

# The Great Innovation Challenge

## How challenge prizes can kickstart the British economy

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### Summary for policymakers

Challenge prizes are a tried and tested method for incentivising and supporting innovation, and for ensuring that R&D is responsive to the needs and aspirations of our society. While the UK was a pioneer in using challenge prizes, including the Longitude Prize of 1714, it is now the US that leads in their use.

In this paper,\* we set out how an ambitious programme of challenge prizes could play a vital role in the revitalised UK innovation funding system envisioned in the government's R&D Roadmap.

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### Diagnosis of the current landscape

The UK innovation ecosystem as it currently stands has strengths and weaknesses: well-publicised strengths in basic science, but underperformance in turning that research into economic and social benefit for all. The government's policies to greatly increase funding and create new institutions, including a UK ARPA-style body, are a welcome vote of confidence in British R&D. They need to be paired with action to do things differently: supporting new innovators, leveraging private investment and guaranteeing public benefit.

\* Full paper can be downloaded at <https://challenges.org/impact/reports/the-great-innovation-challenge>

### Conclusions:

- New methods and institutions should aim to be distinctive, both in how they operate and how they create impact.
  - They should be tried out in tandem with robust evaluation – to inform best practice in future.
  - They should release untapped potential, embrace uncertainty and address challenges that matter.
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## The role of challenge prizes

As the details of the new R&D funding are worked out in the forthcoming Spending Review, we believe that new innovation policies, including challenge prizes, need to unlock human and financial potential that is currently being missed; they need to embrace the risk and uncertainty inherent in setting ambitious goals; they need to focus on topics that capture the public imagination. And they need to be robust and data driven, with rigorous evaluation of new methods and old, so we know public money achieves the biggest possible impact.

### Conclusions:

- Challenge prizes support innovators through incentives instead of subsidy.
  - They are radically open, both to new ideas and to new innovators.
  - In the past 15 years, governments and foundations have rediscovered this approach to innovation funding.
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## Challenge prizes in practice

Prizes are making a comeback in the UK, the US, Europe and Canada. Four high-profile examples of US technology prizes demonstrate their potential. The Ansari X Prize launched private crewed spaceflight; the DARPA Grand Challenges created the driverless car industry; the DOE Wave Energy Prize advanced renewable energy and KidneyX is revolutionising dialysis.

These prizes have had unique effects – articulating ambitious and exciting visions of the future, giving credibility to whole new sectors, and demonstrating the benefit of new technologies.

### Conclusions:

- Challenge prizes create breakthrough innovations: they articulate a clear vision of the future, and when deployed by governments this can help direct innovation and create new industries.
  - They help innovators thrive: participating in a prize provides credentials and visibility to innovators, particularly unusual suspects.
  - Public demonstrations and judging help validate and promote the new technologies developed, kickstarting their entry into the market – and starting the process of systemic change.
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## The time is right for an ambitious programme of technology prizes in the UK

We argue prizes should be a strategic part of the innovation funding mix in the UK, across a wide range of sectors, rather than the ad hoc use they have had so far. They can play a role in legitimising new sectors and demonstrating the benefits of new technologies.

We tentatively identify seven themes that we think have promise – and that illustrate how a national programme of challenge prizes could drive forward work on ambitious moonshots. These are:

- Smart green shipping.
- Living maps.
- New materials for clean air.
- Carbon sequestration.
- Microbiome-based therapies.
- Personalised drugs.
- Access to space.

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### About Nesta and Nesta Challenges

Nesta Challenges exists to design and run challenge prizes that help solve pressing problems that lack solutions.

We shine a spotlight where it matters and incentivise people to solve these issues. We are independent supporters of change to help communities thrive and inspire the best-placed, most diverse groups of people around the world to take action. We support the boldest and bravest ideas to become real, and seed long-term change to advance society and build a better future for everyone. We are part of the innovation foundation, Nesta.



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