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CHANGE

Transforming Government for the 21st Century

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RENEWING
THE CENTRE

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FOREWORD FROM TONY BLAIR

Technology defines the modern world. You need only look around to see the revolutionary shifts that are taking place at the levels of both our personal lives and entire nation states.

Technological progress has led to radical change throughout the modern world, with organisations built on internet foundations raising citizens' expectations of what all services should deliver. Yet governments designed for the offline world are failing to keep up. It's time to bring them up to speed.

In government, to match this wider progress, modernisation has often been a constant theme of progressive agendas. But what impetus there used to be in the UK, during my government and in the early days of the Coalition, has since been lost.

For the left, revitalisation of the public realm ought to be their political sweet spot. Yet it is consumed by an obsession over nationalisation, rather than remaking government and delivering better public services for all of society, with more for those in greatest need.

Similarly, on the right, public sector efficiency ought to be a signature issue. Yet here the government is hamstrung by an obsession over outsourcing, cost reductions and cutting

government down to size, rather than a positive vision of what modern government could be.

Bar a few noble exceptions, this failure of leadership comes down to ignorance of and antipathy towards the opportunities of the technological revolution.

Preoccupied by ideological distractions and, of course, Brexit, both main parties are failing to grasp the opportunity to transform government for the 21st century and ensure that it is remade truly in the service of citizens and in support of the wider economy.

When so much of the world is unrecognisable from 20 years ago, it should be a source of shame that many governments still look much the same. Frankly, when everything else is shaped by technological change, it is bizarre if governments were not also.

Yet this is where we are, and the failure to keep up comes at a cost. Public services, delivery capacity and industrial strategy all lag behind where they should be.

Delaying the necessary change will simply make the problem worse. As people experience best-in-class digital products and services everywhere else in their lives, their expectations of what governments should deliver only rise too.

Progressive government for the modern era should therefore begin with the business of government itself.

Today my Institute sets out a package for the wholesale transformation of government to bring it up to the speed and standards of the 21st century.

The starting point for this revolution must be learning from the highest impact organisations of the internet era – those companies with technology in their DNA – to reassess how to govern, deliver and organise in the public sector.

The key lesson is that as the world becomes more interconnected and interdependent, aided by decentralising technology, command and control management is a poor fit for delivering change. Instead, governments should see themselves as conductors and convenors

of the wider economy and society, setting the direction and creating the conditions for progressive change.

The report identifies three principles that should underpin this transformation: purposeful governance, enabling infrastructure and responsive institutions.

First, to deliver change in an increasingly complex world, governments must be strong in outlining their priorities. This means defining national missions that set the agenda for the nation and using the full range of policy levers at governments' disposal to support others working to achieve them.

Second, governments should provide an electronic identity system and other digital infrastructure to support both teams across government and organisations beyond the public sector. In the internet era, governments should see software and data as an essential, enabling platform for others' activity, with new security technologies now addressing previous concerns over identity systems.

Third, governments must build a new operating model focused on delivery. This means resetting the byzantine structures and processes that we still rely on to deliver change and that are so often a brake on progress. Governments must be more experimental and decentralising, empowering teams across the public sector – who are often best placed to know what needs to be done – to set and achieve their own goals.

Delivering this change will require dedicated, courageous political leadership. The status quo has remained strong due to entrenched interests and the powerful force of inertia, and leaders must work to break through this stasis.

Recruiting the very best into the civil service will also be essential to deliver these reforms effectively. Government can always tell a good story about its impact, but it must become an employer of real prestige to attract the highest quality people in from the outside.

This package is designed to reignite a necessary debate about government transformation.

In their interactions with citizens, businesses and other organisations, governments must understand that mostly what people want is the ability to get things done easily and quickly. Grasping this has been central to the most innovative companies today, and public services and institutions should be similarly responsive and empowering. Indeed, the failure to implement a proper identity system in the UK has been a major constraint on delivering this.

Countries at the forefront of this change such as Estonia, South Korea or Denmark are often lauded for the benefits they have delivered, but there is no reason to suggest any other country can't follow in their footsteps.

Collectively, the package outlined in this report articulates the conditions, infrastructure and institutions that government must provide for others to take advantage of.

The time for radicalism is now. Technological change will only accelerate and the strain on public services will only increase. People should feel supported by government, not frustrated by it. Technologically-ambitious reform must be central to meeting these demands.

The political rewards for this undertaking will also be great. Turning government into a genuine source of experimentation and innovation will be no small task, but the first party to grasp the opportunity ahead of them and distil the public's justified demands for change into genuine, effective reform should own the foreseeable political future.

This new report outlines a bold, exciting and necessary model for how this might work.

EXECUTIVE SUMMARY

Accelerating technological progress radically changed how billions of people across the globe communicate, learn, organise and transact. It has become foundational to an entire way of life. Crucially, these innovations are delivered at unprecedented scale by organisations built on Internet foundations: those that understand not only how to improve services through technology but also how it can help us to reimagine the nature of organisations themselves. For users, a step change in service quality has raised citizens' expectations of what all organisations ought to deliver, and this pressure is changing the world around us.

But one arena in particular has been resistant to change: government. Ossified institutions and approaches designed for the offline world are a poor fit for dealing with an operating environment that is now defined by the Internet and new technologies.

If governments are to harness the opportunities of this new context and meet the rising expectations of citizens, leaders must urgently address this mismatch and learn from those getting it right. It is time to bring governments up to the speed and standards of the 21st century.

Key Findings

- **Governments should embrace technology-enabled experimentation and decentralisation to deal with increased complexity.** As societies and economies grow evermore networked and decentralised, technology intensifies the system's complexity, with many actors pulling in different directions. Command and control management is not well suited to delivering change against this backdrop. Rather, the most impactful organisations of the internet era show that experimentation, iteration and empowering teams' autonomy are necessary conditions for navigating through uncertain waters.
- **Failure to keep up comes at a cost.** Too often, citizens experience public services that feel like they belong in the past.

Political leaders struggle to execute the agendas on which their mandate is based. Businesses and society more broadly face an uncertain future without the reassurance they need that governments are prepared for the path ahead.

- **Every advanced, modern economy faces these challenges.** The combination of ageing populations, underfunded services, rising citizen expectations and low public-sector productivity will create increasing pressure for change in many countries, and incremental tinkering cannot keep up.

POLICY RECOMMENDATIONS

Any political project that aims to respond sufficiently must take on many of the byzantine structures and processes of traditional government, which can often be a shackle on meaningful progress, and recognise that radical transformation is essential for wider prosperity.

Crucially, this revolution must cover how governments support both the wider economy and the citizens they interact with directly, with changes to governance, infrastructure and institutions. If governments are to be relevant in the internet era – if they are to meet rising expectations and harness new opportunities – they cannot hope to control and manage everything themselves. Although they will still deliver services and uphold the rule of law, governments should focus on being a convenor and conductor of a broader environment, promoting experimentation and iteration while shaping this wider activity towards their strategic goals. In practice, governments must be **purposeful, enabling** and **responsive**.

Purposeful Governance

Governments should use their unique position to set the agenda for the nation and update policy levers to set the tempo for everyone working to support it. They should:

- **Define key national missions** to unite the public, private and

third sectors behind strategic priorities.

- **Reorient research and development investment around portfolios** that correspond to each mission.
- **Require that all central government, non-commodity procurement contracts should first run a pre-procurement innovation process** unless waived by the relevant minister.
- **Create a regulatory sandbox for each national mission and formalise fast-track legislative processes** with mandatory sunset clauses and early post-legislative reviews.
- **Shift to incremental business cases** to fund teams across government.
- **Provide a national public-value dashboard** to enable improved decision-making.
- **Extend decentralisation by default** throughout central and local government, with central government helping to ‘level up’ regions.

Enabling Infrastructure

Governments should provide software and data infrastructure necessary for companies, non-profits and the public sector to respond to the opportunities and challenges of the modern era. They should:

- **Provide a decentralised electronic identity system** to all citizens as the flagship digital infrastructure reform.
- **Support inclusive public services by redeploying savings** generated from digitisation.
- **Establish a presumption in favour of publishing and documenting an application programming interface (API) for all new services** to promote platform-based innovation.
- **Remove data functions from each department and transfer them to a central digital function** to prevent siloed data and reduce inefficiencies.
- **Set out guidelines to underpin a platform operating model** that gives service providers maximal scope to innovate while retaining high ethical standards.

Responsive Institutions

Governments should reset their structures to break through silos, reduce interdependencies and enable more effective and quicker delivery of policy and services. They should:

- **Build a new central Digital, Data and Technology function that incorporates existing digital government units, a central data function and responsibility for technology policy.**
- **Launch cross-functional, non-departmental teams** with their own direct, incremental business case with the central government.
- **Adopt a portfolio approach to governance in which ministers become champions for thematic areas**, strategically managing a portfolio of autonomous but collaborative teams.
- **Establish minimum standards for technology and working practices** to minimise friction across government.
- **Provide more pathways for promotion in existing roles** to reduce civil service turnover.
- **Create a technology and policy translation track in civil service training schemes** to improve the supply of mediators between worlds that often misunderstand each other.
- **Create a selective postgraduate scholarship for public policy and technology-related degrees**, on condition of several years' public service.

These reforms articulate the minimum standards of 21st century government. Although in many cases we illustrate with reference to the UK, the lessons we draw are applicable globally and especially for advanced modern economies. In a world of accelerating technological change, failing to update the business of government is a lost opportunity and will only create greater pressure. Political leaders must therefore grasp these possibilities and translate them into improving the lives of citizens. The first political party to do so will be well placed to secure its legacy for years to come.

INTRODUCTION

In the wake of the 2008 financial crisis, then Cabinet Office Minister Francis Maude advocated a “tight-loose” model for government in the United Kingdom (UK): tight central control over key areas of public spending to drive down costs, combined with devolution of power and the opening up of partnerships to promote innovation. This strategy had many merits but, in the end, it succumbed to two fundamental vulnerabilities: it came to be seen more as an austerity-driven confrontation than as a shared, progressive endeavour, and it required more political capital than was ultimately available.

Yet the need for transformation could not be more urgent. Increasing demand on public services and rising citizen expectations of what services should deliver will create more pressure. Frustration at government will only increase if sclerosis slows down necessary radicalism on policy. Opportunities for impact in a world shaped by technology will be lost. Standing still means watching the gap between what governments are and what they ought to be to grow until it becomes unmanageable.

For decades, modernisation has been a consistent theme of forward-looking, progressive governments, and those harnessing today’s technological revolution are reaping the benefits.¹ Estonia is often lauded as a truly ‘digital nation’, having deployed distributed database technologies that radically simplify both government institutions and public services. Denmark led the way by making digital communications obligatory and promoting open data to enable organisations outside government, while also opening an embassy in Silicon Valley and appointing a technology ambassador. Indeed, even the UK approach, which once took the country to the top of the UN’s E-Government index, has been a model for states across the world.² Amid this global movement, many countries – the UK now included – are being left behind; what impetus there once was has since been lost.

1 Peter Housden, “Rethinking Public Services”, Centre for Public Impact, July 2016. <https://www.centreforpublicimpact.org/rethinking-public-services/>.

2 Chris Yiu, “Digital Government Performance and Activity”, Tony Blair Institute for Global Change, 11 November 2017, <https://institute.global/insight/renewing-centre/digital-government-performance-and-activity>.

As former Labour Party adviser Philip Gould once wrote, “progressive politics must find a way of integrating the schism between the individual as consumer and individual as citizen”.³ Fortunately, this is a field in which many people and organisations are bringing new ideas and approaches to the table, even if governments are often too slow to adopt them. This report therefore draws together and builds on a range of threads to set out a comprehensive package for transforming government. Vitality, this proposal departs from the tired battleground of small-state orthodoxy vs. big-government largesse. Diminishing the government’s place in society is not the solution to the current malaise, but neither will money alone or command and control be enough in the face of serious long-term strains from accelerating technology, a more demanding electorate and demographic pressures.

Instead, just as every other sector has been turned on its head by technology, the operating environment for government has changed so fundamentally that a new way of thinking is required. Used appropriately, the technologies, processes and organisational cultures of the internet era ought to allow governments to be both highly progressive and far more efficient. The question for leaders should no longer be “What sort of government can we afford?” but rather “In today’s world, what do we need government to be?”.

Three Principles, Three Priorities

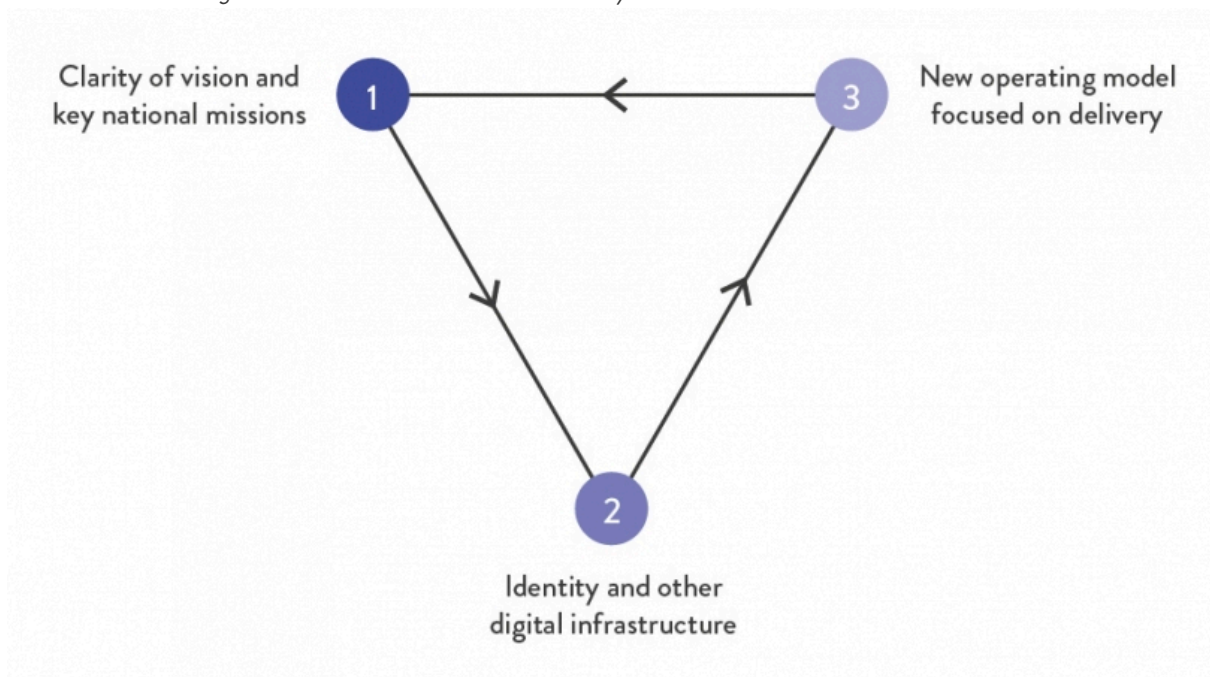
Three principles can help anchor the discussion. First, governments must be strong and purposeful in their policy priorities, using their unique position to set the agenda for the nation and updating their approaches to policymaking to support everyone working to support it. Second, governments must be enabling by providing public services and infrastructure that allow individuals, communities, businesses and the public sector to achieve their potential. Third, the institutions of governments must be able to respond quickly to the needs and opportunities of a world characterised by accelerating technological change.

³ Philip Gould, “The Empty Stadium”, Strategy Breakfast, Progressive Politics 2.3, 13th July 2003.

These principles recognise that, as policy challenges become more complex, excessively centralised and linear control methods are not well suited to an increasingly networked and decentralised world. By embodying this approach, governments can go beyond merely fixing market failures or upholding the rule of law and instead embed a culture of continuous improvement both within and outside the public sector. Partnerships will need to play an even greater role in delivery, and innovation craft should no longer be relegated to specialist teams but instead must flow through the system as a whole.

Leaders who want to rise to the challenge need to grasp the three essential priorities that follow from these principles. To build a true government of the 21st century, they must be ready to drive the implications through their core strategy (see figure 1).

Figure 1: Three Priorities for 21st-Century Government



Governments should take advantage of their unique position and power to define key national missions that the public, private and third sectors can unite behind. This could be anything from the modernisation of industry or decarbonisation of the economy to social goals in arenas like health and well-being or educational attainment. But in all cases, the approach would couple a clear strategic vision from the centre with the decentralised, iterative

experimentation required to realise it in an increasingly complex world. The essential shift is from a government culture of solution definition to problem exploration. Government itself becomes the interface between different actors – public and private, commercial and non-commercial – and the market-maker for a system that can take the long view required to convert short-term competition and failure into long-term, system-wide progress. Goals set for various fledgling “govtech” initiatives are a start but should be the precursor to a much more ambitious and deliberate agenda.

Next, governments must create an electronic-identity system for all citizens. This should be the flagship, citizen-facing reform in a suite of tools made available to all layers of government as well as industry and non-profits. This digital infrastructure is essential for radically improving public services and the machinery of government itself, as well as for enabling new possibilities such as digital civic engagement, yet many countries are falling behind. In particular, the political debate around identity is stale, and old objections have not always been tested against new technologies that enhance privacy and security. Senior leadership at the centre of governments will therefore be required to make this suite of components a reality.

This would also signal a recognition on the part of governments that software is a new paradigm of infrastructure that it must provide to enable the modern economy. Indeed, this is an extension of their role as convenors and conductors of wider activity: although governments will always to some extent be both buyers and suppliers of services, by providing infrastructure and setting guidelines they will also be more confident market-makers. Just as the most successful technology platforms have redefined their markets, and reaped the resultant rewards, so must governments leverage their position of advantage. Applying what governments learn as the central interfaces and platforms for public activity will help them achieve better value for taxpayers and improve services for the most vulnerable.

Finally, a significant institutional reset is required if governments are to respond to the needs and opportunities of the day. A new operating model would have both a strong centre and a high degree of devolution and empowerment for other actors. At the national

level, there are still too many cross-cutting policy areas that are poorly served by old-fashioned departmental silos, with incentives skewed towards balancing competing bureaucratic interests rather than taking risks and innovating.

A better approach would be to launch more cross-functional, non-departmental teams. These multidisciplinary teams would break down silos by bringing the necessary and varied experiences, skillsets and perspectives into one place, in turn minimising the delays that result from handovers between different functions. Crucially, these teams would work to a clear mission from the centre to ensure alignment but be given maximal autonomy to work towards their goals, with their own, direct business case with the finance ministry. Ministers would strategically manage a portfolio of teams working in a thematic area, recommending when teams should be scaled up or down but without directly owning the business case—a key feature that would allow teams to be reallocated to different thematic areas when appropriate. This approach borrows from the highest-impact technology businesses of today. The centre of government would manage these teams like an investment portfolio, scaling them up when they are successful and reallocating resources when they are not. The centre should also take the lead in bringing new skills and experience into government – particularly in terms of tech, innovation and entrepreneurship – such as by creating a technology and policy 'translation scheme' as previously proposed by Dr Tanya Filer, an academic at the University of Cambridge.⁴

In combination, purposeful governance, enabling infrastructure and responsive institutions are crucial to remaking government. Taken together, they embed a culture of continuous improvement, driven by experimentation, and a proactively collaborative approach towards partners; these characteristics will be essential going forward if we want a model of government that is both more effective in how it uses scarce resources and more active in driving progressive outcomes for the economy and society.

⁴ Tanya Filer, "It's not just Silicon Valley that needs translators - governments need them also.", Bennett Institute for Public Policy, University of Cambridge, 17 December 2018, <https://www.bennettinstitute.cam.ac.uk/blog/its-not-just-silicon-valley-needs-translators-gove/>

PURPOSEFUL GOVERNANCE

As the world becomes more complex, a new model of governance and policymaking will be required both to keep up with this change and to shape it in the public interest. The current model in governments around the world starts with solutions and visions specified by policymakers, which are then handed over to design and delivery teams in the civil service to implement. This rigidity is compounded by incomplete or insufficient devolution arrangements, which often centralise power while devolving accountability.

In response, political leaders and the central-government organisations they head must have the humility to accept that they cannot always know how to solve problems on their own. To be purposeful in the modern era, governments must use their unique position to convene the public, private and third sectors behind national priorities, update their approach to policymaking and promote greater devolution.

UNITING THE PUBLIC, PRIVATE AND THIRD SECTORS BEHIND NATIONAL MISSIONS

To tackle today's grand challenges, governments must set key national missions behind which the public, private and third sectors can unite. Mission-oriented governance, pioneered by Professor Mariana Mazzucato, an economist at University College London, would couple a clear strategic vision from the centre with the decentralised, iterative experimentation required to realise it in an increasingly complex world.⁵

This approach is essential for an era in which effective legal precedents and policy case studies are lacking for many pressing challenges. This means that policymakers cannot hope to specify solutions to accelerating technological change and compounding social or environmental problems upfront.⁶ Yet time and again,

⁵ "Mission-oriented innovation policy", UCL Institute for Innovation and Public Purpose, accessed 20th May 2019, <https://www.ucl.ac.uk/bartlett/public-purpose/research/research-streams/mission-oriented-innovation-policy>.

⁶ Marco Steinberg, "The demise of government?", States of Change, 6 March 2019, <https://states-of-change.org/stories/the-demise-of-government>.

decision-makers resort to linear governance models that lack the feedback loops, evaluation and iteration required to break this cycle.⁷ In the words of Alexander Holt, head of the Scottish Government’s CivTech® Programme, it is essential to shift from a culture of “solution definition” to one of “problem exploration”.⁸

A by-product of this approach is that it could also provide the space for political leaders to articulate a sense of direction without being either evasive or tripped up later by specific details.⁹ For example, when Amber Rudd became UK secretary of state for work and pensions in 2018, she publicly acknowledged that the introduction of Universal Credit, a social-security payment aimed at simplifying working-age benefits, needed reforming. However, by announcing a new pilot to improve the service iteratively, Rudd outlined a route for progress while recognising that the government could not yet be clear on the outcome.¹⁰ Regardless of the merits of Universal Credit itself, this approach is more mature than simply pressing on regardless.

When applying a mission-oriented model more broadly, governments themselves become interfaces between actors—public and private, commercial and non-commercial—and market-makers for a system that can take the long view required to convert short-term competition and failure into long-term, system-wide progress. This is realised through bold, ambitious and strategic visions set by leaders, which give governments authority, credibility and convening power on an issue. Clear success criteria, which are measurable and time bound, are also essential.

Arguably the most important aspect of this approach is the encouragement of multiple, bottom-up solutions as an interim step to long-term success.¹¹ This reveals the importance of cross-

7 Ibid.

8 Telephone Interview with Alexander Holt, head of the CivTech® Accelerator, on 4th March 2019.

9 Interview with Aaron Maniam, PhD researcher at the Blavatnik School of Government, University of Oxford, on 16th January 2019.

10 “Amber Rudd sets out fresh approach to Universal Credit”, UK government press release, 11 January 2019, <https://www.gov.uk/government/news/amber-rudd-sets-out-fresh-approach-to-universal-credit>.

11 Mariana Mazzucato, “Mission-Oriented Innovation Policy: Challenges and Opportunities”, UCL Institute for Innovation and Public Policy working paper, 25 September 2017, <https://www.ucl.ac.uk/bartlett/public-purpose/>

discipline and cross-actor collaboration, with companies, charities and public-sector teams all working together towards a common goal.¹²

CASE STUDY: 100 CARBON-NEUTRAL CITIES BY 2030

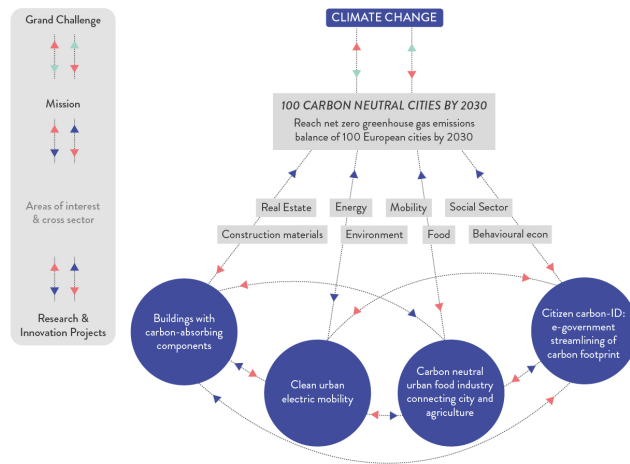
The amorphous concept of climate change masks an array of related but distinct issues to do with energy, transport, agriculture, construction, manufacturing and many other domains. Setting a cross-cutting mission with clear success criteria, such as Mazzucato's proposal for "100 carbon neutral cities by 2030", recognises this interdependence and convenes actors from across the economy to respond to these different aspects collectively (see figure 2).¹³

Figure 2: The EU's Drive for Carbon-Neutral Cities

publications/2018/jan/mission-oriented-innovation-policy-challenges-and-opportunities.

¹² "Why We Need a New Way to Measure Economic Performance", Wharton School of the University of Pennsylvania, podcast, 25 October 2018, <https://knowledge.wharton.upenn.edu/article/measure-economic-performance/>.

¹³ Mariana Mazzucato, "Mission-Oriented Research & Innovation in the European Union", European Commission Directorate-General for Research and Innovation, 21 February 2018, 22, <https://publications.europa.eu/en/publication-detail/-/publication/5b2811d1-16be-11e8-9253-01aa75ed71a1/language-en>.



Source: "Mission-Oriented Research & Innovation in the European Union: A problem-solving approach to fuel innovation-led growth", European Commission

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This approach follows the success of other missions such as the first moon landing, which succeeded only by ‘crowding in’ actors from industries as varied as textiles and nutrition, not just aeronautics, because spacesuits and food were as necessary to achieving the mission as the rocket boosters.¹⁴

Many of the innovations produced from this process will fail, but feedback loops and spillover effects help one discovery lead to another, all on the way to achieving the global mission.¹⁵ Indeed, the precursor to the Internet that was invented in 1969 at the Advanced Research Projects Agency, a branch of the US Department of Defense, is a far cry from the system in use today.

Governments should therefore define key national missions to encourage this experimentation and orient it towards strategic ends. For this approach to succeed, governments should also use

14 Mariana Mazzucato and Martha McPherson, “The Green New Deal: A bold mission-oriented approach”, UCL Institute for Innovation and Public Purpose, IIPP Policy Brief, 21 December 2018, <https://www.ucl.ac.uk/bartlett/public-purpose/publications/2018/dec/green-new-deal-bold-mission-oriented-approach>

15 Rainer Kattel, Mariana Mazzucato, Josh Ryan-Collins and Simon Sharpe, “The economics of change: Policy and appraisal for missions, market shaping and public purpose”, UCL Institute for Innovation and Public Policy working paper, July 2018, <https://www.ucl.ac.uk/bartlett/public-purpose/publications/2018/jul/economics-change-policy-and-appraisal-missions-market-shaping-and-public>

the levers at their disposal—including investment, procurement, regulation, tax and skills policy—to tilt the playing field in the direction of the public interest.

TILTING THE PLAYING FIELD IN A STRATEGIC DIRECTION

Although a comprehensive framework for mission-oriented policymaking is beyond the scope of this report, some starting points should be clear. Core elements include approaches to research and development investment, procurement, regulation, business cases and decentralisation.

Research and Development Investment

In its spending on research and development (R&D), the public sector would do well to adopt a more strategic approach. Mazzucato argues that governments should adopt the sort of “portfolio thinking” typical of venture-capital firms, in contrast to their more cautious approach in the past.¹⁶

In the context of purposeful governance, there are two approaches to consider here: creating a portfolio of R&D investments for each national mission and taking equity in companies as a condition of investment. A portfolio approach – taking bets to incentivise activity in strategic areas – would help encourage government to maintain a bird’s-eye view of the multiple competing solutions working towards missions set by government.

Mazzucato, for her part, focusses on equity. For example, when the United States’ (US) Department of Energy lent Tesla \$465 million in 2009, it stipulated that the state should receive 3 million shares in the company if it defaulted on the loan. She argues that taking equity in a company that fails to pay back a loan is the wrong way around. Rather, equity should be a condition of significant financial support because, especially for high-risk investments, successes must pay for failures. Indeed, companies that would pay back a loan would be those successful enough to do so.

Yet taking out equity requires careful thought. Certainly, when governments play crucial roles in creating or developing intellectual

16 “Why We Need a New Way”, Wharton School.

property, it's right that they should share in any returns further down the line. However, many R&D investments are upstream and grant-based because at that stage it's not clear how they can be commercialised. This means that governments may lose out on future returns. Similarly, especially within a paradigm where government is looking to support gov-tech start-ups who can later export services around the world, why shouldn't government follow the model of YCombinator and other investor-accelerator programmes and use equity as a lever to generate future returns?

On the other hand, equity could also make governments liable for, or beneficiaries of, activity entirely beyond the co-created product or service in question. In a report for PUBLIC, a venture capital company focussed on government technology ('govtech') start-ups, Johnny Hugill has suggested an alternative where governments strike revenue share or royalty agreements for specific goods or services.¹⁷ This would also generate direct revenue to be reinvested into public services without needing to wait to cash in shares. However, it would also reduce the opportunity for governments to fund subsequent rounds of investment like a standard portfolio.

Ultimately, each investment should be assessed on a case-by-case basis for any equity or revenue agreement, but the general point is that governments should be prepared to take on these more active roles where advantageous. For now, this report recommends that **all of governments' R&D investments should come under a strategic, portfolio-style framework corresponding to national missions.**

Procurement

Although strategic investment in innovation is essential, and recent increases by countries such as the UK are welcome, mission-oriented policy should not be confined to R&D spending. For example, £1.8 billion (\$2.3 billion) has so far been allocated to the UK's Industrial Strategy Challenge Fund (ISCF), which invests in challenge-oriented research, but in 2017/18 roughly a third of all

¹⁷ Johnny Hugill and Ramraj Puvinaathan, "Buying Into The Future: How to deliver innovation through public procurement", PUBLIC, <https://www.public.io/wp-content/uploads/2019/04/Buying-Into-The-Future-WEB.pdf>.

government spending – around £284 billion (\$367.4 billion) – was on procurement.¹⁸ Given this huge purchasing power, procurement should be considered an important lever for governments to achieve their strategic goals, not just a matter of finance.

There is therefore an opportunity to apply a mission-oriented framework more broadly and, correspondingly, to incentivise far more companies to work in strategic areas. Although some contracts for necessary services provide fewer opportunities for innovation, if a mission-oriented strategy were applied to even 20 per cent of the government's total procurement expenditure, this would amount to around £56.8 billion (\$73 billion), almost 32 times the entire ISCF. However, for this approach to succeed, significant reform to procurement is needed, to encourage smaller providers and greater experimentation.

As Greg Jackson, chief executive officer of Octopus Energy, a technology-driven renewable energy company, suggests, third-party dependencies can act as obstacles, with organisations both in and outside government unable to make changes until contracts expire.¹⁹ Indeed, for years, public-sector procurement has been dominated by large providers and excessively long contracts, leaving little room for innovation.

However, unlike many private companies, even though governments can make their recruitment offer more attractive they will always struggle to bring in sufficient expertise and experience consistently to do everything in house to the highest standards. Procurement will therefore remain a vital tool for improving

18 Initial £725m announcement: "Industrial Strategy: Building a Britain fit for the future", Department for Business, Skills and Industrial Strategy, 27 November 2017, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf; Further £1.1bn announced: "Budget 2018: 5.6 New technologies and innovation", HM Treasury, 28 October 2018, <https://www.gov.uk/government/publications/budget-2018-documents/budget-2018#fn:75>; Nick Davies, Oliver Chan, Aron Cheung and Gavin Freeguard, "Government procurement: the scale and nature of contracting in the UK", Institute for Government, p5, https://www.instituteforgovernment.org.uk/sites/default/files/publications/lfg_government_procurement_web3.pdf

19 Interview with Greg Jackson, chief executive officer of Octopus Energy, in London on 28th February 2019.

services, so splitting up large contracts and encouraging smaller providers can help to reduce the constraints of third-party dependencies.

For instance, the Digital Marketplace, created by the UK's Government Digital Service (GDS), contributed to £4.1 billion (\$5.3 billion) of savings over four years by promoting smaller providers and contracts over larger ones, as well as greater commoditisation of common technologies and services.²⁰ Yet there is still a long way to go before this approach becomes the norm.²¹ Many small companies in particular still feel less able to bid for tenders if they have few contacts in government, often focusing on more reliable sources of funding instead.²²

For governments, too, current procurement processes require them to understand their needs upfront, specify and articulate them precisely, and then find a provider who can meet them.²³ This is already a challenge, but accelerating technological change makes it impossible for governments to specify their requirements, and anticipate future opportunities, in advance.

In recent years various govtech accelerator initiatives, in which technology start-ups work on challenges defined by governments, have demonstrated promise and should be considered precursors to a much more ambitious and deliberate agenda. In the words of Dr Filer, fledgling programmes such as these are, in essence, "pre-procurement exercises".²⁴ They provide an opportunity for governments and companies to collaborate in smaller stages and shift from a culture of solution definition to one of experimental problem exploration. In this model, evaluation and feedback form an essential phase after an initial collaboration 'sprint', allowing governments to understand their needs better and procurement

20 Mike Bracken, "By moving data out of the centre, the government is making it harder to deliver its own policies", *New Statesman Tech*, 4th April 2018, <https://tech.newstatesman.com/guest-opinion/mike-bracken-data-government>

21 Interview with Tom Loosemore, Partner at Public Digital, in London on 18th February 2019.

22 Interview with Dr Tanya Filer, Research Leader: Digital State at the Bennett Institute for Public Policy, University of Cambridge, in London on 22nd February 2019.

23 Interview with Alexander Holt.

24 Interview with Dr Tanya Filer.

appropriately. Experimentation and iteration become central to long-term progress.

Alexander Holt has argued that by paying companies to pitch, governments can also distinguish themselves from other clients. This is an important signal that they want to work with smaller companies, and the CivTech® Accelerator provides important opportunities for those businesses to develop contacts in governments.²⁵

Beyond accelerators and incubators, other processes such as competitive dialogue, innovation partnerships and new models of pre-tender market engagement would promote a similar degree of experimentation. The suitability of each may vary on a case-by-case basis, but all of these ‘pre-procurement innovation exercises’ can help to make public procurement more effective.

To that end, **all central government, non-commodity contracts should first run a pre-procurement innovation exercise unless signed off by the relevant minister**, for example if teams can demonstrate that another department for a functionally identical services has already done so. Many governments may need to build a standing capability from scratch to run these processes, maintain a list of approved procurement innovation exercises, and share insights for future processes to avoid repeating the work of others (though this is already an endemic problem in large organisations). This function will require a broad range of skills, blending experience of procurement innovation with technological, design and policy capability, as well as the mandate to own these processes and power to require teams to undertake them.

This recommendation focuses on making public procurement more innovative and experimental, but several promising ideas have recently been touted as ways to improve value for money and effectiveness. A recent report by Nesta, an innovation foundation, recommends mandating that 10 per cent of government funding for R&D is allocated for robust evaluation.²⁶In PUBLIC’s 2019

25 Interview with Dr Tanya Filer.

26 Harry Armstrong, Chris Gorst, Jen Rae, “Renewing Regulation: ‘anticipatory regulation in an age of disruption’”, 6th March 2019, <https://www.nesta.org.uk/report/renewing-regulation-anticipatory-regulation-in-an-age-of-disruption/>

Buying Into The Future report, the authors suggest creating spend controls for in-house expenditure, to incentivise governments not to reject ready-made solutions in the private sector, and reducing buyer fragmentation by unifying the over 300 public procurement portals that exist in the UK.²⁷ This latter recommendation would also improve governments' capability to reduce duplication and share insights across departments by aggregating similar contracts in one place.

Regulation

To be maximally permissive of experimentation, while protecting accountability and safety, legislative processes and regulation must be updated for today's fast-changing world. The urgency of many policy issues, new and old, requires a more responsive government.

Existing legislative processes—replete with green papers, white papers, consultations and multiple readings in parliament—can often take a considerable time to complete, but they also provide essential opportunities for scrutiny and public engagement. To improve the responsiveness of governments, while staving off knee-jerk reactions that compromise scrutiny, policymakers must develop more anticipatory regulation and make fast-track legislative processes safer.

Anticipatory Frameworks

As change accelerates, the initial response from many governments is to try to make outdated regulatory structures fit this new context—often driven by political pressure that 'something must be done'. By contrast, anticipatory frameworks for regulation would cohere with a government strategy intent on iterating, experimenting and harnessing the opportunities of technological change.

To that end, **governments should create a regulatory sandbox for each national mission they define.** These supervised environments allow new products and services to be tested in a live setting, potentially accelerating the deployment of large-scale, high-impact technologies that might otherwise become bogged down by risk-averse cultures. Sharing the lessons of these sandboxes through

²⁷ Hugill and Puvinathan, "Buying Into The Future".

international forums such as the Digital 9 (D9), a collaborative network of the world's leading digital governments, could also enable knowledge transfer across sectors and economies, as well as parallel regulation between jurisdictions.²⁸

Fast-Track Legislation

In the UK, fast-tracking legislation through parliament should be encouraged so that legal structures are more responsive to changing contexts. However, perhaps counterintuitively, this should be enabled by strengthening the accountability measures in place when fast-tracking legislation so that it can subsequently be accepted as a common tool in government.

At present, parliamentary calendars create many opportunities for rushed legislation anyway.²⁹ Fast-tracking is already an informal process—the simple result of governments controlling the parliamentary calendar—and increasing accountability protections to formalise the process could aid its use in general.

Therefore, following the recommendations of the UK House of Lords Constitution Committee's 2009 report on the topic in the UK, **fast-tracking legislation should be made a formalised process, supported by mandatory sunset clauses and early post-legislative reviews.**³⁰ This would improve accountability and scrutiny, in turn making the process a more trustworthy tool for responsive governance.

Incremental Business Cases

Much of government activity is oriented around delivering specific services, rather than focussing on achieving specific outcomes that citizens care about. In the UK, although a 2011 review of statutory duties placed on local governments found that many of

28 Chris Yiu, "A New Deal for Big Tech: Next-Generation Regulation Fit for the Internet Age", Tony Blair Institute for Global Change, 1 November 2018, <https://institute.global/insight/renewing-centre/new-deal-big-tech>

29 Gemma Byrne, "Legislation rushed through with little scrutiny", Institute for Government, 4th May 2017, <https://www.instituteforgovernment.org.uk/blog/legislation-rushed-through-little-scrutiny>

30 "Fast-track Legislation: Constitutional Implications and Safeguards", House of Lords, Select Committee on the Constitution, 15th Report of the Session 2008-09, 17 June 2009, <https://publications.parliament.uk/pa/ld200809/ldselect/ldconst/116/11602.htm>

these obligations should be protected, some areas were found to create a burden on authorities.³¹ Policymakers must be prepared to try new ways of doing things and reward people for doing so. To enable this transition, **governments should implement incremental business cases for all activity.**

This change reflects the changing nature of governance. Aaron Maniam, a researcher at the University of Oxford's Blavatnik School of Government, has suggested that while senior civil servants used to be able to focus on managing technical, linear processes, they must now concentrate on also managing other civil servants' energy and motivation, which are essential to navigating the bureaucratic machine.³² Similarly, Tom Loosemore, partner at digital transformation consultancy Public Digital and former deputy director of the UK's GDS, has argued that governments should "fund teams, not projects".³³

However, in the UK and in many other finance ministries, this is not how the current system works. Funding is allocated for specific services and projects, with strict targets and timelines to match. This vitiates any sense of continual, iterative improvement. As Greg Jackson has identified, "Teams spend two years creating the business case for something and then, finally, they get a chance to do it. They're never going to admit it's failed!"³⁴ As a result, funding models must be structured to force regular evaluation and feedback loops. In this alternative model, the hope is to reduce teams' sense of 'sunk cost' by lowering the time and cost involved at each stage, freeing them up to try new things when needed.

To that end, policymakers must shift business cases away from large timelines and big capital-expenditure projects, because these are the wrong tools for iterative, learning-as-you-go (agile) ways of working.³⁵ Incremental business cases would force evaluation and experimentation by making teams demonstrate gradual progress to

31 "Statutory duties placed on local government", Ministry of Housing, Communities and Local Government, 21 March 2011, <https://data.gov.uk/dataset/01171494-e40b-463f-9967-56d158412321/statutory-duties-placed-on-local-government>

32 Interview with Aaron Maniam, PhD researcher at the Blavatnik School of Government, University of Oxford, on 16th January 2019.

33 Tom Loosemore, "Internet-era ways of working", Public Digital, 12th October 2018, <https://public.digital/2018/10/12/internet-era-ways-of-working/>

34 Interview with Greg Jackson.

unlock subsequent chunks of funding.³⁶This is a marked shift from the current approach, which the Institute for Government has described as “[failing] to recognise uncertainty...locking programmes into fixed and unrealistic timelines.”³⁷

This iterative approach would make much better use of funds as well as create the incentives to achieve better outcomes over just delivering given outputs. Indeed, it would provide the funding and opportunity for radical, alternative models to public-service delivery to be viable and find success. Eddie Copeland, director of government innovation at Nesta, has identified several new approaches that have empowered citizens while saving money, but stressed that “you cannot innovate on fumes”.³⁸Permission, trust and budget are required for this sort of experimentation to succeed, and funding for this approach should be seen as a productive use of taxpayer money.

Public-Value Metrics

Reprioritising public purpose across investment strategy, procurement, regulation and internal business cases will require a swathe of new metrics to guide decision-making. Although governments rarely use the data they have to good effect, it is also essential that these measures promote public and social value alongside economic.

There is already a long history of debate about the usefulness of metrics like gross domestic product (GDP), which can easily rise while measures such as quality of life or environmental welfare decrease.³⁹Similarly, while *ex ante* cost-benefit analysis is often a

35 Derek du Preez, “Tom Loosemore reminds us just how much digital government is flailing in the UK”, Diginomica, 26 November 2018, <https://diginomica.com/tom-loosemore-reminds-us-just-how-much-digital-government-is-flailing-in-the-uk>

36 Interview with Tom Loosemore.

37 Sally Howes and Tess Kidney Bishop, “The hidden obstacles to government digital transformation”, 25 October 2018, <https://www.instituteforgovernment.org.uk/publications/hidden-obstacles-government-digital-transformation>.

38 Eddie Copeland, “Idea on a Page”, https://docs.google.com/presentation/d/1MoHu7MUpKUBHDmp9Phmh3dCf9KNKI9P3ROIR4g1yXIQ/edit#slide=id.g4364fb24a9_0_0; Interview with Eddie Copeland, Director of Government Innovation at Nesta, in London on 6th February 2019.

central part of policymaking, it is not a silver bullet. For instance, it can do a poor job of capturing the dynamic effects of infrastructure projects.⁴⁰ The lesson here should be that government by accountant—a cautious focus on economic measures above all else—creates a culture of risk aversion and an agnosticism towards values. In turn, policymaking is too often stuck fixing market failures rather than tilting the playing field towards pro-social ends.

Innovations in this field do exist, however. The UK government has already announced that it will include social-value metrics in some areas of procurement.⁴¹ The Good Life project at Leeds University created “doughnut dashboards” to ensure that social progress is visualised alongside, and not in competition with, environmental sustainability.⁴² Barking and Dagenham Council, in East London, created its own social-progress index dashboards, with which councillors can drill down by individual ward or aggregate data sets about quality of life—including data on pollution, tolerance and well-being—alongside economic prosperity and social progress.⁴³ This allowed councillors to map interdependencies in the data, in turn enabling them to identify vulnerable people who were slipping through the cracks.

This sort of data visualisation is commonplace in the private sector, yet despite fanfare in 2012 about the announcement of a Number 10 Dashboard, little has been heard about it since. This should be corrected, and a **national public-value dashboard should be made available to all civil servants, regardless of seniority.** A

39 Diane Coyle, “Measurements for a better future”, Bennett Institute for Public Policy blog, January 2019, <https://www.bennettinstitute.cam.ac.uk/blog/measurements-better-future/>

40 Graham Atkins, Nick Davies and Tess Kidney Bishop, “How to value infrastructure: Improving cost benefit analysis”, Institute for Government, 20 September 2017, <https://www.instituteforgovernment.org.uk/publications/value-infrastructure-september-2017>

41 “New ‘Social Value’ contracts to revolutionise government procurement”, Cabinet Office, 19 November 2018, <https://www.gov.uk/government/news/new-social-value-contracts-to-revolutionise-government-procurement>

42 Dan O’Neill, Andrew Fanning, William Lamb and Julia Steinberger, “A good life for all within planetary boundaries. *Nature Sustainability* 1, 88-95, 2018, doi: 10.1038/s41893-018-0021-4

43 Pye Nyunt, “How can data help local authorities?”, Nesta Sparks, 30 January 2019, <https://www.youtube.com/watch?v=P9TqISoSqFs>

more rounded picture to evaluate policies could also, in time, enable an Office for Policy Simulation to allow political leaders to explore the likely impact of decisions across various domains of public administration.⁴⁴

A more radical step still could require all medium-sized and large companies to report on their social impact, much like B Corps, a certification requiring companies to consider and report on the broader societal and environmental impact of their activity, with the resultant data able to inform better decision-making at all levels of government.⁴⁵

EXTENDING DECENTRALISATION

The model of purposeful governance described here encourages greater decentralisation and partnerships, with governments using their convening power to coordinate a multi-stakeholder effort to tackle grand challenges. Although a full proposal to update Western democratic structures is beyond the remit of this report, these principles should nevertheless reignite the devolution debate. Policymakers should use this moment of transformation to radically decentralise and devolve, supported by strong central governments that act as a convenors, coordinators and standard-setters.

Although there is a compelling democratic case for more devolution, Barcelona's Chief Digital Officer Francesca Bria has argued that smaller units of government can also act more effectively and be nimbler.⁴⁶ Embracing this opportunity would be

44 On an Office for Policy Simulation, see: Chris Yiu, "Technology for the Many: A Public Policy Platform for a Better, Fairer Future", Tony Blair Institute for Global Change, 11 November 2017, <https://institute.global/insight/renewing-centre/technology-many-public-policy-platform-better-fairer-future>; On simulation in public policy, see: Limor Gultchin, "Public Artificial Intelligence: A Crash Course for Politicians and Policy Professionals", Tony Blair Institute for Global Change, 6 November 2018, <https://institute.global/insight/renewing-centre/public-artificial-intelligence-crash-course>.

45 Hayden Wood, "What is Responsible Tech and why do we need it?", Doteveryone Responsible Tech 2019, 31 January 2019, <https://medium.com/doteveryone/responsible-tech-2019-2697ab9d1311>

46 Francesca Bria, "What needs to change to get to that new world of Responsible Tech?", Doteveryone Responsible Tech 2019, 31 January 2019, <https://medium.com/doteveryone/responsible-tech-2019-2697ab9d1311>.

a marked shift from the status quo, in which responsibility is often devolved without effective powers, creating gaps in accountability, trust and service quality.

In public services, this effect abounds. For example, Tom Forth, head of data at the Open Data Institute in Leeds, argues that the individual voter-registration system introduced in the UK in 2014 has taken the process away from local authorities, even though electoral rolls are still held and maintained locally. This disjunction has led to a tool that seemingly has a great user experience yet cannot tell voters whether they are already registered.⁴⁷ In reality, local authorities receive summaries of new registrations from central government and must then check against their locally held database who is or is not already registered, wasting what is left of local council resources and citizens' patience to engage.⁴⁸

This case is a product of over-centralising the service-design process and side-lining local institutions, even though they are consistently more trusted than national governments.⁴⁹ Although centralisation may sometimes be advantageous due to economies of scale, scarcity of expertise or where a push from the centre is essential to break through political sclerosis, the default should be greater empowerment and enablement of local institutions.

For example, experimentation could be encouraged through multiple competing solutions across different localities, with the central government playing an orchestrating role by continuously 'levelling up' different regions.⁵⁰ Consider how the lack of a cohesive approach to data governance across the public sector has led to different approaches to sharing medical data. In 2015, a London hospital shared data for free with DeepMind, an artificial intelligence (AI) research centre owned by Google, in an agreement that was later deemed illegal. However, in 2017 an Oxford hospital

47 Tom Forth, "Politics, trust and GDS", May 2017, <https://www.tomforth.co.uk/voterregistration/>

48 Jo Miller, Chief Executive of Doncaster Council (@jomillerdonny), "Must find ways 4 ppl 2check whether they on electoral roll #GE2017 My Elections team had 1827 requests from 630pm yest-&most 1259=duplicates", tweet, 23 May 2017, <https://twitter.com/jomillerdonny/status/866961555287678976>

49 Ben Page, "Perceptions: The fact and fiction of trust and satisfaction", 28 June 2018, <https://www.local.gov.uk/our-support/guidance-and-resources/comms-hub-communications-support/futurecomms-building-local-2>

50 Interview with Dr Tanya Filer.

trust agreed a data-for-equity deal with a digital health start-up, with the hope of returning a portion of any subsequent profits back to the trust.⁵¹ While central government could have mandated one approach over another *ex ante*, regions should also be provided maximum scope to experiment on their own terms. Instead, central government could play a role after the fact by observing and evaluating relatively natural experiments across the country and helping to share promising practices in one locality with others. In turn, this could shorten the learning curve of local governments that are new to data sharing agreements (or other analogous issues).

This call for greater decentralisation should also apply throughout central governments themselves, with teams often best placed to set and achieve their own strategic goals. However, perhaps ironically, a strong centre of government is required for this to succeed. The centre of government can aggregate the common interests of the whole public sector and leverage that power to push for change where necessary. Indeed, this could mean empowering decentralised delivery teams by breaking through existing claims of ‘departmental sovereignty’: in the UK, for instance, Her Majesty’s Revenue and Customs (HMRC) could be required to use the same definition of a company as the Department for Work and Pensions, the Department for Business, Energy and Industrial Strategy, and Companies House, in turn removing red tape for every business in the country and teams across government.⁵² Similarly, in Argentina, the Prime Minister’s Office gave the Ministry of Modernisation the authority to challenge departments and shape change, leading to radical improvements in the country’s digital-government efforts.⁵³

51 Tanya Filer, “Thinking about GovTech: A brief guide for policymakers”, Bennett Institute for Public Policy, University of Cambridge, 31 January 2019, <https://www.bennettinstitute.cam.ac.uk/publications/thinking-about-govtech-brief-guide-policymakers/>

52 Mike Bracken, “By moving data out of the centre”.

53 Tom Loosemore, “Why we’re so impressed by Argentina’s digital services team”, Public Digital, 1 June 2018, <https://public.digital/2018/06/01/why-were-so-impressed-by-argentinas-digital-services-team/>

ENABLING INFRASTRUCTURE

In support of governments' role as convenors and conductors of multiple sectors across strategic areas, policymakers must pay greater attention to the platform required to enable this wider activity. The traditional purpose of governments remains to some degree—they retain their monopoly on the justified use of force and still need to provide public goods—but to achieve the missions set from the centre, a significant shift in operating model is required.

There are two key characteristics to this shift. First, governments should take on a more proactive role as platforms for others, learning from other high-impact technology platforms. And second, they must recognise that software is a new paradigm of infrastructure required to underpin this model. **An electronic identity system should be the flagship, citizen-facing reform in a suite of APIs, data registers and other software platforms to enable the strategic activity of all layers of government as well as industry and non-profits.** Finally, senior leadership at the centre of government will be required to make these reforms a reality.

REBOOTING GOVERNMENT AS A PLATFORM

The phrase “government as a platform” (GaaP) was originally coined by Tim O’Reilly in a seminal paper arguing for the digital transformation of government.⁵⁴ Richard Pope, a Visiting Fellow at the Harvard Kennedy School and a former Product Manager at the UK’s GDS, has identified three broad categories of platform:⁵⁵

1. Single tier of government – e.g. used by central government only
2. Government-wide – e.g. used across central, regional and local government
3. Society-wide – e.g. used by banks, charities or other external organisations in addition to government

⁵⁴ Tim O’Reilly, “Government as a Platform”, MIT Press, 18 July 2011, https://www.mitpressjournals.org/doi/abs/10.1162/INOV_a_00056.

⁵⁵ Richard Pope, “Platforms for government? Platforms for society?”, Platform Land, 30 October 2018, <https://medium.com/platform-land/platforms-for-government-platforms-for-society-87b3ef0b67d8>

Much of the GaaS movement has so far focussed on categories 1 and 2, motivated by the opportunities to improve public services or generate savings by implementing cross-government platforms. Comparatively less attention has been paid to society-wide software infrastructure, yet this is where the real opportunity lies: the full potential of the GaaS model is to learn from the most successful technology platforms who recognise that as technology and society shift rapidly, organisations cannot hope to foresee and understand all the needs of tomorrow’s users. In this model, software platforms and policies (guidelines) enable activity across society, not just in government.

So just as Apple could never write billions of apps that each respond to different user needs, but could create a platform on which others have wide latitude to innovate while remaining within strict guidelines, digital strategist and academic Mark Thompson has argued that governments should be more proactive in providing a platform for other, decentralised actors who can be more responsive.⁵⁶ A similar lesson can be learned from Google Maps, which has become the base infrastructure for hundreds of other transport, taxi and travel applications.

In the UK, this approach has gained traction, with the Secretary of State for Health and Social Care Matt Hancock arguing that the UK’s National Health Service (NHS) should be oriented around a platform model.⁵⁷ Indeed, Hadley Beeman, Hancock’s chief technology advisor, stated that “since we can’t meet every need for every patient, we’ll keep [the NHS app] thin and expose the APIs, so charities and innovators can create apps for other patient journeys”.⁵⁸

⁵⁶ Telephone Interview with Mark Thompson, Strategy Director at Methods, on 10th April, 2019.

⁵⁷ Derek du Preez, “Health Secretary Matt Hancock makes pitch for NHS-as-a-Platform”, Diginomica, 28 May 2019, <https://diginomica.com/health-secretary-matt-hancock-makes-pitch-nhs-platform>

⁵⁸ Hadley Beeman (@hadleybeeman), “We started the NHS app with user research to meet lots of user needs. But since we can’t meet every need for every patient—we’ll keep it thin & expose the APIs, so charities & innovators can create apps for other patient journeys. - @matthewsgould , @NHSX”, tweet, 2 June 2019, <https://twitter.com/hadleybeeman/status/1135300546339004417>

The platform operating model – providing a foundation for a vibrant ecosystem of other products and services – is therefore instructive for governments hoping to meet the ever-shifting demands of their populations.⁵⁹As analyst Ben Thompson has written, “consumer expectations are not static...what is amazing today is table stakes tomorrow”.⁶⁰The next phase of GaaS must therefore focus on realising the far greater opportunity: supporting a plethora of dynamic actors who can be responsive to this changing context. By enabling multiple competing solutions, each responding to pluralistic and shifting needs that governments cannot comprehensively map alone, a renewed GaaS model can cultivate a culture of continuous improvement and experimentation in public services.

Despite current scepticism towards partnerships between the public and private sectors, political leaders should not be ashamed of defending this approach. In the UK, while polling suggests that the public consistently prefers services to be delivered by the public sector, expectations about what those services should provide rise in line with improved commercial experiences.⁶¹And in reality, even services that appear to be delivered by the public sector often still involve private partners. For example, services that are free at the point of delivery in the NHS do not prohibit the public sector from buying privately manufactured medicines or medical equipment.

By the public’s own expectations, therefore, it would be a mistake to scorn companies or charities outside governments due to an ideological obsession with public delivery of services. Indeed, even in digital government, although public-sector recruitment of technologists has improved in recent years, it would also be a

59 Chris Yiu, “A New Deal for Big Tech”.

60 Ben Thompson, “Divine Discontent: Disruption’s Antidote”, Stratechery, 2 May 2018, <https://stratechery.com/2018/divine-discontent-disruptions-antidote/>

61 Will Dahlgreen, “Nationalisation debate: it’s not about ‘whatever works’”, YouGov, 12 March 2015, <https://yougov.co.uk/topics/politics/articles-reports/2015/03/12/nationalisation-ideology-beats-pragmatism>; “Digital Government 2018 Barometer”, Sopra Steria Consulting, November 2018, <https://www.soprasteria.com/en/media-EN/publications/digital-gov2018-barometer>

missed opportunity to ignore the thousands-strong talent pool of other sectors to solve problems in government.

These partnerships can be politically viable so long as governments consistently prioritise the public interest. And just as technology companies have policies to govern activity on their platforms, so **governments should devise guidelines designed to give providers maximal scope to innovate and deliver on the needs of tomorrow's users while retaining high ethical standards.** In the UK, Dr Filer has suggested that this sort of work could be carried out by the new Centre for Data Ethics and Innovation, a body set up by the government and led by independent experts to advise on how to maximise the benefits of data-enabled technologies.⁶²

This approach should help to improve quality of services and enable a wide array of governmental, charitable and commercial actors to respond to an equally wide array of ever-shifting user needs. That said, leaders must also recognise that different services benefit from different approaches. At a basic level, many services can be built by an in-house team piecing together standardised, commodity software platforms. In some cases, specialist skillsets will be required, and governments may need to engage outside expertise. However, a third category of companies building new or innovative products or services – often that government may not otherwise have conceived – can also arise, and here leaders must be careful.

For some start-ups, the price of early investment is very strong pressure to grow the business aggressively, but scaling responsibly is especially important for products being deployed with, for or by governments. Nevertheless, there are genuine opportunities to be accessed by commercial companies and real excitement about seeing entrepreneurs and technologists building companies that seek to solve real problems. So as the govtech arena continues to grow and mature it will be essential for leaders in government to set the right rules of engagement, track the right metrics (starting with meeting user needs) and ensure that the public sector doesn't repeat old mistakes. A vibrant ecosystem of partners and collaborators for government should be welcomed; a reversion to

⁶² Tanya Filer, "Governing GovTech", Bennett Institute for Public Policy, University of Cambridge, February 2018, <https://www.bennettinstitute.cam.ac.uk/blog/governing-govtech/>

being captured by a small number of large providers on poor terms must be avoided.

In practice, mandating interoperable standards for services will help promote competition, disciplining companies by ensuring that governments aren't locked in to any one vendor, with alternative providers able to plug in if needed. Similarly, given the special nature of statutory public services (compared with contingent commercial activity), stricter competition regulations in the govtech arena may be warranted so that once a company has achieved scale there is a high public interest hurdle to clear before being allowed to acquire potential competitors.

Contracting terms should also ensure that any commercial success, and therefore any return to investors, is achieved by generating genuine public value and meeting user needs rather than simply accumulating leverage over buyers. Governments should be comfortable with businesses operating for profit, but also expect them to support, rather than erode, the purpose and values of the public sector. For example, NHS Trusts working with Sensyne Health, a health technology company, retain full ownership and control over patient data, with Sensyne's access requiring pre-approval on a case-by-case basis. Trusts also receive a "financial return from the commercialisation of any discoveries" that come from analysing this data, demonstrating that revenue share or royalty agreements, as aforementioned, can play an important role in governments promoting public value when partnering with private companies.⁶³

To attract providers while enforcing these policies, the GaaP model also allows governments to use access to users as a key lever to shape behaviour. The opportunity for a service provider to reach the scale of an entire country's population is the carrot with which governments can incentivise companies to work responsibly on their national missions. Conversely, withholding access is the stick to disincentivise bad practices: if providers fail to comply with

63 Rt Hon Lord Drayson, "YouGov survey shows UK public strongly support the analysis of anonymised NHS patient data for medical research, but do not support this being conducted by multinational tech companies", Sensyne Health, 8 June 2019, <https://www.sensynehealth.com/insights/yougov-survey-shows-uk-public-strongly-support-the-analysis-of-anonymised-nhs-patient-data>

guidelines, their access to platforms for identity verification, payments and so on could be withheld until the requisite changes are made. A balance must be struck so as not to undermine uptake, but this approach would help to ensure public trust in the system.

Ultimately, a model in which governments both procure services and seek to enable wider strategic activity is one in which they must, in the words of Dr Filer, be “more than just a client”.⁶⁴ Rather, states have a robust role in helping to shape the market from which they buy: they must also be a “skilled procurer, project overseer, and enabler of genuine competition”.⁶⁵ To support smaller and potentially more innovative companies, the public sector may need to look inwards at how it accommodates new types of services that may radically improve quality yet disrupt the existing system. For example, in the case of online video consultations in the NHS clashing with geographically-based funding models, public officials must assess how to price the consequences of any disruption into the terms of the original contract or even consider changing the funding model altogether.⁶⁶ However, as above, while governments should seek to promote and benefit from the innovations produced by start-up companies they must also be mindful of the potential risks involved.

Additionally, just as other technology platforms have reaped the rewards of remaking the markets in which they operate, so too must governments leverage their position of advantage. Although there will always be domains in which governments are either best placed to deliver, or where the profit incentive undermines private-sector service delivery, governments are the central interface and platform for public-facing activity and they must use the informational power of this position to improve outcomes for the most vulnerable in society and achieve better value for taxpayers.⁶⁷

64 Tanya Filer, “Why the ‘government’ in govtech must be more than just a client”, New Statesman Tech, 18th February 2018, <https://tech.newstatesman.com/guest-opinion/govtech-definition-government-client>

65 Ibid.

66 Tom Loosemore, “Which ‘govtech’ do you mean?”, Public Digital, 6 December 2018, <https://public.digital/2018/12/06/which-govtech-do-you-mean/>; Daniel Korski, “Debating GovTech: Getting the best for public services”, PUBLIC, 7 December 2018, <https://www.public.io/debating-govtech/>

For example, this position could allow government to identify areas where resources could be freed up, in turn allowing for more inclusive services. When roughly 10 per cent of the UK adult population has never used the Internet or not used it in the last three months, this is not just an academic issue.⁶⁸ Yet in an age when the other 90 per cent are weekly users, it is right that governments also seek to meet the rising expectations of the majority.⁶⁹ A progressive way forward can be found in Denmark, where the government encouraged digital transformation to improve efficiency and service quality for the vast majority while redeploying savings on better assistance for those with poor access to digital services or low digital skills.⁷⁰

This approach also recognises that ‘internet-era public services’ should not mean ‘online-only’. Instead, services must be designed according to the needs of users, wherever they are and through whichever channel they access the service. To that end, while digitisation of both front-end user experiences and back-end administration systems will often be necessary and may satisfy most user needs, access to services today should nevertheless be pluralistic, rejecting “the mindset of one-size-fits-all service design inside [government]”.⁷¹ Therefore, **governments should support inclusive public services by redeploying savings generated from digitisation**, addressing countries’ digital divides by improving front-

67 Mark Thompson, “Getting it right this time: Why the strategy is not about delivery for NHSX”, <https://www.computerweekly.com/opinion/Getting-it-right-this-time-Why-the-strategy-is-not-about-delivery-for-NHSX>

68 “Exploring the UK’s digital divide: 2. The scale of digital exclusion in the UK”, Office for National Statistics, 4 March 2019, <https://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/articles/exploringtheuksdigitaldivide/2019-03-04#the-scale-of-digital-exclusion-in-the-uk>

69 “Internet Users”, Office for National Statistics, 31 May 2018, <https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/datasets/internetusers>

70 Lars Thuesen, “How Denmark made it to the top in e-Government”, Digital Leaders, 1 April 2019, <https://digileaders.com/how-denmark-made-it-to-the-top-in-e-government/>; Empirica, “e-Skills: Monitoring and Benchmarking Policies and Partnerships in Europe: Denmark Country Report”, January 2014, <http://eskills-monitor2013.eu/results.html>

71 Tom Loosemore, “I should have renamed ‘assisted digital’”, Public Digital, 21 September 2018, <https://public.digital/2018/09/21/i-should-have-renamed-assisted-digital/>

line services, digital skills and providing help with accessing services to those in need.

PLATFORMS TO ENABLE GOVERNMENTS AND THE MODERN ECONOMY

To support the platform operating model, governments must also provide software platforms to underpin digital delivery. Most conversations about infrastructure focus on things like transport, housing, buildings, energy and utility systems, Internet connectivity and telecommunications. But in a data-driven world, policymakers should think of software and data as a new paradigm of infrastructure that governments ought to provide to enable the wider modern economy and society.⁷²

To that end, it is to be welcomed that the 2017 UK Digital Strategy defined data infrastructure as “assets, technology, processes, and organisations that not only create data, but [also] open it up and allow it to be shared. It includes storage facilities, software tools, networks, cyber-security systems, and data-management platforms.”⁷³

As well as using this data infrastructure, modern web services are built on top of databases, application programming interfaces (APIs) and libraries that help pieces of software talk to each other, share data and present this information clearly to users. These tools can be configured to create services—platforms—for things like identity verification, analytics, payment processing or notifications that are needed across government. In this sense, “a platform is something that aggregates demand and disaggregates supply”.⁷⁴ In

⁷² Romain Dillet, “France wants to rethink the state as a platform”, TechCrunch, 6 July 2016, <https://techcrunch.com/2016/07/06/france-wants-to-rethink-the-state-as-a-platform/>

⁷³ “UK Digital Strategy 2017”, Department for Digital, Culture, Media & Sport, 1 March 2017, <https://www.gov.uk/government/publications/uk-digital-strategy/uk-digital-strategy>

⁷⁴ “Government Transformation Strategy: platforms, components and business capabilities”, Cabinet Office and Government Digital Service, 9 February 2017, <https://www.gov.uk/government/publications/government-transformation-strategy-2017-to-2020/government-transformation-strategy-platforms-components-and-business-capabilities>

turn, these services become common components that can be shared and reused so teams can design services easily.⁷⁵

Providing these platforms to all levels of government and the wider economy would realise the opportunity of the GaaP operating model by enabling an ecosystem of companies, charities and government teams to deliver to the rising expectations of public services. In time, as data sets become more real time, these improvements could be even greater.⁷⁶

In practice, as more parts of government and wider society become digitised, **governments should establish a new presumption in favour of all new services having to publish and document an API.** By default, these APIs should be open for anyone to use, rather than restricted to (specific areas of) government. However, APIs should not be mandatory in all cases, because this requirement may not suit some complex projects, and as Octopus Energy's Greg Jackson has pointed out, "a small number of APIs will attract the vast majority of usage, so [we should] focus on the use-cases which matter most".⁷⁷ National security or commercial confidentiality concerns may also require teams to downgrade the API to a private one or none at all.

IMPROVING HOW GOVERNMENTS USE DATA

Another good way for governments to be more enabling, break down internal silos and be more data driven is to create authoritative registers of data. This is already crucial, as governments have huge amounts of untapped data that could be used to improve services and improve inefficiencies, but as states seek to use AI in more of their work these models will only be as good as the underlying data. Proper labelling and merging of citizen and municipal datasets will therefore be critical.⁷⁸

⁷⁵ Tom Loosemore, "Making government as a platform real", Public Digital, 25 September 2018, <https://public.digital/2018/09/25/making-government-as-a-platform-real/>

⁷⁶ Ibid.

⁷⁷ Interview with Greg Jackson.

⁷⁸ Limor Gultchin, "Public Artificial Intelligence".

In the near-term, sorting out public sector data can help governments build up some quick wins. Whether it is land ownership, addresses, energy providers, traffic data or government staff directories, authoritative registers of cross-governmental data (rather than the siloed status quo) will not only improve efficiency but also enable the wider economy.

Indeed, once the government puts its stamp on data sets, identity or fraud checks can be automated, speeding up the process and generating large savings. For example, the Gangmasters and Labour Abuse Authority, a UK public body that manages licences for companies hiring workers in the agricultural, horticultural and shellfish industries, had a budget of roughly £6.8 million (\$8.6 million) in 2017–2018.⁷⁹ The authority aims to uphold working conditions for often seasonal, immigrant workers. However, this result could be achieved through a simple data register. The current system for verifying suppliers is over-reliant on trust, but a government-authorized register would allow supermarkets and wholesalers to check their legitimacy, saving time and money and improving reliability.

Quick wins from sorting out data abound throughout governments. For instance, registers of companies, buildings and products are all essential foundations for public administration yet are often lacking. These sorts of changes have a clear economic benefit, too. A study commissioned by the Danish government estimated that the direct financial benefits of spending £1.72 million (\$2.24 million) on creating an open dataset of unique property identifiers was £53.2 million (\$69.4 million) for the period 2005-2009.⁸⁰

The public sector could therefore be far smaller and break down historical silos while radically improving service quality and efficiency. To realise this opportunity, **governments should remove data functions from each department and move them to a central**

79 “Parliamentary Question – GLAA Budget and staff 2017-2018”, Gangmasters & Labour Abuse Authority, 18 July 2017, <https://www.gla.gov.uk/media/3213/jolly-180717-glaa-budget-and-staffing-levels.pdf>

80 Juliet McMurren, Stefaan Verhulst and Andrew Young, “Denmark’s Open Address Data Set: Consolidating and Freeing-Up Address Data”, GovLab, January 2016, <http://odimpact.org/case-denmarks-open-address-data-set.html>. [Currency conversion 2nd May 2019.]

digital function. Not only would departments be far leaner, but largely untapped data would be put to more productive use as a central body could aggregate datasets and leverage the resulting scale effects.⁸¹

For individuals and for some organisational use cases, greater decentralisation may be possible. Employers and landlords should easily be able to check applicants' right to work or reside without having to go through existing cumbersome document checks, and without individuals having to risk documents being stored insecurely. Infrastructure should also be in place to help governments monitor migration flows and restore the public's confidence in the system.⁸² An electronic identity could show the way forward.

ELECTRONIC IDENTITY

With this digital infrastructure in place, government can be much more data-driven. This could be transformational for improving services and reducing inefficiencies. However, in every country that is serious about digital government (and many more besides), the true backbone of service delivery is some form of government identity system. Despite the polemical history of identity systems in some countries, radical improvement to services will come only if policymakers confront this debate head-on. Therefore, **the flagship, citizen-facing service in a suite of software platforms should be a decentralised electronic identity (eID) system.**

A simple, robust and comprehensive identity is vital for simplifying thousands of public-facing services and is used across Europe and beyond.⁸³ For example, if your address or name changes, you should be able to correct that detail for all the hundreds of entities you deal with, including banks, government or utility providers, in one move. Rebecca Dibb-Simkin, marketing and

81 Interview with Tom Loosemore.

82 Harvey Redgrave, "Balanced Migration: A Progressive Approach", 28 March 2018, <https://institute.global/insight/renewing-centre/balanced-migration-progressive-approach>

83 Ben Terrett, "Digital service delivery in the Peruvian government", 3 May 2018, <https://public.digital/2018/05/03/digital-service-delivery-in-the-peruvian-government/>

product director at Octopus Energy, describes this approach as organising around the user rather than forcing them to integrate or coordinate different areas of an organisation.⁸⁴ Governments should learn from this important principle of high-impact technology companies, and this is precisely what a government eID would enable: orienting delivery around people's lives, rather than making individuals bear the burden of joining up different silos of government. By allowing information-sharing between departments and services, identity and APIs play an important role in breaking down these silos, enabling teams across government to achieve common goals together.

CASE STUDY: THE 'TELL US ONCE' INITIATIVE IN THE UK

Tell Us Once (TUC) is a cross-government initiative in the UK helps join up activity across government silos and shows the possible impact of digital identity.⁸⁵

The service allows people to inform the state about a birth or death only once, with the Department for Work & Pensions (DWP), the Driver and Vehicle Licensing Agency (DVLA), Her Majesty's Revenue and Customs (HMRC), HM Passport Office and local government partnering to share this information automatically across government. This is a marked improvement on previous approaches where citizens would have to tell each office or department about such events individually by completing different types of forms.

In the new model, information is collected either online, via telephone or in a face-to-face interview just once. Data is recorded in a standardised, machine-readable format so that each of the partner organisations can receive updated information via an automated API. By orienting the service around user needs, reduces hassle and cost to citizens, with the

⁸⁴ Interview with Rebecca Dibb-Simkin, Octopus Energy Marketing and Product Director, in London on 28th February 2019.

⁸⁵ "Transforming local public services: using technology and digital tools and approaches", Local Government Association, June 2014, <https://www.local.gov.uk/sites/default/files/documents/transforming-public-servi-80e.pdf>

service receiving a 98% satisfaction rating in a 2013 survey, and is also far more efficient for government, with TUO delivering estimated savings of £22 million (\$28.5 million) annually.

The Tell Us Once programme serves as an example of how much easier, cheaper and simpler public services can be if services are oriented around the user and even minimal digital infrastructure is in place. The impact for businesses could be even greater if governments' procurement and invoicing procedures were streamlined along similar lines. Rather than duplicating information or having to cater to the differing needs of various public sector buyers, companies should be able to provide their information once and just consent to sharing it with different organisations when required.

A comprehensive identity system should magnify this impact across the whole of government. As above, if individuals or organisations' details change, they should be able to correct that detail for all the hundreds of other entities they deal with in one go.

Perhaps most frustrating is that governments already hold a lot of personal data about citizens in the form of passports, driving licences or other registrations, but these are disconnected from service delivery or used ad hoc to verify individuals. And in the UK, where identity has been a subject of fierce debate, new technologies can help political leaders resolve or mitigate some legitimate concerns about security or an all-powerful state.

Specifically, the technology now exists to disaggregate and decentralise a lot of personal data. As evidenced by a 2018 hack on India's Aadhaar ID system, a single centralised system is vulnerable to hacking.⁸⁶ GOV.UK Verify, the government's most recent attempt at identity, is known as a federated, rather than centralised, system: it uses external providers who already hold identifying information about individuals to verify identities.⁸⁷ However, only a limited number of providers are involved and the system has been

⁸⁶ Rachna Khaira, Aman Sethi and Gopal Sathe, "UIDAI's Aadhaar Software Hacked, ID Database Compromised, Experts Confirm", HuffPost India, 11 September 2018, https://www.huffingtonpost.in/2018/09/11/uidai-s-aadhaar-software-hacked-id-database-compromised-experts-confirm_a_23522472/

⁸⁷ Oliver Dowden, "GOV.UK Verify programme: Written Statement – HCWS978", Cabinet Office, 9 October 2018, <https://www.parliament.uk/>

confusing to departments across Whitehall, receiving little uptake.⁸⁸

A new way forward that avoids both centralisation and the limitations of only using a small number of identity providers is needed. A promising model can be found in “self-sovereign identity”, in which data is not stored in a centralised database, managed either by government or a private company, but on an individual’s trusted, personal device.⁸⁹ This would reduce the risk of sharing physical documents that are routinely stored, copied or transcribed in ways that take data outside users’ control. Self-sovereign identity is also based on public key cryptography, which would protect personal data and reassure those with privacy concerns. Finally, a digital identity would split information up into distinct pieces or attributes, allowing, for example, users to share an ‘over 18’ attribute rather than sharing their entire date of birth (or address) when showing a physical identity document. To ensure wide uptake, the system should be mandatory but free-of-charge.

In practice, a new model could work as follows:

1. Users would install a digital wallet (usually an app) on their smartphones. Any personal data is stored in this wallet on the phone, and not on a central server operated by government or another organisation.
2. Data is protected using modern cryptographic methods: it’s easy to multiply two large prime numbers together to get a very large result, but it’s very hard to work backwards to find those original numbers. So, the digital wallet generates two large random numbers and feeds them through a mathematical function to create a set of public and private keys. The public key can be shared with anyone. They then use it to encrypt a message they want to send to the user, and because the user’s

business/publications/written-questions-answers-statements/written-statement/Commons/2018-10-09/HCWS978/

⁸⁸ Lesley Cowley, “How digital innovation can improve public services”, Institute for Government event, 27 March 2018, <https://www.instituteforgovernment.org.uk/events/how-digital-innovation-can-improve-public-services>

⁸⁹ Chris Yiu and Harvey Redgrave, “A New Approach to Digital Identity”, Tony Blair Institute for Global Change, 29 March 2018, <https://institute.global/insight/renewing-centre/new-approach-digital-identity>.

keypair are linked, only their private key can decrypt a message encrypted with their public key. Crucially, the private key is only stored on a device that users already trust, ensuring they remain in control.

3. Users would send claims to be verified by identity authorities, such as being a citizen of a country or having the right to work, along with their public key and scans of 'proof documents' such as birth certificates, driving licences or passports. Authorities then provide digitally signed attestations, and associate them with a user's public key, verifying that the claim is indeed proven by attached document. (Central governments would have provided attestations to each sub-authority granting them the right to verify claims, ensuring that all parties' credibility ultimately flows from an elected, sovereign government.) Crucially, attestations are stored as machine readable pieces of information and could be processed by external organisations, but they would be stored in users' digital wallets (the digital-equivalent of a 'safe place') and only shared when they consent.
4. Users would share these digitally signed attestations with third parties when required, such as to prove eligibility to work or verify academic qualifications, and use their private key to sign authoritatively any related documents. With this self-sovereign identity system in place, digital signatures ensure trust between counterparties' assertions without the need for any central intermediary.

Putting an authoritative identity-verification system in place for use by organisations outside central government would enable dentists, doctors, and councils to request access to data stored on each other's servers – when necessary and with users' consent – while avoiding either a central database or multiple duplicated ones, utilising APIs and distributed storage instead.

Estonia is often highlighted as the country furthest along in this transition.⁹⁰ In its criminal justice system, for example, judges, prison wardens, police, forensic specialists and lawyers all add to a single case file accessible by all, precluding the need for a central

90 Nathan Heller, "Estonia, The Digital Republic", The New Yorker, 11 December 2017, <https://www.newyorker.com/magazine/2017/12/18/estonia-the-digital-republic>

processing unit that creates bottlenecks. Medical data also belongs to citizens, with the system creating an indelible record each time anyone accesses them, with penalties for doing so without consent.

These features address the tensions between privacy and security as well as reduce the need for citizens or businesses to complete the same forms hundreds of times throughout their lives. Similarly, they would no longer need separate login details for every bit of government they deal with, whether for matters of tax, health, student finance or local government. There is also the opportunity for an identity system to help assess and control immigration. The political benefit of hassle-free interactions with government should not be underestimated, and the first party to grasp these opportunities to respond to the public's demand for change will be well placed to secure its legacy.

CASE STUDY: REGISTERING FOR A DOCTOR IN ENGLAND

An eID and improved data registers could significantly improve the process of signing up for a doctor in England. Under the status quo, to register for a new doctor, patients must often provide photo identification and a recent utility bill to prove they live locally. This is already inconvenient for anyone who uses paperless billing, or lacks a printer, but is especially challenging for lodgers and temporary residents who may not be named on the bill at all.

At the practice, patients might have to complete by hand forms that ask for their NHS number, prescriptions and allergies, detailed vaccination history and family medical history. This is likely not the first time patients have had to complete these forms, and the information given is only as reliable as the patients' memory or knowledge.

This process may also be unclear at the start, requiring a person to repeat the process after gathering the necessary information. The practice may be open only during working hours.

An eID can make the process easier, hassle free and more secure. Switching doctor could be as easy as navigating to an online portal, verifying who you are and clicking a new practice from a drop-down menu. Each patient's eID would already include his or her residential address and an attribute stating with which doctors' practice they were previously registered. The eID then provides a digital mechanism for patients to consent to the new practice accessing an authoritative record of their comprehensive medical history. With permission, family members could be notified of this change so they can also choose whether to consent to the sharing of any hereditary conditions. All of this should be possible online 24 hours a day, seven days a week.

EMPOWERING DEVOLVED GOVERNMENTS

Although the focus of this report has been on national governments, using digital and data at the local level can be even more impactful.

In England, there are 353 local authorities, often with nearly identical back-office requirements.⁹¹ Yet as councils increasingly need to do more with less, the opportunity for significant savings is huge. The authors of the 2018 Digitizing Government report conservatively estimated that making common software platforms open to local government in England could save £5.2 billion (\$6.7 billion) annually.⁹² Policymakers could configure region-specific services from standard playlists of “common processes and functions”, the authors argued, by piecing together reusable, shared components for services like workflow, case handling, registration, data storage, analytics and payments. These tools would be streamed over the Internet at minimal cost, and the savings from

91 Mark Sandford, “Local government in England: structures”, House of Commons Library, Briefing Paper Number 07104, 21 December 2018, <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN07104#fullreport>

92 Jerry Fishenden, Mark Thompson and Will Venters, “Better Public Services: The Green Paper accompanying Better Public Services, A Manifesto”, 27 March 2018, p28 https://digitizinggovernment.weebly.com/uploads/1/3/0/7/13071055/green_paper_interactive_pdf_compressed.pdf

reduced duplication would allow civil servants to transition into more rewarding and necessary front-line roles that cannot and should not be automated.⁹³

Institutional reform could accelerate this transformation, too. Offices of Data Analytics—a programme consisting of small, expert teams that work with public and private data pooled from neighbouring localities—can play a key role in integrating places and supporting devolved government.⁹⁴ Many towns and cities have vast data sets that are often siloed or of poor quality, and aggregating these data could help places achieve the economies of scale required to find both meaningful insights and significant savings.⁹⁵

IDENTITY AND SOFTWARE PLATFORMS TO ENABLE NEW SERVICES

Although technology has changed much of the world, democratic processes have remained broadly the same over the last 100 years. Yet public services and democracy are two sides of the same coin, and both require transformation. While a full proposal for the latter is beyond this report's scope, some contours for progress are nevertheless clear.

At its most basic, the right use of technology could involve automatic voter registration when registering for an eID or interacting with any public service. A more ambitious proposal would be to reorient democracy around more frequent and substantive civic engagement, beyond single-issue petitions that do not engage in the hard trade-offs of policymaking.⁹⁶

93 Mark Thompson, "Disrupting Government: Reassessing Social Value for the Internet Age", Bennett Institute for Public Policy, University of Cambridge, July 2018, <https://www.bennettinstitute.cam.ac.uk/blog/disrupting-government-reassessing-social-value-int/>

94 "Offices of Data Analytics", Nesta, June 2016, <https://www.nesta.org.uk/project/offices-of-data-analytics/>

95 Cameron Scott and Eddie Copeland, "Smart Devolution: Why smarter use of technology and data are vital to the success of city devolution", Policy Exchange, 15 January 2016, <https://policyexchange.org.uk/publication/smart-devolution/>

96 Interview with Eddie Copeland.

Indeed, democratic forces may accelerate steps towards this approach. Four- or five-year mandates provided by general elections are increasingly out of step with a technology-driven politics characterised by the constant mutation of networks, groups, organisations and ideologies.⁹⁷ As a result, governments that are already elected on the basis of imperfect voter coalitions can only grow more misaligned with the wishes of voters, including their own. More active civic engagement may be the only way to bridge this gap, revealing “issues bottom up [and] outside the political agenda”, in the words of Cristina Leston-Bandeira, an academic at the University of Leeds.⁹⁸

If digital tools are to play a part in this, then authenticated identities will be central to maintaining the integrity of the process. However, introducing an eID does not necessitate electronic voting or online, direct democracy. Existing electronic voting systems are prone to vulnerabilities or secured using technologies that people cannot understand, both of which are a fundamental problem to legitimate, widespread use.

However, promising innovations in technology-enabled civic engagement do exist. Tools and processes that incentivise more nuanced debate have shown promise in places as varied as Taiwan, Ireland and Madrid.⁹⁹ Although there is no clear consensus yet about the most effective methods, processes or tools—both online and offline—the UK’s new Innovation in Democracy programme, which will experiment with new tools and processes for a more participatory democracy, should be welcomed. Needless to say,

97 Nicolas Colin, “Democracy Tested by the Multitude: On ‘A Grammar of the Multitude’ by Paolo Virno”, *The Family*, 8 March 2019, <https://salon.thefamily.co/democracy-tested-by-the-multitude-505e42e35de5>

98 Cristina Leston-Bandeira, “What is the point of petitions in British public?”, *London School of Economics and Political Science Blogs*, 7 February 2017, <https://blogs.lse.ac.uk/politicsandpolicy/what-is-the-point-of-petitions/>; Cristina Leston-Bandeira, “A year on, the new Petitions Committee has much to celebrate”, *The Constitution Unit, University College London*, 20 July 2016, <https://constitution-unit.com/2016/07/20/a-year-on-the-new-petitions-committee-has-much-to-celebrate/>

99 Theo Bass, “Three ideas for blending digital and deliberative democracy”, *Nesta*, 20 February 2019, <https://www.nesta.org.uk/blog/three-ideas-blending-digital-and-deliberative-democracy/>

software infrastructure will likely play an essential role in enabling many future services.¹⁰⁰

¹⁰⁰ “Civil Society Strategy: building a future that works for everyone”, Department for Digital, Culture, Media & Sport, 9 August 2018, <https://www.gov.uk/government/publications/civil-society-strategy-building-a-future-that-works-for-everyone>

RESPONSIVE INSTITUTIONS

Governments' capacity to respond to the needs of citizens is central to improving public services and promoting a healthy democracy. However, ossified bureaucracies replete with obstructive silos, interdependencies that reduce teams' autonomy and poor use of technology, consistently undermine these efforts. In small organisations these would already be serious challenges, but in a country like the UK – where the civil service is more than 430,000 people strong (excluding wider public-sector employees such as those of the NHS) and split across 45 ministerial and non-ministerial departments and nearly 500 executive agencies, public bodies and other groups – complexity rises exponentially.¹⁰¹ The government then struggles to fulfil the full ambition of its agenda, at the expense of citizens.

In response, leaders must unashamedly champion a new operating model that combines a strong centre with a high degree of devolution and empowerment of others. It must challenge old-fashioned departmental silos and incentives skewed towards balancing competing bureaucratic interests rather than taking risks and innovating. A better approach would be to launch more cross-functional, non-departmental teams, learning from the highest-impact technology businesses of today.¹⁰² Governments are now the big incumbents with outdated processes, structures and technologies. They should borrow from the challengers—organisations that scale themselves up by using technology effectively, rationalising administrative costs and creating autonomous team structures focused on frequent, incremental delivery.¹⁰³

¹⁰¹ “Civil Service Statistics, UK: 2018”, Office for National Statistics, 3 August 2018, <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/publicsectorpersonnel/bulletins/civilservicestatistics/2018>; <https://www.gov.uk/government/how-government-works>

¹⁰² Henrik Kniberg, “Spotify engineering culture (part 1)”, Spotify Labs, 27 March 2014, <https://labs.spotify.com/2014/03/27/spotify-engineering-culture-part-1/>; Henrik Kniberg, “Spotify engineering culture (part 2)”, 20 September 2014, <https://labs.spotify.com/2014/09/20/spotify-engineering-culture-part-2/>; Anne Boden, “How we’re changing banking in 2019”, Starling Bank, 7 January 2019, <https://www.starlingbank.com/blog/changing-banking-2019/>

¹⁰³ Hayden Wood, “What is Responsible Tech and why do we need it?”.

These teams would work to a clear mission from the centre of government to ensure alignment but have maximal autonomy to work towards their goals with their own, direct, incremental business case with the finance ministry. The centre would then manage these teams like an investment portfolio, with resources scaled up when the team is successful and reallocated when not. Bringing new skills and experience into governments—especially in terms of tech, innovation and entrepreneurship—will also be crucial. Partnerships and recruitment reform can help here.

DEALING WITH COMPLEXITY

In the UK, after decades of complacency, modernisation of Whitehall since the 1980s has often focused on improving efficiency, ensuring value for money and professionalising the civil service. Over decades these efforts have led to a step change in outcomes for citizens across many public services as well as better accountability of officials and budgets. However, many of these gains stemmed from an approach to management centred on a focused set of performance targets defined by, and set from, the top.

In certain areas this approach can be transformational—as seen in reductions in NHS waiting times or child poverty—and an active and determined centre of government will still be required to tackle growing problems such as knife crime or homelessness. Yet governments are complex organisations. Not only are they made up of lots of teams, departments and agencies, but each one also has its own brief, culture and goals. Sometimes these align, but often they compete.¹⁰⁴ Moreover, as intentions and priorities shift over time, the organisation as a whole will adapt too. While leaders and the centre of government can help to coordinate different bodies, the crucial insight is that most often these dynamics are in direct tension with management styles based on linear command and control from the top.¹⁰⁵

104 Jake Chapman, “System Failure: Why governments must learn to think differently”, Demos, 2004, <https://www.demos.co.uk/files/systemfailure2.pdf>

105 Peter Housden, “Rethinking Public Services”.

This has always been true, yet as technology interacts with and underpins ever more activity in the government, the number of connections across teams, departments and entire systems—each one an opportunity for conflict or breakdown—only increases exponentially.

Given the size of governments, it is impossible to map, track and manage all these interdependencies, so a new approach is needed. Policymakers cannot control everything anyway, and they should not try. Rather, as Professor Jake Chapman, a former associate at the think-tank Demos, argued years ago, “the best approach to improving performance is to take a range of actions, evaluate the results and subsequently learn what works best. This evolutionary approach to learning requires both innovation (variety of actions) and effective feedback on the results of previous actions (a selection process).”¹⁰⁶

Just as large technology companies such as Amazon or Google have learned, to be impactful in the Internet era, a new operating model must be more comfortable with ambiguity. Like these businesses, governments should navigate complexity through experimentation, iteration and constant evaluation.¹⁰⁷ Although ignorance is not rewarded at the ballot box, policymakers must still champion a certain sort of humility: they should be clear in their direction of travel but not presume the best way to get there.

RESETTING GOVERNMENT INSTITUTIONS

Among criticisms of government structures, the obstacles of historical departmental silos are king. In the UK, the move towards shared back-office functions during the Conservative–Liberal Democrat coalition government of 2010–2015 sought to address some of this failure while generating efficiency savings, but its record is mixed.¹⁰⁸ However, perhaps the crucial insight is that

¹⁰⁶ Jake Chapman, “System Failure”.

¹⁰⁷ Mark Foden and Daniel Thornton, “Why big government things go wrong”, The Clock and the Cat podcast, 14 December 2018, <https://markfoden.com/clockcat/2018/12/episode-2-why-big-government-things-go-wrong>

¹⁰⁸ Thomas Elston and Muir MacCarthaigh, “Sharing services, saving money? Five risks to cost-saving when organizations share services”, Public

policy portfolios and decision-making responsibilities are frequently split up across Whitehall, often creating spiralling interdependencies that bring the system to a halt.

Part of the reason the government is in its current mess is the cumulative impact of decades of restructuring, often solely for political reasons. Any changes must move on from this culture of ad hoc reorganisation and update the cultures and portfolios of institutions to reflect the priorities of the modern era.

The UK government's 2018 single departmental plans outline priorities for each government department and include reference to policy areas that are duplicated across departments or require multiple departments to collaborate.¹⁰⁹ Although single departmental plans are not exhaustive, they indicate how different areas of policy are managed in the government. Almost every department references collaboration with at least one other department in these plans, and not including departments either formally or effectively at the centre of government, one department, the Department for Environment, Food and Rural Affairs (DEFRA), cites as many as 10 other departments across seventeen different policy issues requiring inter-departmental collaboration.¹¹⁰ Furthermore, while many areas designated as cross-cutting issues seem to flow through multiple department briefs quite reasonably—such as race disparity, homelessness or industrial strategy—others seem far less strategic and lack dedicated leadership.

At the other extreme is the Foreign and Commonwealth Office (FCO), which has dedicated leadership but has been stripped of many of the powers that it might reasonably be expected to use to fulfil its mandate. Aid is now managed by the Department for International Development, national security is overseen by the National Security Council, trade is at the Department for

Money & Management, pp 349-356, 10 Jun 2016, <https://www.tandfonline.com/doi/abs/10.1080/09540962.2016.1194081>

¹⁰⁹ "Building a country that works for everyone: the government's plan", Cabinet Office, 14 December 2017, <https://www.gov.uk/government/collections/a-country-that-works-for-everyone-the-governments-plan>

¹¹⁰ 'Formally or effectively at the centre of government' includes HM Treasury, HM Revenue & Customs, the Cabinet Office and the Department for Exiting the European Union.

International Trade (DIT), and Brexit has been led by both the Cabinet Office and the Department for Exiting the European Union (DExEU). Although there are reasonable defenders of these decisions, the FCO is certainly left somewhat hamstrung and undermined, reduced to diplomatic performativity with little to back it up.¹¹¹

This report does not pretend to solve or straighten out the inherently interconnected nature of many areas of policymaking. Climate change relates to the environment, transport, construction, agriculture, foreign policy and countless other areas, while technology is just as cross cutting. As Nesta's Copeland put it, reconfiguring departments can be a little like rearranging "the deckchairs on the *Titanic*": it will not necessarily solve the problem.

Restructuring can also be extremely costly, according to the Institute for Government, a UK think tank, with new departments costing up to £15 million (\$19 million) to establish.¹¹² This cost can rise even higher when one takes into account productivity losses—mainly, but not only, if these changes are rushed—and settlements due to levelling up the salaries of staff from merging departments. And this is at a time when high levels of staff churn in the UK civil service already cost up to £74 million (\$96 million) each year.¹¹³

However, since bold changes to the structures of government are nevertheless certainly required, leaders must be highly strategic. At minimum, costs can be reduced by increasing planning time and

111 Steve Bloomfield, "An island apart: the inside story of how the Foreign Office is failing to prepare for Brexit", *Prospect*, 15 October 2018, <https://www.prospectmagazine.co.uk/magazine/foreign-office-brexit-failure-steve-bloomfield>

112 Patrick Dunleavy and Anne White, "Making and breaking Whitehall departments: A guide to machinery of government changes", Institute for Government, 12 May 2010, https://www.instituteforgovernment.org.uk/sites/default/files/publications/making_and_breaking_whitehall_departments.pdf

113 Tom Sasse and Emma Norris, "Moving On: The cost of high staff turnover in the civil service", Institute for Government, 16 January 2019, <https://www.instituteforgovernment.org.uk/publications/moving-on-staff-turnover-civil-service>; Gavin Freeguard, Aron Cheung, Alice Lilly, Marcus Sheppard, Johnny Lillis, Lucy Campbell, Jenny Haigh, James Taylor and Alasdair de Costa, "Whitehall Monitor 2019", Institute for Government, 22 January 2019, https://www.instituteforgovernment.org.uk/sites/default/files/publications/Whitehall%20Monitor%202019%20WEB_0.pdf

providing new departments with dedicated support from the centre, but transformation will probably always involve large sums of money and governments should see this as an investment.¹¹⁴ The opportunity cost of not reforming could be orders of magnitude greater than the figures outlined here.

Take digital and technology which, as this report articulates, will be key to securing future progress. In the UK, the Department for Digital, Culture, Media and Sport (DCMS), the Department for Business, Energy and Industrial Strategy (BEIS), UK Research and Innovation, GDS, the Catapults network (an arms-length body encouraging industry) and countless other organisations all contribute to a confused governance landscape, each with varied or overlapping briefs. This situation undermines dedicated leadership and accountability.¹¹⁵ Indeed, membership of the government's digital task force is made up primarily of non-cabinet ministers, with the result that an area of national priority lacks the strong leadership required to push it forward.¹¹⁶

Even GDS, which was once a great disruptor, has in recent years suffered from a lack of cross-governmental support, resistance from senior civil servants keen on departmental sovereignty, and being maligned with some responsibilities passed to other departments. Some countries have made progress without a central digital government unit (DGU), such as Estonia or New Zealand, but these countries have had either fewer obstacles with legacy IT infrastructure or have recreated the dedicated leadership structure of a DGU in some other way.¹¹⁷ The crucial point is that to gain new momentum in this arena it is essential that technology is at the top table – just as in the highest impact companies of the internet era – rather than taking orders from those on high.

114 Dunleavy and White, “Making and breaking Whitehall departments”.

115 Andrew Bennett (@andrewjb_), “Mapping UK Tech Governance - Thread”, tweet, 31 July 2018, https://twitter.com/andrewjb_/status/1024305974880993280

116 “Cabinet committees”, Institute for Government, Updated 8 April 2019, <https://www.instituteforgovernment.org.uk/publication/whitehall-monitor/whitehall-explained/cabinet-committees>

117 Amanda Clarke, “Digital Government Units: Origins, Orthodoxy and Critical Considerations for Public Management Theory and Practice”, 12 July 2017, p28, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3001188

To respond to this malaise in a cabinet-style system, therefore, **governments should build a new digital, data and technology function that incorporates existing digital government units (such as GDS), a new, central data function and responsibility for digital and technology policy.**

Although this report recognises the challenges involved when creating or reshuffling departments, there is also a strong case for making strategic changes with sufficient planning where necessary. For example, a strong centre, in some contexts, allows governments to leverage joined-up expertise and capability across the whole of government and society. Given that technology will become increasingly foundational for almost all activity, this consolidated functionality and dedicated, cabinet-level leadership is indeed required to align governments' own digital strategies with their broader technology policy goals. Crucially, digital capability must still be distributed throughout different teams across government and a new central body must not resort to the sort of top-down control that is such a poor fit for governing in a complex world.

This move should therefore be considered an opportunity to pilot and demonstrate an entirely new operating model for government, fit for the internet age. This should extend not only to the use of technologies but also to the culture, processes and organisational set-up, with the new team acting as an “exemplar and proof of concept for renewal across the public sector”.¹¹⁸

A NEW OPERATING MODEL

Dramatic organisational change, especially in large organisations, is hard. Just as Blockbuster did not become Netflix, governments stuck in their traditional ways of working struggle with transformational, complex change. Indeed, it is often said that so much in the wider world is unrecognisable from 20 years ago and yet government remains governments remain largely the same. Yet they are also the only entities with the power to change this and this failure is one of both policy and leadership.

118 Chris Yiu, “Technology for the Many”.

Going forward, the institutional design of governments must enable greater responsiveness and adaptability to a changing world. States must go beyond the temptation to reorganise around the latest pressing policy issue and focus on reducing interdependencies and enabling collaboration between teams, so each team can be as autonomous and unhindered as possible. This should be realised in two stages: **first, by launching cross-functional, non-departmental teams, which central governments should manage like a portfolio; and second, promoting what we might call ‘interoperability for teams’ by using technology to reduce the costs of interacting across boundaries.**

Portfolios of Cross-Functional Teams

Governments should launch new institutions to deliver change in a way that old ones often cannot. Small teams, loosely joined, would allow for this much more rapid adjustment when policy issues or political contexts change. The exact configurations are less important than the *metamechanics*, or the conditions that enable the configurations to adapt over time.¹¹⁹ Indeed, in the time it would take to rearrange or straighten out policy briefs in government – the approach often favoured by political leaders – the briefs themselves would already have changed. When everything is constantly changing in unintended and unexpected ways – a dynamic which is amplified by the continually evolving internet – institutional design must work with these mechanics, not against them. For example, this means prioritising manoeuvrability over speed or flexibility over order.

In practice, governments must break through rigid structures and reduce teams’ dependence on other bits of the bureaucratic machine as much as possible. Atomistic teams should combine varied expertise, perspectives and skill sets – and have all the technology they need in place easily – so that they have everything they need in one place without being dependent on others. By bringing together policy experts, lawyers and ministerial officials with designers, project-delivery managers and user researchers,

119 John V. Willshire, “Metamechanics: Working out how the internet works”, IAM Weekend 16, Internet Age Media, 8 April 2016, <https://www.internetagemedia.com/talks/john-willshire>, <https://www.slideshare.net/gamages/working-out-how-the-internet-works-metamechanics-iamw16-annotated/65>

cross-functional teams also benefit from a diversity of thinking as well as expertise. Each team member is immersed in others' ways of working, with policy professionals learning from designers and vice versa. This dynamic is crucial to help civil servants of whatever variety become more accustomed to dealing with complexity and ambiguity.¹²⁰ The unit of delivery becomes the multidisciplinary team, with every relevant perspective and expertise represented, and the breadth of skillsets ensures that governments have the capability in place either to ship their own digital products and services or to be informed buyers of others' technology.

In the UK, this idea would build on some positive steps made by the fringes of government. Multidisciplinary teams in policy, such as the Office for AI, a joint DCMS-BEIS unit, draw on the expertise of departments and policymakers in each specialism. However, the structure of joint units can undermine teams' long-term viability: unless there is a strong drive from the centre of government, ministers are unlikely to fight for something for which they are only partly responsible. This is the dynamic of the UK government's spending review process, in which departments must lobby for funding from the Treasury for the next period of activity, writ large: siloed budgeting skews incentives away from collaboration and towards fighting only for projects owned solely by departments.¹²¹

The lesson is not to scrap multidisciplinary working but to empower it. Cross-functional teams should be funded independently of any host departments, with these new units managing their own business cases directly with the centre of government. To paraphrase Paul Adams, VP of Product at software company Intercom, the internet has shifted away from pages and destinations and moved towards aggregations of many individual pieces of content.¹²² In the same way, governments would be organised into cross-functional, autonomous teams that would be more nimble, free of current silos and able to execute their own tasks without depending on other departments.

120 Audree Fletcher, "Design in Policy", 30 December 2018, <https://medium.com/@avfletcher/design-in-policy-b5d0728f7057>

121 Interview with Daniel Thornton, director of external relations at Ark, in London on 6th February 2019.

122 Paul Adams, "Why cards are the future of the web", Intercom, <https://www.intercom.com/blog/why-cards-are-the-future-of-the-web/>

This approach would be also an opportunity to implement incremental business cases, as outlined above, to embed a culture of continuous improvement and shift from a focus on outputs to one on outcomes. If government provides the digital infrastructure and components outlined previously, new teams could also get up and running very quickly. This would mirror a zero-stack start-up, where the barriers to starting a new company are drastically reduced and they can scale up with minimal friction because technologies such as data storage, computing and many applications can all be consumed on-demand with zero distribution and transaction costs.¹²³ With these tools in place, and with all the expertise required already around the table, teams should be far more effective than the status quo of siloed organisations and sub-par technology.

CASE STUDY: SPOTIFY'S MULTIDISCIPLINARY TEAMS

Spotify is a music-streaming service available via apps, a web music player and several smart devices. For Spotify to update and improve each of these services regularly, its organisational structure is focused on giving teams complete autonomy while articulating a global vision so that all teams remain aligned.

Each team, known as a squad, has end-to-end responsibility for a specific service area, covering all phases of “design, commit, deploy, maintenance and operations”.¹²⁴ Teams must therefore be multidisciplinary to include expertise and experience of all parts of this cycle.

Squads’ areas of focus should be mutually exclusive to minimise interdependencies. This speeds up development processes because there are no handovers between teams and limits the blast radius when things do go wrong.

Strong alignment between autonomous squads is crucial. Although teams can set their own goals, they must all pull in the same broad direction. This dynamic ensures that autonomy does not result in local sub-optimisation at the expense of global

¹²³ Chris Yiu, “A New Deal for Big Tech”.

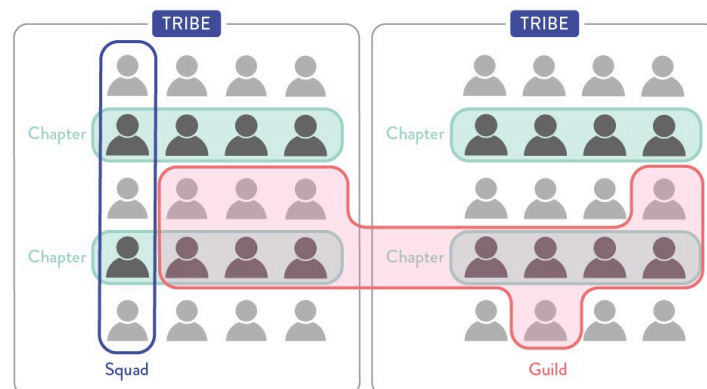
¹²⁴ Spotify engineering culture (part 1).

optimisation, as well as aiding collaboration when two squads do overlap. When problems grow in complexity, the team splits up rather than adding more people. This keeps squads nimble.

Each team can choose its own tools and adopt its working cultures, but some common standards exist to ensure interoperability between squads.

Squads are complemented by other units or organisation: chapters, guilds and tribes (see figure 3). Chapters are horizontal groups that unite people from different squads by discipline—designers, developers and so on. Guilds are informal groupings organised around common interests. Tribes act as containers for a set number of squads, either to keep things from getting unwieldy or to loosely join squads working on similar areas.

Figure 3: Spotify's Engineering Culture



Source: Spotify engineering culture, Spotify Labs

Regular release cycles for Spotify's updates and improvements incentivise and normalise small, frequent, iterative delivery. Unfinished changes may even be included in an update and only activated later to retain a regular release rhythm.

A strong sense of community acts as a foundation, given that squads change and move around frequently. In this sense, culture helps fill gaps, deal with overlaps and resolve conflicts between structures.

This approach is not applicable to all government activity. Agile, iterative ways of working depend on the costs of updating or restarting design processes being zero, which would be incompatible with, say, large-scale construction projects. It's would also be unsuitable for nuclear deterrence policy, which is the product of higher level geopolitical or strategic positioning. However, a large proportion of policy is really about delivery, be it healthcare, local public services or in education.¹²⁵ The current mindset of cooking policies up in one room and then handing them over to delivery and design teams in another will only prolong a history of disappointments by failing to think about real-world implementation at the start. Breaking down these silos and empowering teams' autonomy is essential to orient services around users, not the needs of the bureaucracy.

In government, the structures of chapters and guilds could be recreated to provide forums for disciplines or skill groups—for example, policy advisers, researchers, lawyers, designers, developers or product managers—to come together and share insights or provide feedback beyond their multidisciplinary teams (squads). In Israel, for instance, central government chief digital officers are part of a cross-government digital team—a model which blends domain expertise with embedded, digital know-how and provides forums for knowledge-sharing.¹²⁶

Adopting the same methods of delivery used by high-impact technology companies should invariably lead to better results. In the UK, GDS's early record of creating excellent exemplar services and an award-winning website using these approaches demonstrates this.¹²⁷ Their growing use elsewhere, such as the HMRC Policy Lab, which aims to bring user research and other new

125 Richard Pope & Andrew Greenway, "Making public policy in the digital age", DigitalHKS, Harvard Kennedy School, 27 April 2018, <https://medium.com/digitalhks/making-public-policy-in-the-digital-age-1900a248578c>

126 Interview with Dr Tanya Filer.

127 UCL Institute for Innovation and Public Purpose (@IIPP_UCL), "‘Actually, if you focus on the money, it's the last thing you get.’ Wise words from @MTBracken recounting experience at @gdsteam focussing on user value rather than targets. Full video of his #BLpublicpurpose talk with @rainerkattel on public value & data: <https://youtu.be/mok1lpjw5oE>", tweet, 1 August 2018, https://twitter.com/IIPP_UCL/status/1024692521006510082; "Government saves £18.6 billion for hard working taxpayers in 2014 to 2015", Cabinet Office and HM Treasury, 13 August 2015, <https://www.gov.uk/>

methods into policymaking, or the new NHSX organisation, which brings dedicated technology leadership alongside policy teams, should be welcomed.¹²⁸

In the UK, the government has identified several cross-cutting policy priorities that could form the basis for key national missions and organisational portfolios. These are: ¹²⁹

- Employment & skills
- Immigration
- Race disparity
- Industrial strategy
- Environment and clean growth
- Digital
- Housing
- Mental Health
- Tackling modern slavery & people trafficking
- Security
- Rough sleeping & homelessness reduction

A new digital, data and technology function, as described above, would be an ideal candidate to pilot this new operating model given its combination of service delivery and policy responsibilities. The Cabinet Office is also already home to the Race Disparity Unit, “a multidisciplinary team that includes developers, user researchers, content designers, service and delivery managers, data analysts and policy specialists”.¹³⁰ This is precisely the model to follow: cross-functional teams that work across traditional government silos by bringing the necessary experiences and skillsets into one place, in turn minimising the delays that result from handovers between different functions. However, scaling this approach up to areas that

government/news/government-saves-186-billion-for-hard-working-taxpayers-in-2014-to-2015

128 “NHSX: digital experts will be part of cancer and mental health teams”, Department of Health and Social Care, 4 April 2019, <https://www.gov.uk/government/news/nhsx-digital-experts-will-be-part-of-cancer-and-mental-health-teams>; Faye Churchill, “Introducing our Policy Lab”, HMRC Digital, 20 February 2019, <https://hmrcdigital.blog.gov.uk/2019/02/20/introducing-our-policy-lab/>

129 “Building a country that works for everyone”, Cabinet Office.

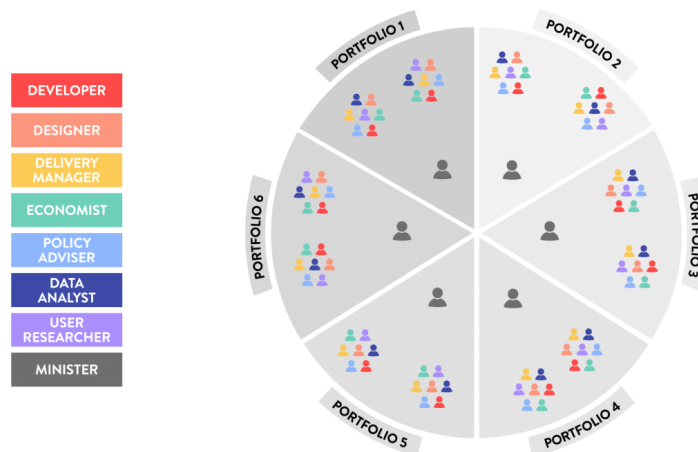
130 “About Us”, Race Disparity Unit, Cabinet Office, <https://www.gov.uk/government/organisations/race-disparity-unit/about>

are less familiar with it, as well as applying it to entire departments, will be challenging.

To that end, for areas that are new to this model, an initial scoping team could be created to map any interdependencies across existing departmental structures. For example, an initial 'Environment and Clean Growth' team could have representation from policy, climate science, engineering, law and delivery backgrounds and explore issues by doing user research with existing government teams; the agriculture industry; the renewable and non-renewable energy industries; urbanists, architects and housing residents and developers; manufacturing; transport and aviation; logistics; public health practitioners; and conservationists. This would rapidly surface a high-level view of the cross-cutting nature of climate policy and then, like cellular division, teams would multiply to focus on each of the issues that surface from this process. That is, scaling up should involve adding more teams, not making teams bigger. Some would design, deploy and maintain new recycling programmes while others would map international climate priorities ahead of multilateral negotiations. Each would require a different blend of policy and delivery experience.

In this new world, the centre of government would essentially manage a portfolio of teams oriented around key national missions. Initial scoping teams could be jointly managed by the Prime Minister or President's office and the cabinet-level minister with the closest departmental brief. However, ministers would then become champions and strategic managers for a thematic portfolio of teams working to each mission, the equivalent of a tribe at Spotify. Ministers would then recommend to the centre of government when resources should be scaled up or reallocated.

Naturally, there will still be overlap between areas, such as in industrial strategy and clean growth, but with teams now unbundled from previously rigid departmental structures (due to their business case being owned directly by the finance ministry), they would no longer suffer from the sclerosis this used to cause and would be much freer to move around or collaborate with other teams in other portfolios where appropriate.



Indeed, multiple competing teams could deliberately work on the same issues to promote short-term competition in aid of long-term optimisation. To maximise the potential of this approach without getting into diminishing returns or massive inefficiencies, though, tough expectations as well as tight timeframes and budgets would be required as part of regular, frequent evaluation.¹³¹ This would allow resources to be scaled up or reallocated when appropriate.

If these pilots of multidisciplinary teams and portfolios were successful – e.g. improving outcomes while reducing time and money spent on delivery – they would illustrate an entirely new operating model for governments. Over time, more and more government activity should be migrated to this model and political leaders should be prepared to retire the old ways of doing things.

Greater Use of Technology

Even if this new operating model proves sufficiently successful to replace all government departments over time, civil servants will always need to communicate between their own quasi-autonomous teams. Civil servants also regularly change posts, so reducing the time it takes for them to get used to their new brief will help improve public-sector productivity.

Just as technology has reduced the transaction costs of working across boundaries and the start-up costs of beginning projects that still cohere with others—essentially, projects that are

¹³¹ Steph Gray, “It’s OK to reinvent the wheel”, Postbureaucrat, 14 January 2019, <https://postbureaucrat.com/2019/01/14/its-ok-to-reinvent-the-wheel/>

interoperable—so **governments should cultivate ways of working that enable interoperability between teams of people.**

In the UK, with its civil-service workforce of over 430,000, some variation will be required. People are not like technologies, which can, in theory, behave identically and conform to a common set of rules. But these challenges are not unique to the public sector and occur in any large-scale organisation, with research by McKinsey suggesting that other organisations have progressed by promoting cross-silo networks and cross-functional teams.¹³² Recreating government versions of Spotify’s chapters and guilds – formal and informal knowledge-sharing networks – would therefore be a promising first step.

However, some other low-hanging fruit could help enable easy and hassle-free interactions *between* teams, and to help new employees get started quickly *within* teams. First, the presumption towards publishing APIs outlined above would help different technology systems across departments and organisations talk to one another.¹³³ This has the added benefit of preventing the need for uniform systems.

Second, there should be minimum standards for both technology and working practices. To ensure that APIs are interoperable, especially when built by outside partners, governments must establish common standards. This approach applies to working practices too. For example, in policy and service design, everyone involved should know the insights of user research, so they have full information.¹³⁴ Similarly, using the same language to talk about each stage of the policy process can help prevent confusion and speed up collaboration. Minimal standardisation of some working practices—for instance, ensuring that all teams carry out project kick-offs and reviews but leaving room for innovation in how this is done—can help new employees slot in, especially if they are transferring from other civil-service departments.

132 Ruben Schaubroeck, Felicita Holsztein Tarczewski and Rob Theunissen, “Making collaboration across functions a reality”, McKinsey Quarterly, March 2016, <https://www.mckinsey.com/business-functions/organization/our-insights/making-collaboration-across-functions-a-reality>

133 Interview with Daniel Thornton.

134 Interview with Eddie Copeland.

Third, shared data and collaboration tools are essential. The words “knowledge management” will strike fear into many civil servants, but for a large organisation that undergoes constant churn, that the civil service lacks any sort of shared data and information system – other than the national archives, which by definition come after they’re needed – is a critical failure. This should be a priority to prevent severe project delays and help new employees get to grips with the history of a policy or service quickly. Likewise, although mandating a single collaboration tool may not be appropriate for all government teams, this is precisely the sort of enabling technology that could improve interoperability between teams.

STRONG LEADERSHIP FOR IMPLEMENTING CHANGE

The success of this transformation package relies on the strong and adaptive leadership of ministers and senior civil servants. Although there may be exceptions, and front-line services would need clarity over where to turn for guidance in the absence of traditional departments, this approach would in time become the default model.¹³⁵

As Mike Bracken, a former GDS director and now at Public Digital, has argued, leaders must recognise that transformation is not about having the latest information technology (IT) but about enabling and empowering teams of people.¹³⁶ This distinction underpins two essential characteristics for Internet-era leaders: they must be willing to disrupt old systems; and they must be adaptive to navigate an increasingly complex operating environment.

Disruptive Leadership

In practice, new roles may be required to manage this transformation and consolidate the shift to a new operating model.¹³⁷ Rather than being the head of a hierarchy, the role of a minister changes to focus on being a champion for a theme,

¹³⁵ Interview with Daniel Thornton.

¹³⁶ Mike Bracken, “Digital transformation is a leadership problem”, UCL Institute for Innovation and Public Purpose, 8 April 2019, <https://medium.com/iipp-blog/digital-transformation-is-a-leadership-problem-8c0c97f829ca>

¹³⁷ Tom Loosemore, “Making government as a platform real”.

strategically managing a portfolio of teams working in this policy area. Given that these teams would operate outside traditional departmental structures, this would re-establish pathways for ideas to flow up to the top of the government and improve accountability. Ministers could also support, but not own, the business case between teams and the finance ministry, providing oversight and recommending when to scale teams up or down without creating blockages to the funding process or preventing teams from being reallocated to other thematic portfolios.

This dedicated leadership will be key when retiring old structures (over a period sufficient to maintain quality services) and transferring the data functions for each department to a central digital service as outlined above. Both of these steps present opportunities for conflict, and already there are many stories of turf wars in governments.¹³⁸ The continuous fight over power and departmental sovereignty—with one UK official, for example, accused of wanting “100% control over a small amount of territory rather than shared control over a larger territory”—slows down much-needed progress towards modernisation and often makes for a frosty relationship between departmental leaders and the centre of government.¹³⁹

Indeed, much of the early progress made by the UK’s GDS can be traced to a series of leaders willing to be disruptive—be it the heads of GDS or Francis Maude, former Cabinet Office minister, who, in the words of Loosemore, “knew it was his last job, knew he only had political capital to spend, and knew where the problem was: the civil service”.¹⁴⁰

Rules, procedures, sign-off and permission, which one might consider the toolbox of status quo governance, are all designed to make large bureaucracies less risky. While value for taxpayer money is important, these checks and balances can result in people not taking responsibility, either to improve services or to make amends when things go wrong, or crippling creativity.¹⁴¹ To their credit,

138 James Blitz and George Parker, “UK civil service in turf war over Brexit”, *Financial Times*, 4 July 2017, <https://www.ft.com/content/46926410-5ffb-11e7-91a7-502f7ee26895>

139 Steve Bloomfield, “An island apart”; Derek du Preez, “Tom Loosemore reminds us”.

140 Interview with Tom Loosemore.

Maude, Bracken and Loosemore all championed and provided cover for experimentation and risk-taking, embedding the essential culture of humility to experiment from the top. By promoting autonomy and minimising procedure, creativity and innovation can flow. Yet the slower progress in government transformation since they left office reveals the vulnerability of an “over-reliance on individual champions”, as Dr Filer has described.¹⁴²

If leaders are to rebuild some of this momentum and accelerate, they must reset the institutional conditions to protect transformative ways of working from changing political weather or circumstances. Digital-era skills training for civil servants would improve understanding across governments, while, in the words of Andrew Greenway, a partner at digital transformation consultancy Public Digital, political leaders can be won over by “metrics that measure outcomes that citizens care about, not outputs that officials care about”.¹⁴³

The irony is that making these changes needs a prime mover, just as UK Health and Social Care Secretary Matt Hancock has disrupted the stasis in health and social care to promote his digitally focused agenda. Leaders need to be given the power to change the status quo: a carrot of unequivocal control over setting service standards to encourage other departments to work with them, and the sticks of spending controls and a veto over services going live if contracts or systems are not up to scratch.¹⁴⁴

Navigating Complexity

A new dynamic in which ministers are responsible for clusters of teams would also be a better fit for today’s changing world. In the UK, starting with users’ needs has been the credo behind many of the improvements in public-service delivery since GDS was founded in 2011, yet it is increasingly an incomplete guide to progress.

When GDS was set up, a relentless focus on user needs over bureaucratic needs shifted the organising principle of services away

141 Interview with Greg Jackson.

142 Interview with Dr Tanya Filer.

143 Andrew Greenway, “How to disrupt inertia in government”, GovInsider, 22 February 2018, <https://govinsider.asia/innovation/how-to-disrupt-inertia-in-government/>

144 Interview with Tom Loosemore.

from assuming that government knows best and towards improving the experience of those using the service.¹⁴⁵ Yet designing services only around the needs of individual users can often come into conflict with the needs of society, as hundreds of bicycles and scooters often strewn across big cities show.¹⁴⁶

These tensions will only increase as entire environments—urban, rural and domestic—become Internet-connected or as services become more personalised, potentially entrenching broader societal inequalities.¹⁴⁷ Inside government, the challenge is made greater still by the facts that service-design timelines are regularly far shorter than the legislative process, creating a mismatch between politics and delivery, and that policymaking is urgently lacking long-termism.¹⁴⁸

A new model will require greater devolution to teams to navigate these complex waters, with their quasi-autonomy enabling them to design, build and iterate services relatively free from daily changes in political weather. In turn, ministers—their role now akin to portfolio managers—retain oversight and help embed a process that blends a more values-driven conversation into service design. As design focussed on individual user needs will sometimes clash with broader societal or environmental needs, ministers have an important role in representing those broader concerns and must collaborate with teams to address any trade-offs that arise.

This approach will be particularly important where guidelines for oversight are less clear-cut or underdeveloped. For example, if governments are to step proactively into the platform role and use their position as market-makers to improve outcomes for the most vulnerable, then one must also be wary of turning data-driven government into an authoritarian panopticon of ever-accumulating power. For example, clearer guidelines could focus on preventing the sharing of data between sensitive domains, such as the NHS

¹⁴⁵ Ibid.

¹⁴⁶ Ben Terrett, “Adding value, by adding values”, Public Digital, 29 November 2018, <https://public.digital/2018/11/29/adding-value-by-adding-values/>

¹⁴⁷ Cassie Robinson, “Putting users first is not the answer to everything”, Doteveryone, 24 November 2017.

¹⁴⁸ Richard Pope, “#12 Data embassies, data trusts, the state as a commodity, census mistrust, GOV.UK Verify, licences, identity systems without privacy laws”, Platform Land newsletter, 25 February 2019.

sharing patient data with the Home Office for immigration enforcement.¹⁴⁹

In practice, as argued by Daniel Thornton, former Digital Government Programme Director at the Institute for Government and now Director of External Affairs at Ark, “there is no such thing as values-neutral service delivery” and ministers have an essential role to play in embedding politics and values into policies and services.¹⁵⁰ The relationship between teams and ministers should therefore be based on cyclical feedback loops via regular show-and-tell meetings: teams’ insights and data would be in continuous exchange with ministers’ judgements about a policy’s intentions and their representations of the public’s views (whether via greater civic engagement or not).¹⁵¹ Of course, both civil servants and ministers must always be committed to both judgement and evidence. But the key point is that frequent, ongoing opportunities for course correction on both sides provide a pathway to engage with emergent trade-offs and contradictory needs, as well as promoting oversight during rapid service development.¹⁵²

For this relationship to succeed, at least three conditions will be essential. First, as above, ministers and senior civil servants must promote trust and job security as essential foundations for risk-taking and honest feedback. As Daniel Thornton suggests, authority figures can still offer an abstracted, bird’s-eye view, so their contributions should not be ignored, but they must also not dominate and instead enable others to take the initiative, offer criticism and lead.¹⁵³

Second, to be responsive to that feedback, service-design teams should ensure that changes can always be rolled back if required. As the elected representatives, ministers must be able to trust that what teams build is ultimately reversible and adaptable. Collectively,

149 Alex Matthews-King, “NHS told to stop handing over patient data to Home Office for immigration enforcement”, *Independent*, 31 January 2018, <https://www.independent.co.uk/news/health/nhs-patient-data-home-office-immigration-enforcement-illegal-asylum-seekers-healthcare-a8186746.html>.

150 Interview with Daniel Thornton.

151 Richard Pope, “Product Land (Part 3)”, 14 September 2015, <https://blog.memespring.co.uk/2015/09/14/product-land-part-3/>

152 Mike Bracken, “On Strategy: The strategy is delivery. Again.”, 6 January 2013, <https://mikebracken.com/blog/the-strategy-is-delivery-again/>

153 Interview with Daniel Thornton.

cultivating these conditions can help encourage more experimental, iterative and ultimately humble cultures.

Third, multidisciplinary teams must be led by people with a comprehensive understanding of technology, politics and policy.¹⁵⁴ These roles would help provide an interface between two worlds that regularly misunderstand each other: technology is not a magic wand, and systems and tools are not values-neutral.

THE RIGHT SKILLS IN THE RIGHT PLACES

To implement the transformation agenda described here, central governments should take the lead in bringing new skills and experience into government as well as ensuring high performers are retained. Senior leaders must take both a short- and a long-term view to reform.

In the short term, the priority must be to keep high performers in post and reduce churn in the civil service. This will help meet the skills demands of an Internet-era government and reduce system-wide volatility. In the UK, while turnover is particularly high at present due to the urgency of preparations for Brexit, Tom Sasse and Emma Norris of the Institute for Government have argued that this situation is not helped by Whitehall's open internal jobs market and a cap on pay. These elements incentivise officials hoping to increase their salary to move around frequently, and there are few restrictions on when and where they can move.¹⁵⁵ In turn, this means that the distribution of expertise and skills throughout the government is disproportionately determined by the movement of individuals rather than an overarching plan from the government. And although some might argue that frequent churn provides opportunities for knowledge sharing and more rounded policy perspectives, creating Spotify-like guilds for different functions and roles would achieve this without the attendant drawbacks.

Sasse and Norris recommend that managers should be able to award pay increases to high performers and provide opportunities for progression and development for roles that require a long-term commitment. To that end, **senior civil servants could also consider**

¹⁵⁴ Interview with Eddie Copeland.

¹⁵⁵ Sasse and Norris, "Moving On".

creating more pathways for promotion for those of excellent technical ability but for whom managerial responsibility may not be suitable. This would ensure that the government retains their expertise without creating unnecessary and impractical burdens.

Partnerships can also help plug skills gaps as a further step that can be taken quickly, even though a compelling case could be made for raising public-sector pay to attract the best talent. At least for technology roles, governments are likely to struggle to compete against the highest-paying companies to bring in enough expertise and experience to do everything in house, to the highest standards, consistently. Increasing secondments both *to* and *from* the private sector, particularly in high-demand technology roles as typified by the US Presidential Innovation Fellows programme, could also help to reduce this impact.¹⁵⁶ The crucial point is that consistent, proactive engagement with other organisations will be an increasingly important tool to improve public services and ensure governments keep up.

Civil-service leaders must also ensure they have a sufficient pool of talent on which to draw to build long-term capability. For the UK, Dr Filer has proposed that the Civil Service Fast Stream, an accelerated leadership development programme for talented graduates, opens a ‘translator’ track to train up ‘translators’ between the worlds of technology and policy, just as it trains operational and social researchers or statisticians.¹⁵⁷ **All governments should create a similar technology and policy translation track in their civil service training schemes.**

However, in their initial recruitment, governments are no longer the only organisations that can tell a good story about their impact or working culture and pay becomes the real distinguisher.¹⁵⁸ Governments should therefore take advantage of their position as both as prospective employers and, often, the

¹⁵⁶ Presidential Innovation Fellows, <https://presidentialinnovationfellows.gov/>.

¹⁵⁷ Tanya Filer, “It’s not just Silicon Valley that needs translators – governments need them also”, Bennett Institute for Public Policy, University of Cambridge, December 2018, <https://www.bennettinstitute.cam.ac.uk/blog/its-not-just-silicon-valley-needs-translators-gove/>

¹⁵⁸ Interview with Dr Tanya Filer.

sponsors or brokers of university education, to attract talent into government before they reach the wider labour market.

In the UK, this approach is not without precedent, with the government paying medical students' tuition fees in years five and six of their degrees—in that case to remove the disincentive of costly education for a priority capability. However, though technology roles are just as important for the country as those in healthcare, existing schemes are less strategic. For example, while the public and private sectors partner to fund doctoral degrees in AI, these schemes contain no incentive for students to work in government after completing their degrees.

Dr Filer also notes that in Singapore, the country's "Smart Nation" scholarship provides paid university education to students in technology-related disciplines in exchange for a period of public service after graduating.¹⁵⁹ However, given that undergraduate tuition fees are a subject of much debate in many countries, this report argues that **states should focus on creating scholarships for postgraduate degrees on condition of several years' public service.** This approach could both further develop technologists in specialised areas as well as complement efforts to embed 'translators' across government, with high-calibre technologist and generalist graduates funded through public policy or technology-related conversion courses, respectively. Rather than simply trying to compete on pay, this approach would also have the added benefit of improving digital skills in the wider economy once prospects leave government.

159 Tanya Filer, "Why the 'government' in govtech must be more than just a client", New Statesman Tech, 18th February 2018, <https://tech.newstatesman.com/guest-opinion/govtech-definition-government-client>; Smart Nation Singapore Scholarship, <https://www.smartnation.sg/resources/smart-nation-scholarship>

CONCLUSION

If governments are to be relevant in the Internet era—if they are to meet skyrocketing citizen expectations and rise to the challenge of an economic and social context shaped by accelerating technological change—they must undergo a technologically ambitious reimagining of both their role and their function. Reform agendas should no longer be motivated by the narrow interests of cost reductions but by the immense opportunity cost and delivery failure of stasis.

Any political solution must therefore advocate wholesale change. It must take on the often bewildering and stultifying processes of traditional government and recognise that radical transformation is essential for wider prosperity. Crucially, this revolution must address how governments support both the wider economy and individual citizens. The key to reshaping government lies in the combination of purposeful governance, enabling infrastructure and responsive institutions. In each area, this report has proposed a set of recommendations that embody the ambition, cross-sector collaboration and culture of continuous improvement required to harness the opportunities of this era.

A new world is possible: one where government activity is organised around key national missions; innovation flows through the entire public sector and policymaking in particular; digital infrastructure enables high-impact wider activity in strategic areas; and bureaucracies can deliver much more effectively and efficiently. Yet we are a long way from this: to stand still is to allow the gap between what governments are and what they ought to be to grow until it becomes unmanageable.

For now, there is an opportunity—and the first political party to grasp this new reality and distil the public's demand for change into a fresh start for the state will be well placed to secure its legacy. Rather than shrinking from the challenge of remaking government, political leaders must match the revolution in technology with a revolution in the approaches, infrastructure and machinery of government itself.

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Technological progress has led to radical change throughout the modern world, with organisations built on internet foundations raising citizens' expectations of what all services should deliver. Yet governments designed for the offline world are failing to keep up. It's time to bring them up to speed.

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