

# LONGITUDE PRIZE 2014

Setting sail on a journey to solve one of the greatest challenges of our time.



Joshua Ryan-Saha  
Longitude Prize at Nesta

This autumn the Longitude Prize 2014 will open for entries and the criteria outlining what competitors will need to do to win the prize will be published. From this moment on anyone, anywhere can take part and have the chance to win the multimillion pound prize fund.

Getting to this point has been an exciting journey. From the Prize's formation to its launch there has been a tremendous amount of interest and excitement from the public and we have received amazing support from our partners Innovate UK (the new name for the Technology Strategy Board), the BBC, the National Maritime Museum, and the Science Museum.

Most people already know the story of John Harrison – the Yorkshire clockmaker who, against the odds, developed the method to measure longitude at sea. By doing so he changed the future of Great Britain and the world. Inspired by this story, Longitude Prize 2014 was launched to coincide with the 300th anniversary of the Longitude Act.

In the early 18th century Britain was a great seafaring nation. However, its position and ambition was being challenged. Ships couldn't accurately measure their location and often got lost, resulting in shipwrecks and loss of life.

In 1714 the government came up with a prize to solve this problem. It offered £20,000 for

a solution which could find longitude to within half a degree (equivalent to two minutes of time), and the Board of Longitude was set up to assess submissions to the prize and offer rewards. These experts included the Astronomer Royal at Greenwich and some of the best scientific, maritime and political minds of the age.

With life-changing rewards on offer, the challenge became the talk of London's thriving coffee houses. The Board received more than a few weird and wonderful suggestions and the phrase 'finding the longitude' became a byword for the mad pursuits of fools and lunatics. People believed that the problem simply could not be solved.

*... may not have come to light within the traditional funding system ...*

Of course it was eventually solved, but the answer came from an unexpected source with an unexpected method: John Harrison and his marine chronometer, the first seafaring clock. Harrison's chronometer solution led to accurate and safer navigation that ultimately enabled open global trade.

Fast forward 300 years and we now face a range of different issues that are equally significant and problematic. Selecting the challenges for the Longitude Prize 2014 was no easy feat. It began in the summer of 2013 with a round table consultation

with over 40 of the country's leading scientists, engineers, and politicians at Number 10 Downing Street. Ideas were discussed under broad themes and the group identified a number of global challenges suitable for the new Longitude Prize.

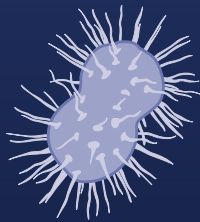
These initial ideas were subjected to multiple rounds of critical analysis and deliberation with the public and over 100 scientists and academics across a variety of disciplines. From these rounds of research and refinement and with the support of the Longitude Committee at every stage, Nesta developed six challenges and they were put forward to the public to vote earlier this year.

## THE SIX CHALLENGES WERE:

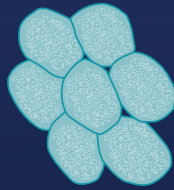
**Flight – How can we fly without damaging the environment?**

If aircraft carbon emissions continue to rise they could contribute up to 15 per cent of global warming from human activities within 50 years. This needs to be addressed in order to slow down climate change and its detrimental effects. The challenge was to design and build an aeroplane that is as close to zero carbon as possible and capable of flying from London to Edinburgh, at a

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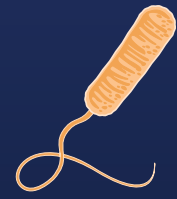
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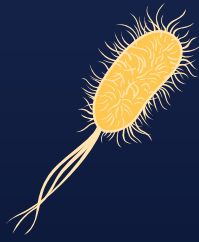
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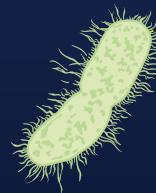
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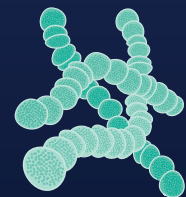
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**KLEBSIELLA  
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**STREPTOCOCCUS  
PYOGENES**

 #longitudeprize

 [www.longitudeprize.org](http://www.longitudeprize.org)

comparable speed to today's aircraft.

## Food – How can we ensure everyone has nutritious, sustainable food?

One in eight people worldwide does not get enough food to live a healthy life. With a growing population and limited resources, providing everybody with nutritious, sustainable food is one of the biggest problems ever faced. The challenge was to invent the next big food innovation, to ensure a future where everyone has enough nutritious, affordable and environmentally sustainable food.

## Antibiotics – How can we prevent the rise of resistance to antibiotics?

The development of antibiotics has added an average of 20 years to our life, yet the rise of antimicrobial resistance is threatening to make them ineffective. This poses a significant risk as common infections become untreatable.

The challenge was to create an affordable, accurate, rapid, and easy-to-use test for bacterial infections that will allow health professionals worldwide to administer the right antibiotics at the right time.

## Paralysis – How can we restore movement to those with paralysis?

In the UK, a person is paralysed every eight hours. Paralysis can emerge from a number of different injuries, conditions and disorders and the effects can be devastating. Every day can be demanding when mobility, bowel control, sexual function and respiration are lost or impaired. The challenge was to invent a solution that gives paralysed people close to the same freedom of movement that most of us enjoy.

## Water – How can we ensure everyone can have access to safe and clean water?

Water is becoming an increasingly scarce resource.

Forty-four per cent of the world's population and 28 per cent of the world's agriculture are in regions of the world where water is scarce. The challenge was to alleviate the growing pressure on the planet's fresh water by creating a cheap, environmentally sustainable desalination technology.

## Dementia – How can we help people with dementia to live independently for longer?

It is likely that 135 million people will suffer from dementia by 2050. This will mean a huge personal and financial cost to society. With no cure, we need to find ways to support a person's dignity, physical and emotional wellbeing. The challenge was to develop intelligent, affordable technologies that could revolutionise care for people with dementia, enabling them to live independent lives.

At the end of June 2014, the British public chose antibiotics to be the focus of the Longitude

Prize. Over the summer we have been consulting with scientists, academics and experts to define the criteria that will explain what competitors will need to do win the prize.

We hope that teams and individuals from a range of backgrounds will compete; after all, what makes challenges like the Longitude Prize unique is that they are open to anyone. They reward people who solve a pre-defined problem. They encourage and solicit entries from a broad, and possibly unlikely, range of sources that can pursue the development of ideas which may not have come to light within the traditional funding system.

Everyone has a chance to be involved in solving one of today's greatest challenges. If you want to find out more please go to [www.longitudeprize.org](http://www.longitudeprize.org).