

Digital government during the coronavirus crisis

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About this report

The coronavirus pandemic is the most significant crisis that the UK has faced in generations. It has created a surge in demand for services and information. It forced a dramatic reorganisation of how departments operate as officials shifted to working remotely. And it tested the capacity of government to co-ordinate and deliver solutions.

Digital technology has helped the government to manage many of these issues and has enabled a more effective response than would have been otherwise possible. The response was not perfect, and high-profile failures such as the attempt to develop a contact tracing app highlight the limitations of government in this space. This report assesses the factors that contributed to the successes and failures of digital government during the crisis.

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Summary

Responding to coronavirus is the largest single challenge that the government has faced in decades. Digital government – the ongoing use of digital technology and techniques to transform how government delivers public services, provides information and functions as an organisation – has played a key part in the response, ensuring the continuity of existing services and the creation of new ones, enabling civil servants to work from home, and supporting government communications.

This report considers how the crisis has accelerated digital transformation, how well existing processes and products have held up, and what lessons we can learn from both the successes and the failures of digital government during the crisis.

Crises can catalyse innovation and the coronavirus crisis has been no different – new services and new ways of working have been rolled out rapidly and largely successfully. HMRC built three new services in a matter of weeks that did the opposite of what the department normally does – paying out money, rather than taking it in. The Government Digital Service (GDS) built services to help vulnerable people and a central hub of coronavirus information on GOV.UK, and along with departments used data generated by citizens as they accessed information and services to better understand the needs of different groups, and to tailor the experience to individuals.

Departments across government had to rapidly adapt to remote working enabled by digital technology. Initiatives like Project Unblock tackled a long-standing problem where some departments blocked certain digital platforms used by others, often for security reasons, making collaboration far more difficult. Departments also adapted quickly as existing services met huge increases in demand, such as Universal Credit at the Department for Work and Pensions (DWP). And organisations across the public sector used existing tools, like GDS's Notify, to send more messages to citizens than ever before.

This response to the crisis has been made possible by sustained investment in developing digital capability in government departments and public bodies, particularly over the last decade. Expert digital teams have developed a wide range of practices, processes and digital products that supported the government's response to the crisis. These include standard designs and components built by GDS – like messaging services and payment platforms – that helped departments build new services more quickly, as well as ways of working that enable the rapid design and development of new systems. This meant empowering teams to build, iterate and

adapt quickly, and modifying long-standing assessment processes accordingly to launch urgently needed services, helped by clear political direction and support from the top of government. Good relationships with third-party suppliers, and adept use of the technology and services they offer, have also been critical. Overnight successes have been built on a decade of hard work.

But there have been some high-profile failures. The contact tracing app, which took months to launch, shows that technology alone is no substitute for a well-designed service with a clear purpose – and with existing expertise behind it. Digital contact tracing using apps in particular is both a novel problem and an incredibly complex one – it is not clear that any country has yet solved it, although some, including South Korea and Taiwan, have used technology to good effect in their efforts to fight coronavirus. The associated debates over ‘centralised’ systems (where information is held on a central health authority server) and ‘decentralised’ ones (where information remains on mobile phones) highlight privacy concerns and questions about the responsibilities of large tech companies and the role they play in our lives. Both make clear the need for government to be transparent and earn the public’s trust when it comes to using new technology, otherwise the possibilities of better services may be lost.

The pandemic has also confirmed that Verify, the government’s favoured system to verify citizens’ identities, is not the long-term solution that the government needs. Some departments have resorted to older solutions or built new ones of their own to avoid using Verify, which had been due to lose its government funding in March 2020.¹ The government’s response to its recent consultation on digital identity contained little detail about what it plans to do next – it needs to set a much clearer direction for the future.

Civil service reform and how government works is currently at the forefront of the government’s agenda, from minister for the Cabinet Office Michael Gove’s speech to the Ditchley Foundation, to the civil service’s Shaping our Future Together consultation through summer 2020. The prime minister’s former chief adviser, Dominic Cummings, had long written about the need for better use of data and technology in government and before his exit in November had established a data science unit in Downing Street.² The government is currently recruiting a chief digital officer, a chief data officer and a new chief executive of GDS, which should bring much-needed clarity to the leadership of digital government. The National Data Strategy is open for consultation until early December 2020, and a new consultation is expected on digital identity. All of these present opportunities for government to work differently, especially when it comes to using digital technology and data.

The government’s digital crisis response could represent a ‘new normal’ for ways of working and delivering services. It is therefore vital that the government learns lessons quickly, understanding what worked and what didn’t. Innovations that have proved successful should be continued; those that have not can be adapted. It should also consider how to make any changes sustainable.

As it appoints people to new senior positions the government has an opportunity to clarify its vision for digital government. It must learn from the successes, in particular, at HMRC, DWP and GDS during the pandemic. The government must translate these lessons into a vision for the whole of government, rather than only improving capability and capacity in pockets of the public sector. It must also get a grip of digital identity – how citizens can assure their identity when accessing government services online – and set out a clear plan for what comes after Verify, which has clearly failed as a cross-government solution. And, in light of the contact tracing app and algorithm controversies, it must be open with the public about how it plans to use new technology and citizens' data.

The public are understandably sensitive about how government uses their personal data. Government needs to be more transparent and talk to citizens in order to earn their trust if it wants to use their data ethically, equitably and effectively.

Introduction

"Coronavirus has fundamentally altered our lives and the role that tech plays within it... it's turbocharged the digital transformation of almost every part of our days – of our workplaces, our businesses, the way we shop and stay in touch with family, and the way we use public services."

*Oliver Dowden, secretary of state for digital, culture, media and sport,
23 June 2020.³*

Even for a society living in the information age and citizens inhabiting an ever-more digital world, the coronavirus crisis has rapidly changed our relationship with technology. Large parts of the population are living most of their lives through screens and working remotely, many for the first time. Our interactions with each other, businesses and government have, in many cases, shifted entirely online. Some of these changes may be profound and lasting; others may not survive a return to something approaching normal. Some could change our lives for the better; others may widen a 'digital divide' between those with access to the right technology and skills, and those without.

Departments, services and processes have had to adjust with alacrity to continue to serve citizens. This report considers three broad questions: where has the coronavirus crisis accelerated digital transformation; how have existing services held up; and what can be learned from both successes and failures?

We examine:

- New digital services: including the Coronavirus Job Retention Scheme (CJRS), Self-Employment Income Support Scheme (SEISS), Statutory Sick Pay (SSP), the Vulnerable People Service, and the NHSX contact tracing app – all of which are managed almost entirely online – and existing ones, including Universal Credit
- How the government has provided information to citizens during the crisis, primarily through the main government website, GOV.UK
- The various 'building blocks' of digital government – components that can be built once and reused across different services – particularly Verify (which allows users to confirm their identity) and Notify (which allows departments to send messages to citizens)
- The move to remote working by the civil service.

The report focuses on central government departments rather than public services more widely, though we do include analysis of the NHSX contact tracing app.⁴ The Institute for Government's [Performance Tracker 2020](#) looks at the impact of technology on public services, including GP surgeries and the court system, in more detail.

1. Digital services

From the onset of the Covid crisis in March 2020, government departments designed and implemented a range of new services in a matter of weeks, all while many of the government's 423,000 civil servants adjusted to working from home.⁵

Notable successes include the novel suite of services built by HMRC, which included the Coronavirus Job Retention Scheme (CJRS). This was the key channel providing economic support to furloughed workers. It was designed, built and launched in less than five weeks and as of 18 October had paid out over £41.4 billion, covering 9.6 million furloughed jobs.⁶ It reports high user satisfaction scores, with nearly nine in ten employers recording a positive experience (six in ten saying it was 'very good').⁷ Similarly, existing services were adapted to cope with much greater demand. For example, Universal Credit and Jobseeker's Allowance services at the Department for Work and Pensions (DWP). These had a surge of applicants – DWP phone lines fielded over 2.2 million calls in a single day early on in the crisis – but the systems held up.⁸

Departments were able to make good use of existing tools and capabilities to deliver these changes at speed. Over the last decade, government has invested in its digital capability – for example, the creation of the Government Digital Service (GDS) in 2011 helped catalyse digital transformation in government and attract developers and technologists to the public sector. Similarly, the government's digital function and digital, data and technology profession (DDaT) have helped to further develop skills and career paths across government.⁹ The crisis has accelerated the development of new ways of working and collaboration. The tools departments have built to do this, the experience they have gained, and the relationships that have been built and renewed should help improve future digital transformation efforts.

However, there have also been notable failures, foremost among them the attempt to build a digital contact tracing app. The government's travails highlight problems with digital delivery and point to future challenges, including misplaced hopes that new technology (and, as seen in the [A-level fiasco](#), statistical techniques) can by themselves solve difficult problems.¹⁰

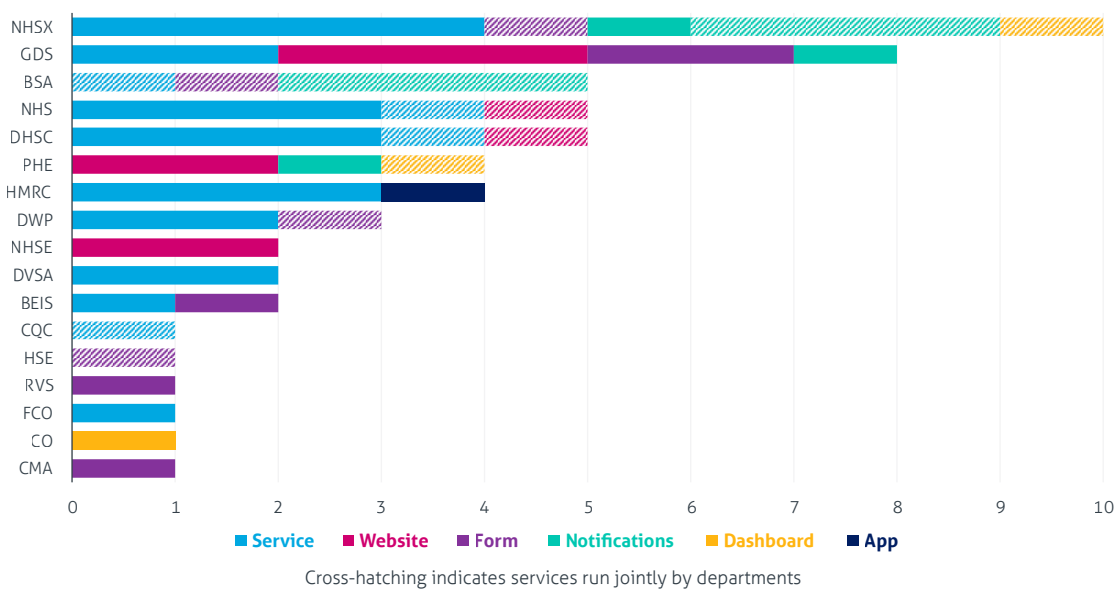
The Government Digital Service

The government had to develop many new digital services quickly in response to the pandemic

According to GDS, a service is "something that helps [a user] to do something, such as learn to drive, buy a house, or become a childminder".¹¹ By the end of May, government departments had delivered 69 new digital services, with a further 46 services in the pipeline.¹²

A separate list provided by GDS to the Institute for Government* gives a sense of the range of different 'services', ranging from those provided to the public (everything from claiming benefits to asking a question at a coronavirus press conference) and business (like the CJRS), to new websites (as diverse as the coronavirus landing page and a social care recruitment platform), to new forms (for example to register as an 'extremely vulnerable person', to reporting workplace safety concerns, to businesses volunteering to help with ventilators), to new notification services (such as text messages to people about Covid test results).

Figure 1 New digital services built as part of the government's coronavirus response



Source: List of new digital services provided to the Institute for Government by the Government Digital Service. Key: NHSX = NHS digital innovation unit; GDS = Government Digital Service; BSA = NHS Business Services Authority; NHS = National Health Service; DHSC = Department of Health & Social Care; PHE = Public Health England; HMRC = Her Majesty's Revenue & Customs; DWP = Department for Work & Pensions; NHSE = NHS England; DVSA = Driver & Vehicle Standards Agency; BEIS = Department for Business, Energy & Industrial Strategy; CQC = Care Quality Commission; HSE = Health & Safety Executive; RVS = Royal Voluntary Service; FCO = Foreign & Commonwealth Office; CO = Cabinet Office; CMA = Competition & Markets Authority.

Many of these new services were developed by health-related public bodies – such as NHSX or the NHS Business Services Authority (BSA) – others by GDS itself. But other government bodies were also busy building new services, for example from the Department for Business, Energy and Industrial Strategy (information for business) to licensing agencies like the Driver and Vehicle Standards Agency (emergency driving test booking).

GDS supported the development of new services by changing its approach to assessing them

Digital services are normally required to undergo a service assessment by GDS prior to launch. This ensures that services meet the 'service standard' – a set of 14 quality criteria that aim to ensure services are accessible, easy to use, reliable, and meet user needs.^{13,14} At an early stage during the crisis, GDS took the view that the full service assessment process was a luxury that the government could no longer afford.

* See Appendix, p. 52

GDS suspended normal service assessments in favour of quicker 'peer reviews', two-hour long remote meetings focusing on security, resilience, accessibility and the ability to iterate after launch. Any pressing concerns would be discussed the same day as the review, with a report (consisting of a red-amber-green rating, and recommendations on key areas which could be implemented after launch) issued the following day. Departments are still required to do a full assessment in time. But in the meantime, peer reviews offered a pragmatic way to balance the need for services to be assured with the need for them to be up and operating quickly.¹⁵

GDS built a new vulnerable people service using existing digital tools and with a focus on accessibility

GDS has led the development of several new services within the Cabinet Office. Perhaps the most high profile of these was the Shielded Vulnerable People Service (titled 'Get coronavirus support as a clinically extremely vulnerable person').¹⁶ This service was set up within a week and launched on 23 March, the day the UK went into lockdown.¹⁷ It allowed people on the NHS's Shielded Patients List – those who had been advised that they may be at higher risk from coronavirus – to register their details and ask for help in getting care needs, priority in supermarket delivery, or boxes of basic supplies to be delivered.

Officials from GDS say that, as of 2 June, 1.2 million people had registered for the service, using either the online form or the telephone version of the service. There was a conscious decision by the organisation to allow these registrations over the phone; while services may be digital by design, there are some users (particularly older and disabled people) who will need to use other channels. For GDS, ensuring that the service was as accessible as possible was a priority.

Support for vulnerable people went beyond this specific service – for example, providing guidance for vulnerable people on GOV.UK, which used existing knowledge and capabilities within government and was built on products and processes that had already been developed and tested. The 'triage' user journey – which aims to discover user needs and how to help – was a familiar tool for GDS. Similarly, the architecture of GOV.UK and GDS's own design system were key components that helped the team to develop these new support mechanisms at high speed. Civil servants at GDS have described using these existing tools to build new services as standing on the "shoulders of giants".¹⁸

GDS continues to improve these services using insights from users, and through working with other departments to ensure users could access all the support that might be available.

Departments rapidly agreed on the data sharing agreements underpinning the service

The information needed to identify people as vulnerable was held by several different parts of government. To make the service work, this information needed to be shared within government and with external organisations – specifically supermarkets – to ensure vulnerable people were given priority for deliveries.

Successive governments have long struggled to get departments and other parts of the public sector to effectively share data. The National Audit Office (NAO) has highlighted that while legislation now exists to allow this across government, it can be difficult and expensive, and that departments lack the confidence to do so.^{19,20} Data sharing would allow government to provide better, more tailored public services, and give government a better understanding of the country it runs and the impact of its policies.

The urgent need to get the vulnerable people service up and running was helped by a common sense of purpose from different departments and this overcame the usual barriers. According to GDS, the necessary data sharing agreements for the vulnerable people service were in place within the week it took to set it up, with GDS and NHS Digital acting as independent data controllers (responsible for decision making around processing the data), working closely with the Information Commissioner's Office throughout. A clear articulation of the desired outcomes from the policy, clear legal gateways, a common understanding of the risks and ethical considerations that using sensitive data involved, and building the service with data protection in mind from the start ('privacy by design') by sharing only the minimum data required also helped.

The vulnerable people service demonstrates the value of sharing data across government. However, we still know far too little about the basics of data sharing in government – which departments are sharing what data, and how – let alone which organisations (and services) are doing it well and how to embed these practices across government. The lessons learned from the vulnerable people service should therefore be more widely publicised, and key documents – for example, the data sharing agreements behind the service – should be published.

HMRC

Technology and existing expertise helped HMRC rapidly deliver vital new services. As the UK faced [the greatest economic crisis in more than a generation](#) HMRC took on a leading role.²¹ As a department it rose to the challenge of the moment and became the key delivery body for much of the government's economic response. Three of the most high-profile new digital services across all of government were designed, developed and launched by HMRC in the early stages of the crisis:

- The Coronavirus Job Retention Scheme (CJRS) which allows organisations to claim a percentage of wages, and any National Insurance and pension contributions, for furloughed workers.^{22,23} Even before the chancellor announced an extension to this scheme on 5 November, up to 18 October it had paid out over £41.4 billion to cover more than 9.6 million furloughed workers.²⁴
- The Self-Employment Income Support Scheme (SEISS), which allows anyone self-employed that has been adversely affected by coronavirus to check if they are entitled to a grant and claim it.²⁵ Up to October 18 it paid out over £13.7 billion.²⁶

-
- The Statutory Sick Pay Rebate Scheme (SSP), which allows employers to check whether they can claim back employees' coronavirus-related sick pay.²⁷ This service paid out £7.6 billion to 2.6 million people in the first round of SEISS grants (up to 31 July), as of 30 September a further £5.7 billion has been paid out to 2.3 million claimants in the second round of grants.^{28,29}

Digital technology made it possible for HMRC to radically change the nature of the services it provided for the public. HMRC's efforts have been a great success, particularly given the speed with which the new services were stood up. The CJRS was built within three weeks, then 'beta' tested* with some customers, and went live in its fourth week. The other two were built within five weeks and launched in the sixth week. Users scored the new services extremely highly – according to HMRC, customer satisfaction scores would normally be in the region of 65% to 70% for digital government services: for the new services they were in the nineties (92% for CJRS, 97% for SEISS, and 94% for SSP).

HMRC was able to build new services using existing expertise and techniques even while doing much that was new. These projects were enabled by existing digital platforms and technology – some developed in-house, but much of it provided by the private sector. Indeed, one interviewee emphasised how services such as the CJRS simply couldn't have been offered a decade ago: "This wouldn't have worked any other way but digitally."

Clear political direction gave HMRC the permission to rapidly and radically transform its operations

While digital technology allowed HMRC to do what it needed to do, the clarity of that direction from the chancellor was also vital. At his direction HMRC went from being an organisation that collects revenue to one that distributes it in a matter of weeks. As other [Institute for Government research](#) has found, decisions on the economic support package were taken quickly and objectives and priorities were clear from the start, with close working between the Treasury and HMRC and with business groups and unions helping with public reception and with delivery.³⁰

HMRC found success through empowering its teams and building on existing assets

As with other new services, the team at HMRC was able to successfully build things quickly thanks to work that had gone before. It already had many of the tools and staff that it needed – HMRC has grown its pool of in-house digital talent over recent years and now has one of the largest groups of digital professionals anywhere in government (more than 1,600 people in 2020).³¹ These officials had the skills they needed and experience of working together and were able to start work building the new services straight away.

Developers at HMRC used standards and principles developed by GDS as guides for their work, including 'design patterns' – processes and ways of building a service that

* The 'beta' phase of a project involves building a service for real, having gone through an 'alpha' phase (testing solutions to the problems you found during an initial 'discovery' phase). A 'private' beta involves testing with a limited number of users; a 'public' beta making it available to all.

have been used and tested elsewhere in government – and the service standard. HMRC was able to get the most out of these resources by relaxing processes and trusting its professionals through using 'agile' methods – getting your service in front of real users as soon as possible, then iterating the service based on what you've learned.

The overall development process for each service was based on an initial outline of what it needed to do that the developers worked on an iterative way. HMRC described this process to us as 'agile on steroids'. The development teams went through dynamic cycles of testing and building, rather than having to submit extensive plans and milestones upfront (the waterfall project management method) and getting tied up in bureaucracy.

These empowered, agile, digital teams happily worked 'brutal' hours – "it's what you live for, the chance to do something incredibly meaningful" – with remote working an enabler, not an impediment, with decisions taken by the right people in the same, virtual room at the right time in real time. But as HMRC's (then) chief digital information officer, Mark Denney, recently told *New Statesman*, that pace of working cannot be sustained indefinitely: "You can ask miracles of people and turn the whole place on its head for a period of time, but it's not something you can do for ever."³²

Good relationships with commercial partners helped HMRC to increase capacity quickly

It wasn't enough to just build these services: HMRC also needed to ensure that it could withstand the huge demand it would face. With nowhere near enough server capacity to do this in-house, HMRC turned to its existing relationships with corporate partners.

Amazon Web Services (AWS) provided HMRC with a cloud-based, intelligent front-end platform to host services that could be 'scaled up' extremely quickly to meet demand. One interviewee described this as "opening the garage and finding a Ferrari sitting there". They were able to shift most of the complex processing demands to AWS. This allowed them to instantly scale up their computing power to be able to handle 150,000 logons per second, without overtaxing HMRC's existing back-end IT systems.

A similar relationship with the software company SAP helped HMRC find the capacity it needed to process millions of transactions. SAP provided its platform for accounting, payment generation capability and payment file production.

Previous investment in user research and data science helped HMRC develop more accessible services

HMRC benefited from its existing in-house capability in user research and data science. It had user-research scientists on hand, and a range of rich demographic data about its users. This made it easier for HMRC to test its new services with real users, then iterate and refine these services around specific user needs.³³ User design and service design has become more prominent in government in general in recent years – a more user-centred approach to public services was one of GDS's successes, and the

Service Design in Government conference celebrated its seventh year in 2020. HMRC has had a particular focus, having long invested in digital design skills in its offices across the country.³⁴

This aspect of service design was coupled to a rich pipeline of analytical tools which helped to rapidly and accurately determine the eligibility of applicants. Ensuring the integrity of these systems was a key part of providing assurance to users, which in turn helped to make the service more accessible – “given the anxieties and fears of those requiring support, providing certainty and accuracy was key”.³⁵

Having access to this expertise made it easier for HMRC to build accessible services from the start. Based on demographic data, HMRC expected that users of the SEISS were likely to be more digitally challenged (with a lower reading age) and more likely to access the service via mobile and so it tailored the service accordingly. Ultimately 80% of SEISS’s users would end up making a claim via mobile. All the services were designed with mobile users in mind, and with a ‘ruthless simplicity’ to allow users of all digital skill levels to access what they needed. Although 98% of users have come through the digital service, there is also a telephone service to ensure no citizens are disadvantaged.

HMRC joined with others across government to create new and flexible ways to access its services

HMRC opted to use its existing Government Gateway system to verify users’ identities. But it predicted that a minimum of 1.4 million SEISS users would never have registered before. To help these users it opened up new ways for them to verify their identity when registering with the service. Several of these required new or expanded data sharing agreements with other departments.³⁶ These included passport information, Pay As You Earn (PAYE) payroll data, tax credit data, and driving licence information. In the case of the latter, the DVLA was able to build the connection to the HMRC system within three weeks.³⁷

As a result, 650,000 people were able to use their driving licence to verify their identity in the first week of SEISS. Diversifying these sources allowed users to sign up more easily for the service. HMRC’s analytics and user research showed how different parts of society favoured different methods – farmers, for example, notably favoured driving licences to prove their identity. This flexible approach also helped to spread the load across different routes so that none became overburdened.

The digital team at HMRC made a conscious choice to avoid GOV.UK Verify, the digital identity verification system built by GDS. HMRC has, in fact, long avoided Verify, previously arguing that it was too slow and had not been built to meet the department’s needs.³⁸ Verify has historically been dogged by missed targets and other problems, and the HMRC team found it too ‘clunky’ and with too high a drop-off rate (users not completing sign up to the service).³⁹

The Department for Work and Pensions

DWP redeployed staff to create capacity as existing services saw a huge surge in demand

The coronavirus crisis not only prompted the creation of new services, it also put pressure on existing ones. In particular, the economic impact of coronavirus forced many people to use DWP's benefits system for the first time. There was unprecedented demand for Universal Credit as people rushed to register and submit claims. From launch through to the end of 2019 the most claims the system had ever received in a single day was 13,588. On 27 March, four days after the stay at home order came into force, the system registered more than 135,902 claims, more than ten times the previous maximum amount.

Figure 2 **Universal Credit, daily claimants, January to July 2020**



Source: Institute for Government analysis of Department for Work & Pensions, 'Claims made to Universal Credit', Stat-Xplore.

Universal Credit (UC) is a big service that was already handling millions of users. There were 2.5 million households on UC in February 2020: this number surged to 4.2 million in May.⁴⁰ Similarly, the Employment and Support Allowance (ESA) had a caseload of around 1.9 million individuals prior to the crisis.⁴¹ Other services – including the digital Jobseeker's Allowance (JSA) service, which had only launched in March, were used to a relatively small number of claims. In August 2019, only 182,000 people were claiming JSA through any means. Much like UC, these services suddenly found themselves facing a sudden spike in demand.

The whole of DWP – a department of around 70,000 people⁴² – reoriented itself around the coronavirus response; thousands of staff were redeployed on to coronavirus priorities. In particular, officials working on fraud, error and debt, or in corporate functions where work had effectively dried up overnight, were moved on to UC and trained up.⁴³ HMRC and Home Office also loaned staff to DWP, being drawn from areas of work that had similarly ground to a halt, such as passports and visas.

To manage demand for its services, DWP pushed users to access them digitally where they could, in the first instance. At the same time the department opened up as many other channels as possible (particularly phones) to increase capacity and avoid excluding anyone. Officials set out new policies which prioritised people claiming means-tested benefits for the first time and anyone in a vulnerable group.

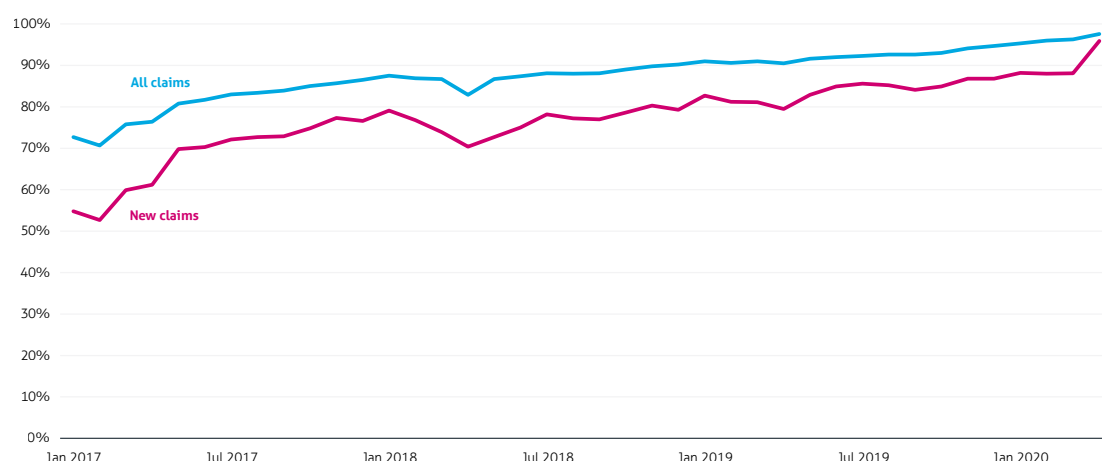
While those who could claim online were able to, telephone lines were rapidly overwhelmed by calls – on one day alone DWP received 2.2 million calls.⁴⁴ To manage this the department worked with Vodafone to expand its own network and with other government departments and contractors to find spare call centre capacity. While the department was boosting its telephone capacity it adjusted its policies, introducing a 'don't call us, we'll call you' approach, calling claimants back where necessary.

DWP was willing to rethink rules and redesign Universal Credit to meet the moment

Universal Credit has long had a poor reputation. Cross-party support was squandered by the government setting impossible timetables, trying to reform a social security system that wasn't in a steady state (largely due to austerity) and IT problems. All of this led to real hardship for claimants. In January 2017 less than three quarters of all claims to Universal Credit were paid in full and on time, and nearly 15% of claimants didn't receive anything. The situation was even worse for new claimants, with only just over half receiving their full benefit on time, and nearly 30% not receiving anything.

But in recent years, some of those problems have been solved, in particular IT issues, thanks to stable project leadership.⁴⁵ A growing share of payments were being made in full and on time. By the start of 2020, 95.3% of all claimants and 88.2% of new claimants were receiving their full benefits in a timely fashion.

Figure 3 **Percentage of Universal Credit payments made on time and in full to all claimants and new claimants, January 2017 to April 2020**



Source: Institute for Government analysis of Department for Work & Pensions, 'Households on Universal Credit: Payment Timeliness', Stat-Xplore.

The pandemic meant that UC had to be 'turned on its head' overnight. Ministers set out new priorities for how the system should operate. Working with officials they agreed a series of policy 'easements' that would relax some controls to ensure that people got paid first and made fraud a secondary concern. This was a major, conscious trade-off that benefited from a willingness on the part of both ministers and officials to take measured risks in order to ensure that benefits were paid out on time. As a result, the UC team had to rapidly redesign parts of the service.

Checks to effectively combat fraud are often non-digital and DWP employs a large number of people in clerical roles to do much of this work. As of November 2019 it had just shy of 5,500 staff working on 'counter fraud and compliance'. However, these checks can slow down payments.

To mitigate this the department automated as much data checking as it could, drawing information about applicants from elsewhere in government wherever possible – although it is unclear exactly what information this is and how aware citizens are about how their data is being used, potentially storing up problems for the future. DWP facilitated this process further by relaxing its rules which had previously required physical signatures on these documents.

There were clear positive outcomes here. Not only did the service cope with the sudden surge in demand, the share of new claimants receiving their benefits in full and on time shot up from 88% in March to just shy of 96% in April. This willingness to relax controls helped to ensure that the money flowed to those who needed it.

Improved data sharing within DWP expanded service capacity within the department and across government

DWP had an existing 'silent army' of APIs (application programming interfaces) which allow computer programs to talk to one another and share data.⁴⁶ This meant civil servants inside DWP could easily share and process data within the department, and increasingly with other departments.⁴⁷ This information flow was a vital part of what kept many of DWP's services running during the crisis. These APIs were a key tool that made it easier for other parts of government to share the information relevant to fraud checks with DWP. But they also enabled DWP to support other parts of government by making it quicker and easier to share its own data externally.

An example of this was seen in pandemic response logistics. As demand for HGV drivers spiked early on in the crisis, owing to the need to keep supermarkets stocked and ensure that NHS supplies reached hospitals, the DVLA used one of DWP's APIs to double the number of citizen validation checks it was doing.⁴⁸ This increased its capacity to issue or renew licences, getting more drivers on the road sooner. Similar surges in demand for NHS prescription charge exemptions and free school meals were managed using the capacity provided by DWP's APIs.

Another data-sharing service provided by DWP is 'Tell Us Once' – a service which allows bereaved families to make a single notification about the death of an individual which is then shared across the whole of government. This existed before the

pandemic but, as deaths from Covid grew, developers at DWP adapted the service to make the digital version more accessible and the default means for sharing this information with government. Having a single point of contact benefits users by reducing the amount of administrative work required of them at a difficult time. It also benefits the government, saving around £20m per year by making it easier to stop or suspend services faster.⁴⁹

Agile governance and open working supported a successful, iterative approach to service design

'Agile' project management means taking an approach where prototypes are built, tested and iterated to fully understand what problem needs to be solved, what people want and what works best in solving the problem, rather than locking down all the requirements and funding upfront ('waterfall'). This has long been used in digital projects. But this has sometimes posed problems for digital projects in government, where processes – such as Treasury approval of business cases for projects – tend to demand a high degree of certainty upfront.⁵⁰

During the pandemic, DWP worked closely with Cabinet Office, GDS and the Treasury to work quickly and not have to justify every pound in advance. This governance approach allowed DWP to work quickly and test and iterate as it redesigned aspects of Universal Credit. One interviewee described this as a "more commercial" approach, getting parts of the service out in public quickly and testing and iterating while it was live, when they would normally test things more thoroughly before launch. GDS's attitude, including its willingness to allow greater flexibility around service assessments, also helped.

Existing expertise and relationships helped DWP rapidly deliver and upscale the Jobseeker's Allowance service

DWP had already taken the decision to fast track its New Style Jobseeker's Allowance service prior to the crisis so that an improved service would be available to users earlier. In February the service was in restricted testing with some users (private beta), dealing with 10% of new claims. The department took the service fully live from 13 March when it became available for all users and was taking 100% of new claims.⁵¹ For the first two weeks after going live, the service was successfully dealing with 300 claims per day. However as the coronavirus crisis started to unfold claims shot up to over 15,000 a day. In the first eight weeks the service would handle more than 230,000 new claims.⁵² Rapidly developing and upscaling the JSA service was made possible by well-established expertise within DWP's Universal Credit team.

DWP, like HMRC, has made a long-term investment in its digital capacity. It had 2,820 staff in the digital, data and technology profession in 2017 (the last year for which it provided data) and set up its Digital Academy (now run by GDS) in 2014.⁵³ DWP's ability to adapt its existing services at a time of crisis owed much to this capability. As one interviewee told us: "The ability to respond quickly is a function of the capability and expertise you have as an organisation." Building this capacity took time, and the successes found during the crisis came on the back of years of hard work. DWP has not only invested in digital expertise it has also fostered strong relationships

with external suppliers and has built a good network of private firms who can help deliver additional capacity and solutions as needed (in particular digital infrastructure such as cloud hosting).

As a department it has also worked hard to build digital teams that work together effectively. It was conscious that as a large department, it was in a position to make those investments and grow that expertise – something that is more of a challenge for smaller organisations across government.

Because the JSA service was hosted on cloud technology it was easy for the department to scale it up when traffic was much higher than expected. Rather than relying on fixed physical infrastructure, cloud services offer an effectively unlimited amount of virtual capacity, which can grow or shrink as needed.

The Department of Health and Social Care

The government struggled to build an effective digital contact tracing system

However, these successful examples of building new services and supporting existing ones stand in marked contrast to one of the other high-profile technology initiatives pursued by government during the pandemic: the contact tracing app.⁵⁴ This was first announced by the secretary of state for health and social care, Matt Hancock, at the government's daily coronavirus press conference on 12 April 2020.⁵⁵

Initial debates about contact tracing apps globally focused on the merits of 'decentralised' approaches, where all the processing of data and calculating of which other phones a user had been close to was done on individuals' phones, versus 'centralised' ones, where data collected on individuals' phones would be sent to a central, government-controlled server. Most countries, and Apple and Google (whose phone software would ultimately be running the apps), favoured a decentralised approach. NHSX – the joint digital transformation unit of NHS England, NHS Improvement and DHSC – initially developed a 'centralised' contact tracing app, with some other countries – including France – also pursuing a centralised model.⁵⁶

The initial NHSX app was trialled on the Isle of Wight in early May 2020.⁵⁷ By early July over 50,000 people had downloaded it, around 42% of the adult population of the island.^{58*} Despite the government's initial optimism, by the end of May its rhetoric had shifted to downplaying the app, saying that it would "come later in support" of a wider track and trace system.⁵⁹ On 3 June, Baroness Harding, the government's test and trace 'tsar', described the app "more as the cherry on the cake" and an end-to-end test and trace service as the "bedrock".⁶⁰ On 18 June, the government announced that its work would shift away from the initial, centralised NHSX app and towards working with the decentralised Google and Apple approach, having identified a number of 'technical challenges' including problems with the reliability of detecting contacts.⁶¹

* The Office for National Statistics estimates that in mid-2019 there were 117,003 people living on the Isle of Wight aged 18 or over. See: Park N, 'Analysis of population estimates tool', Office for National Statistics, 24 June 2020, retrieved 14 August 2020, www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/analysisofpopulationestimatestool

The government lost time building a centralised app, but had clear reasons for doing so – and there are reasons to be wary of the Google/Apple solution

Much of the debate has focused on the UK's decision to develop a centralised app. Most other countries have built decentralised apps – Germany, for example, made a decision to move from centralised to decentralised very early on in its development, causing Ireland and Italy to follow suit. But the government had a clear rationale for pursuing a centralised approach: it argued that a central server was necessary to give health authorities data on how the disease was spreading and would allow false alarms to be more easily reversed. It also involved the National Cyber Security Centre in protecting users' data, attempting to allay fears that decentralised apps were better for protecting users' personal details.⁶²

But at some point, a centralised app was likely to encounter technical problems running on Apple's iOS and Google's Android operating systems. The tech giants had opted to develop their own decentralised protocols and had put limits on what governments were able to develop. The government thought that NHSX developers could find workarounds so the app would work with Google and Apple systems.⁶³ But the "technical challenges" revealed on the Isle of Wight – specifically "the reliability of detecting contacts" using Bluetooth on some of those operating systems – could not be resolved within the centralised NHS app.⁶⁴ Ultimately, the government never explained how it would get around any compatibility problems with Apple and Android phones.

It would be easy to blame the government for wasting time pursuing a centralised app, when most other governments were pursuing decentralised apps that could be compatible with Apple and Android phones. It had a clear rationale for pursuing a centralised solution. But given time was limited and most international efforts were focused on the decentralised approach, pursuing a centralised app was more difficult. Eventually, the UK had to switch to a decentralised app anyway – although, as we outline below, it is too early to know whether any of these apps will ultimately work.

The French government also took a centralised approach. While the government says the app largely works, it admits that it does not work so well on Apple devices, as Bluetooth cannot run in the background – similar to the technical problems the UK encountered – and is not compatible with other European contact tracing apps. Only 68 people had used it to register a positive test in its first three weeks, and many French citizens have uninstalled the app.⁶⁵

France opted for a centralised app partly for public health reasons (being able to track outbreaks more easily).⁶⁶ But the French government also raised a different challenge, arguing that embracing the Apple/Google model raised serious questions of accountability and power, with tech giants essentially dictating terms to democratic governments.⁶⁷ France's digital minister argued that their government has a "sovereign prerogative" to make choices about protecting the health of its people, and that "our country must have to have the choice and not to be constrained by the choices of a large company, however innovative and efficient it may be".⁶⁸

With an increasing reliance on digital infrastructure maintained by tech giants, and with the greater involvement of tech companies in providing government's digital infrastructure, decisions about standards and protocols made by these companies could diminish government control over its own digital services and data. This is not a conundrum with an easy solution, and the interplay between governments, tech companies and individual citizens is likely to be subject to serious debate over the next few years.

It's not yet clear how effective any digital contact tracing apps have been

At the start of the pandemic, the Ada Lovelace Institute – an independent research institute dedicated to ensuring data and artificial intelligence works for society – wrote that there was “an absence of evidence to support the immediate national deployment” of various technological solutions, including contact tracing apps.⁶⁹ Even though 10 million people in the UK downloaded the app in four days, and take-up was similarly enthusiastic in France and Germany, it still remains to be seen whether any country has rolled out an effective contact tracing app.⁷⁰ Using Bluetooth technology for contact tracing on this scale is a novel and untested solution to the problem. Some countries, including South Korea, have deployed more intense, digital surveillance methods – such as using bank details and CCTV footage – but these are unlikely to be deemed politically acceptable in the UK.

In trying to build a digital contact tracing app utilising Bluetooth technology, the government was trying to do something novel and complex. It was able to draw on digital development expertise from across government and bring in other organisations such as the National Cyber Security Centre. NHSX in general has tried to build on existing work, using open standards – technical protocols widely adopted and compatible internationally – but in the case of contact tracing, there were no existing standards.⁷¹ Successful new digital services were able to build on standards, practices and components in a way that was simply impossible for those developing the app.

Good service design will always beat 'tech solutionism'

The untested nature of the technology also prompts questions as to why the UK government – whatever it now says about the app being “the cherry on the cake” – had originally made the app, promised to be “world-beating”, the centrepiece of its strategy. This set unreasonable expectations for the technology that were unlikely to ever be met.

The successful digital coronavirus services – particularly HMRC's trio – started with a clear sense of what the overall objectives for the service were and the needs of users, and then considered how technology could be used to build them. With contact tracing, political rhetoric and actions seemed to do the opposite. The government abandoned community testing in March 2020 and then focused on the app rather than an end-to-end test and trace system.

A long-standing concern about government digital transformation is that leaders can get tempted by shiny technology and 'tech solutionism' at the expense of service design and getting the basics of data and digital infrastructure right.⁷² This is a concern borne out by all the fanfare about the contact tracing app – an untested and unproven technological solution – at the expense of a functioning wider system of test and trace. Most of the debates focused on how an app would be built. Given the lack of evidence for how effective they could be, they should have focused on whether an app *should* be built.

Government needs to earn the public's trust in the use of personal data and new technology and be more transparent

The debates about the contact tracing app highlight the sensitivity around the use of new technology and citizens' data by government. The same is true of the algorithm used to allocate grades to students in place of exams in August 2020, where the use of results data from previous years disadvantaged thousands of students (and disproportionately affected high-performing students in under-performing schools, and students in fast-improving schools).⁷³ Government could realise a great deal of potential through the better use of data and technology – algorithms could be used to make more accurate decisions, more quickly, and make sense of huge datasets (for example, to help HMRC spot tax evasion), and the better use of citizens' data could lead to better, more tailored public services (see the GOV.UK example, below) as well as providing evidence for more effective policy making.

The public aren't opposed to this: government polling suggests 80% of the public would be comfortable if artificial intelligence (which relies heavily on data and algorithms) were used to help a doctor in their work. This falls to just 19% if used *instead* of a doctor, reiterating the need to see technology as a tool that is part of, rather than a substitute for, a well-designed service.⁷⁴

Polling, research and past experience also suggests that building public trust is vital in this area.⁷⁵ The care.data programme – a coalition government initiative (announced in 2013) to bring together data from GPs' surgeries – never really recovered from the lack of information given to patients and a lack of clarity about how to opt out. The public are much more likely to trust government if it is transparent about what it is doing and explains how it is using personal data and technology: recent polling by the Department for Digital, Culture, Media and Sport found that 62% of respondents would trust an organisation managing their data more if they were clear about how they would use their data.

Although NHSX was open about various ways it intended to use personal data (more widely than just the contact tracing app) at the start of the coronavirus crisis,⁷⁶ DHSC has since confirmed that it had not obtained a (legally necessary) data protection impact assessment before launching its test and trace service.^{77,78} The need for speed should not come at the cost of important protections, or the law.

High-profile failures could set efforts to make better use of new technology and personal data back, especially where government is moving at speed (as during the current crisis). The app and A level episodes also underline that we have relatively little visibility of where government uses algorithms to make decisions – the government rejected select committee recommendations to publish a list of decision making algorithms and offer the public a ‘right to explanation’ on how decisions were made in 2018⁷⁹ – and how government currently uses its citizens’ data. What is it being used to inform, and how? Where are the main flows of such data between organisations? Which departments are doing it effectively and securely? More transparency and public debate is needed if government is to make the most of the technological opportunities.⁸⁰

2. Information supply and demand

The pandemic created many new demands for information. Individual citizens needed to know about lockdown rules, health and safety advice, the new and existing services that could help, and how to access them. Digital technology made managing the supply and demand of this information easier than at any time in history.

As with its services, the government was able to build on existing tools and experience to rapidly develop new ways to get information out, and gain insights about the situation across the UK. The public face of this was a new, dedicated coronavirus hub page on GOV.UK. Beneath the surface there were rapid developments in analytics and data sharing within government, allowing government to understand what people were interested in, and how public needs were evolving during the crisis. Crucially, the GOV.UK team also helped to personalise the service users received, so that they could access everything they needed from government as easily as possible.

The Government Digital Service (GDS) was able to build on what had already been developed as part of GOV.UK, rather than having to build much that was entirely new.

The story of how the coronavirus crisis unfolded in the UK can be told through how the British public used GOV.UK, which GDS describes as the “canonical source of truth for government information”.⁸¹ A couple of weeks before the UK went into lockdown on 23 March, the Foreign and Commonwealth Office (FCO) saw visits to its services and information on GOV.UK peak, as Britons sought travel advice as other European countries began to lock down. Next came the Department for Education (DfE), as schools closed on 18 March, and then the Department of Health and Social Care (DHSC) and Public Health England (PHE) as people sought advice on social distancing and the spread of the virus. PHE’s coronavirus tracker dashboard was one of the pages with the most traffic.

Next came the Cabinet Office, as people looked for clarity on the rules (guidance for households with possible coronavirus cases, and on shielding for the extremely vulnerable, were among the most viewed pages), and the Department for Work and Pensions (DWP), as applications for Universal Credit soared. As the months went on, visits to HMRC's website increased as people sought information on its coronavirus services. No.10 logged record views in late June, as announcements were made about easing lockdown. Early July saw visitors to the FCO close to the previous peak – presumably as Britons sought travel advice amid press reports of air bridges and quarantine measures.

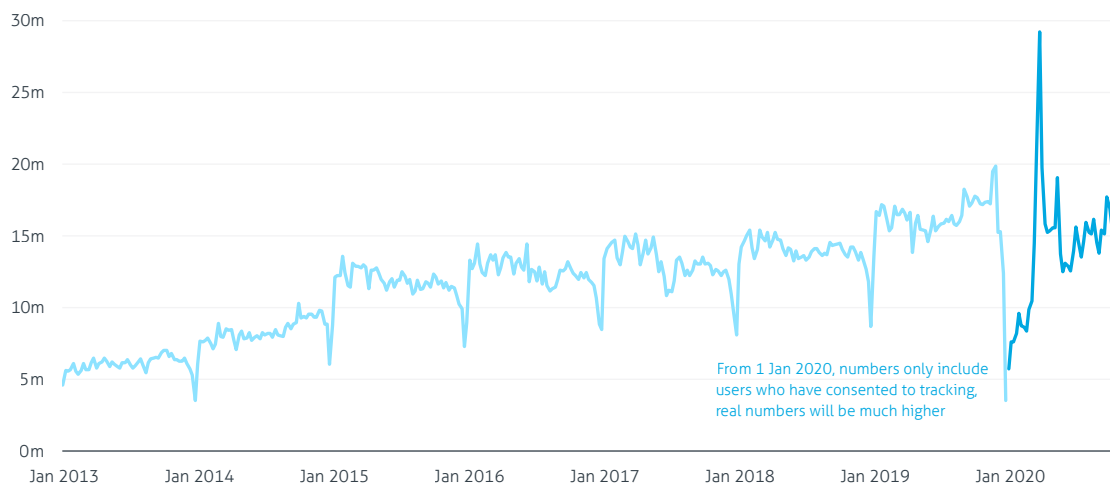
Many other departments had record numbers of visitors during the crisis, despite changes in how visitors were counted introduced in December 2019 that brought numbers down.* The Department for Business, Energy and Industrial Strategy (BEIS), Cabinet Office, the Department for Digital, Culture, Media and Sport (DCMS), Department for Environment, Food and Rural Affairs (Defra), DfE, Department for Transport (DfT), DHSC, DWP, FCO, HMRC, the Ministry of Defence (MoD), the Scotland and Wales Offices and No.10 have all had record numbers of weekly pageviews during the pandemic. Perhaps most striking was PHE, which went from an average of 340,000 weekly pageviews in 2019 to more than 23 million the week before lockdown.

Previous investment in GOV.UK paid off as public demand for information surged

GOV.UK's ability to respond to the surge of public interest in government information during coronavirus was based on previous work on the website since GOV.UK was launched in 2012. Its response also involved the acceleration of planned work to make the site even better for users.

* From 1 January 2020, GOV.UK changed the way that users give consent to tracking through cookies on the website, from automatically opting in to cookie consent to automatically opting out. Users now have to manually choose to give consent to tracking through cookies, which is what allows GDS to count visitors to the site. This has led to a decrease in users that GDS can count visiting the site, as fewer users actively choose to consent to cookies.

Figure 4 Unique users visiting GOV.UK per week, January 2013 to October 2020



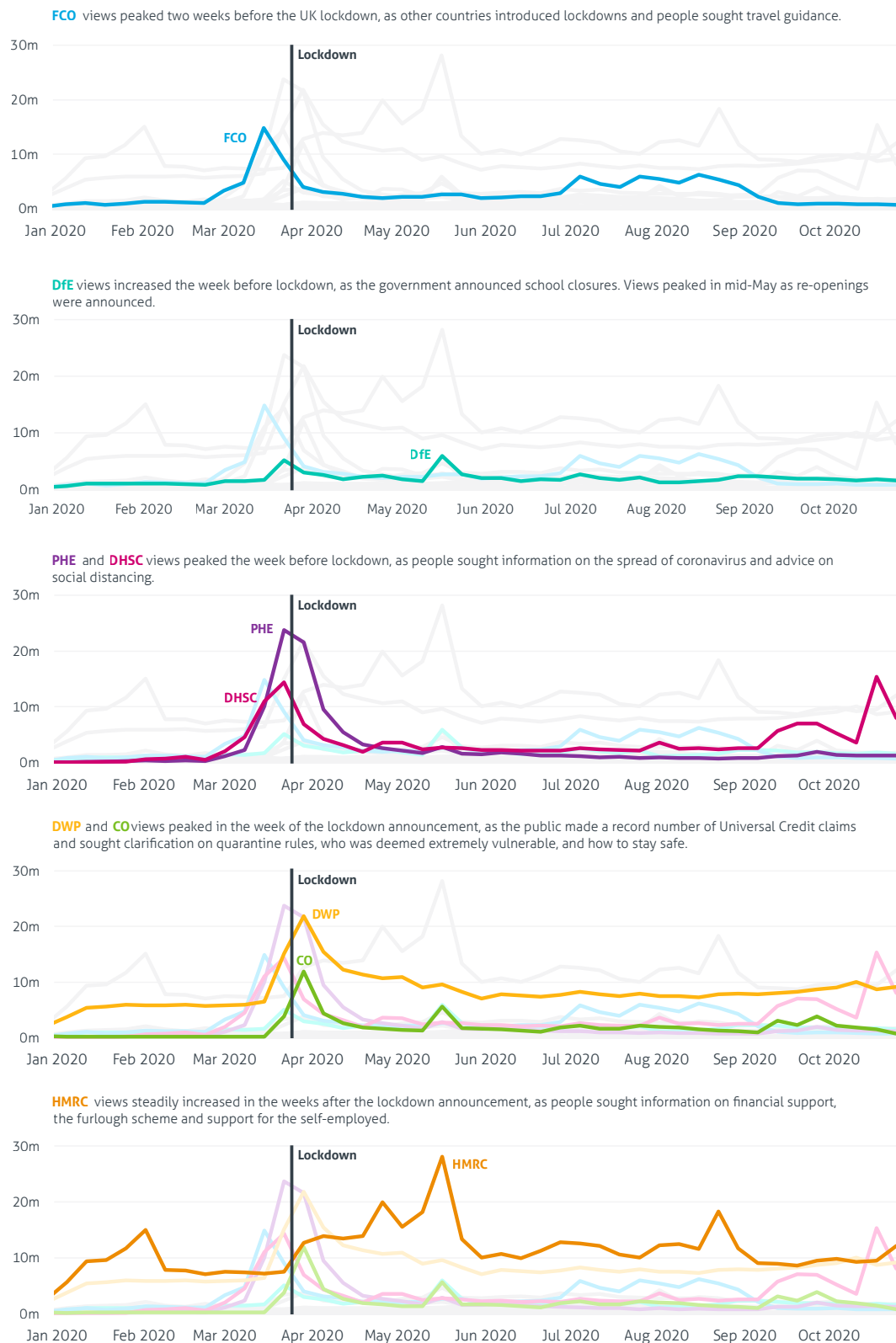
Source: Institute for Government analysis of <https://gov.uk/performance/site-activity/site-traffic>, January 2013 to October 2020. The methodology changed on 1 January 2020 to include only users who have consented to analytics tracking – the real number is likely to be significantly higher.

GOV.UK has seen a steady increase in users over the last few years, with a drastic increase during the coronavirus crisis. In 2019, an average of around 16 million unique users accessed GOV.UK each week. The week before the lockdown announcement (w/c 22 March 2020) saw just over 21 million unique users visit the site, while the following week saw over 29 million, almost doubling the 2019 weekly average.

Pageviews (any instance of a webpage being loaded in a web browser) show a similar pattern – a record 132 million* in one week during the pandemic, compared to a previous high of around 60 million in February 2019, as the March Brexit deadline approached and parliamentary drama reached a climax.⁸² The number of users has steadily decreased over the course of the lockdown, but spikes continue to occur around major government announcements, and the average is consistently higher than it was in 2019.

* User and pageview numbers in 2020 are underestimates, since they only include users who consented to analytics.

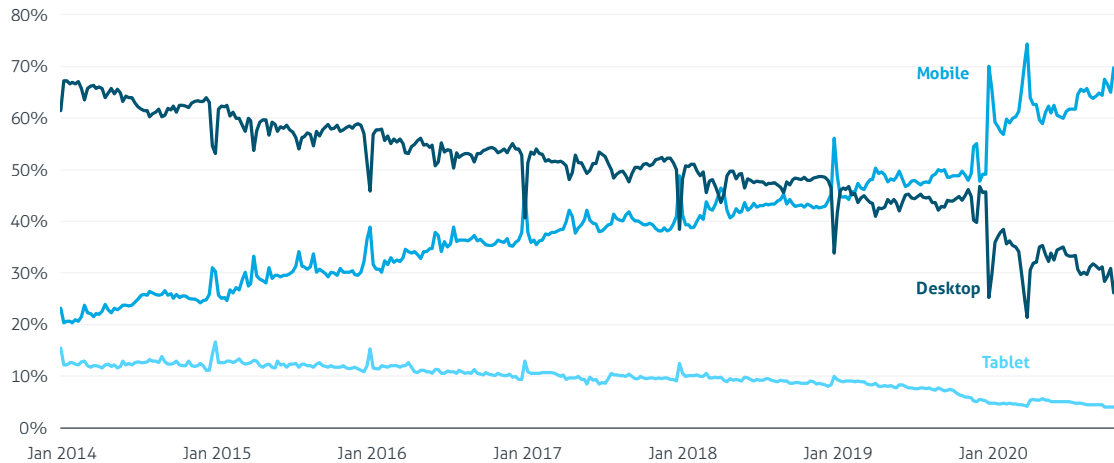
Figure 5 **GOV.UK unique departmental pageviews, January 2020 to October 2020**



Source: Institute for Government analysis of GOV.UK, Performance Platform data on departmental pageviews, January 2020 to October 2020

As lockdown began, users overwhelmingly shifted to mobile devices to access GOV.UK

Figure 6 How users access GOV.UK, January 2014 to October 2020



Source: Institute for Government analysis of GOV.UK, access device data, January 2014 to May 2020. The methodology for counting visitors to GOV.UK changed on 1 January 2020 to include only users who have consented to analytics tracking - this may have some effect on the balance of visitors between devices.

As well as a steady increase in traffic over the last few years, the other notable trend has been how people access GOV.UK. Until early 2019, most visitors used their desktop computers to access the site, except at Christmas; since early 2019, mobile users have accounted for most visits to GOV.UK. This has been especially pronounced during the pandemic – in the week beginning 22 March 2020, during which the UK lockdown was announced, a record high of 74.4% of GOV.UK users accessed the site via their mobile devices, partly (as at Christmas) as more people were at home and so not using work computers.

The civil service has been able to react quickly to provide citizens with the information it needs during the crisis – but much of this has again been due to work that has been going on for years, and through the acceleration of planned work. As Jen Allum, head of GOV.UK, has put it:

“It wouldn’t have been possible for GOV.UK to work in this way without the work we’ve done in the past – building the tools, platforms and working practices that have enabled our response. And without excellent collaboration with colleagues from across government, of course.”⁸³

The existing architecture of GOV.UK made it easy to build an accessible hub for coronavirus information

The GOV.UK coronavirus landing page, launched on 20 March, was the first GOV.UK product to be designed primarily for mobile, rather than desktop use.^{84,85,86} This site clocked 750,000 views in its first 24 hours and 18 million in its first week. It received

9.2 million views on 24 March alone – as the first of many lockdown measures were implemented.* More than 90% of visitors in the early days of the page came via mobile, vindicating the design choices.

GDS worked with DHSC and PHE to pull all the relevant coronavirus information across government together. This included details of coronavirus symptoms, links to government guidance and regulations, advice for individuals and businesses including what schemes were available to help and how they could access them, statistics about the spread of the disease across the UK, and links to other relevant news, such as videos of the daily press conferences.

The team at GDS built the page in four and a half days, all while working remotely. They were able to do so by using existing government tools, including GOV.UK design patterns for pages and features and the NHS design system, and a suite of other software to design, build and iterate quickly. These included Google Hangouts (now Meet), Slack, Figma (a collaborative interface design tool) and drawing ‘content sketches’ on Google Docs.**

The preference for mobile use affected design choices. Because mobile screens offer less space, content within the page needed strict prioritisation; this forced the GDS developers to make some early decisions about the hierarchy of information. For example, as of early November the relevant section on guidance and support has six major subsections which users can expand, including: “National restrictions: what you can and cannot do”, “Self-isolating and testing for coronavirus” and “Work and financial support”.⁸⁷ Previous user research had shown that an ‘accordion’ design pattern – letting users expand and reduce particular sections – worked well for content-heavy pages, and so this was incorporated into the design.

GDS has also said that the experience of Brexit helped, with GOV.UK already having experience of pulling together content from across government and helping users navigate a set of complex topics (as well as an increase in traffic).⁸⁸ The coronavirus page needed to get users to the information they needed urgently while ensuring it was recognisably part of both the wider coronavirus information campaign and GOV.UK – something analytics, existing design patterns and user research, previous experience and being able to iterate allowed them to do.

Despite building the landing page, there have been valid criticisms that the information it presents is not complete – for example, a tool that would help people easily find their local lockdown rules by entering their postcode. Some technologists outside government have been able to build such a service using information from

* These numbers only include users who consented to analytics. Actual numbers likely to be significantly higher.

** ‘Content sketches’ are “a single column table in a Google Doc, split into rows where each row represents different content. This lets content designers make decisions on the priority order and importance of various elements. This sketch then informs the page design, rather than content designers having to fit their words to available design components.” <https://designnotes.blog.gov.uk/2020/06/08/designing-the-gov-uk-coronavirus-page>

GOV.UK, although here too there has been criticism that departments changing how they publish data has made this more difficult.*

Technology helped the government to learn about public demand in real time

As people interact with the information and services on GOV.UK they produce an information trail that can be analysed. These analytics are a key part of how GDS supported the government response to the coronavirus crisis and what it intends to do next with the government website. GDS used insights gleaned from traffic data to understand what people were interested in.

This data about what people were searching for on GOV.UK helped government departments to anticipate when and where spikes in public demand might come. This included information on funerals, hairdressers and VE Day. As well as using daily snapshots and weekly reflections on traffic data themselves, GDS shared its insights with others across government – including policy and communications teams and senior responsible owners of digital public services. The new GOV.UK Data Lab has built a GOV.UK Intent and Feedback Explorer Tool (GIFT) to combine user analytics with comments left on GOV.UK (including subjects like food deliveries and furlough schemes) to provide teams across government with further information about their users, informing design choices and even potential policy changes.⁸⁹

GDS has used the pandemic to press on with plans to 'personalise' GOV.UK for users

According to GDS, both the GOV.UK 'Brexit checker' and the coronavirus landing page have shown the value of 'personalisation' for individual users. The Brexit checker site allows users to understand what actions they need to take to prepare for the UK's exit from the EU, partly by answering a series of questions so the content can be tailored to their needs.⁹⁰ The coronavirus landing page is a similar hub of information and services, one of which is to "find out what support you can get if you're affected by coronavirus", which asks users a series of questions. The landing page itself is constantly improved by user research and – where users have given permission – tracking where people have clicked on the page, to see if anything is being overlooked and needs to be moved.⁹¹ Both sites serve a wide range of people with different needs, and personalisation helps users to navigate these sites more effectively. GDS was able to use the experience gained from developing the Brexit checker site to develop the coronavirus landing page.

GDS had already been planning to join up and improve its use of analytics across GOV.UK to improve public services. GOV.UK may look like one website, but in reality it is a linked collection of pages and services from hundreds of government organisations and GDS does not always have access to data on how users are interacting with different parts of the website.⁹² In particular, information about how individuals use services is held by the organisation that provides the service, rather than GDS.

* For example, Public Health England changed the way it published its data dashboard on 16 May 2020 – see Institute for Government's collaborative timeline on data and the pandemic, <https://docs.google.com/spreadsheets/d/1V9NF0cauGDmzqoJRFqTLOUuSmXSe1IWDXMIxw6J744g/edit#gid=0>

Personalisation would aim to present citizens with the most relevant information by better understanding them and how they use GOV.UK. Ultimately, citizens could enter data once and have that data used across many digital services, rather than having to input it separately every time. Users who did not want their data to be used in this way would still be able to use the website as normal.⁹³ The aim of most web development tasks based on analytics is to keep users on the site for as long as possible; GDS's aim is to help users find what they want more quickly.⁹⁴ In late September, GOV.UK announced it would begin a series of trials around 'Accounts', a single account for citizens on the website, to work towards offering users a more proactive and personalised experience of GOV.UK.⁹⁵

The openness with which GDS is pursuing this work – blogging about the future direction for GOV.UK and talking about the plans at events including the Institute for Government's [Data Bites](#) series – contrasts with the last time these efforts were in the public eye. In September 2019, there was some controversy as the prime minister and his then chief adviser, Dominic Cummings, pursued plans to aggregate anonymised analytics data through confidential cabinet committee correspondence.⁹⁶ Given the importance of earning public trust in using personal information in government, the more recent, open approach is welcome – government is likely to be able to provide more tailored information and digital services to citizens as a result, but it has to have the discussions about how it will use that data in public, with the public.

Government adapted its social media strategy to share information and respond to requests

The government operates hundreds of social media accounts across a wide range of platforms, including Twitter, Facebook, Instagram, Flickr and Snapchat.⁹⁷ These channels were a key part of the government's communications strategy around coronavirus – servicing a different need to GOV.UK. GOV.UK is the canonical source of government advice and the access point for all the government's services, and while it does invite feedback from users, it is not designed to accept queries from users and interact in quite the same way as social media channels.

The public turned to the government's official social media accounts for advice. In the early stages of the crisis, engagement with the main @GOVUK Twitter account grew by over 12,500%.⁹⁸ Many people were coming to the government's social media accounts with questions about the virus and the government's lockdown rules. In order to meet the demand, GDS adapted and built upon its existing social media 'community management techniques' to meet the demand. It already had standard sets of responses – for example, to enquiries about passport renewal or applications to the Fast Stream. For coronavirus, it analysed the nature of the queries it was receiving, putting these into seven categories (including 'protecting yourself and others', 'employment and financial support' and 'scams and hoaxes'), and worked with the Cabinet Office's central coronavirus communication response team and others across government to agree more than 70 standard responses. As with other elements of the government's digital response, the revised social media guidance shows government responding to user needs by adapting existing processes and working across departments to meet those needs.

3. Remote working and business continuity

As the coronavirus surged within the UK the government faced twin challenges. The first was managing the effects of the crisis across the country; the second was doing so while having to shift, almost overnight, to new ways of working, with hundreds of thousands of civil servants having to adapt to remote working.

The civil service has traditionally struggled with some key aspects of remote working, such as video conferencing. Departments use different software platforms, which has made basic collaborative tasks like sharing documents more difficult than it ought to be. But the pandemic has forced it to overcome some of these problems, with government organisations quickly providing their staff with the hardware, software and other support necessary to allow working from home and starting to solve long-standing issues. This allowed the business of government to continue through the crisis. In time, as officials return to offices, the need for hybrid models of working will create further challenges. It remains to be seen whether some of the successes during the crisis – such as virtually bringing teams spread across different locations together – will last.

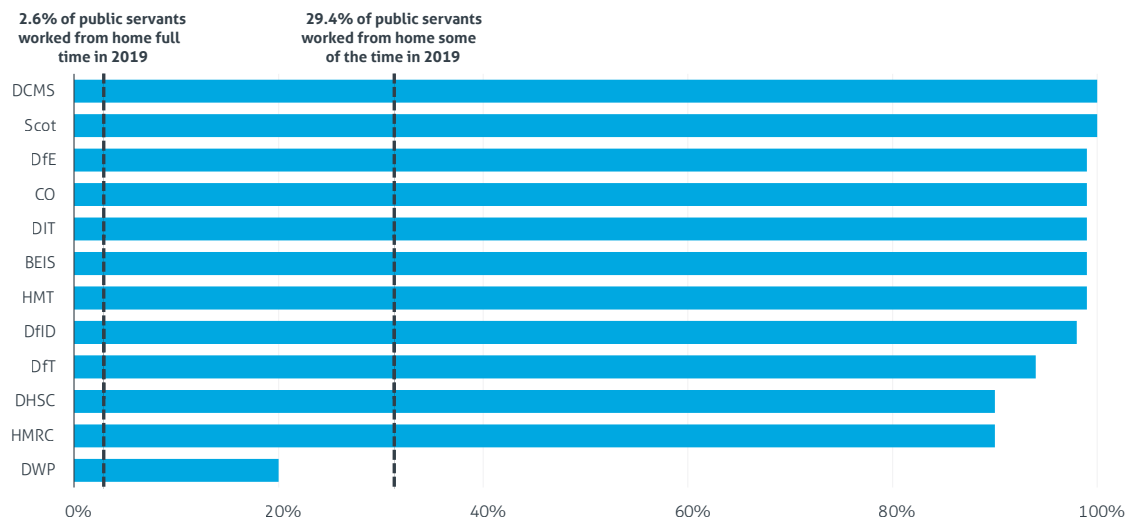
Before the crisis, remote working was low down the civil service agenda

When the whole of government had to shift to home working some individual organisations were better prepared than others – GDS, for example, had previously encouraged its staff to work from home.⁹⁹ However, at a whole civil service level, reports and strategies for reform over the last decade hardly mention remote working. The 2018 *Government Estate Strategy* has one page titled ‘Smarter Working’, which mentions the importance of using technology to provide “cutting-edge collaboration, document sharing and communication tools, with full mobility and rapid access to data and information, anywhere, anytime”.¹⁰⁰ Perhaps understandably, the biggest initiatives of late have concentrated on moving civil servants out of London into regional hubs, rather than out of offices into their homes.¹⁰¹

One exception was Operation StepChange, an initiative during the 2012 London Olympics that encouraged London-based officials to work from home to reduce demand on public transport.^{102,103} There is also some reference to working from home as part of attempts by Civil Service HR to promote flexible working.^{104,105,106}

The crisis accelerated a shift to home working; as offices emptied, technology filled the gap

Figure 7 **Percentage of civil servants working from home by government department, May 2020**

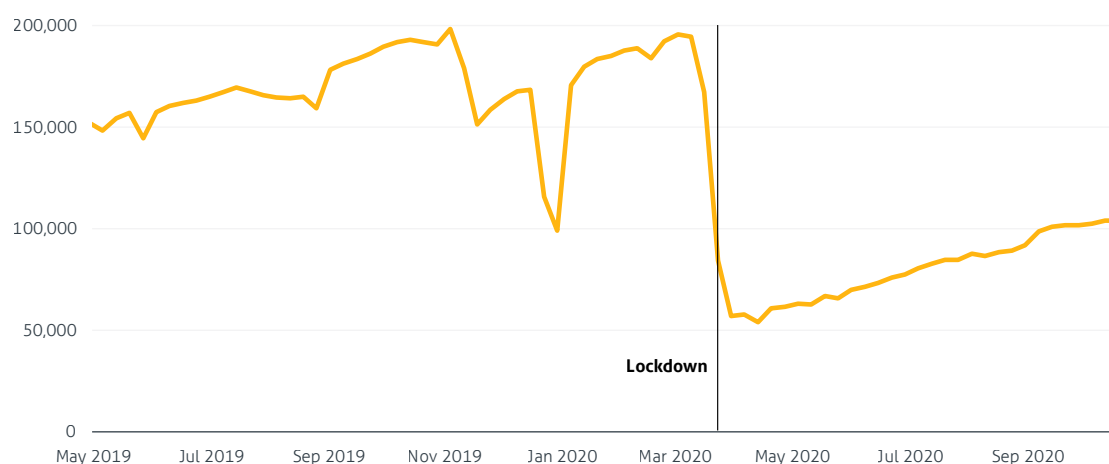


Source: Institute for Government analysis of ministerial answers to parliamentary questions posed by Margaret Ferrier MP and Dan Carden MP on the rate of home working among civil servants in each department, May 2020. 2019 rates of home working taken from ONS, 'Technology intensity and home working in the UK', May 2020.

Coronavirus has changed everything. In answers given to parliamentary questions in May, all but one of the departments that responded said at least nine out of ten of their staff were working from home. This included 98% of staff in the Department for International Development, 99% of staff in the Treasury, Cabinet Office, Department for International Trade and Department for Business, Energy and Industrial Strategy, and a full 100% of staff at the Department for Digital, Culture, Media and Sport and the Scotland Office.¹⁰⁷

The outlier was the Department for Work and Pensions, where only 20% of staff were said to be logging in remotely – understandable, given DWP is a large operational department with thousands of staff working in job centres.¹⁰⁸ This figure is now likely to have risen, with one interviewee telling us that around half of DWP staff were working remotely in early summer.¹⁰⁹ Comparisons from before the crisis are difficult to come by, but statistics suggest that only 29.4% of UK workers in 'public administration and defence' had ever worked from home, with just 2.6% doing so full-time.¹¹⁰

Figure 8 **Average GovWifi weekly users, May 2019 to October 2020**



Source: Institute for Government analysis of GOV.UK, Performance Platform data on volume of weekly GovWifi users, May 2019 to October 2020.

The emptying of offices is also seen in the sudden drop in people using GovWifi.* In the week before lockdown, 167,160 users connected to the network. This dropped by 66% to 56,795 in the week when lockdown was announced.

Departments moved quickly to get their staff the hardware and infrastructure they needed

The first challenge for departments was providing staff with hardware (computing equipment) and ensuring the right infrastructure (such as network access) was available. Again, long-term investments in equipment and experienced staff paid off, with some organisations able to adapt faster than others. An institutional willingness to be flexible about processes also helped organisations to quickly build their capacity for remote working.

HMRC, an organisation of more than 55,000 civil servants, was among the better prepared having made a conscious decision to move all its staff onto laptops and tablets years ago.¹¹¹ This made the transition to home working easier; every employee within the organisation already had a standard Microsoft Surface Pro to work on.¹¹² Other departments were not so well positioned. Most staff at DWP did not have their own laptops before the crisis. As offices closed the department had to go from deploying around 150 laptops a week to hundreds each day.

The infrastructure to support home working was less well developed. While departments such as HMRC had invested in hardware on the basis that some of their employees might work remotely on any given day, nobody ever expected that the entire organisation would shift at once. Before the pandemic, HMRC had capacity for

* GovWifi is the official government wifi network operating in many government properties across the country, which allows 'public sector staff and visitors to sign up once and use the same username and password to automatically connect to a single wifi service across multiple public sector locations'. Government Digital Service, 'What is GovWifi?', GOV.UK, retrieved 14 August 2020, www.wifi.service.gov.uk/about-govwifi

up to 9,000 people to work from home. Using similar approaches to the ones that helped it develop its new services so quickly, HMRC condensed what would have been a six-week programme to expand support for remote working into four days. The department built new networks, including those which allowed some 30,000 call centre staff to manage calls and other communications (including webchat). They were able to make use of third-party infrastructure to give themselves more flexibility and capacity on the network. This enabled all 55,000 of its staff to work from home. Any difficulties in the first couple of days gave way to business as usual very quickly. Without this aggressive approach none of HMRC's other digital developments, such as building new public-facing services, would have been possible.

GDS has long encouraged its staff to work from home one day a week and "has always designed and built its services on the internet". This means that many of the tools staff use – such as emails, calendars and document sharing – were already easily accessible from outside the office. By "build[ing] on these principles" GDS was able to "adapt to the lockdown situation".¹¹³ Nonetheless, some services could only be accessed remotely via its Virtual Private Network (VPN, which provides a secure connection to a private network over the internet). GDS was concerned that its VPN would not have enough capacity to support the sudden surge in demand for these services. To manage this it used its monitoring system to track demand and send alerts when it was approaching capacity. At the same time it started adding additional capacity to its VPN.

The GDS Service Desk, which provides IT support to everyone at GDS, also had to adapt the way it works. It established processes to set up MacBooks for new starters remotely and switched to using remote tools like Google Meet and Slack to provide support.¹¹⁴

Departments quickly rolled out software that enabled collaboration

Civil servants have always needed to collaborate across teams within their department and across government departments. This has been especially important during the pandemic, with critical services spanning different departments' areas of responsibility. Many civil servants have complained for years that, for all the grand visions about digital transformation and future technology, they still couldn't hold a decent conference call with departmental colleagues. Things became even more complicated when trying to work with other departments – for example, some departments using the Google suite of collaborative documents that some departments couldn't access. The coronavirus crisis exposed these issues like never before, and forced changes allowing civil servants to embrace a range of tools, including video conferencing tools (VCT), file sharing, document collaboration and calendars.

Figure 9 **VCT, document-sharing and instant messaging platforms used by government organisations during lockdown (indicative survey)**

Organisation	VCT within organisation					VCT for inter-organisational meetings					Document sharing				Instant messaging platform					
	Google Meet	MS Teams	Webex	Zoom	Skype	Google Meet	MS Teams	Webex	Zoom	Skype	Google Docs	MS Teams	Other		GSuite	MS Teams	Skype	Slack	Jabber	Other
BEIS																				
CO																				
DCMS																				
DfID																				
DHSC																				
DIT																				
Defra																				
DfE																				
DfT																				
DWP																				
FCO																				
GDS (CO)																				
HMRC																				
HMT																				
HO																				
MHCLG																				
MoJ																				
NICS																				
Parliament Digital																				
Scot Gov																				
Wales Gov																				

Source: Institute for Government analysis of a survey of 134 civil servants from across government organisations. Departments with very few respondents excluded. Survey open 28 May to 19 July 2020, and can be found at www.surveymonkey.com/r/8J7G9LT

A survey conducted by the Institute for Government gives an impression of the internal challenge within departments: while one video conferencing service or suite of collaborative documents might be used most often by a number of different civil servants, a wide variety of tools were in use, with implications for knowledge management (files saved in different locations), usability (having to learn how to use many different tools) and security. The proliferation of tools could also suggest, on the positive side, that civil servants were innovating quickly to find tools that worked for their teams, but, on the less positive side, something of a scramble as remote working began, and the lack of a coherent approach to using these tools.

Many departments took advantage of lockdown to accelerate existing plans to migrate staff on to certain software, such as Microsoft Teams. Some have taken the approach of having a 'central backbone' built around software like Teams or Google's G Suite. However there are teams within every organisation that need a wider range of collaborative tools – particularly teams which previously relied on physical tools such as whiteboards and sticky notes to do design work. Some departments have therefore allowed staff to safely and securely test other tools beyond that 'central backbone', relaxing the rules on the tools that can be used while stressing the need for civil servants to be careful about what they're sharing.

Officials are still adapting to the new way of working and how best to use the tools at their disposal to replicate or rethink what they would normally do. For example, the Home Office DesignOps team – which increases collaboration between teams building digital services, to share lessons and reduce inefficiency – adapted their design critique (or 'crit'). This is a session where designers share their work in progress for feedback. Switching to online working meant preparing more materials in advance to save time during the session, shortening session times and using tools like Slack, Trello and video breakout rooms.^{115,116}

Project Unblock has helped civil servants work across departmental boundaries

Interoperability is the principle that different systems which serve the same end should all be able to work together and speak to each other without issue. This has predominantly been a technology issue, although recently there is a growing recognition that government departments need interoperable processes, culture and a common language to talk about their ways of working with each other.

Departments need interoperable technology to work well with each other. But at the start of the crisis there was a distinct lack of interoperability between systems used by different organisations across government. This made communicating, sharing and working with colleagues much more difficult than it needed to be. Departments were using a variety of platforms and tools which were blocked by other departments, making collaboration much more difficult. Civil servants have long complained about these problems, but they had been easy to overlook until the crisis forced so many officials to use these tools all at once.¹¹⁷

Figure 10 **Interoperability of video conferencing tools used by government organisations, 1 May and 15 July 2020**

Organisation	1 May							15 July						
	Default	Google Meet	MS Teams	Cisco Webex	Zoom	Skype	BlueJeans	Default (where new)	Google Meet	MS Teams	Cisco Webex	Zoom	Skype	BlueJeans
BEIS	MS Teams													
CO	Google Meet													
DCMS	Google Meet													
DfID	MS Teams													
DHSC	Skype													
DIT	MS Teams													
Defra	MS Teams													
DfE	MS Teams													
DfT	MS Teams													
DWP	Skype													
FCO	MS Teams													
GDS (CO)	Google Meet													
GSS (CO)	Google Meet													
HMRC	MS Teams													
HMT	MS Teams													
HO	Skype													
MHC LG	MS Teams													
MoD	Skype													
MoJ	MS Teams													
No 10	MS Teams													
NICS	Cisco Webex													
ONS														
Parliament Digital	MS Teams													
PHE	Skype													
Scot Gov	Vscene													
Wal Gov	MS Teams													

Can use Restricted Cannot use Unknown

Source: Institute for Government analysis of Government Digital Service, 'Project Unblock data on video conferencing tool interoperability', bit.ly/2ZwCJeU

This mix is a result of there being no mandated suite of tools that all civil servants should use. This is something the centre of government has deliberately avoided, since it would bring its own set of problems that the last decade of digital transformation in government has tried to solve – such as reliance on (and being tied into big contracts

with) single, big suppliers. But devolving decisions to departments means little consideration has been given to how officials communicate and collaborate between departments.

During the pandemic, GDS established Project Unblock (of which there is only one mention on GOV.UK) to understand and unblock compatibility issues between departments, starting with video conferencing. Between May and July 2020 many departments 'unblocked' access to various video conferencing tools. By July, only a few major departments (including HMRC and the Ministry of Defence) were still blocking some software, and even these had made more tools accessible. Microsoft Teams has been unblocked across all major departments, while Google Meet has gone from being unavailable or restricted in 11 departments to four, and Skype from being blocked in five departments to two. Even where departments have mandated the use of a particular tool internally, they have also authorised the use of other platforms for teams to be able to talk to other departments.

All of these efforts will have made it easier for teams across government to work with one another – one civil servant told us that, at one point, “Whitehall divided between those who can use Google [Suite]^{*} and those who can’t”. All of the case studies in our digital services chapter were able to achieve the fast roll-out of new services and the adaptation of existing services – inside their own departments and with other departments – as a result of these efforts. Indeed, some of those departments had found additional advantages to new ways of working. HMRC noted how digital platforms were a “huge enabler” of its work to design and develop digital services like CJRS and SEISS. These tools opened up access to meetings and tools to staff spread across locations, and at all levels of seniority. This led to fewer people being excluded, which might have happened if a system was being developed in one location or business area rather than being rolled out to everyone. Meetings could be set up quickly ('on the spot') with the right people and in real time.

Departments we spoke to were pleased with how quickly they and their staff had adapted. This has obviously been about more than technology – Government Shared Services has been shortlisted for a civil service award for prioritising staff wellbeing and communicating quickly and honestly with them – but speedy efforts to roll out new tools and determined work to unblock compatibility issues between departments has helped.

Digital technology made it easier to scale up and automate a wide range of back office functions

There were other 'back end' considerations for departments too, as resource planning, HR, finance and other corporate services had to be adapted to remote working. Staff absences and swathes of civil servants working from home meant departments needed to collect new types of management information, on a bigger scale – including details of what technical kit they had and needed, wellbeing, and absences due to coronavirus.

^{*} Google Suite, or G Suite – whose tools include word processing (Docs), spreadsheets (Sheets) and video conferencing (Meet) – was renamed Google Workplace in October 2020.

Government Shared Services, recently renamed Government Automation and Business Services, is the Cabinet Office unit that helps departments transform some of their corporate services. It took the opportunity to 'get to the future just a bit quicker' and overcome the 'inertia in the system', accelerating some already-planned automation of back-office services. Shared Services Connected Ltd (SSCL), a joint venture between Cabinet Office and digital transformation consultancy Sopra Steria, set up a joint team with Fujitsu to change the way it recorded absence data across government (to record coronavirus-related absences). It did so in record time, implementing changes across half of all departments in two days.

These changes made it possible to share data about 300,000 public sector workers with COBR, one of the government's main emergency committees involved in the pandemic response.¹¹⁸ Automating the collection and sharing of some of this management information helped some departments see the value of easily generating key information from their corporate systems, rather than the usual cultural default of collecting information by cascading requests to populate spreadsheets, saving time and improving accuracy as they tried to understand key issues including workforce absences.

As well as already having developed plans and good relationships with private sector suppliers, interviewees also said that changes to corporate services would simply not have been possible without five years of the "functional agenda" pursued by civil service leaders, which has focused on strengthening professional skills of civil servants in "functions" including HR, finance, commercial and digital, data and technology across government. Brexit 'dry runs', especially when it came to the redeployment of staff, had also been valuable.

The civil service needs to continue successful remote working practices

At the end of the summer, the government called for civil servants to start returning to their offices. A letter sent by the departing cabinet secretary, Sir Mark Sedwill, and the civil service chief operating officer, Alex Chisholm, in early September told permanent secretaries they should enable "80% of staff to attend their usual workplace each week, for example 20% for five days, 30% for three days and 30% for two days, with the balance attending only occasionally for now".¹¹⁹ Unions challenged these objectives given the reduced capacity of government buildings owing to coronavirus measures. Hybrid working, with some civil servants physically in the office and others still working from home, would have brought its own challenges, including the risk that those not in the office could be excluded.

But the return to remote working as coronavirus cases rise means the civil service needs to ensure it learns from its – largely successful – remote working experiment. Further unblocking of systems across departments, and embracing of new tools and automation of key HR information, will help.

But many of the challenges will not be technological. As noted in a previous chapter, HMRC's chief digital information officer said that the pace of work necessary to build three new services in a matter of weeks is not one that can be sustained indefinitely. One senior official told a Civil Service World roundtable that the pandemic work ethic was "completely unsustainable... And yet there are still days where there's a massive crisis spike and we have to respond. There's burnout we need to watch for."¹²⁰

Remote working on the scale of the last six months is not something most employers, especially in government, have ever done before. They will need to learn as many lessons as they can as quickly as they can.

4. The building blocks of digital government

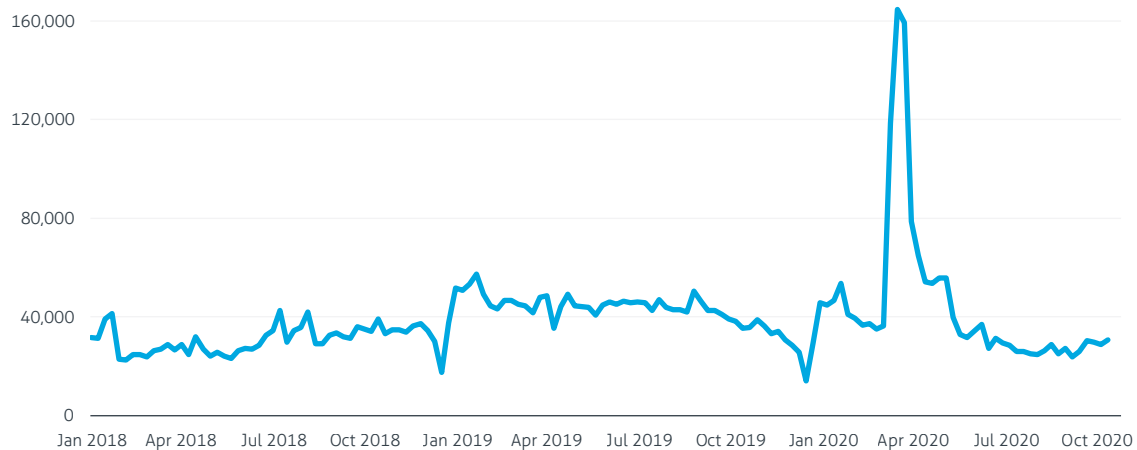
'Government as a Platform' (GaaP) is a key concept long promoted by GDS. In its definition it has largely meant creating technological "components that can be used across the public sector".¹²¹ Simply put, these are building blocks which make it quicker and easier to build new digital services and may be common to lots of different services. The building blocks developed by GDS over the past decade include digital identity verification (Verify), messaging (Notify), payment (Pay), service design (GDS Design System) and hosting and other infrastructure – all of which can be easily slotted into services developed by organisations across government and the wider public sector.¹²²

These existing components have been important during the crisis. Just as HMRC was able to turn to AWS to find the infrastructure capacity it needed, developers across central and local government were able to use these building blocks to launch new services quicker and widen access to existing services. According to GDS, "using GaaP products [during the Covid-19 crisis] has made it quicker, easier and cheaper to create the essential services the public need".¹²³ Other similar concepts have recently surfaced in government: DWP has talked about 'white-label' services – a concept where organisations can put their name on something built by somebody else – that can be quickly replicated and rolled out.¹²⁴

As discussed elsewhere in this report, the ability to develop and launch new services was made easier thanks to years of groundwork, and this includes the development of the components of 'Government as a Platform'. The availability of these components has been vital in government responding effectively at pace to the pandemic – although the success of individual components has varied.

Verify registrations surged as layoffs forced people on to Universal Credit – but its future is in doubt

Figure 11 **Number of new users registering with GOV.UK Verify per week, January 2018 to October 2020**



Source: Institute for Government analysis of GOV.UK, 'Performance Platform data on the volume of new users to Verify', January 2018 to October 2020.

Verify, the digital identity system for citizens to prove who they are online, experienced a rapid increase in the number of new users during the pandemic. Throughout 2019 only around 40,000 individuals were signing up to Verify each week. In the week before the March 2020 lockdown, 118,416 people signed up to Verify; the following week, a record 164,672 more followed suit. Most of these new users were using Verify to access Universal Credit, which has required users to login via Verify since September 2015, and which saw a huge increase in claims.

GDS worked to scale up Verify during the crisis to improve access to Universal Credit. It worked closely with identity providers to handle more claims, introduced online queues to stagger services, expanded the infrastructure needed to run the service smoothly, and even introduced a new verification method (scanning passport chips) earlier than planned. These changes helped increase the number of people that could be accepted from 25 per minute to 400 per minute during the month of April.¹²⁵

The surge of thousands of people suddenly applying for Universal Credit in March resulted in online queues as Verify initially struggled to manage the load.¹²⁶ These delays led DWP to announce that Government Gateway, an alternative method, could also be used to sign into the service, speeding up claims.¹²⁷ DWP accelerated development of its own, new online verification system called Confirm Your Identity, originally planned for September, based on Government Gateway.¹²⁸ However, GDS was able to deploy some quick fixes to boost capacity and the delays that users faced soon vanished. Ultimately, Verify reduced some of the administrative burden that DWP faced, enabling it to focus more on how to get claims paid quicker.

Verify has not been seen as the long-term solution for digital identity for a while.¹²⁹ The benefits it offered during the early stages of the crisis have not done enough to change this view. Historically, the service has been dogged by controversy and consistently failed to meet key targets. Only 22 services currently use it, compared to a target of 46 set in 2016, and it had some 14 million fewer users than expected at the end of 2019.¹³⁰

However, there is a good case that these targets were always going to be unrealistic in the absence of any mandates that drove a wide group of users to register with the service. Despite this, Verify still suffers from some user design problems that make initial sign-ups more cumbersome than they need be. And while the surge of registrations in 2020 brings its user numbers closer in line with older targets, it shouldn't have needed a crisis of this scale to drive its growth as a service.

The reliance of some critical services (like Universal Credit) on Verify have given it a stay of execution during the pandemic: plans to end government funding for Verify in March 2020 were postponed for 18 months.^{131,132,133,134} The government clearly needs a single cross-government solution for identity verification. But the fact that DWP was already building its own system, and then had to turn to another to cope with demand during the crisis, shows that this is unlikely to be Verify in the long term.

Digital identity in general, and replacing Verify specifically, will be a key challenge for government over the next few years, as ever more services inside (and outside) government move online and citizens need to be able to identify themselves in order to use them. GDS is now developing a new system, the Identity and Attributes Exchange (IAX), which will meet some of these needs.¹³⁵ This is not a direct replacement for Verify, nor a competitor for Government Gateway or Confirm Your Identity. Rather, it is part of a future solution that aims to allow interoperability between different sources of identity assurance and the services that rely on them.

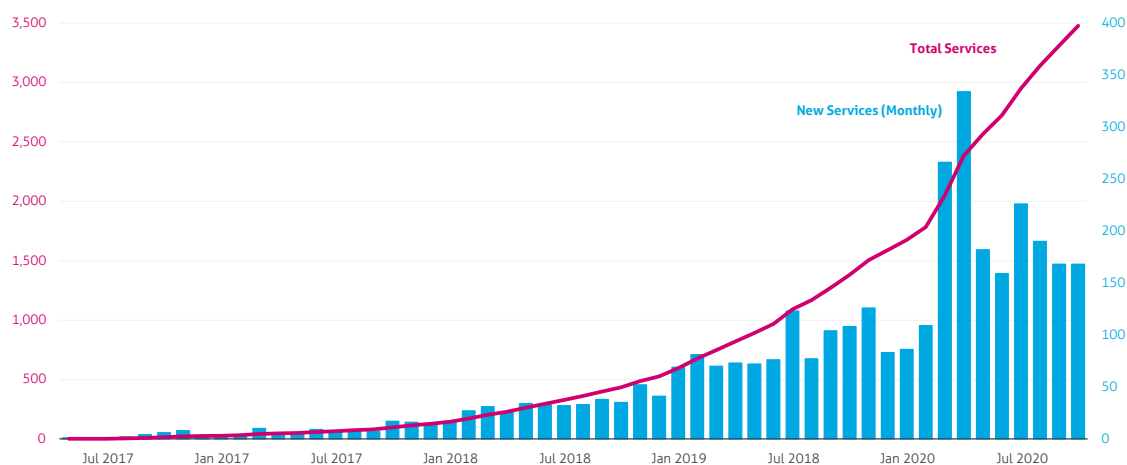
There will be even more difficult questions around identity verification to come, for example HM Land Registry has recently written about the possible need for "cryptographic and biometric checking of identity" in the conveyancing sector.¹³⁶ The government finally published the long-awaited response to its digital identity consultation in September 2020, but this gave little detail on the direction government intends to pursue. Its main focus was on the economic opportunities of the digital identity market, rather than replacing Verify.¹³⁷ Government urgently needs to set a direction to avoid a further identity crisis. The long-overdue appointment of a government chief digital officer (GCDO) would undoubtedly help with this and other crucial digital issues across government.¹³⁸

Notify helped large and small government organisations send out a surge of targeted information

Notify allows organisations in central and local government and the wider public sector to send automated emails, text messages and letters to users of their services. These include appointment reminders from GP surgeries, notifications from local libraries and the NHS Test and Trace service. The number of government services

using Notify has also rapidly increased. An average of around 100 new services joined up to Notify each month in 2019; this rose to a record 334 in April 2020, taking the total number of government services using Notify to more than 2,500. By the end of October there were 3,429 services using Notify, and much of this growth is due to a proliferation of services created as a response to the pandemic. As of mid-November at least 155 of the services using Notify were related to coronavirus, including notifications about test results and contact tracing, and services supporting people who are vulnerable or shielding.

Figure 12 **Number of government services adopting GOV.UK Notify, May 2016 to May 2020**



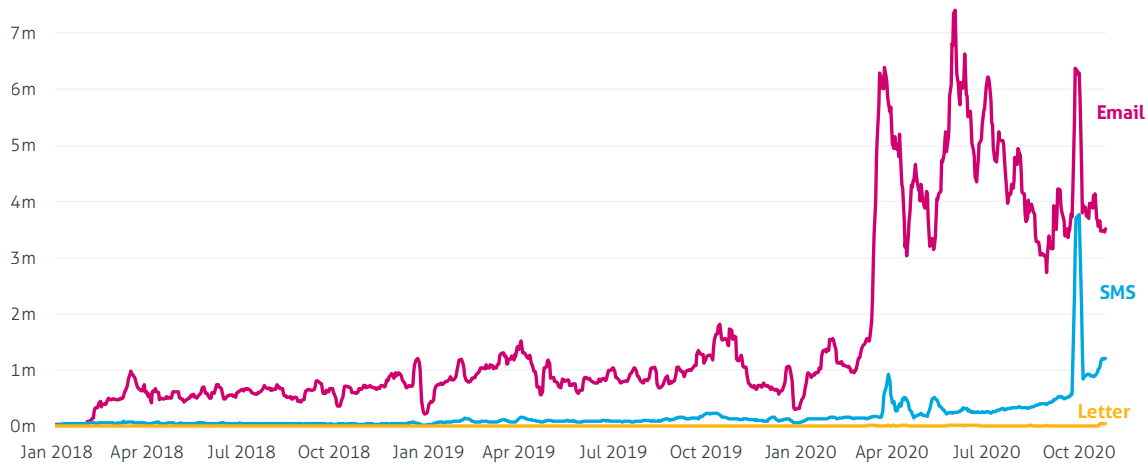
Source: Institute for Government analysis of GOV.UK Notify service data

Notify's use has increased considerably during the coronavirus crisis. Before March 2020, the number of emails being sent out by Notify had never surpassed 3 million in a single day, and the number of text messages had never exceeded a million, and only exceeded 500,000 on a few occasions. Since then, usage has greatly exceeded this: every week has seen a daily average of between 3 million and 7 million emails sent, and 1.8 million text messages were sent using Notify on 24 March 2020. Notify as a service sent a record number of messages on Sunday 27 September, with 8.5 million emails and nearly 10 million text messages (and just under a thousand letters) – many of these were likely encouraging citizens to download the new contact tracing app, launched a few days before.

The services using Notify to add functionality include some of the most high-profile new central government services (SEISS and the Contact Tracing and Advisory Service); while other services have been using Notify for years (Universal Credit). But – as the Institute for Government has previously examined – Notify has been a success beyond central government, being used across the wider public sector.¹³⁹ This has also been true during the pandemic, with everything from the City of York's 'Coronavirus Updates' service to Guy's and St Thomas' NHS Foundation Trust's 'GSTT COVID ALERTING' service using Notify. Of the 2,535 government services which use Notify,

969 are run by local councils, and 257 are NHS services. Indeed, 36% of the 601 services signing up to Notify in March and April 2020 were from local authorities.*

Figure 13 **GOV.UK Notify service notifications by type (rolling average), January 2018 to May 2020**



Source: Institute for Government analysis of GOV.UK, Performance Platform data on volume of Notify notifications by type, January 2018 to October 2020.

Why did Notify succeed while Verify failed? For one, sending messages is less complex and politically fraught than the debates about digital identity. But Notify also very clearly meets the needs of organisations across the public sector. Many have used it in the past. During the pandemic, Notify made it straightforward for the government to get messages out on subjects including the progress and outcomes of coronavirus tests for individuals, telling vulnerable individuals to shield, public sector business continuity messages, and travel alerts for those overseas. The ease of integrating Notify into new services and its scalability meant that officials could have confidence that the messages they were crafting were getting out to the people who needed to hear them. However, this has not stopped HMRC announcing it will spend nearly £10m to streamline its notifications, showing that departments still sometimes want to build or buy their own tools.¹⁴⁰

Other building blocks have also been useful

Although Verify's continued troubles and Notify's growth may be the most eye-catching stories, other components have been helpful to departments. GOV.UK Pay – as the name suggests, an online payment service – has recently added its 300th service.¹⁴¹ It filled a gap as call centres and offices closed, supporting services that would normally rely on cheques or call centres. The Home Office has added Pay links to invoices that would normally be taken over the phone or via handheld terminals, reducing the need for staff to have to travel to the office and improving the customer experience, while local authorities have used Pay to take payment for crisis funds and food banks.¹⁴² As mentioned above, many new services have made use of GOV.UK's Design System to rapidly build new products and services, while Platform

* The next largest group, accounting for 24% of new services, were those run by the Ministry of Justice, with individual courts and prisons integrating Notify in large numbers – a reminder of the vast numbers of existing services that have continued through the crisis.

as a Service (PaaS) has allowed teams to host those new services (including the Shielded Vulnerable People service) and scale them up quickly.

The government should consider what building blocks could be helpful in the future, based on the lessons of the crisis response. Given the speed with which data sharing agreements have had to be agreed, there could yet be something in the data infrastructure and privacy space. GDS has already published guidance on chatbots – applications which can conduct (usually text-based) conversation – and webchat that organisations like the DVLA, MoJ and Government Automation and Business Services (among others) have already been using.¹⁴³

The government should also consider who would build any new components. There may be government organisations other than GDS involved, for example. Many new digital services during the pandemic were essentially online forms, including the vulnerable person service and reporting coronavirus workplace safety concerns service – MoJ has developed a Form Builder using Design System principles (a previous GDS initiative, Submit, was paused in February 2018).^{144,145} And one strategy would be to allow non-government organisations to be involved: HMRC's success in launching its coronavirus-related services owed much to using infrastructure from Amazon Web Services.

Conclusion

The coronavirus crisis has accelerated digital transformation across government. There have been successes in building new services quickly, in tackling some long-standing challenges and in moving rapidly to remote working. But there have been failures too, such as the contact tracing app and A level algorithm, and confirmation that Verify is not a sustainable solution for digital identity.

We should remember we may still be at an early stage in this crisis, and the next stages will bring new challenges – moves to hybrid working, sustaining the extraordinary effort without burning people out – with as yet unknown new services being required. Yet there are some key lessons from the government's digital response to the pandemic so far that will be useful for the future:

Technology is not a panacea

The contact tracing app shows that 'tech solutionism' and blind trust in new technology will cause more problems than it solves. Government needs to first understand which problems it is trying to solve and the services it needs to deliver to do so. Then government should seek to understand where technology can support those aims, rather than starting with the technology itself.

Clear political direction can drive success, but ministerial enthusiasm is not enough

HMRC was able to use technology to radically transform its operations because it received clear direction and support from the chancellor from the outset. DWP made some clear political trade-offs – Universal Credit prioritised making payments to people, even with a greater risk of fraud and error. By contrast, rhetorical enthusiasm for the contact tracing app and a lack of clarity of how it fitted into a wider test and trace system overstated the potential benefits of the technology and understated the difficulties. Enthusiasm for a technological solution alone was never going to be enough to drive success.

Success was built on previous investments in people, tools and relationships

Nearly every success story built on what was already there. The digital expertise brought into government, and the strengthening of corporate functions across government over the past few years, meant that government had staff with the right expertise and experience. Particular building blocks – such as the Notify messaging service, and GDS's design patterns – allowed new services to be launched quickly. Agile ways of working, with empowered teams building, iterating and adapting quickly, were vital.

Relaxing controls and governance only works when you have an established model to follow

A willingness to take risks, relax controls and fast-track governance processes worked well in some instances. For example, the decision by GDS to suspend service assessments for new digital services – such as the vulnerable people service – helped get vital new services up and running more quickly. They were able to do this because they had a well-trodden path to follow, the likely failure points and inherent design risks were largely well understood, and they were able to substitute an alternative system of peer review to provide a reasonable level of assurance.

Private partners can do heavy lifting that government doesn't want to or cannot do – but there are limits

Partnerships with firms such as AWS, Oracle and SAP helped the government to find the capacity it needed as and when it needed it. They also helped government to avoid reinventing the wheel. HMRC's experience suggests the next stage of 'Government as a Platform' – technological building blocks that many different government services can be built on or around – could see a greater role for the private sector. During the crisis HMRC utilised the capacity offered by Amazon Web Services to run its new services – such as the CJRS – without any concern that they would buckle under the demand. But the greater involvement of technology companies also brings big questions and serious risks. The contact tracing app experience, with Google and Apple setting the parameters for democratically elected governments, may point the way towards future debates and dilemmas. How will government, and how will the public, feel if tech giants are setting the rules through platform ownership?

Working across organisational boundaries is vital

'Project Unblock' took the opportunity to break down technical barriers between departments, allowing them to collaborate more easily. This was important as the development of many new and vital services spanned existing departmental silos. The strengthening in recent years of government functions and professions, including data, digital and technology, has helped to build requisite expertise across government. There are some success stories where departments have used and shared data more effectively, such as the development of the vulnerable people service, which used driving licence data to access HMRC services, DWP's use of data, and the ongoing work of GOV.UK. However, government needs to be more transparent about how such data is being used and shared.

Digital identity verification is essential and the current system is holding government back

The crisis has underlined both the importance of digital identity verification, and that Verify is not the solution, as departments used other systems to meet demand. Many departments are exploring their own solutions, including Government Gateway and Confirm Your Identity, risking duplication of work, expense and different systems not talking to one another. While GDS's Identity and Attributes Exchange (IAX) may help bridge some of these gaps, there are a lot of open questions about the future. And the government's recent response to its digital identity consultation provides little clarity on what comes next.

Recommendations

Building on the lessons outlined in this report, we recommend that government:

1. Sets a clear vision for the future for the whole of government, building on the experience of HMRC and DWP in particular, and clarifies the leadership of digital government

The government is currently hiring a new chief digital officer, new chief data officer and new chief executive of GDS. It needs to clarify exactly what the roles and responsibilities of these posts are: this moment provides the perfect opportunity to set out what vision of digital government these leaders are expected to deliver. HMRC and DWP, as well as GDS, have learned valuable lessons during the crisis – on everything from the use of private providers to data sharing across government. With civil service reform and changing how government works high on the agenda, the government needs to set the course for the next few years of digital development. It is vital that the government learns the lessons about transformation from the pandemic. In particular it needs to continue to foster collaboration and ensure co-ordination, avoiding duplication and discord. This vision of the future needs to work for all of government. There is no point building deep expertise in isolated pockets (such as, for example, the Downing Street data science unit) without also supporting broader improvements in capability and practice across the whole of government.

2. Outlines its plans for digital identity

The government recently published a response to its consultation on digital identity, but it said little about what it actually planned to do. The pandemic has confirmed that Verify is not fit for purpose. There are risks that work will be duplicated, money will be wasted and systems will not work correctly if different parts of government scramble to build their own identity assurance solutions. With many initiatives in train across government, and more and more services moving online, government needs to clarify its plans for digital identity.

3. Be more open about its use of personal data and new technology

Failures around the contact tracing app and the exam grades algorithm have led to public concern about the use of data and technology by government. We know that departments have been sharing and accessing data at an accelerated pace, and that No.10 is extremely interested in using data.¹⁴⁶ What we don't know exactly is what data is being used where, or how. Government could squander the opportunities offered by the better use of data and technology if things go wrong or are simply kept secret, leading to a loss of public trust. It needs to be more open about how it currently uses citizens' data and any future plans. This should include publishing much more information about data sharing agreements and how our information flows across government, and revisiting select committee recommendations about publishing a list of decision-making algorithms in government and offering a 'right to explanation' as to how algorithmic decisions are made. Greater openness would also help different departments learn from one another.

But openness is not enough: the government also needs to have the debates about how it uses data and technology in public and with the public, in particular the acceptable uses of personal data.

Coronavirus has fundamentally altered our lives and changed the way government relates to the public's use of digital technology. There are many good examples of where that has benefited the public, through new services, better information and remote working allowing the functions of government to continue. But government needs to learn the lessons of what has worked and what hasn't quickly. And while the use of the citizens' personal data has helped deliver new services during the pandemic, the government must be more open and talk to the public and what it has done and what it is planning to do if it is to use their data equitably, ethically and effectively.

Appendix

List of new services created to help manage and deliver the government's response to Covid-19

Service name	Lead organisation	IfG classification
Campaign Resource Centre	PHE	Website
Apply for an emergency driving test	DVSA	Service
Apply for an emergency theory test	DVSA	Service
Apply for an urgent loan for overseas living costs	FCDO	Service
Apply for new style Employment and Support Allowance	DWP	Service
Apply for Pension Credits	DWP	Service
Ask a question at the next coronavirus press conference (GOV.UK Ask)	GDS	Service
Book a coronavirus drive through test (key worker)	NHS	Service
Book employees for coronavirus tests	NHS/DHSC	Service
Business hub	GDS	Website
Buy PPE as a social care organisation	NHSBSA/CQC	Service
Care home coronavirus testing	DHSC	Service
Citizen testing service	NHSX	Service
Claim back Statutory Sick Pay paid to employees due to coronavirus	HMRC	Service
COVID-19 supply complete test	DHSC	Service
CV19 communications dashboard (inc. comms metrics and polling figures)	CO	Dashboard
Find coronavirus financial support for your business (Business Funding Checker Business Support Tool)	BEIS	Service
Find coronavirus support	GDS	Website
Free school meal voucher scheme	DfE	Non-digital
Get contact details for extremely vulnerable people	GDS	Service
Get coronavirus support as an extremely vulnerable person	GDS	Form
Guidance for clinicians and NHS managers	NHSE	Website
HMRC tax app	HMRC	App
Isolation note service	NHS	Service
Job Retention Scheme	HMRC	Service
Key worker coronavirus home testing	NHSX	Service
Landing page	GDS	Website
Mental health – Every Mind Matters	PHE	Website

Service name	Lead organisation	IfG classification
Messaging bot – WhatsApp	PHE	Notifications
NHS 111 Online Coronavirus Services	NHS	Service
NHS Coronavirus Status Checker	NHSX	Service
NHS volunteer sign-up	NHSE	Website
Offer coronavirus (COVID-19) support from your business	GDS	Form
Offer to supply ventilation devices	DHSC	Service
Patient Referral Form	RVS	Form
Register a Home Test Kit	NHSX	Service
Report a business behaving unfairly during the Coronavirus (COVID-19) outbreak	CMA	Form
Report coronavirus workplace safety concerns	DWP/HSE	Form
Self Employed Income Support Scheme (SEISS)	HMRC	Service
Self isolation data collection form	NHSX/BSA	Form
Social Care Recruitment Platform	NHS/DHSC	Website
Subscribe to notifications on updates to the landing page	GDS	Notifications
Text messaging of COVID test results	NHSX/BSA	Notifications
Text messaging to the extremely vulnerable	NHSX	Notifications
Texts to people with symptoms - living with others	NHSX/BSA	Notifications
Texts to people with symptoms - on their own	NHSX/BSA	Notifications
Track coronavirus	NHSX/PHE	Dashboard
Volunteering for ventilators	BEIS	Form

Source: Government Digital Service, data as of 14 May 2020.

List of abbreviations

Acronym	Organisation name
BEIS	Department for Business, Energy and Industrial Strategy
CMA	Competition and Markets Authority
CO	Cabinet Office
CQC	Care Quality Commission
DfE	Department for Education
DHSC	Department of Health and Social Care
DVSA	Driver and Vehicle Standards Agency
DWP	Department for Work and Pensions
FCDO	Foreign, Commonwealth and Development Office
GDS	Government Digital Service
HMRC	Her Majesty's Revenue and Customs
HSE	Health and Safety Executive
NHS	National Health Service
NHSBSA/BSA	NHS Business Services Authority
NHSE	NHS England
PHE	Public Health England
RVS	Royal Voluntary Service

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