

Review of Innovation Prizes

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About the Innovation Caucus

The Innovation Caucus supports sustainable innovation-led growth by promoting engagement between the social sciences and the innovation ecosystem. Our members are leading academics from across the social science community, who are engaged in different aspects of innovation research. We connect the social sciences, Innovate UK and the Economic and Social Research Council (ESRC), by providing research insights to inform policy and practice. Professor Tim Vorley is the Academic Lead. The initiative is funded and co-developed by the ESRC and Innovate UK, part of UK Research and Innovation (UKRI). The support of the funders is acknowledged. The views expressed in this piece are those of the authors and do not necessarily represent those of the funders.

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1. Executive Summary

As part of a broader review of the mechanisms and initiatives supported in pursuit of its organisational aims, Innovate UK has asked the Innovation Caucus to undertake a review of the existence, use and nature of Innovation Prizes, a funding mechanism for inspiring, collecting, developing, evaluating, and rewarding research solutions. The key aim of this exercise is to gain a better understanding of the types of prizes available, what they incentivise and what outcomes or follow on activity they have the potential to generate.

The two key objectives of the study are to:

- Identify the variety of prize types available, to examine a number of key characteristics of the prizes and to understand the governance of the prize award process.
- Identify a number of case studies covering finalists (winning and short-listed organisations) in a number of prize categories and build a profile (e.g. type of business, key events since the prize in question, evidence of behaviours regarding innovation support etc).

The methodology employed is entirely desk based. Data and information available on a range of websites was examined and captured in relation to key lines of research enquiry.

1.1 Key findings

1.1.1 Prize characteristics

A dataset covering 54 prizes was developed based on a desk-based review of prize characteristics. The key findings drawn from an examination of prize characteristics are:

- The number and variety of innovation prizes is very considerable, which presents a challenge when undertaking a review such as this; it has not been possible to review a sufficiently large and representative sample of prizes, meaning that findings should be considered to be ‘impressions’ taken from consideration of a narrow dataset, rather than definitive findings.
- There are gaps in the dataset, driven by the lack of consistency and completeness of information presented on prize or other websites. Often, this is because the prize was awarded in the past and therefore some information (e.g. award criteria) have been removed due to a lack of current relevance.
- The focus of innovation activity across the 54 prizes reviewed fall into two categories; the development of a particular technology, or the tackling of a particular societal challenge.
- The key aim of any particular prize is typically described using three components; the ‘what’ (the nature of the challenge to be addressed), ‘who’ (the sector towards which the prize is targeted) and ‘how’ (the technology area of focus). However, some prizes express additional aims, such as articulating intended outcomes for the prize participants (the prize seeks to develop or support entrants in a particular way).
- Intended impacts arising from the prize are stated in only a minority of cases. Examples include ‘stimulating the emerging community of developers and practitioners [in a particular field]’, ‘gig economy workers better understand how expenditure relates to their pay and impacts on their ability to meet the cost of living’ and ‘to stimulate investment into cleaner vehicle fleets and/or reduction in fleet size, the movement of goods made more resilient and reliable as data expands’.

- The review identified five categories of award; Challenge (46% of the sample), Prize¹ (31%), Award (4%), Competition (11%) and Data/Hackathon (7%).
- Application criteria and processes are hugely diverse, but tend to centre around the development of proposals to address the stated challenge, supported by a process of shortlisting and then a final assessment to determine the winner.
- Award criteria are also diverse but tend to centre around six main themes; relevance and viability of the solution, impact, collaboration, creativity, scalability and sustainability, and vision/ambition.
- Prizes awarded include some form of grant payment in the vast majority of cases (except 'awards', which tend to be focused on recognition of past work or contribution to a particular field, and data/hackathons, which is centred around prestige). However, many prizes (65% of those covered in this review) can be considered to award 'money plus' prizes. Such prizes award grants coupled with publicity and some form of innovation support for winners and shortlisted entries.

1.1.2 Governance and wider innovation support

The review identified 35 organisations behind the 54 prizes captured in the dataset. The organisations were categorised as follows:

- Where innovation is the sole purpose of the organisation – 12 organisations.
- Where innovation is an important supporting activity to their main mission and purpose -12 organisations.
- Where innovation is a small part of what they do, not directly related to their main focus – 11 organisations.

1.1.3 Winner and finalist case studies

The following key findings were drawn from the winner and finalist case studies:

- For some prize winners it is clear that they are serial winners/runners up/awardees and applying for and participating in competitions and prizes is an integral part of how they operate.
- The case studies include firms that have been awarded a small amount of funding then raise large amounts of investment several years down the line. There is no explicit evidence of a causal link between the two so it would be necessary to speak to the individuals concerned to get their opinion of the importance of the earlier/smaller prize as a stepping stone.
- A number of awarding bodies/organisations do commission reports and evaluations of their competitions programmes to look at progress and impact and these can be a valuable source of insight and information. This report contains examples of statement of impact, which cover indicators such as company sustainability, effectiveness of solutions developed, number attracting new investment (and value of that investment), degree of market-readiness of solution and developing organisation, impact on innovation capability, and the development of new collaborations and partnerships.
- In some cases, it can be quite difficult to find any reference to the prize or award on the winners/runners up websites.

¹ Note that there are important similarities between Challenges and Prizes as categorised in this study. The differentiation is based primarily on the terminology used in descriptions and promotions of the award. There is an argument for merging the categories, but since we can assert that all 'Prizes' as labelled in this research are based on the Challenge approach, not all Challenges are prizes. This demonstrates the inherent difficulty in labelling and categorising awards and in devising a typology.

1.2 Opportunities & Points for Consideration

This review has developed and presented evidence related to a relatively small sample of innovation prizes and winners/finalists. It has drawn on a methodology that is entirely based on desk research to acquire secondary data. The following opportunities are identified based on the findings of the review:

- There is an opportunity to utilise prizes more effectively as part of a stimulus of and support for innovation. This can see prizes used strategically in conjunction with other forms of financial and non-financial support to achieve wider innovation goals and outcomes.
- There is scope for Innovate UK to explore strategic partnerships with other organisations in the design and delivery of different prizes – in particular, those with a shared mission and challenge focus. This could increase awareness and visibility of Innovate UK.
- The use of prizes provides a new opportunity to celebrate and champion, participating, finalists and winners – raising the profile of both Innovate UK and participating businesses.
- Using prizes as an alternative ‘product’ within the Innovate UK portfolio has the potential to attract new and alternative applicants beyond those applying for standard innovate UK funding competitions.

1.3 Future research

This review has developed and presented evidence related to a relatively small sample of innovation prizes and winners/finalists. It has drawn on a methodology which is entirely desk-based and therefore faces limitations in terms of the inferences that can be drawn. The review has identified a number of areas where future research could be undertaken in order to build on the findings of this review, as follows:

- Given the importance of demonstrating impact when using public funds to stimulate innovation, perhaps the first priority is to understand more about the impact that is felt by applicants, finalists and winners. Research could be undertaken in order to investigate a wide range of factors, such as;
 - The motivations of applicants in entering and how they got to the point of being in a position to apply
 - The impact of the process/award in unlocking further innovation, investment and growth
 - The value and impact of wider support provided alongside the grant award
 - Longitudinal case studies of the ‘journey’ of a prize winner (over 3-5 years)
 - Qualitative research to link/attribute future ‘success’ to prior prize engagement, including relative importance of different types of innovation prize award and/or support.
 - Understanding the different scales of impact arising from different types of prize and size of grant.
- In order to examine the relationship between prize design and outcomes, research with prize-awarding organisations could be undertaken to understand a range of factors around prize design and process execution;
 - Importance of prize within the wider range of innovation support provided
 - Benefits to the prize-awarding organisation

- Perspectives on the relative value of the different support provided; grants, publicity, wider innovation support
- Evidence of the impact of prizes on; targeted challenge, end-users, the innovation ecosystem and businesses/organisations that engage with the prize
- The degree of leverage that prizes simulate in terms of the investment by participants (and their investors/backers)
- Further research regarding the features and characteristics of prizes could also be undertaken, to broaden and deepen understanding of the landscape and improve robustness of the evidence, including:
 - Expanding the sample of prizes within the dataset to capture a wider diversity and improve robustness of findings
 - Gap filling of historic data with the support of information owners (e.g. those managing key websites)
 - Further segmentation and categorisation of the prizes
 - Consider instigating an ongoing process of data collection regarding prizes to build a richer, more complete dataset (and thereby overcome the challenge experienced in this study associated with the archiving of data post-award)
 - Investigating different ways in which winners are selected (e.g. first to achieve prize criteria vs. best in class) and benefits/suitability of winner-take-all prizes vs. multi-prize challenges
 - Approaches to setting the prize amount and the suitability/implications of different approaches in terms of attracting participants, nature of the innovation stimulated, relationship to level of social value of the innovation etc.
 - Understanding the types of innovation that prizes induce and how these differ from typical industry R&D or R&D activities supported through grant programmes. Similarly, the impact that a lack of up-front funding and prize deadline has on innovation activities could be investigated, and the ways in which participants overcome these constraints understood

2. Introduction

As part of a broader review of the mechanisms and initiatives supported in pursuit of its organisational aims, Innovate UK has asked the Innovation Caucus to undertake a review of the existence, use and nature of Innovation Prizes, a funding mechanism for inspiring, collecting, developing, evaluating, and rewarding research solutions.

The remit for Innovation Caucus covers two main parts, as follows:

Part A

- Identify a variety of prize types available with the aim to build a taxonomy of prizes.
- Identify the finalists in any given category of prize and build a profile e.g. what type of business are they etc using available business information.

Part B

- Build evidence in order to understand what Prizes people go for, and why they go for that type of prize.
- Gain an understanding of what happens to those who are awarded a Prize or shortlisted for a Prize, and what outcomes are observed.

The main focus of this paper is to respond to Part A of the review. Innovation Caucus commissioned Ortus Economic Research to undertake the review on its behalf.

As the review has evolved, a number of modifications to the remit have been agreed. For example, Part A has expanded to encompass a wider review of the characteristics of Prizes and the organisations that administer them. It also includes case studies of winning and short-listed organisations in order to examine their behaviours and, where possible, commercial outcomes which arise from engaging with the Prize. For this reason, the objectives set out below do not correlate directly with the original aims of Part A as set out above.

This document sets out the findings of the review under Part A.

2.1 Aims and objectives

The key aim of this project is to gain a better understanding of the types of prizes available, what they incentivise and what outcomes / follow on activity they have the potential to generate.

The two key objectives of the study are to:

- Identify the variety of prize types available, to examine a number of key characteristics of the prizes and to understand the governance of the prize award process.
- Identify a number of case studies covering finalists (winning and short-listed organisations) in a number of prize categories and build a profile (e.g. type of business, key events since the prize in question, evidence of behaviours regarding innovation support etc).

2.2 Methodology

The review has been split into two stages, where the first focuses on prizes and the second focuses on shortlisted organisations.

The first stage will be to review and scope out the range of innovation prizes in existence (UK and internationally). The goal will be to capture insight regarding the following key questions:

- What are their aims?
- What is the process?
- What are the prizes?
- Which field do they operate in?
- What is the target audience (territory, skillset, company/individual)?
- Type of prize (Flagship, hackathon, etc)
- Whether payments are staged/one-offs
- What are the governance arrangements?
- Where does the prize sit in the wider support for innovation provided by awarding bodies?

The information and data to inform the review of prize characteristics was drawn from a range of websites; both those that act as a portal into a range of prizes (e.g. Challenge Works), and those relating to individual prizes or the awarding organisations (e.g. Earthshot). Using such sources, a short review of each prize was undertaken, and consistent data/information was collated into an Excel dataset.

The second stage is focused on the participants (primarily targeted at winners and those making the shortlist) in the prizes. This stage has taken a case study approach, focusing on a small number of diverse prizes and collating data and information on shortlisted organisations from their websites (and associated sources such as press websites). The review includes;

- Information drawn from the prize websites
- Information drawn from company websites (key pages regarding company history, innovation activities, performance/trajectory, and so on). This will include any comments on the outcomes that the prize may have driven (such as growth, investment, merger, follow on work) and also whether the prize has influenced direction of travel (e.g. ongoing sector/technology focus), performance or behaviour.

3. Findings

The findings are presented in three sub-sections as follows:

- Definition of and rationale for prizes
- Review of prize characteristics
- Review of governance
- Case studies of shortlisted organisations

Further detail regarding the process of evidence collation and review is provided in each sub-section. Because of the significant number of prizes in existence, and the necessity to be selective when capturing evidence and data, the objective here is to ‘paint a picture’ of the landscape of innovation prizes, rather than to provide definitive statements about the prize landscape.

3.1 Definition of and rationale for prizes

There is a body of literature on Innovation prizes, how they differ from other forms of innovation grant support and the when and why it is appropriate to develop and implement an innovation prize. It is not the intention of this review to provide a full summary of this literature, but there are a number key points that are worthy of emphasis, in terms of setting the context for the review.

Firstly, an innovation prize can be defined as “a financial incentive that induces change through competition”². Typically, applicants compete against one another to develop a solution which meets a set of specific, pre-determined criteria which would then unlock some form of financial reward (which is sometimes accompanied by other forms of reward).

There is no single agreed rationale for innovation prizes, however. A number of the rationales identified in the literature are summarised in a Nesta paper³, and cover the following four reasonings:

- Prizes have been seen as an innovation policy instrument that can overcome market failure by creating an incentive for the development of a particular technology or technology application.
- Prizes can target not only the creation of a specific technology but also the implementation of that technology through demonstration projects in which demonstration of the feasible application of this technology is targeted.
- Prizes can induce the creation of a technology that will later be put in the public domain to attract subsequent research.
- Prizes are also increasingly organised for community and leadership building.

Prizes allow a significant amount of flexibility with respect to overall aim, design, nature of the prize and application processes, meaning that there is a large number of different prize characteristics and thus a vast number of prize typologies based on these characteristics.

The Nesta paper also comments on the role that prizes can play within the wider innovation support landscape, highlighting that “Prizes can be effective in creating innovation through more intense competition, engagement of wide variety of actors, distributing risks to many participants and by

² Innovation Prizes: a guide for use in a developing country context, Vivid Economics, April 2015.

³ The Impact of Innovation Inducement Prizes, Nesta Working Paper No. 13/18

exploiting more flexible solutions through a less prescriptive nature of the definition of the problem in prizes. They can overcome some of the inherent barriers to other instruments”.⁴

3.2 Review of Prize Characteristics

3.2.1 Stage I – Prize Data Gathering

The review collated information on a range of prizes and challenges (54 in total) from a variety of online sources. The aim was to present information on a selection of prizes in terms of size, scope, topic, geography and other characteristics.

Information collated for each prize is as follows:

- Source (e.g. Challenge Works)
- Prize Status (e.g. complete)
- Challenge name
- Website
- Type (prize, hackathon, etc)
- Description
- Aims
- Process
- Governance
- Application criteria
- Award criteria
- Intended impacts
- Related innovation activity delivered by prize giver
- Staging of prize payments
- Topic (e.g. environment, agri-tech, health)
- Date
- Budget
- Winner’s prize
- Finalist/runners up prizes
- UK/International
- Evidence of UK participation if international
- Winners
- Publicity for winner
- Finalists/runners up
- Publicity for finalists/runners up
- Additional information (occurrence, impact, useful links etc)

The information has been collated from the following sources:

- Challenge Works: <https://challengeworks.org/about-challenge-prizes/our-challenge-prizes/>
- Innovation Challenge: <https://www.innovationchallenge.com/>
- Grand Challenges: <https://gcgh.grandchallenges.org/challenges>
- Ellen MacArthur Foundation: <https://ellenmacarthurfoundation.org/innovation-prize>
- Earthshot Prize: <https://earthshotprize.org/nature/>

⁴ Nesta, *op cit*

The focus has been only on prizes that are complete – i.e. awarded at least once – as this affords the opportunity to follow up on the winning businesses/organisation in the second phase.

The sources accessed provide information on a very large number of challenges/prizes. We have therefore been selective when sourcing information as it is not the intention of the study to undertake a comprehensive assessment of the entire landscape.

The approach has been to identify challenges and prizes which provide a degree of variety and diversity when selecting from the large population of potential prizes (e.g. through Challenge Works and Grand Challenges).

Table 1 identifies the number of prizes for which information has been captured and the source through which they were identified,

Table 1: Sources of Prize Information

Source	Prizes reviewed	%
Challenge Works	23	43%
Global Grand Challenges (Bill and Melinda Gates Foundation)	5	9%
Innovation Challenge	6	11%
Others	20	37%
Grand Total	54	100%

Source: Ortus Economic Research 2023

It was found that the majority of prizes (both within the population and the sample for which information has been generated) are international, as shown in Table 2.

Table 2: Geographic Scope of Prizes

Scope	Prizes reviewed	%
International	39	72
UK	15	28
Grand Total	54	100

Source: Ortus Economic Research 2023

3.2.2 Reflections on Prize Information and Characteristics

Having been through the process of capturing information on a range of prizes, the following observations can be made:

- Being able to access information on multiple Prizes through single sites (such as Challenge Works and Grand Challenges) is very helpful. However, as a source of detailed and consistent information on the Challenges and Prizes themselves, such as we seek, they are incomplete (understandably so). The key implication has been that we have then sought to acquire any missing information/data from other sources, such as the websites for specific prizes. However, with limited resources we have not exhausted such sources. The approach has been to spend a small amount of time seeking the information/data before concluding that it is not readily available and then moving on to a different Challenge/Prize. This results in there being gaps in the dataset. Any cell which is blank should be interpreted as meaning that the information was not found.
- Information on the process for application and award is particularly patchy, which reflects the fact that for many awarded prizes, such information has been ‘archived’ and is not immediately available on challenge/prize websites.

- Understanding whether there is UK participation in international prizes is challenging. For some prizes, the nationality of organisation that have won, or have been shortlisted, is immediately apparent. For others, that information can be found through secondary information provided elsewhere on the website. And then for others, it appears that such information is not available. Regardless, such websites only tend to comment on winners or finalists. Information on the full range of applicants is not typically available. This presents a challenge when seeking to answer questions such as ‘are there any prizes which attract participation from UK businesses/organisations?’
- Not all prizes are monetary. Prizes range from purely monetary, to a mix of a monetary prize and support (offered in a range of forms), to support only, through to the kudos of assisting in the achievement of a goal to which the challenge is targeted (e.g. in a hackathon). For some challenges, it is not at all clear what the ‘prize’ awarded (or achieved) was. The relative impact of these different awards is likely to be highly varied, from transformational (i.e. leading to acquisition of further funding and growth) to comparatively trivial.
- Additional potentially useful/interesting information was gathered when it was identified as part of this exercise and is presented in the final column of the data set. In some cases, there is information provided on the number/value of prizes awarded over time and for some there is a range of information relating to the impact of the prize.
- The dataset presents opportunities to segment prizes by key characteristics. However, for certain fields such as ‘aim’, this would be a complex process. This is for a number of reasons. The information collated in relation to the aim of the prize can cover a number of interpretations of that term. For example, it could cover the type of technology that the prize is aimed towards (e.g. environmental) or the type of societal problem that it is targeted at (e.g. specific healthcare issues in developing countries). It could also capture the intent of the prize, such as to provide funding to leading researchers/innovators in advancing particular technologies. The conclusion is that the information on ‘aim’ could perhaps itself be further segmented out before categorisation is undertaken. This step has not been completed in this review but could be seen as a follow-on task.
- The dataset could also in the future focus only on prizes with a particular set of characteristics, or that focus on a specific aim (or set of aims).
- The dataset is perhaps most useful when:
 - applied to identify one or more prizes of a particular kind and reviewing their commonalities and differences.
 - forming the basis of case studies on individual prizes

3.2.3 Review of prize/award characteristics

This section presents a review of prize and award characteristics, focusing on six areas; the focus of the innovation activity, key aims of the prizes, intended impacts, categories of prize, application criteria and prizes awarded, award criteria and winners’ prizes.

3.2.3.1 Focus of Innovation Activity

The review of the 54 prizes identified that the vast majority (48, or 88%) had a clear focus on an area of societal benefit. Typically, these prizes operate within one of a small number of broad themes (listed below) and seek to encourage innovation within a more focused areas within that theme. The societal themes captured by the prizes covered in this review include:

- Health and Care, including ageing, diagnostics
- International development, including humanitarian support
- Food innovation, improving environmental and health outcomes
- Environment, including natural resource management, the circular economy, environmental protection
- Regeneration and economic growth, including inclusive growth, supporting R&D and innovation as a stimulus to growth
- Society generally, including sustainable social development and social innovation

The remaining six prizes (12%) differ in that they are explicitly focused on the development of a particular technology within a particular sector (and in one case, within a particular organisation). The focus of such prizes is therefore significantly narrower than those which can be categorised under the societal themes, above. The technology themes covered by the six prizes that fall into this category are as follows:

- Banking innovation
- Legal services innovation
- Quantum technologies
- FMCG product development
-

3.2.3.2 Key aims

The aims of the prizes are commonly expressed as a combination of the following three elements (what, who, how);

1. The nature of the challenge (i.e. the prizes aims to encourage a particular type of activity)
2. The sector to which it applies (i.e. the prize applies to a particular group of companies/organisations/people – either potential participants or the user group impacted by the outcomes)
3. The technology area of focus (i.e. the prize encourages development of a particular technology)

Examples include;

- Horizon prize for the Cleanest Engine Retrofit: aims to reduce the pollution (*what*) produced by the existing vehicle fleet (*who*) by promoting the development of retrofittable technology (i.e. devices or a modification of existing engines)(*how*).
- European Social Innovation Competition 2020: aims to reward the most innovative approaches to reduce the overall environmental footprint (*what*) and improve the societal impact of the fashion market (*who*), helping to make it fairer and more accessible.

- Smart Mobility Challenge: aims to create a tool which helps organisations reduce the number of air polluting journeys (*what*) their vehicle fleets (*who*) make whilst transporting goods in urban areas.
- Mobility Unlimited Challenge: aims to harness creative thinking from across the world to accelerate innovation and encourage collaboration with end-users (*how*) with limb-paralysis (*who*) in order to result in devices that will integrate seamlessly into users' lives and environments (*what*), enabling greater independence and increased participation in daily life.
- Horizon Prize for the Reduction of Air Pollution Materials: aims to find the most affordable, sustainable and innovative design-driven material solution (*how, what*) able to reduce the concentration of particulate matter in urban areas (*who*).
- Smart Ageing Prize 2020: aims to support, empower and inspire (*how*) older adults (*who*) to engage in entrepreneurship (*what*).
- Activating High Streets Challenge: aims to create a data service (*what*) that will aggregate multiple data sources related to vacant properties (*how*) on high streets (*who*) to enable the utilisation and occupation of empty spaces.

However, some prizes express additional aims, such as expressed intended outcomes for the prize participants (the prize seeks to develop or support entrants in a particular way). Examples include:

- The Inventor Prize; seeks to 'build the capacity of prize entrants and champion and raise the profile of the lone or small-scale inventor'

In summary, the evidence suggests that prizes are typically used as tools to encourage the development of a solution to a defined problem associated with a defined 'impact group'.

3.2.3.3 *Intended impacts*

Very few prizes are clear about the impact that they are seeking from investing in the prize-winning innovations. Our review found such information on only five prizes (9%), providing the following examples:

- European Innovation Council Horizon Prize on Blockchain for Social Good – intended impacts include
 - pioneering decentralised solutions to global and/or local sustainability challenges
 - generating positive social change by making available novel solutions for decentralising and disintermediating processes.
 - demonstrating the viability of solutions enabling a more even distribution and sharing of information and resources which respects privacy while providing levels of transparency
 - stimulating the emerging community of developers and practitioners of "blockchains for social good" applications
- Gig Economy Challenge – intended impacts include:
 - Gig economy workers better understand how expenditure relates to their pay and impacts on their ability to meet the cost of living.
 - Data captured by the solution helps the Living Wage Foundation and other stakeholders to set expectations for gig economy employers to meet the cost of living for their workforce and ability to offer an accreditation solution in a challenging sector.

- Longer term, the intention is that this results in systemic change that includes more accredited gig economy employer pay rises for tens of thousands of workers
- Mayor's Resilience Fund Smart Mobility Challenge – it's intended impacts include:
 - The overall impact would be cleaner air in and around central London. King's College London and other organisations would be better informed as to how to make operations more efficient, saving money and reducing people's exposure to air pollution.
 - The short-term impact may include 're-moding' (transition to cleaner modes of transport), re-timing of deliveries (reducing journeys made when most people are occupying the public realm) or reducing the number of polluting delivery vehicles (consolidating deliveries).
 - Long-term impacts include investment into cleaner fleets and/or reduction in fleet size, the movement of goods made more resilient and reliable as data expands.
 - Long-term impact also includes scalability of the solution across other fleet operators and locations
- Mayor's Resilience Fund Renewable Energy Challenge – intended impacts include:
 - A physical prototype developed and its application tested in the production of renewable energy in the Royal Docks
 - Power delivered to the local grid, or directly to local consumers
 - Longer-term impact includes significant production of clean and renewable energy in the Royal Docks area
 - Longer-term impact also includes scaling to other water areas

3.2.3.4 *Category of prize*

The review has identified five different categories of prize⁵, as follows:

- Challenge (25 prizes, 46%). These prizes take a challenge-led approach to stimulating innovation. They tend to be aimed at 'grand challenges' facing society today, such as climate response or space exploration/technology. Because of the challenge-led nature of the prize, these typically encourage (or require) collaborative teams to be built in order to apply. In some cases, elements of those teams (e.g. end users such as water companies) are already in place to work with shortlisted teams.
- Prize (17, 31%). There are two common features of such prizes; they tend to be focused on specific aims or outcomes (e.g. reduce the amount of plastic in the ocean), and they also tend to attract applications from individuals or teams that are already working on a particular innovation. An additional observation is that such prizes tend to put considerable effort into the publicity and kudos that come with winning the prize (e.g. Earthshot, which is announced by HRH William, The Prince of Wales).
- Award (2, 4%). These are simply an award in recognition of the contribution made by an individual or team to a particular area, meaning they are retrospective.
- Competition (6, 11%). This term tends to be used by certain organisations, such as the European Union or Innovate UK, to describe the process of awarding development grants to organisations or teams in order to support innovation within a particular field (e.g. to advance

⁵ Note that there are important similarities between Challenges and Prizes as categorised in this study. The differentiation is based primarily on the terminology used in descriptions and promotions of the award. There is an argument for merging the categories, but since we can assert that all 'Prizes' as labelled in this research are based on the Challenge approach, not all Challenges are prizes. This demonstrates the inherent difficulty in labelling and categorising awards and in devising a typology

the commercialisation of quantum technologies in the UK, or to increase the pace of innovation in the development of agricultural and food systems in Africa). These could also be described as Competitive Grants, demonstrating that there is a somewhat blurred boundary between grants and prizes, since these were included in the review on the basis of being signposted or listed on one or more of the Challenge-prize related resources (e.g. Challenge Works).

- Datathon/Hackathon (4, 7%). A hackathon is an event where people, or teams, engage in rapid, focused technology engineering (e.g. to build upon or develop new software programs). Similar to hackathons, a datathon is an event where participants gather to solve practical problems through the application of data science tools and techniques, by working together in teams to generate insights and potential solutions. They each have a social dimension, bringing together like-minded people to focus on a common challenge.

This categorisation is designed to allow a simple disaggregation of the sample of prizes studied in this exercise and is based purely on the core nature of the prize – i.e. the competitive and reward model being employed. There are many ways in which prizes can be grouped and clustered, and it is important to acknowledge the purpose and basis of the approach taken in this research exercise⁶.

3.2.3.5 *Application criteria and prizes awarded*

In the case of Datathons/Hackathons, in most cases there is no specific application process; volunteers are provided access to the relevant platforms/data and asked to achieve certain outcomes in a set time. However, in one case, an application process was put in place to enable a large number of applicants from across the EU to gain the chance to participate, from which the participating teams were shortlisted. The prize tends to be a combination of recognition and in one case, the opportunity to pitch the solution to an industry audience and to receive support to develop it more fully.

For 'Awards', nominations are encouraged from members of the relevant community or industry. The prize tends to be in the form of recognition.

For Challenges, Prizes and Competitions, the application process and criteria are very diverse and respond to the individual aims and intent of each specific prize. Some examples include:

- The Bristol Climate Smart Cities Challenge: applicants must be registered entities (business, charity, education institutions, public bodies etc)
- OFWAT Water Breakthrough Challenge I – lead applicants must be water companies in England and Wales.
- Million Cool Roofs Challenge – applicants could be a single organisation or a team (where the applicant or lead is a registered legal entity) and entrants to the challenge must deploy cool roof solutions in a developing country.
- Covid-Safe Travel Challenge – this specified some very clear criteria for the solution rather than the applicant, such as 'digital, real-time, easy to use and accessible'.

It is also the case that the application criteria for many prizes (classified as either a 'Challenge', 'Competition' or 'Prize') are not available on Prize websites, often because the prize has been awarded (and therefore the information is not seen as relevant post-award).

For Challenge, Competition and Prize awards, it is often the case that some form of tangible prize, normally in the form of funding, is awarded to multiple entries. The award process may include the creation of a shortlist of finalists that meet the award criteria and perform best, and it is often the

⁶ See for example, the 'Blueprints' described in the Challenge Works Practice Guide. <https://challengeworks.org/what-we-do/our-method/practice-guide/>

case that all shortlisted entries will receive an amount of grant funding (meaning that such prizes follow a grant-prize hybrid model). In such circumstances, a winner is often selected who would then be awarded additional funding (and in some cases, this is considerably greater than shortlisted finalists). Examples include:

- BEIS Inventor Prize - 10 finalists receive a £5,000 grant towards their prototype development, business planning and user testing as well as non-financial support by Barclays Eagle Labs. The winner was awarded £50,000 for business and product support and a further two runner-up prizes of £5,000 and £15,000 were also given for other promising products
- Toyota Mobility Challenge - 10 Discovery Award winners received US\$50k each, in order to develop their applications to become a finalist. Five finalist teams were then announced and each received a US\$500k Finalist Development Grant to refine their solution even further. Finally, the winner was chosen (Phoenix Instinct from the UK) and awarded the US\$1 million winning prize to help bring its Phoenix Ai Ultralight wheelchair to market.
- Rapid Recovery Challenge (Job Stream) - 14 semi-finalists (seven in each stream) each received £125k, then six finalists (three in each stream) each received £150k. Four months later, two winners (one in each stream) were selected and each received £200k.

3.2.3.6 *Award criteria*

Information on award criteria is particularly patchy across the sample of prizes covered by this review. This is likely to be because the prizes are historic (i.e. awarded in the past) and therefore this information is deemed not relevant to be included in the published material regarding the award. However, information was identified and captured for 23 of the prizes. A review of this information identifies a wide range of criteria, from which emerge some common themes;

- Relevance and viability of the solution. For example, how relevant and viable is the engineering solution to the problem/challenge being set? What are the empirical or theoretical foundations of the idea, and are they sound? This might also include the provision of evidence that the solution will integrate into an existing system. It could also include criteria related to usability and inclusiveness.
- Impact. For example, is the solution changing the world for the better? Is the development of the innovation built on a strong impact assessment framework? Other examples include the potential to help solve basic supply problems, the support income generation, jobs growth and training opportunities.
- Collaboration. For example, is the solution driven by a shared commitment to open science? Does it seek to strengthen global communities and multi-disciplinary collaboration from researchers/industry/users?
- Creativity. For example, has the entrant shown an innovative, creative approach? Are they solving social problems and developing business models in a new way? How original is the idea?
- Scalability and sustainability. For example, has the solution successfully scaled its social impact (or is that achievable in the future)? Can the venture be sustainable in the long term without philanthropic donations or grants? This may also include the clarity and quality of business models, business plans and financial resources, the proof of concept provided, financial planning and scaling options.

- Vision/ambition. For example, prizes often indicate that they reward leaders who have ambitious, socially impactful plans for the future, whatever that means in the context of their work, and who can describe a clear pathway to achieve this.

Other factors that are more related to process are sometimes also included, such as the clarity of explanation of the innovation that is provided within the application. Award criteria often also include very specific criteria (e.g. technological, such as the explicit handling and analysis of certain types of data to produce specific outputs and outcomes) which relate directly to the nature of the challenge being addressed.

3.2.3.7 *Winners' Prizes*

The information gathered on the sample of innovation prizes indicates that as well as money (in the form of a grant, ordinarily), a range of additional benefits come with innovation prizes. Furthermore, some prizes award the 'winning' prize to a single organisation/team, whilst others award the prize to multiple applicants. Table 3 sets out a count of prizes by the nature of the prize awarded, and the number of 'winners'. It shows that 35 out of the 54 prizes investigated (65%), the prize is money alone, whereas 19 prizes (35%) award 'money plus' prizes to their winners.

Across the prizes, 31 out of 54 (57%) make a prize award to multiple winners, whilst 23 (43%) make a single winning prize award. Note that many prizes make some kind of award to shortlisted 'finalists' (e.g. a smaller grant than is awarded to the winner), often in addition to awarded a final prize to multiple winners.

Table 3 also shows the range of 'money plus' prizes that are on offer. Several prizes provide quite sophisticated packages of support (often, but not exclusively in addition to a grant), such as the combination of support/advice, opportunities to tap into established networks, training, technical assistance, exposure provided by the prize-giver (such as an invitation to attend and present at a conference, or press publicity) and the endorsement that comes with being awarded the prize by a prominent organisation in a given field. Some prizes also offer the opportunity to bid for additional funding, thereby providing access to a funding 'escalator' to support the future development of the innovation. Another key feature of some prizes is that they provided the opportunity for winning (and sometimes shortlisted) entries to be implemented. For example, Stage 1 of the Smart Mobility Challenge provides shortlisted entries with access to grant funding and a support package which aims to help develop solutions through collaboration with 'Resilience Partners' (e.g. Councils, government agencies, Business Improvement Districts, charities). At the end of Stage 1, judges select a winning team and this is provided with further funding and a chance to implement their solution. At least 5 of the prizes examined in this review provide some kind of implementation opportunity.

Whilst it is not possible to draw conclusions within this review regarding the relative value placed on the different types of prize (because of the very limited nature of such evidence captured by the review), it is possible to conclude that the evidence above demonstrated that prizes are often designed to enable innovators to access the networks, contacts, demonstration opportunities and other factors needed to continue their innovation journey, and this appears to be an important part of the appeal.

Table 3: Nature of prizes and number of winners

Nature of the prize	# Winners		
	Multiple	Single	Total
Money	22	13	35
Money and opportunity to implement		4	4
Money and support/advice	2	1	3
Money and publicity/exposure		2	2
Money and opportunity to bid for future funding	1		1
Money and technical assistance	1		1
Money, implementation and opportunity to bid for future funding	1		1
Money, networks and opportunity to implement	1		1
Money, support/advice, exposure, training, networks	1		1
Exposure and recognition		1	1
Exposure and recognition, training, networks		1	1
Recognition/kudos		1	1
Recognition/kudos, networking	1		1
Support, networking, exposure and endorsement (no funding)	1		1
Grand Total	31	23	54

Source: Ortus Economic Research 2023

3.3 Governance of prizes

Having gathered the information on the set of prizes in the dataset, the next step was to undertake a review of the organisations that funded and awarded the prizes with an express focus on their governance arrangements and the wider offer regarding innovation support. In particular, the review was interested in understanding the range of innovation support on offer by prize-awarding organisations, beyond prizes. This line of enquiry was pursued in order to generate further insight into the role that prizes play within the wider innovation support landscape.

The process involved a review of each organisation’s website, focusing on any relevant content that related to innovation or provided further information of the organisation’s activities.

There were 35 organisations that funded or organised the 54 prizes and awards in the dataset. These prize awarding organisations have been categorised as follows:

- Where innovation is the sole purpose of the organisation – 12 organisations.
- Where it is an important supporting activity to their main mission and purpose -12 organisations.
- Where it is a small part of what they do, not directly related to their main focus – 11 organisations.

As illustrated above, the prize awarding organisations included in this review are very evenly split across these three categories, with approximately one-third of organisations falling into each category. This provides the review with a broad base of priorities and activities to investigate further.

The insight gained from this exercise can provide us with some points for further discussion and research in terms of the activities that are effective in supporting those that are awarded prizes, the role of prizes within a broader innovation support offer and to identify alternative and complementary ways of supporting and encouraging innovation.

3.3.1 Additional innovation supporting activity

One third of the organisations included in the dataset do not seem to engage in any other innovation support activity other than prizes or awards (12 out of 35, i.e. 34%). These include organisations that operate an innovation fund (for example the Ofwat Innovation Fund).

However, the majority of the organisations (23 out of 35, i.e. 66%) within our dataset undertake some form of additional innovation supporting activity alongside the award or prize that was identified in the first research stage.

The additional innovation supporting activity identified by this review is wide ranging from very light touch support to much more involved and intensive activities, such as mentoring. The activities fall into three categories; support specifically in relation to innovation, information provision, and network development. Each of these categories is described in more detail below.

3.3.1.1 *Innovation development support*

This category of activity includes a wide range of support provided by prize-giving organisations. The support may be targeted at businesses that are already on the innovation journey or those that have yet to begin (i.e. the support seeks to encourage businesses and organisations to begin innovating). Examples of the types of innovation support on offer include:

- The provision of business support, training, resources and advice to prize awardees as a follow on to the funding they have received. As set out above in section 3.2.3.7, the review found that 19 out of the 54 prizes were classified as ‘money plus’, where the grant was complemented by some form of additional support, advice or promotion.
- The provision of business support, training, resources and advice to a community of organisations and innovators outside those who have been awarded a specific prize.
- Signposting innovators to additional funding and support.
- Formal learning opportunities for innovators.
- Training and education resources available to individuals as well as a wider audience, e.g. training providers.
- Mentoring opportunities.
- Fellowships.
- Operation of physical infrastructure such as innovation centres.

3.3.1.2 *Information provision*

There is a wealth of information provided by some of the prize-awarding organisations to innovators and to other stakeholders. Examples include:

- Provision of relevant market information to innovators to support them in activities such as product development and attracting investment.
- Publishing key data with open access to publications to share key knowledge with innovators.
- Undertaking and publishing evidence-based research.
- Provision of relevant regulatory and legal information to innovators.
- Thought leadership activities to represent and support innovators.
- Creating and publishing case studies and examples of innovative activity as a way of encouraging innovators and demonstrating what success looks like in that field.
- Provision of resources specifically for policymakers.

3.3.1.3 *Networking*

There are many of examples from this review of the way in which networking and community building is seen as a critical part of supporting innovation by a number of the organisations that award prizes. Examples include:

- Building communities of innovators and providing networking opportunities to link innovators together and also helping to build relationships with other stakeholders (such as government, industry, communities etc)
- Enabling the exchange of ideas, know-how and learning.
- Facilitating events and conferences,
- Establishing innovators forums, developers' zones and collaborative workspaces to enable innovators to work together.
- Convening role to support and help innovators develop and build partnerships.
- Outreach work with communities to help support innovative activities.

3.3.2 *Innovation support case studies*

This section presents a number of case studies which set out examples of the additional innovation supporting activity from a selection of the prize awarding organisations included in this review.

3.3.2.1 *AAL (Active Assisted Living) Programme⁷*

The AAL Programme funded the Smart Ageing Prize 2020 which is included in the prizes dataset. The aim of the AAL is to fund “innovation that keeps us connected, healthy, active and happy into our old age”.

The innovation supporting activities that AAL provides include:

- The AAL2Business programme which available to funded projects and includes free resources and access to experts. This is to support early-stage innovation projects to develop into viable businesses.
- The AAL Market Observatory that provides data and information on the healthy ageing products market.
- The development of a community of innovators, that work together alongside care organisations, local authorities as well as families and older people.
- AAL undertakes a wide range of networking activities across Europe to facilitate the exchange of ideas and knowhow and to improve learning.

3.3.2.2 *Ellen Macarthur Foundation⁸*

The Ellen Macarthur Foundation funds the New Plastics Economy Innovation Prize which is included in the prizes dataset. The foundation is “committed to creating a circular economy, which is designed to eliminate waste and pollution, circulate products and materials (at their highest value), and regenerate nature.”

Innovation supporting activities that the Ellen Macarthur Foundation provides include:

- Creating evidence-based original research on the benefits of a circular economy and identifying opportunities across stakeholders and sectors.
- Supporting organisations and individuals with formal learning opportunities on circular economy courses, and the creation of resources for teachers and academics.

⁷ <https://www.aal-europe.eu/>

⁸ <https://ellenmacarthurfoundation.org>

- Publishing case studies with a start up index that includes over 300 examples of innovative circular economy startups.

3.3.2.3 *Royal Academy of Engineering*⁹

The Royal Academy of Engineering founded the Africa Prize for Engineering Innovation which is included in the prizes dataset.

The Academy supports innovation through activities such as:

- Enterprise Hub which provides funding, training, networking and mentoring from leading engineers.
- A series of fellowships to support the delivering high-quality engineering research.
- Support for engineers in education through the provision of funding and support for students.
- Publishing research that aims to inform policy and shape the environment to enable engineering R&D and innovation to thrive in the UK.

3.3.3 Summary of observations in relation to wider innovation support

The organisations covered in this section of the review have many differing characteristics including size, focus of activity, geographical reach, budget and innovation activities that they target and support. There are a number of observations that can be made about the activity that such organisation undertake in order to support innovation that is in addition to the awarding of a prize, as follows:

- Recognition of additional support needed. There are some good examples covered by this review of organisations facilitating and providing a wide range of support that prize winners and other innovators can benefit from. There is a wealth of support such as business advice, training, mentoring and so on that these organisations are investing time and money in. This indicates that these activities are deemed as valuable and worthwhile and the majority of organisations covered in this review are not just providing money as a prize and leaving the prize winners to their own devices.
- Importance of community building and networking. Prize-giving organisations place significant emphasis and importance on facilitating and developing strong communities and innovation networks that provide opportunities for innovators to connect and build important relationships. This can be with other innovators, potential partners, end users and other key stakeholders.
- Sharing of information and knowledge. There are numerous examples where prize awarding organisations are investing time and resource in ensuring that key information is available to innovators and knowledge is shared to encourage and enable innovation. This ranges from investing in research, providing market data to facilitating data sharing activities. Such information is typically made available to an audience that reaches beyond prize applicants and winners.

⁹ <https://raeng.org.uk/>

3.4 Case Studies of Winners and Finalists

This section presents a number of case studies of finalists and winners of a number of innovation prizes. The purpose of the review provided below is to investigate how awardees communicate their prize-winning (or shortlisting) achievements, whether there is evidence of the prize enabling or unlocking additional investment or support to facilitate further innovation and to review examples of publicity given for awards and prizes on relevant platforms (e.g. trade press).

Evidence has been collated from information available on the websites of prize awarding organisations and the websites of winners and finalists. In addition to this, further references to the prize winners and runners-up in any coverage in industry and other press publications has been sought. The review should not be seen as an exhaustive audit of such information – it is intended to provide a high level review and to present examples of behaviours and outcomes that can be determined from published materials.

Six prizes/awards were selected from the dataset to be included in this part of the exercise. In order to gain as broad a picture as possible, the prizes selected were chosen to represent a wide range of organisations, size and type of awards, focus of activity, geographical focus and characteristics of prize winners.

For each case study, a brief overview of the competition and information on the prize itself is provided. For the winner and a selected finalist or runner up, further research was undertaken to gather as much information as possible (within the resources available and method agreed) regarding the business, including what stage in their lifecycle they appeared to be at when they won the prize (or were shortlisted). Other information captured within the case study evidence includes the coverage of the prize within each businesses own 'news' (or similar) sections of their websites, links to other commentary on the prize and wider press and industry coverage. The review has also attempted to find evidence of other innovation activity undertaken by the winners/finalists, in order to place the prize within the wider context of their broader approach to innovation and support thereof.

3.4.1 Reflections on researching prize winners

The following points can be made regarding the process of conducting research on winners and finalists:

- For some prizes, it is very difficult to find information on the winning companies. For example in some cases, we found a Companies House entry for the registered business but nothing more.
- The references made to the prize by the finalist/winner on their own websites is highly varied.
- Challenge/Prize websites do not always identify winners.
- Some prize winners are recipients of numerous prizes, funding awards and support. Gaining an insight on the impact of individual prizes is particularly difficult in such circumstances.
- Some prize winners are part of a team/consortium; this needs to be considered when attempting to identify any impact of participation in a particular prize or challenge.
- What was not apparent in any of the material and evidence reviewed was the link between the prize and later successes (where identified). It can be inferred in some cases that the prize helped enable the development of the first prototype, which was deemed sufficiently successful for the firm to then go on and raise further investment, which has underpinned their growth and development. This may be simply because PR materials are highly unlikely to make such

links apparent, unless those links are absolutely crucial to the outcome (i.e. as a direct result of, or as the immediate next step from).

3.4.2 Observations from the case study evidence

- For some prize winners it is clear that they are serial winners/runners up/awardees and applying for and participating in competitions and prizes is an integral part of how they operate.
 - A point for further research is to investigate how does a business get to this point? Is it via advisors who are aware of the opportunities or are the individuals concerned simply more proactive? Is it that the business becomes more visible after winning one prize and therefore is potentially more likely to be approached or recommended to apply? This knock on effect could be a reason for ensuring good and effective publicity for prize winners. For those businesses that do win multiple awards how could the impact/significance of just one of these awards be separated from the others?
- It is interesting to see firms that have been awarded a small amount of funding then raise large amounts of investment several years down the line. There is no explicit evidence of a causal link between the two so it would be necessary to speak to the individuals concerned to get their opinion of the importance of the earlier/smaller prize as a stepping stone.
 - Further research examining the relationship between prizes and subsequent success (in receiving further support, investment or achieving commercial success) should be considered.
- A number of awarding bodies/organisations do commission reports and evaluations of their competitions programmes to look at progress and impact and these can be a valuable source of insight and information. Headline findings from three statements of impact are summarised in the panel below.

Highlights - impact statements

The comments provided below are taken from the Challenge Works website (for specific prizes) and relate to impacts arising from Challenge prize participation and success. Not all statements report the size of the cohort or group of applicants being commented on (e.g. number in the applicant cohort, number of semi-finalists, etc) but these comments provide an indicator of the types of indicators and metrics tracked in statements of impact

European Social Innovation Competition 2020 (<https://challengeworks.org/challenge-prizes/eusic-2020/>)

Six semi-finalists [total number not identified] reached the final stage of the Competition, which was possibly due to the severe restrictions created by the global COVID-19 pandemic

13 of the cohort [total number not identified] were still active after one year which, again, is a respectable figure considering the impact of the pandemic

95% of coaches agreed that the Competition has provided effective solutions to the proposed problem

15 of the semi-finalists [total number not identified] attracted new investment or funding during the course of the Competition

100% of semi-finalists felt supported by being part of a peer network of social innovation in Europe, despite the academy being held digitally this year

Inventor Prize (<https://challengeworks.org/challenge-prizes/inventor-prize/>)

All finalists thought the experience of participating in the Inventor Prize was either good or very good

Over 80% were able to secure additional funding, partnerships, clients and/or attract new investments for their solutions through the prize process

88% of finalists felt they were either ready or almost ready to go to market in less than 12 months

All finalists were very likely to continue working on their solution, regardless on winning the prize money

All finalists noted that the prize offered them credibility as an individual/team, but also validation of their solution

Over 60% of finalists agreed/strongly agreed that they had improved their capabilities through the prize. This includes motivation, public profile, prototype development, business planning, marketing and communications, user-testing and impact and partnerships

Smart Ageing Prize 2020 (<https://challengeworks.org/challenge-prizes/smart-ageing-prize-2020/>)

All of the semi-finalists agreed that the workshop topics during the Prize were suited to their needs

Almost 86% of semi-finalists indicated that it was highly likely or likely that they would apply some of what they had learnt at the Academy to their solution

85% of semi-finalists agreed that the Prize had improved the capabilities of their team

40% of participants agreed that the Prize enabled them to create new and ongoing partnerships

Almost 62% of entrants agreed or strongly agreed that the Prize introduced them to new and useful contacts

Applications were submitted to the Prize from 19 different countries, with 39% of those coming from the UK

44% of entrants had been working on their solution for one to three years

Half of all entries received were from SMEs/startups. Around 14% were also received from social enterprises and around 11% were received from charities/NGOs

- In some cases, it can be quite difficult to find any reference to the prize or award on the winners/runners up websites. It is not clear whether this signifies indifference to the prize or whether the organisation is just not making the most of the opportunity. It would be interesting to explore this further as it may be the case that providing support to capitalise on the publicity value could be part of the post prize winning process. It is particularly puzzling given that one of the factors that differentiates prizes from other types of innovation support (such as grants) is the level of publicity and exposure that many prizes explicitly seek to create for their winners and finalists.
- In order to understand any impact of one or more prizes on the winners/runners up business growth, product development, ability to attract investment etc, it would be necessary to gather that information from them, ideally at various stages after the prize has been awarded.
 - Longitudinal research regarding the impact of prizes and other innovation support 'events' should be considered.
- During this review, a number of additional questions have been formulated that could become the focus of further research. These questions stem from the information that would have been especially useful to this exercise if it had been possible to ascertain it from the resources explored thus far. These questions include:
 - Why did the winner or runner up apply for the particular prize or award?
 - How useful was any specialised support they received alongside the financial award?
 - Benefits to them and their business of the prize in relation to the ongoing success, development of the company and/or product/service?
 - How has winning the prize helped attract investment?
 - How important was the relatively small sized award?

3.4.3 Prize winners case studies

3.4.3.1 *Smart Mobility Challenge*¹⁰

The Smart Mobility Challenge was part of the Mayor's Resilience Fund, funded by the London Economic Action Partnership. The Smart Mobility Challenge was delivered in partnership with Better Bankside and King's College London.

The challenge was to create a tool which helps organisations reduce the number of air polluting journeys their vehicle fleets make whilst transporting goods in urban areas.

Four teams received £10,000 and the opportunity to work closely over five weeks with the Resilience Partner behind their challenge to develop their solution. They also received specialised support in service design, pitch coaching, data usage, navigating government procurement processes and more.

The winner was awarded £40,000 each and the chance to implement their solution.

¹⁰ See <https://challengeworks.org/challenge-prizes/smart-mobility-challenge/> and <https://www.london.gov.uk/programmes-strategies/business-and-economy/supporting-london-sectors/challenge-ldn/past-challenges/smart-mobility?ac-66765=66762&ac-66771=66770>

Winner - DynamicLink by Kale Collective¹¹

Founded in England in 2021 (early stage), Kale Collective’s mission is to drive the transition to cargo-bike logistics in dense urban areas, and to support the complex demands of modern last-mile operations. It is a privately held firm with headquarters in London, UK with 3 employees.

Kale Collective coverage of the prize includes a blog post outlining the process of applying to and winning the challenge. This also refers to the ongoing involvement with King’s College and Better Bankside, which was part of the prize for winning the challenge.

- “2021 was a big year for Kale Collective. In May we applied to enter the Mayor of London’s Resilience Fund Smart Mobility innovation challenge. In June we submitted our proposal, in July we were chosen as winners of the challenge, and in September we moved into our new offices. The rest of 2021 we worked with King’s College and Better Bankside developing a tool, Kalefleet, to help urban businesses use their delivery vehicles more efficiently. It specifically focuses on identifying opportunities to switch to electric cargo bikes and electric vans.”¹²

Kale Collective were also part of the 2021 Transport Research Innovation Grants (TRIG) Programme, in partnership with Connected Places Catapult and the UK Department for Transport. They comment on this programme in a blog post:

“Our project is part of the Future of Freight call, and is focused on developing tech infrastructure for a cargo bike logistics transition in the last mile of urban freight. With the support from TRIG, we will be developing our first product to assist logistics operators in cities in their fleet transitions.”¹³

Further information about the TRIG programme can be found at the following links:

- <https://cp.catapult.org.uk/news/1-95m-will-fund-51-projects-to-improve-the-uks-transport-system/>
- https://cp.catapult.org.uk/wp-content/uploads/2022/04/TRIG_2021Cohort-Brochure.pdf

3.4.4 Additional coverage of the prize

Kings College (delivery partner of the challenge) published an article regarding the winning solution, which stated:

- “Kale Collective are a young and innovative company that demonstrated their ability to devise an altogether more holistically efficient, fleet management system that was easy to use. It was this innovative yet straightforward approach to solving the problem that gave them the edge over the competition.”¹⁴

Press coverage of the Mayor’s Resilience Fund winners (including Kale Collective) included the following statement:

- “Smart Mobility: DynamicLink by Kale Collective – A one-stop platform for the on-demand optimisation of freight journeys for operators. Based on the operator’s decisions, the platform

¹¹ See: https://twitter.com/kale_co and <https://uk.linkedin.com/company/kale-collective>

¹² <https://blog.kalecollective.co.uk/smart-mobility-project-complete>

¹³ <https://blog.kalecollective.co.uk/trig-grant>

¹⁴ <https://www.kcl.ac.uk/news/kale-collective-winner-greener-freight-journeys>

learns to anticipate and helps with the proactive fleet management, supporting your long-term logistics strategies.”¹⁵

Finalists

There were three finalists in this challenge, and one of those has been chosen to be included in this review.

ZAPP by Zedify¹⁶

Founded in England in 2018, Zedify is the trading name of a group of zero emission urban logistics businesses that operate under a licence or franchise of Outspoken Logistics Ltd. Zedify is a privately held firm with headquarters in Cambridge, UK with 130 employees. Zedify produced a short video regarding their involvement in the Challenge¹⁷, which summarises the purpose of the tool, its involvement in the Challenge and comments on the wider value of the Mayor’s Resilience Fund (MRF). Lastly, they comment that the firm is looking forward to working with partners to optimise the tool for them, which indicates that the prize is simply the starting point for a long innovation and implementation journey.

Zedify has raised investment to fund expansion plans from a range of sources including business angels and investment funds:

- “Sustainable delivery pioneers, Zedify, have raised £1.2m to support their growth into cities across the UK, in a round led by Green Angel Syndicate.”¹⁸
- “Zedify - the UK’s largest electric cargo bike delivery network- has secured £5m investment to expand its exceptionally low carbon service, making it available to around 20% of the UK population. The round was led by Barclays Sustainable Impact Capital and MEIF Proof of Concept & Early Stage Fund, which is managed by Mercia and part of the Midlands Engine Investment Fund, with additional funds from original investors, Green Angel Syndicate, and new investors, Prova.”¹⁹

In terms of information which identifies other award-related activity, it was reported on an industry website²⁰ that Zedify were finalists in UK Business Green Awards for Supply Chain and Logistics Project of the Year.

There is also evidence that Zedify used the commented on the prize in their social media output (twitter post²¹):

- “We’re thrilled to be finalists in the #MayorsResilience Fund from @MayorofLondon
- We’re working with @BetterBankside & @KingsCollegeLon to develop our mobility management tool & help solve some of London’s biggest challenges”

¹⁵ <https://workplaceinsight.net/shaping-londons-future-mayors-resilience-fund-winners-announced/>

¹⁶ <https://www.zedify.co.uk>

¹⁷ <https://vimeo.com/549290884>

¹⁸ <https://www.zedify.co.uk/blog/press-release-zedify-raises->

¹⁹ <https://www.zedify.co.uk/blog/press-release-zedify-raises-5m-for-uk-roll-out/> also covered here <https://zagdaily.com/places/zedify-to-expand-uk-operations-with-new-5m-funding/> and <https://cyclingindustry.news/cargo-bike-company-zedify-plots-uk-roll-out-with-5-million-investment/>

²⁰ <https://www.businessgreen.com/news/4086868/uk-green-business-awards-finalists-announced>

²¹ <https://twitter.com/ZedifyUK/status/1394578620555960322>

3.4.4.1 *European Social Innovation Competition 2020*²²

The 2020 Competition 'Reimagine Fashion' looked for “ideas that seek to improve the environmental and social impact of the European fashion market through the development of new products, services and processes, and innovative business models”²³. The competition sought to identify ideas that could provide innovative solutions for sustainable use and consumption, sustainable production and improvement of the end of life stage of fashion.

This competition was run by the European Commission’s DG GROW with the support of a consortium of partners including Challenges Works, Kennisland and the European Network of Living Labs.

Three winners each received a prize of €50,000 plus an 'Impact Prize' is also awarded to a participant who reached the semi-finals in the previous year’s competition, based on results that the project achieved over the past twelve months.

Winner - Resortecs

Resortecs²⁴ was one of the three winners of this prize. Founded in Belgium in 2017, Resortecs²⁵ develops technology to enable faster, more cost efficient textile recycling through automatic garment disassembly. It a privately held firm with headquarters in Brussels, Belgium with 11-50 employees²⁶.

Resortecs covered their winning of the prize on their website, where they list awards that they have won at the foot of their homepage. Reference is made to the European Social Innovation Competition (Reimagine Fashion: Changing behaviours for sustainable fashion) through the use of the prize logo.

Resortecs has recently raised a significant amount of finance including €2.2 million in a seed investment and €2.5 million grant received from the European Innovation Council (EIC):

- “Belgian startup Resortecs has raised €2.2 million in a seed investment round led by Brussels-based ScaleFund and finance&invest.brussels...This follows a €2.5 million grant received from the European Innovation Council (EIC) in 2022. In total, Resortecs is tapping into €4.7 million to boost production this year and finalize the development of a continuous disassembly line, scaling up tenfold its pre-recycling processing capacity to 10T/day in 2024.”²⁷
- “The European Commission selected 74 innovative companies under the first 2022 EIC Accelerator cut-off. They are set to receive up to €382 million of funding in a combination of grants and investments”²⁸

Resortecs feature on the Ellen Macarthur Foundation website as an example of a business in the circular economy, indicating the high profile that they now have.

- “There is clearly already a growing appetite for Resortecs’ technology which is already being piloted by 25 international fashion brands with at least one Resortecs-enabled product already

²² <https://www.nesta.org.uk/project-updates/30-ideas-reimagine-fashion/>

²³ <https://challengeworks.org/challenge-prizes/eusic-2020/>

²⁴ <https://resortecs.com/>

²⁵ <https://be.linkedin.com/company/resortecs>

²⁶ <https://www.crunchbase.com/organization/resortecs>

²⁷ <https://www.eu-startups.com/2022/06/brussels-based-resortecs-receives-e2-5-million-grant-from-the-eu-to-accelerate-fashions-circular-transition/>

²⁸ https://eic.ec.europa.eu/news/most-competitive-eic-accelerator-cut-awards-major-funding-round-74-europes-high-potential-start-ups-2022-06-07_en

on the market. As the fashion industry continues to evolve, simple but powerful innovations such as this can help unlock the potential of a circular economy for fashion.”²⁹

Press releases on the company website only go back to 2022, meaning that any previous reference to the prize within this section of the website were not found. However, the news section of the site does provide evidence of more recent prize winning activity³⁰. For example, one story speaks of Resortec winning the ‘Make it Circular Challenge Award’ by What Design Can Do and IKEA Foundation, whilst another states that the company has won a €2.5 million grant from the EU to accelerate fashion’s circular economy. There is clear evidence that this company uses challenges and other innovation grant support mechanisms to advance its innovation capability and implement its ideas.

Other coverage of the prize includes coverage in trade and other press, such as:

- “The three 2020 Winners were selected by an expert jury panel from a total of 766 applicants from across Europe. In July, 30 semi-finalists participated in the European Social Innovation Competition’s Digital Academy – an intensive training and coaching program designed to develop their initiatives.”³¹
- “The Belgian start-up Resortecs, active in the reuse and recycling of textile products, is among the three winners of the European Social Innovation Competition (EUSIC), the European Commission announced Thursday. The start-up manufactures sewing threads that disintegrate at high industrial temperatures. A continuous and automated disassembly line then allows the zippers and buttons to be removed from the textile parts, polyester and cotton to be separated and then sent to specific recyclers. Such operations are too costly to carry out manually.”³²

Impact Prize winner - Empower, from Norway

The Impact Prize is awarded to a semi-finalist from the previous year’s competition, based on results that the project achieved over the past twelve months.

Empower was founded in Norway in 2018. Empower “generates value out of plastic waste - enabling collectors, recyclers, brands and consumers to make a real impact on the environment.”³³ It a privately held firm with headquarters in Oslo, Norway with 11-50 employees³⁴.

Empower’s coverage of winning the impact prize includes the EIC prize logo inclusion at the bottom of their homepage listed under “*Networks we are part of*” and a quote on their website homepage from Erna Solberg, the Prime Minister of Norway:

- “You have worked hard to bring an innovation initiative to the forefront of global solutions for plastic waste and the circular economy. And being awarded as the Impact

²⁹ <https://ellenmacarthurfoundation.org/circular-examples/dissolvable-stitches-that-improve-clothing-recycling-resortecs>

³⁰ <https://resortecs.com/news/>

³¹ <https://www.plasticfree-world.com/european-commission-reveals-the-winners-of-the-2020-european-social-innovation-competition/>

³² <https://www.brusselstimes.com/142679/belgian-textile-startup-wins-european-prize-for-social-innovation-resortecs-european-commission-reimagine-fashion-snake-whywecraft-european-horizon-2020>

³³ <https://www.empower.eco/>

³⁴ <https://www.linkedin.com/company/empowerplastic>

Prize winner at the European Social Innovation Competition for having made the most progress this year is a testament of your work.”³⁵

Empower is a multi-award winning business and from this we can establish that innovation prizes and awards are important to them. These prizes and awards are referred to in press coverage of the business such as:

- “Empower has been featured in Forbes and The Independent and has won numerous awards such as: winner of the 2018 Xynteo Impact Maker Award, one of the 10 most innovative solutions on Challenging Plastic Waste in a competition run by the European Commission; the only Nordic initiative among the 25 development projects/ SDG solutions selected to be showcased at Expo 2020 Dubai’s Global Best Practice Programme; and also, holds a Seal of Excellence for its proposal in the framework of EU Horizon 2020.”³⁶

Finalists/runners up

There were seven runners up for Reimagining Fashion prize, and one of those has been chosen to be included in this review.

Post Carbon Fashion (UK)

Founded in England in 2019, Post Carbon Lab provides a zero-waste and regenerative dyeing and coating services for textile applications through microbiological processes³⁷. It is a privately owned firm with headquarters in London with 2-10 employees.³⁸

There is a long list of prizes and awards listed on the Post Carbon Lab website³⁹, including this competition. The other prizes and awards are mainly innovation based from a wide range of organisations including a number from Innovate UK such as:

- Innovation Voucher, Brunel University, Awardee
- Innovate UK, Funding Awardee
- Innovate UK, Fast Start: Innovation Funding Awardee
- Cannes Lion, Gold Lion Winner, CO2AT
- Deutsche Bank Awards for Creative Enterprise, Finalist
- RO Plastic Prize, Innovative Textiles Awareness of Communication, Finalist
- Creative Enterprise Award, University of Arts London, Innovation Awardee

There is industry coverage of some of this additional innovation activity by the business, including the Women in Innovation programme winners⁴⁰ (including Dian-Jen Lin who co-founded Post Carbon Lab):

- “The Innovate UK Women in Innovation Programme announced a cohort of 50 trailblazing women entrepreneurs who are tackling some of our most pressing environmental, economic, and societal challenges. The winners of the annual competition will embark on a 12-month journey and benefit from a bespoke business-boosting support package. This includes a cash

³⁵ <https://www.empower.eco/>

³⁶ <https://www.winnovart.com/news/winnovart-explore-introducing-empower-norway-disrupting-the-plastic-waste-ecosystem-with-blockchain-technology>

³⁷ <http://www.postcarbonlab.com>

³⁸ <https://uk.linkedin.com/company/postcarbonlab>

³⁹ <https://www.postcarbonlab.com/publication>

⁴⁰ <https://www.bioindustry.org/news-listing/women-in-innovation-programme-winners-announced.html>

injection of £50,000 each, tailored business coaching offered by Innovate UK EDGE, mentoring and a wide range of networking, role-modelling and training opportunities.”

Impact of the Competition

Challenge Works does report on some of the impacts of this competition⁴¹ on the semi-finalists with some input from coaches and specific reference is made how the competition was affected by the Covid-19 pandemic. Key points highlighted include:

- Six semi-finalists reached the final stage of the Competition, which was possibly due to the severe restrictions relating to COVID-19 pandemic.
- 13 of the cohort were still active after one year .
- 95% of coaches agreed that the Competition has provided effective solutions to the proposed problem.
- 15 of the semi-finalists attracted new investment or funding during the course of the Competition.
- 100% of semi-finalists felt supported by being part of a peer network of social innovation in Europe, despite the academy being held digitally this year.

3.4.4.2 *The Inventor Prize*⁴²

The Inventor Prize was a pilot, run by Nesta and funded by the Department for Business, Energy & Industrial Strategy (BEIS)⁴³. Through funding and non-financial support, it aimed to help smaller inventors overcome the barriers they face. The winner received £50,000 for business and product support, two runners up received prizes of £10,000 and £5,000 and £5,000 was awarded to 10 finalists. There was also non-financial support provided by Barclays Eagle Labs.

Winner - Neurofenix⁴⁴

Founded in England in 2016, Neurofenix is a multidisciplinary team of professionals working to make a difference in the lives of neurological injury survivors and their families. Neurofenix is a privately held firm with headquarters in Atlanta, Georgia and London, UK with 11-50 employees⁴⁵.

We were unable to find any mention of the Inventor Prize on the Neurofenix website but this may be due to the company now focusing on the US market due to its recent expansion there⁴⁶.

Recent activity of the business includes Neurofenix closed its Series A round of investment in August 2022, and is actively selling the NeuroBall platform to survivors, rehabilitation clinics and institutions for upper extremity recovery. The company is now based in the US.

- “Neurofenix, the neurological rehabilitation platform that uses sensors to improve patient outcomes, has raised \$7 million in Series A funding. This funding was led by AlbionVC, with additional participation by HTH, InHealth Ventures, and existing investors. This will enable

⁴¹ <https://challengeworks.org/challenge-prizes/eusic-2020/>

⁴² <https://challengeworks.org/challenge-prizes/inventor-prize/>

⁴³ <https://www.nesta.org.uk/project/inventor-prize/>

⁴⁴ <https://neurofenix.com>

⁴⁵ <https://www.linkedin.com/company/neurofenix>

⁴⁶ <https://www.medcityhq.com/2022/09/27/company-of-the-month-neurofenix/>

Neurofenix to build out its product line and invest in US expansion, including funding US clinical trials.”⁴⁷

Guillem Singla Buxarrais, one of the founders of Neurofenix, was awarded a 2017 Enterprise Fellowship by the Royal Academy of Engineering⁴⁸ and he has said that this “had a profound impact on Neurofenix’s progress and reducing our time to market. Our mentor and the Enterprise team provided invaluable support throughout.”

Other coverage of the prize in trade and other press includes:

- “Winning inventor, Guillem Singla Buxarrais of Neurofenix, commented: “We are so excited to be selected as the winners of the Inventor Prize, from the nine other brilliant and inspiring entrepreneurs.”⁴⁹
- “A new device aiming to help support stroke survivors through their rehabilitation has won the first Inventor Prize and has been awarded £50,000 to help bring the product to market.”⁵⁰
- “A “revolutionary device” which would help rehabilitate stroke survivors has been declared the winner of a government-supported competition. It was selected from a shortlist of 10 “garden shed inventions” which could seriously transform people's lives in the competition which was sponsored by innovation foundation Nesta.”⁵¹

Nesta provided publicity for the finalists and winner through its website:

- “We received over 180 applications from across the UK, all of which were assessed against the judging criteria by our judging panel to determine which would be shortlisted to the finalist stage. As finalists, each of the teams will receive a £5,000 grant and non-financial support from Barclays Eagle Labs to further develop their ideas and products. They will receive tailored support from mentors and industry experts as well as access to Maker Space facilities and co-working desk space.”⁵²
- “On the 24 and 25 January 2018, we brought together the finalists for the first time, where they met the Inventor Prize team and their mentors from Barclays Eagle Labs. The finalists have an incredibly exciting journey ahead of them, as they work towards a final judging panel in September 2018, where the overall winner will win £50,000 with recognition awards for two runners-up.”⁵³

An interview with Neurofenix was platformed on the Nesta website, where one of the founders made the following comments:

- “We are hopeful that our journey with Nesta will help us reach key stakeholders in the NHS and the private sector and spread the word about the NeuroBall. The Nesta and Barclays Eagle Lab team are supporting us in the development of our product, providing us with training opportunities and a mentor who guides us through the challenges of growing an idea to a high-growth business with a measurable social impact.”⁵⁴

⁴⁷ <https://www.prnewswire.com/news-releases/digital-rehabilitation-platform-neurofenix-completes-7-million-series-a-to-transform-stroke-and-brain-injury-recovery-301614735.html>

⁴⁸ <https://enterprisehub.raeng.org.uk/members/guillem-singla-buxarrais>

⁴⁹ <https://ot-magazine.co.uk/stroke-rehab-device-wins-50000-inventor-award/>

⁵⁰ <https://thiis.co.uk/new-innovation-prize-set-to-assist-stroke-survivors/>

⁵¹ <https://news.sky.com/story/uk-garden-shed-inventors-win-prize-for-device-to-help-stroke-survivors-11501543>

⁵² <https://www.nesta.org.uk/blog/congratulations-to-the-inventor-prize-finalists/>

⁵³ <https://www.nesta.org.uk/blog/2018-inventor-prize-winner-set-support-stroke-survivors-across-uk/>

⁵⁴ <https://www.nesta.org.uk/feature/inventor-prize-meet-finalists/neurofenix-gameball-platform/>

3.4.4.3 *data.org Inclusive Growth and Recovery Challenge*⁵⁵

The data.org Inclusive Growth and Recovery Challenge aimed to identify innovative projects that apply data science for inclusive growth and recovery. The ideas sought needed to be scalable and sustainable data science solutions under themes including Jobs for Tomorrow, Access to Capital, and Cities & Towns. This \$10 million Challenge identified eight awardees to receive funding and support from data.org and partners.⁵⁶

There were 8 awardees and one has been selected from these awardees for further discussion.

Awardee - BUILD | Aalborg University – Mapping the Regional Quality of Life⁵⁷

The Build project from Aalborg University⁵⁸ aimed to provide public authorities and decision-makers with tools to compare and identify areas with less local economic opportunity. Part of the project was the development of an interactive website containing key indicators of economic prosperity in a given area in Denmark.

Included in the published information about this project by data.org⁵⁹ is an update on the project and future plans, including further investment that has been secure to continue and develop the project further.

- “BUILD has secured five years of additional funding from Realdania, a Danish philanthropic association with almost 175,000 members. The funding will secure future maintenance of the webpage, increase public awareness, and serve as the basis for future analyses about quality of life following the COVID-19 pandemic. Additionally, BUILD has secured funding from Splunk to further support their work.”

There is a dedicated web page on the data.org site⁶⁰ outlining the project and achievements to date.

- “The Challenge has given us a unique opportunity to propel our use of open-source solutions in data-driven decision- making for public benefit in Denmark, making population data and actionable insights available to community organizations, decision-makers, researchers, and the general public.” Sixten Maximillian Thestrup, Postdoctoral Researcher at Aalborg University

There is also a detailed article on the Rockefeller Foundation web site⁶¹ (one of the award partners) about the project.

- “The collaboration between Aalborg University, data.org, and The Rockefeller Foundation shows how sophisticated data analytics and visualization can help transform massive amounts of data into actionable insights for policymakers and laypeople working to address social and economic inequality.”

⁵⁵ <https://data.org/initiatives/challenge/>

⁵⁶ <https://data.org/news/eight-awardees-announced-as-part-of-10-million-data-org-inclusive-growth-and-recovery-challenge/>

⁵⁷ <https://www.en.build.aau.dk/>

⁵⁸ <https://vbn.aau.dk/en/projects/mapping-the-regional-quality-of-life>

⁵⁹ <https://data.org/wp-content/uploads/2023/03/2023-Challenge-Impact-Report.pdf>

⁶⁰ <https://data.org/initiatives/challenge/build-aalborg-university/>

⁶¹ <https://www.rockefellerfoundation.org/case-study/map-visualization-turns-millions-of-data-points-into-actionable-insights-for-policymakers-in-denmark-and-beyond/>

Impact of the Challenge

Data.org published two reports, in 2021⁶² and 2023⁶³, providing an overview of the Challenge in terms of process and applicants as well as lessons for the future. The reports include an overview and analysis of the applicants, critical topics for further inquiry and information on the awardees. The most recent report highlights the achievements of awardees since receiving the awards. Key points from the reports include:

- “We want to support organizations holistically, not just by giving them monetary support but also including them in an environment in which they can create partnerships and receive technical support, feedback, and expert advice.”
- “Inclusive growth is not sector-specific, and the breadth of applications shared a diversity of solutions across areas across the social sector. Going forward, we commit to strengthen this finding about the importance of partnerships and to work with the awardees to develop plans and grow their capacity in partnerships, training, talent, data, and shared learning.”
- “In fact, five of the Inclusive Growth and Recovery Challenge awardees have already expanded to new countries and more than \$30.8 million has been raised in direct follow-on funding.”
- “What’s more, the awardees have had real influence on their peers within social impact — including data.org. Through this process, we have seen how critical it is to have open tools, global purpose-driven data talent, and cross-sector collaboration. As such, we have tailored and strengthened our programmatic offerings.”

3.4.4.4 *Earthshot - Protect and Restore Nature*⁶⁴

The aim of the Earthshot prize for nature is that “by 2030, we choose to ensure that, for the first time in human history, the natural world is growing – not shrinking – on our planet”.⁶⁵

The Earthshot Prize is awarded to the most outstanding efforts to meet this challenge. The 15 Finalists received tailored support to help scale their solutions from the Earthshot Prize Global Alliance (a network of world-leading philanthropies, NGOs, and private sector businesses around the world). This support could include access to resources across numerous professions including manufacturing, retail, supply chains, legal advice, digital technology, business strategy and government relations. The Earthshot Prize team is in discussions with all finalists about the support they need which could include business strategy, further investment, or advice on growing their leadership platforms.

A 2022 report⁶⁶ on the Earthshot prize so far includes some useful information and insight into the mission of the prize and selection criteria:

- “The Earthshot Prize focuses on solutions that can rapidly scale or be replicated with monetary, communications, network, and organisational support.”
- “We expect our portfolio of Finalists to be heavily weighted towards solutions that are at a meaningful proof of concept, with line of sight to rapid, significant impact in the next 3-5 years if scaled or replicated. We expect a smaller part of our portfolio of Finalists to represent solutions that may take a longer time to scale for external reasons (policy frameworks, technology development, financial frameworks etc.). This is deemed essential by our experts to help accelerate now by raising the profile and urgency of their work at a global level.”

⁶² <https://data.org/wp-content/uploads/2021/08/data-org-Challenge-report.pdf>

⁶³ <https://data.org/wp-content/uploads/2023/03/2023-Challenge-Impact-Report.pdf>

⁶⁴ <https://earthshotprize.org/wp-content/uploads/2022/02/RoadmaptoRegeneration-1.pdf>

⁶⁵ <https://earthshotprize.org/nature/>

⁶⁶ <https://earthshotprize.org/wp-content/uploads/2022/02/RoadmaptoRegeneration-1.pdf>

Winner - Kheyti⁶⁷

Kheyti, an Indian startup based in Hyderabad (founded in 2015)⁶⁸, has developed a simple solution that is already having a considerable impact. Its Greenhouse-in-a-Box is designed for small-hold farmers and the crops they grow, offering shelter from unpredictable elements and destructive pests. Kheyti also trains and supports farmers to ensure their greenhouse is as effective as possible.

Kheyti has won other prizes/awards (as listed on their website) for leadership, social enterprise and entrepreneurship including:

- 2021 Awardee The Elevate Prize Foundation
- 2017 Awardee DBS Social Enterprise Grant Programme
- 2017 Diamond Winner Mass Challenge Israel
- 2017 Winner Funders circle & Emerging Leaders Award
- 2017 Winner Kellogg Social Entrepreneurship Award
- 2016 People's Choice Wharton India Startup Competition
- 2017 Winner Global Social Venture Competition

Earthshot is mentioned on Kheyti's homepage and there is also a specific page on the website about their winning of the prize⁶⁹, illustrating the importance of Earthshot to the organisation:

- "We are the winner of the "Protect and Restore Nature" category, making Indian farmers more climate resilient and Indian agriculture more sustainable through its "Greenhouse-in-a-box solution. We will receive a £1 million award and tailored support from The Earthshot Prize Global Alliance, an unrivaled network of world-leading philanthropies, NGOs, and private sector businesses around the world who will help scale OUR solution."

Earthshot has been a very high profile prize and as such there has been considerable coverage in the press across the world, including:

- "A Greenhouse-in-a-Box sustainable solution for small farmers devised by Telangana startup Kheyti has won the 1 million pounds Earthshot Prize, founded by Britain's Prince William and dubbed the Eco Oscars'. Kheyti, one of the five winners at a gala green carpet awards ceremony in Boston on Friday night, won the prize in the Protect and Restore Nature category from hundreds of entries worldwide."⁷⁰
- "Among this year's winning projects is ... an affordable flat-pack greenhouse by Indian start-up Kheyti. This so-called "greenhouse-in-a-box" can help small-scale farmers, whose harvests have been affected by climate change, to produce seven-times higher yields using 98 per cent less water, the company claims. At the same time, the modular structure is 90 per cent cheaper than a standard greenhouse, combining a simple shading cloth with a drip irrigation system and netting on all sides to ward off pests."⁷¹

There were two Earthshot Nature finalists and one has been selected here for further review.

⁶⁷ <https://earthshotprize.org/winners-finalists/kheyti/>

⁶⁸ <https://www.linkedin.com/company/kheyti>

⁶⁹ <https://www.kheyti.com/earthshotprize/>

⁷⁰ https://www.business-standard.com/article/companies/india-s-greenhouse-in-a-box-startup-kheyti-wins-2022-earthshot-prize-122120300482_1.html

⁷¹ <https://www.dezeen.com/2022/12/08/earthshot-prize-2022-winners/>

Finalist – Hutan⁷²

Hutan is based in Malaysia and consists of more than 70 full-time highly skilled staff hailing from the Orang Sungai community. Through the community-based “Kinabatangan Orangutan Conservation Programme” (KOCP), Hutan empowers local communities to manage and protect wildlife in the Kinabatangan. There is no coverage on the Hutan website drawing attention to their status as an Earthshot finalist, though the website could be described as ‘basic’. The ‘press’ section of the website simply presents photographs of newspaper articles.

A quote from the founder of Hutan on the Earthshot website⁷³ itself does indicate the significance of the competition for the organisation:

- “Through our research and conservation programmes in Sabah, Malaysian Borneo, we forge strong partnerships and develop innovative solutions for a more harmonious coexistence between wildlife and people. Hutan’s inclusion as a Finalist for The Earthshot Prize is an honour. It will support our mission to build a shared, thriving and resilient landscape for future generations where people and wildlife can live together peacefully”.

3.4.4.5 Commercialising quantum technologies challenge

The aim of this UKRI competition is to advance the commercialisation of quantum technologies in the UK through the investment of up to £27 million in innovation projects.⁷⁴ Information on successful projects is published⁷⁵ including details of participating organisations.

Awardee – SPLICE/QLM Technology Ltd

The lead organisation in one of these successful projects in this competition was selected for further investigation. The project is Single Photon Lidar Imaging of Carbon Emissions (SPLICE) and the Lead Participant is QLM Technology Ltd.⁷⁶

QLM is revolutionising gas sensing in the oil & gas industry by developing compact, high-sensitivity, low-power Tuneable Diode Lidar (TDLidar) gas detection and imaging systems based on infrared single-photon detection. Using technology based on research developed at the University of Bristol, QLM meets the needs of natural gas producers, distributors and service providers with fast, accurate and low-cost gas leak identification and monitoring. Founded in 2017 and privately owned, its headquarters are in Arnos Vale England with 11 – 50 employees⁷⁷.

QLM has secured £3.1m in seed funding with coverage of this on their website as well as other partners in the consortium. They were also named as one of 12 Bloomberg New Energy Futures Pioneers⁷⁸ in 2021:

- “QLM Technology Ltd, a UK-based photonics technology company with headquarters in Cardiff and operations in Bristol and San Francisco, announces the closing of its Series-A funding and the signing of a Collaboration Agreement with Schlumberger. With support from

⁷² <https://www.hutan.org.my/>

⁷³ <https://earthshotprize.org/winners-finalists/hutan/>

⁷⁴ <https://www.ukri.org/what-we-offer/our-main-funds/ukri-challenge-fund/artificial-intelligence-and-data-economy/commercialising-quantum-technologies-challenge/>

⁷⁵

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/897919/Competition_Results_-_Commercialising_Quantum_Technology_-_Large_Collaborative_Projects_Round_1.pdf

⁷⁶ <https://qlmtec.com/>

⁷⁷ <https://uk.linkedin.com/company/qlm-technology-ltd>

⁷⁸ <https://about.bnef.com/bnefpioneers/>

Innovate UK, QLM has developed a new type of LiDAR (laser imaging, detection, and ranging) camera based on quantum technology that can see and accurately quantify greenhouse gas emissions.”⁷⁹

- “Following being named among the twelve 2021 BNEF Pioneers last week, identifying it as one of the most impactful and original technology innovations for advancing the low-carbon economy, QTIC member QLM announce the close of its Seed funding round, securing a total of £3.1 million of investment.”⁸⁰

QLM coverage of the project and funding includes a specific page on their website about the consortium⁸¹ and the project itself⁸²:

- “Innovate UK, a branch of UK Research & Innovation, take the lead in project backing, and further support is provided by QTEC, Bristol’s Quantum Technology Enterprise Centre, as well as UKRI’s Industry Strategy Challenge Fund and Glasgow University’s QuantIC quantum technology hub. The project will fund research and development, field trials, production optimisation and commercial presentations, by the end of which the camera and accessories will be fully available to the oil and gas professionals and environmental scientists, enabling a disruptive change to the way methane and carbon dioxide levels are monitored at the facility scale.”
- “SPICE is the name of an Innovate UK project consortium, working as part of the National Quantum Technologies Programme, designed to bring QLM’s gas visualisation solution to full commercial readiness.”

⁷⁹ <https://qlmtec.com/qlm-closes-investment/>

⁸⁰ <https://www.bristol.ac.uk/temple-quarter-campus/research-teaching-and-partnerships/qtic/news/2021/qlm-funding.html>

⁸¹ <https://qlmtec.com/consortium-announcement/>

⁸² <https://qlmtec.com/splice-project-overview/>