

## Written evidence submitted by Nesta (PEG0245)

### Summary

1. Nesta is a global innovation foundation. We back new ideas to tackle the big challenges of our time. For more information on our organisational goals see Annex A.
2. Nesta welcomes the committee's inquiry into how the Department for Business, Energy and Industrial Strategy can support economic growth and rebalancing in the wake of the COVID-19 pandemic.
3. Innovation will be critical to the UK's economic recovery post Covid-19, both in enhancing the productivity and resilience of UK firms and workers, and providing solutions to large-scale, urgent societal challenges such as decarbonisation. Given this, we welcome the government's renewed commitment to raising total R&D expenditure to 2.4 per cent of GDP and the ambition to create an innovation led economy articulated in the recently published R&D roadmap.
4. For the government's commitments to put innovation at the forefront of the UK's economic recovery to be effective and politically sustainable, innovation and skills policy will have to do more to:
  - 4.1. **Raise levels of private, as well as public, investment in innovation.** Meeting the 2.4 per cent target will be difficult without measures to address persistently low levels of business investment in research and development, and to support innovative firms to scale. We believe such measures should include:
    - 4.1.1. Action to address skewed incentive structures inhibiting corporate innovation.
    - 4.1.2. Wider use of business accelerators and incubators.
    - 4.1.3. Using regulation and procurement to cultivate favourable conditions for firms working on particular kinds of innovation.
  - 4.2. **Ensure that innovation translates into broadly felt public benefit.** If it is to contribute to a broadly felt and sustainable economic recovery, support for innovation must be accompanied by reforms to the innovation system itself. To ensure that investment in innovation better translates into public benefit and broadly felt economic growth, innovation policy will need to focus more on:
    - 4.2.1. Building innovation capacity outside of London and the South East, both through R&D funding and skills policies.
    - 4.2.2. Helping innovation diffuse to lower productivity sectors.
    - 4.2.3. Proactively guiding and supporting the development of specific technologies.
5. Likewise, we contend that the government's commitment to transition to a zero-carbon economy by 2050 will require:
  - 5.1. **Expanding on a 'mission oriented' approach to industrial strategy** — The government's commitment to bring all greenhouse gas emissions to net zero by 2050 is a mission-oriented policy, and is likely to guide innovation investments. Any mission of such a scale will require substantial investment in both research and

innovation and complementary investment to build capabilities, strengthen relevant parts of the innovation ecosystems and engage the public.

- 5.2. **Concerted efforts to ensure that the UK workforce has the skills, training and support necessary to thrive in and meet the needs of a changing economy.** The viability of plans to support the UK's transition to a greener economy are dependent on the availability of a workforce with the right skills. As well as tailoring education and training to the demands on the new economy, there needs to be greater emphasis on life long learning and building the adaptability and resilience of the workforce.
6. Finally, we argue that, in order to use innovation to drive economic recovery and growth, and to facilitate a transition to a zero carbon economy, innovation policy and industrial strategy will have to draw on a wider and richer variety of evidence sources, and be more willing to use data and experimentation.
7. For the rest of this submission, we divide our comments under three broad headings, corresponding to the objectives of 1) building a more productive, balanced, resilient economy post Covid-19 and 2) configuring the innovation system to support decarbonisation and other large scale challenges 3) making policy more evidence based and data driven.

### **Where to find Nesta's key work:**

Innovation After Lockdown — Using innovation to build a more balanced, resilient economy  
<https://www.nesta.org.uk/report/innovation-after-lockdown/>

The Missing £4 Billion — Making R&D work for the whole UK  
<https://www.nesta.org.uk/report/the-missing-4-billion/>

Going Green: Preparing the UK workforce for the transition to a net-zero economy  
<https://www.nesta.org.uk/report/going-green-preparing-uk-workforce-transition-net-zero-economy/>

The Great Innovation Challenge: How Challenge Prizes can kick start the British economy  
<https://challenges.org/impact/reports/the-great-innovation-challenge/>

The Invisible Drag on UK R&D — How corporate incentives within the FTSE 350 inhibit innovation  
<https://www.nesta.org.uk/report/invisible-drag-corporate-incentives/>

Is the UK getting innovation right? — A survey of perceptions of the impact of innovation and technology  
<https://www.nesta.org.uk/report/uk-getting-innovation-right/>

Precarious to Prepared: A manifesto for supporting the six million most at risk of losing their jobs in the next decade  
<https://www.nesta.org.uk/report/precarious-to-prepared/>

Testing Innovation in the Real World — how innovation testbeds are being used to safely test out

innovation and new technologies in the real world  
<https://www.nesta.org.uk/report/testing-innovation-real-world/>

Innovation Mapping  
<https://www.nesta.org.uk/report/innovation-mapping-now/>

Arloesiadur: An innovation policy dashboard for Wales  
<https://arloesiadur.org/>

## I — Building a more productive, resilient and and balanced economy post COVID-19

8. The post COVID-19 economy needs to be more productive, resilient and balanced:

8.1. **Productivity** — As demonstrated by the UK’s experience following the 2008 financial crisis, **productivity levels cannot be expected to automatically return to pre-crisis levels.** While productivity growth levels fell across the world in the wake of the crash, other advanced economies have experienced significantly greater recovery in productivity growth since. By 2017, UK productivity was 20 per cent lower than it would have been had pre-crisis growth trends continued. Every effort must be made to avoid a repeat of this phenomenon.<sup>1</sup>

In responding to the Covid-19 recession, government efforts to preserve jobs (for instance through the furlough scheme) will likely come at the expense of productivity levels.<sup>2</sup> **While it is right for the government to focus on tackling unemployment in the short term, improving the productivity of UK firms and workers should constitute a key priority of plans for the UK’s economic recovery in the medium to long term.**

8.2. **Resilience** — The COVID-19 pandemic has exposed the fragility of many of the UK’s economic and social arrangements. In particular, the UK’s reliance on efficient but tenuous ‘just-in-time’ supply chains for food and other essential goods, its flexible labour market and ‘streamlined’ public services have proven ill-equipped to deal with unforeseen pressures and prolonged deviation from business as usual. If the UK is to weather the challenges and shocks threatened by climate change, an ageing population and waves of technological displacement, greater focus on building resilience will be required.

8.3. **Balance** — Regional inequality in the UK is the worst of any comparable developed country — and is growing.<sup>3</sup> Recent analysis suggests that many of the UK’s regional inequalities are set to be made worse by the COVID-19 pandemic.<sup>4</sup> Addressing these

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<sup>1</sup> Harry Farmer & Madeleine Gabriel (2020) *Innovation after Lockdown: Using innovation to build a more balanced, resilient economy*. p.44. [online]. Available from: [https://media.nesta.org.uk/documents/Innovation\\_after\\_Lockdown\\_v5\\_2.pdf](https://media.nesta.org.uk/documents/Innovation_after_Lockdown_v5_2.pdf).

<sup>2</sup> The furlough scheme, for instance, amounts to state subsidised ‘labour hoarding’ (whereby firms keep on workers they might have otherwise laid off), which can have the effect of lowering labour productivity per person in affected firms.

<sup>3</sup> Raikes, L. et al. (2019) ‘Divided and Connected – Regional inequalities in the North, the UK and the developed world – State of the North 2019.’

<sup>4</sup> Andy Norman (2020) ‘Which local authorities face the biggest immediate economic hit?’ [online]. Available from: <https://www.progressive-policy.net/publications/which-localauthorities-face-biggest-immediate-economic-hit> (Accessed 28 May 2020).

damaging levels of regional inequality, should be a priority for any post COVID-19 recovery plan.

9. Targeted support for innovation is key to improving productivity and resilience, and to addressing regional imbalances.
  - 9.1. **Innovation drives productivity** — There is a strong connection between innovation and productivity growth. For Instance, Nesta’s 2010 Innovation Index showed that 63 per cent of UK labour productivity between 2000 and 2008 was driven by innovation.<sup>5</sup>
  - 9.2. **Innovation is correlated with resilience** — Just as economies with a greater variety of financial institutions tend to be less exposed to (and tend to better weather) financial crises,<sup>6</sup> economies with a greater diversity of kinds of businesses and operating models tend to be better placed to adapt to crises and unforeseen changes.<sup>7</sup> The connection between innovation and resilience is also borne out at the firm level. There is evidence that greater levels of innovation are correlated with greater post-crisis profitability and that more innovative firms demonstrate greater overall resilience.<sup>8</sup> Moreover, firms with a track record of innovation have been shown to better weather periods of recession.<sup>9</sup>
  - 9.3. **Support for innovation can be used to drive regional economic development** — The root causes of the UK’s regional inequality are complex and long standing, but the uneven geographical distribution of innovative, high-productivity economic activity is a significant factor. Crucially, experience from other countries suggests that innovation policy, and particularly the direction of public R&D spending, can be used to address this problem. In ‘The Missing £4 Billion’ a recent paper for Nesta, Richard Jones and Tom Forth outline how channelling R&D spending towards previously poor regions of east Germany has contributed to the development of innovation clusters in these places, and to their recent economic resurgence relative to comparable regions of the UK.
10. In order to improve levels of innovation across the UK economy, a post COVID-19 economic plan should therefore include:
  - 10.1. **Measures to stimulate and facilitate private sector innovation** — Alongside measures to raise public investment in R&D, efforts also need to be made to address the UK’s comparatively low levels of private investment in innovation. To this end, a plan for COVID-19 economic recovery should consider:
    - 10.1.1. **Taking action to address skewed incentive structures inhibiting corporate innovation** — When it comes to the large companies, Nesta’s

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<sup>5</sup> Nesta (2011) *Annual innovation report 2010*. [online]. Available from: <https://www.nesta.org.uk/report/annual-innovation-report-2010/> (Accessed 15 July 2020).

<sup>6</sup> Christine Berry et al. (2016) ‘Our Friends in the City – Why banking’s return to business as usual threatens our economy.’ [online]. Available from: [https://b3cdn.net/nefoundation/b45df453702219060e\\_h8m6y71zc.pdf](https://b3cdn.net/nefoundation/b45df453702219060e_h8m6y71zc.pdf) (Accessed 28 May 2020).

<sup>7</sup> Aligicǎ, P. D. (2014) ‘Institutional diversity and political economy: the Ostroms and beyond.’ Oxford ; New York: Oxford University Press. [online]. Available from: <https://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199843909.001.0001/acprof-9780199843909-chapter-4>

<sup>8</sup> Amore, M. D. (2015) ‘Companies learning to innovate in recessions.’ *Research Policy*. [Online] 44 (8), 1574–1583. [online]. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0048733315000827> (Accessed 28 May 2020).

<sup>9</sup> Amore, M. D. (2015) ‘Companies learning to innovate in recessions.’ *Research Policy*. [Online] 44 (8), 1574–1583. [online]. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0048733315000827> (Accessed 28 May 2020).

2019 report [The Invisible Drag on UK R&D](#), identifies how corporate incentive structures inhibit innovation. A study of 350 FTSE executives' suggested that their long-term incentive plans are strongly skewed towards discouraging executives from innovating at a ratio of 6:1.

**10.1.2. Wider use of business accelerators and incubators** — As outlined in the 2019 BEIS research paper 'The impact of businesses accelerators and incubators in the UK', the use of business accelerators and incubators is positively correlated with startup survival, employee growth and funds raised, and most startups who used an incubator or accelerators consider it to have been significant or even vital to their success.

**10.1.3. Using regulation and procurement to cultivate favourable conditions for firms working on particular kinds of innovation** — Government can actively establish favourable conditions for innovative firms in particular sectors, by creating and shaping new markets for innovative products and services through 'smart procurement' and by setting regulatory standards that encourage certain kinds of innovation. For this reason, the Regulators' Pioneer Fund, which has supported regulators to experiment with innovation enabling, 'anticipatory' approaches to regulation has been a positive step. In future, more should be done to make this approach to regulation the default.

**10.2. Measures to ensure that innovation translates into broadly felt public benefit** — The UK's innovation performance<sup>10</sup> is well above the EU average, and has increased steadily over the past decade. But it is less clear whether these achievements have led to more broadly felt prosperity. Innovation policy needs to be reconfigured to better reconcile high levels of innovation performance with the need to address regional inequality, raise productivity and wages in struggling sectors of the economy and encourage specific innovations to take forms that are compatible with broader public values and priorities. As set out in our report 'Innovation After Lockdown', worthwhile changes to innovation policy include:

**10.2.1. Configuring public R&D funding and skills policies to stimulate regional economic growth** — As they look to rebuild after COVID-19, the UK's nations, cities and regions will need strategies for innovation recovery that respond to their specific industrial and employment structures and take account of differing needs and strengths. To build and develop their own innovation priorities, they need resources and capacity. Nesta's recent report 'Innovation After Lockdown' sets out policies that the government should consider that could enable regions to use innovation to support post COVID-19 economic development, including:

**10.2.1.1. Devolution of a substantial proportion of the public R&D budget to the nations, regions and cities of the UK** — In a recent Nesta report, 'The Missing £4 Billion', Richard Jones and Tom Forth propose that 25 per cent of the uplift to R&D spending announced in the March 2020 Budget be devolved. If the uplift goes ahead as

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<sup>10</sup> Hodges, D. (n.d.) 'Strengths and weaknesses in the UK innovation system – Innovate UK' [online]. Available from: <https://innovateuk.blog.gov.uk/2018/07/16/strengths-and-weaknesses-in-the-uk-innovation-system/> (Accessed 28 May 2020).

planned, this would put up to £2.5 billion per year by 2027 in the hands of the UK's nations, cities and regions. We believe this amount would be of a sufficient scale to drive a rebalancing of investment, if allocated on a needs-based formula. Devolution, however, should be a priority even if the uplift to R&D funding is revised given the budgetary pressures caused by the pandemic.

**10.2.1.2. The Creation of regional offices for UK Research and Innovation**

— A regional structure for UKRI could act as a source of expertise for regional decision makers, helping to ensure that local R&D funding allocation decisions are made with the best possible evidence and expertise, and that local decisions are joined up with national innovation and industrial strategy.

**10.2.1.3. Devolution of part of the new National Skills Fund** to enable local decision makers to create holistic recovery plans that combine investment in R&D, business support and skills.

**10.2.2. Stimulating innovation and adoption in ‘foundational’ and lower productivity firms** — When considering how to raise productivity post COVID-19, particular attention should be paid to increasing productivity in the ‘foundational economy’, which provides essentials such as housing, education, health and care, utilities, high-street banking and food. Though these sectors tend to be lower productivity, they account for over 40 per cent of the workforce, meaning that small improvements could have large effects. Moreover, as the foundational economy is to be found in all parts of the country, the productivity gains in these areas would result in more regionally balanced economic growth than equivalent gains at the high-tech frontier. It is also the foundational economy – and in particular the health and social care sectors – that will do the heavy lifting as the UK adapts to the pressures of an ageing population. In order to improve productivity in these parts of the economy, a post-COVID-19 economic strategy should include measures to:

**10.2.2.1. Address a lack of evidence as to why SMEs don’t innovate or adopt innovations** — Looking at smaller firms, there is still a relative lack of evidence about how to encourage them to innovate, and to adopt the latest technologies and management practices. Expanding initiatives like the Business Basics Fund, which finances pilots to use experimental approaches to find out more about the barriers to SMEs adopting ‘tried and tested’ technologies and management practices, and to work out how to best support them to do so, could help address this problem.

**10.2.2.2. Provide support for experimentation in foundational sectors** — firms and organisations in foundational sectors are often not in a position to undertake the experimentation and trial and error necessary to find working models that make best use of the potential offered by new technologies or management practices. To address this problem, government could provide support for testbeds (initiatives that provide a controlled or bounded space for testing

innovation in real-world, or close to real-world, conditions) that focus on working out how to make best use of emerging technologies, and organisational and social innovations, to improve productivity in particular sectors of the foundational economy, such as social care.

- 10.3. Proactively guiding and supporting the development of specific productivity enhancing technologies**, particularly relating to AI and automation — It is important that government measures to enhance productivity are sensitive to the way that productivity is raised.

While the UK is already behind many developed nations in the use of industrial automation, and further automation is needed to increase productivity, government should encourage and incentivise firms to automate, wherever possible, in a manner that enhances and complements human labour.

As outlined in ‘Innovation After Lockdown’, government policy should work to ensure productivity raises come about through the development and proliferation of productivity-enhancing technologies and practices that are beneficial to worker-flourishing – or at the very least, do not undermine pay and conditions.

## **II — Supporting decarbonisation and other large scale challenges**

11. As well as measures to improve the productivity, resilience and balance of the UK economy, a plan for post COVID-19 economic recovery should be closely tied to achieving broader, non-economic objectives, such as achieving net zero carbon by 2050. Efforts to stimulate and reconfigure the economy in the wake of the COVID-19 pandemic can and should overlap with policies to cultivate and support a transition to low-carbon business models, technologies and industries.
12. There is public support for directing innovation spending towards broader, non-economic objectives and towards decarbonisation. Public engagement and polling captured in the Nesta report ‘Is the UK getting innovation right?’ shows that the UK public believe government should invest in innovations that have positive social impacts, even where doing so has no direct economic benefits. They are also keen to see innovation used to tackle challenges like climate change. Against a backdrop of strained public finances, directing innovation spending towards big societal challenges like the climate emergency will likely be a prerequisite of longer term public acceptance of increased government spending on innovation.
13. While the UK already has taken some steps towards a mission-oriented approach to achieving net zero through the Industrial Strategy Grand Challenges, more needs to be done to ensure that the existence of the missions makes a material difference to spending and policy decisions — rather than constituting a relabeling of spending that would have happened anyway.
14. A mission oriented approach should also take account of the need to manage the skills and workforce implications of a transition towards green jobs and industries. As outlined in Nesta’s recent report ‘Going Green: Preparing the UK workforce for the transition to a net-zero economy’, the transition to net zero is likely to have a significant impact on employment in high emission industries, which currently employ 45 per cent of the UK workforce.

## A mission oriented approach to innovation policies

15. In order to increase the chances of achieving net zero by 2050, government should consider:
  - 15.1. **Direct a large section of the funding provided by the new ‘UK ARPA’ towards the realisation of the net zero carbon ‘mission’.** Given the scale of the transformation required, the UK does not yet have an adequate funding mechanism for achieving net zero carbon. As [Nesta has argued in the past](#), the main ‘mission-oriented’ funding stream, Industrial Strategy Challenge Fund, is spread too thinly over too many challenge areas and uses conventional R&D grant funding to pursue its goals. By providing a substantial source of non-grant based funding for the development of green technologies and practices, a UK ARPA could be used to effectively fill this funding gap.

A focus on decarbonisation would also help with a UK-ARPA’s political viability, demonstrating to the public that the increase in R&D spending required to finance its £800 million per year budget is being directed towards the solution of a tangible, pressing problem.
  - 15.2. **Adopting a portfolio approach to mission-oriented funding, with funding approaches and criteria differentiated appropriately.**

As the Commission on Mission-Oriented Innovation and Industrial Strategy set out, innovation missions require cross-sector action. To implement them effectively, the government will need to invest in a wide portfolio of programmes that add up to a bigger whole.<sup>11</sup> Funding instruments should be flexible to support different types of projects with different goals and stakeholders. For example, levels of match funding expected might be lower for programmes that aim to support emerging sectors or bring forward new business models, compared with programmes aimed at helping existing industries to transform.
  - 15.3. **Using an experimental, iterative approach to implementing missions.** It is difficult to predict the societal and distributional consequences of innovations in advance, so the government should provide early support for a variety of potential solutions to identified problems, enabling informed decisions about which to prioritise later. As outlined in our report ‘The Great Innovation Challenge: How Challenge Prizes can kick start the British economy’, Challenge prizes are a good mechanism for this as they allow government to support a greater number of early stage solutions, with fewer strings attached. These are particularly useful where new, genuinely disruptive ideas are sought. Rather than picking one team and providing a subsidy based on the most credible proposal (the traditional R&D grants model), challenge prizes incentivise multiple teams to compete to provide the most impactful solution. The result is a greater number and variety of innovators working on a topic, and hence an ability to support more radical or unproven technologies as well as the safer bets typically funded through grant mechanisms.
  - 15.4. **Take opportunities to link investments in achieving net-zero investments to a place-based agenda.** This could be achieved through directing investments to regions

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<sup>11</sup> UCL Institute for Innovation and Public Purpose (2019) ‘A Mission-Oriented Industrial Strategy.’ UCL Commission for Mission-Oriented Innovation and Industrial Strategy (MOIS) [online]. Available from: [https://www.ucl.ac.uk/bartlett/publicpurpose/sites/public-purpose/files/190515\\_iipp\\_report\\_mois\\_final\\_artwork\\_digital\\_export.pdf](https://www.ucl.ac.uk/bartlett/publicpurpose/sites/public-purpose/files/190515_iipp_report_mois_final_artwork_digital_export.pdf) (Accessed 1 June 2020).

where latent innovative potential in low carbon technologies or organising models has been identified, for example, or by locating new translational research institutes that can drive green technology in parts of the country with below-average public R&D investment.

### **Skills policies for a low carbon economy**

16. As a result of technological progress and demographic changes, more than six million people in the UK are currently employed in occupations that are likely to change radically or disappear entirely by 2030.<sup>12</sup> While necessary to achieve net zero, a transition away from polluting industries — which currently employ 45 per cent of the workforce<sup>13</sup> — threatens to further compound the risk of worker displacement over the coming decade.
17. In order to better manage this transition, government should consider skills policies aimed at developing the skills base required to move from high-polluting to green industries and to support workers to train and transition. Within this, government may want to consider:
  - 17.1. Funding training for people transitioning out of jobs in polluting industries to those sectors less affected by environmental change.
  - 17.2. Provide funding and expand other government support (e.g. childcare) for individuals who pursue training by non-traditional education providers, in addition to traditional ones.
  - 17.3. Providing more open data on jobs and skills to enable people to better navigate a changing labour market. As part of this, government could create an eco-jobs classification to indicate ‘leader’ jobs that actively help to fight the climate crisis and a laggard and follower or ‘brown jobs’ classification, so that people understand what employment may be negatively impacted by the climate crisis.
  - 17.4. Government departments (for Business, Energy and Industrial Strategy, for Work and Pensions and for Education) working together to provide additional rights for workers who have been identified as being at risk of job loss. This might include, for example, the right to take time off work to re-train (updating the currently restrictive time off work policy), and the right to financial support to re-train (similar to Swedish job security councils that provide financial and job counselling support, financed by employers, to help people back into work). Priority could be given to skills that would be relevant to green jobs.
18. In addition to these changes, local governments may want to consider experimenting with individual learning accounts (such as the ones piloted in Scotland and Wales) to enable at-risk workers to learn, even when they can’t access training through their jobs. To test what levels work best in stimulating change, we propose initial annual entitlements of £500-£1500 supported by rights to paid time off.

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<sup>12</sup> Nesta (2019) *Precarious to prepared: A manifesto for supporting the six million most at risk of losing their jobs in the next decade*. p.8. [online]. Available from: [https://media.nesta.org.uk/documents/Precarious\\_to\\_prepared\\_A\\_manifesto\\_for\\_supporting\\_the\\_six\\_million\\_most\\_at\\_risk\\_of\\_losing\\_their\\_jobs\\_in\\_the\\_next\\_decade\\_v5.pdf](https://media.nesta.org.uk/documents/Precarious_to_prepared_A_manifesto_for_supporting_the_six_million_most_at_risk_of_losing_their_jobs_in_the_next_decade_v5.pdf).

<sup>13</sup> Chrystalla Kapetaniou & Charles McIvor (2020) *Going Green - Preparing the UK workforce for the transition to a net zero economy*. [online]. Available from: [https://media.nesta.org.uk/documents/Going\\_Green-Preparing\\_the\\_UK\\_workforce\\_to\\_the\\_transition\\_to\\_a\\_net\\_zero\\_economy.June.2020.pdf](https://media.nesta.org.uk/documents/Going_Green-Preparing_the_UK_workforce_to_the_transition_to_a_net_zero_economy.June.2020.pdf) (Accessed 15 July 2020).

### III — Making policy more evidence based and data driven

19. Policymakers and researchers have become increasingly frustrated with traditional data sources when it comes to measuring, analysing and informing policies to support new and innovative sectors. Such datasets, which include business surveys, R&D spending and volumes of scientific and technological outputs, such as academic publications and patents:
  - 19.1. are ill-suited for the analysis of businesses and jobs in new industries;
  - 19.2. fail to capture networks of collaboration which we know are critical for innovative success;
  - 19.3. may involve substantial time lags between data collection and publication, making it hard to capture real time development of emerging clusters and industries;
  - 19.4. anonymise business information in a way that makes it hard to target interventions and match data across sources (e.g. in order to analyse the impact of a policy intervention on a given business).
20. Policymakers have had little reliable information about the performance of sectors, different technologies, or the economies of local areas. This makes it hard to decide where and how to invest, or for decision-makers to have confidence in investment decisions; it also makes it hard to keep an eye on how policies are working. In the absence of timely, relevant data, inertia wins the day: investment happens in the south east, we fail to focus our resources on promising industries or technologies, potentially damaging acquisitions are waved through with no challenge.
21. The data revolution is creating new opportunities to address some of these challenges. It is now possible to use big data to map innovation networks, and public and open datasets to obtain a more comprehensive view of local innovation systems and the businesses that operate in them.
22. Nesta has for the last five years been building tools to analyse industrial and innovation ecosystems, understand the relative performance of different technologies, and map sectors and clusters such as the Arloesiadur platform we developed with the Welsh government or our map of the UK's drones industry. In this, we have worked with leading start-ups and researchers to build data sources on the economy that would have been impossible or prohibitively expensive five years ago.
23. In particular, Nesta has worked on developing an investigating specific tools that will be of use in informing policies to harness innovation for economic growth and decarbonisation.
  - 23.1. As outlined in the report 'Innovation Mapping Now', Nesta's Innovation Mapping team have been developing a set of approaches to provide new, more detailed and timely data, powerful analytics and ways of presenting information
  - 23.2. Likewise, as explored in the report 'Testing Innovation in the Real World', Nesta has been working on the use of real world testbeds to produce data and insights about how new technologies and ideas work in practice.
24. Nesta believe that there needs to be greater investment in these techniques and data sources to build a much more nuanced picture of where innovation is happening, throughout the UK,

identifying where support for innovation is really needed and then tailoring policy accordingly.

*September 2020*

## **Annex A: About Nesta**

Nesta is a global innovation foundation. We back new ideas to tackle the big challenges of our time.

We use our knowledge, networks, funding and skills - working in partnership with others, including governments, businesses and charities. We are a UK charity but work all over the world, supported by a financial endowment.

To find out more visit [www.nesta.org.uk](http://www.nesta.org.uk)

At Nesta we are experts in methods for innovation. We apply these methods in priority fields where there are big challenges and our capacities are suited to the action that's needed: health; education; government innovation; the creative economy, arts and culture; and innovation policy.

In each field we bring together research, funding for practical work, convening and advocacy - focusing on areas where the combination of digital technology, empowered individuals, and better use of data and evidence can have the biggest impact.

**Health:** We explore how people can better use technology, data and mutual support to manage and improve their health and wellbeing.

**Education:** We are preparing young people for an increasingly digital workplace by understanding the future of work, backing digital learning technologies and campaigning for more creative, robot-resistant skills.

**Government Innovation:** We help governments achieve more with less, making the most of digital technologies to engage their populations in decisions and the daily life of public services.

**The Creative Economy, Arts and Culture:** We help arts and cultural organisations develop new sources of funding and reach new audiences. And we advise governments at every level on how to grow the creative economy.

**Innovation Policy:** We gather, analyse and spread the best methods from around the world that governments can use to support successful innovation in the economy and society.

*September 2020*