

The Prize is Right?

BACKGROUND

Two hundred years ago, scientific research was often stimulated by publicly funded prizes – such as the Longitude Prize offered by the British government in 1714 for a practical method of working out longitude at sea.

Over time, intellectual property rights (IPR) have supplanted prizes as the principal legal and financial stimulus for innovation, though rewards have continued to be used where states wanted to retain IPR, e.g. military technology.

Governments and other public bodies are now rediscovering prizes as a way of stimulating innovation for public benefit, to target problems where IPR does not appear to provide sufficient incentive – for example, new vaccines to tackle diseases in developing countries. RAND Europe has analysed prizes as an innovation policy instrument, looking at efficiency, effectiveness and value for money.

Can prizes spur innovation? How do you set the prizes, and how large do they need to be?

RESEARCH APPROACH

RAND Europe carried out two projects for the UK Department of Health. The first drew on literature and RAND expertise to develop examples and ideas to inform thinking on innovation policy for the NHS. The work outlined ways to use prizes to target particular medical or care problems.

The second project looked at innovation procurement as a type of prize, where government stimulates innovation by specifying a product or service which does not yet exist. The team used game theoretical modelling to analyse when and how to use this tool.

PRIZES IN ACTION



Napoleon knew an army marched on its stomach, but he didn't know how to keep it fed. So in 1795 he offered a 12,000 franc

cash prize to anyone who could develop a safe method of preserving food. In 1809 Nicholas Appert won the prize with his airtight glass jars – a year later, the British invented the more robust metal can.

It currently costs millions of dollars and takes many months to sequence an individual person's genome. Yet individual genetic profiles could revolutionise medical care, allowing personalised screening and care. The Archon X PRIZE is offering \$10m to the first team that can sequence 100 human genomes within 10 days for \$10,000 or less, with a current deadline of 2013. The race is on...



The UK MOD Grand Challenge 2008 was a contest to find a device for identifying threats such as snipers and roadside bombs. It also aimed to encourage new suppliers to enter the UK defence market. The winner was an autonomously guided vehicle relaying images through an automatic threat detection system. It beat 10 other creations including a miniature flying saucer.



PRIZE TYPES



THE ECONOMICS

New knowledge is expensive to develop. Innovators are typically at a market disadvantage to rivals who can use their ideas without incurring development costs. For example, Apple spends US\$534 million per year on R&D, but the iPod has spawned many copycat MP3 players.

Granting intellectual property rights (IPR) through patent, copyright or other means gives innovators short-term control over the use of their innovation. Yet IPR has a social cost. The temporary monopoly can result in higher prices and may inhibit further innovation.

Prizes offer innovators immediate reward, plus other advantages such as publicity and official endorsement. From a market perspective, prizes are more efficient than IPR where the cost of administering and paying the prize is less than the cost resulting from monopoly pricing.

But prizes also have limitations. While rewards from IPR are initially low, they should increase as the invention proves its usefulness. Prizes are specified in advance, so there is a weaker link to social value. One option is to allow innovators to choose between a prize or IPR – similar to film actors deciding between a fixed fee or a percentage of profits.

IMPACT

NHS prize fund: During Health Minister Lord Darzi's review of the NHS, RAND Europe suggested using prizes as a mechanism for stimulating ideas within the health service. A £20 million prize fund has now been set up as one of the 'Innovation for a Healthier Future' initiatives.

More data needed: While there is enthusiasm among policymakers for using prizes to stimulate public sector innovation, more work is needed on the 'best' prizes for different situations. A comparative study to assess the effectiveness, efficiency and value for money of alternative prize mechanisms would provide useful empirical evidence in this area.



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