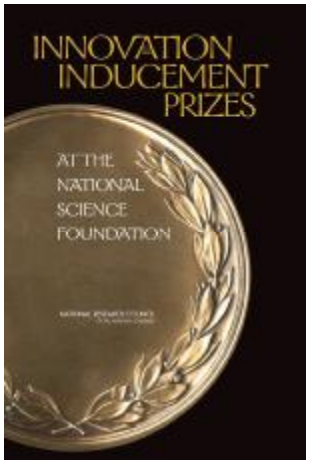
THE NATIONAL ACADEMIES
REPORT IN BRIEF



Innovation Inducement Prizes at the National Science Foundation (2007)

To encourage scientific and technical innovation, some governments award prizes recognizing outstanding accomplishments after they have occurred. Private organizations have sponsored Inducement prizes—intended to encourage innovators to address objectives that a sponsor identifies in advance—but have been used only sparingly by governments. During the past decade, interest has grown in exploring ways for the federal government to focus more on inducement prizes partly as a result of a 1999 National Academy of Engineering report that recommended federal agencies use innovation inducement prizes.

Innovation Inducement Prizes at the National Science Foundation was written in response to a Congressional mandate appropriating FY 2006 funds to the National Science Foundation (NSF) to establish an innovation inducement prize program and seek the advice of the National Academies in setting up the program. One of the rationales for the program is that it will lead to lessons about how prizes work and the conditions under which they can be an effective alternative for or complement to other policy instruments. The report presents the expected strengths and limitations of innovation inducement prizes, and recommends how a successful program should be implemented.

CREATING AN EXPERIMENTAL PRIZE PROGRAM

NSF should take an experimental approach when awarding prizes. In the program's initial phase, the agency should offer several small-scale prizes ($200,000 to $2 million each) in diverse areas that vary in prize scope and scale, length of contest, engagement of outside groups, and other features. NSF should also begin planning for larger awards ($3 million to $30 million) to encourage more complex innovations and address significant economic, social, or other challenges in the United States.

ADMINISTERING THE PROGRAM

NSF should be responsible for developing, communicating, implementing, and evaluating the program through a dedicated staff, possibly designated as the Office of Innovation Prizes (OIP), with its own advisory committee. It may be helpful for NSF to partner with another agency when awarding a prize related to that agency's focus. NSF should consult with professional, technical, and amateur societies; industry associations; entrepreneurs; early stage investors; industry research organizations; and others to identify appropriate prize topics and reach out to potential participants beyond NSF's traditional audience. Finally, NSF should perform an external evaluation to track the program's development and impact.

GUIDELINES FOR NSF PRIZE CONTESTS

For each prize contest, NSF should decide the topic and type of contest, the rules of participation and competition, and the winner. NSF should adhere to the following guidelines:

- Design contests with measurable objectives to give clear guidance to contestants and minimize the potential for controversy over outcomes.
- Use a "first-past-the-post" approach in which the first team or individual who accomplishes a stated objective is given the award instead of a "best-in-class" approach in which the winner is the team or individual who comes closest to achieving the objective within a specified time.

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- Provide set time limits for prizes.
- Require registration, but not prequalification or payment of fees by contestants.
- NSF should not bar its own former or current grantees from competing nor attempt to prohibit the use of related grant funds.
- Contestants should not be required to compensate NSF for any legal liabilities arising from the research, testing, or commercialization of an innovation developed in pursuit of a prize.
- Restrict participation to U.S.-incorporated or chartered entities and teams led by U.S. citizens or permanent residents.
- Federal employees should not be eligible to lead or participate directly in teams competing for a prize, nor should entrants be sponsored by organizations such as Federally Funded Research and Development Centers (FFRDCs) or Government-Owned, Contractor-Operated (GOCO) laboratories.
- NSF should be able to end a contest before the announced deadline if the objective has been achieved by an entity that did not or, in the case of a foreign entity, could not participate.
- The NSF director should determine the winners.
- The government should not own, control, or influence the intellectual property developed by contestants while competing for a prize. However, a winner who declines to put the winning innovation into commercial practice or to license it within a reasonable time may be required to enter into good faith negotiations with a willing licensee.

CHOOSING TARGETS AND CONTEST-SPECIFIC RULES

NSF's most challenging task is selecting appropriate prize topics and crafting rules that guide the type of contest, size of award, criteria for winning, and method by which winning is determined. Topics for smaller-scale, more technical and specialized prize contests can be identified by consulting specialists in various fields, beginning with NSF's own program managers and peer review panels, and incorporating suggestions from scientific and technical societies, federal laboratories, and industrial research managers. For more ambitious prizes, a comprehensive systems approach could be used to translate an important societal need into specific prize objectives.

RAISING PUBLIC AWARENESS WITH AWARDS

NSF innovation inducement prizes should be awarded in a way that raises public awareness of innovation to the economy and society. Small prizes should be awarded during ceremonies involving NSF leadership, White House officials, and members of Congress. Large prizes should be awarded at events—ideally nationally televised—with participation by contestant sponsors, national political and business leaders, and media figures.

COMMITTEE ON THE DESIGN OF AN NSF INNOVATION PRIZE

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For More Information

Copies of *Innovation Inducement Prizes at the National Science Foundation* are available from the National Academy Press; call (800)624-6242 or (202)334-3313 (in the Washington metropolitan area), or visit the NAP website at www.nap.edu. For more information on the project, contact staff at (202) 334-2200 or visit the Policy and Global Affairs website at www.nationalacademies.org/pga.