) and a “Booker of Bookers” award (1993) (both won by Salman Rushdie’s *Midnight’s Children*)

Design

- Prize size: £50,000 for the winner
- Prize structure: Final selection preceded by public “longlist” and subsequent “shortlist” of six finalists
- Competitor pool: limited to original works of fiction written by “a citizen of the Commonwealth or the Republic of Ireland and published this year”
- Timing: Annual award

Process

- Nomination: Publishers may enter two novels each in addition to any title by a former winner or author “who has been shortlisted in the last ten years”
- Adjudication: Judging panel changes annually and seeks to include “a literary critic, an academic, a literary editor, a novelist and a major figure.”
- Amplification: Long- and short-listed novels advertise that fact on their book-covers; the winner “is guaranteed a huge increase in sales, firstly in hardback and then in paperback”; actively courts publicity and even controversy to raise profile

PRIMARY CHANGE LEVERS

- Identifying excellence
- Influencing public perception

PRIZE ARCHETYPES

- Exemplar prize

FIRST Robotics Competition

www.usfirst.org



BASIC DETAILS

About

A technology competition to “inspire young people to be science and technology leaders, by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership”

Program Details

- Inaugural competition held in 1992
- One of several competitions run by FIRST, focusing on “high-school-aged young people”
- Challenges “teams of young people ... to solve a common problem in a six-week timeframe using a standard ‘kit of parts’ and a common set of rules”

Design

- Prize size and structure: Many prizes are given annually, all as non-monetary “awards”; participants are eligible to apply for a number of related academic scholarships
- Criteria: Prizes awarded “for excellence in design, demonstrated team spirit, gracious professionalism and maturity, and the ability to overcome obstacles. Scoring the most points is a secondary goal.”
- Timing: Annual, ongoing competition

Process

- Application: Open registration for teams
- Stages: Final round preceded by regional rounds
- Adjudication: All-volunteer judging teams

PRIMARY CHANGE LEVERS

- Educating and improving skills
- Strengthening community

PRIZE ARCHETYPES

- Participation prize

BASIC DETAILS

About

A turn-key solution that enables organizations to design and administer competitions using a proprietary Web-based platform, Challenge Accelerator® .

Program Details

- Founded in 2002
- Competitions have included Red Hat (solutions to open source business problems) and Ruckus Nation (ideas to encourage physical activity)
- Sponsors include Hilton Hotels, American Express, Harley-Davidson, Whirlpool, General Electric, Shell, Lexmark, as well as a number of foundations and academic institutions
- Idea Crossing works with sponsors to set goals, define challenge questions, design contest format, rules and IP structure. Design features are used to customize the software platform to facilitate the marketing and recruitment of contestants and judges, streamline submission, online judging processes and announce results with transparency.

Design

- All prizes are organized using Challenge Accelerator® , “a web-based automated system facilitates the inherently complex stages of innovation competitions”
- Prize size and structure, criteria, competitor pool, and timing all vary by prize

Process

- Flexible, varies by prize

PRIMARY CHANGE LEVERS

- Focusing a community
- Identifying/mobilizing talent
- Mobilizing capital

PRIZE ARCHETYPES

- Point solution prizes

Methuselah Mouse Prize



www.methuselahmouse.org

BASIC DETAILS

About A prize to help “accelerate life extension therapies,” given to “the scientific research team who develops the longest living *Mus musculus*, the breed of mouse most commonly used in scientific research.”

Program Details

- Founded by the Methuselah Foundation in 2003
- Comprised of two prizes
 - Longevity Prize for the “oldest-ever” mouse won when “the world record lifespan ... is exceeded”
 - Rejuvenation Prize for the “best-ever late-onset intervention” (i.e., a published, peer-reviewed study on “interventions to restore youthful physiology, not merely to extend life”)
- Prize fund (as of August 2008): \$4.5 million and growing, raised from private donors and sponsors

Design

- Prize size: award amounts based on a calculation that is “in proportion to the size of the fund at that time, but also in proportion to the margin by which the previous record is broken”; amount represents a fraction of the total current prize fund
- Competitor pool: scientific researchers
- Timing: ongoing (open calendar)

Process

- Application: Open registration for teams
- Stages: Final round preceded by regional rounds
- Adjudication: All-volunteer judging teams

PRIMARY CHANGE LEVERS

- Focusing a community
- Identifying/mobilizing talent

PRIZE ARCHETYPES

- Point solution prizes

Mo Ibrahim Prize For Achievement In African Leadership

www.moibrahimfoundation.org



BASIC DETAILS

About	Awarded “to a former African executive Head of State or Government who has demonstrated excellence in African leadership”
Program Details	<ul style="list-style-type: none">■ Founded in 2007 by the Mo Ibrahim Foundation■ Complemented and informed by the annual Ibrahim Index of African Governance■ The foundation’s “flagship” program
Design	<ul style="list-style-type: none">■ Prize size and components:<ul style="list-style-type: none">- \$5 million over 10 years- \$200,000 annually for life thereafter- “Further \$200,000 (annually) for good causes espoused by the winner may be granted ...”■ Competitor pool: “former executive heads of state/ government in any sub-Saharan African state who have taken office through democratic elections and ... left office in the previous three years, having served the constitutional term as stipulated when taking office”■ Timing: Annual award
Process	<ul style="list-style-type: none">■ Nomination: Automatic nomination of those qualifying for the competitor pool■ Adjudication: Prize Committee of “eminent individuals with expert knowledge of Africa,” including Kofi Annan, Mary Robinson, Salim Ahmed Salim, Aicha Bah Diallo, Nobel Laureate Martti Ahtisaari, Mohamed El Baradei, and Graça Machel

PRIMARY CHANGE LEVERS

- Identifying excellence
- Influencing public perception

PRIZE ARCHETYPES

- Exemplar prize

NASA Centennial Challenges

www.centennialchallenges.nasa.gov



BASIC DETAILS

About

A suite of technology competitions to:

“Drive progress in aerospace technology ...”

“Encourage the participation of independent teams, individual inventors, student groups and private companies ... in aerospace [R&D]”

“Find the most innovative solutions to technical challenges through competition and cooperation”

Program Details

- Founded by NASA in 2003, on the centennial of the Wright Brothers’ successful flight at Kitty Hawk
- Prizes designed and funded by NASA, but managed by independent partner organizations
- Part of NASA’s Innovative Partnerships Program
- Current challenges:
 - Lunar Regolith Excavation (case study focus)
 - General Aviation Technology (case study focus)
 - Lunar Lander
 - Power Beaming and Tether
 - Astronaut Glove
 - Lunar Oxygen Production or MoonROx

Design

- Prize size: varies by prize, from \$300,000 to \$2 million
- Competitor pool: seeks “independent innovators”
- Timing: varies by prize, several annual

Process

- Application: open
- Adjudication: based on published criteria, judged by experts/volunteers from partner organizations

PRIMARY CHANGE LEVERS

- Focusing a community
- Identifying/mobilizing talent
- Mobilizing capital

PRIZE ARCHETYPES

- Point solution prizes

The Netflix Prize

www.netflix.com



BASIC DETAILS

About	“The Netflix Prize seeks to substantially improve the accuracy of predictions about how much someone is going to love a movie based on their movie preferences”
Program Details	<ul style="list-style-type: none">■ Contest established and managed by Netflix■ Begun on October 2, 2006, to be continued through at least October 2, 2011■ Seeks to improve the accuracy of Netflix’s Cinematch algorithm by 10%
Design	<ul style="list-style-type: none">■ Prize size: \$1 million for the Grand Prize (first algorithm to reach the 10% target); annual \$50,000 Progress Prize for the best incremental improvement in a given year, at least 1% better than the prior year■ Timing: Ongoing, one-time competition
Process	<ul style="list-style-type: none">■ Application: Open registration, giving competitors access to training data and qualifying test sets■ Competition and adjudication: “To win and take home either prize, your qualifying submissions must have the largest accuracy improvement verified by the Contest judges, you must share your method with (and non-exclusively license it to) Netflix, and you must describe to the world how you did it and why it works” (i.e., post it to the online leaderboard for other competitors to access)

PRIMARY CHANGE LEVERS

- Focusing a community
- Identifying/mobilizing talent
- Mobilizing capital

PRIZE ARCHETYPES

- Point solution prize

BASIC DETAILS

About

“The Templeton Prize honors a living person who has made an exceptional contribution to affirming life’s spiritual dimension, whether through insight, discovery, or practical works.”

Program Details

- Established in 1972 by Sir John Templeton
- Funded and administered by the John Templeton Foundation
- The Templeton Prize is the world’s largest annual recognition award
- Past winners include Mother Teresa, Aleksandr Solzhenitsyn, Freeman Dyson, and Charles Taylor

Design

- Prize size: monetary award of £1 million
- Timing: Annual award
- Competitor pool: Nominations “particularly encouraged” in scientific research; scholarship in philosophy, theology, and the humanities; practice in religious leadership; and commentary on “matters of religion, virtue, character formation, and the flourishing of the human spirit.”

Process

- Nomination: Open nomination process, requiring a list of references, a candidate narrative, and a list of up to five related works
- Adjudication: Winners selected by a distinguished prize panel of experts (and former Templeton Laureates) from a variety of related disciplines

PRIMARY CHANGE LEVERS

- Identifying excellence
- Influencing public perception

PRIZE ARCHETYPES

- Exemplar prize

The World Food Prize

www.worldfoodprize.org



THE WORLD FOOD PRIZE

BASIC DETAILS

About

The “foremost international award recognizing ... the achievements of individuals who have advanced human development by improving the quality, quantity or availability of food in the world.”

Program Details

- Founded in 1986 by Dr. Norman E. Borlaug
- Administered by the World Food Prize Foundation, which also runs the Borlaug Dialogue Symposium
- Past winners include Dr. Muhammad Yunus, Dr. M.S. Swaminathan, Yuan Longping, Catherine Bertini, and Dr. Philip E. Nelson

Design

- Prize size: \$250,000
- Competitor pool: “individuals having demonstrated exceptional achievement in any field involved in enhancing food production and distribution and increasing food availability and accessibility”
- Timing: Annual award

Process

- Nomination: by organizations (e.g., research institutions, corporations, governmental units)
- Adjudication: committee of “nine distinguished individuals” in related fields, with final approval by the Council of Advisors
- Amplification: Award given during the Borlaug Dialogue Symposium in a special ceremony at the Iowa State Capitol on or around World Food Day

PRIMARY CHANGE LEVERS

- Identifying excellence
- Influencing public perception
- Strengthening community

PRIZE ARCHETYPES

- Exemplar prize

BASIC DETAILS

About A foundation seeking to catalyze “radical breakthroughs for the benefit of humanity ... by creating and managing prizes that drive innovators to solve some of the greatest challenges facing the world today.”

Program Details

- Founded in 1995 by Dr. Peter Diamandis
- All prizes designed and run by the foundation
- Prizes funded by nonprofit and for-profit sponsors
- Prize programs include:
 - Ansari: commercial space travel (1996–2004)
 - Progressive Automotive: economically viable, 100 mpg vehicles
 - Google Lunar: robotic lunar exploration
 - Archon Genomics: medical genomics
 - Future X PRIZES expected in the areas of education, energy and environment, exploration, global entrepreneurship, and life sciences

Design

- Prize size: all awards are at least \$10 million
- Competitor pool: varies by prize
- Timing: varies by prize, but no annual prizes

Process

- Application: open, but often must pass threshold requirements (financial, technical) to participate
- Adjudication: based on published, quantitative criteria, conducted by the X PRIZE Foundation

PRIMARY CHANGE LEVERS

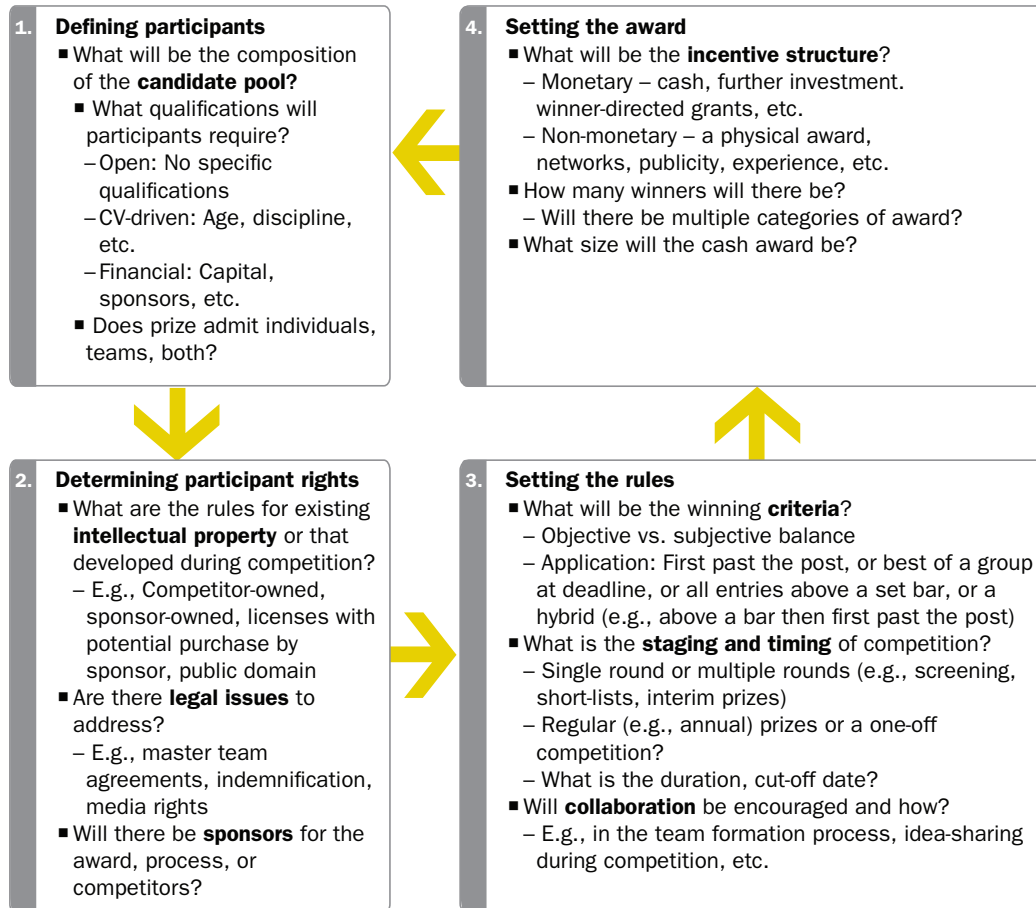
- Mobilizing capital
- Identifying/mobilizing talent
- Focusing a community

PRIZE ARCHETYPES

- Point solution
- Market stimulation
- Network

Appendix 2: Core design features

Core design questions



Source: Literature review; interviews

Appendix 3: prizes database

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Abel Prize	Mathematics	Contributions of extraordinary depth, influence in mathematics	\$1,175,000	2003
Africa Prize	Humanitarianism	Effective leadership for the well-being of Africa's people	\$100,000	1987
Aga Khan Award for Architecture	Architecture	Architectural excellence	\$500,000	1977
Agnelli Prize	Peace	Inspirational thinking for improving human condition	\$100,000	1987
American Express Members Project	Technology	Any innovative, achievable, positive impact project proposed by members	\$2,500,000	2007*
America's Space Prize	Aviation and Outer Space	Design, build, and flight of a reusable, manned space capsule	\$50,000,000	2004*
Annunzio Awards	Business/Innovation	Cutting edge innovation	\$100,000	1998
Ansari X PRIZE	Aviation and Outer Space	Construction and launch of a privately-funded reusable spacecraft	\$10,000,000	1996*
António Champalimaud Vision Award	Medicine	Contributions to alleviation of visual problems	\$1,575,000	2007
Archon Genomics X PRIZE	Medicine	Reaching targets for high speed and low cost in genome sequencing	\$10,000,000	2006*
Astrid Lindgren Memorial Award	Literature	Children's and youth literature.	\$700,000	2002
Bagnoud Aerospace Prize	Aviation and Outer Space	Achievements in aerospace	\$250,000	1992
Balzan Prize for Humanities	Humanities	Outstanding achievement	\$1,945,000	1978
Balzan Prize for Peace	Peace	Outstanding achievements in fostering peace	\$1,945,000	1961
Balzan Prize for Science	Science	Outstanding achievements in sciences	\$1,945,000	1961
Beal Conjecture and Prize	Mathematics	Solution of a conjecture in number theory	\$100,000	1997*
Beck's Futures	Arts/Music	Art	\$125,000	2000
Bernard M. Gordon Prize	Engineering	Engineering education	\$500,000	2001

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
BFI Challenge	Technology	Solving humanity's most pressing problems while enhancing the Earth's ecological integrity	\$100,000	2008*
Blue Planet Prize	Climate Environment Energy	Major contributions to solving global environmental problems	\$470,000	1992
Bollingen Prize for Poetry	Literature	Best poetry book or lifetime achievement	\$100,000	1949
Bower Award & Prize for Achievement	Science	Research on the cosmos	\$250,000	1990
Bradley Prizes	Governance and Social Innovation	Contributions of excellence in the area of a free society	\$1,000,000	2004
Bright Tomorrow Lighting Prizes	Climate Environment Energy	Energy efficient lamps	\$10,000,000	2007
Budweiser Cup	Aviation and Outer Space	First non-stop balloon flight around the globe.	\$1,000,000	1997*
Carlsberg Architectural Prize	Arts/Music	Oustanding achievements in architecture	\$220,000	1991
Cervantes Prize	Literature	Distinguished contribution in Spanish Literature	\$140,000	1976
Charles Ives Living Award	Arts/Music	Promising talent in composing	\$225,000	1998
Cheap Access to Space Prize	Aviation and Outer Space	Launching a 2-kilogram payload to an altitude of 200 kilometers	\$250,000	1997*
China Energy-Efficient Refrigerators Project	Climate Environment Energy	Stimulating innovation among Chinese manufacturers	\$150,000	2000*
Christopher Columbus Foundation Award	Technology	Life sciences	\$100,000	1996
Cisco I-Prize	Software Computers IT	Emerging business ideas	\$250,000	2007
Clay Millennium Challenges	Mathematics	Seven specific math problems	\$7,000,000	2000*
Clear Prize for Faster Airport Security Technology	Technology	Major reductions in security clearance time	\$500,000	2007*

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Cleveland International Piano Competition	Arts/Music	Piano performance	\$125,000	1975
Collaboration Prize	Humanitarianism	"Nonprofits that have chosen cooperation over competition"	\$250,000	2008
Coulter Award	Medicine	Translational biomedical engineering research	\$4,000,000	1998
Crafoord Prize	Science	Basic research in areas other than Nobel	\$500,000	1980
Crichlow Trust Prize	Aviation and Outer Space	Distinguished contribution in Aerospace	\$100,000	1993
Dan David Prize	Science	Outstanding contributors in science, technology, culture or social welfare	\$3,000,000	2001
DARPA Grand Challenges	Technology	Development of driverless cars	\$3,500,000	2003*
Digital Media and Learning Competition	Technology	Digital media in innovation and knowledge networking	\$1,800,000	2007*
Dorothy & Lillian Gish Prize	Arts/Music	Outstanding talent in the arts	\$300,000	1994
Draper Prize	Engineering	Advancement in engineering and the education of the public	\$500,000	1989
Elevator: 2010	Aviation and Outer Space	Innovative technology needed to build a space elevator	\$4,000,000	2005*
Enrico Fermi Awards	Science	Achievement in science and technology	\$375,000	1956
Erasmus Prize (Praemium Erasmianum)	Humanities	Contributions to European culture, society, or social science	\$235,000	1958
Families Count Awards	Humanitarianism	"Organizations that improve the lives of America's in-need children"	\$3,500,000	2000
Francqui Prize	Science	Belgian scientists	\$110,000	1932
Free Spirit Award	Humanitarianism	Accomplishments in keeping with "Free Spirit" ideals	\$1,000,000	1999
Freedom Prize	Climate Environment Energy	Reducing energy dependence	\$4,000,000	2008*
Fritz J. and Dolores H. Russ Prize	Science	Achievement in bioengineering	\$500,000	1999

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Gandhi Prize	Peace	Contributions towards social, economic and political transformation through Gandhian methods	\$235,000	1995
General Aviation Technology Challenge	Aviation and Outer Space	Safe, practical aircraft that demonstrate \geq 100 MPG and \geq 100 mph	\$300,000	2008
General Motors Cancer Research Medals	Medicine	Recent contribution to the diagnosis or treatment of cancer.	\$250,000	1978
Getty Wildlife Conservation Prize	Climate Environment Energy	Contributions to conservation through personal leadership in politics, science, community	\$200,000	1974
Gleitsman Activist Awards	Governance and Social Innovation	Varying forms of positive social activism	\$100,000	1990
Global Energy International Prize	Climate Environment Energy	Outstanding research/invention in energy	\$1,300,000	2003
Goldcorp Challenge	Exploration / Mining	Most accurate predictions for finding gold in existing mine	\$500,000	2000
Goldman Prize	Climate Environment Energy	Grassroots environmentalists	\$950,000	1989
Google Android Developer Challenge	Software Computers IT	Mobile applications that use the Android Software Development Kit	\$10,000,000	2007*
Google Lunar X PRIZE	Aviation and Outer Space	Landing a privately-funded lunar rover on the moon	\$30,000,000	2007*
Gotham Prize for Cancer Research	Medicine	Innovative, collaborative approaches to cancer research	\$1,000,000	2007
Governor General's Awards in Visual and Media Arts	Arts/Music	Excellence in visual and media arts	\$195,000	1999
Governor General's Literary Awards	Literature	Best Canadian book	\$170,000	1937
Grainger Challenges	Climate Environment Energy	Economical filtration devices for polluted water in developing countries	\$1,300,000	2005*

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Hamdan Award for an Outstanding Clinical Department in UAE	Medicine	Excellence in medical service	\$190,000	2000
Hamdan Award for the Best Medical Institute/Center in the Arab World	Medicine	Excellence in medical education/research	\$270,000	2003
Heineken Prize for Arts	Arts/Music	"An artist living and working in the Netherlands"	\$80,000	1963
Heineken Prize for Biochemistry	Science	Exceptional achievement in biochemistry	\$235,000	1963
Heineken Prize for Cognitive Science	Science	Excellence in cognitive science	\$235,000	2006
Heineken Prize for History	Humanities	Contributions to scholarship in history	\$235,000	1963
Heineken Prize for Medicine	Medicine	Internationally renowned scientists	\$235,000	1963
Heineken Prize for the Environment	Climate Environment Energy	Significant achievements in environmental science	\$235,000	1963
Heinlein Prize	Aviation and Outer Space	Practical accomplishments in commercial space activities	\$500,000	2003
Heinz Award for Arts and Humanities	Arts/Music	Extraordinary achievement in the humanities	\$250,000	1993
Heinz Award for Human Condition	Humanitarianism	Significant programs to improve the human condition	\$250,000	1993
Heinz Award for Public Policy	Humanitarianism	Extraordinary achievement in Public Policy	\$250,000	1993
Heinz Award for Technology and Economics	Technology	Creating and implementing programs to advance economic growth	\$250,000	1993
Heinz Award for the Environment	Climate Environment Energy	Extraordinary achievement in the Environment	\$250,000	1993
Hideyo Noguchi Africa Prize	Medicine	Understanding pathology or ecology of diseases prevalent in Africa	\$935,000	2006

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Hilton Humanitarian Prize	Humanitarianism	Charitable organizations making extraordinary contributions toward alleviating human suffering	\$1,500,000	1996
Ho-Am Prize	Science	Outstanding contributions in academics, the arts, and human welfare	\$195,000	1991
Ho-Am Prize in the Arts	Humanities	Outstanding contributions to culture and the arts	\$195,000	1991
Holberg International Memorial Prize	Humanities	Outstanding scholarly work	\$750,000	2003
Houphouet-Boigny Peace Prize	Peace	Promoting, seeking, safeguarding or maintaining peace in spirit of UN/UNESCO	\$190,000	1989
Humanitas Prize	Media	Screenwriters	\$155,000	1974
IMPAC Dublin Literary Award	Literature	A single work of fiction published in English	\$160,000	1996
InBev-Baillet Latour de la Santé Prize	Medicine	Improvement of human health	\$315,000	1979
InnoCentive	Business/Innovation	Open innovation for a range of social sector technical challenges	\$500,000	2001*
Intel/Westinghouse Science Competition	Science	Science competition for high school students	\$100,000	1942
International Cosmos Prize	Climate Environment Energy	Harmonious coexistence of nature and mankind	\$375,000	1993
International Frederic Chopin Piano Competition	Arts/Music	Piano performance	\$220,000	1927
Ira Sohn Conference Foundation Prize in Pediatric Oncology	Medicine	Pediatric oncology	\$250,000	2007
Japan Prize	Science	Original and outstanding achievements in science and technology	\$470,000	1985
Kavli Prize in Astrophysics	Science	Achievement in astrophysics	\$1,000,000	2008
Kavli Prize in Nanoscience	Science	Achievement in nanotechnology	\$1,000,000	2008

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Kavli Prize in Neuroscience	Science	Achievement in neuroscience	\$1,000,000	2008
Kelly Award	Business/Innovation	Magazine advertising	\$100,000	1982
Killam Prizes	Science	Distinguished Canadian scholars	\$495,000	1966
King Baudouin International Development Prize	Humanitarianism	Contributions to development of countries in southern hemisphere	\$235,000	1980
King Faisal International Prizes (Islamic Literature)	Literature	Service in Islamic literature to Islam and Muslims	\$200,000	1977
King Faisal International Prizes (Islamic Studies)	Spirituality	Achievement in Islamic studies	\$200,000	1977
King Faisal International Prizes (Medicine)	Medicine	Scientists and scholars whose advances benefit humanity	\$200,000	1977
King Faisal International Prizes (Science)	Science	Scientists and scholars whose advances benefit humanity	\$200,000	1977
King Faisal International Prizes (Service to Islam)	Spirituality	Service to Islam and Muslims	\$200,000	1977
Kingsley Tufts Poetry Award	Literature	Poetry	\$100,000	1993
Knight News Challenge	Literature	Ideas for innovating digital news	\$5,000,000	2008*
Kuwait Book Festival	Literature	Authors, translators and publishers in Arab countries	\$160,000	1976
Kuwait Prize for Art	Arts/Music	Efforts to raise the standard of culture in various fields.	\$115,000	1979
Kuwait Prize Science	Science	Scientific advancement	\$115,000	1979
Kyoto Prize	Science	Significant contribution to scientific, cultural, and spiritual betterment of mankind	\$935,000	1985
Kyoto Prize for Creative Arts and Moral Sciences	Arts/Music	Outstanding works in the arts	\$470,000	1985

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Lannan Lifetime Achievement Award	Literature	Established and emerging writers whose work is of exceptional quality	\$450,000	1989
Lannan Prize for Cultural Freedom	Humanitarianism	Work that celebrates right to freedom of imagination, inquiry, and expression	\$350,000	1999
Lasker Award for Medical Research	Medicine	Major contributions to medical science	\$450,000	1946
Lasker Award for Public Service	Medicine	Public policy advocacy for public health	\$150,000	1945
Leeds International Pianoforte Competition	Arts/Music	Piano performance	\$145,000	1963
Lemelson - MIT Prize	Technology	Innovations that change the world	\$500,000	1994
Louisville - Grawemeyer Award for Education	Education	Improvement in educational practice and advances in educational attainment	\$200,000	1984
Louisville - Grawemeyer Award for Music	Arts/Music	Outstanding achievement by a living composer in a large musical genre	\$200,000	1984
Louisville - Grawemeyer Award for Religion	Spirituality	Insights into the relationship between human beings and the divine	\$200,000	1984
Louisville - Grawemeyer Award for World Order	Peace	Ideas improving world order	\$200,000	1984
MacArthur Fellows	Arts/Music	Genius grant offered with few restrictions	\$12,500,000	1981
Man Booker Prize	Literature	Best novel by a Commonwealth or Irish author	\$100,000	1968
Manning Innovation Awards	Business/Innovation	Innovation in Canada	\$145,000	1982
Marconi Prize	Technology	Contributions to communications and information	\$100,000	1974
Marian Anderson Award	Arts/Music	Personal artistic expression with commitment to betterment of society	\$100,000	1998

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Microsoft Virus Bounty	Software Computers IT	Information leading to prosecution of creators of three computer viruses	\$5,000,000	2003*
Milken Educator Awards	Humanities	Outstanding educators	\$1,875,000	1987
MIT Clean Energy Entrepreneurship Prize	Climate Environment Energy	Clean energy competition	\$200,000	2007
Mitchell International Prize for Sustainable Development	Climate Environment Energy	Papers on corporate involvement in addressing development challenges	\$100,000	1975
Mo Ibrahim Prize	Governance and Social Innovation	Excellence in African leadership	\$5,000,000	2006
NASA Astronaut Glove Challenge	Aviation and Outer Space	Manufacture of astronaut gloves	\$250,000	2007*
NASA Lunar Regolith Challenge	Aviation and Outer Space	Designing and building robotic machines to excavate lunar soil	\$750,000	2007*
Nemmers Prize in Economics	Economics	Work of lasting significance in economics	\$150,000	1994
Nemmers Prize in Mathematics	Mathematics	Work of lasting significance in mathematics	\$150,000	1994
NESTA Big Green Challenge	Climate Environment Energy	Community projects resulting in a 60% reduction of CO ² emissions	\$1,990,000	2007
Netflix Prize	Software Computers IT	More accurate prediction of consumer preferences	\$1,000,000	2006*
Niwano Peace Prize	Peace	Interreligious cooperation in the cause of peace	\$185,000	1983
Nobel Memorial Prize in Economics	Economics	Outstanding contribution in economics	\$1,665,000	1970
Nobel Prize for Chemistry	Science	Outstanding contribution in chemistry	\$1,665,000	1901
Nobel Prize for Medicine	Medicine	Outstanding contribution in physiology or medicine	\$1,665,000	1901
Nobel Prize for Peace	Peace	Work for fraternity between nations, abolition of armies, promotion of peace	\$1,665,000	1901
Nobel Prize for Physics	Science	Outstanding contribution in physics	\$1,665,000	1901

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Nobel Prize in Literature	Literature	Outstanding work of an idealistic tendency in literature	\$1,665,000	1901
Northrop Grumman Lunar Lander Challenge	Aviation and Outer Space	Building lunar lander capable of hovering, landing, takeoff	\$2,000,000	2006*
Onassis International Prize for Culture, Arts, and Humanities	Arts/Music	Services in culture, arts and humanities	\$250,000	1979
Onassis International Prize for International Understanding	Humanitarianism	Individuals or organizations that increase international understanding	\$250,000	1979
Onassis International Prize for the Environment	Climate Environment Energy	Services to the environment	\$250,000	1979
Open Architecture Prize	Software Computers IT	Designing a computer lab able to be built in communities around the world	\$250,000	2007
Open Source Community Innovation Awards Program	Software Computers IT	Innovation in open source programming	\$1,000,000	2007
Packard Fellowships	Science	Early-career science and engineering professors	\$17,500,000	1998
Personal Air Vehicle Challenge	Aviation and Outer Space	Various achievements in design of self-operated personal aircraft	\$100,000	2007
Peter Gruber Foundation Award for Cosmology	Science	Fundamental discoveries and insights into cosmology or scientific philosophy	\$500,000	2000
Peter Gruber Foundation Award for Genetics	Science	Groundbreaking contributions to genetics research	\$500,000	2000
Peter Gruber Foundation Award for Justice	Humanitarianism	Furthering the cause of justice as delivered through the legal system	\$500,000	2000
Peter Gruber Foundation Award for Neuroscience	Science	Major discoveries in neuroscience	\$500,000	2004

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Peter Gruber Foundation Award for Women's Rights	Humanitarianism	Contributions to women's rights	\$500,000	2003
Pew Fellows Program in Marine Conservation	Climate Environment Energy	Marine conservation	\$1,500,000	1988
Philadelphia Liberty Medal	Humanitarianism	People who strived to secure the blessings of liberty to people the world over	\$100,000	1988
PICNIC Green Challenge	Climate Environment Energy	Greenhouse-gas reducing product or service	\$790,000	2007
Pillsbury Bake-Off	Engineering	Cooking skills and creativity in developing a recipe using designated Pillsbury products	\$1,080,000	1949
Polar Music Prize	Arts/Music	Exceptional achievements in music	\$165,000	1989
Potamkin Prize for Research - Medicine	Medicine	Outstanding achievement in dementia research	\$100,000	1987
Praemium Imperiale	Arts/Music	Achievement in various fields of the arts	\$140,000	1989
Prime Minister's Prize for Science	Science	Achievement in science advancing human welfare or benefiting society	\$290,000	2000
Pritzker Prize	Architecture	Creativity within the architectural profession	\$100,000	1979
Prize4Life	Medicine	Various challenges in ALS research	\$1,000,000	2006*
Progressive Automotive X PRIZE	Climate Environment Energy	Viable, clean, super-efficient and marketable cars	\$10,000,000	2007*
Pulitzer Prizes	Media	Journalism	\$210,000	1917
Radio Mercury Awards	Media	Development of effective and creative radio commercials	\$160,000	1992
Reader's Digest Fund Awards	Arts/Music	Writers	\$105,000	1990
Reuter Foundation Fellowships	Literature	Academic research	\$100,000	1982
Right Livelihood Awards	Humanitarianism	Outstanding vision and work on behalf of our planet and its people	\$250,000	1980

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Rockefeller Prize	Medicine	Developing a low-cost, highly accurate diagnostic test for gonorrhea or chlamydia administrable in developing world	\$1,000,000	1994*
Rolex Award for Enterprise (Culture)	Humanities	Conserving or contributing to our common cultural heritage	\$100,000	1976
Rolex Award for Enterprise (Environment)	Climate Environment Energy	Protecting or improving our natural and physical surroundings	\$100,000	1976
Rolex Award for Enterprise (Exploration)	Exploration / Mining	Expanding our knowledge of the world	\$100,000	1976
Rolex Award for Enterprise (Science)	Science	Contributing to human health and welfare	\$100,000	1976
Rolex Award for Enterprise (Technology)	Technology	Finding new ways to improve life	\$100,000	1976
Ronald McDonald House Charities Awards of Excellence	Humanitarianism	Improving young people's lives	\$250,000	1986
Rotary Award for World Understanding and Peace	Peace	An individual whose life or work exemplifies the Rotary ideal of service	\$100,000	1981
Royal Academy Summer Exhibition	Arts/Music	Fine arts	\$130,000	1769
Rumelhart Prize	Science	Contributions towards foundations of human cognition	\$100,000	2001
Ruth Lilly Poetry Prize	Literature	A living American poet	\$100,000	1985
Saltire Prize	Climate Environment Energy	Innovation in marine renewable energy	\$19,900,000	2007
Schindler "Access for All" Award for Architecture	Architecture	Architecture accessible to people with disabilities	\$115,000	2003
Scientific Production Prize	Science	Kuwaitis in various fields of knowledge development	\$225,000	1976
Seoul Peace Prize	Peace	Contributions to the harmony of mankind and world peace	\$200,000	1990

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
Shaw Prize	Science	Significant breakthrough in academic and scientific research or application	\$1,000,000	2004
Siebel Energy Free Home Challenge	Climate Environment Energy	Designing a house that achieves net zero non-renewable energy consumption	\$20,000,000	2008
Sophie Prize	Climate Environment Energy	Environment and sustainable development	\$100,000	1997
Stockholm Water Prize	Climate Environment Energy	Outstanding achievement in water-related activities	\$150,000	1991
Super-Efficient Refrigerator Program	Climate Environment Energy	Development of a commercially viable, efficient CFC-free refrigerator	\$30,000,000	1992*
Tanner-Vandeput-Boswick Burn Prize	Medicine	Outstanding contribution to any aspect of burn care	\$100,000	1986
TED Prize	Technology	Visions for transforming the world	\$100,000	2005
Templeton Prize	Spirituality	An exceptional contribution to affirming life's spiritual dimension, through insight, discovery, or practical works	\$2,000,000	1972
Tokyo International Film Festival	Arts/Music	Excellence in film	\$140,000	1985
Trieste Science Prize	Science	Distinguished scientists from developing countries	\$100,000	2005
Truman Capote Awards for Literary Criticism (Stanford)	Literature	Literary criticism	\$100,000	1994
Turing Award	Software Computers IT	Contributions of lasting importance in computing field	\$250,000	1966
Tyler Prize for Environmental Achievement	Climate Environment Energy	Environmental science, energy and medicine	\$200,000	1973
U.S. Library of Congress John W. Kluge Prize	Humanities	Lifetime achievement in the study of humanity	\$1,000,000	2003
UNEP Sasakawa Prize	Climate Environment Energy	Excellence in the environmental field	\$200,000	1982

Name	Field	Awarded for	Cash value of prizes available in one cycle (\$US, July 2008, rounded)	Year established (*denotes one-time award)
UNHCR Nansen Refugee Award	Humanitarianism	Outstanding services in supporting refugee causes	\$100,000	1955
Van Cliburn International Piano Competition	Arts/Music	Exemplary pianists	\$90,000	1961
Vetlesen Prize	Science	Clearer understanding of the Earth, its history, or its relations to the universe	\$200,000	1959
Virgin Earth Challenge	Climate Environment Energy	A commercially viable design which results in the removal of anthropogenic, atmospheric greenhouse gases	\$25,000,000	2007
Volvo Environment Prize	Climate Environment Energy	Outstanding innovations or scientific discoveries in environmental field	\$180,000	1988
Von Siemens Music Prize	Arts/Music	Distinguished contribution to the world of music	\$315,000	1972
Waterman Award	Science	Outstanding young researcher in any field of science or engineering	\$500,000	1975
Wearable Power Prize	Technology	Developing a long-endurance, lightweight power pack for warfighters in the field	\$1,000,000	2007
Welch Award in Chemistry	Science	Basic chemical research	\$400,000	1972
William E. Simon Prizes	Humanitarianism	Philanthropic leadership	\$250,000	2001
Wolf Prize in Arts	Humanities	Outstanding artists	\$100,000	1978
Wolf Prizes in Science	Science	Outstanding scientists in agriculture, chemistry, mathematics, physics, and medicine	\$400,000	1978
World Food Prize	Agriculture	Improving the quality, quantity or availability of food in the world	\$200,000	1986
Zayed International Prize for the Environment	Climate Environment Energy	Pioneering contributions in environment and sustainable development	\$1,000,000	1999

Appendix 4: Interview list

INTERVIEW SUBJECT	ROLE
Atiyah, Michael	Chair of the Mathematics Committee, Shaw Prize
Benedict, Robert	Change Manager, Changemakers
Bennett, Jim	Former VP, Recommendation Systems, Netflix
Bingham, Alph	Co-Founder and Member, Board of Directors, InnoCentive
Bolduc, Kevin	VP, Center for Effective Philanthropy
Brown, Charlie	Executive Director, Changemakers
Lord Cairns	Board Member, Mo Ibrahim Foundation
Carmeli, Daphne	Judge, Innovation Challenge
Christen, Pat	President & CEO, HopeLab
Comstock, Doug	Director, Innovative Partnerships Program (NASA)
Cooney, Craig	Founder, Methuselah Mouse Prize
Damon, Bill	Co-Editor, Taking Philanthropy Seriously
Davidian, Ken	Former Commercial Development Policy Lead, Exploration Systems Mission Directorate (NASA)
De Grey, Aubrey	Founder, Methuselah Mouse Prize
Dennis, Evie	Chair, El Pomar Prize Board of Commissioners
Diamandis, Peter	Founder, Chairman and CEO, X PRIZE Foundation
Dickman, Jerry	Commissioner, El Pomar Foundation Awards for Excellence
Diskin, Jeff	Senior VP, Hilton Hotels
Douglas, Jan	World Food Prize Foundation
English, James F.	Author, The Economy of Prestige: Prizes, Awards, and the Circulation of Cultural Value
Everingham, Matt	California Space Authority
Fairbanks, Michael	Co-Founder, S.E.VEN Fund
Farhan, Haniah	Director of Research, Mo Ibrahim Foundation
Fleishman, Joel	Author, The Foundation
Foley, Jane	Senior VP, Milken Educator Awards
Foster, Dick	Author, Creative Destruction and Innovation: The Attacker's Advantage
Frumkin, Peter	Author, Strategic Giving
Geesaman, Bard	Former Executive Director, Life Sciences, X PRIZE Foundation
Ghosh, Sushmita	Former President, Ashoka: Innovators for the Public; Founder, Changemakers
Gobel, Dave	CEO, Methuselah Mouse Foundation
Gudonis, Paul	President, US FIRST (Foundation for the Inspiration and Recognition of Science and Technology)
Hall, Doug	Eureka! Ranch
Hall, Russell	Co-Founder and Managing Partner, Legacy Venture
Harper, Charles	SEVP and Chief Strategist, John Templeton Foundation
Hastings, Reed	Founder and Chief Executive, Netflix
Hayes, Jim	Commissioner, El Pomar Foundation Awards for Excellence
Hetman, Yaroslav	Fellow, El Pomar Foundation
Hilhouse, Karin	Director of Strategic Partnerships, Changemakers
Hybl, Bill	Chairman and CEO, El Pomar Foundation
Ibrahim, Hadeel	Executive Director, Mo Ibrahim Foundation
Irving, Dotti	Chief Executive, Colman Getty Consultancy; PR & Event Coordinator, Man Booker Prize
Kalil, Thomas	Special Assistant to the Chancellor for Science and Technology, UC Berkeley

INTERVIEW SUBJECT	ROLE
Kamen, Dean	President, DEKA Research and Development; Founder, FIRST
Knight, Rory	Chairman, Oxford Metrica
Kocher, Brent	Senior VP, X PRIZE Foundation
Kramer, Peter	Fellow, El Pomar Foundation
Lee, Burton	Principal, Space Angels Network
Lefford, M. Nyssim	VP of Production, Director of Research, Idea Crossing
Lindsay, Cristin	VP, Prize Management, Progressive Automotive X PRIZE
Love, James	Director, Knowledge Ecology International (Formerly known as Consumer Project on Technology)
Maiurro, Peter	Director, Awards for Excellence, El Pomar Foundation
Martin, Maximilian	Global Head, Philanthropy Services, UBS AG
Marty, Alan	Managing Partner, Legacy Venture
McIlwain, Matt	Managing Director, Madrona Venture Group
Merges, Robert	Professor of Law & Technology, UC Berkeley
Miller, William J.	Director of Robotics, FIRST
Moore, Geoffrey	Author, Crossing the Chasm
Morgan, Jaison	Senior Director, Education Programs, X PRIZE Foundation
Nelson, Richard R.	Author, Oxford Handbook of Innovation
Neumann, Cecilia	Executive Advisory Board, FIRST
Nicholas, Tom	Associate Professor, Harvard Business School
Novak, Michael	Director of Social and Political Studies, American Enterprise Institute; Templeton Prize winner
Perrott, Kevin	COO & Prize Director, Methuselah Mouse Foundation
Petro, Andrew	Program Executive, Innovation Incubator (NASA)
Powers, Heather	Competitor, Innovation Challenge
Powers, Jonathan	Competitor, Innovation Challenge
Powers, Keith	President, Powerful Concepts; prizephilanthropy.com
Quinn, Ambassador Kenneth	President, World Food Prize Foundation
Rabon, Tom	Executive VP, Red Hat
Rao, Hayagreeva	Professor, Stanford Graduate School of Business
Rathi, Anil K.	President and Founder, Idea Crossing
Raymond, Susan	Author, Future of Philanthropy
Rosen, Gary	Chief External Affairs Officer, John Templeton Foundation
Rotberg, Robert	Professor, Kennedy School of Government, Harvard University
Sanders, Jon	Director, Netflix
Sawyer, Keith	Professor of psychology and education, Washington University
Schilling, Melissa	Associate Professor of Management, NYU Stern School of Business
Schwartz, Arthur J.	Executive Vice President, John Templeton Foundation
Sohlman, Michael	Executive Director of the Nobel Foundation
Spradlin, Dwayne	CEO, InnoCentive
Stein, Lee	Chairman & Founder, Prize Capital
Stiros, Paul	President & CEO, NineSigma
Stolnitz, Dia	Director of Special Projects, FIRST
Sutherland, John	Former Chair of Judges for the Booker Prize; Emeritus Professor UCL
Sutton, Robert	Professor of Management Science and Engineering, Stanford Engineering School

INTERVIEW SUBJECT	ROLE
Swasey, Steve	VP, Corporate Communications, Netflix
Tate, Richard	Director (Communications & Marketing), HopeLab
Taylor, Jonathan	Trustee, Booker Prize Foundation
Templeton, John M.	Chairman & President, John Templeton Foundation
Thompson, Kirk	VP, Hilton Hotels
Thorne, Martha	Executive Director, Pritzker Prize Foundation
Tise, Larry	President, International Conference of Distinguished Awards
Trewin, Ion	Administrator, Man Booker Prize
Trommer, Wendy L.	Program Coordinator, FIRST
Ulanov, Nicholas	Board Member, Mo Ibrahim Foundation
Vander Ark, Tom	Former President, X PRIZE Foundation
Whitney, Patrick	Dean, IIT Institute of Design
Widmer, Andreas	Co-Director, S.E.VEN Fund
Wilczynski, Capt. Vincent (USCG)	Executive Advisory Board, FIRST
Wright, Brian D.	Professor, UC Berkeley

Appendix 5: Bibliography

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