Agents of Change

Making innovation agencies as innovative as those they support

Alex Glennie

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1. The changing role of innovation agencies

In chemistry, a catalyst is a substance that speeds up a reaction without being consumed or changed itself by the process. It typically does this by reducing the energy needed to activate a reaction, or by changing the way a reaction works.

National innovation agencies[1] – defined broadly as government-funded or managed bodies that work to stimulate innovation-based entrepreneurship and growth – are often described as catalysts. The metaphor is apt. Innovation agencies reduce the energy required to 'activate' innovation by giving financial support to entrepreneurs or businesses engaging in research and development that might otherwise struggle to attract investment from the market. They can also change the way that innovators work – for example, by helping them to develop the skills and capabilities required to build and scale a business.

However, the metaphor has some limitations. First, it suggests that supporting innovation is like a scientific process, where the addition of specific inputs will lead to predictable results. The reality is rarely quite so neat and tidy. As most organisations involved in funding or managing innovation will know, the road to supporting a successful new invention, business process or service is instead usually paved with failed experiments, changes of direction and unexpected outcomes. As a result, innovation agencies need to be able to adapt and pivot in response to what they learn along the way, rather than sticking to a rigid model of support.

Second, catalysts are unchanged by the reactions they provoke. Yet the one constant for innovation agencies around the world is change. Their mission, structure and approach is prone to evolving significantly and sometimes quite suddenly. This is usually prompted by some combination of shifting political priorities and budgets, major societal or economic developments, and the changing needs of innovators themselves.

Innovate UK – the UK's innovation agency – is a good example of this. It was originally set up in 2004 as a small expert panel of advisors to government. In 2007 it was constituted as an arm's length executive agency and over the next decade grew into an organisation with more than 400 staff and a budget of over £1 billion. It is responsible for multiple programmes in the UK and internationally that fund and connect businesses to help them innovate. In 2018 it moved from being a relatively autonomous government agency to being part of a new superstructure called UK Research and Innovation (UKRI), which gathers the UK's research and business funding agencies together under a new umbrella organisation. While it is too early to assess the impact of this shift, it is reasonable to assume that situating Innovate UK closer to government and to the priorities of academic research bodies will affect both its culture and its mission - perhaps by giving it less room to support businesses that fall outside 'priority' sectors.

Similar stories of evolution and alteration can be found in government innovation agencies around the world. 'Agents of change' therefore feels like a better description of the purpose of an innovation agency, which could be articulated as follows:

Institutions designed to drive innovation-fuelled entrepreneurship and growth across economies and societies, that must simultaneously keep experimenting, adapting and innovating themselves.

This does not imply that every innovation agency needs to be on an identical development path. Existing research – including Nesta's own work[2] – has shown that there are many possible missions and operating models for these bodies.[3] The approach they take will necessarily depend on the size, budget and capabilities of the agency itself, the interests and priorities of those who fund it, and wider conditions within the economy and society.

However, even if there is no 'one size fits all' model or common trajectory for innovation agencies to follow, there is still a great deal of value in thinking about the range of plausible and possible futures that face these organisations. Doing so can help to challenge some of the assumptions underlying current ways of thinking and doing things, and enable more effective choices to be made about where to focus attention and resources in the future.

This paper aims to start a conversation about the principles that should inform the actions of innovation agencies in the future. The sections below are designed to help these agencies to reflect on common challenges and opportunities that they are facing in the years ahead, think about how they can become more innovative in their approach to supporting innovation, and to consider ways of being proactive agents of change. It is not a set of predictions or guidelines, but rather ideas and questions that will hopefully support innovation agencies to strategically navigate an ever-changing future.

2. What are the big challenges and opportunities on the horizon for innovation agencies?

The nature and pace of global technological, economic, social, political and environmental change means that innovation is being called upon to solve ever more complex problems. As a result, the remit of many innovation agencies has become increasingly expansive, and there are new choices to be made about the most appropriate units of intervention – individual entrepreneurs, companies, innovations, or the wider innovation ecosystem. This brings both opportunities and challenges. From Nesta's recent research and work with innovation agencies around the world, we highlight three of the key trends affecting the way that innovation agencies may need to think about their roles and responsibilities in the future.

2.1 Shifting to an 'innovator-centric' model of support

Assessments of innovation agencies' impact tend to focus on the economic returns generated by the financial investments they make, including grants, loans, equity investments and others.[4] However, the majority of these agencies also offer a variety of non-financial types of support, such as coaching and mentoring, advice on business development, support for internationalisation and skills training. These are often described as 'soft' services, but innovation agencies consider them to be a significant part of the value that they add.

In 2018–19, Nesta partnered with the TAFTIE network of European innovation agencies on a task force that aimed to better understand the range of non-financial services that innovation agencies provide.[5] It mapped the profiles, services and skills of 24 innovation agencies across Europe. This research was grounded in the recognition that innovators need more than money in order to develop the resilience, skills, capabilities and networks that are required to take ideas from concept through to implementation – but that we still don't know enough about the different types of services on offer and how they can be targeted most effectively.

One of our key findings during this research was that the way in which innovation agencies are thinking about supporting innovators is undergoing a significant shift. This can be seen at both the national and international level.

For example, the development of Horizon Europe – the €100 billion framework programme that will underpin the European Commission's next decade of investment in research and innovation – has launched a debate on how to support innovators in a way that takes account of their individual needs and challenges. In 2018, EU Commissioner for Research,

Science and Innovation, Carlos Moedas, acknowledged that this was something that the EU and other funders had struggled with previously. He asserted that Horizon Europe would *"look at innovation the other way around – bottom up. We will be close to (the entrepreneurs), we will mentor them, we'll be more than the money, we'll be about following up what they do, about giving them data that they need."*[6]

The TAFTIE research observed that many national innovation agencies are moving in a similar direction. For example, Enterprise Ireland – the government agency responsible for the development and growth of Irish enterprises in global markets – has developed a structured 'client engagement model' that puts the innovator at the centre.[7] Rather than 'selling' a predetermined set of services, it starts with a diagnostic process that identifies a company's growth opportunities and pain points. A multi-year support plan is then jointly agreed and implemented through a 'team-to-team' engagement, involving the client companies' management team and a team drawn from across Enterprise Ireland.

This kind of 'innovator-centric' approach has many advantages. It enables innovation agencies to go beyond assessing the viability of individual ideas or projects and understand whether the innovator has the capability to actually implement them. It also allows them to develop more tailored and relevant services that can support innovators to develop their ideas and their businesses.

However, this operating model also has its challenges. There are limits on the numbers of innovators that can be supported in this way, since it is a much more time and resource-intensive process. This also makes it more difficult to budget and plan for. Competent programme managers can deliver predictable sets of services that don't require much differentiation between individual clients. Different skills are required to get under the skin of an innovative business, understand its needs and its potential, and then deliver targeted support. This requires innovation agencies to rethink the kinds of skills and capabilities they will require in the future.

? Questions for reflection

- What would it mean for your agency to deliver support in a more tailored and innovator-centric way? What could you gain? What might you lose?

- What changes would your agency have to make to implement this kind of approach? What obstacles might you face?

- Does your agency have the skills and capabilities required to provide more innovator-centric support? If not, how might you acquire or develop them?

2.2 **Playing a role in mission-oriented innovation policies**

The use of 'missions' to pursue ambitious societal objectives is a hot topic in the innovation policy world. It isn't a new concept, but it has had a revival in recent years in response to fresh academic thinking[8] and practical initiatives like the Sustainable Development Goals,[9] the European Commission's new approach to research and innovation promotion,[10] and the clean energy Mission Innovation programme.[11] These missions aim to direct and coordinate a diverse range of actors towards solving some of the biggest challenges we face – such as climate change, poverty and inequality.

Many individual countries are also pursuing mission-oriented policies. Germany's 'Energiewende' programme – aimed at moving Germany from an energy system based on fossil fuels to one based on renewable energy sources by 2050 – is frequently held up as an example of this.[12] It involves a set of specific and measurable targets and actions, and has required the participation of many different stakeholders, including government, industry and citizens.

The UK's current industrial strategy has also been heavily shaped by 'missions thinking'. Its centrepiece is an Industrial Strategy Challenge Fund, which brings together researchers and businesses to tackle major societal challenges. A large number of missions have been established, ranging from achieving industrial decarbonisation through to the use of artificial intelligence to speed up the detection of disease.[13]

Many innovation agencies sit at the intersection between government, the research community, innovative businesses and other innovation support intermediaries, and are often responsible for making or promoting connections between them. This means that they are potentially well placed to drive the coordination of these missions. Some already do – for example, Innovate UK plays a key role in delivering the country's industrial strategy.

University College London's Professor Mariana Mazzucato recently released a new report on the governance of large-scale innovation policy missions, as part of the European Commission's preparation for the Horizon Europe programme.[14] A key area of focus is the public sector capabilities required to do missions well, where she suggests that *"optimal impact would be achieved by setting up a mission strategy and coordination under the direct responsibility of the highest offices of the executive power."* However, she also recommends that the management of a mission-oriented system should have *"independence from more bureaucratic branches of government."*

This could pose a dilemma for innovation agencies that are tasked with taking a central role in developing and implementing mission-oriented policies.[15] Recent research by Nesta and others highlights that these agencies sit on a wide spectrum in terms of their autonomy and relationship with government. Some are extremely centralised and well resourced (as Brazil's FINEP was for many years before the recent change in government[16]) while others are more autonomous and radically experimental (as organisations like Finland's Sitra and Israel's Office of the Chief Scientist have been in earlier eras[17]).

Both models have their advantages and drawbacks, but the governance of cross-sectoral missions is likely to require an unusual combination of convening and funding power alongside agility and a will (and mandate) to experiment. Few innovation agencies currently match this description.

The Defense Advanced Research Projects Agency (DARPA) in the United States is often held up as an exemplar here and there is much to learn from their approach.

However, most countries are unable to marshal the kind of financial and political resources that sustain DARPA, and as some commentators have observed, there is a danger in thinking that such large missions could be accomplished on a much reduced scale.[18]

It is also worth remembering that the mission of DARPA relates to achieving military superiority and developing new defensive technologies – making it an outlier among agencies that focus more on innovation-led support for business entrepreneurship. There are interesting examples of innovation agencies that are pursuing more overtly 'social' missions which could serve as an inspiration here. For example, Vinnova in Sweden runs a challenge-driven innovation programme which is based around addressing global sustainability goals.[19]

There is undoubtedly a valuable role for some innovation agencies to play in coordinating and collaborating with others to solve large-scale societal challenges. But there are also some key questions to answer to help determine what this role might look like in different country contexts.

? Questions for reflection

- What are the key challenges facing your country that could benefit from a mission-oriented approach to innovation policy? How do these relate to your agency's mandate and responsibilities?

- What is the unique contribution your agency could make to the coordination or delivery of mission-oriented policies?

- Does your agency have the power and the capabilities it needs to convene or implement missions? What methods and tools would you use to operationalise these missions?

2.3 **Delivering more inclusive forms of innovation**

To date, there has been little consideration of whether innovation policy has a responsibility to generate shared social value. There has been an implicit assumption that what matters is just that innovation happens and that its benefits will eventually trickle down to everyone. Yet the relationship between innovation and inequality appears to be much more complex than this.[20] Policies that fail to consider who the winners and losers of innovation may be, risk contributing to the development of economies where innovative activity is concentrated in a small number of places and firms and where lots of people are left out of the knowledge economy.[21]

Concerns about this prospect has led to calls for more inclusive forms of innovation – from emerging and developed economies alike.[22] This requires policymakers to recognise that not everyone is equally well placed to benefit from innovation, to participate in the innovative economy, or to shape the priority issues that innovation policies focus on. For example, recent Nesta work has set out an inclusive innovation policy framework.[23] It contends that innovation policies may be inclusive if they are concerned with:

- Focusing the **direction** of innovation towards inclusive goals: policies that acknowledge the differing impact innovation may have on different social groups and that attempt to meet the needs of a broad section of society, including groups that are particularly marginalised or excluded.

- Broadening **participation** in innovation: policies that seek to encourage broad participation in terms of who is employed as an innovator or in innovative sectors. Such policies may focus on social groups, regions, or economic sectors.

- Inclusive **governance** of innovation: policies that actively involve a wide section of society in setting priorities for innovation, and seek to regulate and govern innovation in a way that fairly shares its benefits and mitigates its tendency towards reproducing inequality.

What role can innovation agencies play in this emerging agenda? And how might it conflict with their current priorities? For example, many funding bodies take an 'excellence-led' approach to allocating their resources – supporting innovators with the highest growth potential and ability to succeed. Yet these tend to be the individuals and businesses who already benefit from structural advantages and opportunities.

There are some interesting examples of innovation agencies that are currently engaging with these different aspects of inclusion. Looking at the direction of policy, the Israel Innovation Authority has in recent years set up a Societal Challenges Division within their organisational structure.[24] This programme supports the development of technologies that meet the needs of those who are not well served by innovation – such as the disabled community, periphery communities and traditional industries - and creates incentives for

startups run by ethnic minorities in Israel, including the country's Arab population. However, the amount of budget that is allocated to this division is very small compared with the rest of the agency's programmes, suggesting that it is not yet on a par with the other areas the agency invests in, such as technological infrastructure and advanced manufacturing. What would it mean for innovation agencies to put inclusion and fairness at the heart of their policy objectives?

To increase participation and diversity among the proportion of the population involved in innovation, some agencies have developed initiatives that target particular groups, regions or sectors. For example, Innovate UK has focused particularly on supporting female innovators and entrepreneurs. In 2016 it set up a programme called Women in Innovation, which has given grants and tailored support to innovative businesses and projects led by women.[25] Early results indicate that there has been a growth in female applicants for Innovate UK funding. But how can this model be developed and mainstreamed – so that everyone has an opportunity to participate without the need for special initiatives? Is there a role for innovation agencies in working more closely with the education system, for example, to try and increase early exposure to innovation?[26] Also, how could programmes be set up to better address intersectionality, rather than single characteristics (ie gender) as eligibility criteria?

In September 2019, a new 'Futurium' will open in Germany – a physical space that aims to be a 'museum and laboratory of the future', in which people from different spheres of society can come together to explore and debate future trends and technologies.[27] It was developed partly in response to a consultation exercise that ran during the development of Germany's High-Tech Strategy and a desire for more regular activity of this kind. This could be a way to involve more citizens in conversations about the governance of innovation policies. But the Futurium is located in the capital city of Berlin, raising questions about how it will encourage people from across Germany to participate in its activities. It also remains unclear how policymakers can actually use - and be accountable for using - the ideas that emerge from these kinds of forums.

There are huge opportunities for innovation agencies to contribute to the development of more inclusive innovation-led economies and societies. But progress will depend on much more effective coordination and collaboration across the public and private sectors, and a sustained commitment to engaging citizens and innovators in selecting and solving the biggest challenges we face as a society.

? Questions for reflection

- In what ways are your agency's programmes currently engaging with different aspects of inclusion? Where is activity focused and where are the gaps?

- Are there any ways in which the inclusion agenda conflicts with your agency's existing priorities and provision of support?

- Who else – inside or outside government – does your agency need to work with on this agenda?

3. How can innovation agencies be as innovative as those they support?

The previous section outlined some of the big external changes and choices currently facing innovation agencies. What kinds of internal changes might these necessitate? From discussions and observations of innovation agencies around the world over the past few years, we know that one of the most critical issues is ensuring that the agency is as innovative and cutting-edge as the businesses, researchers and others that it supports.

It is ironic that the institutions charged with encouraging the development of new ideas and ways of doing things tend to be fairly traditional in their own methods, with tax credits and R&D grants remaining the preferred instruments with which governments seek to stimulate innovation and growth.[28] New tools and approaches are emerging,[29] but they are not yet as widespread.

Nesta's 2016 typology of innovation agencies included a category of 'system optimisers', which we defined as agencies that work towards making sure there is continued global competitiveness and creating more effective and enabling innovation systems by experimenting with new policy and programme mixes. But it was hard to find a clear example of this kind of agency – it was more an aspirational agency type, assembled from elements of different case studies we looked at.

There are logical reasons for this. While private sector innovators (or innovation funders) frequently have a mentality of 'moving fast and breaking things', there is an expectation that governments should be more responsible in their use of public money, to invest in things that have a high likelihood of generating economic or social returns. Supporting early stage or high-risk innovations can be at odds with the mandate of many innovation agencies to build businesses that will scale.

Yet it is crucial for innovation agencies to think about how they can be more innovative in their own missions and practices and, importantly, to gather evidence about what works. There are a number of new methods of supporting innovation that are being trialled around the world, many of which are described in a recent Nesta report.[30]

Here we outline three approaches that government innovation agencies could make more effective use of, along with some current examples of practice and questions for reflection. It is not meant to be an exhaustive list, but rather to provide inspiration and prompt more imaginative thinking about what might be possible.

3.1 Experimenting and learning about what works in innovation policy

Experimentation is commonly defined and understood as simply 'trying something new'. Yet this misses a crucial part of the reason for experimenting in the first place, which is to learn something new, or to discover whether something works or not.[31] There is a difference between innovating for innovation's sake and doing it in a methodical way that will generate evidence that others can learn from.

Across the policy world, there is growing interest in using experimental methodologies to explore new ideas, test assumptions, evaluate the impact of different interventions and learn about what works on a small scale before rolling out large and untested programmes. This should be a priority for innovation policymakers and agencies, given that they operate in spaces where knowledge and evidence is particularly scarce, and where the stakes are high when it comes to placing bets about where limited government resources should be directed.

The box below provides an example from work that the Innovation Growth Lab (IGL)[32] has been doing with innovation agencies in recent years.

Experimentation in action

The IGL is a global collaboration that uses different experimental methods – such as randomised controlled trials, A/B tests or rapid-cycle experiments – to improve the design of the programmes and institutions that help make economies more innovative and entrepreneurial. IGL works with policymakers, practitioners and researchers to design trials that can generate robust evidence on what works in innovation and growth policies.

Innovate UK has been working with IGL to trial an evidence based approach to evaluating diversity and inclusion initiatives. In 2016, Innovate UK launched the Women in Innovation programme and campaign in response to research that found only one in seven (14 per cent) of applications to Innovate UK's funding and support were led by women. The Women in Innovation programme has been influential in driving up the number of applications led by women by 70 per cent, through targeted funding and support, successful media campaigns and the creation of new role models, Innovate UK is currently developing new approaches to embed diversity and inclusion across all programme activity.

Data from previous competitions have shown no gender gap in assessor scores among applicants. However, less women begin the application process, and even when they start, women are somewhat less likely to complete and submit their application than men. Innovate UK and IGL are currently exploring options to address the gender gap in information dissemination e.g. via the Innovate UK newsletter. This work includes the design of 'messaging trials', small experiments that systematically compare the outcomes of different approaches and help identify the most effective strategies to communicate the available funding options to a wider range of potential applicants and to encourage a more diverse group of innovators to respond to funding calls.

? Questions for reflection

- Does your agency currently use experimental methods to design or assess the impact of its policies and programmes?

- What are the main barriers to conducting more experiments of this kind?

- What would be the key benefits for your agency of using experimental methods? What questions would they help you to answer?

3.2 Using data to promote more accurate and timely policymaking

Official data on the location, pace and types of innovation in the economy tend to lag well behind what is actually happening. Industrial codes are often out of date, reflecting the sectors and industries of the twentieth century rather than emergent fields, such as applications of artificial intelligence, immersive technologies and clean technology. This means that innovation policymakers are perpetually running to catch up with themselves when trying to make strategic decisions about where and how to invest and provide support.

New forms of data, and techniques for measuring and visualising this data, can help to fill in these gaps and address complex questions about why investments in R&D are not leading to expected outcomes in terms of productivity, broadly-based prosperity, wellbeing and sustainability.[33] Innovation agencies – who are often working with the most innovative businesses and individuals in societies – are well placed to be collecting and using new forms of data, to ensure that their support programmes are as impactful as possible.

The box below below outlines how Nesta's innovation mapping team[34] is working with governments to improve their ability to find and use new forms of innovation data.

Creating a real-time picture of innovation

Nesta's innovation mapping team uses new data sources, data science methods and visualisation tools to help policymakers navigate complex innovation systems and build more real-time pictures of where innovation is happening, who is doing it and what interventions could be helpful. It does this by collecting and assessing data from business websites, open repositories of scientific research and social media, using analytical techniques such as Natural Language Processing, and applying network science methods to understand the links and the gaps between different communities in the innovation world.

One example of this is a partnership with the Welsh government to create a dashboard that maps innovation in Wales. The Arloesiadur project has used new forms of data (such as evidence on tech networks drawn from the Meetup site) to measure and visualise research trends, and to look at different industry, research and tech networks.[35] The goal is to provide the government with an up-to-date picture of where innovation is happening, and the strengths and growth opportunities to exploit.

? Questions for reflection

- What are the main data sources your agency uses to inform strategic decision-making and programme design? What data are you missing?

- What urgent questions for your agency could new forms of data help you solve?

- What skills and capabilities does your agency need to be able to effectively map and exploit new forms of data?

3.3 **Applying design approaches to innovation policymaking**

When policy is created without the involvement of those it intends to serve, it risks being both irrelevant and ineffective. This insight has led to the emergence of a 'design for policy' movement, which promotes the use of methods such as iteration, prototyping and user experience techniques to help policymakers be more user-centred, experimental and collaborative.[36]

As innovation agencies shift towards providing more tailored and responsive support to innovators, there is much that can be learnt from the world of design. In particular, it can help them to get to the root of what innovators need so that they can structure their support programmes accordingly.[37]

The box below describes how design-thinking ideas and processes have been used in a development programme that supports innovation agencies in different countries.

Designing more user-centred innovation policies

The Global Innovation Policy Accelerator[38] (funded by Innovate UK and run by a Nesta-led consortium) is a collaborative development programme for senior innovation policymakers around the world. It facilitates the formation of small cross-innovation system teams in different countries and then encourages them to act as 'policy entrepreneurs'; jointly developing new ideas for policies or programmes that are then 'accelerated' through a structured set of learning experiences.

In the past three years, the Global Innovation Policy Accelerator has supported 17 teams from 11 countries, including India, Brazil, and the regions of Latin America and South East Asia.

During the nine-month programme, participants complete a collaborative project that follows an adaptation of the 'double diamond' principle of design – a model that requires both divergent and convergent thinking at different stages of the process.[39]

For example, the Chilean team that took part in the programme in 2016–17 was made up of individuals from the national innovation agency (Corfo), the Ministry of the Economy and the Ministry of Education. Together, they developed and piloted a new curriculum for technical colleges across Chile that included more skills, tools and techniques around innovation and creativity.

? Questions for reflection

- How does your agency currently seek to understand the needs of those who use or benefit from its programmes and services?

- How could your users be brought into the process of co-designing programmes and services?

- What kind of support would your agency need in order to more effectively use design methods and practices?

4. Principles for operating as active agents of change

The missions and structures of innovation agencies are prone to change. Yet these changes are often extrinsically rather than intrinsically motivated, resulting from political transitions that bring new values and priorities into the design of research and innovation policies.

Political, economic and societal change is inevitable, and innovation agencies cannot – and indeed, should not – spend lots of energy trying to prevent or resist these shifts. But they can do more to ensure that when unanticipated changes come, they are ready to proactively make the most of them. To borrow another idea from chemistry, they have an opportunity to be 'active agents' of change – substances that produce reactions – rather than passive respondents to it.

This paper concludes by offering some principles to guide innovation agencies that aspire to be agents of change – stimulating innovation for growth and good, and continuing to push the boundaries of support for ground-breaking innovations. They should be:

Inclusive: Representative of the populations they aim to serve

Inclusive innovation policies depend on more than dedicated programmes and investments. Recent research has indicated that innovation policymakers often have similar educational backgrounds or professional experiences, which can lead to the risk of 'groupthink' driving decision-making processes.[40] If we want more inclusive and diverse innovation systems, then we need to ensure that the backgrounds and skills of decision-makers within these systems are also diverse. Collecting data on the backgrounds and profile of innovation agency staff is a good place to start. The next step is for innovation agencies to actively recruit to ensure that they are staffed by a team that understand the needs of all kinds of innovators – not just those who are already best placed to succeed.

Collaborative: Focused on learning from and sharing with others

There are intergovernmental bodies like the World Bank, the Interamerican Development Bank and the European Commission – that work with innovation agencies in individual countries. There are regional networks, like ASEAN, TAFTIE and EUREKA – that bring together agencies from different geographies. And there are non-governmental networks and programmes, like Nesta's Innovation Growth Lab and Global Innovation Policy Accelerator programme, which convene agencies around key themes or methodologies, such as experimentation or design for policy. Yet 'innovation diplomacy' – the art of working across different systems to create new ideas from collaborative research and development – remains very difficult to do in practice.[41] Innovation agencies should seek more sustained ways of working together on specific programmes and projects that will generate mutual value, while simultaneously generating insights on how to build successful collaborations.[42] This applies as much to collaboration within national innovation systems as it does to international collaborations.

Future-facing: Prepared for a range of possible futures

Much like innovation, the future can unfold in a variety of ways, depending on the behaviour of different actors and the environments in which they operate. The global financial crisis is a good example of this. It took the world apparently by surprise, even if in retrospect a lot of the causal factors were evident at the time. Assuming that the future is a relatively straight line that can be foreseen and planned for can be dangerous – this creates blinkers that could prevent dangers or opportunities from being identified and addressed in good time. Yet there are techniques that can help us to imagine and plan for a range of plausible and possible future scenarios.[43] Innovation agencies should make greater use of these tools – not just to prepare for their own organisational futures, but also to proactively help innovators spot opportunities to solve the biggest problems we will face in the years ahead.

Endnotes

1. There are many of these agencies around the world and they support innovators in a range of ways, including through the provision of funding and advisory and support services. For more detail see Glennie A and Bound K (2016) How Innovation Agencies Work: International lessons to inspire and inform national strategies, London: Nesta, available at: https://media.nesta.org.uk/documents/how_innovation_agencies_work.pdf

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5. See: https://www.taftie.org/content/task-force-softpower

6. See: https://horizon-magazine.eu/article/horizon-europe-will-connect-public-european-science-carlos-moedas.html

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8. See: https://www.ucl.ac.uk/bartlett/public-purpose/policy/innovation-policy

9. See: https://sustainabledevelopment.un.org/?menu=1300

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11. See: http://mission-innovation.net

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16. See: Brazil case study in Glennie and Bound (2016).

17. Breznitz D and Ornston D (2013) 'The Revolutionary Power of Peripheral Agencies: Explaining Radical Policy Innovation in Finland and Israel', Comparative Political Studies, Volume 46: 10, p.1219-1245.

18. Westlake S (2016) 'The Quantity Theory of Innovation Policy (or: why you probably don't need a DARPA)' available at: https://www.nesta.org.uk/blog/the-quantity-theory-of-innovation-policy-or-why-you-probably-dont-need-a-darpa

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About Nesta

Nesta is an innovation foundation. For us, innovation means turning bold ideas into reality and changing lives for the better.

We use our expertise, skills and funding in areas where there are big challenges facing society.

Nesta is based in the UK and supported by a financial endowment. We work with partners around the globe to bring bold ideas to life to change the world for good.

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nesta

58 Victoria Embankment
London EC4Y 0DS

+44 (0)20 7438 2500

information@nesta.org.uk

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