

## GLG News Analysis

## A Challenging Way to Finance Innovation



August 01, 2010

Analysis of: [New X Prize Challenge for Ocean Oil Cleanup](#) | [sciencebusiness.technews1it.com](#)

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## Summary

More foundations, government agencies, and private companies are holding innovation challenges that offer rich purses to generate new ideas to solve tough problems from a wide range of sources. These prize competitions can return plenty of dazzling ideas, but they still need to fit into an enterprise's overall research and development portfolio.

## Analysis

The offer of \$1.4 million in prizes to encourage scientists, engineers, and entrepreneurs to devise new ways of [cleaning up ocean oil spills](#) announced last week highlights the growing use of innovation challenges to find breakthrough solutions for chronic technological and social problems. While these contests and prizes are not a new phenomenon, their use is increasing, with more foundations, government agencies, and private companies now using them to generate new ideas from a wide range of sources.

More often than not, innovation challenges involve a rich purse for which teams or individuals compete with their notions of breakthrough solutions. The big prizes, often running into hundreds of thousands or millions of dollars, are designed to get people with ideas about the problems to put aside incremental advances, and think creatively about the matter; i.e., start fresh, or attack the problem from a different angle. The big purse also helps draw attention of the media and public to the issues behind the competition.

The practice of offering prizes for innovations is hardly new. A well known historical example is the [Orteig Prize](#), a \$25,000 purse offered by hotel magnate Raymond Orteig to the first person to fly nonstop from New York to Paris, and won most famously by Charles Lindbergh in 1927. While Lindbergh himself captured the public imagination at the time, it was his simple approach -- flying a single engine aircraft with only the pilot on board -- that enabled him to leapfrog the competition of larger and more complex undertakings to make the first Transatlantic flight.

The emergence of crowdsourcing, the practice of opening up problems or issues to the public at large, is another reason innovation challenges have become more popular. Benefactors putting up prize money often want answers from outside the normal communities of experts to get genuinely new ideas to solve the problems at hand, even if it means getting some non-serious, or even downright goofy, proposals.

### Lower the barriers, widen the participation

The [X Prize Foundation](#) -- the group running the ocean oil spill cleanup challenge -- is a pioneer in the modern incarnation of this technique. In 2004, the foundation awarded the Ansari X Prize, a \$10 million purse, to Scaled Composites LLC for its privately funded spacecraft that twice carried a crew of three to altitudes of 100 kilometers above the earth's surface. From that beginning, the X Prize Foundation has gone on to offer ...

- A \$30 million prize for lunar space travel, sponsored by Google ([NASDAQ:GOOG](#))
- A \$10 million competition to build a production capable car that gets 100 miles per gallon
- A \$10 million prize for better, cheaper and faster ways to sequence genomes that can lead to personalized medicines.

Another pioneer in innovation challenges is the Bill and Melinda Gates Foundation, which offers its [Grand Challenges in Global Health](#). Unlike the X Prizes that have one or at most a few winners, the Grand Challenges award a series of grants for breakthrough R&D aimed at alleviating 14 major global health issues. But even this program has spun off a new initiative, called [Grand Challenges Explorations](#), aimed at lowering the barriers to truly creative ideas from anyone, student through tenured faculty. This newer challenge-within-a-challenge requires only a two page application and uses accelerated review processes, with awards of \$100,000 to \$1 million.

Several Federal agencies make use of innovation challenges, of which Defense

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Advanced Research Projects Agency (DARPA) and NASA are the trail blazers. DARPA has run [three such challenges](#) since 2004, the most recent in 2007 to build an autonomous vehicle that can drive in urban traffic, performing maneuvers such as merging, passing, parking and negotiating intersections. NASA has run [19 Centennial Challenges](#) since 2005, with three more challenges and \$5 million in prizes added in July 2010.

In March 2010, the Office of Management and Budget (OMB) encouraged agencies to make more use of innovation challenges. An [OMB memo](#) to departments and agencies spelled out the legal and grant making authority for holding competitions, who were also urged to collaborate with outside organizations for their design and management.

Private companies are also getting into the act. In July, General Electric (GE [NYSE:GE](#)) and four venture capital companies [teamed up to offer](#) \$200 million for innovative ideas on building the next generation power grid. Some \$500,000 will be given in awards for submissions displaying superior entrepreneurship and innovation. But the big money is reserved for the submitted ideas GE and the venture capital companies believe are worth developing and commercializing.

### The real work of R&D goes on

While innovation challenges can grab headlines and generate eye-popping ideas, the day-to-day work of research and development (R&D) goes on. An enterprise's R&D operation normally entails steady incremental progress rather than grand slam breakthroughs, building on a known body of work, and often taking into account regulatory requirements, such as health and safety concerns.

And while many of the innovation challenge prizes are generous, they are dwarfed by the ongoing R&D spending of business and government. The National Science Foundation estimates that in 2008 (the last year for which data are available) American companies spent some [\\$346 billion on R&D worldwide](#), with \$283 billion of that spent in the U.S. For the federal government, long considered the nation's funding engine for basic research, in the 2011 fiscal year that begins on 1 October 2010, federal agencies are requesting nearly [\\$148 billion for R&D](#). This scale of private and government spending on R&D is powering innovation today, but largely in the traditional incremental model.

The task for companies and agencies is to combine the energy and creativity of innovation challenges with the work of the ongoing R&D enterprise. There's no formula for putting together the two approaches, but some R&D organizations have initiatives that try to capture at least the spirit of innovation challenges. These programs open the door to different ideas or methods from sources other than the usual suspects, while the mainstream R&D programs continue.

National Institutes of Health (NIH), the largest government funder of biomedical research, reserves part of its grant portfolio for what NIH calls its [High Risk Research](#) program, to encourage ideas from investigators that break away from the normal paradigms. Two of the three opportunities under this program -- the Pioneer and New Innovator awards -- support individual researchers with unusual or creative ideas rather than research projects, a sharp break from NIH's normal way of doing business. The third opportunity called Transformative R01 (R01 is the designation for NIH's main funding vehicle) supports projects, but those projects with a genuinely creative or novel approach.

National Science Foundation offers a program called [Partnerships for Innovation](#) (PFI) that tries to inject the entrepreneurial spirit of small business into the research enterprise to create a different model for spurring innovation. It's purpose is to develop new ways of generating innovative ideas, not just the ideas themselves.

PFI brings entrepreneurs together with researchers "to develop researchers more agile in adapting their research for use in new applications and to increase the potential viability of existing small businesses to leverage this capacity." Teams competing for PFI awards, must contain and be led by at least two small businesses working with a university or research institute, although large companies and not-for-profits may join in.

In the private sector, GE has created a program called [Treasure Hunts](#) that encourages its staff to find ways of reducing the company's energy costs. GE says its 200 internal Treasure Hunts have so far identified some \$150 million in potential savings. Each treasure hunt team is made up of GE staff, but also outside experts, which together identify projects to improve efficiency or cut waste. GE has recently partnered with the Environmental Defense Fund to take the Treasure Hunt idea outside the company to help other companies, communities, and institutions reap the

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benefits of improved their energy efficiency and increased savings.

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