



# Challenge Prizes for Brazil

Recommendations paper

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# About this document

This paper has been developed as part of [Nesta Challenges](#)' work to support the Science and Innovation Network's promotion of UK expertise in challenge prizes in Brazil.

The set of recommendations we have included into this paper are based on Nesta Challenges' practice in designing and delivering challenge prizes. In particular, we have drawn on knowledge laid out in our "[Challenge Prizes: A Practice Guide](#)" report, and our "[Mission Possible: The role of challenge prizes in a revitalised UK Innovation Strategy](#)" report.

The content of this paper has been tailored to the needs assessment carried out as part of this project (including the development of specific recommendations of relevance to the Brazilian context), in consultation with André Rauen.

This is a companion piece to the series of training sessions delivered in April 2022.

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# 1. What are challenge prizes?

**Challenge prizes offer a series of incentives, with a final prize given to whoever can first or most effectively meet a defined goal.**

They incentivise people to focus on a specific problem. The concept is straightforward: offer a reward for the solution to your problem, attract the best innovators, and support those that make the most progress in order to encourage commitment and optimise success.

## 1.1 Key features of challenge prizes

**Challenge prizes are an outcomes-based innovation method.**

Challenge prizes are fundamentally different from other innovation funding methods in that **they reward according to outcomes rather than inputs**. Where grants or public procurement programs disburse funds according to estimated costs and promise of outcomes, challenge prizes offer awards once a specified result (such as a product, service, technology) has been delivered.

Furthermore, as opposed to recognition prizes, challenge prizes do not reward past achievements (a famous example of a recognition prize being the Nobel Prize). Instead, they start by identifying and defining a problem, inviting solvers to propose and implement their ideas, and rewarding the first or best innovator to deliver a solution.

Winners can either be the first to meet set criteria or, more commonly, the best solution after a set period of time (see Fact box 1).

→ We discuss the role that challenge prizes play in relation to other innovation funding methods in section 2 of this paper.

### Fact box 1 - “First” versus “best” challenge prizes

“First solution” challenge prizes	“Best solution” challenge prizes
The <a href="#">Longitude Prize</a> will be awarded to the first team to develop a transformative point-of-care diagnostic test that will conserve antibiotics for future generations and revolutionise the delivery of global healthcare.	The <a href="#">Mobility Unlimited Challenge</a> rewarded the best solutions to improving the daily lives of people with lower-limb paralysis, according to a combination of criteria including innovation, insight and impact,

	functionality and usability, quality and safety, market potential and affordability.
The <a href="#">Ansari X Prize</a> awarded the first team to launch a reliable, reusable, privately financed, manned spaceship capable of carrying 3 people to 100 Km about the Earth's surface, twice within 2 weeks.	The <a href="#">Data Driven Farming Prize</a> awarded the best tools to source, analyse and translate data into information which farmers can use to improve agricultural productivity in Nepal.

**Challenge prizes are designed around specific problems, and are open about the solutions.**

Challenge prizes do not prescribe what solutions should be - instead, they focus on clearly defining the **problem**, need or gap, and offer a set of **judging criteria** to indicate what success looks like.

Importantly, challenge prizes need to be applied to the right kind of problem. They work well when you are clear about the problem but not sure where the best solutions could come from, or what they will look like. They are also cost effective, creating a pipeline of new and improved solutions instead of betting on just one. They incentivise action and reward success, rather than paying for untested solutions.

**Fact box 2: Types of problems suited to challenge prizes:**

- Problems that would benefit from the fresh thinking that comes from new innovators because the field is stagnant, has few players or there is a related field that is much more dynamic.
- Problems where a prize could, within a reasonable budget and time scale, attract and incentivise new innovators.
- Problems where the additional funding and attention from a prize could accelerate progress or incentivise solutions to scale.
- Problems that are neglected and could benefit from a challenge prize raising awareness.

→ We provide additional guidance on how to identify and define suitable problems for challenge prizes in section 4.2.1.

### **Challenge prizes can provide different types of support alongside the final awards**

The value of a prize goes beyond the cash awards. Through the prize process, innovators develop skills and build capacity, they gain profile and credibility, and (in many challenge prizes) can access financial support to help them participate. This helps to break down barriers to participation and supports innovators' longer term success. The attention generated by a challenge prize can also have a much wider systemic impact by raising awareness of a neglected problem and creating learning opportunities that shape policy and regulation.

→ We elaborate on how impact can be conceptualised and evaluated in a challenge prize context in section 4.3.

## 2. Challenge prizes and mission-oriented innovation

Over the past years, more and more governments and organisations have embraced [mission-oriented approaches](#) to fund innovation and address grand challenges. This involves a shift in focus on the part of the policy-maker - from figuring out which sectors to fund, to centering work around the problems that need to be solved.

Challenge prizes can be a useful instrument in the toolkit of mission-oriented innovation. In the section below, we discuss the rationale of mission-oriented innovation, and how this approach can help you decide when to deploy prizes to solve societal problems.

### 2.1 The benefits of mission-oriented innovation

- Mission-oriented innovation focuses funding around **impact, measurable change and clearly defined outcomes**, rather than processes. This approach gives organisations the opportunity to more effectively [drive innovation toward public good](#).
- If done right, mission-oriented innovation can provide the right **incentives** for innovators to work toward the public good, by allocating funding toward clear goals, and providing support and recognition to the innovators that are most willing to engage with societal challenges.
- On a policy level, mission-oriented innovation **enables the public sector to play a more proactive role in its relation with markets** - rather than providing a counterbalance to information asymmetries or preventing negative externalities, public actors get to play a coordinating role, and provide incentives that [steer markets](#) in the desired direction.
- Focusing on societal problems rather than sectors of activity can help **break silos** across different levels of government, as well as between economic sectors and stakeholders. As previously mentioned, mission-oriented innovation typically aims to tackle complex problems that lack obvious answers, allows a wider range of actors to propose solutions, and welcomes proposals that are potentially more risky and experimental. If done right, this can create an environment that incentivises partnerships that would otherwise not happen.

- Mission-oriented innovation funding can **crowd in private investment**. As laid out in our "[Mission Possible: The role of challenge prizes in a revitalised UK Innovation Strategy](#)" report, by making governmental priorities and actions more explicit and predictable (as opposed to signalling interest in broad themes), mission-oriented approaches to innovation can provide a firmer basis for private investment decisions.
- Finally, mission-oriented innovation may be better suited to **capture the public imagination** compared to jargon-heavy policy frameworks. Mission-oriented innovation can work as a good framework to conduct public consultations, participatory research, or co-design activities meant to provide citizens with the opportunity to contribute to selecting and defining missions - if genuine, this can contribute to increasing the legitimacy of decisions around funding innovation.

## 2.2 How do challenge prizes fit into mission-oriented innovation?

To better understand the role challenge prizes play within mission-oriented innovation, it is helpful to understand some of the main concepts that practitioners often use in this context. While we recognize that the definitions of these terms can be applied quite loosely in practice - with this approach arguably still emerging as a framework for innovation policy - this will help you contextualise challenge prizes in relation to missions and grand challenges.



Mazzucato, Mariana, and George Dobb. 2019. "Missions: A Beginner's Guide". Policy Brief Series. UCL Institute for Innovation and Public Purpose.

**Grand challenges** are complex issues with a broad societal relevance - adapting to the expected effects of climate change, ensuring that the fourth industrial revolution does not leave anyone behind, or tackling social inequalities are examples of such problems. On a practical level, grand challenges can be translated into goals against which to monitor progress and organise action and cooperation - such as the [United Nations Sustainable Development Goals \(SDGs\)](#).

A **mission** can be seen as a concrete and achievable step that contributes to solving a grand challenge. For instance, the [Horizon Europe](#) programme includes missions such as "Cancer: working with Europe's Beating Cancer Plan to improve the lives of more than 3 million people by 2030 through prevention, cure and solutions to live longer and better" or "A Soil Deal for Europe: 100 living labs and lighthouses to lead the transition towards healthy soils by 2030".

In a functional sense, missions can bring together a range of sectors and stakeholders, and support their work through a coordinated **portfolio of mission projects and investments** that will evolve over time with a view to achieving the specified goals.

With their focus on solving societal problems and rewarding outputs, **challenge prizes** are highly aligned with the ethos of mission-oriented innovation.

While they are sometimes deployed more tactically in non-mission contexts - for instance, by addressing specific needs and windows of opportunity as they arise (see Fact box 4) - challenge prizes can be powerful instruments within a mission portfolio, as they can address specific needs and gaps at different stages of development - ranging from prototyping and testing new solutions, to incentivising new business models for scaling innovations.

→ We recommend consulting our "[Mission Possible: The role of challenge prizes in a revitalised UK Innovation Strategy](#)" report, which further discusses the role challenge prizes play in mission-oriented innovation in a UK context.

In practice, some of the practical steps you can take to explore the missions that may be important for your organisation include (but are not limited to):

- Take inspiration from the field of **futures methods** to explore the different directions in which the problems you tackle can help. This will help you define desirable futures, and become aware of any potential risks or roadblocks you may encounter along the way.

→ We recommend consulting the work of [Nesta's Discovery Hub](#), and their suggested [toolkits](#).

- Create a **roadmap** for the specific steps you need to take in order to achieve your missions. This may include elements such as developing and adapting policies, increasing awareness of certain fields, as well as developing and scaling certain technologies, or creating new business models. Challenge prizes may be suitable answers to various steps in your roadmap - if this becomes apparent, we recommend going through the steps detailed in the following section.
- As previously mentioned, missions can bring the particular benefit of galvanising a number of stakeholders to action. Strategies such as **public consultations, stakeholder engagement activities, and end-user research** can therefore be powerful tools for bringing multiple perspectives to the forefront when defining missions.

→ For more tools that you can use in your work around mission definition, we recommend consulting [Nesta's Compendium of Innovation Methods](#).

→ If you decide to run workshop activities for selecting and defining missions, we suggest taking a look at [Nesta's DIY Toolkit](#), which includes a series of practical exercises you can adapt for your sessions.

## 2.3 When to deploy challenge prizes

As we mentioned before, missions can fund innovation through a variety of funding mechanisms and approaches, including (but not limited to):

- Collaborative R&D activities
- R&D infrastructure
- Grant programs
- Incubation and accelerator programs
- Hackathon competitions
- Networking and matchmaking programs
- Impact investing
- Pre-commercial procurement
- **Challenge prizes**

Decisions around when to deploy a specific funding mechanism can draw on a number of factors, such as:

- Whether a solution to the specific problem already exists or not, and whether the innovators best placed to solve this are already known - if that is the case, a classical procurement process or grant funding will likely make more sense than a challenge prize.
- Whether innovators within the relevant space have the capacity to take part in a specific program, and whether that funding mechanism provides the right incentives for them to participate.
- Organisational capacity to deliver a specific type of funding.
- Any legal constraints about how funding should be disbursed toward a specific goal.

Traditionally, organisations may default toward certain funding approaches according to factors such as institutional experience in working with certain funding mechanisms, or attitudes toward risk (see Fact box 3). Recently, we've been seeing organisations take bolder, more strategic choices on how to fund innovation - overall this can help organisations deploy the funds they have available in a more effective way, as well as build internal knowledge and expertise through risk-taking and experimentation.

### **Fact box 3: Challenge prizes and risk**

Compared to other funding methods, challenge prizes shift the incentives and sources of risk between funders and fund awardees. The table below provides a comparison of how risk may differ between challenge prizes and grant programmes.

	Challenge prizes	Grant programmes
How is the risk of an entry determined?	Stage-gated approach. Each step in the process (initial entry form, finalist selection, winner selection) will offer additional information about the likelihood that the teams being funded will succeed.	Analysis of detailed proposals, past experience, and other credentials.
How many organisations work on the problem?	A cohort of organisations propose and work on multiple solutions to your problem, therefore increasing the likelihood that one of them will be successful.	A single organisation or consortium will deliver each project. You may have multiple organisations receiving grants within a specific programme, but the number of teams you are able to support will depend on the total fund size.
What is rewarded at the end?	Final prizes are awarded according to results - challenge prizes will allow you to reward the teams that best meet your challenge statement	Delivery of activities and outputs according to the original proposal.
Risks taken by the innovator/applicant	Innovators may have invested in a solution that does not prove to be the best, and hence may not win the prize.	Innovators may realise that a pivot or change of approach is needed, but are required to stick to the original proposal.

Within the set of innovation funding mechanisms that look into problems that currently lack solutions, challenge prizes come with a particular set of **advantages**:

- By guiding and incentivising the smartest minds, prizes create **more diverse solutions**. Because prizes only pay out when a problem has been solved, you can support long shots, radical ideas and unusual suspects while minimising risk (see Fact box 3).
- Through cash and capacity building, prizes help to develop a **cohort of thriving innovators around a problem**. It's not just about one winner, they support and cultivate participating innovators by providing funding, expertise, profile raising, investment and networks.
- The high profile of a prize can raise public awareness and shape the future development of markets and technologies. **Prizes can help identify best practice, shift regulation and drive policy change.**

However, challenge prizes may not always be the most suitable. At Nesta Challenges, we have developed **two tools** that can help you explore whether you should opt for challenge prizes.

1. We recommend using our **challenge prizes flowchart** - this tool provides a step-by-step framework to select appropriate funding mechanisms (including, where suitable, challenge prizes). We have included the guiding questions from this in Appendix 1 of this paper.
2. Our [green light criteria](#) will help you decide whether you should proceed with a challenge prize once you have developed an initial concept:
  - **The problem is well defined and there's a clear goal for innovators to work towards** - Whether narrow or broad, challenge prizes need a well-defined problem. We offer more details about how you can determine this in section 4.2.1 of this paper.
  - **The best solutions will be generated by opening up the problem to a wider pool of innovators** - Challenge prizes open a problem up to new innovators. If there is an organisation that is the clear frontrunner with unique skills or technology it may be more effective to work directly with them.
  - **Solutions will be adopted or taken to market** - Challenge prizes are intended to create impact. If the solutions developed through a challenge prize will not be adopted or taken to market, then the prize will not achieve its goals.
  - **A prize will accelerate progress** - The competitive aspect of challenge prizes galvanises action. You should be able to articulate how a prize could accelerate the creation of better quality solutions.

- **A prize could provide the incentives needed to motivate innovators** - Innovators are key to the success of any challenge prizes. Exploring how to incentivise and motivate them is part of the design phase.

## 2.4 Selecting missions and topic areas for challenge prizes

In some cases, challenge prizes are deployed **strategically**, through a top-down approach that starts with high-level priorities (such as strategic policies or grand societal challenges), and seeks to add granularity progressively, by defining measurable and time-bound missions, followed by specific projects and activities - such as challenge prizes.

Elsewhere, and more commonly, challenge prizes have also been deployed **tactically**, by addressing problems and opportunities as they occur. With this more reactive approach, the agencies and organisations closest to the relevant issue can run targeted challenge prizes when they identify a specific gap.

### **Fact box 4: The advantages of strategic versus tactical approaches to challenge prizes**

<b>Strategic approaches</b>	<b>Tactical approaches</b>
<ul style="list-style-type: none"> <li>● Better placed to provide coordination and break silos between governmental departments, by identifying common problems, sharing best practice, and ensuring access to common resources for delivery.</li> <li>● Increased accountability with regard to how public funds are deployed.</li> </ul>	<ul style="list-style-type: none"> <li>● More flexibility about when challenge prizes can be deployed.</li> <li>● Providing problem holders the opportunity to propose challenge prize ideas can mean having access to better "on the ground" knowledge.</li> </ul>

In practice, these approaches may not be so different from each other - for instance, the way challenge prizes are integrated within broader strategies will likely depend on institutional knowledge about existing opportunities, while tactically deployed challenge prizes will need to demonstrate alignment with higher-level policy priorities.

## 3. Examples from other governments

Governments such as the United Kingdom, the United States, Canada, Chile and the European Union have been recently engaging with mission-oriented innovation, as well as challenge prizes as a distinct funding instrument.

The range of approaches that these different governments bring can serve as helpful inspiration for how the challenge prize model can be adapted to and implemented in different contexts.

### 3.1 Selecting missions and challenge fund objectives

#### **Case study 1: The UK's Innovation Strategy**

The UK's emerging approach to developing missions around the [Innovation Strategy](#) includes a series of processes and organisational arrangements:

- The [National Science and Technology Council \(NSTC\)](#) sets the strategic direction according to governmental priorities (such as the UK Innovation Strategy Grand Challenges).
- The [Office for Science and Technology Strategy \(OSTS\)](#) ensures coordination across government - grasping individual departments' appetite for missions, exploring linkages between missions and broader strategic agendas, and providing support in framing missions and problem definitions.
- Departments propose their own missions and coordinate with relevant stakeholders (such as industry, academia, and the third sector).

#### **Case study 2: The EU's Horizon Europe Missions**

- The [European Commission's Horizon Europe](#) programme includes [research and innovation missions](#) linked to specific, time-bound targets.
- Five mission areas or "grand challenges" were identified during the negotiations for the new Horizon Europe programme.
- To narrow down the missions, the European Commission selected a Mission Board (each consisting of 15 experts) for each mission area.
- The Mission Boards conducted a series of stakeholder and citizen engagement events that fed into their reporting to the European Commission and member states.
- During its previous framework programme, the European Commission ran the Horizon prizes - which were deployed in a less strategic manner.

The process of adopting the challenge prize method at a governmental level can take different forms - as previously mentioned, this can be done according to a series of strategic considerations, on the one hand, or in a more responsive, tactical manner. In practice, governments have employed a combination of these two approaches.

### **Case study 1: The US**

- The various agencies of the US Federal Government organise challenge prizes independently - goals for challenge prizes are therefore set in a largely ad-hoc manner, according to the existing priorities of individual departments.
- At the same time, challenge prizes receive top-down support in the form of frameworks, a community of practice and a platform from federal institutions such as [challenge.gov](https://challenge.gov).

### **Case study 2: Canada**

- Individual departments run challenges to help achieve existing policy objectives.
- Funding for challenge prizes is usually allocated in the federal budget and may be initiated by specific departments or by overall government priorities such as Prime Ministerial mandates.
- Challenge prizes are deployed either as programme streams, i.e. authorities given to a federal partner organisation to manage a portfolio of challenges over a longer period in their policy area, or as individual projects through an ad-hoc [Expression of Interest](#) process.

### **Case study 3: Chile**

- Problem holders (i.e. ministries, public corporations etc.) propose ideas for challenge prize ideas to the Ministry of Science, Technology, Knowledge and Innovation.
- The Ministry of Science, Technology, Knowledge and Innovation selects the best proposals according to a series of internal criteria, including an equivalent of the green light criteria, as well as its own criteria related to areas of focus and priority issues.
- The problem holders deliver the challenge prizes with support and funding from the Ministry of Science, Technology, Knowledge and Innovation and economic development agency [Corfo](#).

## 3.2 Institutional arrangements

Running challenge prizes at a governmental level typically entails the involvement of a coordinating body. The US, Canada and Chile provide helpful examples of different ways that such organisations can operate.

- In the US, the [Challenge.gov](#) programme acts as a platform that federal agencies can use to publicise their challenge prizes. Moreover, the team provides support to the members of the Challenge and Prize Community of Practice, hosting interactive learning experiences, and developing practical toolkits.
- The Government of Canada provides support to agencies running challenge prizes through the [Impact Canada Initiative](#). The initiative provides the infrastructure for publicising challenge prizes, terms and conditions that allow government departments to distribute funds using a challenge prize approach, as well as hands-on support on tasks such as challenge ideation, program design and implementation. While the Impact Canada team is located centrally in the Privy Council Office, they sometimes place challenge prize trained "fellows" directly into the government department teams running challenge prizes.
- Chile draws in centralised expertise from a partnership between the **Ministry of Science, Technology, Knowledge and Innovation** and economic development agency **Corfo**.

## 4. Challenge prizes in practice

### 4.1 Skills for designing and delivering challenge prizes

Designing and delivering challenge prizes may require more resource than it is immediately apparent. Generally, some of the skills you may want to have access to - either in-house, or commissioned externally - will include:

**Research.** Conducting thorough research before designing your challenge prize will allow you to understand the problem you are trying to address, gather data about potential opportunities for innovation and grasp what is feasible and ambitious, and become aware of any potential negative consequences that your challenge prize may create.

**Stakeholder engagement.** Challenge prizes come with different implications for different groups of stakeholders - from the potential end-users of an innovative product, to the various sectors providing the solutions. In practice, this means that you may want to actively engage these groups at different points in your process, by tapping into their perspectives, asking them for feedback on your thinking, and even providing opportunities for co-creation.

**Prize design.** As you design your challenge prize, your team will need to consider different options (such as focus areas, challenge statements, judging criteria, or stage-gate structures) and make strategic decisions.

**Subject matter expertise.** Because challenge prizes typically deal with novel, complex and multidisciplinary issues, they often require design and delivery teams to work with unfamiliar topics. At the same time, consider where you have opportunities to access subject matter expertise to sense-check your thinking and decisions. Subject matter expertise is also essential in assessment and judging of prize entrants.

**Legal.** Challenge prizes can come with a range of legal implications, including aspects such as intellectual property or eligibility rules. It is therefore crucial to engage legal experts at some of the key stages, including design.

**Procurement and fund disbursement.** As part of the challenge fund, you will need to disburse grants and procure solutions - it will therefore be important to have a team member who is familiar with the underlying procedures.

**Communications.** Running successful communications is key to attracting innovators to your challenge prize and generating attention around the topic. Knowing how to speak to different audiences - including some of the "unusual suspects" that may not typically engage with your work - may prove particularly useful.

**Event planning.** Be prepared to run events as part of your challenge prize, from innovator webinars to judging panels and award ceremonies.

**Monitoring and evaluation.** Actively monitoring and assessing the success of your challenge prize programme will not only help you meet any internal or external evaluation requirements, but also generate learnings and insights on the challenge prize method.

**Equity, Diversity and Inclusion (EDI).** Your challenge prize programme will likely include a series of EDI implications - for instance, you may want to understand whether your prize attracts innovators coming from a more diverse range of backgrounds (and therefore proposing a more diverse range of solutions), or how the lived experiences of end-users vary across different characteristics. You may therefore want to consider including some EDI expertise in your resourcing.

**Programme management.** Challenge prizes are complex, multi-stakeholder programmes that need strong management in order to be delivered effectively.

## 4.2 Challenge prize phases

### 4.2.1 Discover and define

Before embarking on a challenge, you need to be clear about what you're trying to achieve – and whether a prize is the right approach.

**Questions this phase will answer:**

- What would help achieve the change I want? Is innovation really what's needed?
- Have I identified and spoken to the right stakeholders?
- Do I know enough to confidently articulate what the root problem is?
- Do the topics I'm exploring meet the strategic priorities I have for the programme?
- Do they meet the challenge prize green light criteria?
- Is a challenge prize the right approach or should I try something else?

## **What you do in this phase**

The discover phase is about understanding the field and how a prize might fit in. You then define your focus to find one or more problems to explore. Look for areas where entrepreneurs, end users and independent experts can agree that innovation would help. Talk to people with lived and professional experience about what good would look like. If the field features problems or barriers that need new solutions, new innovators or a new approach to the market, then a challenge prize could be effective.

In this exploratory phase, it's crucial to hear the views and judgements of as many experts as possible, even if you are quite familiar with the area. That will help you find out whether there is scope for a challenge prize – and if so, define exactly what it should focus on. Nobody has a monopoly on knowledge; it's important to engage with a range of experts – including end users and innovators. This will ensure that your prize not only reflects your priorities, but also those of people and communities who are affected by the problem.

Engaging with experts also helps you pick a problem that can realistically be solved – and where you could incentivise innovators to work. When defining its [Drug Checking Technology Challenge](#), Impact Canada engaged with people with lived experience of the opioid crisis and staff at supervised drug consumption sites, as well as technical and academic experts. Working with Nesta Challenges, Impact Canada used these insights to frame the challenge around creating innovations that would be useful for the end users. It also taught them that innovators would likely need support with exemptions from the Controlled Drugs and Substances Act if they were to compete successfully in the prize.

## **Why this phase is important**

While challenge prizes can be used for almost any topic, not all problems are suitable for a prize. Focus innovators on the wrong problem (or one that's badly defined) and you risk wasting effort and money. But get this right, and a prize's impact can be huge. Prizes work best when they are clearly defined around specific barriers or problems that they could help overcome, or opportunities that they could exploit. We created our green light criteria and challenge prize flowchart to help identify whether a problem is suitable for a prize.

## What can go wrong

In this phase it's important to understand how much you know and how much you don't. While the process of discovery can be a lot quicker and simpler if your organisation already has relevant expertise, it always pays to test your thinking externally. Listening to a broad range of voices to understand the underlying issues and whether a prize is appropriate is the basic due diligence you need to do before launching a prize. Fail to do so – or fail to find the right stakeholders – and your money could be wasted on something pointless or even counterproductive.

### What we think this means for Brazil:

- It is important to understand whether the problem you identified is an innovation problem, as opposed to something that can be solved by purchasing an existing solution, or commissioning a predictable work.
- While what constitutes innovation can be conceptualised in a number of ways, some useful questions to consider include whether a problem requires a specific technological breakthrough to be overcome (rather than intensifying the use of something that already exists), or whether there is a need to generate new business models to facilitate the diffusion of existing technologies.
- Aim to build your case that a certain problem constitutes an innovation problem. In order to do so, you can use the discover and define stage to gather evidence around what already exists within the space you are looking at and understand the appetite that innovators have for engaging with your topic.
- While challenge prizes champion an open approach, it is important to assess how realistic it is that a prize will generate a solution. If a field is not mature enough, there is a possibility that innovators will not be able to reach the targets you set out, in which case conducting exploratory R&D may make more sense. In order to grasp this, talk to innovators to try to understand what they are working on - this will not reveal what the solution looks like, but will give you a good sense of what is feasible to ask.
- Overall, these steps will help you justify the use of some of the innovation procurement tools available in Brazil.

## Methods and tools you can use in this phase

- **Expert interviews** - get in touch with experts that have an overview of your problem area, experts that may have relevant niche knowledge, or people with lived experience.
- **Focus groups** - we recommend using tools such as [Miro](#) or [Google Jamboard](#) to facilitate interactive sessions.
- **Stakeholder consultations** - start talking to the people and organisations that may have a stake in your project early.
- **Futures methods** - horizon scanning, roadmapping, or trend analysis can be powerful tools at an early stage.

### 4.2.3 Design

By testing different versions of your prize design with key stakeholders, you can make sure your plan matches your ambitions.

#### Questions this phase will answer:

- Does my prize have a narrow or broad goal?
- What kind of innovations will my prize need to support? Will they be early-stage ideas, scaling solutions or solutions transferred from other sectors?
- How could the prize take key barriers into account?
- How will my prize fit in and contribute to wider systems change?
- How ambitious is my challenge?
- Do I have the correct incentives and support to attract the right innovators? (The correct level isn't necessarily to cover all of the costs of the innovators - but rather, the size of incentives needed to change their behaviour, which is usually less.)
- How will my prize help mitigate risks and allow anyone with a good idea to participate?
- Do I have the resources (budget, time, expertise and networks) to effectively deliver this prize?

#### What you do in this phase

This phase is an opportunity to carefully construct a prize design through an iterative process using prize design prototypes. Each prototype takes a different approach or tackles a different aspect of the problem or goal. The number of prototypes you explore will depend on what you learn through the discover and define phase. They

are invaluable for getting feedback from stakeholders on the strengths and weaknesses of the different options. Think carefully about who you ask for feedback and consider what points of view you might be missing. Through this process, prototypes are improved or discounted until the best option is worked up into a full prize design, which includes:

- **Problem definition:** Summarises the problem, with causes, effects and key barriers to innovation
- **Challenge statement:** Call to action that sets out the target problem, clarifies whether the goal is narrow or broad, articulates incentives and what success would look like, without prescribing what solutions should be
- **Eligibility criteria:** Specifies any restrictions on who can enter the prize as well as requirements of participants once they are selected
- **Judging criteria:** Outlines how participants will be assessed and judged throughout the prize
- **Structure and incentives:** Sets out the timeline with any stages and associated incentives for innovators, ranging from grants to in-kind support to develop innovators' capacity.
- **Implementation plan:** Sets out how you'll deliver the prize, from grant management to communications and evaluation. The plan should include an assessment and selection process that articulates how innovators' success will be tested and measured.

#### **What we think this means for Brazil:**

- The challenge prize design phase is a good opportunity to lay out the implications of taking part in the challenge prize competition for the innovators' intellectual property. Ideally, innovators should be able to maintain the IP over what they create as part of the prize - this is an important part of the package of incentives, particularly as the financial reward in a challenge prize is often less than the full cost of participating.
- Writing a prize design report is a good way of capturing the thinking done on designing challenge prizes - this can document the decision-making process by laying out the options and considerations that were weighed and justify decisions that were made. They can

also act as a helpful resource for future teams working on challenge prizes in Brazil.

### Methods and tools you can use in this phase

- **Prototyping** - At this stage, you may want to create several prototypes of what your challenge prize can look like in terms of challenge statement, judging criteria, and other key elements. This will allow you to look into multiple options and narrow them down as you learn more, rather than invest all time and resources into a single option.
- **Validation research** - Present your prototypes to experts and get as much feedback as possible. Use this to iterate on the prototypes you develop as you receive feedback.
- **Stress-testing with innovators** - Present your prototypes to some innovators that you think would be a good fit for your challenge. This will give you an opportunity to understand whether your challenge prize design works: Does it provide attractive incentives? Is the challenge statement achievable in the given time frame? Do innovators have access to the right type of support?
- **Innovator journey maps** - Understand what the innovator journeys will look like during the prize, i.e. what you expect them to deliver at different stages of the process, what roadblocks they may encounter, what evidence you will be looking for, and what kind of support you will have the opportunity to provide. This will prove useful at a delivery stage, particularly for highly technical prizes.

#### 4.2.4 Deliver

To implement a challenge prize well, you need a robust plan with appropriate resourcing and partnerships to carry it out.

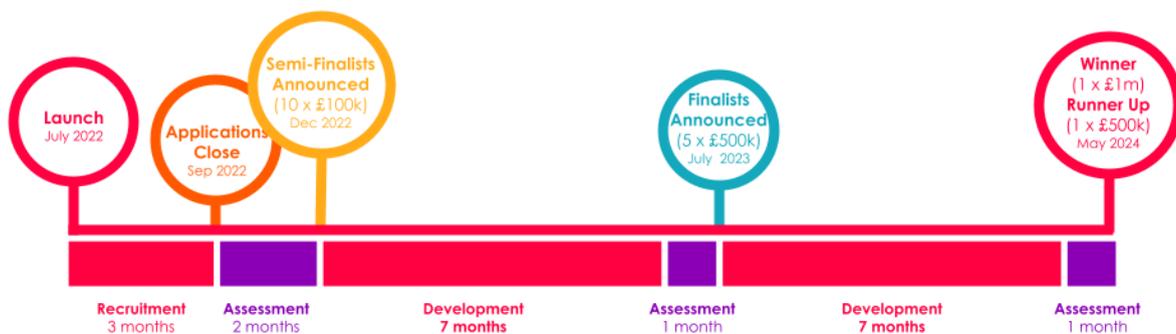
#### Questions this phase will answer

- Is the approach I've taken to engaging and motivating innovators to enter my prize proving effective?
- Have I built systems that will allow me to learn, and adjust my plans throughout delivery to ensure success?
- What partners will I need to deliver different aspects of the prize?

- Once innovators are selected, how will we ensure that the support we're providing is effective?
- What data needs to be collected to measure success?
- What resources do I need to collect and analyse that data?

### What you do in this phase

Here is where you put the design into practice. The appropriate level of resources and partnerships must be in place to effectively deliver your prize. There is no single way to deliver a challenge prize. It all depends on your aims and the problem you are tackling. Typically, this phase includes pre-launch preparation, call to action, broad communications, profiling innovators and their journeys, assessment and judging, providing support to innovators, and events.



Example only - prize phases, funds and number of stages differ according to prize objectives.

Example challenge prize delivery timeline

### Why this phase is important

To ensure the best chance of success, it's critical to give the right type of support to innovators in order for them to thrive, whether that's financial, technical, or by providing access to expertise. This phase provides a working knowledge of real solutions and innovators, and an opportunity to connect them to a broader network of people – end users, other beneficiaries and industry – to support their work. Delivery provides tangible support to drive solutions forward, transforming ideas into market-ready solutions that will benefit end users.

### What can go wrong in this phase

Prizes are not maintenance-free. If you fail to place enough importance on the call to action and don't maintain a steady pace of communication, your prize is unlikely to succeed. Assessment and judging need time to effectively evaluate solutions or you risk rewarding the wrong team. Likewise, if you don't have clear enough criteria,

or don't collect the right data at the right time, it's difficult to establish whether the prize resulted in the right outcomes.

#### **What we think this means for Brazil:**

- Developing a **community of practice** around challenge prizes can help share best practice and learning across organisations, raise awareness of the method, and create opportunities for collaboration.
- You may want to consider setting up a **system for sharing resources**, such as toolkits, templates, “how to's” and other materials that organisations may develop along the way.
- You may also consider setting up a **centralised support hub** to help run challenge prizes. As delivery can be a complex, involved endeavour, centralising certain tasks can help organisations adopt the process in a smoother way.
- Allocate **adequate resource** and **project management** to ensure delivery progresses smoothly. It's important to be ready to adapt your program based on innovator needs.

#### **Methods and tools you can use in this phase**

- **Submission platform** - You will need to set up a platform where innovators can register their applications to your challenge prizes, and where your assessors and judges can score applications. At Nesta Challenges, we have been using [Submittable.com](https://www.submittable.com) for this purpose.
- **Feedback surveys platform** - Employing feedback surveys will be a useful tool throughout the different stages of your challenge prize. A platform that can allow you to share and compile feedback surveys will be particularly helpful - some options include [Mailchimp](https://mailchimp.com) or [Alchemer](https://www.alchemer.com).
- **Innovator cohort engagement tools** - You will want to stay engaged with your innovator cohort throughout the challenge prize - not just at the key moments such as submission, judging, awards. The specific tool you use to stay in touch should be tailored to your cohort - some sectors are familiar with using tools such as [Slack](https://slack.com), while other groups may prefer [WhatsApp](https://www.whatsapp.com) etc. The most robust tool we occasionally use for innovator / partner engagement is [LearnWorlds](https://www.learnworlds.com).

## 4.3 Evaluation and monitoring

Measuring the impact of individual challenge prizes - as well as the impact challenge prizes as an innovation method - can be a significant challenge.

On the one hand, their open nature may mean that some of the solutions supported throughout competition will not meet the criteria you set for success at the end of the problem. On the other hand, prizes will likely bring benefits that go beyond the immediate impact of whether your challenge statement was met or not - these include the creation of capacity building opportunities for innovators, cohort development, more funding attracted for the innovators, or increased awareness of the problem area.

On a broader scale, this means that you will need to develop an evaluation framework that goes beyond cost-benefit analysis. Instead, you will need an approach that can capture some of the spillover effects of challenge prizes, as well as the system-level impact a challenge prize programme may have generated.

### **Fact box 5: What can success look like in the context of a challenge prize program?**

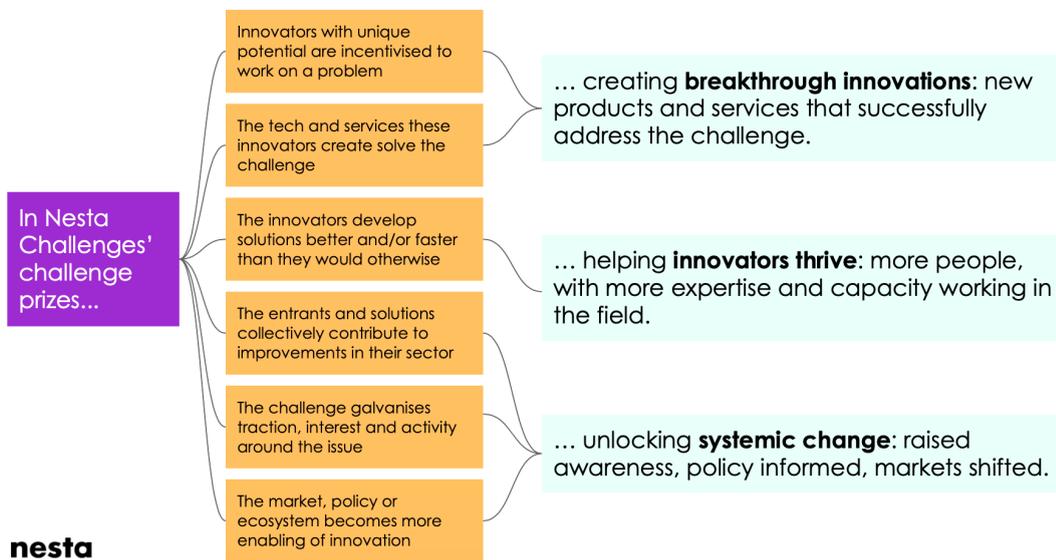
- One or more of the innovator teams developed a solution that met the challenge statement;
- The innovator teams invested a certain amount of their own funding for the development of their solution;
- The innovator teams managed to attract additional investment during or after the challenge prize;
- A number of innovators took part in a series of capacity-building activities and developed new skills;
- The prize led to the formation of partnerships between different organisations;
- Innovators who have previously not engaged with a specific field increased their awareness about it as a result of the prize;

In order to grasp these various areas of impact in the context of complex programmes such as challenge prizes, we recommend using a **theory of change** as a key tool for understanding and evaluating challenge prizes. This will allow you to

build a shared understanding of the programme you are running, and to make clear the different hypotheses, assumptions and activities that underpin your work.

→ We recommend consulting Nesta's [guidance on developing theories of change](#).

### How challenge prizes achieve impact



Outcomes and impacts in Nesta Challenges' Theory of Change (simplified)

A theory of change will also help you understand how to best evaluate your challenge prizes, including what data you should be collecting before, during, and after a challenge prize. At Nesta Challenges, we use a [broad range of evaluation sources](#), including:

- Independent evaluation of our challenge prizes;
- Programme monitoring and evaluation reports;
- Information from technical experts, assessors and judges;
- Case studies that capture stories of change for prize participants;
- Knowledge and experiences from Nesta Challenges' prize teams;
- Experimental approaches such as randomised controlled trials (RCTs).

→ For more information about understanding the impacts challenge prizes can have, we recommend consulting our "[Attracting investment with challenge prizes](#)" report and "[Assessing our impact: how we measure our progress](#)" article.

## Closing thoughts

Read our [practice guide](#) for more details about our approach to designing and running challenge prizes.

For a comprehensive list of the challenge prizes we have run, consult our [website](#).

We post regular updates about our work on the Nesta Challenges [blog](#).

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# Appendix 1

## CHALLENGE PRIZE FLOWCHART

This series of questions helps identify appropriate innovation funding tools for any given situation.

1. Is your priority to stimulate innovation?

**Yes: There are lots of ways of stimulating innovation (including challenge prizes...) → move on to the next question.**

No: Consider providing funding to organisations that already do the thing you want - through grants, contracts, commercial procurement, public sector service provision...

2. Does the issue need additional incentives or funding to be adequately addressed?

**Yes: A range of instruments for funding or supporting innovation could be appropriate to deliver or accelerate innovation that the market is failing to provide → move on to the next question.**

No: Where you want change but incentives or funding aren't the problem, campaigning, policy or regulation can be powerful tools. Or you may even consider doing nothing - the market economy and intellectual property laws provide lots of incentives already.

3. Is it both possible and desirable to define objectives or goals for the funding?

**Yes: A number of problem-focused funding methods including challenge prizes may be appropriate → move on to the next question.**

No: A number of funding methods are well tailored, including providing core funding for experts to do exploratory research, funding an accelerator that supports innovators working on the broad issue, investment in early-stage firms and running a thematic call for grant funding

4. Do you want multiple innovators working on different approaches to the problem?

**Yes: A number of problem-focused and cohort-based funding methods including challenge prizes may be appropriate → move on to the next question.**

No: Consider procurement from, investment in, or a grant to, a single, well-placed team

5. Would your targeted innovators be motivated by outcomes-based incentives?

**Yes: Outcomes-based funding mechanisms such as challenge prizes are probably a good fit → move on to the next question**

No: Consider a challenge-based grant-funding call that supports a cohort of innovators or an SBIR/SBRI competition. A *challenge prize* may still work if you combine the final award with generous up-front grant funding.

6. Is there a pathway to market or long-term sustainability for the solution?

**Yes: A challenge prize would be a great fit for this problem.**

No: A challenge prize *might* work if the reward is generous enough (e.g. a large cash prize) or if you can combine it with continued support, investment or procurement.

# About Nesta and Nesta Challenges

**Nesta** is an innovation foundation. For us, innovation means turning bold ideas into reality and changing lives for the better. We use our expertise, skills and funding in areas where there are big challenges facing society.

We work with partners around the globe that bring bold ideas to life to change the world for good.

**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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