20 Tools for Innovating in Government

Compiled by Vicki Sellick

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.

20 Tools for Innovating in Government

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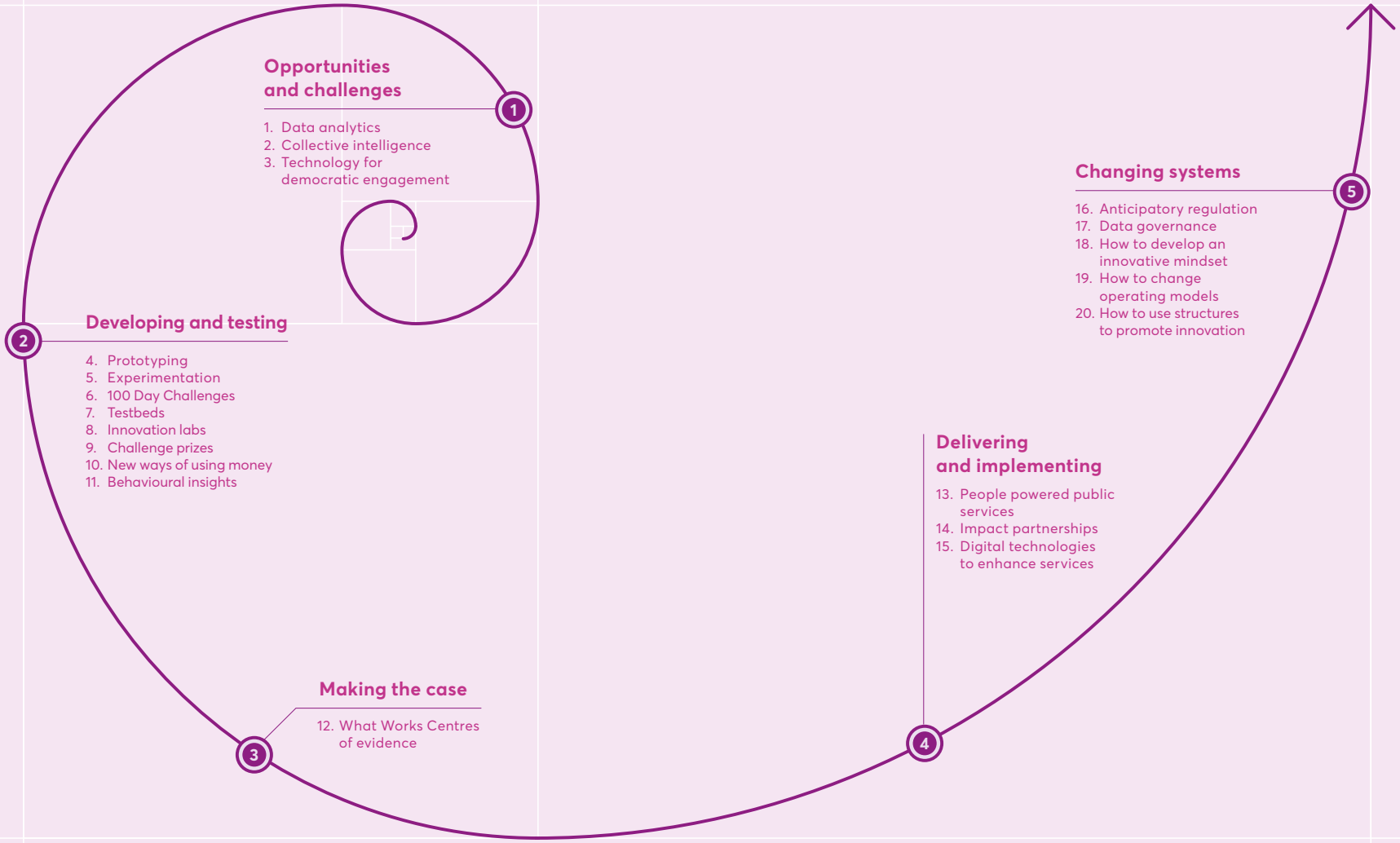
The innovation spiral

Every innovation evolves through stages, as represented on the diagram below, although usually with a number of feedback and iteration loops. Each of the 20 tools in this handbook supports a different stage of the innovation process, from tools to identify new opportunities through to tools for testing ideas or changing whole systems.



Introduction

The 21st-century public servant is expected to be adept at change. The best will also have access to the tools of an innovator and have embraced a growth mindset which looks outwards to new possibilities.

This shift in public servant skill sets has been catalysed, in the UK at least, by cuts to public sector budgets which mean services can no longer be delivered as they once were, as well as soaring demand from ageing populations. But efficiency and demand aside, perhaps the primary motivator has been governments around the world seeking out a new role, moving away from the paternalistic institutions that did things to and for people, and towards a role as facilitators of new solutions for places and economies. These changes require a reimagining of the public sector, which in turn requires government innovators.

Being an innovator inside or alongside government can feel isolating. Whereas entrepreneurs in the private sector are now overwhelmed with advice and finance, government innovators have fewer support structures, finance options and mentors to draw from.

This handbook is designed for those innovators seeking to make change happen. It's a digest of 20 tools that are proven to help innovation flourish inside government, based on our work over more than a decade in UK local and central government, as well as with more than 30 international governments. So whether you are a delivery manager or a policymaker, whether you work in national or local government, whether your role is externally or internally facing, this handbook is for you.

There are many ways to bring good ideas to life. Nesta's experience is that many innovators, especially in government, lean on just a few tools, rather than picking the best one for the job. Here we cover 20 evidence-based tools, designed

to help you bring bold ideas to life to help change lives from within government. The tools span the full innovation lifecycle; from uncovering new insights to generating new ideas, to tools for developing and testing, through to tools to support system change.

Some of the tools exploit new technologies like artificial intelligence (AI) and data analytics. Others harness insights from new sources, including frontline workers and citizens, like 100 Day Challenges, collective intelligence and people powered public services. Some use new methods of finance like challenge prizes, matched crowdfunding and loans to public servants.

Some of the tools are well established. It was back in 2010 that Nesta helped local government in the UK embrace methods from the design studio like prototyping. In the same year, the Behavioural Insights Team was running its first behavioural 'nudge' experiments. Both are now much more mainstream in government. Other tools are still emerging, like collective intelligence or anticipatory regulation, a term Nesta coined in 2016 to describe the tools government can use to work well with emerging technologies like drones, blockchain and AI.

For each section you will find: an explanation of the tool, including how Nesta has supported public servants to use it in context; a series of case studies with evidence of impact; and a list of links and further reading if you want to go deeper.

We hope this handbook is a useful digest for government innovators everywhere. If you have any tools to add or if you would like to talk about applying any of these tools in your context, please get in touch at government.innovation@nesta.org.uk

Vicki Sellick
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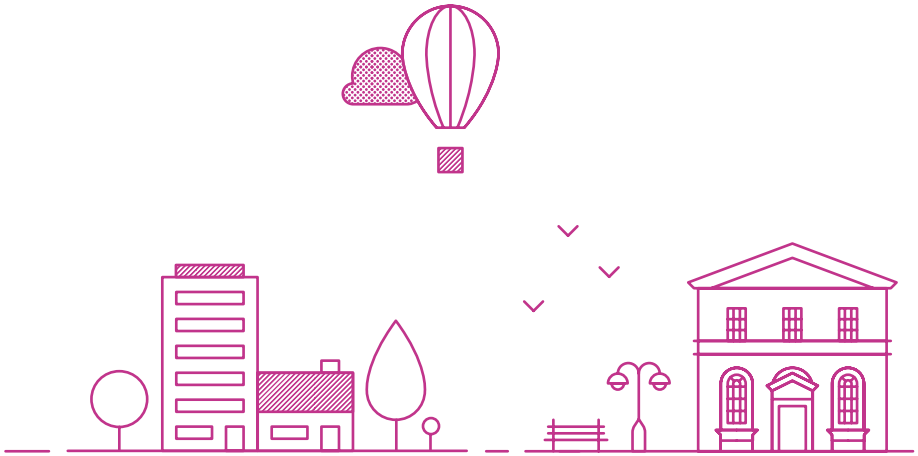


Data analytics

Data analytics is the discovery, interpretation, and communication of meaningful patterns in data. It can be used by government to glean new insights.

1

Data analytics

There are many areas where data analytics can make, and is already making, a difference in the way governments operate. For instance:

- **Earlier intervention and prevention:** Using predictive analytics, public services can move from the standard mode of addressing failure after it happens, to early intervention and prevention. For example, by analysing trends of what happened in the past, why it happened and what is likely to happen, it is possible to identify buildings at risk of fire or road networks at risk of serious accidents, and take early action to reduce risk and costs.
- **Faster and better decision-making:** By bringing together complete, reliable and timely information, frontline teams and organisations can optimise their way of working, making more informed and impactful decisions at the same time. For example, the use of dashboards that collate multiple sources of information means that everyone from police inspectors to social workers can have complete, real-time data on the progress of a child at risk to improve their decision-making.
- **Resource targeting and personalisation of services:** By having a better understanding of individuals or groups of people, agencies are able to target resources at the areas most in need, or even tailor services based on the needs of their citizens.

apps.geowessex.com/stats/Dashboards

Collecting, storing and using data to turn it into meaningful insight is complex in government. Data is often held in different public sector agencies (e.g. councils, police forces, job centres, regulatory bodies etc.), but it's hard for anyone to put all the pieces together to see what the big picture shows, and there are important ethical and legal constraints on sharing data. That's why thoughtful collaboration is so important.

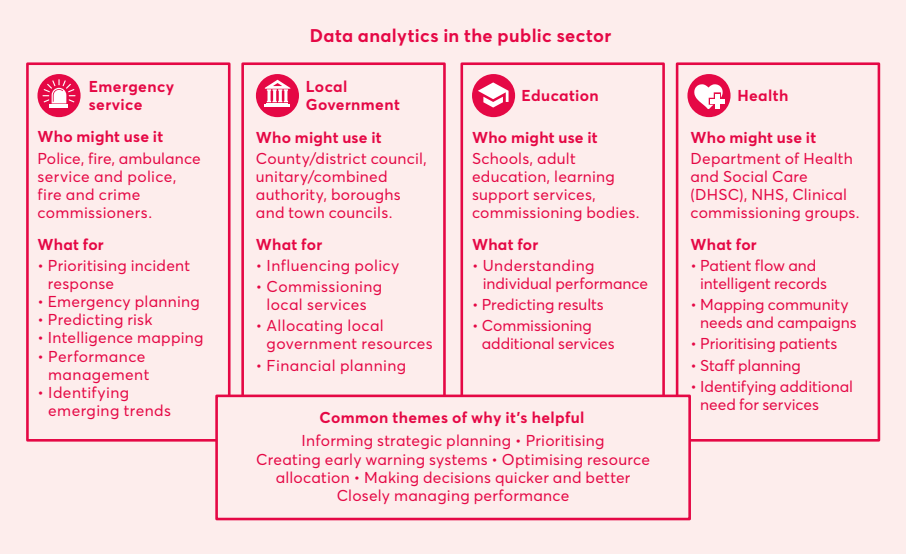


Fig. 1
Data analytics in the public sector, *State of Offices of Data Analytics in the UK*, Nesta (December 2018).

Around a decade ago, a number of pioneering cities – London, Seoul, Beijing and New York included – began to champion the opportunities presented by big data and set up new infrastructures to make good use of it. Nesta joined this movement, seeking to spread the successes to other cities in the UK by supporting places to create a multi-agency Office for Data Analytics. We ran pilots in London, the north east of England and Essex, and now support a network of many more. We've found the best have four common elements:

- Firstly, identifying a specific problem is key. The problem statement needs to be formulated in a way that moves away from general, macro-level issues (e.g. 'I want to know the most pressing problem of my area'), to something specific and actionable.
- With a specific problem in mind, the second step is to define all actions or interventions that could be ideally put in place to address it. However, many public sector issues depend on, or are affected by, the actions of other organisations, or even citizens themselves, over which they have little or no control. An important feature of the defined action is therefore that they should be within the organisation's control to change.

datadriven.nola.gov/nolalytics

- It is highly unlikely that a frontline worker or service manager will want to see a spreadsheet or raw data. So once the intervention is defined, it is important to decide what form the data should take to be conveyed in a way that provides a real insight – that's what we mean by a 'data product'. Below we've categorised five specific problem types, opportunities and possible examples of data products:

Fig. 2
Problem types, opportunities and data products, *State of Offices of Data Analytics in the UK*, Nesta (December 2018).

Five specific problem types	Opportunity	Example data product
Targets are difficult to identify within a broader population.	Identifying specific cases in a wider group.	A graph showing anomalies or outliers.
Services do not categorise high-priority cases early.	Prioritising cases based on risk or need.	A prioritised list.
Resources are overly focused on reactive services.	Creating early warning tools for proactive working.	An alert to flag issues when a threshold has been reached.
Repeated decisions are made without access to all relevant information.	Making better, quicker decisions.	A data visualisation.
Assets are scheduled or deployed without the input of the latest service data.	Optimising resource allocation.	A map or heat map showing where cases occur.

- The last step is to understand what data are needed to create the data product, from which sources, and how the data can be accessed. If it doesn't exist, it could be useful to consider:
  a. Are there datasets that might contribute a similar type of information, or act as a proxy measure?
  b. Would it be possible to start collecting data to make the analysis possible in future?

Case studies

Essex Centre for Data Analytics

The Essex Centre for Data Analytics was established to create a whole-system approach for integrating data from different partners, mainly public sector agencies, and predict risk in order to reduce vulnerability.

In 2018, Essex Police and Essex County Council, together with Nesta, launched a pilot to identify businesses that pose risk to the local population. The final data product is a business look-up tool for all inspections, complaint and enforcement data, which will a) concisely display chronological history of interactions across services and b) include additional scoring or weighting mechanisms to highlight businesses potentially requiring closer inspection.

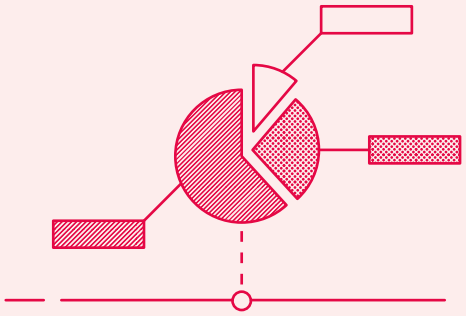
Nesta has been sharing the experiences of establishing Offices of Data Analytics (ODA) with councils around the country, hosting the first ODA meet-up in 2019 and publishing a guide on how to establish an ODA (see further resources).

City Brain

The 2.0 version of Alibaba Cloud's City Brain solution is using artificial intelligence technology and cloud computing technology to speed up traffic efficiency.

This system has been piloted since 2017 and is now covering the entirety of the urban areas in the eastern Chinese city of Hangzhou (approximately 420 square km). It gathers data from intersection cameras and GPS data on the locations of cars and buses. The platform then analyses this information in real time and, through a variety of driving route models, is able to co-ordinate road signals around the city and generate an optimal traffic plan in just seconds.

Thanks to the digital system, the efficiency of vehicles responding to emergency calls has increased by 50 per cent, and the average time they spent on any single mission was shortened by seven minutes.



Further resources

Toolkit

Public Sector Data Analytics: A Nesta guide
media.nesta.org.uk/documents/Public_Sector_Data_Analytics_-_A_Nesta_Guide_byCwKTI.pdf

CityData Sharing Toolkit
futurecities.catapult.org.uk/wp-content/uploads/2018/09/City-Data-Sharing-Toolkit_V1_FCC_Sep2018.pdf

A Practical Guide to Analytics for Governments: Using Big Data for Good (2017)
wiley.com/en-us/A+Practical+Guide+to+Analytics +for+Governments%3A+Using+Big+Data+for+Good-p-9781119362821

Blog

Innovation mapping
nesta.org.uk/feature/innovation-methods/innovation-mapping

Projects and partners

Dashboards
apps.geowessex.com/stats/Dashboards

Five specific problem types
datadriven.nola.gov/nolalytics

Report

Wise Council: Insights from the cutting edge of data-driven local government (2016)
nesta.org.uk/report/wise-council-insights-from-the-cutting-edge-of-data-driven-local-government

Piloting the London Office of Data Analytics (2018)
londondatastore-upload.s3.amazonaws.com/LODA%20pilot%20report.pdf

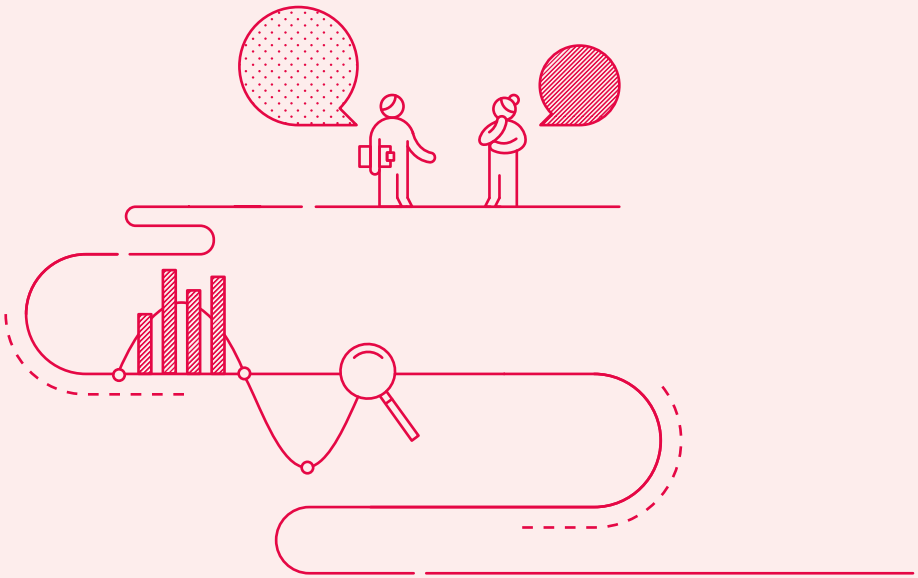
Data for good (2015)
nesta.org.uk/report/data-for-good

The Open Data Challenge Series Handbook (2015)
nesta.org.uk/report/the-open-data-challenge-series-handbook

State of Offices of Data Analytics in the UK (2018)
nesta.org.uk/report/state-offices-data-analytics-uk

Essex Centre for Data Analytics Pilot: An insight into business inspections in Essex (2019)
media.nesta.org.uk/documents/Essex_Centre_for_Data_Analytics_v3_1.pdf

The Essex Centre for Data Analytics pilot (2019)
nesta.org.uk/report/essex-centre-data-analytics-pilot



Collective intelligence

Collective intelligence is created when people work together, often with the help of technology, to mobilise a wider range of information, ideas and insights to address a challenge.

2

Collective intelligence

Governments are working hard to find new places to apply artificial intelligence (AI), such as predictive algorithms in criminal justice and healthcare, facial recognition in policing and the use of chatbots for services.

But there is also growing interest in new ways of harnessing collective intelligence – using information, ideas and insights from citizens.

Over the last few years, many experiments have shown how thousands of people can collaborate online, analysing data or solving problems, and there's been an explosion of new technologies to sense, analyse and predict. The results of this can be seen in things like Wikipedia and its many offshoots, like Wikihouse; or the spread of citizen science in which millions of people help to spot new stars in the galaxy, observe nature or analyse tumours.

Currently, governments are using collective intelligence in three main ways:

- To better understand problems and issues. Citizens can generate data about live issues. For example, the web-based platform Peta Bencana aggregates citizen-generated data on flooding patterns in Jakarta, Indonesia.
- To draw in ideas and solutions from a wider range of sources. Open innovation methods, challenges and crowd-sourcing are all examples of this. NASA has taken this further than any other public body, drawing on collective intelligence for everything from software and new spacesuit designs to commissioning corporate videos.

- To improve decision-making. Cities are using online platforms to encourage citizens to propose ideas, comment and sometimes vote on how money is allocated. Taiwan has gone a step further at a national level with vTaiwan – a highly structured approach to collective intelligence in decision-making. Parliaments are also experimenting with better ways to mobilise citizen expertise, for example through select committees.

The next step for governments is to use collective intelligence to address problems like climate change or disease. Every government can work more successfully if it taps into a bigger mind – mobilising more brains, data and computers to help it.

Doing that requires careful design, curation and orchestration. It's not enough just to mobilise the crowd. Crowds are all too capable of being foolish, prejudiced and malign.

Nor it is enough just to gather lots of data or to hope that brilliant ideas will emerge naturally.

A key task for governments is to curate what Nesta call 'intelligence assemblies' that combine multiple functions: observation, analysis, memory, creativity and judgement. There are interesting models in many fields from business (Google Maps) to ecology (Copernicus), disaster response (the Start Network) and health (AIME to Metasub).

Take air quality as an example. A city government using collective intelligence methods will bring together many different kinds of data to understand what's happening to air, and the often complex patterns of particulates. Some of this will come from its own sensors, and some data can be generated by citizens. Artificial intelligence tools can then be trained to predict how it may change, for example because of a shift in the weather or driving patterns.

The next stage is to mobilise citizens and experts to investigate the options to improve air quality, looking in detail at which roads have the worst levels, and what changes would have the most impact. The aim is to generate a batch of projects and experiments – some requiring the formal authority of the city, some not – and transparent metrics for assessing success. Finally, cities can open up the process of learning, seeing what's working and what's not, and feed this back into the now formally constituted community of stakeholders.

AI is going through another boom, embedded in everyday things like mobile phones and achieving remarkable breakthroughs in medicine or games. But for most things that really matter we need human intelligence as well as AI, and an over-reliance on algorithms alone can have problematic effects, whether in financial markets or in politics.

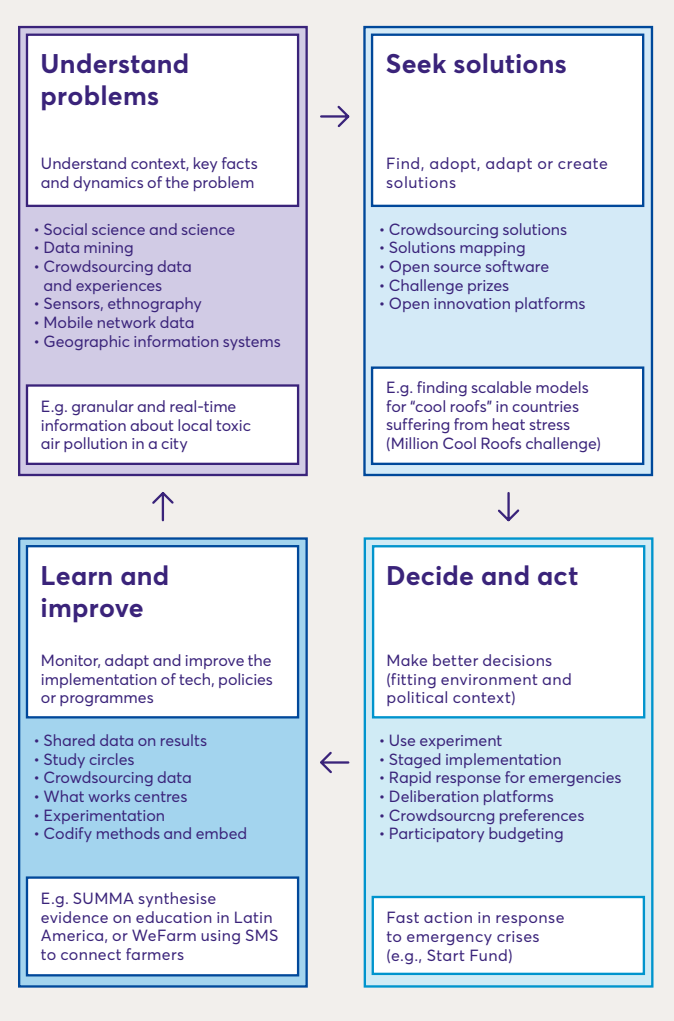


Fig. 1
Steps for implementing a collective intelligence approach, Nesta (2019).

Case studies

Nesta's Centre for Collective Intelligence Design

Nesta has been heavily involved in this field through the Centre for Collective Intelligence Design, applying these methods to fields such as jobs, cancer and the achievement of the Sustainable Development Goals (SDGs).

nesta.org.uk/project/centre-collective-intelligence-design

Nesta's Centre for Collective Intelligence Design is one of a family of new centres around the world that are showing the value that can be unlocked, working with a range of partners from the UN to national and city governments and businesses. As part of the Centre, we are funding a range of experiments that are testing different approaches for designing and applying collective intelligence to solve social problems.

nesta.org.uk/feature/collective-intelligence-grants/augmenting-policy-making-through-ai-generated-insights

The first round (2019) backed 12 experiments. One is **CitizenLab**, which will use machine-learning technologies to translate unstructured citizen-generated ideas and insights on digital democracy platforms into actionable policy recommendations. Another is a project by the **University of Southampton** to test different strategies to sustain crowd analysis of drone footage in humanitarian and emergency response efforts.

nesta.org.uk/feature/collective-intelligence-grants/making-crowdsourcing-disaster-relief-sustainable

Further resources

Toolkit

Big Mind: How Collective Intelligence Can Change Our World (2017)
press.princeton.edu/titles/11098.html

Report

Governing with Collective Intelligence (2017)
nesta.org.uk/report/governing-with-collective-intelligence

Projects and partners

Govlabs Crowdlaw Initiative
crowd.law

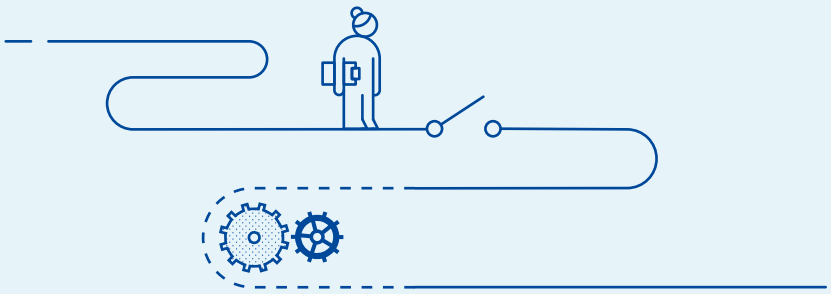
Peta Bencana
petabencana.id

MIT Center for Collective Intelligence
cci.mit.edu

Nesta's Centre for Collective Intelligence Design
nesta.org.uk/project/centre-collective-intelligence-design

CitizenLab
nesta.org.uk/feature/collective-intelligence-grants/augmenting-policy-making-through-ai-generated-insights

University of Southampton
nesta.org.uk/feature/collective-intelligence-grants/making-crowdsourcing-disaster-relief-sustainable



Technology for democratic engagement

Technology can be used to engage a much wider group of citizens in the decision-making and policymaking of their governments. This includes apps and other digital technologies to improve engagement by enabling citizens to propose ideas, comment or vote. When technology works well it helps governments crowdsource ideas and encourage debate, combining online and offline deliberations with citizens.

3

Technology for democratic engagement

Fig. 1 (opposite)
A typology of digital democracy, *Digital Democracy: The tools transforming political engagement*, Nesta (February 2017).

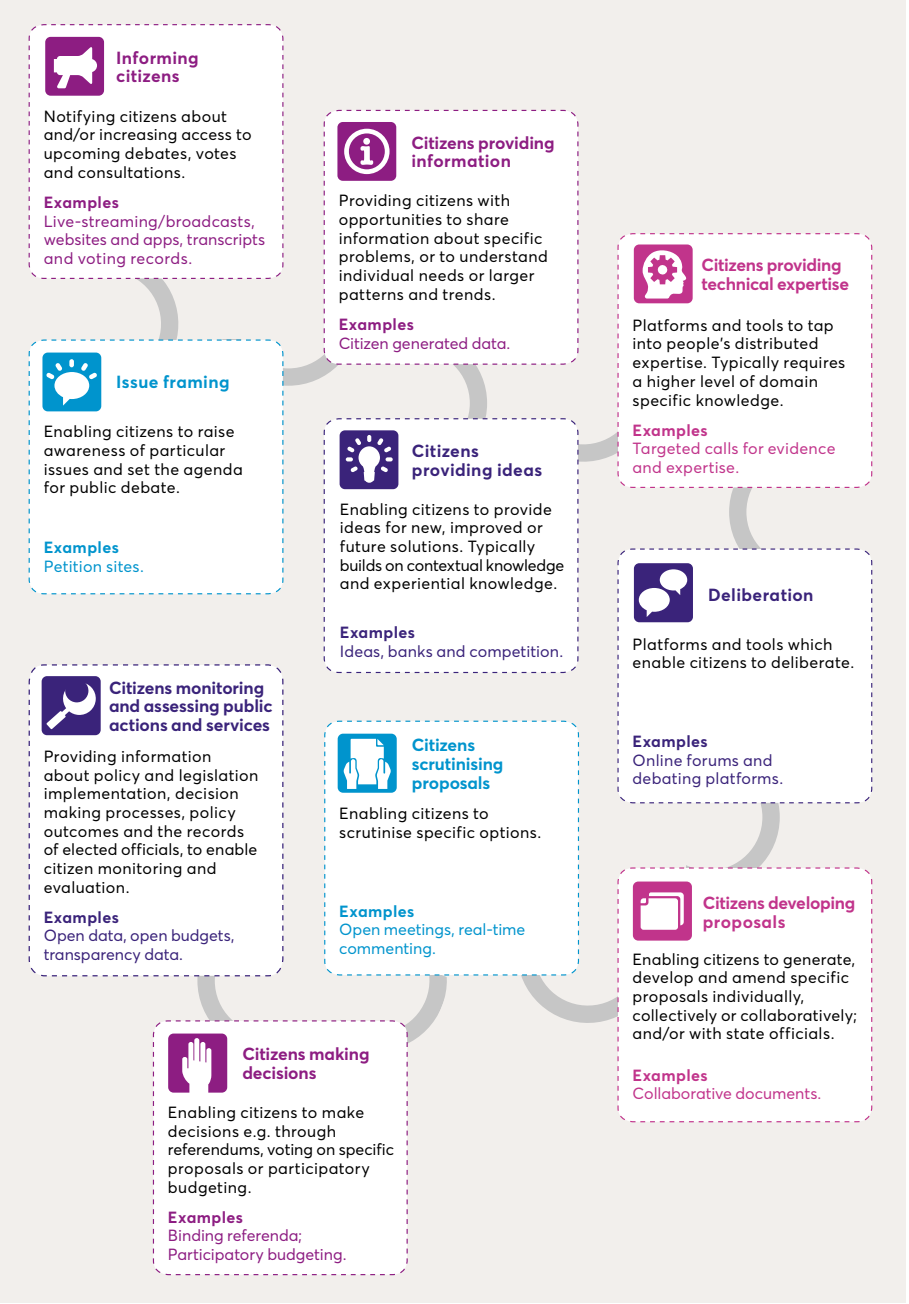
Thanks to digital technologies, you can bank, read the news, study for a degree and chat with friends across the world – all without leaving the comfort of your home. But democratic governance has hardly been affected by these new possibilities.

Governments around the world are rightly concerned about an increasing sense of division and decreasing faith in formal institutions. Some recognise that one of the reasons is that the technologies of democracy have hardly changed for more than a century. As a result there is growing interest in new ways of organising public consultations, policy design and discussion, as well as oversight of implementation.

Digital tools can be used for voting in elections or referendums. But the most interesting innovations go well beyond yes/no polling or voting. Recent advances have made it possible to significantly widen the scope of communication so that citizens can deliberate in depth on issues, both online and offline, and the results can feed into policymaking. Parliaments and governments around the world have been testing many of these in an effort to create meaningful new channels for citizen engagement, and as a way to tap into new sources of expertise.

Nesta's work over the last few years has combined design and testing of new tools and analysis of the many ways in which democracy is being innovated around the world. We have supported governments to try new tools that engage citizens in suggesting specific issues or concerns, developing and scrutinising legislative proposals, making decisions or holding public officials to account.

The diagram opposite sets out the many ways of using digital tools for democracy.



The best examples of digital democracy rarely start with an app or technology solution. Instead, they start with clear goals for participation and a good understanding of the problems that public engagement can help policymakers address. These goals include: legitimation or improved public support; more informed decision-making and outcomes; or a public which better understands the key issues and choices.

On its own the internet is an imperfect tool for making decisions or shaping options. Opening decisions up to large numbers of people doesn't automatically make decisions better. But with the right design, and in the right circumstances, the internet can involve far more people in shaping policy and sharing their expertise.

Successful examples of digital democracy combine online and offline; they break democracy down into stages, so that understanding and diagnosis precede prescription; they encourage people to engage with others who disagree with them, rather than just expressing views; and they tap into expertise as well as opinion.

When it comes to more complex issues or types of engagement that require intense deliberation, the best new innovations are explicitly alert to the issues of potential bias. They are finding ways to carefully design processes which eliminate the filter bubble and bring together people with opposing views, or previously unheard views, to discuss, deliberate and, where appropriate, reach a consensus.

Case studies

dcentproject.eu/wp-content/uploads/2016/06/D-Cent-toolsbox-final-spreads-1.pdf

D-CENT

Since 2013, Nesta has been leading **D-CENT** (Decentralised Citizen ENgagement Technologies), a project that aimed to develop and pilot a series of open-source tools for participatory democracy. These tools enable citizens to receive real-time notifications about issues relevant to them; work collaboratively to propose and draft policies; decide and vote on proposals; and allocate resources through participatory budgeting processes. More than 90 cities around the world are now using these tools.

Decidim.org

For example, Nesta's D-CENT partners in Barcelona and Madrid created platforms (**Decidim** Barcelona and Decide Madrid respectively) which have since become formally integrated into local government. These platforms have been used to run city-wide referenda on citizen initiatives on topics from sustainability and air pollution to ticketing for local transport. And they've also been used to allocate millions of euros in a participatory process for deciding how local investment budgets get spent.

Select committees, UK Parliament

Select committees are a key mechanism in Parliament for gathering available evidence, data and insight; tapping into public experiences and concerns; providing a space for thoughtful deliberation across party lines; and helping MPs in parliament make better decisions. However, too often their mechanisms for public engagement are overly reliant on long written submissions and in-person appearances, which means they fail to reach beyond the usual suspects. This is where digital innovations can help.

In 2019, Nesta suggested 10 ways digital innovations could be better used by select committees, from better digital marketing to clearer tools for capturing ideas submitted digitally from the wisdom of the crowd. The full selection of tools can be found in our report *Smarter Select Committees: How digital tools can grow public engagement in parliament*.

vTaiwan

The Taiwanese platform, vTaiwan, was created to engage experts and relevant members of the public in large-scale deliberation on specific topics. vTaiwan successfully crowdsourced a series of new national regulations on ride-sharing, engaging stakeholders across highly divided opinion groups – including unions, business representatives and taxi drivers – in a blended offline and online process that involved more than 700 people. The process was only possible due to involvement by the Digital Minister, who committed to implementing the results.

Further resources

Toolkit

Evaluating Digital Citizen Engagement: A Practical Guide (2016)
openknowledge.worldbank.org/bitstream/handle/10986/23752/deef-book.pdf?sequence=1&isAllowed=y

Report

Digital Democracy: The Tools Transforming Political Engagement (2017)
nesta.org.uk/report/digital-democracy-the-tools-transforming-political-engagement

Smarter Select Committees: How digital tools can grow public engagement in parliament (2019)
nesta.org.uk/report/smarter-select-committees

Blog

Digital democracy: Three priorities for the future of the field (2019)
nesta.org.uk/blog/digital-democracy-three-priorities-future-field

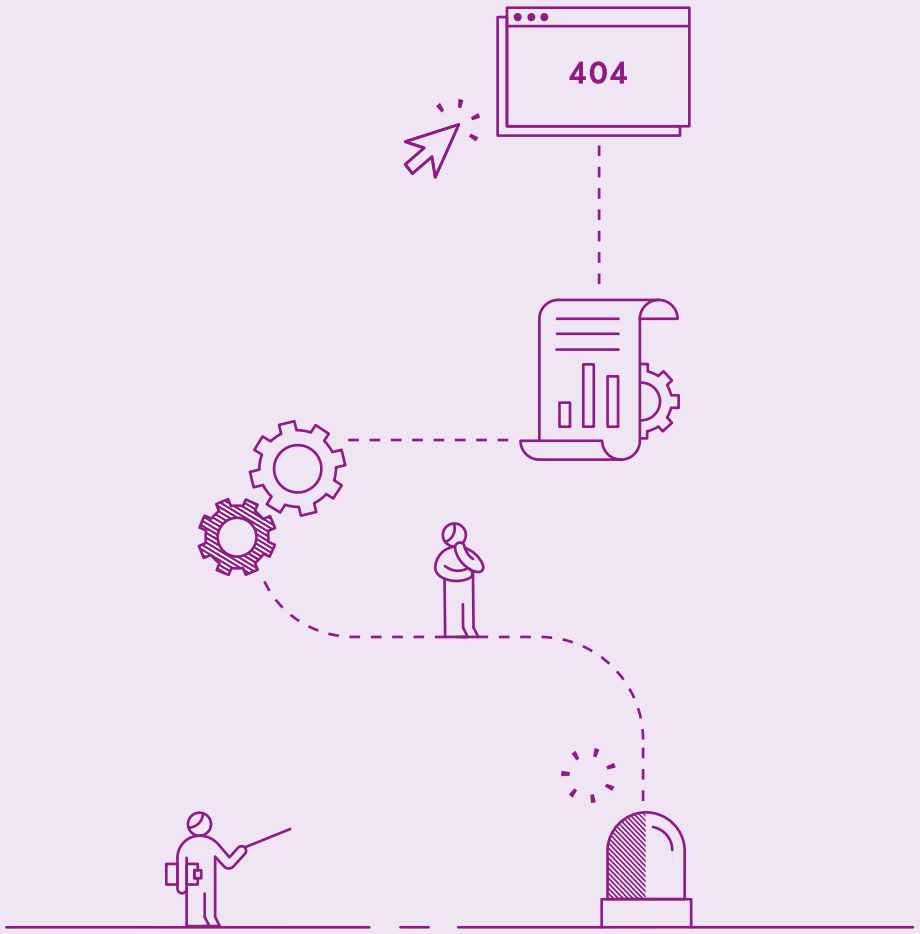
Power to the people: how cities can use digital technology to engage and empower citizens (2016)
nesta.org.uk/blog/power-to-the-people-how-cities-can-use-digital-technology-to-engage-and-empower-citizens

Designing digital democracy: a short guide (2015)
nesta.org.uk/blog/designing-digital-democracy-a-short-guide

Projects and partners

D-CENT
dcentproject.eu

Decidim
decidim.org



Prototyping

Prototyping is a low-cost, low-risk way of developing, testing, and improving ideas at an early stage. It enables government innovators to experiment, evaluate, learn, and adapt an idea quickly, so they can refine it into something better by answering key questions with real users.

4

Prototyping

Prototypes should be used when you have a hypothesis about a solution, but there is still uncertainty about how it looks, feels and works. Insights from testing can then be used to improve the idea. By developing and improving the prototype, you can maximise what you learn and refine your idea. This helps you move from a version with little detail or functionality (like a rough draft that illustrates the idea) to a version with much more detail and functionality (giving test-users a better sense of how it works).

Prototyping is generally an iterative process, with each iteration adding to the understanding of what works, for whom and in what contexts. At each iteration, innovators will be able to make decisions about whether to continue developing the idea or not, and if so, how that idea should be adapted to make it better for the people it is intended to benefit.

To be successful, it requires the innovator to have a clear understanding of the questions that they need to answer. There are different approaches to prototyping and the one you decide to use will depend on the stage you're at and the questions you need to answer.

Generally, this approach involves creating a prototype, or simple version of an idea, whether a simple cardboard model (at earlier stages), a more complex digital wireframe or a physical mock-up that allows people to interact with it (at later stages). This is then tested with users of the ultimate product or service to understand if it works and if there are new questions that might need to be answered in further iterations.

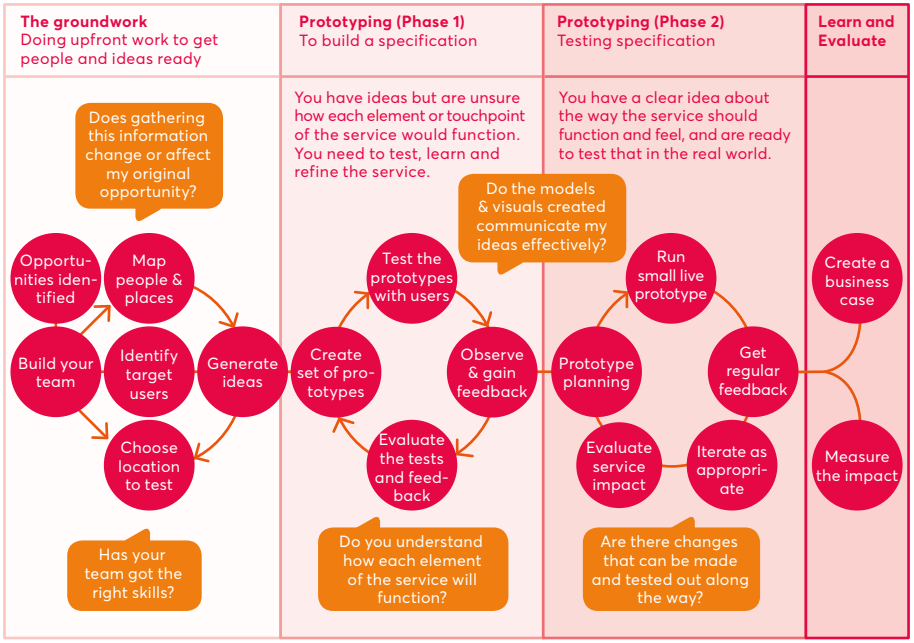


Fig. 1 (above)
The prototyping framework, *Prototyping Framework: A Guide to Prototyping New Ideas*, Nesta and Think Public (December 2013).

Compared to a pilot, prototyping does not require a lot of resources and can be done within short timescales. It is always worth spending as much time as possible defining the questions you need to answer so that you design your prototype in a way that will give you the best possible answers and help you elicit areas where you still need new knowledge.

Historically, prototyping was an innovation method most commonly used by engineers, designers and web developers rather than the public sector. Today, however, there is a growing interest in how this approach could be adopted for the public sector and service design.

Prototyping is not an alternative to piloting. Rather, it helps build a better specification for what a pilot might be. It may even help to show that an idea isn't going to work and save the time and cost of a pilot. The knowledge generated at each iteration should help the innovator understand what doesn't work as much as what does; a key output of any prototyping exercise is new knowledge that can be shared with others, advancing the field of practice and allowing others to build on the work that's been undertaken.

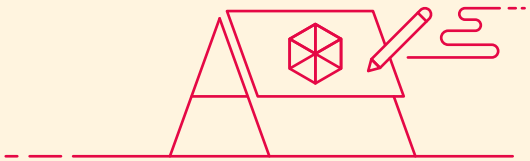
Case studies

Rethinking Parks

nesta.org.uk/project/rethinking-parks

Nesta, the Heritage Lottery Community Fund and the National Lottery Community Fund have been working together since 2014 to support parks managers in local government. The **Rethinking Parks** programme aims to fund new business models which will reduce costs or generate income in order to sustain the UK's parks. Our current portfolio includes five parks prototyping new approaches, testing and learning what works as they go.

For example, we're supporting Bournemouth to test contactless donation points in parks. Real-world testing with users is allowing them to prototype which wording, signage and locations for contactless donation points generate the most revenue. And we are supporting Edinburgh to ethically gather, analyse and interpret data on the uses and users of parks. The software will be prototyped with a 'friends of the park' group.



Creative Councils and the Wigan Deal

From 2012 to 2014, Nesta's Creative Councils programme supported 17 councils selected to prototype and then implement radical solutions for public service issues. These ranged from work in Stoke, which aimed to make the city energy self-sufficient by moving towards local ownership of energy supply, to prototyping and iterating options for a more relational model of care in Wigan that improved resident wellbeing and saved money.

That early work with Creative Councils was built upon and expanded by Wigan Council, NHS partners and communities. It became known as the Wigan Deal: a new approach for government to deliver local services, underpinned by the idea of a new relationship or social contract with the public. At the heart of Wigan's success was a set of beliefs about the potential of staff and local people to bring about improvement, and a willingness to tolerate the risks involved in doing so.

GovTech Catalyst

www.gov.uk/guidance/the-govtech-catalyst-challenge-process

The GovTech Catalyst is a fund that supports public sector organisations to find innovative solutions to operational service and policy delivery challenges. GovTech Catalyst competitions help the public sector identify and work with cutting-edge technology firms.

The £20 million GovTech Fund, awarded via competitions, provides support to define, develop, test and access creative solutions to complex public sector problems. To date, it has provided support for governments to prototype and test ideas related to managing autonomous vehicles, monitoring social housing and delivering more effective adult social care.

The programme allows governments and other public service organisations to prototype and test a number of different solutions to their challenge, before investing a larger amount of money in a viable solution.

Further resources

Toolkit

Designing for public services – a practical toolkit
nesta.org.uk/toolkit/designing-for-public-services-a-practical-guide

DIY Toolkit
nesta.org.uk/toolkit/diy-toolkit

Open Policy Making toolkit, Policy Lab
www.gov.uk/guidance/open-policy-making-toolkit/4-delivery-prototyping-and-improving-ideas

Prototyping Framework: A Guide to Prototyping New Ideas (2013)
media.nesta.org.uk/documents/prototyping_framework.pdf

Report

Prototyping in Public Services (2011)
nesta.org.uk/report/prototyping-in-public-services

Learning to Rethink Parks (2016)
nesta.org.uk/report/learning-to-rethink-parks

Blog

What is prototyping? (2011)
nesta.org.uk/blog/what-is-prototyping

Proof of concept, prototype, pilot, MVP – what's in a name? (2018)
nesta.org.uk/blog/proof-of-concept-prototype-pilot-mvp-whats-in-a-name

Projects and partners

Innovate to Save
nesta.org.uk/project/innovate-save

Rethinking Parks
nesta.org.uk/project/rethinking-parks

The GovTech Catalyst challenge process (2018)
www.gov.uk/guidance/the-govtech-catalyst-challenge-process

Experimentation

Experimentation helps governments test new ideas and find out what is most effective. Experiments usually produce empirical evidence of what works against a baseline or control group, as part of a trial.

5

Experimentation

Experiments have been part of the arsenal of science and problem-solving for centuries. They play a crucial role in testing new technologies and medicines, but they can also be applied to social issues and policymaking. Some countries – notably China – have very long traditions of experimenting in government.

Many ideas that look great on paper don't work well in reality, so experiments help us find out if they are effective, while tweaking and improving them through testing.

There are several ways for government practitioners to experiment. You could work closely with the people who will use the end solution to see how an innovation works in real life, like prototyping. Or you could use more robust evaluation methods – such as randomised controlled trials (RCTs) – to test an idea and find out if it works.

RCTs are often used to estimate the impact of an intervention or programme. They provide more certainty that an intervention is really making a difference. They compare a control group against another group who will test out the intervention or programme. To make sure the groups being compared aren't biased, they are randomly assigned.

There are many other useful experimental designs that help us develop and test new ideas in government, like Quasi-Experimental Designs (QEDs), which create comparison groups when it's not possible to randomly allocate, and can tap into the power of big data.

Both businesses (like Amazon and Google) and governments run experiments. In Finland, experimenting has become official government policy, with a dedicated team sitting at the Prime Minister's Office. In Canada, a mandate letter from the Prime Minister issued in 2015 urged all government departments to devote earmarked funds to experimenting with new approaches.

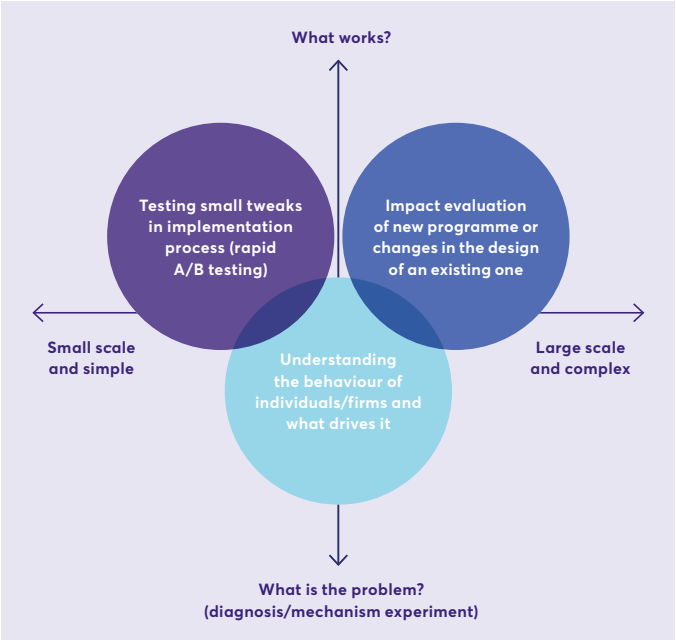
www.gov.uk/guidance/what-works-network

At Nesta, we have several projects dedicated to experimenting. In 2013, we worked with the UK Government to launch the UK's What Works Network (see section 12). Over the past six years, this has grown into a group of 11 dedicated centres – working in policy areas as diverse as wellbeing, homelessness and policing – to run experiments and collect and analyse their results. These results are accessible to government practitioners and frontline staff, so if you are a social worker, or commission social care services, you can find out what's effective in social care.

Nesta is also home to the Innovation Growth Lab (IGL), a global partnership launched in 2014 that aims to spread experimentation to innovation and growth policy, where billions of pounds of public money is spent but with little hard evidence on what works.

Nesta is also co-owner of the Behavioural Insights Team (BIT), which tests out new policies based on insights from behavioural science (see section 11). BIT is pioneering new ways of using trials to improve policy – like testing 'tweaks' to how services are delivered, and finding out what drives the behaviour of individuals.

Fig. 1
Different ways to use trials



Case studies

The Business Basics Fund

In the UK, improving the diffusion of innovation has been identified as one of the best ways to tackle the slowdown of productivity in the economy. In the last industrial strategy, the UK Government committed to trial new innovative approaches, and the Department for Business, Energy & Industrial Strategy (BEIS) launched the Business Basics Fund, supported by Nesta's Innovation Growth Lab.

The fund supports trials that test new ways to encourage small and medium-sized enterprises (SMEs) to adopt productivity-boosting technology and innovative practices. At the moment, the fund supports two types of projects: small proof-of-concept trials which develop a new idea and large pilots which test a solution at scale.

Business Basics isn't the only experimental fund that's been set up. The European Commission has launched an experimental funding call for SMEs and start-ups as part of its **Horizon 2020 Programme.**

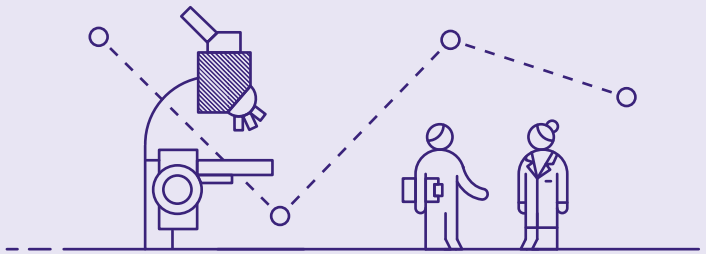
ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-sme_en.pdf

Creative Credits

In 2009, Nesta worked with Manchester City Council to run an experiment to test whether a business support scheme was effective. The scheme was structured so that vouchers, or 'Creative Credits', would be randomly allocated to small and medium-sized businesses that were applying to invest in creative projects such as developing websites, video production and creative marketing campaigns.

The research found that the firms awarded Creative Credits enjoyed a short-term boost in their innovation and sales growth in the six months following completion of their creative projects. However, the positive effects were not sustained, and after 12 months there was no longer a statistically significant difference between the groups that received the credits and those that did not.

Nesta published a report on the study, which argued that these results would have remained hidden using the normal evaluation methods used by government.



Further resources

Toolkit

The Experimenter's Handbook
Alliance for Useful Evidence, Nesta (forthcoming September 2019).

Guide to Testing Social Policy Innovation (2014)
alliance4usefulevidence.org/publication/spark-guide-to-testing-social-policy-innovation

A guide to randomised controlled trials
innovationgrowthlab.org/guide-randomised-controlled-trials

IGL experimentation toolkit
toolkit.innovationgrowthlab.org/home

Report

Better public services through experimental government (2015)
nesta.org.uk/report/better-public-services-through-experimental-government

Experimental Innovation and Growth Policy: Why do we need it? (2016)
innovationgrowthlab.org/policy-briefs

State of Uncertainty: Innovation policy through experimentation (2011)
nesta.org.uk/report/state-of-uncertainty

A Guide to Creative Credits (2013)
nesta.org.uk/report/a-guide-to-creative-credits

Blog

Promoting experimentation in government – learning from Canada's experience (2017)
nesta.org.uk/blog/promoting-experimentation-in-government-learning-from-canadas-experience

These 10 governments are leading the world in behavioural science (2019)
apolitical.co/solution_article/these-10-governments-are-leading-the-world-in-behavioural-science

A mandate letter
nesta.org.uk/blog/promoting-experimentation-in-government-learning-from-canadas-experience

Projects and partners

What Works Network
www.gov.uk/guidance/what-works-network

IGL Trials database
innovationgrowthlab.org/igl-database

States of Change
nesta.org.uk/project/states-change

Horizon 2020 Work Programme
ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-sme_en.pdf

100 Day Challenges

100 Day Challenges help cross-organisational teams test new solutions and ways of working to address a specific issue (like reducing waiting times in hospital). The approach empowers and connects those closest to the delivery of services (frontline professionals, users and communities) to drive change.

6

100 Day Challenges

Frontline practitioners and people who rely on services have unrivalled expertise in how the system operates, but often have little influence or ownership over decisions.

At Nesta, we've been trying to change this through pioneering approaches such as the 100 Day Challenge, an approach that empowers and connects those closest to the delivery of services to drive change.

The 100 Day Challenge enables frontline staff and citizens to collaborate and experiment with new ways of working. Teams from many organisations work together to design and test new solutions, working in three-month sprints. Senior leaders are involved throughout – from setting the initial area of focus, to supporting the scale-up of successful ideas.

It's a structured and rapid innovation process that incorporates coaching support and other methods that enable people to take on new ways of working. This not only gives frontline staff and citizens a renewed energy and agency, but also taps into their detailed insights on what is and what isn't working.

Teams develop and test ideas, often based on strategic themes that system leaders, including councillors, council executives and directorate leads, have invited them to explore. They create their own ambitious goals, whether that is reducing hospital admissions or supporting people to change their lifestyle to reduce their risk of diabetes. The frontline teams track these changes with data, and senior leaders unblock obstacles and help scale successful approaches. The momentum for frontline innovation and new ways of working lasts far beyond the initial 100 days.

We have learned that eight conditions are critical to rapidly testing ideas within public sector agencies:

Coaching: Sometimes the best ideas come from asking and helping people find new ways of doing things, rather than

telling them. We provide coaching and facilitation support to teams, managers and leaders throughout the 100 Day Challenge, to bring their ideas to life.

Data: To make progress, it's important to know where you are starting from, and if you're heading in the right direction. We encourage teams to use data and information throughout in order to shape their thinking at the launch, develop real-time insights as their ideas are tested, and consolidate their learning to inform sustainability and scaling plans.

Experimentation: We bring a focus on action, testing and iterating ideas in real time, with real people. Teams develop and test ideas, often based on strategic themes which system leaders have invited them to explore.

Urgency: The short time frame creates a sense of urgency and momentum, but also gives teams enough time to create ambitious goals and test new approaches on the ground, while building pace and energy for the work.

Sponsorship: Each team has a sponsor from senior management who ensures that learning and insights from the frontline can directly inform longer-term strategic plans. We support people in senior management to work with colleagues across organisational boundaries and help unblock the inevitable barriers faced by frontline teams.

Permission: Our approach flips on its head the tendency for problems to be tackled by those furthest away from the delivery. We give ownership of system problems to practitioners on the frontline, with the permission to experiment with ideas that achieve impact and learning.

Diverse place-based teams: We mobilise teams from across organisations and communities to work together in new ways, including people with lived experience and people from the voluntary sector, NHS and social care sector. Bringing together individuals with varying backgrounds and perspectives makes the work more robust, and helps problems be considered holistically.

Goals: We help teams create their own highly ambitious goals, focusing on specific population groups and results – for example reducing unplanned hospital admissions for frail older people. This allows teams to create the space where those working to support individuals are united and motivated around a common outcome.

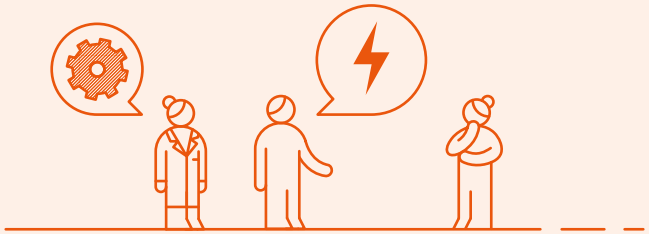
Case studies

Transforming children's services

We launched our first 100 Day Challenge in Essex and have worked with hundreds of frontline staff and citizens to drive change and inform strategic ambitions for the area.

In 2015, we worked with the West Essex children's services team to improve support for families and reduce the need for hospital visits for children. The cross-system effort included work with school nurses, GPs, people from A&E and beyond, and began a new way of working with local parents.

Through the 100 Day Challenge, one frontline team achieved a 24 per cent reduction in A&E attendances and a 50 per cent reduction in GP attendances for children aged up to 11 years old who were registered at two local GP practices. Critically, parents' voices influenced the way the children's team now operates, and this participatory approach has formed the basis of the design and implementation of children's services across Essex.



Changing a classroom in Midlothian

We have recently worked in partnership with Healthcare Improvement Scotland's 'Improvement Hub' (ihub) to improve children and young people's mental health and wellbeing in Midlothian. In this 100 Day Challenge, 19 local organisations were involved with sponsorship from 21 local leaders, including elected members.

Traditionally change can take a long time to implement in schools, with teachers' time planned out a year in advance. This primary school embraced the idea of making seemingly small, incremental changes in a timely way, which all made a big difference to how the children felt. Interventions designed by multidisciplinary teams and children included rolling out Mental Health First Aid training to 97 people and the creation of a 'quiet space' in the classroom, made by the pupils themselves, where they can go when they are feeling stressed or overwhelmed.

Right
Kathleen Wales, Midlothian 2019. Image: Beth Crockatt.

Further resources

Toolkit

People Powered Results: 100 Day Challenge (2018)
media.nesta.org.uk/documents/People_Powerred_Results.pdf

Nesta's People Powered Results: 100 Day Challenge – easy read (2019)
media.nesta.org.uk/documents/100_Day_Challenge_Guide_WEB_ACCESSIBLE_25.01.19_1.pdf

Report

Sparking change in public systems: The 100 Day Challenge (2019)
nesta.org.uk/report/sparking-change-public

Blog

The value of co-production
nesta.org.uk/blog/call-change-learning-disability-week

People Powered Results – an update (2019)
nesta.org.uk/blog/people-powered-results-update

Midlothian 100 Day Challenge: Children and Young People Taking the Lead (2019)
nesta.org.uk/blog/midlothian-100-day-challenge-children-and-young-people-taking-lead

We are in this together: People Powered Results in West Essex (2015)
nesta.org.uk/blog/we-are-in-this-together-people-powered-results-in-west-essex

Learning disability week: A call for change (2019)
nesta.org.uk/blog/call-change-learning-disability-week

People Powered Results in Greater Manchester
nesta.org.uk/archive-pages/people-powered-results-in-greater-manchester

Video

What is the 100 Day Challenge? Nesta (2019)
nesta.org.uk/feature/innovation-methods/people-powered-results

Testbeds

Testbeds are a structured way of testing technologies or services in a real-world setting, to better understand what works. They're widely used in business and beginning to be used more in the public sector, particularly for testing out uses of technologies like drones or artificial intelligence.

Testbeds

Testbeds allow a product to be tested with a sample population in a real-world setting. Trying an idea out with real consumers and in real physical conditions often throws up insights that are not obvious when a product is being designed on paper or on a screen.

Industries like retail and banking use testbeds routinely, but they are relatively rare in government. Policies are often designed and implemented without adequate testing, and this has been particularly true of digital technologies. For example, in health, while new drugs are subjected to rigorous testing in clinical trials, new digital applications are usually commissioned without systematic testing, and billions have been wasted as a result.

Testbeds can help governments innovate by:

- Allowing products and processes to be tested in a lower-risk environment before they are scaled;
- Strengthening collaboration and shared learning between the public and private sector;
- Focusing attention and attracting investment in innovation in key areas;
- Improving the delivery, or reducing the demand for, certain public services;
- And improving governments' understanding of what works and under what circumstances.

Testbeds can be set up in many different ways – for example in an urban district, in an institution like a school or hospital, or in a specialised facility. They usually involve a number of actors including innovators, public sector organisations and evaluators. Testbeds are distinct from other forms of evaluation

because they are set up with real-world conditions to understand how technologies interact with people, processes and the surprising patterns thrown up by unexpected occurrences in everyday reality.

Testbeds can include a wide variety of approaches to evaluation. In recent research published by Nesta, focused on testbeds in the education sector, four models were identified:

Fig. 1
Testbed models, *EdTech testbeds: Models for improving evidence*, Nesta (May 2019).

Co-design
EdTech suppliers, researchers, teachers, and students work together to identify educational needs and opportunities, and to develop a combination of technology and pedagogy to address these.

Test and learn
EdTech suppliers work with schools to rapidly test their product in a school setting so they can improve it.

Evidence hub
A space for schools and policymakers to work with EdTech developers and researchers to generate evidence about impact, synthesise it, and disseminate evidence-based advice to guide adoption and scaling.

EdTech network
A network of schools, researchers, and suppliers that share their experience and insights. As well as networking, this may involve training and professional development.

Different testbed models may be useful for different stages of technology development. For earlier-stage products, testing in a smaller-scale, lower-risk environment with the ability to iterate and improve may be most appropriate. For later-stage products, generating better impact evidence through testing in a real-world setting, and with more formal measurement of results, may be most helpful.

Case studies

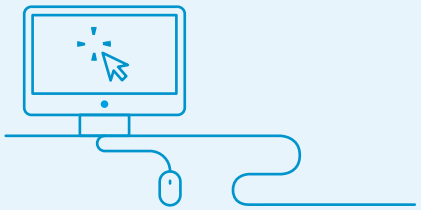
EdTech Innovation Testbed

nesta.org.uk/project/edtech-innovation-fund

In partnership with the Department for Education, Nesta is developing an **EdTech testbed** (launching in autumn 2019) to connect schools and colleges in England with technology products. The testbed has four main aims:

- To help promising EdTech products produce more robust and useful evidence of impact and a better understanding of factors that help with successful implementation.
- To provide opportunities for schools and colleges to try technology tools.
- To share best practice and learning with schools, colleges and EdTech organisations.
- To evaluate how the model can work to support more rapid and flexible evaluation of technology in real-world settings.

The testbed will match schools and colleges with technology products and support them in carrying out mixed-method evaluations to better understand the impact they have on outcomes such as teacher workload and pupil attainment. The evaluations will be rapid-cycle, being carried out over around 12 weeks, to make more robust evidence more accessible for EdTech products and schools.



NHS Test Beds

england.nhs.uk/ourwork/innovation/test-beds

The Test Bed Programme brings NHS organisations and industry partners together to test how combinations of digital technologies can transform the way in which healthcare is delivered for patients and carers in real-world settings.

Wave 2 Test Beds received over £2 million from NHS England to support interventions aimed at improving the management of diabetes and more than £5 million from the Department of Health and Social Care and Office for Life Sciences to support interventions in other priority areas, including breast cancer screening and community-based clinical interventions.

iZone

New York City's Innovation Zone (iZone) is an education reform programme for the integration of technology into schools. Set up by the city's Department of Education, its goal is to help transform education by making it more innovative and personalised.

Its Short-Cycle Evaluation Challenge (SCEC) aims to evaluate 'who EdTech products work for, when, and under what circumstances' by matching teachers with EdTech suppliers to pilot products with potential to address student needs. iZone's primary vision for the SCEC is to provide educators with the information they need to make decisions about using EdTech, when they need it.

Through the SCEC, iZone is developing a rapid-cycle EdTech piloting process that is less resource-intensive than randomised controlled trials, yet more robust than product reviews. For 12 weeks of the school year, teacher teams of four to six educators test-drive a technology product that will help them meet a shared need.

Further resources

Report

EdTech testbeds: Models for improving evidence (2019)
media.nesta.org.uk/documents/EDTech_testbeds_v5.pdf

Test Beds the story so far (2017)
england.nhs.uk/publication/test-beds-the-story-so-far

Testing Innovation in the Real World
(forthcoming 2019)

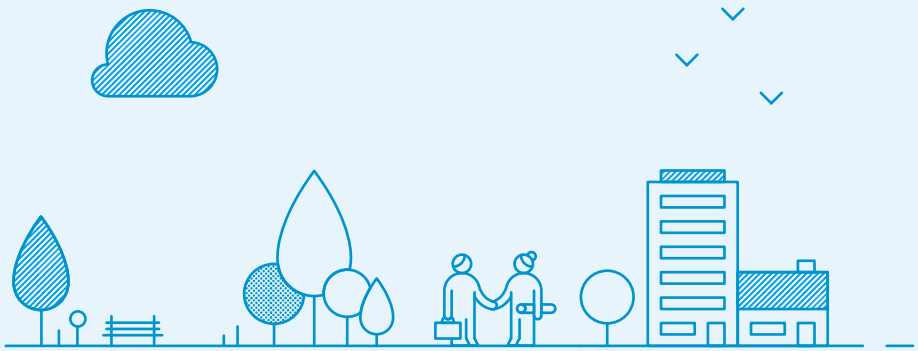
White Paper: Smart City Demonstrators – A Global Review of Challenges and Lessons Learned (2018)
futurecities.catapult.org.uk/2018/03/22/hyper-connected-data-rich-city-publishes-white-paper

Projects and partners

NHS Test Beds programme
england.nhs.uk/ourwork/innovation/test-beds

EdTech Innovation Fund
nesta.org.uk/project/edtech-innovation-fund

Testbeds in Sweden
vinnova.se/en/m/testbed-sweden/testbeds-in-sweden



Innovation labs

Innovation labs are teams or units within government charged with making innovation happen. These multi-disciplinary teams are given dedicated resources to direct towards solving specific problems in a given time frame. They also often have a broader role of promoting innovation methods and cultures.

8

Innovation labs

All governments can struggle to find the resources and time to invest in the future when they are responsible for delivering the services that people rely on today. Building dedicated innovation labs can create much needed space for innovation by providing the time, structures and capabilities required.

Innovation labs – often referred to as innovation teams, funds or units – have helped to change how governments around the world tackle challenges using experimental methods, by multidisciplinary teams, to tackle both social and public issues.

Nesta set up its first public services lab in 2009 and since then has run labs (such as the HealthLab and Innovation Growth Lab), convened labs from around the world and documented how they work.

We found that most innovation labs focus on:

- Scanning for and identifying key issues, priorities and tasks.
- Developing ideas that impact on these areas.
- Testing and prototyping solutions.
- Creating routes into larger scale impact or systems change.

There are also six key elements that are common across all teams, shown in this diagram to the right.

But if this is what unites them, what makes them varied? Innovation labs and teams can be distinguished on several main axes:

- By the methods they use, such as design, data or behavioural economics.
- By the field in which they work, such as education or healthcare.

- By where they focus their efforts, from upstream to downstream, in the innovation process; from understanding issues, through to generating ideas to implementation and scale.
- By how they work, with some innovating in practice, such as by undertaking experiments or using open innovation methods, to others who primarily support and fund others.
- By the extent to which they are directly involved with government, from being based inside to operating at arm's length, to others that are entirely separate.

Fig. 1
Ingredients to create a successful gov innovation lab, *i-teams: The teams and funds making innovation happen in governments around the world*, Nesta (June 2014).

Today there are many labs using different methods to try to solve social problems, both within and beyond government. Most famous perhaps is the New York City Innovation Zone (iZone), La 27e Région in France and SITRA in Sweden. But in the last 10 years many more governments have established labs including Colombia, Mexico, South Korea and the UK Government's own Policy Lab. Others can be found in universities linking social action and research, such as Nesta's collaboration Y Lab (see case studies), and also in emerging social innovation parks such as the SIPark in Bilbao. Several hundred 'living labs' around the globe involve users in shaping technologies, such as the European Network of Living Labs (ENoLL), which focuses on co-creation and experimentation.

Our experience at Nesta suggests that innovation labs are most effective when:

- They have dedicated resourcing and support from the senior decision-makers in both political and officer positions of power.
- They work on time-limited challenges, understanding that part of their role is to seed change in the culture of their parent organisation (which may also mean they do not need to exist in perpetuity).

Case studies

Y Lab

Y Lab is a partnership between Nesta and Cardiff University, which aims to change the way that public services in Wales are delivered. Launched in 2015, it combines social scientists, academics and innovation experts who work to support public service innovators in Wales with funding, expertise and guidance to experiment, test and implement their ideas. It also undertakes research into the hows and whys of public service innovation in Wales and around the world, helping to create better conditions for and spread good ideas.

Seoul Innovation Bureau

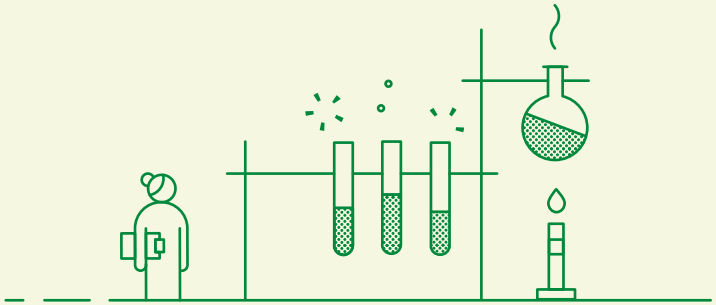
The Seoul Innovation Bureau (SIB) aims to include citizens in both the design and the execution of public policies. Many of the projects promoted by the innovation office have to do with the circular, social and collaborative economy. This comes from Mayor Park Won-Soon's belief that many of Seoul's current problems are the consequence of a capitalist society governed by consumerism and individualism.

SIB has run projects related to increasing rent prices, youth unemployment and improving medical care. In the initial phase of each project, SIB asks for ideas and proposals from the citizens and then works with the relevant city council departments to put them into practice. Citizen consultation is conducted online via their platform, as well as offline using a mix of approaches, such as bringing video inputs into the city council, taking council members out into the community directly and using participatory budgeting.

MONUM: Mayor's Office of New Urban Mechanics

The Mayor's Office of New Urban Mechanics in Boston was created to help develop and solicit solutions for government challenges. It thinks of itself as a design studio within government and is formed of a small cross-departmental team based in Boston City Hall. The team acts as the 'front door' for city innovators, engaging with civic entrepreneurs who may have a solution to a government challenge.

The Boston Saves programme gives children in public kindergartens $50 savings accounts to encourage them to put money away for university. It was created with members of the community to co-pilot and co-own the programme, which gets people talking about Boston Saves and builds trust with families. The Citizen Connect mobile app is used by residents to report problems and has been replicated by other cities across the US.



Further resources

Toolkit

Innovation Team and Labs: A Practice Guide (2014)
media.nesta.org.uk/documents/innovation_teams_and_labs_a_practice_guide.pdf

Public and social innovation labs
nesta.org.uk/feature/innovation-methods/public-and-social-labs

Social Innovation Lab Guide (2015)
rockefellerfoundation.org/report/social-innovation-lab-guide

Move fast and fix things: How to be a public entrepreneur (2018)
thersa.org/globalassets/pdfs/reports/1331_move-fast-and-fix-things_final.pdf

Report

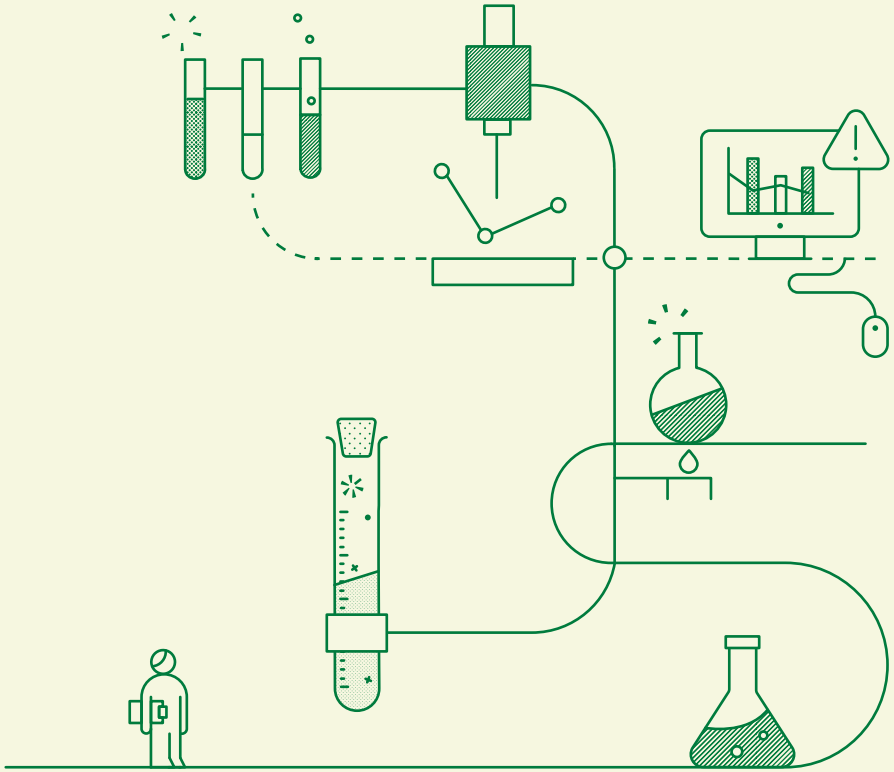
iteams (2014)
media.nesta.org.uk/documents/i-teams_june_2014.pdf

Projects and partners

Y Lab
ylab.wales

Bloomberg
bloomberg.org/program/government-innovation/innovation-teams

New Urban Mechanics
boston.gov/departments/new-urban-mechanics



Challenge prizes

Challenge prizes offer a reward to whoever can first or most effectively meet a defined challenge. Through a public competition, challenge prizes aim to tap into and engage the broadest possible community of innovators to develop better solutions to a specific problem.

9

Challenge prizes

Fig. 1 (opposite) Different ways to structure a prize, *Challenge Prizes: A practice guide*, Nesta (2014).

Longitudeprize.org

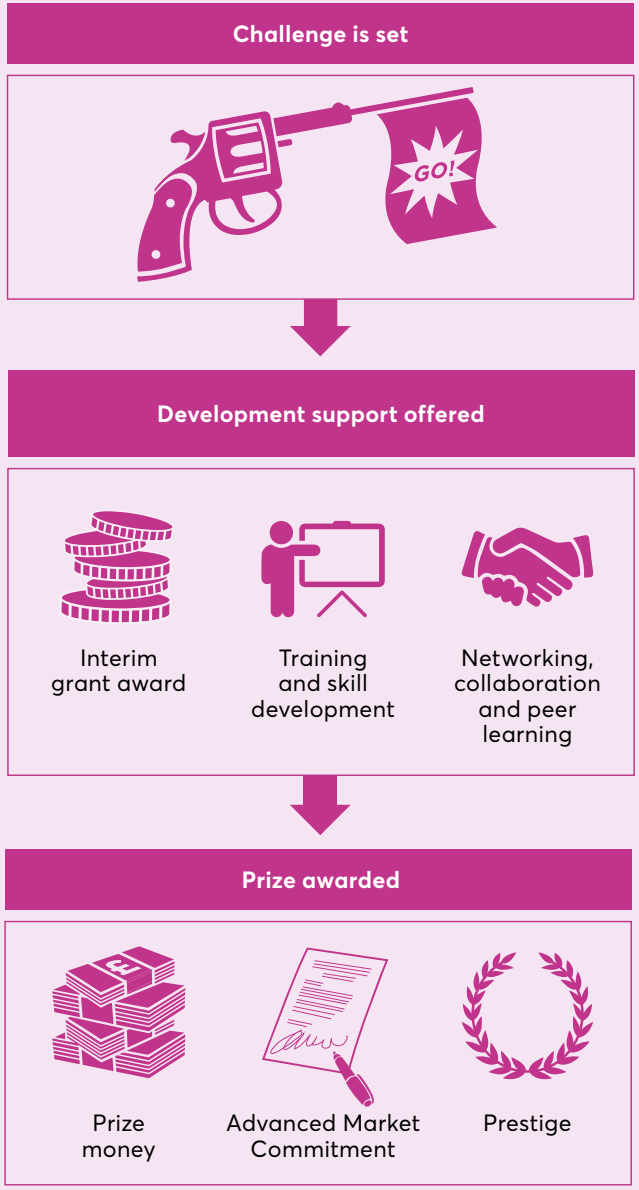
Governments routinely procure products and services of all kinds. They also fund R&D in many ways – channelling money into universities, big and small companies and research laboratories.

But they can also choose to buy an outcome, offering a challenge prize to anyone who can show they can solve a problem. This method helps attract innovators and money is only spent if there is a genuine solution. Typically, there are very clear criteria for what counts as success.

The British Government pioneered the use of challenge prizes in 1714 with the Longitude Prize, which solved the challenge of how to pinpoint a ship's location at sea by finding out its longitude. Since then, challenge prizes have been used in almost every field to incentivise innovators to develop new solutions to neglected problems.

Challenge prizes are particularly suited to helping governments solve public problems that share some key characteristics:

- Problems that are clear and well enough defined that you can set a clear and unambiguous goal to aim for.
- Problems that would benefit from the fresh thinking that comes from new innovators, for instance if the field is stagnant, has few players, or there is a related field that is much more dynamic.
- Problems where a prize could actually attract these new innovators to address the problem, within a reasonable budget and timescale.
- Problems where the additional funding and attention the prize would bring would plausibly accelerate progress.
- Problems where the solution could thrive in the market (or find continued funding) after the prize is awarded.



Challenge prizes can be used on any topic, but not on every problem. When used appropriately, they can provide a range of benefits:

- **Breakthrough innovations:** Challenge prizes incentivise new thinking and reward the best solutions, wherever they come from, however they work. They go beyond the usual suspects and reach innovators that other funding mechanisms often miss. Using challenge prizes allows governments to develop a curated pipeline of focused and effective solutions, tackling market failures while de-risking the process by only rewarding solutions that deliver.
- **Thriving innovators:** Prizes aren't just about the prize money – though that's important of course. Prizes help innovators by raising their profile, bringing them into contact with expertise, investment and new customers. And alongside the prize at the end, there's often other support during the prize, such as seed funding, help with networking, mentoring, testing or access to legal and marketing support. Challenge prizes help governments expand the suppliers and partners they have access to, as well as fostering and developing the market.
- **Unlocking systemic change:** Prizes don't just create solutions to a narrow technical problem. They can raise awareness of a broader issue with the public, and can help governments respond with appropriate policy and regulation. Done right, they can create whole new technologies and markets outside of government, shaping them in a socially beneficial way. By using a challenge prize, governments can explore and experiment with better ways of doing things, building evidence and an understanding of what works and what's needed.

Nesta has been working with government partners around the world to develop and deliver challenge prizes, and increase understanding and practical evidence about their use as an effective way of stimulating innovation. As of 2019, our dedicated challenge prize centre, Nesta Challenges, has run more than 30 prizes totalling £17 million in award value, attracting more than 8,000 innovators to different causes.

Challenges.org

We have partnered with a variety of governments, organisations and companies from all around the world including: the UK's Department for Business, Energy and Industrial Strategy; the UK's Department for Education; Essex County Council; the Toyota Mobility Foundation; USAID; and the European Commission, among others.

Case studies

Open Up Challenge

openup.challenges.org

The original **Open Up Challenge**, which ran between 2017 and 2018, formed part of the UK Competition & Markets Authority's (CMA) package of measures to increase competition and innovation in retail banking. Nesta Challenges ran the challenge in parallel with the emergence of open banking in the UK, a world-first regulatory initiative to give bank customers control over their data and create opportunities for new business banking models.

The Open Up Challenge sought out the most compelling use cases for how fintechs could use open banking to create value for small businesses. The challenge resulted in a wide range of innovative products and services coming to market, which are now creating new opportunities for small businesses to benefit from open banking. It also influenced the development of a £10 million Regulators' Pioneer Fund, announced by the UK government in 2018 as part of its industrial strategy. This initiative aims to fund UK regulators to test and scale innovative methods when dealing with emerging technologies.

Haiti Mobile Money Initiative

Governments can launch prizes to galvanise a market. Following the devastating 2010 earthquake in Haiti, a $10 million prize was launched to reward the creation of mobile banking services in a county with fewer than two bank branches per 100,000 people. The prize incentivised providers to scale rapidly, supporting government efforts to rebuild the economy.

Further resources

Toolkit

Challenge Prizes: A practice guide (2014)
nesta.org.uk/toolkit/challenge-prizes-a-practice-guide

Innovation prizes: A guide for use in a developing country context (2015)
ideastoimpact.net/sites/default/files/doc_research/iti-guide-digital-v2.pdf

Report

Challenge Prizes Landscape Review (2012)
nesta.org.uk/report/challenge-prizes-landscape-review

The impact of innovation inducement prizes (2013)
nesta.org.uk/report/the-impact-of-innovation-inducement-prizes

"And the winner is...": Capturing the promise of philanthropic prizes (2009)
mckinsey.com/industries/social-sector/our-insights/and-the-winner-is-philanthropists-and-governments-make-prizes-count

Contests as innovation policy instruments: Lessons from the US federal agencies' experience (2017)
researchgate.net/publication/318677470_Contests_as_innovation_policy_instruments_Lessons_from_the_US_federal_agencies'_experience

Projects and partners

Nesta Challenges
challenges.org

Longitude Prize
longitudeprize.org

Open Up Challenge
openup.challenges.org

Videos

How can prizes help innovation? Tris Dyson, Nesta Sparks
youtube.com/watch?v=nBmqr_Y8vqo

New ways of using money

Grant funds are well established as a way for government to fund innovation. But there are many other ways to finance innovations effectively. The options include stage-gated loans, investments, challenges, procurements or partnerships. Most governments use only a handful of the funding tools that are available.

10

New ways of using money

Fig. 1
The landscapes of funding tools, *Funding innovation: A practice guide.* Nesta (November 2018).

There are thousands of innovation funds in operation in governments around the world. Some focus on a particular kind of organisation, like schools; some aim to improve innovation in systems, such as the health service; and others aim to promote an idea, like volunteering or the use of technology. Some are internal, backing ideas within the public sector, while others face outwards.

The diagram below describes some of the many ways governments can use money to support innovation – through grants, investments, challenges, procurements or partnerships. Yet most departments and agencies only use a fraction of these methods, and generally stick with the tools they've used in the past.

Funding tool	Description	Advantages	Challenges
Grants	Gift of money, usually linked to commitments on activities, outputs or outcomes.	Simple, established.	Intensively managed, can drive dependency. No return to funder.
Grants for R&D funding	Stage-gate funding with payments released as product developed/ evidence demonstrated.	Suitable for high risk/ reward projects.	Requires greater management. Staging can limit project flexibility.
Grants/equity in accelerators in stage-gate	Grants plus small equity shares for new companies, often linked to non-financial help.	Higher success rate for startups.	Intensive input needed to achieve success.
Grants convertible to loans, or grants with royalties	Grants with conditions that make them turn into loans once milestones are met, e.g. on revenues.	Recycles money, drives good behaviours re: financial sustainability.	Requires longer-term engagement to check on revenues and repayment schedule. Modelling of repayment will often be overly optimistic. Can be gamed if repayment triggers are not set right. Tax/accounting treatment not well established.

Funding tool	Description	Advantages	Challenges
Grants convertible to equity	Similarly, grants which turn into rights to equity once revenue or other milestones are met.	Recycles money, share of high value projects.	Managing investment, follow-on funding, getting the conversion triggers right. Only feasible if recipients established with shares. Tax/ accounting treatment and legal enforceability not well established.
Match crowdfunding	Committing money on condition that matched funding is raised through crowdfunding platforms.	Encourages mobilisation of public money and commitment. Engages wider audience of backers.	Skews to high income audiences; sums still quite small.
Loans	Money lent to be repaid with interest over agreed timescale.	Recycles money. Straightforward offer to recipients. Easy to value cost and likely return.	Managing loan book, risk assessment and security.
Project-specific loans	Loans linked to specific projects, e.g. in technology, repaid only if the projects succeed.	Recycles money. Straightforward offer, attractive to recipient as no repayment if project fails.	Less secure than loans secured against the firm as a whole (see above). Need to monitor project success to see if loan needs to be repaid (this can be gamed).
Convertible loans	Loans offering rights to convert into equity.	Gives lender chance to participate in upside in case of radical success, while still promising repayment in base case.	Can put off future equity investors as carried on recipient's balance sheet. Funder needs to manage conversion process.
Quasi-equity	Loans offering revenue participation rights (e.g. shares of revenue or profit over given levels).	Encourages business growth, recycles more money from successes.	General challenges of oversight and monitoring.
Impact Bonds (social, development, etc.)	Funding raised from philanthropy or capital markets with commitment of payments linked to outcomes.	Shifts risk from government; encourages focus on evidence and outcomes; can bring in new skills.	Relatively few fields with suitable conditions; still young model in experimental phase.
Venture equity investment (and impact venture investment)	Investment in equity in early-stage companies, usually with aim of significant growth in value and linked to active involvement in management, strategy, etc. Impact investment also aims for social impact.	Funder can participate in upside. Funder gains (some) control in firm. Allows rigorous linking of investment and outcomes (e.g. using standards of evidence).	Intensive management needed for realising value and securing follow-on funding. If funder is charity, link to objects and public benefit must be monitored. Difficult to exit. Average venture capital returns very low.

Funding tool	Description	Advantages	Challenges
Intermediary funding	Funding directed through intermediaries (e.g. on Big Society Capital model) which then invest loans, equity, etc., in firms or social enterprises. Usually investors represented on investment committee.	Can increase funding flows (e.g. with co-mingled funds); creates more specialist capacity and some healthy competition. When working well, interest from loans covers management costs.	Sometimes challenges raising matched funds; achieving sufficient scale; and handling timescales of investments and returns.
Challenge prizes	Commitments of funding tied to proof of ability to solve a novel problem.	Good for where market incumbents have little incentive to innovate. Raises awareness and attracts new entrants. Favours technological/ product-based innovation.	Challenge of setting the right goal: requires expertise and is difficult to change once set. Success needs to be well-defined. Requires firms to spend money ahead of government funding.
Revenue-based funding models	Releasing grants or loans in response to reaching revenue targets.	Aims to encourage trading and entrepreneurship, as opposed to grant dependence. Used in development, technology, self-employment and other fields.	Revenue results achieved can have many causes, therefore may provide capital where it's not needed; conversely can push recipients to maximise short-term revenue rather than long-term business building.
Golden share	Equity finance linked to a special share which cannot be diluted, or offers special voting rights.	Opportunity to participate in upside without follow-on investment. Gives funder control over firm.	Represents a significant concession for organisation receiving funding. May deter future equity investors.
Services contract to support innovations	Procurement of services from small firms, charities or social enterprises as a way of helping them grow or innovate (e.g. SBIR).	Uses procurement process to support small innovative entities.	Reliance on relatively untried service provider.

At Nesta, we have used a wide range of tools – from equity investment to impact bonds, crowdfunding to challenge-based funding – to make money work harder. We believe that it is in the public interest to try out better ways of using money and avoid institutional inertia.

We see five specific ways governments can make better use of finance:

- **Transparency:** A first step is to make budgets more transparent, as some countries have done through using open data to tag budgets by geography, policy or goal.

This is necessary if we're going to better learn which activities need more or less funding.

- **Outcomes:** Another area of reform is linking budgets to outcomes like Social Impact Bonds. Wherever possible Nesta encourages governments to link budgets to evidence – backing policies and programmes that work, and providing funding to generate more evidence about policies and programmes that look promising.

- **Innovation:** Businesses devote large sums to innovation; from classic R&D to innovation in services, business models, processes and organisational forms. But few governments know how much they spend, let alone what might be an optimal level of spending. Nor do they know how to divide it between upstream and downstream innovation.

  At Nesta, we've learned that innovation funds deliver the most if they are combined: significant investment upstream to improve the quality of proposals, and grow capability; the use of stage-gates; and the pooling of data and use of evidence standards as innovations mature to ensure they really do work.

  In general we would argue for a modest but significant allocation of resources (like the commitment in UAE to spending one per cent of public budgets on innovation).

- **Long-term investment:** Much of what government does is by its nature long term: commissioning warships; building roads and railways; educating young children. Money is spent today to give future generations a better life. Some of this spending is guided by detailed frameworks, using cost-benefit analysis, Green Books, or analysis of rates of return. Big infrastructure projects are analysed in depth, and often at great expense.

  But other areas of government activity are almost untouched by these methods, including almost all spending on services to reduce demand for care for older people or homeless services in future years. Innovate to Save, a partnership between Nesta, Cardiff University and the Welsh Government (see case study below) is a good example of how to structure investment in services that will reap long-term benefit.

- **Public engagement:** Decisions on allocating resources require specialist knowledge, but there have been moves in recent years both to make those decisions more transparent and to involve the public more directly.

  We now have the benefit of several decades of experience of participatory budgeting. Famous pioneers like Porto Alegre in Brazil showed that thousands of citizens could take part in quite complex discussions. The Scottish Government has committed that at least one per cent of local government budgets will be decided through participatory budgeting by the end of 2021, which could mean up to £100 million in council funds. In Paris, the mayor has gone one step further, committing to opening up five per cent of the budget in this way (see case study opposite). The D-CENT tools Nesta helped develop have enabled cities like Madrid to open up budgeting to the public, and we've also shown what can be done with matched crowdfunding in London.

Governments are well placed to run innovation funds and ministers often like them. But two common mistakes can make them less effective. First, too little time and resource is given to upstream activities – preparing the ground, sharing ideas and evidence and helping the people who are developing ideas at an early stage to develop better ones. Second, there can be insufficient attention downstream – failing to ensure a clear path to scale up the best of what works after the lifetime of a fund (perhaps by public procurement) – meaning innovation funds can become interesting pilots with nowhere to go.

Case studies

Innovate to Save

The Welsh Government has long run a loan scheme called Invest to Save, where frontline public servants propose ideas to central government that require upfront investment, but that would save money and improve public services. Ideas that can prove their worth are given loans, which are repaid as savings come in. The loans have saved millions, but the ideas tend to be limited to physical infrastructure projects like new lighting types.

Since 2015, Y Lab (the public service innovation lab set up by Nesta and Cardiff University) has worked with the Welsh Government to create the Innovate to Save fund. This fund aims to encourage more innovative ideas, more preventative applications and to support organisations working with (not just in) the public sector. The Innovate to Save fund offers expert advice on evidence and business-case planning to applicants to help them prove their ideas work and complete the paperwork to apply for a loan of £15,000.

This combination of additional support and blended finance has proved popular, with £5 million of loan requests to date. The first loans have now been issued, for example for a charity to procure care differently. From the first £2.2 million loans we expect £10 million of savings to be returned in the first three years.

Participatory budgeting in Paris

In 2015, Paris launched Madame Mayor, a participatory budgeting process with a total of €500 million over five years. All proposals are generated by Paris residents and are either collected online or at street stalls set up across the city. Proposals are then refined through deliberation, and support is provided for projects to assist people in promoting and campaigning for their idea before a final vote.

In the first year, more than 5,000 ideas were proposed, and then whittled down to 600. In the final stage, 67,000 votes (+/- three per cent of the population) were cast and 188 projects were accepted. In 2016, participation rose dramatically with 150,000 people voting on a final selection of 200 ideas.

Madame Mayor has shown that raising awareness and achieving participation is hard; so is the process of managing and processing thousands of ideas. Over the last year, the Paris team has responded by increasing the size of the team working on citizen engagement, strengthening relations with civil society, and continuing to invest in offline and online promotion of the programme. They also slightly restructured the budget to reserve a proportion exclusively for the most deprived areas of the city.

Further resources

Toolkit

Funding innovation: A practice guide: Making money work harder (2018)
nesta.org.uk/toolkit/funding-innovation-practice-guide

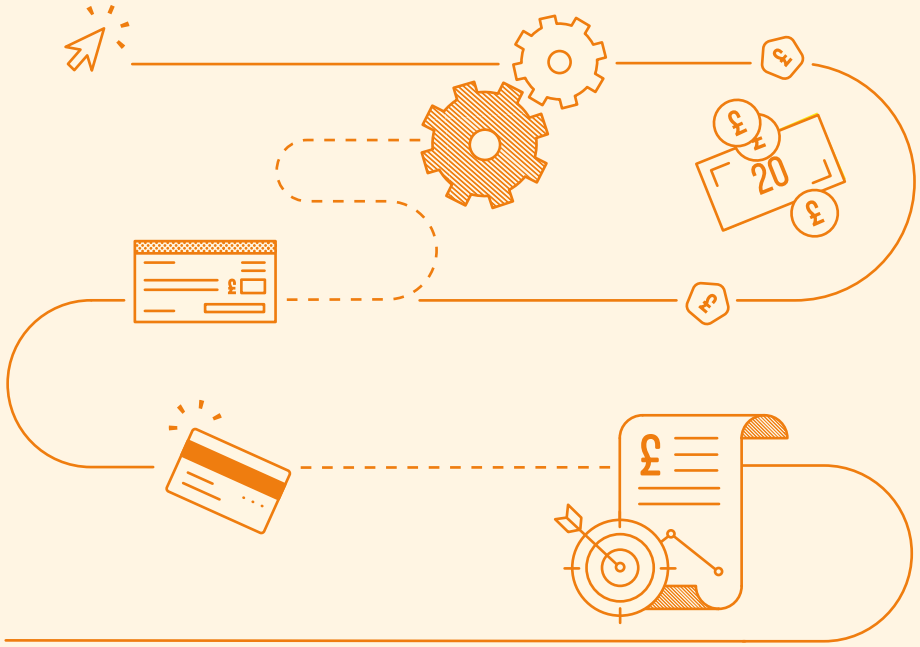
Repayable Finance for Innovation in Public Services (2019)
ylab.wales

Report

Matching the crowd: Combining crowdfunding and institutional funding to get great ideas off the ground (2017)
media.nesta.org.uk/documents/matching_the_crowd_main_report_0.pdf

Blog

Innovate to Save case studies
nesta.org.uk/feature/innovate-save-case-studies



Behavioural insights

Behavioural insights use ideas from behavioural science and psychology to encourage people to change their behaviour – for example taking more responsibilty for their health or doing more recycling.

11

Behavioural insights

Governments can only solve complicated challenges like obesity or climate change with the help of changes in public behaviour. Classic policy tools like publicly-provided services, taxes or subsidies can play a part. But on their own they're rarely enough. For example, cutting carbon emissions may involve encouraging people to use their cars less, or pay closer attention to household energy use.

Many aspects of health involve behavioural insights. For example, a patient with diabetes may be given expert advice and medication from their doctors and nurses. But they will only spend eight hours a year with clinicians in total, leaving a further 8,700 hours at home managing their condition on their own. As a result, the food they eat, the exercise they take and the support they get from family and peers has a significant bearing on how they manage their condition. Nudges and prompts to help citizens make better choices in circumstances like this can help significantly improve outcomes both for the individual and for society.

Behavioural insights use evidence from behavioural science and psychology to inform methods that governments or organisations can use to encourage citizens to engage in certain behaviours. Governments can therefore use behavioural insights to shape policy and test different prompts and nudges in service delivery, which will encourage citizens to move towards the desired governmental outcomes.

Nudge theory was popularised in government in the late 2000s. The theory sets out how people can be nudged into making decisions towards a certain outcome, through the shaping of the 'space' in which they make those decisions. However, while the decision-making environment might make it easier to make certain decisions, it does not force them – it instead retains the element of individual choice. For example, the way a menu is laid out in a school cafeteria might nudge students to select a healthier meal, or information about carbon footprint and calories burned might nudge an office worker to take the stairs rather than the lift.

bi.team

In 2014, Nesta became a co-owner of the Behavioural Insights Team (BIT) as it spun out of government. BIT is now a world leader in applying behavioural insights to government, working with central and local governments in every continent. Its aim is to design cheaper, more efficient and more effective interventions that go with the grain of human behaviour.

The OECD points to the following factors driving behaviour: attention, belief formation, choice and determination. BIT has applied this thinking to create the EAST framework for government innovators to design interventions that make it more likely citizens will choose behaviours with positive social outcomes. The framework has four factors: easy, attractive, social and timely.

Behavioural insights is not without its critics. Some fear governments will become a nanny state, using it to coerce citizens into choices they would not wish to make. But, despite significant press scrutiny in the UK, these fears have proven largely unfounded.

	Make any intervention...	What that means	Example
E	Easy	• Harness the power of defaults. • Reduce 'hassle factor'. • Simplify messages.	Auto-enrolment into pension schemes: in the first six months after employees in large firms were automatically enrolled into pension schemes, participation rates rose from 61 per cent to 83 per cent.
A	Attractive	• Attract attention. • Design rewards and sanctions for maximum effect.	Drawing the attention of those who fail to pay road tax: when letters to non-payers of car tax included a picture of the offending vehicle, payment rates rose from 40 per cent to 49 per cent.
S	Social	• Show that most people perform the desired behaviour. • Use the power of networks. • Encourage people to make a commitment to others.	Using social norms to increase tax payments: when letters from HMRC stated that most people pay their tax on time, it significantly increased payment rates. The most successful message led to a 5 per cent increase in payments.
T	Timely	• Prompt people when they are likely to be most receptive. • Consider the immediate costs and benefits. • Help people plan their response to events.	Increasing payment rates through text messages: prompting those owing Courts Service fines with a text message 10 days before the bailiffs are to be sent to a person's home doubles the value of payments made, without the need for further intervention.

Fig. 1
EAST framework, Nesta

Case studies

Helping patients make informed choices

The NHS is treating more patients now than ever before. High demand has led to long waiting lists for some specialist clinical services, especially in high-density populations. In 2016, the NHS worked with BIT to encourage GPs to refer patients to hospitals with short waiting lists, not just their local hospital, by prompting them with an onscreen pop-up message and colour-coding different options (red, amber, green). The trial found that the red flags reduced referrals to busy clinics by 38 per cent in a randomised controlled trial at a hospital trust in East London.

Increasing tax revenues for government

In 2013, BIT worked with HMRC to increase tax revenues from 'self-assessment' tax payers. Taxpayers were told 'nine out of ten people pay their tax on time'. The trial significantly increased the rate at which people paid their taxes, bringing forward £200 million in tax debt. Since then, the team has helped other international governments with similar experiments. Text message reminders sent to 750,000 businesses in Mexico helped increase tax declaration rates by 37 per cent.

Further resources

Toolkit

EAST: Four simple ways to apply behavioural insights
behaviouralinsights.co.uk/wp-content/uploads/2015/07/BIT-Publication-EAST_FA_WEB.pdf

Nudge: Improving Decisions About Health, Wealth and Happiness
Cass R. Sunstein and Richard H. Thaler, (Yale University Press, 2008)

Behavioural insights
oecd.org/gov/regulatory-policy/behavioural-insights.htm

Tools and Ethics for Applied Behavioural Insights: The BASIC Toolkit (2019)
oecd.org/gov/regulatory-policy/tools-and-ethics-for-applied-behavioural-insights-the-basic-toolkit-9ea76a8f-en.htm

Report

Behavioural Insights and Public Policy: Lessons from Around the World (2017)
oecd.org/gov/regulatory-policy/behavioural-insights-and-public-policy-9789264270480-en.htm

EAST: Four simple ways to apply behavioural insights
bi.team/publications/east-four-simple-ways-to-apply-behavioural-insights

Blog

Behavioural Insights
ec.europa.eu/jrc/en/research/crosscutting-activities/behavioural-insights

The Behavioural Insights Team and randomised controlled trials (2014)
nesta.org.uk/blog/the-behavioural-insights-team-and-randomised-controlled-trials

Projects and partners

Behavioural Insights Team
bi.team

Videos

Tim Pearse, Behavioural Insights Team
youtube.com/watch?reload=9&v=n9tChEVVO6k

What Works Centres of evidence

What Works Centres curate and communicate the best available evidence in a field (such as children's social care) to frontline professionals and policymakers, to help them make better decisions.

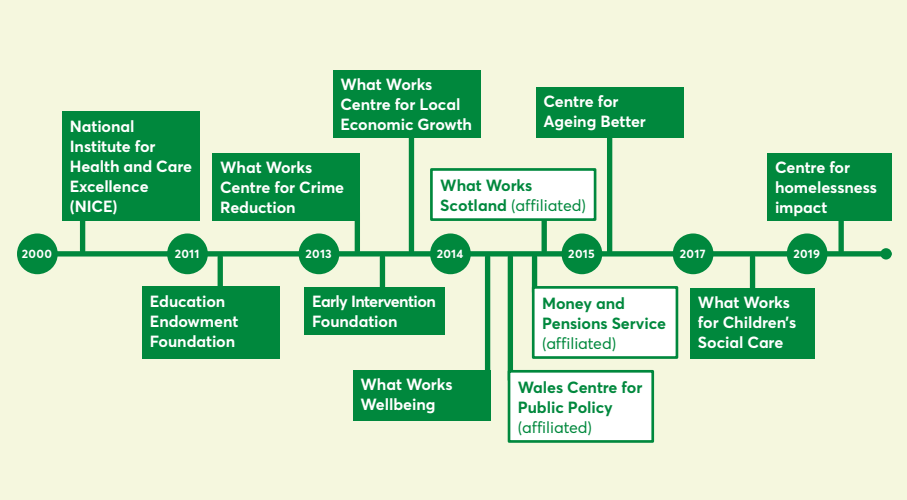
12

What Works Centres of evidence

Fig 1.
What Works Centre Timeline, *Public Value: How can it be measured, managed and grown?*, Nesta (June 2019).

The What Works network was launched in 2013, building on the work of NICE (1999) in health and the Education Endowment Foundation (2011), and it has flourished ever since.

Over the last three years new centres have sprung up, covering some of society's most pressing problems such as homelessness, children's social care or widening access to universities. There have been some serious long-term financial commitments, most recently in the form of a newly-launched £200 million Youth Endowment Fund, which aims to reduce youth violence, including tackling gangs and knife crime. This fund is being run by a consortium that includes the Early Intervention Foundation, one of the more established What Works Centres.



A hallmark of the What Works Centres is the way they communicate evidence to their respective audiences through toolkits, visualisations and tailored resources. For example, the Centre for Crime Reduction's Crime Reduction Toolkit allows practitioners and decision-makers, such as probation officers or police and crime commissioners, to navigate the global research base through easy-to-understand icons and images. Users can choose from either a simple table format or an intuitive 'bubble' version; both allow you to quickly find out how much evidence exists for different interventions and what that evidence tells us about their effectiveness.

Another key feature of the What Works Centres is their use of standards of evidence. These are easy-to-grasp frameworks, for both specialists and lay audiences, that judge the quality of evidence behind a policy, programme or practice. Usually these frameworks have five levels of evidence and usually the focus is on impact. Typically, the lower levels show that there is only limited evidence; higher levels show that more evidence is available. They can, however, vary widely around this model. Nesta has also pioneered standards of evidence. Our framework outlines five levels of evidence that range from early-stage evidence (Level 1) to robust replicable evidence (Level 5).

What Works Centres and standards of evidence are both tools intended for policymakers and practitioners on the frontline of delivery. They can help you make evidence-informed decisions so that you avoid doing harm and use funds as effectively as possible. These tools can also help you be accountable and transparent in how decisions that affect citizens' lives are made and how public money is spent.

Alliance4usefulevidence.org

alliance4usefulevidence.org/the-evidence-masterclass

Nesta's Alliance for Useful Evidence runs Evidence Masterclass training days for decision-makers in government and civil society to help them develop the skills and confidence to use the evidence tools available to them.

Case studies

What Works Centre for Children's Social Care

Through its Alliance for Useful Evidence, Nesta has championed the What Works movement since the beginning and remains an advisor to the Cabinet Office's **What Works Network**.

www.gov.uk/guidance/what-works-network

Since 2017, we have incubated the Department for Education-funded What Works Centre for Children's Social Care, which seeks better outcomes for children, young people and families by bringing the best evidence to decision-makers across the children's social care sector.

Engagement and co-design are central to their approach and we are working in close consultation with leaders, practitioners, children and young people, families and researchers across the sector. We aim to:

- Identify gaps in the evidence, and create new evidence through trials and evaluations.
- Collate, synthesise and review existing evidence in an Evidence Store, so that a social worker anywhere in England can easily find out how effective different interventions are (such as kinship care, or family drug and alcohol courts) and how they should be implemented.
- Develop, test and publish tools and services that support the greater use of evidence and inform the design of the future centres.
- Champion the application of robust standards of evidence in children's social care research.

The spread of standards of evidence

Dartington Service Design Lab and Project Oracle were among the first to develop standards of evidence. We published our own in 2012 and since then, many other innovation bodies, charities, businesses or public bodies have adapted the Nesta standards of evidence for their own use, such as HACT, Early Intervention Foundation, Pearson, Office for Students, UK Active and the Swedish innovation body Vinnova. There are currently more than 18 different standards of evidence in use.

Right
Social work managers taking part in an Evidence for Management tutorial delivered by What Works for Children's Social Care. Image: What Works for Children's Social Care

Further resources

Toolkit

Using Research Evidence: A Practice Guide (2016)
alliance4usefulevidence.org/publication/using-research-evidence-a-practice-guide-january-2016

Nesta's Standards of Evidence
nesta.org.uk/feature/innovation-methods/standards-evidence

Report

Mapping the Standards of Evidence used in UK social policy (2018)
alliance4usefulevidence.org/publication/mapping-the-standards-of-evidence-used-in-uk-social-policy

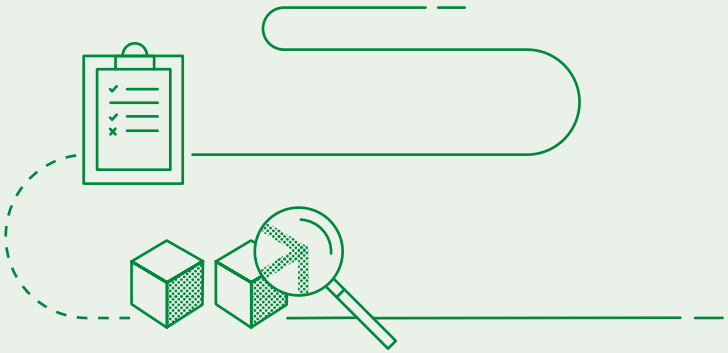
Projects and partners

The Alliance for Useful Evidence
alliance4usefulevidence.org

Evidence Masterclass
alliance4usefulevidence.org/the-evidence-masterclass

The What Works Network
www.gov.uk/guidance/what-works-network

The Centre for Social Action Innovation Fund: Our evidence base
nesta.org.uk/centre-social-action-innovation-fund-evaluations/nesta-standards-evidence



People powered public services

People powered public services involve people in the decisions that affect them, are shaped with people who use them, and draw from their skills, knowledge and creativity.

13

People powered public services

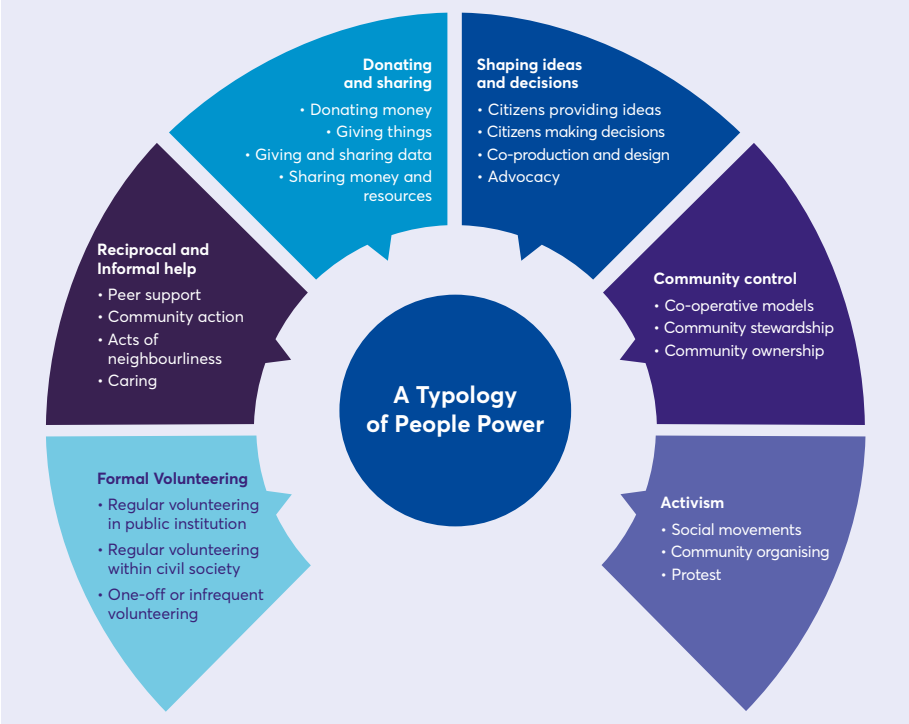
Traditional public services were often dominated by managers and professionals. The public were expected to be grateful for what they received but were given little say or control over how services were designed or delivered. There is growing dissatisfaction with the limits of overly top-down, technocratic public services that no longer fit well with people's increasingly complex lives, nor with systemic challenges like social isolation, child poverty and long-term health conditions.

Public services are experimenting with new ways of involving more citizens in the design, decision-making and implementation of public services to achieve better outcomes. This includes a wide spectrum of activities from civic activism to meaningful consultation to involving skilled volunteers in the delivery of support services. The diagram overleaf summarises the broad range of people power.

Over the last decade people powered approaches have been at the heart of Nesta's government innovation work. We first coined the phrase 'people powered public services' in 2010 as a way to describe the growing number of local authorities and healthcare trusts inviting users and patients in as experts to help re-design services and even offer peer support to new users. Much of this work was reliant on a vibrant social enterprise and community sector, as well as an open-minded public sector, with each given an equal platform in seeking to find new long-term solutions together.

People power offers the public sector:

- **New resources** to achieve social goals including the giving of time, money and insights by beneficiaries, family members and communities.
- **New expertise** and knowledge, direct from patients, customers and users to compliment professional expertise.



- **New reach** to people and places that might distrust professional public servants like social workers or police officers.
- **New models** that lead to fundamental changes in the way societies respond to social needs and challenges. For example, foster care was born from a volunteer movement, free schooling from a church movement, hospices from a community movement etc.
- **New reciprocal value** for the people who give their time. Evidence suggests that those who volunteer have higher rates of wellbeing and are less likely to be depressed. And volunteering can have a positive impact on the health of those with long-term conditions, with many reporting an easing of their symptoms.

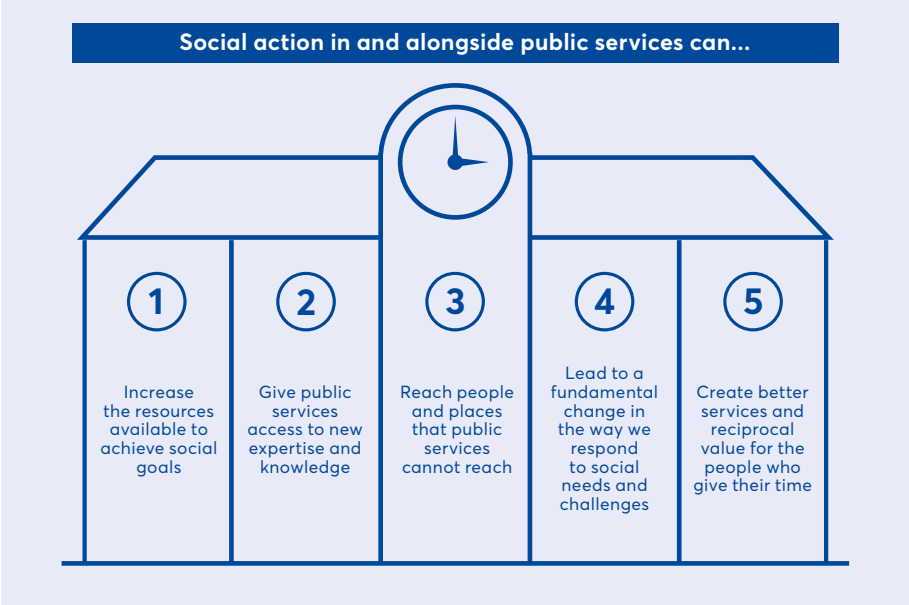
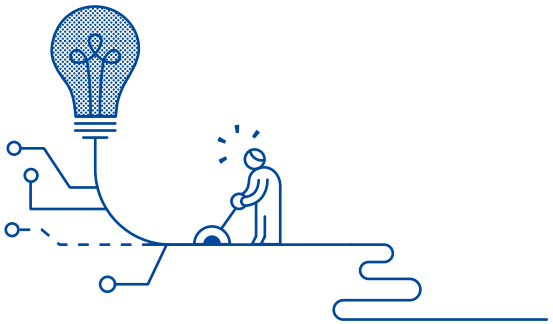


Fig. 2 (above)
Social action in and alongside public services can…, *People Helping People: Lessons learned from three years supporting social action innovations to scale*, Nesta (October 2016).

At Nesta we believe a shift to people powered public services by default could fundamentally change the way governments operate and significantly improve outcomes for communities. We continue to work to build the field of innovations using people power, improve the evidence base for its impact and support governments seeking to adopt these models.



Case studies

Centre for Social Action Innovation Fund

nesta.org.uk/project/centre-social-action-innovation-fund

In partnership with the Cabinet Office, Nesta set up the **Centre for Social Action Innovation Fund**. This £14 million fund ran from 2013 to 2016 and supported initiatives that experimented with approaches involving people helping each other, alongside public services, to achieve better outcomes.

Many of these initiatives have scaled from one location to national, such as:

GoodGym: This community of runners come together to provide social support visits to older people and manual labour for community projects. Nesta supported them to grow and win commissions from 22 local authority areas across England, who refer isolated older adults to become coaches for the runner and receive weekly visits. GoodGym has now established itself in 50 local authority areas.

Shared Lives Plus: This charity places adults and children with high needs (physical and learning disabilities, dementia, mental health challenges) into families who share their homes and lives with them as an alternative to residential care. The fund supported Shared Lives Plus to grow so that every local authority in the country can access this model.

Cities of Service UK

From March 2014 to March 2016, Nesta backed seven UK cities to mobilise the talents and energy of local people to meet city-wide challenges, replicating the successful United States Cities of Service model.

The seven cities (Barnsley, Bristol, Kirklees, Plymouth, Portsmouth, Swindon, and Telford and Wrekin) worked together with local people to decide a key city priority. They supported local people to work together with city officials in order to tackle some of the most pressing issues in their local areas.

Local authorities redefined their relationships with local citizens, understanding that a new way of working to tackle these pressing issues was required. Bristol managed to increase reading attainment in the schools that needed it most, and has since gone on to create a 'reading city initiative' to support all young people. Barnsley's **Love Where You Live** initiative involved thousands of people in improving their local areas, and increased civic pride. This has become embedded as a core way of working in Barnsley, and they have gone on to grow into new areas including reducing loneliness and isolation.

barnsley.gov.uk/services/community-and-volunteering/love-where-you-live

Right
Grow, Share, Cook – Cities of Service, Plymouth City Council. Image: Cities of Service

Further resources

Report

People helping people: the future of public services (2014)
nesta.org.uk/report/people-helping-people-the-future-of-public-services

Cities of Service UK (2016)
nesta.org.uk/report/cities-of-service-uk

People Helping People – lessons learned (2016)
nesta.org.uk/report/people-helping-people-lessons-learnt

The power of peer support (2016)
nesta.org.uk/report/the-power-of-peer-support

We change the world: What can we learn from global social movements for health? (2017)
nesta.org.uk/report/we-change-the-world-what-can-we-learn-from-global-social-movements-for-health

Good and bad help: how purpose and confidence transform lives (2018)
nesta.org.uk/report/good-and-bad-help-how-purpose-and-confidence-transform-lives

Blogs

Field Notes: a monthly blog series by innovators, for innovators (2019)
nesta.org.uk/blog/field-notes

Lives saved, grades earned, jobs secured and more (2016)
nesta.org.uk/blog/lives-saved-grades-earned-jobs-secured-and-more

Projects and partners

Centre for Social Action Innovation Fund
nesta.org.uk/project/centre-social-action-innovation-fund

Nesta Government Innovation People Power
nesta.org.uk/project/government-innovation-people-power

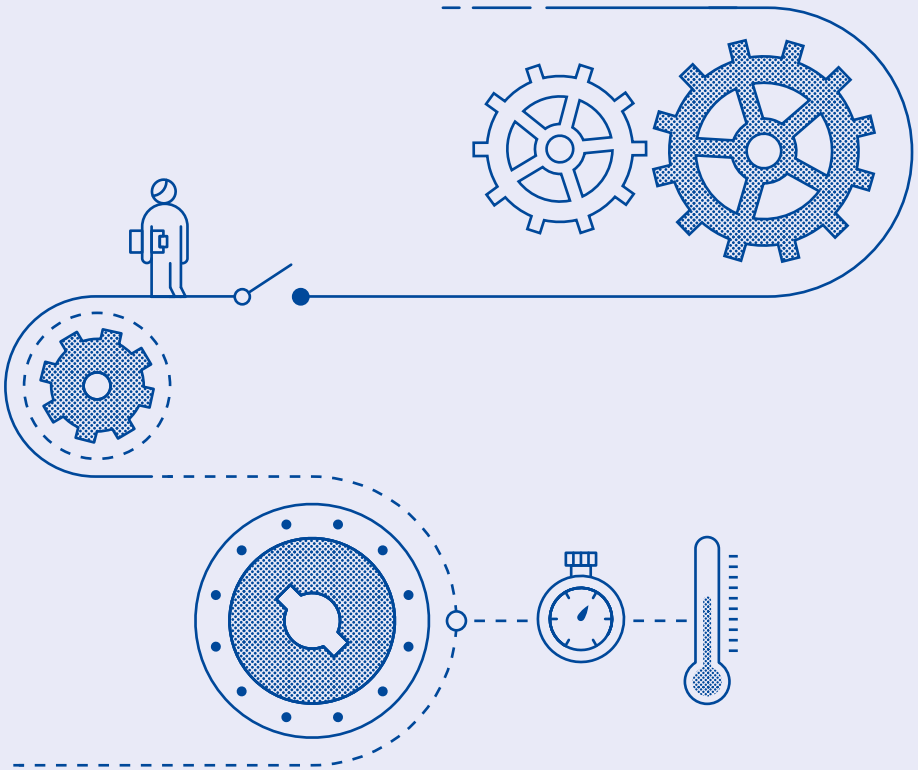
Savers Support Fund
nesta.org.uk/project/savers-support-fund

Second Half Fund
nesta.org.uk/project/second-half-fund-sharing-time-and-talents-life

Connected Communities Innovation Fund
nesta.org.uk/project/connected-communities-innovation-fund

GoodHelp
nesta.org.uk/project/good-help

Love Where You Live
barnsley.gov.uk/services/community-and-volunteering/love-where-you-live



Impact partnerships

Impact partnerships bring together government, business and civil society to collaborate in tackling social problems, mobilising the distinct capabilities of each sector.

14

Impact partnerships

Big challenges like mental health or financial exclusion can't be solved by governments alone. As a result there is growing interest in more systematic ways to bring together government, big business and civil society to address problems, ideally with clear targets and division of labour.

Public/private partnerships are not new to local and central government. In the past many were primarily focused on funding and managing infrastructures; others at a local level ranged from the genuine to the cosmetic. Meanwhile, too many corporate social responsibility programmes were low on impact and primarily designed for public relations.

Impact partnerships aim to go beyond these models with clear tasks and roles for each sector, shared targets and mutual accountability. They try to mobilise big employers to use their unique power and connections to contribute to solving a problem – since on issues like mental health in the workplace, or transitions into jobs for young people, they may have a bigger and more direct role to play than government. And they try to mobilise promising social innovations and help them grow to scale.

Impact partnerships typically bring together:

- Government: Government brings the convening power and authority to incentivise participation with funding, policy and regulation.
- Private sector: Big firms often bring established infrastructure, resources and global reach. They are motivated not just by a sense of social responsibility, but also by the desire to increase the skills, health and wellbeing of their staff, or the desire to work on local issues which affect their ability to recruit good staff in the future.

Types of partner

Corporations and large businesses – with huge resources, highly motivated staff and often global reach.

Government – with convening power and authority to incentivise participation with funding, policy and regulation.

Civil society – with the expertise and depth of knowledge on entrenched social issues and funding resources to support the partnership.

Social innovators and citizens – with ideas, drive and expertise on the issues being addressed.

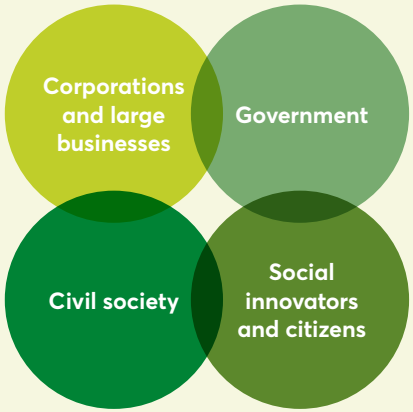


Fig.1 (above)
Types of partner

- Civil society: This group brings the expertise and in-depth knowledge on entrenched social issues, as well as trusted relationships with communities in need.
- Social innovators and citizens: The people with the ideas, drive and expertise on the issues being addressed.

Through a structured process, impact partnerships can help define the key objectives and challenges, identify each party's strengths and contributions, and determine the best approach to tackle the problem at hand.

Impact partnerships can be particularly helpful in the following situations:

- To tackle entrenched social problems that aren't getting fixed, such as youth unemployment, homelessness and financial exclusion.
- Where existing solutions are not currently fulfilling their potential, whether this is due to a lack of funding, a lack of expertise, or competition for resources.
- Where there are disparate and conflicting efforts due to dilution of funding, talent not working, inefficient duplication or unhealthy competition.
- Where there is a high level of uncertainty and organisations are struggling to act alone. This might be due to lack of clarity on the problem or how to act on it, a low-risk appetite, or lack of knowledge about where to invest.

Fig.2
When impact partnerships work well, Nesta (June 2019).

nesta.org.uk/project/inclusive-economy-partnership

Since 2017, Nesta has supported the UK government to deliver the Inclusive Economic Partnership (IEP), bringing together large employers and civil society organisations, using the impact partnership methodology. This proved successful at national scale (see case study). But much of the method can also be applied in local places too, supporting local government as a 'place shaper' or facilitator of local people, communities and businesses to build thriving places in partnership with public services.

Case studies

The Inclusive Economy Partnership

www.gov.uk/government/organisations/department-for-digital-culture-media-sport

Nesta has worked with the UK Cabinet Office and the **Department for Digital, Media, Culture and Sport (DCMS)** to develop the IEP. More than 200 businesses and civil society organisations agreed to join government to design and take individual and collective action towards three big societal challenges:

- Financial inclusion and capability.
- Transitions to work for young people.
- Mental health support in the workplace.

Throughout the programme, Nesta supported a group of 18 social innovations to grow their impact and reach with access to grant finance and connections to business and government. One hundred impact partnerships were established, with businesses offering resources, new insights and mentoring to support the social innovators to reach 50,000 new beneficiaries to date.

Further resources

Toolkit

Partnership Toolkit
nesta.org.uk/toolkit/partnership-toolkit

Report

Collaboration and collective impact (2016)
nesta.org.uk/blog/collaboration-and-collective-impact

Using partnerships to tackle some of society's toughest challenges (2019)
nesta.org.uk/report/using-partnerships-tackle-some-societys-toughest-challenges

Networks That Work: Partnerships for integrated care and services (2013)
nesta.org.uk/report/networks-that-work-partnerships-for-integrated-care-and-services

Blogs

Impact Partnerships: a new species of public-private partnership? (2019)
nesta.org.uk/blog/cross-sector-impact-partnerships-cips-new-species-public-private-partnership

Projects and partners

Department for Digital, Media and Sport (DCMS)
www.gov.uk/government/organisations/department-for-digital-culture-media-sport

Inclusive Economy Partnership (IEP)
nesta.org.uk/project/inclusive-economy-partnership

Digital technologies to enhance services

Technology is transforming how public services are delivered – from the use of big data to make services smarter and more personalised, to enabling digital interactions between citizens and staff.

15

Digital technologies to enhance services

Although public services are not usually considered early adopters of technology, recent years have seen a marked increase in experimentation by central and local government. Technology is being used by governments in a number of ways.

- **Supporting better staff decision-making:** Software-as-a-service and artificial intelligence are great tools for optimising resources when you need to process large quantities of data. When applied to social services, for instance, they can support frontline government staff to access real-time data on cases they are handling and make decisions based on multiple datasets (which can include a variety of data forms, such as visual and linguistic), that combined, are able to provide greater insights (see section 1).
- **Making services smarter:** Technologies can offer substantial improvements to how existing services are operated and delivered. Automation technologies can be deployed to perform repetitive tasks where inputs or outputs have a binary answer. Through sensors it is possible, for instance, to get an at-a-glance view of traffic congestion. Algorithms can now use this information to optimise public transport routes by modifying signal timing to ease traffic flow, reduce congestion and save energy through more efficient use of street lights.
- **Streamlining relationships with customers and communities:** Digital technologies can streamline existing, mostly transactional, processes and services to make citizen interactions with government services simpler. For instance, where citizens were once required to interact with public sector organisations through traditional models of delivery (i.e. face-to-face, phone calls, letters) for anything from enquiries to payments, it is now possible to shift to a model where a large part of contact can be conducted online or via mobile apps. This process is generally referred to as 'channel shift' and it allows citizens to access services such as paying tax or reporting a pothole any time, anywhere. Other examples include online tools where citizens are able to prove their identity using the online platform GOV.UK Verify in order to use other transactional services.

www.gov.uk/government/publications/introducing-govuk-verify/introducing-govuk-verify

- **Increasing opportunities for democratic and public engagement:** A new generation of digital tools is being used to re-engage communities by enabling citizens' voices to be heard (see section 3). For example, tools like Pol.is enable governments to crowdsource ideas; Barcelona Decidim offers opportunities for co-drafting legislation; and Budget Participatif in Paris engages citizens in decisions around how local budgets are spent.

Nesta's forthcoming publication *A Brief Introduction to Digital Transformation* captures five common pitfalls for government innovators designing new services that make good use of digital technologies:

1. **Organisations focus on (technical) means rather than (real world) ends.** Fixating on the digital aspect of any reform misses the wider suite of tools and innovations available, and risks leading to expensive misadventures that produce few tangible results.
2. **The role of digital technologies in delivery reform gets overstated.** Where a digital solution is appropriate, governments need to exercise caution to avoid getting swept up in the hype cycle of new technologies, or commissioning bespoke systems which are expensive to modify or share.
3. **It disempowers and disengages leaders.** Some see technology as a panacea to problems. Other feel out of their depth discussing it. Either way, technologies can too easily disengage politicians, public sector leaders, service managers and frontline staff.
4. **Responsibility for reform gets delegated to and led by the digital team.** A common pitfall is that the work of integrating digital technologies to enhance services becomes the purview of the IT department, rather than engaging front line users, staff and delivery managers throughout.
5. **Organisations bolt on new digital tools to the same old ways of working.** New technologies might speed up a process, or open up new forms of communication, but they will be of limited impact if the underlying service remains the same. The most impactful service transformations also shift the roles and culture of the government team delivering them, allowing them to work with more agility and experimentalism.

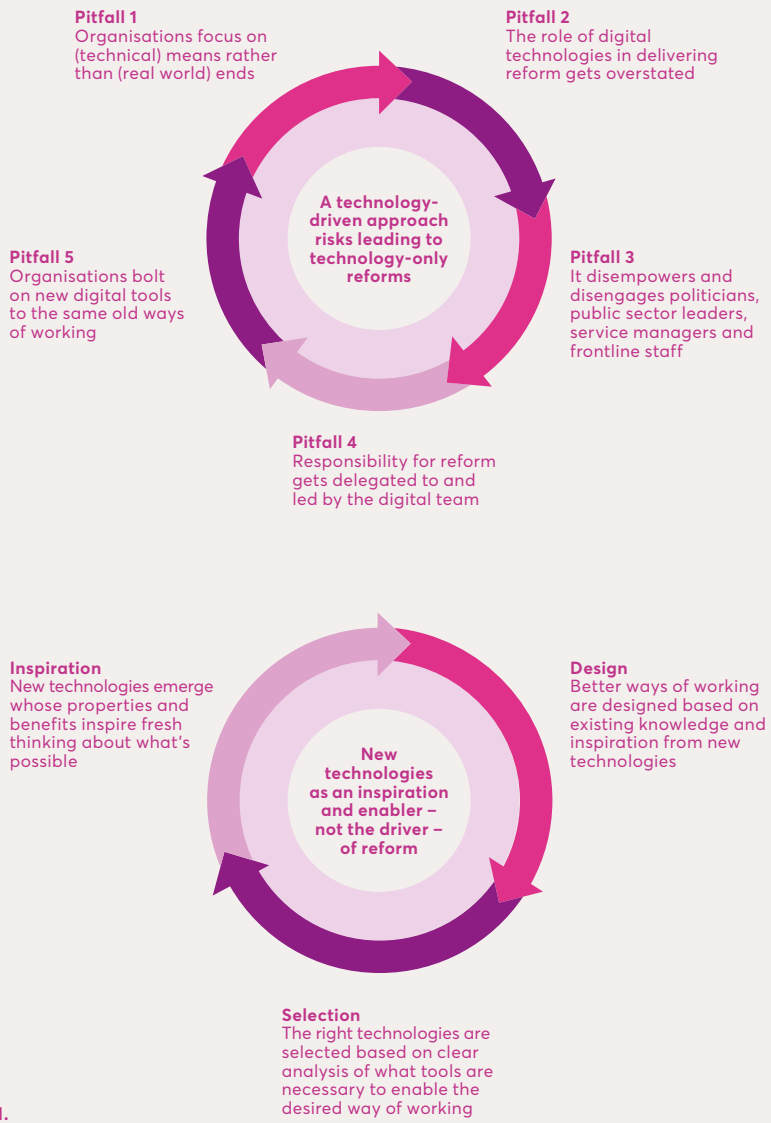


Fig 1.
A Brief Introduction to Digital Transformation, Nesta (September 2019)

Case studies

Programmes to support technologies

At Nesta, we have also backed many government agencies, especially local authorities, to test new technologies to enhance service delivery. For example:

nesta.org.uk/project/rethinking-parks

Physical technology: As part of the **Rethinking Parks** grant programme, the charity 10:10 is experimenting with the use of heat pumps in council-owned parks to supply nearby buildings with renewable energy. By tapping into the hidden low-carbon heat resource in green spaces, two problems can be addressed at once: cutting carbon emissions and supplementing councils' park revenues.

nesta.org.uk/project/government-innovation-people-power

breathingspaces.org.uk

Big data: As part of Nesta's **Government Innovation People Power** programme we support a community group called the Southampton Collective, which is promoting **Breathing Spaces**. This is an early-stage idea of testing how data on air pollution may be used to galvanise civic engagement with the local council and take action to address this challenge.

nesta.org.uk/project/y-lab

Automation: The Innovate to Save fund, part of **Y-Lab** in Wales, supports new ideas that have the potential to improve public services and generate cashable savings. For example, the Swansea Bay University Health Board are in the testing phase of a project that uses robotic process automation to streamline their prescription validation processes for homecare medicines. Currently, prescriptions are checked by a pharmacist, which takes up valuable time that could be dedicated to seeing patients.

CogBooks

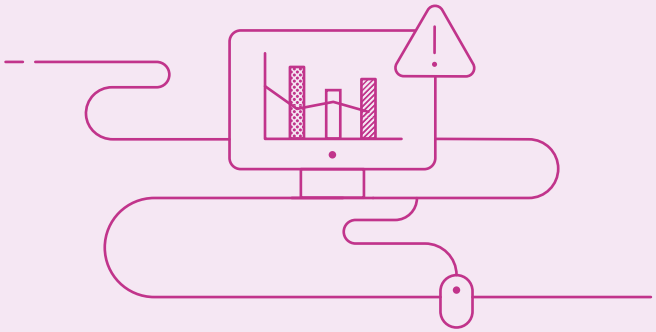
Cogbooks.com

CogBooks is a UK-based education technology business committed to transforming student online learning experience by applying science-based methods to education. By personalising learning to students' individual needs, CogBooks has demonstrated that its advanced adaptive online learning technology can significantly improve attainment and student retention.

London Borough of Enfield, Amelia chatbot

ipsoft.com/wp-content/uploads/2017/11/Case-Study-Enfield-Council_PDF.pdf

Each month the London Borough of Enfield receives 100,000 visits to its website and takes 55,000 telephone calls. Sustaining consistently high-quality customer service in order to meet rising expectations is challenging. In 2016 it introduced the **Amelia chatbot** to deal with simple enquiries. The roll out of the technology has been effective so far, recognising the intent of user requests 98 per cent of the time and freeing up valuable staff time by dealing with the simplest enquiries.



Further resources

Toolkit

A Brief Introduction to Digital Transformation: A guide for public sector leaders who want to understand and get the best out of technology (2019)
nesta.org.uk/report/brief-introduction-digital-transformation

Report

Connected Councils: A digital vision of local government in 2025 (2016)
nesta.org.uk/report/connected-councils-a-digital-vision-of-local-government-in-2025

Technology innovation in government survey (2018)
www.gov.uk/government/publications/technology-innovation-in-government-survey/technology-innovation-in-government-survey

Digital Tools for Citizens' Assemblies (2019)
research.mysociety.org/media/outputs/digital-tools-citizens-assemblies.pdf?utm_s ource =Digest&utm_campaign=85fd60a54b-RSS_EMAIL_CAMPAIGN&utm_medium=email &utm_term=0_d90a01c7ff-85fd60a54b-87763101

Blogs

Future technology in government (2019)
instituteforgovernment.org.uk/explainers/future-technology-government

Innovate to Save Case Studies
nesta.org.uk/feature/innovate-save-case-studies

Projects and partners

Improving digital government
instituteforgovernment.org.uk/our-work/whitehall/improving-digital-government

GOV.UK Verify
www.gov.uk/government/publications/introducing-govuk-verify/introducing-govuk-verify

Rethinking Parks
nesta.org.uk/project/rethinking-parks

Government Innovation People Power
nesta.org.uk/project/government-innovation-people-power

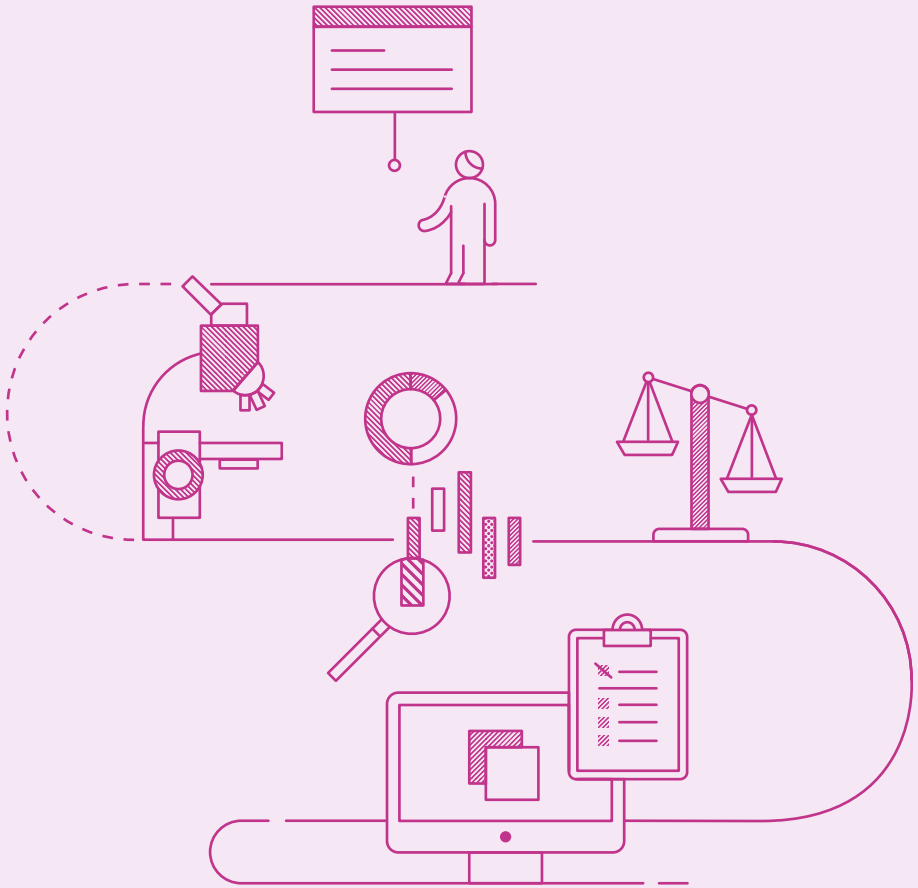
Breathing Spaces
breathingspaces.org.uk

Y Lab
nesta.org.uk/project/y-lab

New Ideas
nesta.org.uk/feature/innovate-save-case-studies

CogBooks
cogbooks.com

London Borough of Enfield, Amelia chatbot
ipsoft.com/wp-content/uploads/2017/11/Case-Study-Enfield-Council_PDF.pdf



Anticipatory regulation

Traditional ways of regulating are struggling to cope with the pace of change in technology. Anticipatory regulation (a phrase Nesta coined in 2016) is an emerging approach for government to regulate. Anticipatory regulation is proactive, iterative and uses experiments, sandboxes and data to better guide evolving technologies.

16

Anticipatory regulation

Fast-moving innovation in technologies like drones, blockchain or artificial intelligence (AI) brings big opportunities, but also carries risks for society. At the same time, more mature regulated markets, such as finance and energy, are not delivering the competition and innovation that consumers and the economy needs.

In response to these issues, a new set of regulatory practices have emerged that reshape the role of regulation in supporting innovation. New approaches, such as the Financial Conduct Authority's (FCA) sandbox or the development of various testbeds for autonomous vehicles around the world, are at the forefront of this change. There's a radical shift in both the theory and practice of regulation with the emergence of the new field of anticipatory regulation.

Anticipatory regulation provides a set of behaviours and tools that is intended to help regulators and government identify, build and test solutions to emerging challenges. Three modes of action have appeared in this burgeoning area: advisory, adaptive and anticipatory approaches. These three modes vary in their goal, approach and who they involve, but all demonstrate a more proactive, engaged role for regulators in the innovation process.

Six core principles underlie the anticipatory regulation approach:

- **Inclusive and collaborative:** It is inclusive and collaborative in engaging the public and diverse stakeholders where emerging technologies raise ethical issues with sensitive political implications, and in leveraging the capabilities of businesses, cities and civil society to secure policy goals.
- **Future-facing:** It is future-facing in developing resilient, adaptive strategies that can cope with the inherent uncertainty of fast-changing markets.

- **Proactive:** It is proactive in engaging with innovators and innovation early to enable timely, proportionate responses to issues that may scale rapidly.
- **Iterative mindset:** It encourages an iterative mindset in taking a test-and-evolve rather than solve-and-leave approach to novel problems.

Fig. 1
The AAA model of anticipatory regulation, *A working model for anticipatory regulation: A working paper*, Nesta (November 2017).

- **Outcomes-based:** It is outcomes-based in its focus on validating companies' efforts to achieve well-defined goals, rather than setting rules, and incentivising platforms to support regulatory objectives.
- **Experimental:** It is experimental in facilitating diverse responses to regulation of early-stage opportunities and risks, and where national or global policies and standards are still to be established.

Case studies

Programmes to support technologies

Nesta is developing new ways of thinking about regulation and working to show what it means in practice. In our work, we consider the relationship between regulation and innovation and the impact new approaches could have on the UK's global competitiveness.

In 2012, we analysed the relationship between regulation and innovation in *The Impact of Regulation on Innovation* and since 2013 our ongoing work on emerging technology has explored the role of regulation in ensuring innovation delivers public benefit. For example, in 2016 we set out plans for a better approach to regulating AI, calling for a new UK Machine Intelligence Commission and a code of standards to guide public agencies.

In 2016, we coined the phrase 'anticipatory regulation' to capture the range of new tools and approaches, such as regulatory sandboxes, being used by us and others around the world. Later in 2017, Nesta initiated the first regulatory challenge prize **The Open Up Challenge** – as part of a wider package of reforms driven by the Competition and Markets Authority. This £5 million prize led to the development of new tools that use 'open data' to help small businesses compete in the digital economy.

nesta.org.uk/project/open-challenge

More recent work has built on the idea of anticipatory regulation through reports like *A working model for anticipatory regulation* and *Regulation renewed: Anticipatory regulation in an era of technological disruption*. This work led to the development and announcement of the £10 million Regulatory Pioneers Fund, supporting UK regulators to test and scale innovative methods to enable business innovation, and a subsequent government white paper on its future regulatory strategy.

Nesta continues to work closely with regulators and governments internationally to develop and understand this new set of regulatory tools and approaches.

Programmes to support technologies

In 2016, the Singapore government created the Committee on the Future Economy (CFE). It reviewed Singapore's economic strategies for the following decade, including the role of regulation. The process consulted more than 9,000 stakeholders, including trade associations and chambers, public agencies, unions, companies, executives, workers, academics, educators and students. The committee's recommendations encouraged regulators to facilitate innovation in key emerging technologies and remove regulatory barriers to innovation.

The CFE's foresight and futures work supports the creation of a regulatory environment that favours innovation and risk-taking, adopting a 'never say no' approach to new business models. Regulatory agencies are encouraged to allow new models to be piloted and to collaborate on reviews of regulation.

Today Singapore is a hotbed of regulatory innovation, particularly for experimentation and testbeds/sandboxes. For example:

- The Singapore Autonomous Vehicle Initiative (SAVI), was established in 2014 to start research into AV transportation and test-bedding. SAVI includes an open platform where the industry, research institutions and the authorities can jointly conduct self-driving trials. As a result, Singapore has, according to the Financial Times, 'created one of the most permissive regulatory regimes in the world to test driverless cars'.
- The Monetary Authority of Singapore has built a Smart Financial Centre that includes an open banking platform and sandboxes to test promising FinTech innovations in the market.
- The Energy Market Authority (EMA) has introduced a regulatory sandbox to support energy innovations. The energy market sandbox allows EMA to assess the impact of new products and services before deciding on the appropriate regulatory treatment.

Further resources

Toolkit

A Brief Introduction to Digital Transformation: A guide for public sector leaders who want to understand and get the best out of technology (2019)
nesta.org.uk/report/brief-introduction-digital-transformation

Report

Regulation Renewed: 'anticipatory regulation' in an era of technological disruption (2019)
nesta.org.uk/report/renewing-regulation-anticipatory-regulation-in-an-age-of-disruption

A working model for anticipatory regulation: A working paper (2017)
nesta.org.uk/report/a-working-model-for-anticipatory-regulation-a-working-paper

Report of the Committee on the Future Economy: Pioneers of the next generation (2017)
gov.sg/~/media/cfe/downloads/cfe%20report.pdf?la=en&lipi=urn%3Ali%3Apage%3Ad_flagship3_pulse_read%3BKVsSBgo%2BQFGH41yO3XdnbA%3D%3D

The Impact of Regulation on Innovation (2012)
nesta.org.uk/report/the-impact-of-regulation-on-innovation

Framework for a Regulatory Sandbox for the Energy Sector in Singapore (2017)
ema.gov.sg/cmsmedia/EMA%20Regulatory%20sandbox%20-%20Final%20Determination%20Paper_Final.pdf

Singapore experiments with smart government (2018)
ft.com/content/b1b239a2-ff54-11e7-9650-9c0ad2d7c5b5

Blog

Anticipatory Regulation: 10 ways governments can better keep up with changing
nesta.org.uk/blog/anticipatory-regulation-10-ways-governments-can-better-keep-up-with-fast-changing-industries

A machine intelligence commission for the UK (2016)
nesta.org.uk/blog/a-machine-intelligence-commission-for-the-uk

A machine intelligence commission for the UK (2016)
nesta.org.uk/blog/a-machine-intelligence-commission-for-the-uk

10 principles for public sector use of algorithmic decision making
nesta.org.uk/blog/10-principles-for-public-sector-use-of-algorithmic-decision-making

Singapore Autonomous Vehicle Initiative (SAVI)
lta.gov.sg/content/ltaweb/en/roads-and-motoring/managing-traffic-and-congestion/intelligent-transport-systems/savi.html

The Open Up Challenge
nesta.org.uk/project/open-challenge

Other

Regulation for the Fourth Industrial Revolution
www.gov.uk/government/publications/regulation-for-the-fourth-industrial-revolution

Budget 2017: Nesta response (2017)
nesta.org.uk/news/budget-2017-nesta-response-1

Data governance

Data governance describes the rules by which data is stored, shared and used. Governments increasingly recognise the need for sophisticated new models of governance to maximise the public value that can be gained from data while also strengthening privacy and citizen control.

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Data governance

The growth of digital technologies throughout the economy has produced a huge increase in opportunities to extract value from data. So far, the private sector has been extremely successful in unlocking value in data. This is evident in the growth of the personal data economy and increasingly sophisticated big data analytics which companies use to drive greater sales volumes and profits.

By comparison, governments and the social sector have been much slower to realise the full value of data, which alongside economic value, can also add social and environmental value. Governments are beginning to get to grips with their own data, pursuing a range of use cases ranging from fraud detection through to decision-making at the frontline of children's social care.

The value of data grows as it is shared and combined with other data, increasing its richness and potential for insights. But there are still relatively few examples of successful data pooling for social purpose. Part of the reason for this is a lack of institutional frameworks that can govern the trusted sharing and use of data between multiple organisations. Public organisations need to ensure that principles of privacy, consent and security are followed.

But in order to innovate with data, they will also need to invent new data governance arrangements, such as:

- **Data trusts:** In its narrowest definition, a formal legal trust in which a set of trustees is given responsibility for managing the sharing, storage and use of data from a range of parties; more broadly a public body charged with curating public data in the public interest.
- **Data co-operatives:** Individuals voluntarily agreeing to share data for a specific purpose, with collective decision-making about its governance.

- **Data commons:** Data shared as a common resource among individuals or organisations, who collectively decide on the rules that govern access to it (which might include co-operatives as above).
- **Data exchanges and marketplaces:** Using the price mechanism to incentivise data sharing.
- **Personal data stores:** Data aggregation for individuals, often with some ability to share data with others.

Each of these enables data to be shared, with permission, in specific ways to release forms of value. Some involve a formal institutional form with data sharing mandated by regulation or law, while others can exist more informally as voluntary arrangements for organisations or individuals.

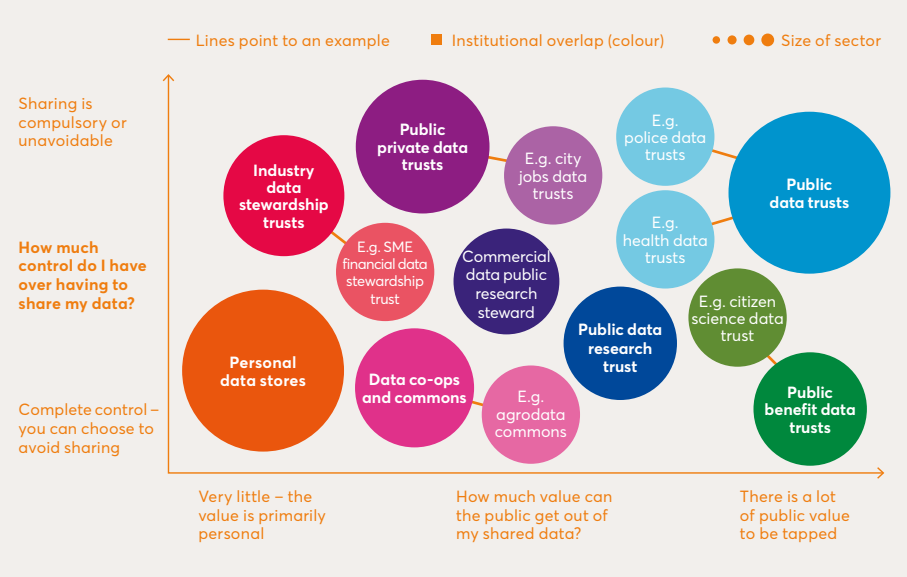
As a tool for government innovators, new forms of data governance are applicable as both a means of getting more value from public sector data and also for encouraging actors in the private, academic and voluntary sectors, as well as individuals, to make their data available for social value.

The choice of which form of governance to use is dependent on a range of factors, such as the sensitivity of the data, the potential value of the data, how it is accessed and the preferences of the institutions involved. These new data governance structures are emergent and the coming years will produce new insights about which work best and why.

Fig.1 (below)
A new framework for data governance, Nesta.

Some key considerations for public servants include:

- If this relates to non-governmental data, is it something which is best created through top-down mechanisms, such as regulation or financial inducement, or can tools be provided which would allow communities, businesses and individuals to form their own governance arrangements?
- Does a trusted institution already exist which could assume responsibility for data governance, or is something new required?
- What technology can be used to ensure that data privacy and ethical concerns are addressed, at the same time as making data easily available in real time with predictable update schedules?
- How will citizens be assured about the storage and ethical use of their data?
- How can governments extract the maximum possible value from the data in improving the efficiency of public services or in making user experiences more personalised?



Case studies

DECODE

nesta.org.uk/project/decode

DECODE is an EU-funded project developing privacy-enhancing, secure data-sharing technology. This technology underpins pilots in Amsterdam and Barcelona testing some of the world's first data commons.

DECODE's aim is to give people choice over whether to share their data, with whom, for how long and for which purposes. The data shared by individuals becomes a common-pool resource, created to help researchers, entrepreneurs, developers and governments to extract latent social value.

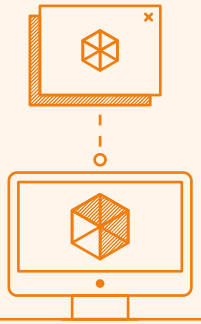
Early use cases for DECODE include data shared about air quality and noise pollution, neighbourhood-level social networking and as part of digital democratic engagement. Each instance is a commons, and over time DECODE aims for there to be multiple commons in cities and places around the world. These commons can be a tool of innovation, helping to unlock the social value of personal data.

MIDATA.coop

MIDATA.coop is a Swiss co-operative that aims to give people control over their medical data. Users can collect a variety of health-related information, including their hospital records, data produced by fitness trackers, even their genomic profile, and safely encrypt and store it in a local cloud. The user can then track their progress or share the data with whomever they want: their doctor, their family members, or relevant clinical trials where their data could prove useful.

One of the things that makes MIDATA.coop different from other data storage platforms is that it does not use monetary rewards to encourage people to share their data. The primary motivation is to help with medical research they care about. Patients gain collective influence by pooling data together, creating a valuable resource which pharmaceutical companies want to access. Any money made from this data is invested back into the community, as decided by members of the co-operative, rather than provided as dividends to shareholders. This is an important aspect of MIDATA.coop's model: everyone has similar amounts of personal data, whether it be number of heartbeats or genome data, so everyone should have an equal say in how it is used.

Though only founded in 2015, it has already seen some successes. The first pilot sees post-bariatric surgery patients recording health data like their weight loss and sharing it with doctors who are investigating the post-operative recovery period. The latest study examines a drug's effect on multiple sclerosis patients by analysing the data they input about motoric and cognitive capabilities on an app. As of 2017, anyone can become a member without an access fee.



Further resources

Report

Wise Council: Insights from the cutting edge of data-driven local government (2016)
nesta.org.uk/report/wise-council-insights-from-the-cutting-edge-of-data-driven-local-government

Me, my Data and I: The future of the personal data economy (2017)
media.nesta.org.uk/documents/decode-02.pdf

Reclaiming the Smart City: Personal Data, Trust and the New Commons (2018)
nesta.org.uk/report/reclaiming-smart-city-personal-data-trust-and-new-commons

Blogs

The new ecosystem of trust (2019)
nesta.org.uk/blog/new-ecosystem-trust

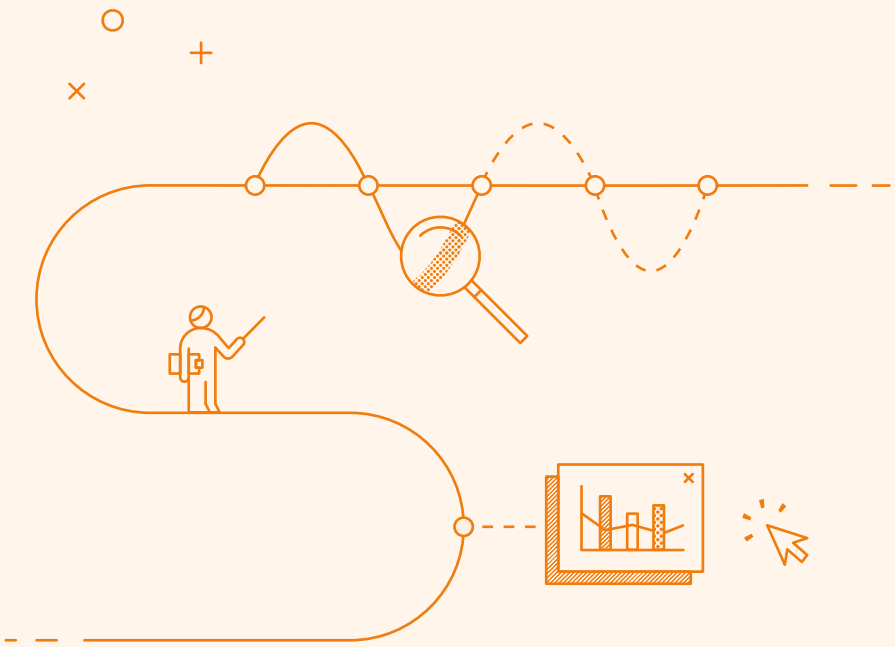
What is a data trust? (2018)
theodi.org/article/what-is-a-data-trust

Projects and partners

GovLab Data Collaboratives
datacollaboratives.org

Healthier Lives Data Fund
nesta.org.uk/project/healthier-lives-data-fund

DECODE
nesta.org.uk/project/decode



How to develop an innovative mindset

Innovation isn't just about tools, it's also about your mindset. Adopting a collaborative, experimental and action-oriented mindset helps innovators in government make change happen.

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How to develop an innovative mindset

Over the last two decades there has been growing interest in innovation methods, funds and tools of the kind set out in this handbook. Without these it's very hard to innovate effectively. But experience suggests that on their own these aren't enough: cultures and mindsets matter as much as methods to embedding innovation in bureaucracies that may find it easier to crush new ideas and marginalise individual innovators. Cultures that value openness, curiosity and willingness to experiment are vital if innovation is to be more than rhetoric.

Nesta designed this framework to help teams facilitate conversations about the skills needed amongst a wider, empowered and well-balanced team. These three areas cover a diverse range of skills:

- Accelerating learning: Skills to explore and iterate new ideas to inform and validate new solutions like data and technology literacy or a working understanding of prototyping tools.
- Working together: Skills to actively involve citizens, broker new options and facilitate conversations with different stakeholders to create shared ownership of new ideas.
- Leading change: Skills like storytelling, negotiation and political maneuvering to win support and finance to get new ideas off the ground.

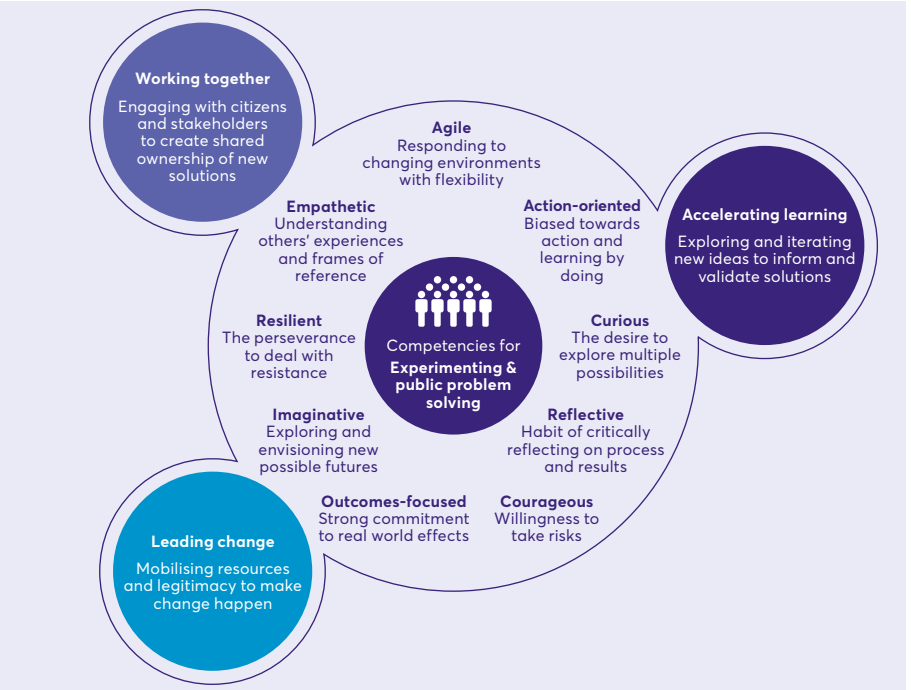

Fig.1
The competency framework, *Skills, attitudes and behaviours that fuel public innovation*, Nesta.

This is a diverse range of skills and it's important to note that they are unlikely to all reside in one individual. We designed this framework to help teams facilitate conversations about the skills needed amongst a wider, empowered and well balanced team.

But our work with government teams around the world suggests that these skills alone are not enough, they must also be supported by an innovative mindset. Your mindset is an established set of attitudes determined by your perceptions of the world, how you make sense of situations (consciously or unconsciously) and how you interpret information. But mindsets are not fixed; they can change.

Governments that want to help their teams to embrace an innovative mindset should help their staff to develop three specific elements that make up an innovative mindset:

- **The collaborative mindset:** Driven by the 'we' rather than the 'me', this mindset seeks to understand situations from multiple perspectives. It is concerned with demonstrating empathy and humility to better connect, engage, understand and help build ideas with, rather than for, people.

- **The experimental mindset:** Led by curiosity and the desire to learn, this mindset focuses on learning through lived experiences, by learning from others or just by trying new things in a different way. These lessons are then used to create solutions that best fit the challenge.
- **The action mindset:** The optimistic driver pushing for change, this mindset requires the energy and belief that things can be done to alter and improve the status quo, and that there are opportunities within the environment which can be seized upon. It is concerned with helping to create the conditions for change and action, either through gaining support, mobilising people, resources or sharing knowledge and examples of success.

An innovative mindset can be encouraged in teams by rewarding certain attitudes and behaviours like curiosity, courageousness and agility. It can also be embraced by individuals who choose to become open to doing things differently rather than reverting to 'business as usual'.

One way to do this is to actively make use of double loop learning. Here, you examine not just new options or activities which might lead to better outcomes or a more efficient service, but also the assumptions, beliefs, biases and habits which led to the activity being selected in the first place (see diagram below).

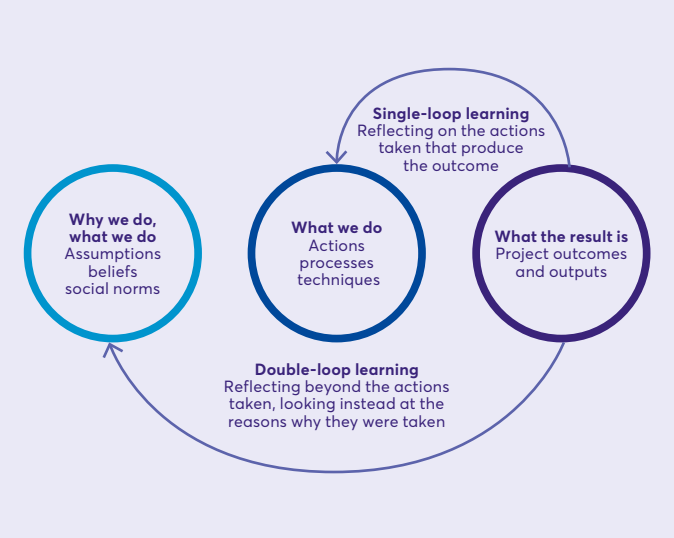

Fig.2
Double loop learning, Think about it: Making the case (and space) for reflection, Nesta (April 2019), adapted from Theory in Practice, Chris Argyris and Donald A. Schön, (Jossey-Bass, 1974).

Case studies

states-of-change.org

States of Change

Through our public innovation initiative **States of Change**, Nesta has led immersive learning programmes that run over six to twelve months with governments in Australia, Canada and Colombia. With a focus on building innovation capacity and creating culture change over time, teams of civil servants work on real-life challenges that are connected to their job roles to enable in-practice learning.

A core aim of the programmes is to help teams move away from methods-based approaches and instead cultivate an innovative mindset. Given the nature of the challenges government and public officials face, capacity building cannot be something packaged into a specific method, practice guide or toolkit. Rather, it's a way of approaching your work. Throughout the programmes, time is built in for teams to absorb content and rehearse new tools and methods on live projects, allowing them space to reflect and act with the support of their experienced faculty and peers.

Further resources

Blogs

Exploring the unobvious: from methods to mindsets (2018)
states-of-change.org/stories/exploring-the-unobvious-from-methods-to-mindsets

Developing innovation craft in the public sector (2019)
states-of-change.org/stories/developing-innovation-craft

Enablement: how governments can achieve more by letting go (2018)
centreforpublicimpact.org/the-enabling-state-how-governments-can-achieve-more-by-letting-go

How Companies Can Profit from a "Growth Mindset" (2014)
hbr.org/2014/11/how-companies-can-profit-from-a-growth-mindset

Projects and partners

States of Change
states-of-change.org

Toolkit

Skills, attitudes and behaviours that fuel public innovation
nesta.org.uk/toolkit/skills-attitudes-and-behaviours-fuel-public-innovation

How to change operating models

An operating model is the architecture of how a service is delivered. New technologies make it possible to use very different operating models, including new ways of mobilising money, time or power to achieve better outcomes. Some of the most exciting innovations in government radically rethink how services are organised – often making much more use of networks and platforms.

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How to change operating models

For years, the dominant model of public services has been for citizens to pay taxes to government, which then pays a group of public officials (or an outsourced provider) to deliver services that meet a community's needs, whether that's removing domestic waste or caring for the vulnerable. That model has proven to be amazingly durable. Yet today it faces significant challenges in the form of increasingly complex needs, rising citizen expectations and reduced budgets.

In response, public service delivery organisations can adopt new operating models, either at organisational or service level, as a means of producing better outcomes for citizens and communities.

An operating model is the architecture of how a public service is delivered. It is the nuts and bolts that make up the design of a service, many of which will have been inherited from past iterations and the constraints of the operating environment (e.g. available budget, physical infrastructure, eligibility of users).

Different variables within a service, department or organisation's operating model can be adjusted to find new ways of delivering the same (or enhanced) social outcomes. There are a range of well-known variables to consider, such as the location of a service, the point of delivery, the eligibility criteria, incentives on offer for participants or providers, or how the service is paid for.

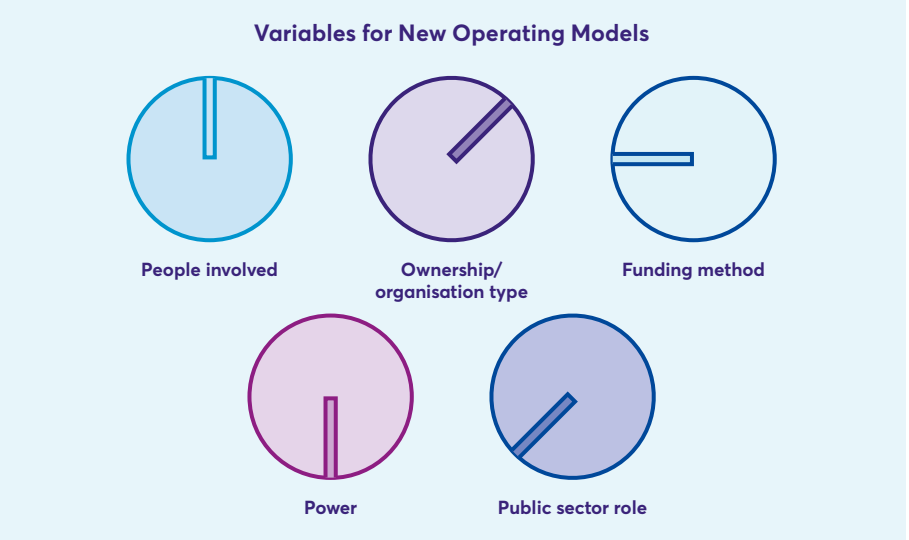


Fig.1
Five additional variables for creating new operating models in government, *New operating models for local government: Understanding the variables*, Nesta (November 2018)

In recent years, however, it has become clear that some issues that the public sector must address are sufficiently complex that these variables are no longer enough. Indeed, the traditional, top-down model of public service delivery may no longer be enough. At Nesta, we define five additional variables which can be used to produce a new operating model.

- **Who's (able to be) involved:** Citizens, volunteers, freelancers, charities, third sector organisations and businesses can be involved in shaping or providing for a certain need. For instance, trained first-aid volunteers are engaged in supporting ambulance crews through GoodSam, and freelance carers can offer their services through TrustonTap (see section 13).

goodsamapp.org

trustontap.com

- **Power:** Power might be radically shifted to different people within a service to change who acts or how they act. The Buurtzorg community nursing model involves a radical shift of power and responsibility to the front line. This new power structure could also be in the form of a different set of relationships between individuals in a system; between clients and those who work for them; or between different organisations in a field, such as when a public sector organisation works with digital social innovators in their community.

buurtzorg.com/about-us/buurtzorgmodel/

- **Ownership/organisation types:** New organisation types can change the incentives for those who work within them and bring fresh opportunities to addressing social needs. A key example is the growing interest in co-operatives, where professionals are joint owners of the organisation for which they work and therefore can receive better rewards for their commitment. Governments are already partnering with these new organisations in the field of care, for example social workers working with Equal Care Coop, which links carers directly to receivers of care using a digital platform.

nesta.org.uk/project/sharelab/equal-care-co-op

- **Funding method:** There may be alternatives to funding the resolution of a social problem solely through taxes. Nesta has done considerable work on new funding models such as crowdfunding, matched crowdfunding (where an organisation matches or tops up contributions from the crowd), community shares and so on. Public authorities such as the Greater London Authority (GLA), in partnership with organisations like SpaceHive, are showing that, for the right kind of issue, the public may be willing and able to support local projects.

spacehive.com

- **Public sector role:** Most importantly, using these additional variables to deliver new operating models entails local authorities playing very different roles in their communities, shifting from being service-deliverer or commissioner to being a convenor, incubator, investor/funder, match-maker or incentiviser.

Through our programmes, we have seen there are many alternative models through which citizens' needs can be met and delivered by diverse organisations in promising and future-focused ways. These new models can bring benefits by tapping into new ideas, resources, relationships and incentives that are not available to the public sector alone. Frequently, they head upstream and focus on reducing the need for council services in the first place. Others make use of new technologies or latent community capacity. Others still have formed powerful partnerships with major local employers.

Case studies

GoodSAM

GoodSAM is a mobile app and web platform that alerts trained responders (e.g. off-duty doctors, nurses and paramedics) to life-threatening emergencies close by. It can be used independently via an alerter system but it also integrates with the emergency services' computer-aided dispatch systems. This means that when someone dials 999 and reports a patient as 'not conscious and not breathing', in addition to dispatching an ambulance, three nearby responders are also alerted. By arriving a few minutes before the ambulance and undertaking high-quality resuscitation, GoodSAM responders have already saved lives. In the context of new operating models, GoodSAM is an example of the power of shifting who is involved in a service.

Buurtzorg

Buurtzorg was set up as a social enterprise in 2006 by a community nurse as an antidote to a highly bureaucratic, top-down model of social care provision. Teams of 10–12 staff manage their own workloads and are financially accountable, so there is little need for management. The only 'managers' are regional coaches who are there to support, not direct, decisions.

There are three main elements to Buurtzorg's success:

- It radically reduces management and back office costs.
- It harnesses the collective intelligence of the network.
- It improves patient care, as nurses can spend more time with patients in each visit than their competitors.

Buurtzorg is an example of shifting power in the system, bringing the experience and expertise of frontline professionals closer to decision-making.

Further resources

Blogs

Six alternatives to traditional top down service delivery (2018)
nesta.org.uk/blog/six-alternatives-traditional-top-down-public-service-delivery

A call for local authority pioneers to join the Upstream Collaborative (2019)
nesta.org.uk/blog/call-local-authority-pioneers-join-upstream-collaborative

New Operating Models for Local Government – Understanding the Variables (2018)
nesta.org.uk/blog/new-operating-models-local-government

Projects and partners

Upstream Collaborative
nesta.org.uk/project/upstream-collaborative

Government Innovation People Power
nesta.org.uk/project/government-innovation-people-power

Centre for Social Action Innovation Fund
nesta.org.uk/project/centre-social-action-innovation-fund

Cities of Service UK
nesta.org.uk/project/cities-service-uk

Creative Councils
nesta.org.uk/project/creative-councils

Rethinking Parks
nesta.org.uk/project/rethinking-parks

ShareLab
nesta.org.uk/project/sharelab

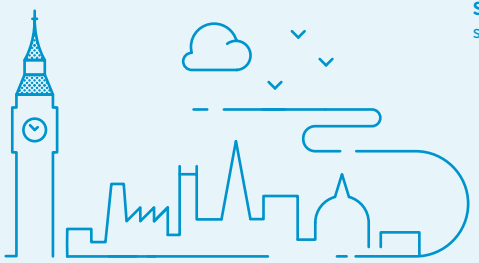
GoodSam
goodsamapp.org

TrustonTap
trustontap.com

Buurtzorg
buurtzorg.com/about-us/buurtzorgmodel

Equal Care Co-op
nesta.org.uk/project/sharelab/equal-care-co-op

SpaceHive
spacehive.com



How to use structures to promote innovation

The structures at the heart of government often hinder innovation – encouraging tactics over strategy and spin over substance. But some are now seeking to reorganise structures to make government more agile and create more space for public and social innovation.

How to use structures to promote innovation

The capacity of central teams and units within governments is vital to the effectiveness and creativity of government as a whole, and in particular to how successfully they can innovate. Yet many are organised in inefficient ways that reflect both the goals, and the means, of the past. In order to promote innovation and achieve better outcomes, the centres of government – whether transnational, national or local – should be organised to fit the methods and priorities of the 21st century.

Central structures, working directly to a prime minister, president or mayor, exist to help with:

- Projecting power – and the mission of the leadership – throughout government and beyond, ideally in response to the wishes and interests of the public.
- Directing the key resources of power (money, legislation, attention) to critical tasks, from maintaining order to improving education or tackling the climate crisis.
- Legitimation, winning support amongst elected members, and amongst the public.
- Maximising the effectiveness of the governmental machine.
- Enabling flexible responses to crises and events.

In practice, the real life of a government arises from the interaction of structures and formal roles (the organogram) with the processes for decision-making and implementation (from budget setting and strategic communications to performance management) and with cultures. Structures are the most visible aspects of organisation, but processes and cultures count for more. The most effective leaders achieve as much through influence and norms as they do through formal mechanisms.

Most tasks (including much of policy development, implementation and procurement for example) are distributed across departments and agencies. But some tasks gravitate towards the centre,

mainly because they are inherently difficult to distribute without compromising the coherence of the government. Some are old, like strategy, cross-cutting policy, co-ordination of departments, performance management, communicating with the media and political management. Others are newer such as ensuring data-sharing and analysis, engaging with social media, purchasing and procurement, and use of science, evidence and knowledge.

At Nesta, we have focused on how governments can best support innovation and adaptation to changing environments. Five elements stand out:

- **Organising leadership roles that fit the strategic priorities of the government:** These leadership roles help ensure that innovation is coherent and strategic rather than scattergun.
- **Resource mobility:** Ensuring that resources can be shifted quickly and that enough is being invested in public and social innovation (not just science innovation) to guarantee a pipeline of future options. Nesta have advocated one per cent of budgets for systematic innovation as a rough guide, along with regular, evidence-driven spending reviews.
- **People mobility:** An ability to create temporary teams to work on problem-solving and ideas (as well as crises), helped by platforms that cut right across government (rather than staff being 'owned' by departments).
- **Central teams focused on strategy and innovation (including innovation labs):** Although much of the work of innovation needs to be done as close to the ground as possible, central teams are vital not just to tackle cross-cutting issues but also to signal culture change. We talk more about innovation labs in section 8.
- **Futures:** Allocating people and time (including the time of political leaders) to look at longer-term horizons, including both risks and opportunities, and using a wide range of futures methods.

Current government organising structures are often poor at making use of the types of knowledge needed for good decision-making. They are also poor at co-ordination and alignment of the often sprawling government machine, which results in duplication, contradiction and waste. And they are ill designed for well-managed risk and innovation. However, there are now plenty of well-tested methods that greatly increase the chances that governments will achieve the outcomes they care about.

Case studies

Restructuring of the European Commission

When Jean-Claude Juncker took over as President of the European Commission, he broadly followed the proposals set out in Reforming the European Commission: How Jean-Claude Juncker Can Deliver on Growth and Jobs, a brief by Nesta and Lisbon Council. He was not known as a particularly creative manager or reformer, but he did sharpen up the often very siloed approaches of the Commission by changing its structure with a tier of seven vice-presidents that act as deputies to the president. Each vice-president is in charge of a project team within a designated policy area. To move away from static structures and overcome silo mentalities, vice-presidents steer the work of a number of commissioners in ways that change over time and according to need. For example, Jyrki Katainen, formerly Prime Minister of Finland, was Vice-President for jobs, growth and competitiveness, with an overarching responsibility for industrial strategy. The European Political Strategy Centre was also set up under Juncker, providing a central team (run by Ann Mettler) to work on medium- to long-term issues as well as creative problem-solving around issues such as refugees.

Singapore's Centre for Strategic Futures

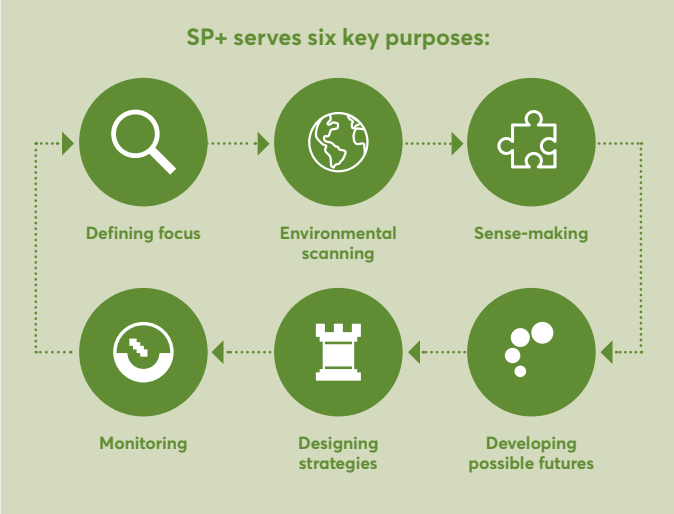
csf.gov.sg

Singapore has long been an innovator in structures of government. A good example of this is its **Centre for Strategic Futures (CSF)** which was established in 2009 and became part of the Strategy Group in the Prime Minister's Office in 2015. CSF was set up to actively seek out diverse and fresh perspectives to guide policymaking and to incubate new capabilities in the Singapore Public Service in order to better prepare for the future.

CSF's mission is to position the Singapore Government to navigate emerging strategic challenges and harness potential opportunities by creating capacities, expertise and tools for strategic anticipation and risk management, developing insights into future trends and then communicating them to decision-makers for informed policy planning.

The CSF has designed its own set of foresight tools called Scenario Planning Plus, or SP+, to deal with emergent or sudden and discontinuous trends. The SP+ toolkit is shared across government through a series of FutureCraft workshops, which aim to introduce key skills and tools relevant to government foresight work.

Fig.1
SP+ serves six purposes: csf.gov.sg/our-work/our-approach



Further resources

Report

Rewiring the Brain: A rough blueprint for reforming centres of government (2014)
media.nesta.org.uk/documents/rewiringthebrain.pdf

Blogs

Reforming the European Commission: How Jean-Claude Juncker Can Deliver on Growth and Jobs (August 2014)
nesta.org.uk/news/reforming-the-european-commission-how-jean-claude-juncker-can-deliver-on-growth-and-jobs

Projects and partners

Centre for Strategic Futures
csf.gov.sg

Other

An open letter on governing London – how the new mayor could get the wiring right (April 2016)
media.nesta.org.uk/documents/an_open_letter_on_governing_london_by_geoff_mulgan.pdf

The Art of Public Strategy: Mobilising Power and Knowledge for the Common Good
Geoff Mulgan (Oxford University Press, 2008)

The Juncker Commission: A strong and experienced team standing for change (September 2014)
europa.eu/rapid/press-release_IP-14-984_en.htm

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ISBN
978-1-913095-13-0
£9.99