

## GOVERNING INNOVATION PRIZES

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Innovation prizes have been the focus of significant scholarly and political attention in recent years. The idea behind these prizes is simple: A public or private entity offers a monetary reward for the development of a new technology. Innovation prizes have a long historical pedigree. Most famously, the British Crown awarded £20,000 for the development of an accurate method to calculate longitude at sea. More recent iterations include the well publicized X Prize competitions – prizes of \$10 million for achieving sustainable private commercial spaceflight and \$10 million for development low-emission cars, among others. In 2010, the America COMPETES Reauthorization Act granted federal agencies broad authority to conduct prize competitions, making prizes an important tool of federal innovation policy.

The academic literature on prizes to date has been concerned primarily with two problems: whether and under what conditions prizes might be more socially optimal than patents or procurement for providing incentives to innovate, and how prize mechanisms may be optimized so that the amount of the prize award is set properly. This focus on economic optimality ignores problems of implementation. It all but assumes that once a welfare-maximizing prize amount has been chosen, the prize-giving entity can credibly commit to awarding the prize. An empirical examination of prize competitions in practice, however, reveals that such an assumption is unwarranted.

This paper explores in detail the governance challenges that innovation prize competitions face. We draw upon historical and contemporary examples of prize competitions – primarily qualitative data from the Progressive Insurance Automotive X Prize – to articulate and describe three broad categories of governance issues that prize systems encounter. The first is establishing a governance framework – the rules of the competition and criteria for judging – through a process that is credible to participants. Prize sponsors must then implement that framework in a way that balances clarity with flexibility in light of the significant uncertainty that accompanies the development of new technology. Finally, there must be mechanisms in place for managing conflicts that may arise among participants or between participants and the prize sponsors.

We use this rich case study to describe an emerging model of prize governance. Prize competitions operate in an environment marked by persistent non-estimable uncertainty. The particular technological goal may be capable of being stated, but the means to achieving that goal is highly uncertain. The competitions are designed, moreover, not necessarily to resolve the uncertainty, but to take advantage of its presence to drive unpredictable or innovative solutions to a particular problem. Our data suggest that managing technology in such conditions requires the development and communication of private information from multiple parties, each of which experiences the uncertainty in a different way – a model of iterative and transparent engagement

among the various stakeholders. We compare this model with the governance of other innovation incentive mechanisms like patent and procurement and conclude that policy makers ought to take these different structures into account in choosing among innovation policy alternatives.