Witness Name: Dominic Cook Statement No. 2 Exhibits: DC-7/001 – DC-7/171 Dated: 15th May 2025

UK COVID-19 INQUIRY

SECOND WITNESS STATEMENT OF DOMINIC COOK ON BEHALF OF DELOITTE LLP

I, Dominic Cook, will say as follows: -

- I am a Partner in the Major Programmes team at Deloitte LLP (Deloitte). I have been asked by Deloitte to provide a witness statement in response to a request made by the Covid-19 Inquiry (Inquiry) under Rule 9 of the Inquiry Rules 2006 in relation to Module 7. I am pleased to assist the Inquiry with its important work.
- 2. Prior to joining Deloitte in November 2017, I was a qualified lawyer at international law firm Bird & Bird LLP for 26 years, 20 years of which I was a Partner. During that time, I held various management roles, including Head of Commercial, Executive Director on the Global Board and Management Committee member. Since joining Deloitte, I have acted as a lead in the governance and review of a range of significant public sector engagements. Such engagements have spanned across health, IT, defence, and justice. I am also experienced in acting for major private sector suppliers into the public sector. In addition, I am a major projects lawyer and presented to the first 33 cohorts of the Cabinet Office's Major Projects Leadership Academy as an Associate Fellow at Saïd Business School, University of Oxford on core aspects of complex, multi-disciplinary major projects. The academy builds the skills of senior project leaders across government, making it easier to carry out complex projects effectively.
- 3. During the UK's response to the Covid-19 pandemic (the Covid-19 response), I was the Deloitte Risk Partner across a number of Deloitte Covid-19 engagements, with a particular focus on the National Testing Programme (the Programme). This was a full-time, pan-engagement role that required me to review and support the Programme workstreams that were being underpinned by Deloitte resources. Given the role that I performed, I am well placed, with the requisite knowledge to make this statement on

behalf of Deloitte in response to the Rule 9 request. A separate Module 5 witness statement has been submitted to the Inquiry on behalf of Deloitte, detailing further engagements on which Deloitte supported and which pertain to Module 5 related matters.

4. This witness statement has been prepared by me, in conjunction with other individuals from Deloitte's Quality and Risk Team, following discussions in person and via Microsoft Teams and e-mail. In seeking to give a comprehensive response to the Inquiry, over 33 current and former partners and employees of Deloitte have been consulted, being those who played a significant or leadership role in the many workstreams involved in supporting the Government to design, set up and roll out Covid-19 testing on a national scale. This statement is produced by me based upon: (i) a collation of their collective recollections, input, and opinions; (ii) a review of documentation held by Deloitte; and (iii) my first-hand experience as Deloitte Risk Partner across the various Deloitte Covid-19 engagements.

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A Executive Summary

- 6. The Programme was set up by the Department of Health & Social Care (DHSC) to create and expand testing as a vital strand of the Covid-19 response. Deloitte was one of many organisations, including the military, public and private sectors, that helped build a diagnostic network, by providing expertise in digital technology, procurement, supply chain, real estate and project management that underpinned the Programme.
- 7. At a high level, the structure of testing for Covid-19 within the UK was separated under different operational 'Pillars'. Those Pillars were defined by Rt Hon. Matt Hancock MP the then Secretary of State for Health and Social Care (Health Secretary) in April 2020 and are summarised (as at that date) below [DC-7/001 - INQ000594235]:
 - Pillar 1 testing was testing in UK Health Security Agency (UKHSA) laboratories and NHS hospitals for those with a clinical need, and healthcare workers (including some care homes);

- (b) Pillar 2 testing was mass swab testing initially for critical key workers in the NHS, social care, and other sectors and then expanding to mass population testing;
- Pillar 3 was mass antibody testing to help determine if people have immunity to Covid-19;
- (d) Pillar 4 was surveillance testing to learn more about the disease; and
- (e) Pillar 5 was a diagnostic effort to build a mass testing capacity.
- 8. The pillars can be illustrated by the below diagram [DC-7/001 INQ000594235].



- 9. Pillar 2 was where the Government needed Deloitte's help to build testing capacity first for key workers (as described above) and then expanding to mass population testing. This was delivered via in-person tests at national drive-through or walk-though testing sites and home test kits delivered to individuals. All of this needed to be set up from scratch starting in March 2020.
- 10. Deloitte had some involvement with Pillar 3, which was established by the Government in the early stages of the Programme. There were three core channels: a) ELISA testing at home using capillary blood; b) ELISA testing in healthcare settings using venous blood; and c) phlebotomists Lateral flow testing. Deloitte supported all three of these channels, with particular focus on two discrete types of antibodies; Anti-Nucleocapsid (generated by natural infection) and Anti-Spike (generated by vaccine), through the use of capillary blood tests delivered by an industry provider (Thriva). A small Deloitte team worked with clients at the UKHSA (once it was formed and DHSC

before that) to set up and deliver this workstream including relationship management of the vendors and the set-up of the distribution channels for testing.

- Deloitte did not work on Pillars 1, 4 or 5. Some of the testing originally envisaged for Pillar 1 moved into Pillar 2, for example the testing of patients undergoing elective surgery in hospitals.
- 12. From the date of its instruction, Deloitte supported various Government entities to set up the Programme. This support role included but was not limited to Deloitte deploying:
 - (a) programme leadership and project management support to help architect and mobilise the Programme, including the formulation of the 168-stage process (the end-to-end process for polymerase chain reaction (PCR) testing) (as further described in section D.3 below) mapped out in the early days of Deloitte's instruction;
 - (b) teams to support the mobilisation of laboratories (as further described in section
 E.4 to E.8 below);
 - (c) commercial teams to support the development of the supply chain infrastructure (as further described in section E.1 below);
 - (d) individuals from our real estate team to provide support on the location and setup of regional and local test sites (as further described in section E.3 below);
 - (e) digital teams to design and build (as further described in section F below): (i) the digital platform for citizens to book tests and for those samples to be traced through the process from swab to lab to result; (ii) systems to support the supply chain and logistics operation; and (iii) systems to track and report management information (MI); and
 - (f) teams to contribute to workforce planning (as further described in section D.5 below), including helping to source skilled technicians for labs and testing staff.
- 13. The majority of support provided by Deloitte was under internal project names known as Cube and Tesseract.
- 14. Deloitte supported the Government with building and delivering testing capacity, broadly in two phases based on the technology available: first using PCR testing and later using Lateral Flow Device (LFD) testing. Deloitte was the 'how', not the 'what' or

the 'why', by which I mean that Deloitte was presented by Government with policy decisions (being the 'what' and the 'why') which required us to advise on how these could be practically implemented (being the 'how').

- 15. In total, although not an exhaustive list, the Programme overall: (i) stood up over 1,000 test sites (approximately 100 drive-through, 500 walk-through and 500 mobile test units); (ii) supported the set-up of lighthouse laboratories (Lighthouse Labs) and collaborated with a number of partner and surge labs; (iii) designed and delivered the Rosalind Franklin laboratory in Learnington Spa (a lab with a daily testing capacity of 300,000 and which processed 8.5 million tests during the pandemic); and (iv) designed and ran a national digital portal to deliver tests to 100,000 homes and 30,000 testing locations on a daily basis.
- 16. Deloitte is proud to have been one part of an immense national team effort, working alongside the Government, the military, the NHS, and the public and private sectors.

B Overview / Background

B.1 Deloitte's Business and Expertise

- 17. Deloitte is a limited liability partnership in the UK, comprising around 1,500 partners and 26,800 employees, offering a broad range of professional services. Deloitte provides those services to both the private sector and the public sector, including central, devolved, and local government departments, and the NHS and other healthcare clients. Whilst it is true that Deloitte provides audit and accountancy services, a significant part of its business is its multi-disciplinary advisory and consultancy services.
- 18. Although the Programme was set up to respond to a health emergency, it was fundamentally about the procurement, distribution and processing of Covid-19 testing kits¹, and the mobilisation of a large workforce and associated infrastructure (both physical and digital). Deloitte's diverse expertise and workforce capacity in the following key areas were therefore of direct relevance:

¹ I will refer throughout this statement to 'sample collection kits'. This describes the materials such as swabs, vials, and liquid, which formed the 'kits' used to collect samples, as distributed to testing sites and other settings. The term 'Test kits' can also be used to reference the kits used to analyse samples in the laboratories, but that is not generally how I have used the term in this statement.

- (a) Major Programmes: in which we bring together multidisciplinary teams of people to deliver complex projects. This encompasses delivering Programme Leadership, Capital Programmes, Digital Programme Delivery, and Architecture and Strategy into projects, programmes, and transformation.
- (b) Healthcare (including regulation), life sciences (including bringing new products to market), procurement, advising manufacturers on supply chain management, commercial, finance, real estate, logistics (including freight), strategic communications, workforce, project management, and manufacturing expertise.
- (c) Deloitte Digital: which brings together expertise in business strategy, design, product management, data analytics and engineering to innovate design-led product and engineering solutions for our clients. This includes strong alliances with other top industry and technology companies.
- 19. Deloitte is one of the few organisations in the UK that is capable of deploying teams with such a significant range of skills and expertise from across its public and private sector businesses at scale and at pace. We were required to do this in supporting the Covid-19 response. We have included Schedule 2, which contains a glossary of the individuals referenced within this statement and their role.

B.2 Overview of Deloitte's Role in the Programme

20. Deloitte was contacted for support on various Covid-19 response engagements by our Government clients as early as 8 March 2020. These other engagements are outlined in my separate Module 5 witness statement (INQ000539152). They involved assisting the Government with its PPE sourcing efforts and were unrelated to Deloitte's work on the Programme. Deloitte's specific involvement in the Programme began on 18 March 2020 when we were approached to see if we could support the Government with creating and rolling out testing for key workers (please see sections D.1 and D.2 below for further details). This later expanded beyond key workers to other specific groups and then to all UK citizens in late April 2020 [DC-7/002 - INQ000546892 / DC-7/003 - INQ000594225 / DC-7/004 - INQ000497452 / DC-7/005 - INQ000497454]. On 19 March 2020, senior representatives of Deloitte attended a meeting at DHSC and agreed to work with various other public and private sector suppliers to support the creation and expansion of testing, as part of what later became NHS Test and Trace.

Further details concerning this meeting are set out at paragraph 47 below. A team from Deloitte started work immediately after that meeting.

- 21. In this statement, I have referred to the Programme rather than NHS Test and Trace or "Test, Trace and Isolate" (TTI), noting that Deloitte's primary brief was to support the Government with setting up the Test aspect of TTI and so the focus of the remainder of this witness statement is necessarily on testing. The Programme was broadly the operation set up to enact the Government's five-pillar strategy for Covid-19 testing.
- 22. Deloitte had no involvement in Trace prior to October 2021 and only limited involvement in Trace from then to March 2024. This involved a request by the UKHSA to develop a technology support service that allowed users in England, Wales, and Scotland (via the 119-phone line, web, and email service) to make enquiries or lodge feedback or complaints on the TTI support provided by UKHSA. It was accessible through an Enquiries, Feedback, and Complaints (EF&C) platform, which we designed and built using Salesforce Service Cloud. The EF&C platform comprised: a) a frequently asked questions database, which dealt with responding to queries which would otherwise have had to be dealt with by call centre agents; and b) a feedback and complaints database, which captured points raised by UK citizens and visitors in relation to their use of 119 services and passed them on for handling by UKHSA. The request from UKHSA was for the implementation of a technology solution only. Deloitte did not have access to the output, or the reports produced by the EF&C platform.
- 23. I am aware that evidence has been given in Module 5 of this Inquiry by Lord Agnew of Oulton, orally on 18 March 2025 (18.03.25-133) and in his witness statement (INQ000536345), which referred to a call centre staffed by 15,000 people which he alleged Deloitte established and ran under the instruction of Baroness Dido Harding. I believe that the call centre which has been referred to is actually the Track and Trace call centre, which was in fact operated by outsourcing firms Sitel and Serco. Deloitte was not involved in this aspect of NHS Test and Trace, and did not have any involvement in the outsourcing or engagement of Sitel or Serco.
- 24. Although outside the period of focus of this Inquiry, in late 2023 and early 2024, Deloitte also provided support to UKHSA and its Centre for Pandemic Preparedness programme in a 12-week assessment of the readiness of the technology that UKHSA had available at that time for a future pandemic in terms of contact tracing. The project

was designed to establish the needs of a future contact tracing service, that would be both scalable and adaptable to a broad range of public health hazards.

- 25. Deloitte's involvement in the Isolate aspect of TTI was limited to an engagement to support the Home Office in standing up an enhanced compliance service for those self-isolating at home on arrival in the UK following international travel (not including those quarantining in hotels). The engagement ran from March to May 2021. Deloitte assisted the Home Office to determine what service was needed, namely a provider to deliver an isolate assurance service and the Home Office to monitor delivery of that service and manage the contract of the chosen provider. Deloitte assisted the Home Office to stand up that service. As a result, the Home Office appointed Mitie Group plc to carry out the isolate service based on a target of 10,000 visits per day. Luke Edwards, a Senior Civil Servant at the Home Office, led this operation alongside his Deputy, Steve Watson. This engagement was awarded to PwC when our contract came to an end [DC-7/006 INQ000594413 / DC-7/007 INQ000594414 / DC-7/008 INQ000594415].
- 26 It is important to explain that Deloitte was not responsible for setting policies or making strategic decisions with regards to the Programme (such as which groups were eligible for testing at which point in time, decisions relating to testing in certain settings or target testing numbers). The decision-making process was always directed through the Civil Service; we had minimal direct contact with Ministers. A request/decision would come in from the Government client, such as "We need to get students home for Christmas. How do we do this?" Deloitte would look at the ask, formulate a proposed solution, then seek approval (a decision) from Ministers via our Civil Servant leads to proceed.
- 27. One principle of the Programme was that we also tried to anticipate future requirements and to be proactive about flagging these to DHSC [DC-7/009 INQ000594227 / DC-7/010 INQ000594272]. For example, as part of this approach, we designed the architecture of the Programme with the knowledge that the Programme would need to flex and grow over time. By adopting a modular approach (by which I mean breaking the complex Programme down into smaller steps) this allowed us to link and introduce new components to the Programme to allow testing to increase at pace and at scale. These core design principles are described in more detail at paragraph 95 below but they can be summarised as Build, Run and Improve. By way of another example, on 25 March 2020 we recommended the development of a digital platform to enable the scaling up of testing at sufficient pace. This is discussed in detail in section F below.

- 28. There were certain responsibilities on the Programme that were not the role of Deloitte. By way of example, it is significant to note that Deloitte did not:
 - (a) carry out day-to-day running of test sites, which was the role of appointed facilities management (FM) companies;
 - (b) conduct tests at test sites, or undertake any other roles that were clinical in nature;
 - (c) manage the running and operations of the Lighthouse Labs; or
 - (d) manage the reporting of individuals' test results.
- 29. As outlined above, Deloitte's involvement in the Programme started on 18 March 2020. There followed an intense period during the first six months, which I would describe as the 'ramp up' phase, until around September 2020 during which period the architecture and infrastructure for the Programme was established and its functionality enhanced and expanded. Whilst Deloitte was heavily engaged in the Programme throughout 2020, the extent of our engagement began to reduce in early 2021, and that reduction continued such that by early 2022 the majority of Deloitte's roles in the Programme were either no longer needed or handed over to the Civil Service or third-party contractors. The running of some digital platforms continued into 2024.
- 30. There are certain points of context that, I think, are important to outline before I move to the detail of how Deloitte supported the Government to set up the Programme. They are:
 - (a) Covid-19 was a new and unknown virus in early 2020. Those working on the Programme did so in an environment with a high degree of uncertainty, amidst continually changing political, social, and clinical requirements.
 - (b) Like nearly everyone in the UK at that time, those working on the Programme were concerned about the implications of interacting with others and in doing so, putting their own health and well-being at risk, and our teams within Deloitte were no exception.
 - (c) The Programme had to be built virtually from scratch, independent from the existing NHS infrastructure, which was not deemed suitable by the Government for national testing at scale due to being fragmented in nature and already under intense pressure in early 2020 due to the emergence of the pandemic

[DC-7/011 - INQ000594236]. The creation of an independent system was therefore an express instruction from the Government due to the need not to divert NHS resources away from frontline care. Please see paragraph 7 above where I have explained that the Programme was designed around 5 Pillars. Pillar 1 was to increase NHS lab-based testing and Pillar 2 was to create a system of testing separate from the NHS. This separation was clear from the first call with Lord Bethell on 18 March 2020.

- (d) Solutions were needed to deal with PCR testing at scale. Within six months the Programme had approximately 30,000 people working for it across the public and private sectors, with 75 drive-through test sites and 118 walk-through test sites operational across the UK, and over 16 million tests had been delivered with a longer-term objective to significantly scale that up further.
- (e) In total, although not an exhaustive list, the Programme overall:
 - stood up over 1,000 test sites (approximately 100 drive-through, 500 walk-through and 500 mobile test units);
 - supported the set-up of Lighthouse Labs and collaborated with a number of partner and surge laboratories;
 - (iii) designed and delivered the Rosalind Franklin laboratory in Learnington
 Spa (a lab with a daily testing capacity of 300,000 and which processed
 8.5 million tests during the pandemic); and
 - (iv) designed and ran a national digital portal to deliver tests to 100,000 homes and 30,000 testing locations on a daily basis.
- (f) The Programme project managed the roll out of new testing technologies, including LFDs. In the eight months leading up to 27 April 2021, a total of over 614 million LFDs had been dispatched in the UK [DC-7/012 - INQ000594385].

B.3 Key Individuals / Expertise

31. The leading Deloitte Partner team working on the Programme (known internally as Lead Engagement Partners or LEPs) with overall responsibility for day-to-day oversight and co-ordination of Deloitte's work were:

- (a) Rob Parker, Deloitte's UK Lead for Major Programmes, leading on complex programme and transformation delivery;
- (b) Sara Siegel, the Lead Partner for Healthcare for Deloitte UK, and Deloitte NSE LLP² at the time, and now globally. Sara has worked with health providers and pharmaceutical and medical technology companies in the US, Europe, and Asia over the past 25 years. She focuses on business transformation, and adoption of emerging technologies;
- (c) Mike Standing, Deloitte Life Sciences and Health Industry leader for Europe, Middle East, and Africa with over 30 years of experience designing and building life science research and development, supply chain and product launch transformation programmes; and
- (d) Joel Bellman, who leads Deloitte's Digital Business for Government team. He has over 20 years of experience shaping and delivering technology services, working predominantly across Whitehall and the broader public sector.
- 32. The role of the LEPs was to lead the design and creation of the architecture of the Programme and to provide project management and operational assistance to the Government clients in doing so. This involved taking instructions from the Government client (usually DHSC but there were others, as explained below) and breaking those down into phases and packages of work, working with Civil Servants, then directing those work packages to teams made up of other Deloitte LEPs, partners and employees, Civil Servants, and other public and private sector partners to set up and run based on their respective areas of expertise. The work led by the LEPs was subject to the internal quality assurance processes and DHSC / NHS Test and Trace oversight and control, as outlined at paragraph 358 onwards below.

C Government, Clients and Contracts

33. Deloitte's work on the Programme involved working on multiple engagements for different Government entities. I have listed Deloitte's eight relevant engagements in the table below, including the relevant client entity for each, those being primarily DHSC, Cabinet Office, Home Office, UKHSA, NHSX and NHS Digital (NHSD). More details of the phases of these engagements are in Schedule 3. The two main

² Deloitte LLP is the United Kingdom affiliate of Deloitte NSE LLP, a member firm of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"). DTTL and each of its member firms are legally separate and independent entities. DTTL and Deloitte NSE LLP do not provide services to clients.

engagements were known within Deloitte as Project Cube (supporting DHSC to build and scale testing capacity) and Project Tesseract (working for DHSC and later NHSD to build the digital solutions needed for the Programme) but there were also other smaller engagements, some outside the remit of this statement.

No.	Deloitte	Client name	Contract	Short description of scope
	Project		Start Date	
	Name			
1	Cube	DHSC	19-Mar-20	Supporting DHSC to build and scale
				testing capacity.
2	Tesseract	DHSC, NHSD	20-Jun-20	Working for DHSC and later NHSD to
				build the digital solutions needed for
				the Programme.
3	Covid-19	NHSX	20-Apr-20	Providing a service team to support
	PMO			NHSX in the domain of project and
	support			portfolio management.
4	Test and	DHSC	24-Jun-20	Designing the next level interim
	Trace			operating model and organisation
	Organisation			design for the Test and Trace
	Design			Organisation.
	Review			
5	Covid-19	Home Office	8-Feb-21	Supporting the Home Office to stand
	 International			up a service responsible for
	Travel:			performing self-isolation compliance
	Enforcement			checks for international arrivals.
	Managed			
	Service			
6	Prism	UKHSA/	14-Mar-22	Managing and running UKHSA's
		DHSC		Onboarding and Order Capture
				Salesforce to support bulk test kit
				distribution and collection for
				organisational settings (for example

				care homes and then extended to schools, prisons, workplaces).
7	Pyramid	DHSC	25-Oct-21	Building the EF&C platform.
8	Covid	NHSX	15-Mar-21	Providing digital delivery project
	Certification			management services to establish
	Delivery			programme reporting, governance
	Support			and assurance alongside the
	(Digital			customer project team, staff, and
	Vaccine			other suppliers.
	Passport			
	PMO)			

C.1 Project Cube

- 34. Project Cube was broken down into five overarching phases and within those phases into work packages. For each work package there was a Deloitte LEP with relevant skills and expertise. I set out in Schedule 4 each of the work packages for Project Cube and provide a summary of the work involved. For each work package, Deloitte worked under the direction and oversight of senior Civil Servants at DHSC, NHS Test and Trace and later UKHSA.
- 35. Schedule 4 also indicates where the Project Cube work packages reached into the devolved nations. Our instructions from DHSC, formalised within the contractual terms as between Deloitte and DHSC (publicly available on the Government's Contracts Finder website), were to design and build a Programme at scale, which included all four nations, for which we understood that there would be variations in approach [DC-7/013 INQ000594234 / DC-7/014 INQ000594229 / DC-7/015 INQ000594241]. Discussions and decisions around the devolved nations took place at the Government level, via DHSC. Deloitte was not involved in those discussions.
- 36. In the early days of the pandemic, Kristen McLeod CBE (a Director from the Office for Life Sciences (OLS)) and then Alex Cooper (initially Deputy and then Testing Operations Director) were our main points of contact. They relayed the instructions from Ministers to Deloitte and the other parties working on the Programme.

- 37. The structure, governance, and leadership (including from those leading from within the Government) of the Programme changed over time [DC-7/016 INQ000594392 / DC-7/017 INQ000594400 / DC-7/018 INQ000594401 / DC-7/019 INQ000594402 / DC-7/020 INQ000594403 / DC-7/021 INQ000594404 / DC-7/022 INQ000594405 / DC-7/023 INQ000594406]. There was a fundamental shift in structure in May 2020 as the Government put together a new Programme organisation with a new leadership team to manage the Government's overall Covid-19 response. This new organisation was called NHS Test and Trace, which was launched on 28 May 2020 as an Executive Agency of DHSC [DC-7/024 INQ000594308].
- 38. Significant leadership figures for Pillar 2 and points of contact for Deloitte within NHS Test and Trace were Sarah-Jane Marsh (Testing Divisional Director), Mark Hewlett (COO of NHS Test and Trace) and Mike Coupe (who took over from Sarah-Jane Marsh as Testing Divisional Director). Baroness Dido Harding was the overall lead for NHS Test and Trace from early May 2020.

C.2 Project Tesseract

- 39. As to Deloitte's digital work (known internally within Deloitte as Project Tesseract), the scope was initially agreed under Project Cube work packages. However, we later entered into separate Project Tesseract contracts, as detailed in Schedule 3.
- 40. Deloitte's main client contacts and delivery leads in relation to our digital workstreams were Simon Eccles, the Chief Clinical Information Officer for NHS England (NHSE) (our main client contact for NHSX effectively acting for DHSC) and Ben Davison, Interim Executive Director of Product Development at NHSD (our main client contact for NHSD) and James Dawson, Delivery Director at NHSD.

D Early Days of Deloitte's Instruction

D.1 18 March 2020: Initial Contact with Lord Bethell / DHSC

41. Deloitte became involved in the Programme on 18 March 2020 when my colleagues Nick Owen CBE (who at the time was the Chair of Deloitte) and Mike Standing received a call from the Chair of Barclays, Nigel Higgins, who in turn had received a call from Lord Bethell, Parliamentary Under Secretary of State for Innovation, DHSC, who became the ministerial lead for NHS Test and Trace once established. I understand as part of that discussion, Lord Bethell had asked Nigel Higgins for his suggestions as to a partner to work with DHSC to develop the Covid-19 national testing capability with both strategic and execution capability across a wide range of disciplines. Nigel Higgins had identified Deloitte as a potential partner due to his previous dealings with our firm and suggested that Nick Owen and Mike Standing contact Lord Bethell's office as soon as possible. Mike Standing did so by email the same day. Neither he nor Nick Owen had met or worked with Lord Bethell before **[DC-7/025 - INQ000594217]**.

- 42. Prior to speaking to Lord Bethell directly (and due to the importance of the potential new instruction and the range of expertise likely to be needed from across Deloitte's business) Mike Standing and Nick Owen referred the matter to other members of Deloitte's senior leadership team: Jayson Hadley (Deloitte's Lead Partner for UK Government and Public Services business) and Rebecca George CBE (who at the time was Managing Partner for Government and Public Services in Deloitte NSE LLP) [DC-7/026 - INQ000594216]. This senior leadership team started the process of identifying Partners in the business with relevant experience and expertise who could demonstrate to Lord Bethell that Deloitte had the credentials, ability, and willingness to take on this project. This was a matter of national importance and one where Deloitte knew we could help. There was a huge infrastructure of technology, logistics and planning needed to deliver everything that was required for the Programme. The breadth and scale of expertise within Deloitte meant that we would be able to respond to the challenge quickly to support the design, build and operation of a scalable national testing programme.
- 43. Two calls then took place on the evening of 18 March 2020, the first with Lord Bethell and the second with representatives from No.10 Downing Street (No.10), including William Warr (Special Advisor to the Prime Minister) [DC-7/027 - INQ000594221] and Kristen McLeod CBE [DC-7/028 - INQ000594218]. On the Deloitte side, the calls were attended by Mike Standing, Sara Siegel, Rob Parker, and Nick Owen.
- 44. The message received from the Government on those calls was that the NHS was under extreme pressure. The Government wanted a stream of Covid-19 testing, independent from existing NHS testing and infrastructure, for key workers initially then extending to mass population testing. We were asked if we could help. My colleagues introduced themselves and explained their experience: Rob Parker's work on Major Programmes, Mike Standing's experience designing the components of life sciences and healthcare systems, Sara Siegel's Healthcare practice, and Nick Owen described the firm more generally. They were also introduced to the other organisations that were already on board to assist with the Programme, including Amazon, Boots, Randox and Thermo Fisher.

- 45. During the first call, Lord Bethell referred to a briefing document, which was sent by email to the LEPs from his Senior Private Secretary headed "Coronavirus mass testing strategy Output from the Downing Street testing workshop" [DC-7/029 -INQ000594219 / DC-7/030 INQ000055915]. This document outlined the Government's objectives at this early stage of the pandemic and set out an early version of the 5-pillar plan for testing, which was later made public by the Health Secretary on 2 April 2020 [DC-7/031 INQ000594546]. The document divided the Programme into four 'Pillars', as an initial framework for what the Government wanted to achieve (Pillar 5 was added later). This document illustrates that the Government had four objectives at this stage, being:
 - (a) To increase the NHS lab-based testing capacity from 5,000 per day to 25,000 per day (**Pillar 1**).
 - (b) Urgent and specific PCR testing to protect frontline staff and maximise the available workforce (i.e. testing symptomatic key workers and their families) (**Pillar 2**).
 - Mass-market antibody testing for members of the public using pin-prick blood tests (Pillar 3).
 - (d) Extending the national mass population surveillance (**Pillar 4**).
- 46. Pillar 2 was where the Government needed Deloitte's help at that time. The LEPs confirmed that Deloitte was able and willing to respond and be part of the consortium the Government was assembling to help build national testing capacity [DC-7/032 INQ000594222]. Deloitte was engaged by DHSC with formal contractual terms following thereafter due to the urgency of the situation (which are publicly available on the Government's Contracts Finder website).

D.2 19 March 2020: First Day at Victoria Street

- 47 At approximately 8am on 19 March 2020, Mike Standing, Sara Siegel, and Rob Parker attended the offices of DHSC at 39 Victoria Street in London. They met with Kristen McLeod CBE (Director) and Gary Cook (Deputy Director) from the OLS. Kristen McLeod CBE reported directly to Lord Bethell and the Health Secretary. They were the senior Civil Servants leading Pillar 2 at this stage.
- 48. The meeting lasted around an hour. There are no Deloitte minutes of this meeting, however it is the LEP's recollection that the topics covered included: a) what DHSC

had in place already in respect of Covid-19 testing; b) DHSC's overall mission for testing; and c) initial ideas of DHSC about how to approach scaling up testing. Some partners, such as Amazon, Boots, Randox and Thermo Fisher, were on board with the Programme before Deloitte was engaged to deal with discrete parts of the testing process, but the overall Programme needed to be scoped and designed.

- 49. A subsequent meeting took place later that morning; a list of joint actions was put together and circulated by OLS shortly after this meeting [DC-7/033 INQ000594223].
- 50. Mike Standing, Rob Parker and Sara Siegel then retired to a separate room and got to work designing the architecture of the Programme. They contacted colleagues at Deloitte with relevant specialist expertise in the areas outlined and began the process of building a team. Deloitte initially pulled together a core team of senior partners and directors from our industry groups, including our Government and Public Sector and Life Sciences groups, and specifically those with expertise in issues such as healthcare and pharmaceuticals, supply chains, digital strategy and transformation, cyber security, data analytics, logistics, sourcing, procurement, operational design, project management, and real estate. There were ongoing conversations throughout the course of our engagement between the LEPs and DHSC about the scale of Deloitte resources and personnel needed at any given time. Deloitte explained what resources were needed and agreement was reached with our client as to how those resources would be sourced and provided. Demand for Deloitte resources on the Programme peaked at c.1,600 people.
- 51. From this date onwards many people from our core team at Deloitte, together with other public and private sector partners, worked from the Victoria Street offices under intense pressure for 16 plus hours a day, seven days a week in support of the Government's testing target of 100,000 PCR tests per day by the end of April 2020.

D.3 Development of the 168-Stage Process

52. The first step in designing the architecture of the Programme was to map out the process of the patient and sample journey for PCR testing. This process map was developed and flexed over time, but the core structure was set out on the first day. This process became known as "the **168-stage process**" (although in time it may not have had this exact number of steps). One of the last iterations is exhibited at [DC-7/034 - INQ000561552].

- 53. The 168-stage process set out all the activities required to deliver PCR testing from beginning to end (there was a different process for LFD testing), comprising broadly three elements: (1) physical mapping the products and infrastructure needed, such as kits, labs, warehouses, and transport; (2) digital mapping the digital steps involved, such as registering personal information, booking a test and collecting results; and (3) human mapping the flow of citizens and what action they needed to take. The 168-stage process was important for four main reasons:
 - (a) It provided a structure to integrate material flows, citizen flows, and information or digital flows, which was central to building supply chains.
 - (b) It gave the ability to be flexible over time. The process could be modified to add in different steps as the Programme needed them, for example to add walk-in testing sites as well as drive-through testing sites.
 - It was the map around which all efforts would coalesce and helped to identify the areas of expertise needed to deliver each step in the 168-stage process.
 Partners (public and private sectors) with relevant capabilities were identified to support the Programme using this map.
 - (d) It was a powerful communication tool to help explain the Programme to Ministers visiting Victoria Street.

D. 4 9am Briefings

54. Daily briefing meetings (in person and via Teams) were set up soon after Deloitte's instruction. These were known as the 9am briefing calls, the first of which took place on around 20 March 2020. These were critical in terms of management and oversight of the Programme. Management meetings, such as these, are a recognised and key component of managing major projects, so they followed a standard model. They created co-ordination and momentum for the Programme, bringing together the different strands of the Programme. Attendees of those calls changed over time but broadly included senior Civil Servants, representatives from the devolved nations, organisations from the private sector, scientific and clinical experts, and individuals from the Deloitte workstreams. The expectation was for attendees to share updates and challenges, facilitating communication and co-operation amongst those working on the Programme. The purpose was to update Programme leadership on the progress of each workstream and agree key actions and activities. These briefings ran until late

September 2020 [DC-7/035 - INQ000594247 / DC-7/036 - INQ000594251 / DC-7/037 - INQ000594252 / DC-7/038 - INQ000594262 / DC-7/039 - INQ000594277].

D.5 Partnerships, Cooperation and Workforce

- 55. Each part of the 168-stage process needed a combination of input from the public and private sectors.
- 56. A large workforce was required to underpin and resource the Programme. Deloitte provided a Workforce Planning team to help design, plan and mobilise this workforce. The team was led by Rachel Phillips, a Partner at Deloitte, who at the time was a leader in the Workforce Planning and Analytics practice. She has over 15 years' experience delivering organisation and workforce transformation projects with complex government organisations, globally.
- 57. There was a difference between the Programme workforce (i.e. those working at the Victoria Street offices to design and lead the Programme overall) and the workforce that was recruited or who volunteered to work at testing sites or in laboratories. The latter included the wider workforce, for example distribution logistics teams, couriers, and test site management. We did not have sight of the resourcing agreements entered into directly between all the suppliers contracted by DHSC (for example, Royal Mail) and so we can only provide an estimate of total numbers.
- 58. A testing workforce of over 12,000 people from 24 organisations was recruited by DHSC and mobilised in the space of six weeks, drawn from public and private sector organisations, from 13 different industries, to build a large-scale testing workforce capability. This workforce expanded to approximately 45,000 people.
- 59. Deloitte was tasked with setting up a workforce in two main areas: (a) to manage the UK's Regional Testing Site (RTS) network (please see further at paragraphs 103 to 108 below); and (b) to create a pool of workers able to be deployed to Lighthouse Labs (please see further at paragraphs 134 to 143 below) [DC-7/040 INQ000594417]. The key priorities were speed, scale, and flexibility of resourcing, as it was not clear for how long and at what continuing scale the workforce would be required.
- 60. Deloitte provided support to DHSC in the following areas:
 - (a) Workforce design: defining workforce tasks and requirements in order to design roles, job descriptions and workforce blueprints to support central workforce deployment and local sourcing of resources.

- (b) Workforce planning: conducting large-scale workforce planning to understand the total workforce demand over time and highlighting the risks of not meeting demand and implementing mitigations, linking workforce supply with testing demand to create workforce plans, and defining and implementing processes to roster workforce to test sites.
- (c) Workforce mobilisation: working with local recruiters, commercial providers, and Government organisations to identify and deploy a workforce at pace and designing training for the workforce.
- 61. The total workforce was drawn from different sectors based on their capacity and capabilities. By way of example: -
 - (a) the military provided support, via Military Aid to Civil Authorities requests, including in the rollout of mobile testing sites;
 - (b) private sector FM companies and providers managed and secured the testing sites once they had been located and set-up by the Deloitte real estate team;
 - (c) clinical experts from the public sector were deployed to provide input in areas of the Programme that were clinical in nature; and
 - (d) overarching the entire Programme was policy making, which was the role of the Civil Service and Ministers.
- 62. The Programme relied on a mix of people and infrastructure from different sectors. It was an effective model and was essential to delivering testing at pace, on a national scale. The public sector alone did not have the resources or capability to deliver all areas of the Programme and scale up testing to the levels needed in such a short period of time.
- 63. Deloitte did not enter into contractual arrangements with any organisations working for the Programme (other than our Government clients in respect of our own services), either on our own behalf or on behalf of any of our Government clients. Government entities such as DHSC or NHSD generally sourced and contracted directly with private sector partners. Deloitte made recommendations around resources required and helped to research which organisations could fulfil these requirements, however Deloitte did not make any final decisions on the organisations that the Government entities contracted with.

- 64. The table in Schedule 5 provides an overview of the key organisations Deloitte worked alongside on different Programme workstreams. They can be split into the following broad categories:
 - (a) Public sector bodies and departments;
 - (b) Private sector commercial suppliers;
 - (c) Testing sites;
 - (d) Laboratory partners; and
 - (e) Charities, trusts and other not for profit institutions.

E Development of Pillar 2 Infrastructure

- 65. When the Health Secretary announced on 2 April 2020 that, as part of the new 5-pillar plan, the Government would aim to deliver 100,000 PCR tests per day by the end of April 2020 (just 42 days after Deloitte's instruction on 19 March 2020), the pressure to deliver was intense. In March 2020, Pillar 1 had capacity to run approximately 5,000 PCR tests per day in NHS laboratories, which were reserved for tests conducted within NHS formal healthcare settings (e.g. secondary care hospitals). As I have explained above, the NHS was under immense pressure at this time, it was also impractical during a pandemic to require people needing Covid-19 tests to attend an NHS setting to get tested, and so a testing process was needed outside of that existing infrastructure. Pillar 2 was therefore established to provide testing outside these settings, initially for key workers. The baseline capacity for Pillar 2 in March 2020 was therefore zero.
- 66. At this time (March/April 2020) infrastructure existed to test symptomatic individuals in Public Health England (PHE) labs and NHS hospitals for those with a clinical need and healthcare workers. This was Pillar 1, where swab samples would be collected at a designated testing site or in an NHS hospital with samples sent to an accredited laboratory for analysis.
- 67. For the reasons I have set out above, an independent testing system, under Pillar 2, was the Government's preferred option. This initially comprised testing for critical key workers in the NHS utilising drive or walk-through testing at RTS, Local Testing Sites (LTS), Mobile Testing Units (MTU) and, later, home sample collection kits delivered to individuals. This expanded into other sectors, including care homes and prisons.

- 68. In terms of existing infrastructure for Pillar 2, very little was in place at the time of Deloitte's instruction and so this formed the basis of Deloitte's engagement to design and build such infrastructure to support the Programme.
- 69. Faced with what was essentially a blank canvas, the Programme had some distinct but interdependent workstreams:
 - (a) Supply Chain and Delivery Channels creating testing infrastructure to conduct PCR tests at unprecedented volume, namely the development of four delivery channels: i) RTS and LTS; ii) MTUs; iii) home delivery and collection; and iv) the organisation-based "satellite" model (Channels) (see paragraphs 73 to 123 below).
 - (b) Digital Infrastructure creating the digital infrastructure to book tests and keep track of individual test samples through processing to delivery of results to individuals and their local healthcare providers (see paragraphs 169 to 241 below).
 - (c) **Lighthouse Lab Standup** building laboratory capacity to process samples at unprecedented volume (see paragraphs 124 to 146 below).
- 70. Under 'normal' circumstances, each of these main early workstreams would be considered a major project with complex workforce, logistics and integration challenges which would take an extended period of time to establish. I have explained the approach to each of these three workstreams below.
- 71. It is worth noting that what little existing infrastructure there was for Pillar 2 was adapted or repurposed where possible (see Schedule 6 for further information). Pillar 2 required that samples were processed at Lighthouse Labs or other laboratories, inclusive of those in the private sector. For example, save for one exception, the Lighthouse Labs were not physically new buildings. They existed already and were adapted for Covid-19 testing. The exception was the Rosalind Franklin laboratory, which was purposebuilt for Pillar 2.
- 72. The table at Schedule 6 provides a high-level overview of both the existing and the new infrastructure that was developed specifically for the Programme in the broad areas outlined above. This is limited to high level elements of the Programme's infrastructure that Deloitte was involved in helping to develop and run; there may be

additional parts to the infrastructure with which Deloitte had no involvement and on which I therefore cannot comment.

E.1 Supply Chain and Delivery Channels

- 73. Deloitte supported DHSC with the development of the four delivery Channels outlined at paragraph 69(a) above. Deloitte's support in the delivering of these Channels included:
 - (a) assisting DHSC on accessing stock and establishing supply;
 - (b) building an end-to-end supply chain of private-sector suppliers and partners that could support rapid scaling;
 - (c) co-ordination of the clinical validation of sample collection kits (which was the role of clinical experts appointed by the Government, but which Deloitte supported in the way I have explained at paragraph 268 below);
 - (d) test-site identification and contract negotiation;
 - (e) site-test design, test kit assembly and despatch/collection logistics; and
 - (f) workforce recruitment and training.

E.2 Supply Chain

74. Deloitte's role in setting up the supply chain infrastructure for the Programme involved adapting existing public sector supply chain practices of DHSC to align more closely with those typical in the commercial pharmaceutical and consumer goods sectors, so as to be able to scale to multiple testing and onward distribution locations and deliver an at-home service. Our Supply Chain Team was led initially by James Byles, the lead Partner for Private Sector Industries across our Enterprise Technology and Performance business. James Byles has 19 years' experience leading the creation, development, and transformation of supply chains particularly in the Retail industry. Prior to this, James held several operational management roles at Boots the Chemists, including within their supply chain functions. James is also a non-practicing pharmacist. Kelly Miely, an Advisory Partner in our Retail & Consumer Products team, took over from James Byles. Kelly Miely has over 20 years' experience designing and delivering fit for the future supply chain, buying & merchandising, and product development capabilities. Prior to joining Deloitte, she worked at an online e-

commerce start-up and for a global retailer in planning, sourcing, and merchandising roles. Both James Biles and Kelly Miely were supported by other individuals from Deloitte's Supply Chain practice who had expertise in consumer supply chain management. This team was therefore well placed to assist on the Programme (**Supply Chain Team**).

- 75. In summary, Deloitte's role comprised:
 - (a) providing the Programme with project management support for materials required for PCR testing;
 - (b) assisting the procurement teams at DHSC with their management of the tender process for alternative material supply (with procurement decision making driven by DHSC), managing new product introduction and clinical approvals across Channels, whilst coordinating with the MHRA (which had the role of ensuring processes and approvals were aligned to regulatory expectations);
 - (c) providing a team within Deloitte who worked with DHSC to collate sample collection kits to fulfil demand for test consumables (swabs, vials, kits, and funnels) and manage the allocation of these into NHS Trusts (Pillar 1) and warehouse kitting operations (Pillar 2). Allocation prioritisation was driven by Ministerial policy decisions;
 - (d) developing and setting up an end-to-end supply chain for PCR testing within the first few weeks of the Programme in March 2020;
 - (e) co-ordinating Government-contracted logistics providers in the assembly and national distribution of sample collection kits for Channels on a daily basis; and
 - (f) working with the Programme's logistics partners to set up and operationalise a UK-wide logistics network for collection of test samples from the various Channels for delivery into laboratories.
- 76. In the first few months of the Programme, March to May 2020, Deloitte designed, built, and helped to implement what would turn into the supply chain infrastructure to support the end-to-end testing process for PCR testing. This infrastructure covered the flow of products from inbound supply through to delivery to Channels and subsequent return of tests to labs.

- 77. Deloitte's role during these initial months included working with the appointed thirdparty logistics providers, creating a central supply chain process (by which I mean inventory management, kitting and facilitating daily supply capacity utilisation meetings) and system capacity management (i.e. building processes to balance demand and supply, modelled on the standard consumer packaged goods sales and operations planning process). At the same time, Deloitte employees were staffing many of the new roles required as part of the supply chain.
- 78. The supply chain quickly scaled. By the end of April 2020, the Programme was:
 - (a) supporting a total of 48 RTS;
 - (b) dispatching kits to over 25,000 homes; and
 - (c) dispatching kits to 500 care homes.
- 79. The initial challenges the Programme faced included having to set up a fully functional supply chain at pace to meet the Government's testing targets, whilst operating with significant supply constraints due to the worldwide shortages of sample collection kit components that met the validation requirements of the Programme (for example, the ability to detect the virus after 72 hours, to be sterile and have a CE marking). In addition, there was no existing or predictable forecast for demand in relation to the Channels, which created initial complexities regarding the allocation of supplies.
- 80. In or around April 2020, we started implementing, on DHSC's instruction, an automated system to improve the replenishment of supplies across test sites, called the Supply Planning Tool (built on third party, Oracle, software). It became an automated replenishment solution to re-stock test sites and to enable inventory management by onsite teams and was also used at the laboratories enabling them to record the quantity of specific items that they had in their stores. The Supply Planning Tool provided a dynamic supply planning system for sites incorporating demand forecasting and resulting in a reduction in manual orders and leaner inventory on sites. After the system was initially deployed, it was developed further over a number of months until it was fully implemented in line with test site openings until March 2021, allowing the Programme to anticipate testing levels across 500+ test sites and optimise automated allocations, moving away from the reactionary and manual processes that were in place at the outset [DC-7/041 INQ000594379].

June to September 2020

- 81. A critical task at this point in the Programme was to improve the speed and delivery of test results to those with symptoms and in priority settings. This was alongside the need to continue scaling, improving resilience, and implementing new testing kits and Channels (as referenced at paragraph 69(a)).
- 82. There was also a focus in this period on quality management throughout the supply chain, performing tasks such as verifying that orders were prepared correctly and setting tolerances to drive continuous improvement. This highlighted how we were able to start moving from the 'ramp up' period towards a more normal operating mode.

September to December 2020

- 83. In the next period, around September to December 2020, Deloitte continued to provide personnel to DHSC in line with the increase in scale and reliability of the supply chain.
 In advance of LFDs being given clinical validation, more people from Deloitte's Supply Chain practice joined the Programme to design how these would be dispatched.
- 84. We understood there was consideration at Government level to invest in new testing technologies alongside PCRs. A portfolio of testing products was procured by DHSC, including LFDs.
- 85. In particular, Deloitte helped to design the LFD test sites and the supply chain needed to distribute LFDs to these sites. This included preparing for the mass testing pilot using LFDs in Liverpool in November 2020 and the planned rollout of LFD testing of students at universities to facilitate their return home for Christmas throughout November and December 2020, as well as other mass testing regimes that were being considered by the Government for deployment in 2021 (including the testing of pupils in schools and the launch of community testing to cover all local authorities in England in January and February 2021) [DC-7/042 INQ000594341 / DC-7/043 INQ000594342 / DC-7/044 INQ000594360 / DC-7/045 INQ000594333 / DC-7/046 INQ000594334 / DC-7/047 INQ000594338 / DC-7/048 INQ000594339].

E.3 Delivery Channels

E.3.1 Setting up of RTS

86. Deloitte was engaged by DHSC to help stand up a UK wide network of test sites to conduct PCR testing. This role developed into supporting the identification, building

and mobilisation of an initial 48 RTS, which were drive-through testing centres. Once this was achieved, there was a further need to increase test site accessibility and population coverage. To do this, the Programme developed and mobilised LTS to bring testing to a community level for those unable to access testing by car. These LTS, were similar to RTS, but specifically for walk-throughs.

- 87. Marc O'Connor, a Partner in Deloitte's Major Programmes team, led this aspect of Deloitte's work. Marc O'Connor leads Deloitte's Capital Projects consulting business globally. He is a Chartered Quantity Surveyor and has 15 years of international experience in management consultancy and before that, another 15 years' experience in the construction industry. He has project and programme management expertise in the set up and delivery of a wide range or asset/operations, including real estate development, healthcare construction and fit out and major infrastructure programmes.
- 88. In summary, Deloitte's role was to:
 - (a) In March and early April 2020, contact the local health authorities to generate their own lists of health professionals at home with Covid-like symptoms to send them to test sites. This was the early way that DHSC wanted to increase demand;
 - (b) Conduct data analysis and geospatial modelling to identify suitable locations for test sites in target locations to maximise population coverage;
 - (c) Use publicly available data sources and industry contacts to identify potential suitable sites in / near those identified locations and ascertain their availability and then recommending to DHSC those sites which were available;
 - (d) Engage with local authorities, other public sector bodies and stakeholders, and private sector organisations, to identify further sites and enquire as to their availability;
 - (e) Design site layouts and work with infrastructure suppliers to build test sites across the UK;
 - (f) Develop the process of mobilising the sites and handing them over to FM companies (see paragraphs 109 to 112 below) to conduct the day-to-day running of test sites;

- (g) After site mobilisation, provide a coordination point for issues with sites raised by the FM providers;
- (h) Visit sites to ensure they were operating according to the Standard Operating Procedures (and communicate new ways of working set by DHSC based on new medical evidence);
- (i) Roll-out site expansions and infrastructure upgrades to existing sites;
- (j) Coordinate the maintenance programmes for test sites; and
- (k) Work with DHSC, stakeholders and local Government to coordinate the timing and process for site openings, closure, and demobilisation at the end of the Programme to hand back to owners for their original use.
- 89. At the meeting with DHSC on 19 March 2020 at Victoria Street (as first referred to in paragraph 47 above), Deloitte was tasked with assisting in the development of the UK wide testing infrastructure. This involved early discussions with various partners, including the FM companies and Boots, as well as suppliers of PPE. By the next day, after several further meetings and discussions about potential options, a decisive plan was made whereby it was resolved to set up a test site at Boots' Head Office in Nottingham. Deloitte volunteered to help lead this initiative and accompanied by two military representatives, travelled to Nottingham to refine the process for operating what was to be the first RTS. The assistance of the military was required to help in managing the site and address any logistical challenges.
- 90. Lord Bethell decided that there needed to be 48 RTS, which was the number of drivethrough testing centres DHSC calculated would be needed so that a majority of the population could access an RTS within a 30-minute car journey. Deloitte's Real Estate team helped to develop the processes for site identification, management, and deployment of necessary resources, such as the FM companies. These 48 RTS were mobilised across the UK, enabling the testing of up to 40,000 people a day through the RTS network by the end of April 2020.
- 91. As part of its role, Deloitte was required to map out test site logistics, including calculating the throughput of tests per hour, considering variables such as the number of testing lanes that could be set up at a given site, and the corresponding equipment needs which were scaled to the number of testing lanes. This also included assessing the capacity of various locations. The figure of 40,000 tests a day originated from this

detailed analysis, factoring in the readiness of sites, the number of testing lanes each could accommodate, and the resultant daily testing capacity.

- 92. The RTS network was set up using the "Build, Run and Improve" model, consisting of the following:
 - (a) "Build" and operationalise the test sites, including identifying and securing a suitable site, planning, and sourcing the infrastructure and resource requirements, and managing the physical build of the sites;
 - (b) *"Run"* the test sites, including developing and implementing the operational processes and manuals, onboarding testers and FM companies, managing the handover to FM companies, and managing any site-specific issues; and
 - (c) "Improve" the test site model, including working with other teams involved in the Programme, such as Deloitte's Digital team, to solve ongoing issues and improve elements of the test site process.
- 93. The focus was on creating a replicable model that could be scaled up rapidly. This model involved training 'cells' of four individuals within Deloitte who could then be deployed to set up new RTS concurrently. Within a span of seven to ten days, we had created multiple teams, and then used a cascading training approach, where each newly trained team of four would, in turn, train another team of four, facilitating rapid expansion. Additionally, we coordinated with the FM companies who were brought on board and had an administrative team to manage the logistics and planning of new sites, ensuring a continuous and efficient setup process.
- 94. The first RTS in Nottingham went live on 25 March 2020 [DC-7/049 INQ000594317]. This test site was used as a "blueprint" for other RTS, with learnings taken from it, and the other initial RTS's, in real time as part of a continuous improvement process [DC-7/050 - INQ000594394].
- 95. Within the first 10 days of Deloitte's instruction, three further pilot RTS were opened in the London region. The second RTS was at Chessington World of Adventures [DC-7/051 INQ000594316], which also became the first 'hybrid' model of test site whereby people could self-test or have the test administered by a site worker. The concept of self-testing, which enabled individuals to conduct tests in their own cars, was particularly significant as it allowed families with children to participate more readily in the testing process by being able to test not only themselves but also their children.

- 96. The RTS at Chessington opened on 26 March 2020 followed by the RTS at the O2 music venue in Greenwich and the IKEA at Wembley, which both opened on 27 March 2020. These sites, alongside Nottingham, were known as the 'Wave 1' RTS.
- 97. Deloitte then assisted DHSC in developing a list of future locations for 'Wave 2' and 'Wave 3' RTS [DC-7/052 INQ000594303 / DC-7/053 INQ000594304 /DC-7/054 INQ000594305 / DC-7/055 INQ000594306 / DC-7/056 INQ000594307]. Targets as to testing capacity and the expansion of test sites came from DHSC, with the expansion of the RTS network operating through additional 'Waves'. The RTS were set up in major UK locations (for example London, Cardiff, Manchester, Glasgow, Belfast, Birmingham) to maximise coverage at areas of greatest population density across the UK, including the devolved nations [DC-7/057 INQ000594418].
- 98. Data modelling and geospatial analysis was conducted by Deloitte specialists to analyse the number of drive-through sites that would be required to provide the greatest possible population coverage, alongside the deployment of LTSs and MTUs in areas of lesser density.
- 99. Geospatial modelling tools, using drive time estimates, informed the target locations for those drive-through sites, after which the team searched for sites in or near those locations. Modelling was revised to establish additional coverage or capacity that would be provided by opening additional sites or lost coverage due to sites closing. Similar analysis was conducted later in the Programme as the walk-through LTS were opened. An example of this modelling is exhibited at [DC-7/057 INQ000594418].
- 100. The selection of sites, such as those in IKEA car parks, was strategic, primarily due to the guaranteed availability of mobile phone signal. This ensured that technology could be effectively deployed to these sites, relying on the presence of either mobile signal or internal network access. The challenge was significantly greater in rural sites where digital connectivity was less reliable. To overcome these hurdles, additional investments were made by DHSC in acquiring large quantities of iPhones, iPads and SIM cards that offered superior connectivity.
- 101. The rationale for the location of each new RTS that we recommended was shared with DHSC and sites were always approved by DHSC prior to mobilisation. Testing processes were also approved by clinical experts. Areas in which clinical input was sought include guidance on PPE at testing sites and advice on the suitability of indoor sites.

102. Each RTS was the subject of a separate lease arrangement. Our team helped to monitor these and, where needed, arranged lease renewals. Our team researched hundreds of sites and transport routes, having particular regard to health and safety considerations.

E.3.2 Test Site Workforce

- 103. Once test sites were identified and secured for use by the Programme, they needed a workforce with the right training and a supply of equipment and technology. As stated above, our Workforce Planning team helped DHSC to recruit a suitable workforce. This team helped with developing briefing packs for the testing site workforce and coordinated sourcing the equipment needed for the testing sites. All workforce proposals put forward by us required the prior approval of DHSC. Deloitte also had mobilisation teams on site for the first few days of an RTS or LTS opening to ensure that the required infrastructure arrived, to manage the site during those initial few days, and to train and hand over operations to the appointed FM companies. We also helped to produce a 'Build and Mobilisation Handbook' to brief the FM companies operating the RTS [DC-7/058 INQ000594318].
- 104. The workforce roles at test sites included testing operatives, who administered the tests, sample collection kit managers, site supervisors, medical leads, and security personnel. Third parties were involved, including Boots, the Ministry of Defence (MoD), FM companies and volunteers to cover these resource requirements. The Workforce Planning team also considered how to expand testing capacity from a workforce perspective, which involved reviewing opening hours at test sites, reviewing the number of test bays, and consideration of how tests were administered [DC-7/059 INQ000594416].
- 105. When Deloitte joined the Programme in March 2020, DHSC already had agreements in place with certain partners, including Boots, which had agreed to deploy resources to help manage testing sites. Boots had approximately 500 people to deploy, which was a valued contribution to the Programme, but was not sufficient in and of itself to deliver the full workforce requirements in line with the test site ramp-up. Additional workforce was therefore needed to manage testing sites.
- 106. The MoD was deployed as testers and trainers of the test site workforce on a temporary basis. The training for the test site workforce was initially designed by Boots and signed off by DHSC, with input from clinical experts. Boots mobilised the 'Train the Trainer'

programme, in which MoD staff were trained to deliver workforce training at testing sites. The MoD was then able to deploy testers and trainers on a temporary basis until other more permanent workforce arrangements were put in place, when their resources were then stood down.

- 107. The workforce scale and location were driven by policy decisions made by DHSC in relation to numbers of test sites and ambitions for testing throughout the Programme.
- 108. There was also a team at Deloitte aligned to focus on the continuous improvement of the test sites by carrying out value stream mapping exercises at various points during the early stages of setting up the sites.

E.3.3 Role of the FM Companies

- 109. Once a test site had been located, secured for use of the Programme, staffed, and stocked, they were transitioned over to FM companies to manage the day-to-day operations from there **[DC-7/060 INQ000594435]**. Our staff were initially deployed to provide 'hypercare' support to the FM companies for a short period for each site. 'Hypercare' is a temporary period of heightened customer support involving intensive monitoring, real time issue resolution, and direct user support, to achieve a smooth transition and reduce operational risk. This is a standard part of the Deloitte approach to any complex project. Initially, this 'hypercare' support lasted for five days, though it was eventually reduced to four or three days. This period was crucial for ensuring that the FM companies were fully prepared to manage the site effectively.
- 110. Serco, Sodexo, G4S and Levy had already been engaged (I believe by the Cabinet Office but do not know for sure) to work on the Programme at the point Deloitte was instructed [DC-7/061 INQ000594284]. These FM companies ran, secured, and protected the test sites under their operational remit, with Deloitte managing the overall network. This included the FM companies providing their own workforce and workforce scheduling and rostering capability.
- 111. Initially RTS were allocated to the four FM companies based on capacity in locations. As the number of potential RTS expanded, all four companies were asked to provide their availability against the proposed RTS locations. There were some locations where the existing four companies had no coverage, for example, Inverness and Penrith. The Cabinet Office therefore selected a further service provider, Mitie, to provide services to these sites from around 22 April 2020 [DC-7/062 INQ000594291

/ **DC-7/063** - **INQ000594293]**. Following this expansion, RTS were then allocated against the following design principles:

- (a) Sites allocated to FM companies where they said they had capacity.
- (b) Broadly equal allocation of sites in terms of numbers to each FM company.
- 112. As the project progressed various procedural challenges emerged and were dealt with. These included addressing issues around cross-contamination risks and adapting to changes to PPE requirements, such as the prohibition of certain types of PPE. Direction on these issues was provided by DHSC and Deloitte maintained regular, twice-daily communications with the FM companies to disseminate updates and direction from DHSC. This ensured that all sites, whether in the process of being built or already operational, were informed of any procedural changes or improvements. These twice-daily calls were chaired by Deloitte. However, later into the development of RTS, Debbie White (who was recruited by DHSC in March 2020 to set up the testing sites) was also involved in further, regular operational calls with the FM companies, which Deloitte also attended.

E.3.4 Booking Appointments

113. The process for individuals booking their own tests was streamlined through the use of QR codes (please see paragraphs 194 and 195 below). Upon booking, the individual received a QR code on their phone, which they presented at their appointment for validation. This validation process triggered a sequence of actions at the operational end, where the individual administering the test matched the swab using an app on their mobile device. This innovative system, including the use of barcodes and the distribution of QR codes to citizens, was developed in collaboration with the Lighthouse Labs, enhancing the efficiency and reliability of the testing process.

E.3.5 Setting up of LTS

- 114. As is explained in detail later on in this statement, there was further need to increase test site accessibility and population coverage. To do this, the Programme developed and mobilised the LTS network to bring testing to a community level [DC-7/057 INQ000594418 / DC-7/064 INQ000594419].
- 115. LTS were first introduced around the end of May 2020, when there was an initial pilot of the first four walk-through sites in Newcastle, Leeds, Brent, and Rochdale. As for

RTS, LTS locations were approved by DHSC. There were approximately 300 LTS by early December 2020.

- 116. In planning and forecasting the ramp up of LTS, local engagement in the site identification, set up and running processes was essential. LTS were set up against an agreed framework led by local authorities [DC-7/065 INQ000594434]. As with the set-up of RTS, we again helped to produce a Build and Mobilisation Handbook to brief the FM companies operating the LTS [DC-7/066 INQ000594420].
- 117. At the peak of the pandemic, there were close to 100 RTS and more than 500 LTS, providing testing coverage for the majority of the UK population.
- 118. Responsibility for the running of testing sites (both RTS and LTS) (overseeing the FM companies) was transitioned over on a phased basis to the Civil Service. From August 2020 until the end of the Programme, Deloitte worked with DHSC to ensure appropriate knowledge transfer took place and worked with DHSC stakeholders and local government to co-ordinate the timing and process for the closure of testing sites and their demobilisation at the end of the Programme.

E.3.6 Mobile Testing Units

- 119. MTUs were set up and run by the military to test key workers. They were temporary sites, designed to clinical requirements by military engineers, operating typically one-day at a time in specified locations of acute need. MTUs were predominantly staffed by military personnel.
- 120. MTUs provided a service for individuals who could not easily reach RTS, LTS or were not covered by the supply of sample collection kits to Channels such as care homes. The MTUs comprised of a customised van with pop-up shelters and an integrated traffic management system, typically staffed by up to 12 personnel.
- 121. From the early stages of the Programme, there was a recognised need for the setting up of test sites in a more diverse array of locations throughout the UK. Car parks and shopping centres (which were not being visited by the public due to the national lockdown) worked in more urban areas; however, these solutions were not feasible in rural settings. To address this, MTUs were introduced to swiftly respond to areas experiencing higher demand for testing [DC-7/067 INQ000594246].
- 122. As MTUs were often based at and run from an existing RTS locations, Deloitte assisted with the coordination efforts required to run those MTUs. This included assisting with

the organisation of sample collection kit stock, as MTUs obtained their supply of kits directly from their base RTS. Deloitte assisted with managing and scheduling the combined stock requirements for both the RTS and their associated MTUs.

123. The first pilot MTU went live on 19 April 2020 and by 26 May 2020 there were 116 operational MTUs with trained crews [DC-7/068 - INQ000594393]. At the start of June 2020, MTUs had a capacity of 300 tests per day as standard, with the potential to carry the equipment required to deliver up to 500 tests per day [DC-7/069 - INQ000594380]. By May 2021, the Programme had helped set up approximately 500 MTUs across the UK.

E.4 Lighthouse and Other Laboratories

- 124. There were several types of laboratories which operated during the Programme to process PCR swabs. These were:
 - (a) Lighthouse Labs: these were facilities dedicated to Covid-19 testing, set up to process swabs for the Programme. They were predominately existing laboratories adapted for Covid-19 testing.
 - (b) Partner labs: provided testing for the Programme alongside their usual activities.
 - (c) Surge labs: these had shorter term contracts, typically with no minimum allocation. Samples were allocated to surge labs when demand required.
 - (d) Randox labs: processing of Randox sample collection kits could only be processed in Randox laboratories. That is to say, Randox operated a "closed loop" system. The Randox laboratories were categorised by the Programme as one of the UK's Lighthouse Labs from April 2020. Deloitte had no role in the set-up, scaling or operation of the Randox labs.
 - (e) The Rosalind Franklin Mega Lab in Learnington Spa: this was a purpose built "mega lab" aimed at bolstering daily testing capacity and improving test turnaround times. The building of this Lab was announced by the Health Secretary in November 2020 and it began processing tests in June 2021. It is often referred to as part of the Lighthouse Lab network but is dealt with separately for the purpose of this statement.
- 125. Separately lab capacity (albeit relatively limited) existed in NHS / PHE Labs for Pillar 1 testing.
- 126. The locations of the Lighthouse Labs, the date each was brought into service for Covid-19 testing and their owner / operators are set out in the table below. The locations of the Lighthouse Labs were selected by DHSC (some prior to Deloitte's involvement in the Programme); they represented a geographic spread across the UK [DC-7/070 -INQ000496317].

Location	Launch Date	Owner / Operator
County Antrim, Northern Ireland	April 2020	Randox
Milton Keynes	April 2020	UK Biocentre
Alderley Park, Cheshire	April 2020	Medicines Discovery Catapult
Cambridge	April 2020	University of Cambridge, AstraZeneca, and GlaxoSmithKline
Glasgow	April 2020	University of Glasgow, in collaboration with the Scottish Government and expertise from BioAscent Discovery Ltd and the University of Dundee
IP5 Newport, Wales	October 2020	PerkinElmer
London	December 2020	Health Services Laboratories (HSL) in partnership with University College London Hospitals NHS Foundation Trust

Location	Launch Date	Owner / Operator
		(UCL), part of the London
		Testing Alliance
Brants Bridge, Berkshire	March 2021	Berkshire and Surrey
		Pathology Services
Baltic Park, Gateshead	March 2021	Newcastle Upon Tyne
		Hospitals NHS Foundation
		Trust
Plymouth	March 2021	University Hospitals
		Plymouth NHS Trust

- 127. Deloitte's level of involvement varied as regards each of these types of laboratory. For the most part, Deloitte's role was to help stand up and co-ordinate the running of the Lighthouse Labs, Milton Keynes, Alderley Park, Cambridge, Bants Bridge, Baltic Park, and Plymouth.
- 128. Consistent across all types of laboratories was the need for accreditation and quality assurance systems. These areas were overseen by a Laboratory Validation and Quality Assurance Team led by Professor Dame Susan Hill, Chief Scientific Officer for England, Director Testing Technologies, Validation and Regulatory compliance (**Professor Hill**). Deloitte was not part of this team nor were we involved in the clinical accreditation process itself; we facilitated the engagement between the Lighthouse Labs and the validation team, and co-ordinated actions required to achieve the necessary validations / accreditation (for example, by keeping track of accreditation requirements), but our activities were not clinical in nature. Before the pandemic Deloitte understands the accreditation process typically took 6-12 months, hence the need for a specific and bespoke approach for the Programme.

E.4.1 Lighthouse Labs

129. In March 2020 Deloitte Partner, Richard Hird, joined the Programme to assist DHSC with building the network of Lighthouse Labs. At the time Richard worked in our Strategy and Operations practice and had experience working with clients to adopt new technologies to accelerate their strategic development and improve their

operational effectiveness. Prior to joining Deloitte, he had 10-year career in the Royal Navy. He was assisted by others, notably Martyn Scott, a Director in Deloitte's Major Programmes team with over 20 years of experience of defining and delivering some of the UK's largest and highest profile Public Sector programmes, including key roles in the London 2012 Olympics. He is one of our leading proponents of our next-generation programme delivery methodologies and specifically focuses on our largest scale engagements and clients.

- 130. The Government had already appointed an organisation called Medicines Discovery Catapult Limited (MDC) to help create the Lighthouse Lab network, including delivering one of the first Lighthouse Labs at a former pharmaceutical campus in Alderley Park, Cheshire. The MDC CEO Professor Chris Molloy reported to Programme leaders at DHSC.
- 131. In the early days of our involvement, our principal contact was Professor Molloy. In April 2020, he was replaced by Kester Eastman, a Deputy Director for Crown Commercial Services. Around 1 August 2020 Professor Dame Anna Dominiczak (Professor Dominiczak) was appointed Director of Laboratories for DHSC and became Head of the Lighthouse Lab network. Prior to this, in April 2020, Professor Dominiczak headed up the launch of the Lighthouse Lab in Glasgow.
- 132. Deloitte was initially asked by DHSC to assist Professor Molloy in setting up the network of Lighthouse Labs as he did not have a team with sufficient capacity to do so. Deloitte's role was one of project management, which covered the logistics and operations required to set up and then co-ordinate running of the network. Deloitte's role expanded as the network grew, but always remained non-clinical. Broadly our role involved:
 - (a) helping to stand up the network of Lighthouse Labs;
 - (b) co-ordinating the supply of lab consumables into the Lighthouse Labs (for example reagents, ethanol, and plastic parts);
 - (c) assisting with management of the Lighthouse Lab inventory, including helping to forecast Lab consumables;
 - (d) co-ordinating workforce onboarding;
 - developing a digital solution for Labs inventory management and sample and results tracking;

- (f) working with test sites to direct samples to Labs;
- (g) reporting across the end-to-end process;
- (h) managing Lab capacity to accommodate demand and prevent excessive capacity, including by way of data management and reporting; and
- performing day to day 'run' operations (load balancing, reporting, relationship management) and subsequently transfer this operational knowledge back to DHSC.
- 133. Certain roles were not within Deloitte's remit, including policy decisions relating to the Lighthouse Labs and decisions relating to funding or value for money of the Lighthouse Labs. Others involved in this Inquiry will be better placed to comment on those matters.

E.4.2 Lighthouse Lab Workforce

- 134. A wide range of resources and skills were required for the Lighthouse Labs. The activities performed within the Lighthouse Labs ranged from: accepting and processing/organising test samples; prioritising testing; the testing itself; collation of the results; uploading/transmitting results; and assurance of sampling/testing. The workforce resources required ranged from those with specialist clinical pathology experience to physical logistics support or manual processing of inward-bound sample batches.
- 135. The operators of each Lighthouse Lab in the network were responsible for staffing their own Lab. The Labs were created by existing organisations but generally they did not have the scale of staff (or breadth of skills) required once they had been repurposed for the Programme. As testing scaled, those Labs needed routes to find additional workforce.
- 136. There was a shortage of appropriately qualified biomedical technicians, as most of these individuals were deployed in NHS jobs or in pharmaceutical companies whose Covid-related businesses were scaling during this period [DC-7/071 - INQ000594323].
- 137. Our Workforce Planning team engaged with universities and academia (as areas where there was pre-existing expertise to work in labs) to attempt to create a pipeline of seconded resource to help staff the Lighthouse Labs, but it became clear that this was not efficient and could not be scaled at pace.

- 138. From March to June 2020, our Workforce Planning team worked alongside Reed Talent Solutions (**Reed**), a recruitment company with expertise in hiring at scale and pace, to rapidly create a pool of contingent workers with the skills to be deployed at the four Lighthouse Labs that had been launched at that stage. Reed contracted directly with DHSC.
- 139. We deployed a team to work with Reed to build an application portal and run a recruitment campaign to source applications for Lab support positions. The portal was opened on 31 March 2020.
- 140. The Lab workforce needed particular skills. The job specifications and qualification requirements were set by the Lighthouse Labs. The Lab operators conducted the interviews and decided whether to offer contracts to the applicants or not. The Lab operators then trained and managed their workforce, this was not within our scope.
- 141. The first Reed-sourced staff were deployed at the Milton Keynes Lab on 3 April 2020. By 27 May 2020, the application portal had received over 4,000 applicants [DC-7/072 INQ000594300]. Workers were sourced for Lighthouse Labs in England and Scotland; there was no Lab in Wales operating in the network at this time and Randox was the only Lab in Northern Ireland and it sourced its own workforce.
- 142. Recruitment activities continued into the Programme in respect of Lighthouse Lab workforce. In particular, DHSC brought in Medacs Healthcare plc (a large clinical workforce provider) alongside Reed in October 2020 [DC-7/073 - INQ000594325 / DC-7/074 - INQ000594326 / DC-7/075 - INQ000594336 / DC-7/076 - INQ000594337].
- 143. In summary, Deloitte assisted with the following activities in respect of workforce for the Lighthouse Labs:
 - (a) recruitment of Lighthouse Lab staff, as outlined above.
 - (b) working with local teams to create the modelling required to estimate the number of staff Lighthouse Labs would need; and
 - (c) providing input on job descriptions and the qualifications required for specific roles.

E.4.3 Lighthouse Lab Capacity Management

- 144. Each Lighthouse Lab was responsible for managing its own capacity. We did not project capacity, the Labs did that. We co-ordinated those projections and brought them together at network level for reporting to NHS Test and Trace leadership so they had a consolidated picture.
- 145. Deloitte helped each Lab to develop a plan to increase capacity and interfaced the Labs into the overall test system so that they were loaded appropriately with samples and responded to any issues with processing times or backlogs. We also helped to interface available capacity in the Lighthouse Labs into the wider Programme to co-ordinate the release of testing slots aligned to capacity and turnaround times.

E.4.4 Digital Systems for Lighthouse Labs

146. During May 2020, Richard Hird approached Joel Bellman, a Partner in Deloitte Digital who was already working on developing the Digital Infrastructure for the Programme, regarding the practical scaling challenges for the network. At this point, test samples were being delivered to Lighthouse Labs in boxes of 50 to 100 and there was no process in place to identify in which order test samples needed to be dealt with once received. The Deloitte Digital team, led by Joel Bellman, developed a system in which samples taken at similar times were batched together and placed into boxes (Med DX containers for the transport of biological samples), those boxes were marked with a barcode which identified the timeframe in which the samples were taken, the boxes were then organised into red, amber and green categories, with the oldest tests labelled 'red' to prioritise testing, thus increasing the average speed of release of results to patients significantly.

E.5 Partner and Surge Labs

- 147. Capacity was increased beyond the Lighthouse Lab network primarily by using commercial laboratories referred to as the 'Partner' or 'Surge' labs.
- 148. Partner labs were commercial labs that were used on an ongoing basis, with regular sample allocations. Surge labs had shorter term contracts, typically with no minimum allocation. Samples were allocated to surge labs only when demand required.
- 149. These labs were subject to onboarding requirements set at client / Programme level. They entered into contractual agreements directly via the relevant Government contracting entity (we did not run this process and so were not sighted on it).

- 150. Deloitte had no involvement in selecting Partner labs or Surge labs. Deloitte assisted with the assessment of available capacity levels across the network of laboratories on an ongoing basis to DHSC, which fed into decisions made at client level regarding allocations and routing decisions including to Partner / Surge labs.
- 151. Some Partner labs were also located abroad (for example in Italy and Germany) and were utilised to access short-term external capacity during periods of significant excess demand. As with Surge labs, there were additional logistical challenges in using overseas capacity for UK testing, so from Autumn 2020 existing private laboratories throughout the UK that could provide more resilient support to the network were selected to act as Partner labs wherever possible.

E.6 The Rosalind Franklin Mega Lab

- 152. On 16 November 2020, DHSC announced [DC-7/077 INQ000594547] its plan to open two new 'Mega Labs', in Learnington Spa and Glasgow, in early 2021. This was referred to as Project Jupiter. These new Mega Labs aimed to bolster daily testing capacity and improve results turnaround times. The intention was also that they would form a key part of the UK's national infrastructure to respond to future epidemics or pandemics, as well as adding diagnostic capacity for other critical illnesses, including cancer.
- 153. The Mega Lab in Glasgow did not proceed (I believe because the decision was made at Programme level that it was not needed). Deloitte's role in respect of the Rosalind Franklin Mega Lab in Learnington, which proceeded, was the same as I have described above for Lighthouse Labs.
- 154. In June 2021, the Rosalind Franklin Mega Lab began processing tests. The design of this laboratory consisted of 12 unique production lines feeding two endpoint PCR machines which would allow for up to 25,000 tests to be processed per line each day, so a total of up to 300,000 tests per day. It should be noted that not all lines were equipped initially to retain the flexibility of future development, as testing needs evolved.
- 155. On 13 December 2021, the Chair of the House of Commons Science and Technology Committee, Rt Hon Greg Clark MP, and Committee members Aaron Bell MP and Graham Stringer MP, visited the Rosalind Franklin Mega Lab. In advance of this visit a presentation was created by UKHSA which Deloitte contributed to regarding the laboratory [DC-7/078 - INQ000594545].

156. The nature of the testing carried out by the Rosalind Franklin Mega Lab (and other labs in the network) developed over time as PCR testing became more focussed on variant detection as LFD tests became ubiquitous. Bio-surveillance testing was introduced to measure the prevalence of emerging variants such as Alpha and Delta. The Rosalind Franklin Mega Lab was used for PCR testing until the end of the pandemic, as well as processing confirmatory PCR tests following a positive LFD when these were required, as determined by UK testing policy. I understand from public sources that it has now been decommissioned by DHSC.

E.7 The Immensa Lab

- 157. In September 2021, anecdotal and external observations of anomalies began emerging in relation to the testing data in the South West of England, which appeared different compared to other regions. In particular, Deloitte understands that concerns were raised on social media and in conversations amongst regional public health representatives regarding a differential, in the form of false negative PCR test results following positive LFD test results, which had been noticed between test results within this region. It was not part of Deloitte's scope to track or monitor these concerns and we do not know whether any such formal responsibility existed in the Programme. There may have been discussions between regional health protection teams, but Deloitte was not party to or sighted on them.
- 158 These concerns initially triggered an NHS Test and Trace Incident Response process led by Dr Tom Fowler, Director of Public Health, Testing, UKHSA (**Dr Fowler**) and coordinated and controlled by the NHS Test and Trace Service Operations Centre (**SOC**). Deloitte does not know how or by whom this process was triggered. SOC convened incident response meetings with the relevant parties and supported on the development of actions and response strategies. Later, a National Incident Response process led outside of NHS Test and Trace by UKHSA was convened. Whilst Deloitte attended some of the incident management meetings which took place as part of these two investigations, we cannot comment in detail on the overall processes as they were not defined or managed by us.
- 159 The Incident Response process led by Dr Fowler initially focussed on a potential batch issue with the LFD tests. Deloitte does not know why. However, the scope of the investigation expanded around 11 October 2021 to consider the possibility of a problem with one of the Lighthouse Labs. Whilst we were unsighted at the time on the full scope of the incident management activities, we believe that this expansion was a

result of the failure to identify any specific issues with LFD tests that might explain the issue, meaning that other potential sources of error had to be considered. At that point, the laboratories team (consisting of representatives from NHS Test and Trace, Deloitte and other contractors) were asked to attend the incident management meetings.

- 160 Given Deloitte's role on the Programme providing operational management support of the laboratories network, including the planning of sample distribution across laboratories and the provision of MI relating to the end-to end-performance of the testing system, we were asked to extract time series data on the positivity and source of samples tested by the Immensa Lab (a Partner Lab). This analysis demonstrated a significant deviation from the results reported by other laboratories in the same period. We shared this analysis with the incident management response team and clinical/operational leadership of the Programme. In doing so, we were able to quickly identify the Immensa Lab as the source of the issue, and within a few hours of doing so, NHS Test and Trace leadership shut down all testing there.
- 161. Following this decision, Deloitte supported the execution of sample diversions (inbound and as yet unprocessed samples already on site in the Immensa Lab) to alternative laboratories. We also continued to provide data extraction and analysis to support the incident management response and we developed enhanced MI and comparative data presentations to support the enhanced monitoring of positive results across the various Channels.
- 162. While the National Incident Response co-ordinated the short-term activity to resolve the incident, a Serious Untoward Incident Investigation (SUII) was commissioned by Professor Dame Jenny Harries, Chief Executive of UKHSA (Professor Harries) around October 2021, this being an NHS process not associated with the Programme or Deloitte. An incident investigation report entitled 'Final report of the Serious Untoward Incident investigation into the misreporting of PCR test results by the Immensa Health Clinic Limited' was published by the UKHSA on 29 November 2022. During the SUII investigation, Deloitte supported by providing further data analysis/extraction activities and the execution of management activities in relation to the closing down of testing at the Immensa Lab and the disconnection of the lab from the systems and processes relating to the laboratory network [DC-7/079 INQ000513671].
- 163 From a Deloitte perspective, the issue was not within our remit and was dealt with by the NHS and Immensa. Professor Hill's team conducted all the quality assurance for

the Lab as usual, and it was the Lab's responsibility to maintain the quality of the testing process. Nonetheless Deloitte was aware of the issue and was invited to join some meetings as part of the investigation in order to provide support through the provision and analysis of MI and by providing insight and observations in relation to the operational management of the laboratory network.

E.8 NHS/PHE laboratories

- 164 Notwithstanding the initial direction from DHSC not to use NHS testing infrastructure for Pillar 2, Martyn Scott and his team were asked by NHS Test and Trace leadership around August 2020 to explore whether Pillar 1 lab capacity could be used to support Pillar 2. Whilst we do not know the motivation behind this request, PCR testing capacity was significantly constrained at this time and so any material expansion of laboratory capacity to support Pillar 2 would have been welcome.
- 165. This involved engaging with NHS Trusts nationally around the potential use of their lab facilities. Two key difficulties emerged:
 - (a) Test samples and identifying data were managed differently in NHS laboratories from those in the Pillar 2 laboratories. Pillar 2 laboratories used anonymous barcodes which did not include patient data to identify samples, whereas tests processed by NHS laboratories followed pathology requests which included patient data. A workaround was needed to integrate the two systems. A process was developed, in partnership with Berkshire and Surrey Pathology Services (**BSPS**), to explore how Pillar 2 samples could be managed through an NHS Laboratory Information Management System. Each NHS laboratory would have been required to assess and implement their own sample management process workarounds, based on local processes and Laboratory Information Management System configurations. This was not considered efficient or achievable (see Section F.4.2 below).
 - (b) A more fundamental issue was capacity limitation given existing demand on NHS laboratories. There were multiple rounds of discussions with various NHS Trusts to identify capacity that could be provided to support Pillar 2. In order to streamline operations, additions to the Pillar 2 network needed to be capable of upwards of 10,000 tests per day to offer viable capacity increments. In Summer 2020, each NHS Trust could typically only offer capacity in the hundreds of tests per day and on a variable basis, depending on Pillar 1

demand. Such limited capacity was not an efficient addition to the Pillar 2 network considering the logistical overheads of managing multiple small capacity additions, including in terms of sample transportation arrangements to those labs. It also presented risks; fundamentally NHS capacity was unpredictable and so test samples sent to NHS labs that no longer had capacity would have to be re-routed elsewhere, presenting the risk that the samples might be lost or expire, and a risk of unnecessary costs.

- 166. BSPS did mobilise a regular capacity of around 1,500 tests per day in October 2020 (having completed a pilot in mid-August 2020). The Newcastle upon Tyne Hospitals NHS Foundation Trust also developed a similar dedicated facility, which opened around the same time and provided meaningful testing capacity for the Northeast. Additional testing capacity was also mobilised by London NHS Trusts (specifically Health Services Laboratories (HSL) in partnership with University College London Hospitals NHS Foundation Trust, St. George's University Hospitals NHS Foundation Trust, and Imperial College Healthcare NHS Trust) in December 2020/January 2021 and operated within the network in new/repurposed facilities.
- 167. PHE laboratories experienced similar issues regarding scale and the guaranteed availability of capacity, and although these were very high-functioning labs, the numbers were very small compared to those in the Lighthouse Lab network, particularly as the network scaled. Deloitte worked with PHE to connect all the PHE laboratories into Pillar 2 and all PHE laboratories were able to process Pillar 2 samples; some priority sample allocations (for time-related or other scientific reasons) were made, and PHE continued to report capacity available to Pillar 2 once these links were established. These capacities generally remained small and were used exceptionally (capacity in the Lighthouse Lab network being far greater and sample transportation more efficient in larger volumes).
- 168. As such, existing NHS and/or PHE labs could not realistically provide the solution to further testing capacity for Pillar 2.

F Development of the Digital Platform

- 169. In March 2020 there was no existing digital system for members of the public to book tests and for those samples to be traced through the process from swab to lab to result.
- 170. To scale up the Programme, Deloitte recognised that the service could not sustainably rely on Excel spreadsheets and pieces of paper as a recording system. Following our

recommendation and on the instruction of DHSC and later NHSD, Deloitte created a digital platform (the single environment for which was known as the "Core Digital Platform for Covid Testing" (**Core Digital Platform**) that could support a bookings and confirmation system; make booking data available at the relevant test site; provide individual and batch test-tracking from test site to lab and communicate results back to citizens.

- 171. In delivering this workstream, our Digital team brought together a wide range of specialists from within Deloitte to:
 - build an initial proof of concept over the course of a weekend at the end of March 2020;
 - (b) launch a working national solution within 11 days;
 - extend that solution to support the Government's initial target of 100,000 tests per day by the end of April 2020;
 - (d) design a user-centred platform leveraging cloud technologies and design technology platforms to support effective operation of the physical test site processes; and
 - (e) design technology platforms to support effective operation of the backend of the physical test site and processing operation.
- 172. Although they did not facilitate the booking of tests and tracing of samples, some other useful pre-existing digital systems were adapted for use in the Programme. Examples include GOV.UK Notify, the National Pathology Exchange system (NPEx), and the system in place for notifiable diseases.
- 173. The table in Schedule 6 details: a) the existing digital infrastructure that already existed at the time we were engaged; and b) the suite of platforms and applications (**apps**) that were designed, built, developed, and run by the Digital team (with the latter collectively referred to herein as the **Digital Infrastructure**).

F.1 Overview of the Digital Infrastructure

174. From a digital perspective, the Government's initial 100,000 daily testing target helped drive the importance of pace and set the expectation early on that the Digital

Infrastructure as a whole would need to be highly scalable. These two critical constraints forced effective decision-making and allowed for appropriate prioritisation.

- 175. As indicated above, Digital Infrastructure does not refer to a single application, but rather a suite of platforms and apps developed and run by the Digital team (which worked alongside some existing digital systems and was built on platforms provided by third party suppliers) which allowed:
 - (a) a citizen to book a test;
 - (b) staff at testing sites to check people in for a test appointment, process test samples, track samples on route to labs; and
 - (c) lab staff to prioritise their workflow.
- 176. At the outset of the Programme, testing sites were reliant on paper-based workflows to process and track test samples. However, it quickly became clear that this would not allow for scalable testing and Digital Infrastructure was required, the timeline for which is detailed from paragraph 178 onwards. There were no existing digital systems that could facilitate the booking of tests and tracing of samples, and so new solution(s) needed to be developed around those to streamline and scale the existing processes.
- 177. The introduction of the Digital Infrastructure to the Programme helped to minimise errors and created a more efficient and scalable testing process. From 2020, when the Digital Infrastructure first started to be rolled out, to 2024, when the final components were no longer required by the Programme, it was reliable (with no unplanned outages ever reported). This was a significant achievement. The introduction of the testing apps facilitated the rise in test numbers from 5,000 per day to 45,000 per day and the number of people receiving next day results from 14% to 74% within a month of roll-out [DC-7/080 INQ000594548].

F.2 Proof of Concept

178. At the time of our initial instruction back in mid-March 2020, Deloitte was not engaged to design or build any digital solutions for the Programme. However, those from the Digital team who were already working on the Programme, understood from the outset that a digital overlay was required to allow for mass population testing. Deloitte had the ability to draw on its Deloitte Digital practice, with individuals who had the required expertise in business strategy, design, product management and data analytics, and

with existing strong relationships with technology companies and ready-made access to cloud services in order to design and engineer a solution at the pace required.

- 179. In the days leading up to the weekend of 28/29 March 2020, the Digital team, led initially by Partner Martin Willetts and then Joel Bellman, worked on the overall enterprise architecture. Martin Willetts is a Partner in Deloitte Digital. He has over 20 years' experience at Deloitte focusing on major IT programmes across the public and private sectors, with the last 15 years spent shaping and delivering consumer-facing digital experiences and associated business transformations. I have already explained Joel's expertise above. The Digital team first created a 'proof of concept' to showcase the Digital Infrastructure needed as part of the Programme to allow people to be tested at a particular testing site and later receive their results once samples had been transported to and tested at a lab.
- 180. Deloitte had recently designed a similar digital process for a commercial client. That instruction had been put on hold due to the pandemic. The team of around 30 to 40 people involved in designing that process over the previous year were therefore immediately available to adapt that process and build the new proof of concept. To be clear, the actual technology that was built for the commercial client was not used, but the experience and expertise in end-to-end planning processes was.
- 181. The proof of concept created was an end-to-end platform for testing for the Programme consisting of:
 - (a) registration of an unknown customer;
 - (b) capturing key personal details;
 - (c) storing those details to an audit-proof database;
 - (d) allowing a barcode from a test sample to be read and recorded against that database record; and
 - (e) allowing a test result to be matched to the test sample/record and processed.
- 182. The proof of concept was presented to DHSC on 28 March 2020, attended by representatives from the Digital team, NHSD, OLS and NHSX [DC-7/081 INQ000594228]. Following that meeting, we were formally instructed to conceptualise, build, run and develop a digital prototype to ease testing constraints being experienced by the Programme.

183. At the outset, this work was within the Project Cube workstream (as detailed above) but later became known within Deloitte as 'Project Tesseract'.

F.3 Initial Engagement and Scope

- 184. The Digital team agreed to build a prototype robust enough to prove that the technology was workable and scalable but made it clear that it would not be ready to roll out on a national scale until two key non-negotiable controls were in place regarding: (1) cyber security; and (2) data protection.
- 185. It was agreed in the interests of time that a Minimal Viable Product would be initially created and developed over time to deal with certain issues and challenges emerging following rollout, and that features such as the inclusion of multiple languages and other accessibility features would be added when feasible. The priority was getting the service operable.
- 186. Deloitte was engaged to provide personnel that could support the digital build workstream in the following areas:
 - (a) programme management and delivery leadership:
 - (b) plan, track, and manage the delivery workstreams within the digital build scope;
 - specialist delivery management resources to shape, design and deliver the technology platforms and applications;
 - (d) oversight for the development, quality assurance, and platform and operations teams to coordinate with the wider Programme workstreams and engage with key business stakeholders across DHSC, NHSD, NHSX and the Government Digital Service;
 - (e) on-site Programme interface and product "squad";
 - (f) on-site resources to interface with the wider Programme and provide demand management, feeding requirements and decisions into the solution design;
 - (g) an off-site design team (Product Owners, UX / UI designers, functional and process analysts, usability researchers and copywriters) to design and document the end-to-end user experience and the screen designs and content to be implemented;

- (h) provision of software development personnel to complete the technical design and build of the Digital Infrastructure;
- provision of specialist software testing personnel to complete manual functional testing, automation testing and security and performance testing of the Digital Infrastructure; and
- (j) provision of infrastructure experts, DevOps³ engineers, technical release managers, service delivery management, service analysts and service desk personnel to provision, configure and maintain the Digital Infrastructure.
- 187. A later stage of the engagement covered release, run and enhancement activities once teams had been mobilised and the design and build were already under way.
- 188. The successful delivery of our Digital Infrastructure was dependent upon the Digital team working with other third parties as contracted by NHSX and NHSD. DHSC also had some key contractual responsibilities, including:
 - making all management decisions, performing all management functions and assuming all management responsibilities;
 - (b) designating an individual who possessed suitable skill, knowledge, and/or experience, preferably within senior management, to oversee the services; and
 - (c) managing stakeholders and ensuring the timely supply of information and attendance at meetings.
- 189. By 30 March 2020, just two days following the proof of concept sign off, NHSX instructed Deloitte to host the Core Digital Platform on its existing cloud platform provided by Amazon Web Service (AWS) [DC-7/082 INQ000594231 / DC-7/083 INQ000594232]. This allowed Deloitte to run the digital platform without having to configure virtual servers, which can be quite time consuming. AWS helped to create a bespoke database with specific features and dashboards, as requested, very quickly.
- 190. DHSC also decided by this date that the NPEx, a national service for NHS labs to connect through a single hub that allowed test requests and pathology results to be sent digitally from one lab to any other lab in a matter of seconds, would be used to

³ DevOps is a software development methodology that accelerates the delivery of higher-quality applications and services by combining and automating the work of software development and IT operations teams.

match test subjects' personal details with test results, to avoid personal data handling concerns (further detailed in paragraphs 200 and 201 below). Therefore, the Digital team needed to build this functionality into the overarching Digital Infrastructure.

- 191. The technology that needed to be built evolved over time to cover each step of the testing journey in accordance with DHSC's specific requirements of each phase. The steps in the testing journey included: (1) registration; (2) test site operations; (3) result matching; and (4) result communications.
- 192. The digital build workstream was divided into three phases:
 - (a) Phase 1: hyper-fast tactical test site solution enabling a basic digital journey for test subjects who had been identified to attend a test site for a Covid-19 Thermo Fisher branded test, which became known as the Tactical Portal.
 - (b) Phase 2: test site solution with devices enabling a more flexible and scalable Digital Infrastructure to assist test sites in managing supply and demand, through an appointment booking tool and custom iOS applications for the test site staff.
 - (c) Phase 3: long-term scaled home and test site scenario building on Phase 2 by also enabling the Amazon-delivered home sample collection kits to be completed at home, through providing electronic guidance, basic data capture of the at-home process, and clear next steps on return logistics i.e. how to submit self-test samples. Once developed this became known as the 'Home Channel.

F.3.1 Phase 1:

- 193. Taking each of these Phases in turn, Phase 1 focused predominantly on mobilising and getting the design and build activities started and comprised:
 - (a) Registration: creating a digital platform that included a privacy notice; registration form and confirmation page; and SMS confirmation with a unique registration-based link.
 - (b) At test sites: creating a digital platform that would allow for scanning and manual entry of swab kit barcode pages and a confirmation of successful test page.

- (c) Post-lab testing: creating a platform that could provide a subject's personal data with an associated swab kit ID for inputting to NPEx.
- F.3.2 Phase 2:
- 194. During Phase 2, the following were added:
 - (a) Registration: implementing an appointment scheduling tool to configure and manage availability based on slots for individual test sites; creating a registration page with the ability to select an available slot based on test sites and date; and adding a confirmation page with a unique QR code to confirm bookings.
 - (b) At test sites: building: i) a security guard iOS application to validate arrivals based on a QR code; and ii) a testing assistant iOS application to link subjects with swab kit ID through the scanning of the QR code and swab kit barcode.
- 195. The concept of using a QR code to confirm a test booking is similar to the process of receiving a QR code for entry to a ticketed event. This however was relatively novel at the time and the Digital team needed to design this in a way that was flexible enough to deal with changes in the Programme. Use of existing technology, such as that used to sell tickets to events such as theatre shows and concerts, was discussed with NHSX, however it was agreed that such systems did not have the flexibility required, so a bespoke system would need to be built. The technology built for the commercial client (as described above) included an appointment booking system with a QR code and so a similar system was designed by the Digital team much quicker than if that prior experience and knowledge had not been available.

F.3.3 Phase 3

196. A third party, Kainos Limited, was separately contracted with NHSD to build and deliver the home ordering component of the testing process. This involved expansion of the existing registration steps. The Digital Infrastructure built by the Digital team during Phases 1 and 2 still formed part of the home testing journey, as home tests once sent to the lab used the Deloitte developed technology to process a sample and send the results back.

F.4 Key Controls

197. Turning to the two key non-negotiable controls required: (1) cyber security; and (2) data protection.

F.4.1 Cyber Security

- 198. The Digital team worked alongside NHSD and the National Cyber Security Centre to identify key cyber security controls that needed to be built into the Digital Infrastructure prior to rollout. Cyber security controls were considered as early as March 2020 and evolved as the Digital Infrastructure developed.
- 199. The Digital team implemented a set of Cyber security controls that were appropriate for the risk profile of the service and the data that it processed. These included: monitoring of data ingress / egress via a Security Operations Centre to identify unexpected patterns of behaviour; logging events on the platforms; setting standards for software development and the tools used by developers; and introducing training for team members on security risks.

F.4.2 Data Protection

- 200. Information architects from DHSC worked with the Digital team to agree fundamental data handling principles. These discussions began within the first two days of our instruction, during which time it was established: (a) what data would need to be processed; and (b) what data protection rules, restrictions and processes applied to the Digital team. DHSC determined that it was the Data Controller for personal data in the platforms that Deloitte was delivering, and that Deloitte was the Data Processor. Accordingly, data processing instructions were put in place. This was important as the 'run' element (i.e. the running of the digital platform once built) of Deloitte's instruction would involve processing sensitive personal data.
- 201. These discussions were framed in the context of the lab network, which was at the same time being developed. There was a good flow of communication between the Deloitte partners working on the various workstreams. Joel Bellman understood that design decisions in relation to digital needed to be driven by the lab processes that were being implemented, and data was a key element. The Lighthouse Labs were private and not run by the NHS, so a key element to the technology was building a solution that would allow those private labs to process test samples without handling any personal data. The solution reached included the introduction of barcodes to

identify specimens rather than personal data, such as names or dates of birth, and the use of NPEx to match a sample's barcodes with an individual's personal details.

F.5 Digital Infrastructure Pilots

- 202. The Digital Infrastructure was built and developed over time. Elements of the Digital Infrastructure therefore needed to be piloted which included appropriate testing and client sign-off following exit conditions being met.
- 203. Pilots took place at the Nottingham, Chessington, Manchester, and Haydock Park RTS. Further details regarding the Digital Infrastructure pilots at each of these testing sites are provided below, with an example of the 'Pilot Exit Criteria Summary' for Nottingham and Chessington exhibited at paragraph 210.
- 204. On 3 April 2020 a 'Go/No Go' call took place during which technical approval for the first pilot was provided by Simon Eccles. The first pilot tested the 'Tactical Portal' (i.e. Phase 1), however by the end of May 2020 the following elements of the solution had been piloted and approved for use by NHSX:

Phase 1: Hyper fast tactical test sites solution:

(a) Tactical Portal: Replace manual spreadsheet data recording at test sites by enabling subjects to capture sample data by scanning an associated barcode with their smartphone. Employee Referral Platform: This was created to allow authorised employers (i.e. NHS Trusts) to upload their self-isolating key worker lists and the referral engine to process referrals according to prioritisation rules and issue invitations via a SMS message with a unique code. This later became redundant once the Self-Referral portal was live.

Phase 2: Test site solution with devices:

- (a) Subject Portal: This online portal allowed for the registration of subjects for testing, including test site selection and appointment booking; and booking confirmation, instructions, and next steps information (including QR codes).
- (b) Testing Mobile App Suite: These apps were for use by the test site workforce and enabled scanning in of subjects on-site using their booking confirmation QR code and test site staff to associate a sample with a subject by scanning and linking the barcodes.

- (c) Self-Referral Portal: This was a public website for key workers to refer themselves for a test. Only key workers were eligible for testing at this early stage (i.e. April/May 2020). Prior to the creation of this portal key workers were only able to get a test if referred by their employer.
- 205. The first pilot at Nottingham RTS commenced on 4 April 2020. Initially a limited trial of the Tactical Portal was rolled out, as there was a need to test that data flowed through NPEx. The pilot used the existing manual spreadsheet process to record subject details and samples until it could be ensured that data was reconciled prior to flowing through NPEx, so that samples correctly matched results. Only a handful of subject samples were tested through the digital capture during this limited trial.
- 206. By 5 April 2020, the test site team at Nottingham RTS had confirmed that the data flow was not impacted, and the trial could progress to a 'full pilot'. The manual spreadsheet process continued until 7 April 2020, with the Tactical Portal being used as a back-up. Improvements were being made to the portal following each period of the trial, in accordance with test site team and test subject feedback.
- 207. On 8 April 2020 the Tactical Portal became the main source of data capture as preregistration on the portal became available. Physical spreadsheets however continued to be used as a back-up [DC-7/084 - INQ000594237].
- 208. On 9 April 2020 the Chessington RTS pilot commenced, by which time the technology included both pre- and on-site registration.
- 209. On 10 April 2020, following discussions and approval by NHSD, AWS was engaged to act on behalf of NHSD to 'facilitate sending SMS messages related to Covid-19 testing services to UK phone numbers' [DC-7/085 INQ000594242]. The letter sent from NHSD to AWS (and Deloitte as its vendor partner) included example content of the SMS messages:

"You're registered for your Covid-19 test. Open this link at the test centre when a staff member tells you to: <official government URL>"

"Your NHS trust has booked you a Covid-19 test: [Date] at [Location] Bring photo ID to enter the test centre. To gain entry, you must register your details before you go: <official government URL>"

210. On 12 April 2020 a meeting with representatives from the Digital team, NHSX and NHSD took place to discuss the exit criteria in respect of the pilots (i.e. the pre-

determined requirements or conditions that would need to be met to complete the pilot). The 'Pilot Exit Criteria Summary' was developed by Deloitte and presented at the meeting to provide an indication of the actions that needed to be addressed to our and DHSC/NHSX/NHSD's satisfaction (as appropriate) prior to decommissioning of the spreadsheet process and the nationwide pilot rollout of the Tactical Portal **[DC-7/086 - INQ000594386]**.

- 211. The exit criteria (as set out in the Test Approach document referred to in the paragraph below) were:
 - (a) All tests as documented in the 'Test Approach' created prior to pilot entry have been executed (whether passed or failed);
 - (b) Defects identified during failed tests have been identified;
 - (c) No residual highest/high priority defects remain open (or deferral to fix after pilot commencement has been agreed with NHS assurance); and
 - (d) A test summary report has been drafted and shared with DHSC, NHSD or NHSX as appropriate.
- 212. A "Test Approach Release 1.0a" presentation was also prepared by Deloitte around the same time which included a draft timeline and plan towards 'Brakes Off', which referred to the national rollout of the digital pilot required to meet the 100,000 per day testing target [DC-7/087 - INQ000594388] (see paragraph 242 below for further details).
- 213. Given the urgency within which the Digital Infrastructure needed to be built, pragmatic decisions by NHSX and NHSD regarding acceptance criteria needed to be made. It was understood that only the most critical issues would have justified keeping the physical spreadsheet system in place any longer than strictly necessary.
- 214. On 13 April 2020 the physical spreadsheet system was decommissioned and completely replaced by the Tactical Portal. The Employee Referral Platform was also added to the Chessington pilot.
- 215. A full pilot of the Tactical Portal began at Manchester Airport RTS on 14 April 2020 and by 16 April 2020 this had also been expanded to include the Employee Referral Platform and Subject Portal.

- 216. All elements of the new technology were subject to rigorous scrutiny by the Digital team, not only prior to release, but also at regular intervals to ensure the system was working as expected with no major defects. An example of this scrutiny is detailed in the 'Testing Summary for Release' document produced by Deloitte prior to the pilot expansion at Manchester Airport RTS and included [DC-7/088 INQ000594387]:
 - Functional Testing (Automated and Manual including Accessibility) where the system is validated against the functional requirements/specifications;
 - (b) Functional Regression Testing (Automated and Manual) to ensure that the system's features remain functional and undamaged after new code changes;
 - (c) Performance Regression Testing to ensure the system's performance remains consistent after changes are made; and
 - (d) Security Testing to evaluate the security of the system and identify potential vulnerabilities.
- 217. Following a request from Lord Bethell, the Testing Mobile App Suite was added to the pilot on 17 April 2020 [DC-7/089 INQ000594245] and the Manchester Airport RTS pilot was expanded to Haydock Park RTS.
- 218. On 18 April 2020, Simon Eccles provided the Tactical Portal with clinical sign-off, subject to mitigations identified in a Clinical Safety Statement created by NHSD on 13 April 2020. The main risk was the 'operational difficulties around subjects not registering for sample taking prior to arrival on the test site'. Options identified to mitigate against this risk and allow for full rollout were as follows:
 - (a) Option 1: Allowing an 'unregistered subject to have a swab taken then issue the subject with a bar code 'receipt' which enables/requires subjects to link their sample to their demographic details at a later time'. This was trialled at the Chessington RTS and one in ten subjects had not done this 24-hours post-test.
 - (b) Option 2: Offer 'on-site help to enable subjects to be registered before sample taking, but many of the sample taking centres did not have the car parking space to do this'.
 - (c) Option 3: 'Insist all subjects register online before testing, make this clear in all communications and on signage approaching test centres.'

- 219. Option 1 was recommended by NHSD and approved by Simon Eccles [DC-7/090 INQ000594249 / DC-7/091 INQ000594250].
- 220. On 20 April 2020 the Self-Referral Portal was added to the live pilots. A new version of the Subject Portal booking interface used by the Self-Referral portal was part of this release and was regression tested by the Digital team to validate it was still working as expected prior to roll out. Regression tests confirmed that no new defects had been detected.
- 221. Clinical assurance was required for all systems that related to clinical services. This included the Digital Infrastructure. Assurance was provided by a team within NHSD. This is common practice in the NHS to ensure that new technology is safe from a clinical perspective.
- 222. An all-live pilot exit Go/No Go meeting took place on 23 April 2020. This was attended by representatives from DHSC, NHSD, NHSX and the Digital team, during which Joel Bellman contributed to a DHSC-owned presentation on 'Brakes Off Pilot Closure.' This included a recommendation to proceed with the pilot exit and the national rollout as the agreed upon exit criteria had been met. It was confirmed during this meeting that the Employer Referral Portal, Subject Portal, Testing Mobile App Suite, and Self-Referral Portal were ready to go live and Brakes Off was authorised by the attending Government entities [DC-7/092 - INQ000594255 / DC-7/093 - INQ000594254].

F.6 Full National Rollout

- 223. By 27 April 2020 NHSD had circulated a draft plan to move the Digital Infrastructure from pilot to official release by expanding testing beyond key workers. This became known as 'Citizen Go Live' and centred around developing home testing technology in accordance with Phase 3 of the digital build (see paragraph 196 above) [DC-7/094 -INQ000594257].
- 224. The draft plan headed 'Citizen MVP⁴ Go Live' was subject to a number of changes and a final version was circulated on 7 May 2020 [DC-7/095 - INQ000594274 / DC-7/096 -INQ000594275] along with a 'Citizen Self-Referral MVP Readiness Checklist' [DC-7/097 - INQ000594276]. As detailed in the plan, Deloitte was responsible for developments in the Digital Infrastructure to account for test site changes. This

⁴ MVP stands for Minimum Viable Product and is defined above in the footnotes.

technology also played a role in the development of the Home Channel, alongside Kainos Limited.

- 225. On 17 May 2020 a presentation by DHSC during a Go/No Go meeting on citizen testing included a recommendation to proceed with the Citizen Go Live on the acceptance of **[DC-7/098 INQ000594280]**:
 - the residual risk / issue profile, which highlighted (amongst other things) some minor defects;
 - (b) the pre-requisites to release, which were categorised as red and amber in respect of outstanding actions. There were four pre-requisites marked amber and one red. The red pre-requisite (which was owned by NHSX and did not fall into scope for Deloitte) related to the Contact Centre Assisted Digital Service introduced to help those facing difficulties in using the technology to order or register a test⁵. The only amber pre-requisite that Deloitte were 'owners' of related to clinical assurance of the Home Channel. The commentary against this however (as set out below) makes it clear that NHSD clinicians were undertaking the clinical assessments in conjunction with clinicians at Genomics England and so the reference in the presentation document to Deloitte being "owners" is misleading '[t]his has been managed and progressed by the core home channel team, outside of NHS Digital Content has been reviewed by clinicians at Genomics England. NHS Digital clinicians have started a clinical assessment'.
- 226. On 18 May 2020, a decision was made by NHSX, NHSD and DHSC to proceed with Citizen Go Live [DC-7/099 INQ000594279].
- 227. On 10 June 2020 a 'Covid 19 WS2 Testing Programme Board', attended by representatives from NHSD, NHSX and the Digital team, took place. Joel Bellman provided a digital delivery update on behalf of Deloitte. The board pack included a delivery update in respect of the Digital Infrastructure. Page 3 4 of the pack provided an update on products developed by the Digital team at that time, the top three risks and issues, and lessons learned to date with recommendations going forward [DC-

⁵ The commentary against the red pre-requisite stated: 'There is a subset of those citizens requiring the Assisted Digital Service who do not have a mobile phone or email nor a proxy who can represent them with either. A solution is being designed to address this but will not be in place for go live'.

7/100 - INQ000594309 / DC-7/101 - INQ000594310 / DC-7/102 - INQ000594311 / DC-7/103 - INQ000594390].

- 228. It is clear from these documents that the Digital Infrastructure was not simply built, tested, and rolled out but was subject to continuous scrutiny (both by Deloitte and our relevant Government clients) and improvement.
- 229. A similar Programme Board took place to discuss progress on 24 June 2020 [DC-7/104 - INQ000594389].

F.7 Testing Mobile App Suite

- 230. In the three months between 19 March and 19 June 2020 six testing apps, referred to collectively as the 'Testing Apps', were developed by the Digital team and made available as part of the Digital Infrastructure for use by testing sites and laboratories:
 - (a) Register App: Encapsulating the "registration lite" journey to enable site staff to register subjects on site and associate a sample ID with the subject.
 - (b) Inventory App: Encapsulating the "Inventory management RF Smart website" to enable site staff to perform inventory management tasks.
 - (c) Security App: Enabling security staff at testing sites to look up a subject's appointment details. This was completed by searching for the subject's car registration number or date of birth, or by scanning a subject ID QR Code to retrieve and validate a subject's appointment.
 - (d) Check-in App: Enabling check-in staff on site to associate a sample ID with a subject ID.
 - (e) Dispatch App: Enabling staff to count and reconcile the number and IDs of samples in a MedDX container used to transport samples and record the date and time the container was handed to the courier service for delivery, and which lab it would be delivered to.
 - (f) Validate App: Enabling staff at laboratories to confirm the arrival of the MedDX containers from testing sites, reconcile the number of samples in each container and verify the viability of the sample with regards to the time left on the lifespan of the vial and prioritise the testing of the samples in relation to samples in other containers/ deliveries.

F.8 Development and Operational Services

- 231. From June 2020, the Digital team's role became one of operational support for the Digital Infrastructure as detailed in Schedule 6.
- 232. A further four new Testing Apps had been developed by the Digital team by June 2021, bringing the total number of Testing Apps within the Digital Infrastructure to 10:
 - (a) Consolidate App: Enabling staff at the test sites to route boxes of samples to specific laboratories, while also specifying the number of samples within the box;
 - (b) Log Results App: Enabling staff to submit the result (Positive, Negative, Void) for a sample ID. This was done by scanning or manually entering the sample ID and then selecting a result;
 - (c) Study App: Enabling the Service Evaluation team to associate multiple sample IDs with a subject ID. This was done by scanning or manually entering all of the IDs so that the study could check whether both samples yielded the same result; and
 - (d) Log Collections App: Encapsulating the "log results web" solution to enable the test site staff to perform collection activities. This app allowed staff in a test site to record the status of boxes of samples that were waiting for collection and transportation to a test laboratory. This worked alongside the Consolidate App to allow laboratories to have real time information about inbound boxes of samples for testing, so they could better plan their operations and give priority to samples that were approaching expiry (to reduce the incidence of void test outcomes). Our operational role also included the onboarding of new test sites. As the Programme expanded and more test sites and Lighthouse Labs went live, the Digital Infrastructure was updated to service these new parts of the testing network. NHSX conducted a usability assessment of the Digital Infrastructure in around June 2020 to evaluate the experience for users. The assessment was passed and areas for improvement were identified. These included areas such as accessibility and identified key questions to be considered. Some were as simple as how can the Programme enable testing for those who do not have access to a car (RTS were drive-in only at this point) or have a disability or did not have access to a smart phone. As a solution, to make the service more accessible, DHSC arranged for the emergency call

centres to be used as a Covid-19 testing helpline. These usability improvements were included in 'testing development priorities' for July 2020 [DC-7/105 - INQ000594314 / DC-7/106 - INQ000594315]. The services provided in respect of these components were as follows:

- (e) Service 1: Delivering a cloud technology transformation programme to shape, integrate, manage, and provide oversight of the services listed below. This service also coordinated with NHSD and other parties within and outside the Programme.
- (f) Service 2: Providing the following cloud services to support NHSD's Covid-19 subject test service: cloud architecture and design; cloud hosting, infrastructure, and application planning & delivery; and cloud testing.
- (g) Service 3: Providing cyber security services by designing, building, and operating the Digital Infrastructure with the cyber and data privacy controls necessary to achieve NHSD's defined business objectives and defined cyber risk tolerances. This included consideration of the information security governance and data risk.
- (h) Service 4: Designing, building, and operating the live MI Platform.
- Service 5: Designing, building, and operating a live Salesforce service cloud, the part of the Digital Infrastructure which allowed bulk ordering of sample collection kits, initially for organisations such as care homes and prisons.

F.9 Halo Migration, Retendering and Decommissioning

- 233. This was the concluding phase of Project Tesseract. DHSC recognised that the emergency procurement which was needed to procure the Digital Infrastructure at the beginning of the pandemic, now needed to be re-evaluated. Prior to running a procurement process to find new suppliers for the Digital Infrastructure, some of it needed to be migrated onto the new Halo cloud service owned by DHSC.
- 234. Discussions began in December 2020 around the structural changes that would be required to carry out that migration. A document was produced jointly by the Digital team alongside NHSD that included the following recommendations:
 - (a) Step one: consolidate and stabilise the Core Digital Platform in January and February 2021;

- (b) Step two: develop a long-term vision for the Core Digital Platform alongside step one during January and February 2021; and
- (c) Step three: run a re-tender process in March 2021

[DC-7/107 - INQ000594357 / DC-7/108 - INQ000594358].

- 235. Deloitte had prepared a proposal to enable the migration from the existing infrastructure to Halo. This was presented to NHSD on 15 January 2021 [DC-7/109 INQ000594363 / DC-7/110 INQ000594364] and ultimately agreed on 3 March 2021 [DC-7/111 INQ000594399].
- 236. NHSD approved the decommissioning of the Employee Referral Portal on 12 February 2021 [DC-7/112 INQ000594372 / DC-7/113 INQ000594373] and by 26 February 2021, the portal was turned off. It is worth noting however that the portal had not frequently been in use since the introduction of the Self-Referral Portal in 2020. This was the first of the Digital Infrastructure to be retired. Elements of the Digital Infrastructure continued to be retired following this.
- 237. In May 2021 the first of the Halo migrations took place. It was anticipated that this would facilitate visibility of work across the Programme and more efficient collaboration both within and across teams now that there were multiple partners involved in delivering and running various parts of the Programme that involved using the Digital Infrastructure [DC-7/114 INQ000594367]. It was also considered a way to make the Digital Infrastructure smaller and more operable and more cost effective.
- 238. Procurement exercises led by NHSD to find new suppliers that could service parts of the Digital Infrastructure took place during Autumn 2021 and Spring 2022.
- 239. On 24 February 2022 a letter was sent from NHSD to the Digital Team extending the Digital Platform Contract by a month to 30 September 2022 [DC-7/115 -INQ000594408 / DC-7/116 - INQ000594409].
- 240. Deloitte re-tendered for the new digital contracts and was successful for some but not for others, which resulted in the transition of some services from Deloitte to other suppliers (including Accenture) between Spring 2022 and Spring 2024.
- 241. The final elements of the Digital Infrastructure were turned off in April 2024. By this stage in the Programme, the Digital Infrastructure was only in use to process LFD tests and results.

G Targets, Capacity and Data

- 242. The first six weeks of the Programme, from 19 March 2020, focused on working towards the Health Secretary's target to achieve 100,000 tests per day in the UK by the end of April 2020. This target was announced by the Health Secretary on 2 April 2020. Specialists from Deloitte assisted with data modelling to map testing trajectories towards this target through the different Channels. It is fair to say that it was considered at the time to be a challenging target with only 42 days to achieve it. On 1 May 2020 the Health Secretary announced during a press conference that the target had been met, the number of tests on the last day of April 2020 was 122,347 [DC-7/117 INQ000512820]. The methodology for assessing performance against the 100,000 testing target (and subsequent targets / reporting of data) was determined by the Government and published on gov.uk on UKHSA's data dashboard. This target was achieved, in accordance with the Government's methodology, by a combination of Pillar 2 testing and testing in other Pillars [DC-7/118 INQ000594270].
- 243. Following this, the Programme's next focus was on the delivery of the "100-day plan" [DC-7/119 - INQ000594301], which was created in response to a request by DHSC following the initial ramp up of testing. The 100-day plan had three key objectives: (1) build a faster response capability; whilst (2) fixing and improving the newly established testing infrastructure; whilst (3) establishing a sustainable run operation. To achieve this the Programme was once again set targets by the Government, which included increasing testing capacity to 200,000 tests per day by the end of August 2020, against a plan to achieve 500,000 tests per day by the end of September 2020. A very complex set of delivery and logistical challenges needed to be overcome to hit these targets. The data to support when these targets were achieved was contained at the time in the OMIP system (further explained in paragraph 253 below). Deloitte was asked by DHSC to decommission this system on 18 August 2022 and the data was transferred to DHSC. Deloitte did not retain a copy of the data.

G.1 Capacity

- 244. Increased testing capacity was needed to achieve the targets set for the Programme. There were four key metrics relevant to the question of how PCR testing capacity developed over time. The four metrics, or limiting factors, in question were:
 - (a) Sample collection kit supply capacity: to be usable, a sample collection kit needed a swab, vial and solution and the challenge was sourcing and validating

sufficient quantities that met the physical, clinical, and regulatory requirements for use.

- (b) Kitting capacity: this was a measure of how many of the swabs had been "kitted" and were ready to be sent to the Channels.
- (c) Swabbing (Channel) capacity: this was a measure of how many tests could be taken in one day by individuals (both symptomatic and non-symptomatic) across all Channels.
- (d) Lab capacity: this was a measure of how many tests Pillar 2 laboratories could process in a 24-hour period.
- 245. In very simple terms, the overall testing capacity was the lowest common denominator across those metrics, but it was actually more complex as there were other constraints. For example, certain sample collection kits (particularly swabs) could only be used for specific Channels or settings (requirements were different for care homes, physical testing sites and at-home testing). There were also laboratory constraints on which sample collection kits they could receive at certain points in time.
- 246. There were at times constraints on sample collection kit supply capacity, particularly during March and April 2020. There were also notable periods of stress over the four metrics outlined above in September 2020 and around Christmas 2020. In practice, lab capacity was often the most common "pinch point". Decisions were made to ensure that overall lab capacity was maximised by operating across a 24:7 window, whilst also balancing the requirement for a timely turnaround of results. Where testing volumes (i.e. the number of test slots allocated) were limited due to lab capacity, this was a decision made by DHSC into which Deloitte provided input with relevant MI, but Deloitte did not act as decision-makers.
- 247. I have included in Schedule 7 two graphs mapping the growth of PCR testing over time (LFD is dealt with separately at paragraph 277 below). To illustrate the building of this capacity over time:
 - (a) On 10 April 2020
 - (i) 2,381 swabs were taken resulting in a cumulative total of 15,500 swabs taken.

- (ii) 1,845 tests were processed in labs resulting in a cumulative total of 11,769 tests processed.
- (iii) 1,955 results were issued resulting in a cumulative total of 10,356 results issued [DC-7/120 - INQ000594340].
- (b) On 10 June 2020
 - (i) 46,211 swabs were taken resulting in a cumulative total of 2,225,353 swabs taken.
 - (ii) 54,652 tests were processed in labs resulting in a cumulative total of 2,174,987 tests processed.
 - (iii) 61,157 results were issued resulting in a cumulative total of 2,064,135 results issued [DC-7/121- INQ000594382].
- (c) On 10 September 2020
 - (i) 158,713 tests were processed in labs resulting in a cumulative total of 9,828,673 tests processed.
 - (ii) 138,261 results were issued resulting in a cumulative total of 9,507,640 results issued [DC-7/122 - INQ000594381].

G.2 Testing Operations and Capacity Data

- 248. Deloitte was instructed in or around March 2020 to assist with the provision of information regarding testing operations and MI via the Operational Management Information Platform (**OMIP**) which Deloitte had built as part of the Digital Infrastructure. OMIP was a MI Platform that provided important, timely, and reliable testing operations MI to the Programme. This was built on Deloitte's AWS Cloud and managed by a Deloitte team. Building and managing OMIP were key roles for Deloitte on the Programme.
- 249. OMIP developed over time from March 2020 to January 2021 at which point it was receiving over 150 data sets from different sources. The primary data sources for OMIP to enable end-to-end visibility of testing operations, i.e. from test booking request to result communication, included NHSD (the test booking portal), NPEx/Laboratory Information Management System (regarding lab processing), BSA (regarding results

communication), and Amazon / Royal Mail (regarding logistics and kit dispatch) [DC-7/123 - INQ000594398].

- 250. At peak usage of OMIP around 1,000 users were regularly accessing the platform. Anyone granted access had to go through a formal approval process with UKHSA and then had to access to the platform using multi-factor authentication.
- 251. Primary users of OMIP were testing operations leadership and delegates across operations functions, Channels, and products (PCR/LFD). Secondary users were Government departments, such as PHE, Cabinet Office, the Department for Education, NHS Test and Trace members, Devolved Administrations representatives and Local Authority representatives.
- 252. OMIP was the single "source of truth" in testing operations and was critically important in providing timely MI and decision-making support to NHS Test and Trace leadership. The technology architecture scaled effectively as data processing and user demand grew, meaning it did not suffer any unplanned outages during the Programme.
- 253. Deloitte no longer has access to OMIP data as UKHSA decommissioned the platform on 18 August 2022.

H Testing Technology

H.1 PCR Supply – Early 2020

- 254. At the start of the pandemic the only tests available to the Programme were PCR tests. Rapid antigen tests (later more commonly known as LFDs) for Covid-19 were not yet developed or readily available. This was a challenge in the Spring of 2020 due to the competition for global supply of PCR test kits and equipment and the limited preexisting testing system which used multiple, small laboratories. With these limitations, testing was not easily scalable.
- 255. For the Programme to deliver testing at sufficient scale, it needed technology that could overcome the above-mentioned challenges.
- 256. Prior to Deloitte's involvement in the Programme, during early 2020, DHSC had agreed a purchase order with Thermo Fisher to supply PCR testing sample collection kits, including component parts, as well as the necessary reagents and testing platforms for use in laboratories. This was not a viable long-term solution though as Thermo

Fisher could not, on its own, supply at sufficient scale for mass population testing. Globally, there was a limited supply of the component parts for PCR testing sample collection kits and numerous entities (NHS and others) both in the UK and abroad were trying to obtain those kits. A supply chain team, set up within the NHS, had responsibility for allocations within the UK. That team would decide the allocation of PCR sample collection kits, once procured. Deloitte supported the NHS by collating information and facilitating the governance required to make DHSC/NHSE allocations work.

H.2 PCR Validations – Early / Mid 2020

- 257. At the end of March 2020, individuals at Deloitte were engaged to help co-ordinate a validation team of PHE scientists (based at the scientific research facility at Porton Down near Salisbury) and scientists from Oxford University as they dealt with scientific validations for PCR sample collection kits (and later LFDs). The scientists' roles were to conduct public health studies to ensure the tests were fit for purpose.
- 258. As new PCR sample collection kits were emerging, scientists at Porton Down (which was the main lab validation testing centre) and Oxford University conducted tests to validate whether the swabs and vials making up the PCR sample collection kits were fit for purpose. This involved conducting experiments to confirm whether the virus would remain on certain types of swabs and whether testing vials were compatible with the testing machines, so that samples could be processed.
- 259. Deloitte helped to identify the swabs that were available to purchase, and samples of these swabs were sent to the scientific teams at Porton Down and Oxford University to test. Once the results and the reports had been analysed by the scientists and subjected to regulatory validation and approval by the MHRA, our Supply Chain Team could then go out and purchase the approved swabs. Deloitte was not involved in the scientific testing itself, but we did deploy a team to assist the MHRA with mapping out the process for regulatory validation.

H.3 Asymptomatic Testing – Autumn 2020

260. Although PCR tests had been used for some asymptomatic testing policies during 2020, there were challenges with this technology including turnaround times, the need for a lab to process the results, and the significant costs and resources associated with logistics and processing, all of which meant that PCRs were not alone appropriate to deliver testing at the scales needed for mass population testing.

- 261. By Autumn 2020, there was strategic direction from the Government about preparing for mass testing of asymptomatic individuals. This was known as 'Operation Moonshot'. This coincided with increased understanding of the virus, namely that asymptomatic individuals could transmit the disease. The development of asymptomatic testing was hugely complex, but essentially the Programme needed to consider whether mass asymptomatic testing was a viable approach and whether, operationally, mass testing of asymptomatic people could be achieved.
- 262. The Government conducted various studies and reviews [DC-7/124 INQ000594396] into mass asymptomatic testing and the various technologies available to achieve this. Deloitte provided operational and logistical support to these studies. There was no unanimous view (in clinical and academic circles) about which technology to use for mass testing and this was not something on which Deloitte was asked to provide input. Initiatives were ongoing within DHSC and PHE to investigate different types of testing technologies, such as antigen testing and blood prick tests, with scientific input provided by Oxford University, to establish whether any of these testing technologies were suitable for use in the Programme.
- 263. For each new testing technology option, there was a lead appointed by NHS Test and Trace, whose details are listed below. The senior responsible person for all new testing technology from January 2021 was Professor Hill:
 - (a) Dr Cosima Gretton, Deputy Director for LAMP Testing Technology, NHS Test and Trace, DHSC – LAMP – a test using the loop-mediated isothermal amplification method (LAMP) rather than a PCR test.
 - (b) Justine Aldridge, Deputy Director of Laboratories, NHS Test and Trace, DHSC
 LAMPORE a combination of LAMP and nanopore sequencing (LAMPORE)
 to provide a scalable, multi-gene assay for the detection of SARS-CoV-2.
 - Hannah Fordham, Lateral Flow Supplies Deputy Lead, NHS Test and Trace,
 DHSC LFD An assay also known as LFD or a 'rapid test'.
- 264. Deloitte also provided project management support in relation to assessments of repurposed systems:
 - Point of Care, for which the lead was Laura Fellowes (Deputy Director, DHSC), which involved testing at or near the site of patient care by specially trained healthcare professionals.

(b) Andrew McCord – lead for Integrated Mobile Testing, which involved mobile testing sites that come directly to patient or group of patients, instead of patients going to a public testing area.

H.4 Service Evaluations

- 265. A significant role Deloitte played in relation to testing technologies was to support the teams led by Dr Fowler in the way I describe below.
- 266. The potential to use saliva-based tests was explored from the outset of the Programme. A driver for this was the usability of saliva-based tests; the hypothesis was that saliva-based tests were a more comfortable way of providing a test sample for some users, as they involved less invasive sample collection methodology than swabs.
- 267. Scientific validation by Porton Down in June 2020 confirmed that the Covid-19 virus could be detected in saliva samples. This prompted a series of service evaluations, operational testing and usability and user research studies. These studies tested the usability of saliva-based testing kits and sought to understand the user experience of saliva-basted testing vs swab-based testing.
- 268. Deloitte provided project management support to Dr Fowler and his team, who conducted the aforementioned usability and user research studies with, for example, care home residents (December 2020 and February 2021), special educational needs and disabilities students (April to July 2021) and prison staff (July to September 2021).
- 269. The quantitative and qualitative feedback obtained from the usability and user research studies suggested that saliva-based testing was problematic in the areas tested, which ran contrary to the theories it was somehow easier. Ultimately, there was a lack of a clear use case for saliva-based testing and in the interim other new technologies had become available such as LFDs.

H.5 LFDs

- 270. During the summer of 2020 an LFD oversight group (chaired by Professor Sir John Bell at the University of Oxford) was set up to coordinate activities relating to whether and how LFDs could be used in the Programme.
- 271. PHE had already carried out some early pilot studies, which had informed the Government's decision to explore the LFD route. Porton Down and University of Oxford
had also, been running some preliminary laboratory research and some of the early human trials to establish whether LFDs would work in principle as a mass testing device. Following the conclusion that they would, Deloitte was brought in to help with how the LFD testing service could be rolled out.

- 272. A series of service evaluations were run in Autumn 2020 led by Dr Fowler to evaluate the use of LFDs: (a) by professionals in non-hospital populations; and (b) for selftesting by citizens. These service evaluations acted as a body of evidence for bringing new technologies into the Programme. They were carried out by academic and clinical experts and all study protocols and analysis of results were reviewed by academics in the University of Oxford Infectious Diseases & Microbiology Group as well as DHSC, who reviewed the output from these studies to inform decision-making and policy development. They were also used by the MHRA, including in its decision-making around its granting of an 'Emergency Use Authorisation' for the first self-test LFD, manufactured by Innova. Deloitte provided project management support to these DHSC/UKHSA sponsored service evaluations, by providing the infrastructure for studies, such as identifying suitable test site locations, securing required material like the sample collection kits, and generally addressing operational elements to allow the studies to run efficiently. All the clinical aspects and protocols were run by clinicians. The results were published in academic journals [DC-7/125 - INQ000594550].
- 273. One such service evaluation was the Falcon study (the results of which were published in academic journals) which was set up in September 2020 to determine the accuracy of several new LFD diagnostic tests for Covid-19 [DC-7/126 INQ000594397]. There were three steps to the trial: firstly, to establish if the LFDs worked in the laboratory; secondly, to establish if the tests worked on humans as administered by medical professionals; and thirdly, to establish if the tests still worked when non-professionals (i.e. citizens) administered them. Saliva and swab samples were gathered from known PCR-negative and PCR-positive individuals and the results were correlated against the results that the LFDs gave to establish an individual's true Covid-19 status. To complete the third step in the trial, a test needed to be developed that an individual could use themselves, rather than rely on a medical professional to administer a test at a test site.
- 274. Doctors at the University of Oxford led on the protocol elements in terms of the standard operating procedures for the test instructions. They wrote down the instructions and the standard operating procedures and Dr Fowler approved them. Deloitte provided support in terms of getting the instructions into the test box and

thinking about how to get people at a test site to follow the instructions, i.e. how to make them more accessible.

- 275. Studies were also run to improve public outcomes; for example, the initial LFD protocols required people to administer swabs deep into the nose and the throat and research suggested this was discouraging people from administering tests. A study was commissioned to review results from swabs taken just on the surface of the nose, in which Deloitte provided project management support. This study showed little difference in the results obtained, with the nasal-only results providing an equally reliable result. Consequently, the instructions for use were amended in relation to swab administration.
- 276. Once approved for use, LFD testing was rolled out for use in the Programme. This technology was a step change for the Programme. It overcame some of the challenges of PCR tests in that it was a self-testing method (which made it easier for people to get tests), there was no need for laboratory processing of test samples and would produce quick results. It also reduced costs. LFD technology significantly increased the ability to scale testing capacity and operations.
- 277. In the month of October 2020, a total of 189,820 LFDs were dispatched. This number increased to over 106 million LFDs being dispatched in the month of January 2021. In the 8 months leading up to 27 April 2021 a total of over 614 million LFDs had been dispatched [DC-7/012 INQ000594385]. A graph showing the growth of LFD capacity is enclosed at Schedule 8.

H.6 Testing for Variants

- 278. From late 2020, variants of Covid-19 began to emerge and a process for testing for variants was developed and implemented. Both the Wellcome Sanger Institute and Porton Down were involved in this process. The Wellcome Sanger Institute sequenced all new variants as they emerged and Porton Down then tested that LFDs worked for new variants.
- 279. For example, when the Delta variant emerged in October 2020, Dr Tom Fowler ran a service evaluation to ensure that LFDs were still effective and appropriate against it. Deloitte provided project management for this service evaluation. The results of this service evaluation, and other evaluations, have been published by DHSC [DC-7/127 INQ000594551].

H.7 Students Home for Christmas – November / December 2020

- 280. LFD testing was piloted in city-wide screening in the city of Liverpool beginning on 6 November 2020 and was then rolled out to support care home visits and the return home of university students for the Christmas break in December 2020.
- On 11 November 2020 the Government announced its plan to allow students to return home to their families for the Christmas period (the "return home" programme) [DC-7/128 - INQ000594552].
- 282. The Government's plan involved the creation of a travel window from 3 December to 9 December 2020 in which students who had been tested for Covid-19 and received a negative result would be allowed to travel home on staggered departure dates set by the universities they attended. The announcement stated that the Government would be working closely with universities to establish mass testing capacity and that testing would be offered to as many students as possible. Deloitte supported DHSC, as set out below, with the rollout of testing for students to achieve this plan.
- 283. On 3 November 2020, DHSC circulated to Deloitte and others a document headed 'Getting Students Home for Christmas' [DC-7/129 - INQ000594344]. This was a planning brief which set out the aim to test all asymptomatic UK students by the end of the Autumn term, 8 December 2020, to enable them to return home for Christmas if they received a negative result. The document also set out the early options for testing.
- 284. The Programme had a five-week window to try and achieve this ambitious undertaking. A universities team led by Deloitte Partner Rachel Phillips, who was already leading our Workforce Planning team, (Universities team) was immediately stood up to respond. Our response to this instruction became 'mission' orientated. The mission was to get students home for Christmas and avoid a mass migration spread of the virus.
- 285. For context, a national lockdown was in force from 5 November 2020 to 2 December 2020 following a surge in cases. That was why there was such a narrow travel window being targeted.
- 286. On 8 November 2020, Rachel Phillips provided a summary to the Deloitte LEPs of the brief and the next steps [DC-7/130 INQ000594346]. A ministerial letter had been issued to universities asking them to set up their own testing capability within two weeks, along with introductory briefing slides. Deloitte was instructed to act as an

'enabler' for the universities to deliver mass LFD testing by providing instructions, kits, and digital resource **[DC-7/131 - INQ000594347]**.

- 287. The first step was to undertake a planning exercise and identify the number of university sites within scope. The initial number was approximately 230 universities, and the aim was to enable testing of two million students, twice, within a one-week window [DC-7/132 - INQ000594355].
- 288. By 12 November 2020, 126 universities had provided expressions of interest for pre-Christmas LFD testing for their students, and this number was expected to rise to between 140 and 160 universities. Some universities ran multiple sites in England and Wales, so there was a need to communicate with each site as part of the testing rollout. We supported each of the devolved nations, but Northern Ireland ran its own response and used our system for support when required. We had specifically assigned people from Deloitte reaching out to the devolved nations to manage these interactions, with support from DHSC.
- 289. There were daily interactions with DHSC about the roll out of university testing. At this time, LFD testing had not been widely rolled out or approved for home use. This was a new technology and a new method of testing that had not previously been used at scale. Universities were some of the first use cases to adopt LFD testing.
- 290. It became clear that the only feasible option to roll out testing in the timescale set by the Government was for the universities to set up and manage LFD testing themselves, as opposed to testing teams being allocated and distributed to the various university sites. Our Universities team designed a process that allowed the universities to opt in or opt out via a questionnaire and agreement process.
- 291. As the universities would be running the testing themselves, there was a need to design and implement a full training programme and communication campaign, including standard operating procedures and testing guidance which had been signed off by DHSC and the clinical teams. Our Universities team ran webinars with the university representatives, which provided guidance to help universities set up the practical aspects of testing. Training was provided to over 100,000 people over eight days the timeframe was extremely tight.
- 292. Another part of Deloitte's role was to provide the logistical and operational elements to allow the universities to run the testing themselves, as well as sourcing a workforce if the universities needed this.

- 293. One of the first pilot 'use case' universities was Leicester in early November 2020. Leicester had a large science school and was willing and engaged in taking part in the university testing programme. Leicester was a success, but learnings were taken from it to scale the programme sufficiently [DC-7/133 - INQ000594350]. The University of Huddersfield was also an early use case and signed up to be part of the university testing programme on 12 November 2020 [DC-7/134 - INQ000594351].
- 294. In terms of getting tests to universities, sample collection kits were sent out in batches with the volume increasing week by week. There were logistical challenges; for example, physically getting the kits out to the universities was a major challenge as there was no single register of university addresses. Gaining access to buildings and organising access for HGVs to unload tests and PPE was also an obstacle, which we had to work with the universities to overcome.
- 295. In anticipation of students returning to universities after the Christmas break in January 2021 ("return to education" programme), consideration was given before Christmas to enabling that to happen. Guidance documents and standard operating procedures were put in place. The return to education programme (which took the same form as the return home programme) applied the processes that had worked previously and incorporated any learnings for improvements. Some of these learnings were around the difficulties experienced with university access, test kit delivery, and the use of mobile devices on certain networks. The mobile device issue related to poor data coverage on certain mobile networks at some university sites, which impacted users in terms of registering tests and receiving results. The universities overcame this issue by moving test sites to areas with better Wi-Fi or data coverage and by working with mobile network providers to introduce signal boosters to improve data coverage. A further challenge was the availability of mobile devices and the requirement for devices to be secure but also to have specific apps installed. There was competing demand for devices throughout the university testing programme so we worked with the universities to ensure there was effective communication and engagement between them to ensure each institution only took the minimum number of devices per site and returned any devices not being used, so these could be repurposed within the programme.
- 296. Some enhancements were also introduced, such as digitising the university questionnaire process and allowing universities to enter their address details and other information via an online system (the Core Digital Platform had evolved as we moved into 2021).

297. The university testing programme was stood up in five weeks and enabled students to return home to their families and friends for Christmas. It also marked a significant milestone in terms of the evolution of the Programme and the application of mass LFD testing for use by the general population.

I Vulnerabilities and Inequalities Considerations

- 298. From the outset of the Programme core principles of accessibility and inclusion were a focus **[DC-7/135 - INQ000594226]**. Deloitte was not involved in defining what 'vulnerable' meant, however we understood the term to have been interpreted more broadly than just those groups protected under the Equality Act 2010 (for example, to include those facing homelessness and more widely those without access to a car or digital technology). Our understanding is that when making testing policy decisions the Government took into account, for example: protected characteristics; geographical differences; socio-economic backgrounds; occupations; and/or immigration status. Deloitte was not involved in the setting of those policy decisions.
- 299 Consideration of vulnerable groups carried through Deloitte's work on the Programme.To list a few examples:
 - MTUs / LTSs were set up to address access issues as regards drive through sites;
 - (b) the Programme had specific workstreams dealing with vulnerable settings including care homes, adult social care, and prisons;
 - (c) there were disability considerations when setting up university testing. The Programme utilised the universities' existing governance and equality policies to ensure access needs were met for the students being tested and that the communication in the testing instructions was clear and included information on how to ask for additional help if needed;
 - (d) consideration was given to the homeless and those without digital access, who could attend physical settings to obtain their test results; and
 - (e) consideration was also given to the accessibility of the digital infrastructure that we designed and built. We included experts from our accessible design team in the Programme from the outset of our engagement and sought to meet good industry practice, notably Web Content Accessibility Guidelines (WCAG) 2.0 (which were in force at the time). We also followed the Government Digital

Service's design standards, which included doing adequate user research (including about accessibility) and having a feedback loop to incorporate the findings of this research into our roadmap. The digital accessibility considerations included validating that: a) the language was clear and understandable [DC-7/136 - INQ000594553]; b) the service was usable on mobile phones and computers, with combinations of keyboard, mouse and touchscreen users; and c) the service was usable by people with disabilities.

- 300. The Programme had initiatives (in which Deloitte assisted by way of operational or project management) covering:
 - (a) community led testing, including testing at faith centres, and door to door initiatives in high risk areas;
 - (b) the design of an anonymous testing journey for asylum seekers and refugees;
 - (c) designing a testing journey for the "digitally excluded", in partnership with the Good Things Foundation to leverage their online centre networks for excluded/vulnerable people.
- 301. Deloitte consulted with the local authorities to seek advice and guidance on how to approach the needs of vulnerable communities, groups, and individuals in their area. This assisted Deloitte in its thinking as to how to make testing more accessible to these vulnerable groups.
- 302. Targeted community testing was in place by July 2021 whereby asymptomatic testing services were delivered by local authorities, aimed at providing testing to disproportionately impacted and underserved groups, such as those who were affected by higher levels of infection, lower rates of vaccination and overall worse health outcomes. Given their understanding of the health dynamics of their communities, local authorities were asked to identify their groups of interest, for example, those facing homelessness.

I.1 Use-Cases

303. Use-case groups were set up with some directly geared into particular vulnerable groups. For example, there were use-case groups in respect of testing children and testing in prisons, the latter of which is considered below. Working in this way allowed the Programme to provide testing to a particular group where the landscape was

constantly changing, responding to policy decisions, and working with DHSC to consider how to design a test service that was accessible to each use-case group.

I.2 Population Engagement Study

- 304. Deloitte was engaged by DHSC to project manage a study relating to population engagement in terms of reaching vulnerable communities. This was a brief role in the Summer of 2020 which considered behavioural issues and the impact those behaviours may have on the rates of testing [DC-7/137 - INQ000594436 / DC-7/138 -INQ000594508].
- 305. The key question was 'How do we get all those tested who need it?'; the aim being to increase testing rates, both to reduce the risk to citizens themselves and of spreading the disease. In the study, it was recognised that different people will behave differently towards testing, based on what triggers a potential test, the community environment they live in and their attitudes to health.
- 306. The study was focused on NHS/ key workers, the public, non-exhaustive sub-groups such as: under 5s, disabled persons, non-digital enabled people, the homeless, travellers arriving in the UK, and symptomatic and asymptomatic individuals.
- 307. As part of the study, Deloitte looked at several data sets to collect information on individual attitudes, behaviours, collective triggers, demographics, and accessibility to testing, from institutions such as Imperial College, Kings College, YouGov, IPSOS and the Office for National Statistics.
- 308. The study resulted in a proposed framework to inform DHSC on its communications to deliver efficient messages via appropriate mediums, identifying preferred testing channels and offerings, leveraging regional information to inform locality specific considerations to increase rates of testing and identifying potential after care support such as messages or interventions for those who may need it. Please see the document referred to in paragraph 304 above.
- 309. Deloitte played a supporting role to DHSC in the study by using a growth path methodology for population segmentation to categorise the population based on existing research data. We were not involved or engaged in the public health messaging campaigns implementing these findings.

I.3 Sector Led Testing, Including in Adult Social Care and Prisons

- 310. Starting in the early days of the Programme, there was a 'Satellites and Vulnerable Communities' workstream tasked with helping to design, deliver and run the testing service for certain sectors, in particular relating to vulnerable communities such as care homes for the elderly, the wider adult social care sector, and prisons, in doing so implementing policy decisions made by the Government in relation to targeting and prioritisation. On the Deloitte side, this was led by Philip Coleman, an experienced Partner leading Deloitte's Workforce Transformation practice within Human Capital in the UK. He has over 20 years' experience in shaping and delivering enterprise transformation programme and has led on some of the most complex transformation challenges. Philip Coleman reported into Alex Cooper of DHSC, among others.
- 311. Deloitte's work involved architecting and co-ordinating the end-to-end process for the delivery of sample collection kits to organisations in those sectors and the return of those kits to the Programme's network of labs. Deloitte also designed and built two portals to enable certain organisations/settings (like care home and prisons) to: i) order additional sample collection kits in bulk (the Organisation-led Testing Portal described above); and ii) upload and handle results (the Subject Portal and later the Organisation-based Testing Portal)

I.4 Care Homes

- 312. Until April 2020, PHE led on outbreak testing within care home settings and the testing of care home referrals prior to hospital discharge was carried out utilising NHS lab capacity, all under Pillar 1.
- 313. On 9 April 2020, Deloitte was approached by Alex Cooper to support on the testing of symptomatic care home staff. RTS were being established and there was capacity within the test system. Ministers had tasked DHSC with utilising that capacity and, in turn, DHSC approached colleagues in PHE and the OLS seeking proposals on how to drive demand at those existing sites for care home staff. Deloitte was copied into the communications due to its role on the Programme.
- 314. DHSC's proposal at that stage was to contact all relevant stakeholders, including Local Authority CEOs, Directors of Adult Social Services and Local Resilience Forums, notifying them of the testing call and asking them to work with care home providers to refer their staff for testing [DC-7/139 - INQ000594238 / DC-7/140 - INQ000594239].

- 315. Deloitte assigned David Jones, who at the time was Lead Advisory Partner for Healthcare and Life Sciences, with leading on care home testing, to support the operational response for DHSC. His background prior to joining Deloitte was working in a corporate development role in the care sector and he therefore was familiar with the regulatory landscape, had knowledge of the care home system, and had connections with many of the leading providers.
- 316. David Jones and his team took instructions from Rod Latham, Nicholas Moran, Dr Charles Markland, and others at DHSC.
- 317. One of the first tasks was for Deloitte to co-ordinate with the relevant stakeholders to get symptomatic care home staff to attend RTS. A dialogue was opened immediately with PHE and the Care Quality Commission (CQC), as the independent regulator of health and social care in England, to explore how to contact the many different providers, both private, charity and local authority operated, to drive the demand for testing of staff within the sector.
- 318. On 9 April 2020, David Jones contacted Chris Day, Director of Engagement for CQC, who had already been in discussions with Tom Surrey as Co-Deputy Director, Covid-19 Response, Adult Social Care at DHSC, to plan how to contact care home providers. The CQC had a database of over 15,000 registered care homes and from this database care homes for the elderly could be identified which supported approximately 430,000 elderly residents and 750,000 care home staff [DC-7/141 INQ000594240].
- 319. The Programme recognised there was testing capacity within eight RTS and CQC confirmed it would be able to contact 491 residential care providers within a five-mile radius of those RTS to make them aware of available tests over that weekend of 11 April 2020, in line with capacity demands [DC-7/142 INQ000594243 / DC-7/143 INQ000594244].
- 320. CQC was receptive and assumed the responsibility for the allocation, distribution lists, and communications to care home providers, including the form of communication and the volume of communications that needed to be sent to encourage staff members to travel to a RTS for testing.
- 321. At the same time, Deloitte was supporting DHSC with the setting up of operational pilots for alternative delivery models, such as LTS, home testing, testing in care homes and, subsequently, 'satellite' testing for other vulnerable communities. Satellite testing was the targeted provision of sample collection kits directly to settings such as prisons

that had a particularly urgent or significant need. These modes of testing would remove the need for individuals to travel by car to a RTS and could be expanded to include care home residents where an outbreak was suspected or confirmed, which PHE had previously been leading on.

- 322. A number of Deloitte Partners, including David Jones, met to develop the architecture of the Programme in relation to care homes, and applied the same design principles of "Build, Run, and Improve" used throughout the Programme The process developed operationally in terms of logistics and transportation of tests to care homes, the administration by staff and the return of tests for laboratory processing. However, in the early days (and as I have described earlier in respect of the broader Programme) this process was hampered by limitations on the number of tests, laboratory capacity and courier fulfilment.
- 323. Information about DHSC's planned sector testing was shared with representatives from the devolved nations, for example on the daily 9am briefing calls. However, as the use and allocation of any testing capacity amongst different sectors was a matter for each devolved administration, Deloitte's involvement in care homes testing was focused predominately on England, as our instructions were driven by requirements set down by PHE and the CQC, which are English Government agencies.
- 324. Before rolling out the Programme to care homes more widely, on 18 April 2020 Deloitte was asked by DHSC and the OLS to run two pilots with two of the largest care home providers, HC-One and Barchester Healthcare, to trial sample collection kit drops of 10 boxes of kits to care homes with some degree of infection amongst residents (short of an outbreak). Care homes ordered sample collection kits, at this stage all supplied by Randox, via the CQC, and they were delivered via courier, such as Royal Mail, to the care home. Staff administered the test, and the sample collection kits were collected via courier and delivered to the Randox laboratory for processing, with the test results being matched up to test numbers and thereafter communicated to the care home.
- 325. The CQC initially requested that care home staff needed to be medically qualified or receive training to administer tests to care home residents. However, this would have caused a delay and a blockage in the pilots, as care home staff across the country would have needed to receive specialist training. The CQC refined its stance following receipt of a letter from DHSC explaining why this was not practical. Following sign-off

from Dr Fowler and the CQC, the pilot was given the go ahead [DC-7/144 - INQ000594248].

- 326. Guidance, which was drafted by Deloitte with input and approval from Dr Fowler's team of clinicians, accompanied the tests setting out the process care home managers should follow. Training videos were prepared by Deloitte with input from care home operators, demonstrating how care home staff should administer the swabs, use PPE, book a courier and the process to follow when test results were returned. Webinars were later produced by Deloitte, in conjunction with Barchester Healthcare and other providers, that care home managers could join to be given clear instructions on the end-to-end testing process.
- 327. Operational and policy decisions concerning these pilots were made by DHSC and OLS in real time, including but not limited to the scope and prioritisation of vulnerable groups, and the definition of care homes (in particular, whether they comprised of nursing homes, home care residents and facilities not regulated by the CQC). Once decisions had been taken, this information/instruction was communicated to Deloitte and Deloitte built it into the Programme.
- 328. An initial pilot involving 17 care homes run by HC-One and Barchester Healthcare was launched on 21 April 2020 [DC-7/145 INQ000594253]. Sign-off was received for expansion of the pilot and accompanying guidance from a working group consisting of PHE/ NHS and DHSC on 23 April 2020, with the plan to move quickly with the roll-out.
- 329. The pilot was subsequently extended beyond the initial two participants on 30 April 2020 across the larger care home groups.
- 330. Actions arising in relation to care homes were discussed during the Programme-wide 9am briefing calls (these calls are explained further at paragraphs 54 and 359(b)), including confirmation of policy decisions regarding the testing of asymptomatic individuals in care homes [DC-7/146 - INQ000594256] and the shipments of sample collection kits to care homes [DC-7/147 - INQ000594273].
- 331. On 28 April 2020, Deloitte was informed by DHSC that the Prime Minister's Office was currently reviewing the approach to care home testing and, once it had, the instruction would likely be to reach out to all care homes at once [DC-7/148 - INQ000594264].

I.4.1 Whole-Home Testing

- 332. On 1 May 2020, Deloitte was informed, in anticipation of the daily press briefing later that day, that the Health Secretary's plan for care home testing was for the pilot to be expanded at the end of May 2020 to the delivery of whole-home testing across the sector, initially focused on homes where the resident profile was older people or those with dementia. This accounted for nearly 9,000 care homes across England, broken down into 300,000 residents and around 500,000 staff to be tested. It was estimated on average that care homes would need approximately 90 sample collection kits to test the whole home and total daily demand across England would be in the region of 36,000 tests per day [DC-7/149 INQ000594267].
- 333. By 3 May 2020, whole-home testing was being piloted, but the increase in demand resulted in us having to make changes (as approved by DHSC) to the end-to-end process to scale up testing, with the need for packing centres to accommodate the increased number of boxes of sample collection kits now required and a digital solution for the registration of tests [DC-7/150 - INQ000594271].
- 334. The Digital team built the organisation-led testing portal (described above) during early May 2020 (although this was known in the care home sector as the "care homes portal"). The portal went live on 11 May 2020, announced via a press release from DHSC, which enabled care homes to order and re-order sample collection kits and book couriers [DC-7/151 INQ000594278]. In the first instance, care homes were limited in the number of kits they could order due to limitations in the number of available tests. This increased as more tests became available. Another portal was also built, the organisation-based testing portal, which gave care homes the ability to bulk register rather than registration for individual kits.
- 335. Initially demand was higher than the supply, so DHSC (with input from PHE) had to make allocation decisions. This was the approach adopted until the number of available tests and lab capacity increased.
- 336. On 8 June 2020, DHSC announced via a press release that expanded whole-home testing was to be rolled out to other CQC-registered care homes. These were care homes primarily caring for those with learning disabilities and mental health issues, which was a further 6,000 establishments. In advance of this announcement, on 21 May 2020 we piloted testing in specialist care homes with Priory Group and Voyage Care, based on similar principles to testing in elderly care homes.

- 337. Throughout, test kit allocations were determined by DHSC. There were several examples where instructions were given to Deloitte to accelerate planned weekly testing of all care home staff, such as in Leicester on 28 June 2020, or to pause other pilots, such as the prison survey pilot, until the spread of the disease in care homes was under control [DC-7/152 INQ000594319 / DC-7/153 INQ000594321]. To illustrate the scale of the whole-home testing pilot, on 29 April 2020, for example, 5,290 sample collection kits were despatched to care homes, but this was increasing daily, such that on 24 May 2020, for example, 25,260 kits were dispatched [DC-7/154 INQ000594282]. By 8 June 2020, 450,000 residents and care home staff cumulatively had been tested.
- 338. David Jones stopped working on the Programme on 8 June 2020 and his role in care home testing was handed over to Deloitte partners Liz May and Philip Coleman. Liz May is a Public Sector Advisory Partner within Deloitte and specialises in providing financial and operational improvement services. In particular, she specialises in the NHS industry and has specific expertise in Commissioning organisations, Community and Mental Health Services. Liz May was brought into the Satellites and Vulnerable Communities workstream based on her strong skills and understanding of the local demand markets. Philip Coleman's expertise is explained above.
- 339. On 3 July 2020, DHSC announced that from 6 July 2020 regular retesting in care homes without outbreaks would be rolled out. Care homes registered for retesting via the care homes portal. Sample collection kits were distributed to care homes to provide capacity for one month's testing, with residents tested once every 28 days and staff tested every week [DC-7/155 - INQ000594391].
- 340. Randox contracted directly with DHSC to supply sample collection kits to the Programme, which had to be processed in Randox's laboratory. In July 2020 there was a specific issue affecting Randox sample collection kits relating to the swabs not being CE-marked, which resulted in a recall of those kits on the instruction of the MHRA [DC-7/156 - INQ000594320]. Deloitte provided operational support to ensure that affected care homes received replacement sample collection kits.
- 341. By 28 September 2020, a roundtable with NHS Test and Trace took place to prepare for the Government's Winter Plan, with a focus on care home testing [DC-7/157 -INQ000594327]. Deloitte's role at the roundtable was to provide an operational update on testing and turnaround times, as well as some of the improvement initiatives that Deloitte were supporting.

- 342. By October 2020 LFDs had emerged as a new technology that could be used to test a higher proportion of asymptomatic people, enabling the identification and isolation of those individuals to break the spread of the virus. As LFD testing relied on self-swab samples and did not require a laboratory to process the samples, this had significant potential for faster turnaround times for test results in care homes.
- 343. Deloitte developed the design and build for a LFD pilot across a number of settings, including care homes, but in particular project managed a pilot evaluation for visitor testing in advance of the LFD roll out in care homes. By 16 November 2020, LFD pilots were rolled out in a select group of 20 care homes, with visitor testing commencing on 2 December 2020. For care homes, the roll out of LFDs enabled visitors, domiciliary care workers and professionals to enter care homes without increasing the risk of transmission to residents and staff.
- 344. By January 2021, 227,025 LFD tests had been completed for care home residents, staff, and visitors across 233 locations [DC-7/158 INQ000594362]. In the first week of January 2021, 4,674,450 LFDs were delivered across the wider adult social care sector (which included care homes) [DC-7/159 INQ000594395].
- 345. By 25 January 2021, all care homes in England were notified of the MHRA's approval for care home staff members to self-test using LFD tests. Deloitte supported the communications for this by drafting self-test guidance and email notifications that were ultimately reviewed and approved by DHSC. We also supported DHSC with communications to the provider engagement group, comprising the largest 15 providers in the sector.
- 346. On 1 February 2021 the process moved to a "pull model" enabling care homes to order replenishment LFD tests directly. This was an enhancement of the previous "push model" whereby care homes were sent LFD tests periodically.
- 347. During February, a number of care homes ordered LFD sample collection kits but did not then register their test results. Following phone calls to care homes that were not registering test results to understand why, it was identified that many care homes were confused about how to register results. It was also identified that registering LFD test results was creating an increased administrative burden on care homes. As part of the response, Deloitte supported DHSC with the operational aspects of several options which were being explored to encourage care homes to register test results. The option that was put into place was one of enhanced communications. Deloitte helped to

establish systems for DHSC to communicate with care homes to: a) encourage and request the registration of LFD test results; and b) educate care homes, including communications to clarify that care homes were required to register results, and proactive calls to those care homes which had not registered test results to understand the reasons for non-registration. As part of this, Deloitte developed, and in some cases ran, webinars as training for the use of LFDs in care homes, detailing how to carry out an LFD test and how to register a result. Deloitte collated best practice to drive up compliance of registering LFD test results as part of our ongoing work at that time [DC-7/160 - INQ000594370 / DC-7/161 - INQ000594375 / DC-7/162 - INQ000594368 / DC-7/163 - INQ000594365 / DC-7/164 - INQ000594377 / DC-7/165 - INQ000594383].

I.5 Roll Out of Testing in Prisons

- 348. Testing in prisons followed from the roll out of testing in care homes and the wider adult social care sector. The test system built for care homes was created following an instruction from the Government to enable a supply chain which worked to get testing to vulnerable people. The same system was used for other vulnerable communities, including those within prisons. In practice, when the Government deemed there to be capacity in the testing infrastructure outside of testing key workers and supply to care homes, testing to other vulnerable communities was rolled out. Deloitte was not responsible for identifying which sectors were deemed to be 'vulnerable' settings; this was a Government policy decision that was communicated to Deloitte so we could operationalise it.
- 349. Alex Cooper announced the planned use of a part of the Pillar 2 testing capacity for prison surveillance in late April 2020, with a plan to initially implement testing for 30 prisons with an overall testing capacity of 3,000 per day from May 2020 [DC-7/166 INQ000594259]. Neil Ashworth, Director of Delivery Channels, and Gavin Sambles, Head of Home Testing, at DHSC were points of contact for Deloitte. Jamie Turner was DHSC Policy Lead for prisons. As part of the Testing Prioritisation Board (which was a Government co-ordinating body making decisions on targeting and prioritisation; Deloitte was not a member), Neil Ashworth was responsible for allocation of sample collection kits and for decisions around prioritisation. Deloitte's role was facilitating the supply of these kits to prisons (in the ways set out below) in accordance with the figures allocated to that sector by the Government.
- 350. The Ministry of Justice (**MoJ**), through HM Prison and Probation Service (**HMPPS**) represented by Joanna Gunkel (HMPPS Lead for Covid-19 Testing), provided

instruction to Deloitte on how many sample collection kits were needed, how these were to be allocated to various institutional settings, how the sample collection kits should be used, and what the protocol was on site. Deloitte was given this information, predominately via Jamie Turner, and then mobilised to make it happen. There were regular meetings, including weekly engagement calls, with stakeholders from the MoJ and HMPPS and regular catch ups with Jamie Turner and Joanna Gunkel.

- 351. The same operational model used for testing in care homes was used in prisons. This model was standardised and not tailored for any particular setting. As such, when a decision was made to roll out testing to prisons, those institutions were onboarded into the existing system (the organisation-led testing and organisation-based testing portals mentioned above) for ordering, registration, allocation, and e-courier collection purposes. It was not a case of having to produce an entirely new system. The process involved Deloitte being informed by the MoJ of the allocation of tests in respect of each institution, a testing priority being allocated to each prison by MoJ and HMPPS, and each prison being onboarded to the ordering system before an order was then placed. The process of carrying out testing in prisons was managed by HMPPS and the MoJ.
- 352. There was an online portal to register prisoners in bulk (the organisation-led testing portal described above) for testing and daily courier pickups were arranged by the prisons themselves in the same way as for care homes. Once completed, the sample collection kits were collected and taken to labs for processing. Following the confirmation of results, a notification was sent to whoever had registered the test.
- 353. By the end of August 2020, Deloitte was instructed to provide sufficient sample collection kits to enable testing of the prison estate from mid- to late- September 2020. There were to be 8,000 tests in prisons per week distributed across the prison estate [DC-7/167 INQ000594322]. The roll out of testing in prisons began in the second week of September 2020 following various pilots and surveys conducted by the MoJ and HMPPS up to August 2020.
- 354. Initially, testing was carried out by way of PCR test only. This expanded into the use of both PCR and LFD testing once the technology was available and eventually to solely LFD testing. LFD testing was piloted in prisons in January 2021. On 11 January 2021 we were asked by the MoJ to roll this out to the prison estate. In February 2021, we provided project management support on the application of the self-test model used in care homes in relation to use of LFDs in prisons. The training disseminated in care homes was also used in a prison setting.

- 355. There was complexity around the registration and results notification process in prisons, as the test system which had been developed contemplated individuals registering on their own behalf. In a prison context, with the population not having access to the internet, this was not possible. The existing system was not designed to give somebody another person's test results and apart from the practicalities, this also raised issues relating to GDPR. As a result, it was necessary to work with HMPPS and the MoJ to capture their requirements and update the system to ensure that the portals worked for a prison setting. Specifically, the MoJ wanted a bulk system for receiving results (i.e. receiving a number of results relating to a prison population in one batch), which Deloitte then built (as functionality in the Subject Portal and then the Organisation-based Testing Portal described above).
- 356. The actual process for testing prisoners also involved considerations specific to the prison setting. The testing protocol was created by the MoJ and this was carried out in each prisoner's cell, one by one. The tests were then taken away and registered together later. In the early phase of prison testing there was no technology to facilitate registration at the point of testing.
- 357. At times, the Programme had to deal with crisis points when outbreaks affected multiple prisons, and this contributed to prisons moving up the priority allocation list. This was a decision for the Government. Deloitte facilitated this change in priority by creating workarounds to arrange emergency deliveries and dedicated collections.

J Oversight, Input and Scrutiny

- 358. I consider that there was significant governance and oversight of Deloitte's work. Broadly this falls into the categories of:
 - (a) Government / client oversight;
 - (b) Deloitte internal Quality Assurance;
 - (c) Clinical oversight provided by a team led by Dr Fowler.

J.1 Government / Client Oversight

359. The Government, through DHSC initially and then through NHS Test and Trace, maintained robust control, oversight and assurance over all of Deloitte's activity in support of the Programme. This governance activity took place at several levels, as follows:

- (a) Workstream Leads each workstream that Deloitte was part of, was led by a DHSC/NHSE/NHSD Civil Servant or third-party contractor. The workstream lead was responsible for:
 - day to day oversight of the Deloitte support including but not limited to resourcing (numbers and skillsets);
 - day to day management decision-making and oversight of other interdependant activities outside of Deloitte's scope;
 - (iii) approval of all-time records from which invoices were prepared;
 - (iv) the determination and approval of all contractual workstream activity; and
 - sign-off and approval of workstream close-down knowledge transfer activities.

Frequency: largely daily interaction.

(b) 9am Briefing calls – on our recommendation, these calls were set up soon after Deloitte's instruction on around 20 March 2020 and ran until late September 2020. Attendees of these calls changed over time but broadly included senior Civil Servants, representatives from the devolved nations, subcontractors, scientific and clinical experts, and individuals from the Deloitte workstreams. The purpose was to update pan-Programme leadership on the progress of each workstream and agree key actions and activities.

Frequency: Daily.

(c) COO NHS Test and Trace meetings – meetings with the NHS Test and Trace Chief Operating Officer and Deloitte LEPs to discuss overall (all workstreams) Deloitte support. The meeting addressed: finance, risk/issues, asks of NHS Test and Trace leadership, resourcing requirements, contractual matters, horizon scanning and then migration activity from Deloitte personnel to a combination of Civil Servants and third-party contractors.

Frequency: Weekly.

(d) **Baroness Dido Harding, Lead NHS Test and Trace** – meetings with Baroness Dido Harding and the Deloitte LEPs to set direction and lay out the high-level requirement for Deloitte's support into the NHS Test and Trace organisation.

Frequency: Monthly but occasionally cancelled through operational necessity.

(e) David Williams, 2nd Permanent Secretary – meetings with David Williams and the Deloitte LEPs to discuss the overall Deloitte support, contractual, financial and headcount matters.

Frequency: Monthly but occasionally cancelled through operational necessity.

- 360. Our LEPs also met with DHSC senior leads every week and provided updates on activity supported by Deloitte personnel.
- 361. An example of the short form presentation used in respect of the meetings detailed at paragraph 359 (c) to (e) above is attached as [DC-7/168 INQ000594554]. These meetings typically addressed Deloitte support, cost and often, pace of migration to civil service replacements. Deloitte does not hold any record of the minutes of the meetings referred to at paragraph 359 (c) to (e) above or the meeting referred to at paragraph 359 (c) to (e) above or the meeting referred to at paragraph 360 above, but we expect others will be able to readily produce any minutes they have.
- 362. The Government often made or changed policy or strategy decisions more than once a day during the early weeks of the pandemic. These decisions, insofar as they concerned activity being undertaken by Deloitte, were communicated to the Deloitte LEPs by Kristen McLeod CBE, Alex Cooper, or Mark Hewlett.
- 363. There were also independent reviews of the Programme. For example, the Infrastructure and Projects Authority (IPA – the Government's centre of expertise for infrastructure and major projects) carried out an independent peer review of the Programme between 4 and 7 May 2020. The IPA highlighted the efforts of those involved in meeting the 100,000 tests per day target and made recommendations, which were reviewed and acted on [DC-7/169 - INQ000594281].
- 364. The National Audit Office and the Public Accounts Committee also undertook reviews of the wider NHS Test and Trace service.

J.2 Deloitte Internal Quality Assurance

365. Deloitte applied significant internal quality assurance to its own work in supporting the Programme. We ran the following processes to ensure that: (i) Deloitte only supported

those areas of the Programme that were appropriate to our skills, expertise, and available resources; and (ii) once deployed, all Deloitte activity was actively and regularly quality assured internally. It was not the role of Deloitte to quality assure actual testing; as explained above, that was the role of the Government.

Deloitte Quality Assurance Processes:

(a) **Covid-19 Deal Review Board**

An internal governance body established to review all Covid-19 related requests for support from the Government, most notably from DHSC. No Deloitte resources were deployed on the Programme without the express prior agreement of the Deal Review Board so that we could ensure that we had: (a) the necessary resources/capacity; (b) the right expertise; and (c) no other professional hindrances. This Deloitte governance body was also empowered to decline requests.

(b) Daily National Testing Programme Risk Meetings

Chaired by me – a daily meeting to review a revolving set of Programme workstreams, usually comprising approximately five workstreams being reviewed each day. The purpose was to assess progress, address blockers and to ensure the resourcing was adequate in terms of numbers and skillsets.

(c) National Testing Programme Workstream Lead Calls/Meetings

Regular meetings with all Programme workstream leads (comprising Partners and Directors) to ensure all activity was aligned and challenges discussed and resolved (e.g., resourcing/skills requests).

(d) Weekly Risk Call

Key attendees included: Sara Siegel; Mike Standing; Rob Parker, the Deloitte Managing Partner for Quality & Risk, the Deloitte Consulting Quality & Risk Management Leader, and me. The focus of this weekly call was largely on the operational issues across all Programme workstreams and reviewing reports into DHSC. It also addressed Programme blockers, resourcing challenges and issues to raise with NHS Test and Trace leadership. One example related to the general well-being of the combined Civil Servant, Contractor, military, and Deloitte personnel.

(e) Regular Quality & Risk Management Calls

Key attendees included: Rob Parker, Jayson Hadley, the Deloitte Managing Partner for Quality & Risk, the Deloitte Consulting Quality & Risk Management Lead, and me. The focus of these calls was on quality and risk issues across all Programme workstreams, including resourcing requirements; contractual matters; horizon scanning; and finally, migration activity from Deloitte personnel to a combination of Civil Servants and third-party contractors.

(f) Regular National Testing Programme Leadership Calls

Key attendees included: Mike Standing; Rob Parker; Sara Siegel; Nick Owen CBE, Jayson Hadley, Rebecca George CBE, the Deloitte UK Life Sciences & Healthcare Lead, the Deloitte UK Human Capital Practice Lead, the Deloitte Consulting Business Lead, and me. The purpose of these calls was to ensure that Deloitte senior leadership were informed about the firm's support for the Programme. This group was also responsible for ensuring that all required resources/skills were made available from the right areas of expertise within Deloitte in a timely manner.

(g) Quality Assurance Partner

Two Dedicated Quality Assurance Partners were assigned, who each undertook regular, independent Quality Assurance Reviews of Deloitte's support for the Programme. These were reviewed by the Deloitte Consulting Senior Leadership team comprising Jayson Hadley, the Deloitte Consulting Quality & Risk Management Lead, the Deloitte Consulting Business Lead, and me.

(h) Reports to Deloitte's Independent Non-Executive Directors (INEDs)

As part of its overall governance, Deloitte has a number of INEDs. We provided progress reports periodically to those INEDs. Their role, I would say, was to consider our support as a firm through a public interest lens. They also asked questions relating to Deloitte's involvement in providing support into the Programme.

366. In addition to the internal quality assurance activities described above that Deloitte undertook, individual workstream leads also met (either in person and/or on calls) very frequently and often daily.

J.3 Clinical Input / Oversight

- 367. Overall accountability for public health and clinical oversight of Pillar 2, including assurance on clinical governance, rested with the Director of Public Health Testing, who led the Public Health, Scientific, and Clinical Oversight team (PHCSO). This was initially led by Dr. Fowler and Professor Hill. The PHSCO team was later renamed the Public Health and Clinical Oversight team (PHCO) when Professor Hill established her own group to oversee the scientific oversight of labs.
- 368. Additionally, the Government appointed clinical experts and panels of virologists, epidemiologists, immunologists, and other scientific research advisors to provide guidance and clinical oversight to the Programme. Many decisions relating to aspects of the Programme needed expert clinical input and sign off.
- 369. Deloitte's role was to provide project management and operational support to the Director of Public Health Testing, and the PHCSO/PHCO teams.

370.	Key individuals in terms of clinical oversight of the Programme included those named
	in the table below.

Name	Role
Dr Ed Blandford	Senior Policy Manager for OLS / DHSC.
Dr Aiden Fowler	Deputy Chief Medical Officer at DHSC.
Dr Tom Fowler	Director of Public Health, Testing, UKHSA.
Professor Lindsey Davies	Joint clinical advisor with Dr Tom Fowler.
Professor Dame Sue Hill	Chief Scientific Officer for England, Director
	Testing Technologies, Validation and
	Regulatory compliance.
Professor Dame Anna Dominiczak	Director of Laboratories, Testing, UKHSA

- 371. Advisory groups specialising in discrete areas of the Programme were established to provide support and expert guidance on clinical aspects of the Programme. These groups included, but were not limited to:
 - (a) NHSE ran a group of clinicians focused on validating PCR testing in NHS institutions (NHS Covid-19 Swabs and Testing Clinical Reference Panel).
 - (b) Oxford University and Nuffield Department of Medicine academics and clinicians supported with questions on PCR sample collection kits.
 - (c) The University of Oxford Infectious Diseases & Microbiology Group, led by Professor Tim Peto, Professor Derrick Crook, and Professor John Bell, dealt with scientific and clinical validations for PCR sample-collection kits.
 - (d) A group of PHE scientists based at Porton Down led by Alex Sienkiewicz of UKHSA, conducted scientific testing, including relating to the scientific validation of PCR sample collection kits and LFDs.
 - (e) An LFD oversight group chaired by Professor Sir John Bell of Oxford University was set up to co-ordinate activities around whether LFDs could be used on the Programme.
 - (f) A group that included the Wellcome Sanger Institute and the Crick Institute, reporting into Professor Hill, were involved in the sequencing of new Covid-19 variants.
 - (g) A Testing Initiative Evaluation Board was set up to provide advisory input on scientific studies and evaluation work, and to provide expert input and review of study plans, protocols, and findings.
- 372. Deloitte attended some of these clinical advisory panels routinely, however for others only upon request in relation to specific topics. Deloitte consulted clinical experts where needed on the Programme. Deloitte also played a role co-ordinating between Government decision-makers and clinical experts and project managing certain aspects of work carried out by clinical experts.
- 373. From Deloitte's perspective, we involved colleagues from a clinical, scientific and/or public health background to support with co-ordinating clinical aspects of the Programme. One such individual was a Consulting Senior Manager in Deloitte's Life Sciences Strategy practice, specialising in life sciences and healthcare innovation and

R&D, including the creation of public-private and cross-public sector partnerships to support life sciences R&D. Prior to joining Deloitte, this individual was a Biochemist, making him familiar with the scientific practices underpinning Covid-19 testing technologies and the requirements of scientific and medical evidence generation.

374. The abovementioned individual helped to support DHSC by providing project management services to structure input and thinking on clinical and public health matters within the PCR testing supply chain, facilitating and supporting the interactions between Government clients, its expert advisors, and other stakeholders to enable clinical input to be understood and implemented by the operational teams. This was later expanded to encompass LFD evaluation, evidence generation and project management support for the clinical input and oversight into new asymptomatic testing service design.

J.4 Previous Learning

- 375. My colleagues involved in the preparation of this statement do not recall being made aware by our clients of Exercise Cygnus 2016 or any other previous pandemic exercises, although they may have been so aware of such exercises from public reporting at the time.
- 376. Deloitte worked alongside clinical and public health teams on the Programme (as outlined above). I believe individuals in those teams are likely to have been active in terms of previous infectious diseases and deploying any relevant learnings within the Programme.
- 377. There was a reoccurring knowledge sharing call run by the DHSC in which different countries from around the world, such as Israel and the USA, shared how they were approaching testing and discussed what was working and what needed to be improved. This call was attended by individuals from Dr Fowler's team. Deloitte did not routinely attend this call unless there was a specific need as flagged by Dr Fowler; however, any relevant information was cascaded down into the Programme by the public health advisors. I am aware Deloitte personnel carried out desk-based research for general awareness in terms of testing operations in other countries and spoke to global internal contacts on an informal basis. This approach to knowledge-sharing confirmed the value of (a) having an integrated supply chain model and (b) having a national (rather than local) data collection capability when compared with challenges faced by other countries which did not have the same capability.

J.5 Robustness of the Programme

- 378. I have been asked what steps were taken by the Government to ensure that the Programme was robust and effective. The Government entities involved in this Inquiry will be better placed than I am to answer that question.
- 379. In addition to the client oversight and scrutiny, independent review and Deloitte's own quality assurance processes described at paragraphs 358 to 366 above, there were many other components relevant to ensuring the Programme was robust and effective, including:
 - (a) Robust design principles and processes The Programme was designed by first setting out the 168-stage process map for PCR testing (outlined at paragraphs 52 and 53 above) in a sequenced and logical way. That detailed mapping process built in robustness by identifying each aspect (or stage) of the process so that appropriate expertise could be brought into each area. There was early recognition that anything that had to be built needed to be scalable at pace;
 - (b) Taking an idea, keeping it small in scale, and running a pilot to test it This process of running pilots was to create robustness by evaluating performance, identifying issues, and anticipating future problems so they could be fixed before being rolled out at scale;
 - (c) The Programme operated on a "Build, Run and Improve" model I have explained this above at paragraph 92 in relation to testing sites, but the same process applied throughout the Programme; and
 - (d) People There were tens of thousands of people from across the Civil Service, military, public and private sectors working on the Programme at its peak. From the workforce manning the test sites to the leaders of the Programme, everyone involved was working together as one towards a common goal in supporting the national response to the pandemic. This group was remarkable, combining skills, experience, expertise, and a dedication to getting things done. The professionalism and commitment of those individuals was paramount to the Programme being robust and effective.

J.6 Cost and Value for Money

- 380. In March 2020, Deloitte suggested to the Cabinet Office that it should use an existing competitively procured Crown Commercial Service (CCS) framework, Management Consultancy Framework 2 (MCF2) as the contractual basis for its initial support into the Programme. Deloitte offered a material discount to the competitively procured MCF2 rate card. This offer was accepted by the Cabinet Office. Over time, Deloitte was asked to contract for different elements of support under different frameworks or new competitive procurements. For example, the digital support for the Programme was initially contracted under MCF2 and later contracted under a framework known as G-Cloud 11. Again, Deloitte offered a discount to the competitively procured G-Cloud 11 rate card. The total amount billed by Deloitte for the period 19 March 2020 to 28 June 2022 for the Module 7 related support was £395m.
- 381. Value for money is a criterion used as part of a broader assessment of suppliers who respond to public tenders to be appointed to any CCS framework. Issues that include but are not limited to cost effectiveness, price and quality are assessed for a supplier to be appointed to a CCS framework. Deloitte offered discounts to rates that had been competitively procured and that had formed part of the evaluation criteria that warranted the appointment of Deloitte to a range of CCS frameworks as detailed above in terms of how we as an organisation enabled and supported the Government in achieving its objectives around the Programme.

K Lessons Learned

382. In this final part of this witness statement, I set out Deloitte's general reflections on the Programme and lessons to be learned for the future. These may be specific Deloitte reflections, or Deloitte observations on the reflections of others. Where they are Deloitte reflections, they represent views collected from the Deloitte LEPs and others named in this witness statement who were involved in respect of specific aspects of the Programme.

K.1 Observations on Lessons Learned

- 383. Deloitte has identified a number of lessons arising out of its role, which I hope will be of some assistance to the Inquiry.
- 384. As a country, having a defined and designed operable supply chain that could support extending diagnostic testing would be sensible, achievable, and affordable (although I

note that affordability is an issue to be considered by others). The premise being that for any highly infectious disease that is novel and deemed serious, having the ability to scale diagnostic testing would always be advantageous.

- 385. The foundation for the Programme was the genomic research undertaken in the UK which allowed the rapid deployment of PCR testing early in the pandemic to give reliable results. This was a useful building block whilst other testing technologies such as LFD could be evaluated and proven.
- 386. In terms of an enduring capability in diagnostics, this would comprise (but is not limited to):
 - (a) a UK domestic manufacturing capacity for the key elements of sample collection kits, such as vials, swabs and critical reagents and LFD kits. For example, it would be advisable for an agreement to be entered into with chemical providers to hold or guarantee supply of critical reagents; more than once basic chemical supply was an issue during the Covid-19 response. Medical ethanol was one example that was difficult to source, or storage was insufficient at labs.
 - (b) agreements with third party logistics providers to provide inbound and outbound logistics (for example the physical infrastructure for all aspects of testing) at scale; many, if not all, logistics providers operate with capacity in the network due to the normal peaks and troughs of their businesses;
 - (c) an early agreement with Royal Mail to use post-boxes and postal delivery for home delivery – this was the most effective way of distributing and returning sample collection kits;
 - (d) an agreement with an Enterprise Resource Planning provider (such as Oracle) for software that would support demand forecasting, inventory, and supply chain management;
 - (e) establish a UK domestic lab machinery log realistically the machinery to test 100k-250k-500K tests a day are needed. If necessary, have a set of national equipment and an understood lab design;
 - (f) central government to work with local authorities to create and maintain a list of sites (at local or national level) which could be repurposed as RTS or LTS (including indoor and outdoor options). Suitable sites were difficult to source

and maintain, often with traffic or environmental issues that only came to light when the test sites were established; and

- (g) agreements with public and private lab providers to provide baseline capacity and support for surge capacity, and to provide resourcing to train and scale the capacity needed from storage or from a domestic lab log. In terms of more overarching themes, Deloitte would highlight the need for the following: Public and private sector partnership, including appropriate use of the military; An agile approach required to address dynamic complex challenges;
- (h) The use of Build, Run and Improve approach;
- (i) Digital, data analysis and technology capability; and
- (j) A legacy for the Programme.
- 387. Taking each in turn:

K.1.1 Public and Private Sector Partnership, Including the Appropriate Use of the Military

- 388. As outlined in this statement already, the public and private sector effectively combined to rapidly step up to support the creation and expansion of testing as part of what later became known as the NHS Test and Trace service.
- 389. In responding to any national emergency and recognising that this is a topic that drives debate and discussion, it is clear a partnership is required between the Civil Service, public and private organisations. As the Government acknowledged, part of the success of the Programme was the partnership with the private sector, the NHS, the pharmaceutical industry, the military and many other sectors and organisations. Each had a vital role to play in what was a complex and critically important programme.
- 390. In short, the involvement of private suppliers in 2020 providing the rapid development of testing and processing capability at scale, as well as the workforce and skillsets needed – was the only way in which the Covid-19 response could be delivered. The NHS alone could not respond to the crisis, particularly at the pace required given its own requirements and finite capacity.
- 391. From day one, the multiple teams understood the common purpose to build a national testing capability and worked as one seamless team to achieve that objective. In such circumstances, strong, visible, and consistent leadership are key, along with the right

structure and governance in place. Transparency and communication play an important role, which is why the 9am briefing calls were central to the Programme and its co-ordination but also created real momentum for getting things done.

392. There are opportunities to improve the process for involving the private sector in crisis situations. Deloitte considers that there is value in building broader relationships between the private and public sectors outside that crisis environment to ensure preparedness. One example would be to set up advisory committees, so that contact could be maintained.

K.1.2 An Agile Approach Required to Address Dynamic Complex Challenges

- 393. Anticipating the next pandemic is challenging but responding to any major national event in the UK is a beneficial way of illustrating the approach that ought to be taken. The UK needs a scale capability for dealing with a national response and would benefit from individuals who are experienced in building and operating programmes at scale and from using more agile design approaches, similarly to how large private organisations run themselves, to get there faster and quicker.
- 394. It is fair to say that the Programme was built in a highly uncertain environment, responding to the emerging knowledge about Covid-19 transmission and its severity, which in turn fed into demands on the Programme by the Government. There was pressure to deliver new capabilities and accelerate delivery under constantly changing external conditions. These dynamic and complex challenges required a new approach.
- 395. Historically, such challenges have been addressed with a 'control' and 'assurance' mindset, with multiple milestones, detailed plans, and assurance reviews. The Programme recognised the value of an approach based on dynamically managing change, accepting the level of uncertainty, with a clear directional goal or common purpose and creating a single forum with the 9am briefing calls to co-ordinate the different workstreams and share all information to create a network of decision makers. This worked well and delivered the pace that was required.
- 396. As part of this agile approach, the Programme placed an emphasis on realism when assessing issues and developing solutions, undertook continuous horizon scanning to anticipate the future (for example, the digital builds), evolved a flexible design to meet new requirements, and used all these tools to create momentum throughout the Programme.

K.1.3 The Use of a Build, Run and Improve approach

- 397. As already outlined, when we were engaged there was effectively a blank sheet with no proven model on which to base the work of the Programme. Deloitte started with the design principles and the 168-stage process for PCR testing, and then took something small, pilot tested it, prepared the blueprint, and rolled it out, always looking for enhancements that could be deployed. This is an approach described as "Build, Run and Improve", as opposed to attempting to build a whole solution outright.
- 398. This strategy can be seen throughout my statement, from the pilot RTS to our approach to building out the Digital Infrastructure – it enabled the Programme to move at pace, learn from the pilots, make improvements, and reflect those learnings to support the Programme's robustness and effectiveness.

K.1.4 Digital, Data Analytics and Technology Capability

- 399. I have already discussed digital in detail above, but digitisation was the key component in scaling up the Programme to meet material demand and to support a safe, reliable, and robust system which enabled the regular testing of millions, and for those results to be returned within a short period to enable citizens to return to a more normal life.
- 400. The Digital Infrastructure was built quickly based upon a clear set of goals, a development model and the resources being made available to support the Programme. With the right kind of structure and resource in place, the Government could benefit from the wider use of digital tools.
- 401. Data analytics should also be drawn out in lessons learned. The OMIP platform was the single source of truth in the Programme and critically important in providing timely MI to provide insight and decision support to the Government. A similar capability would be required in any future pandemic. OMIP was decommissioned by UKHSA on 18 August 2022.
- 402. Deloitte played a role in co-ordinating the administrative activities around the set-up, service evaluations and liaising with the clinical experts on the development of testing technologies. Several testing technologies were explored at the same time as no one organisation knew which testing technology would be successful and could be rolled out at the required scale and pace. It needs to be recognised that at the heart of the Programme, PCR and LFD testing technology succeeded and transformed the testing architecture globally.

K.1.5 Legacy of the Programme

- 403. Knowledge of the Programme still resides in DHSC, UKHSA and other Government departments. That is an important legacy and should be captured.
- 404. Regarding a physical legacy, the success of LFDs meant that the RTS and LTS were no longer required, and neither were the Lighthouse Labs, leading to their decommissioning and a resulting reduction in costs. The Rosalind Franklin Mega-Lab finally closed in January 2023, with the other Lighthouse Labs having closed earlier as testing demand dwindled.
- 405. If the UK needed to respond to a similar pandemic, many of the aspects of the Programme could be rebuilt, drawing upon the experience and knowledge from this pandemic and in line with the 168-stage process, such as the RTS and LTS. The Digital Infrastructure will very much depend upon the technology environment at the time. For example, QR codes work now but, in the future, may be obsolete due to the development of new technology.
- 406. In summary, the Programme adapted existing infrastructure where possible, but much of it was built from the ground up. Most of the national infrastructure that was built has now been decommissioned and this may be a missed opportunity as it could have been repurposed for other diagnostic uses and/or as part of any future crisis response.

K.2 External Lessons Learned Exercises and Reviews

- 407. Deloitte participated in and contributed to a number of external exercises and reviews at the request of NHS Test and Trace, UKHSA and the Cabinet Office (there may, of course, have been others that we were not involved with):
 - (a) NHS Test and Trace: Testing Operations Lessons Learned dated April 2021, commissioned by Baroness Dido Harding of TTI and Professor Harries [DC-7/170 - INQ000594544];
 - (b) Future of contact tracing in England detailed research report commissioned by UKHSA dated 18 February 2022 [DC-7/171 - INQ000594407]; and
 - (c) A review with Baroness Dido Harding and Professor Harries in May 2022; and a Cabinet Office Lessons Learned session with Helen Dickinson, Permanent Secretary for Covid-19 Taskforce (Director Innovation (Lessons Learned)) in May 2022. Deloitte does not have copies of these documents.

K.3 Closing Remarks

- 408. Finally, I want to take this opportunity to say that across all workstreams and at all levels of seniority, individuals within Deloitte reported that this was likely the most important project on which they will ever work. They felt direct and personal responsibility for the success of the Programme and would wish for me to communicate this as part of the statement on behalf of Deloitte.
- 409. Repeating what I said earlier but Deloitte considers this very important to draw out. There were many people from across the civil service, military, public and private sectors working on the Programme, often when the disease was at its most virulent and uncertain. That dedication was remarkable. From the workforce manning the test sites to the leaders of the Programme, everyone involved was working together as one towards a common goal in supporting the national response to the pandemic. The skills, expertise, professionalism, and commitment of those individuals was paramount to the success of the Programme. Deloitte is proud to have been one part of this immense national, team effort.

Statement of Truth

I believe that the facts stated in this witness statement are true. I understand that proceedings may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief of its truth.



Signed

Dominic Cook

Dated 15th May 2025

Schedule 1

Glossary of Acronyms

AWS	Amazon Web Service
BSPS	Berkshire and Surrey Pathology Services
CCS	Crown Commercial Service framework
CQC	Care Quality Commission
DHSC	Department of Health & Social Care
EF&C	Enquiries, Feedback and Complaints
FM	Facilities Management
HMPPS	HM Prison and Probation Service
INEDs	Independent Non-Executive Directors
IPA	Government centre of expertise for infrastructure and major projects
LAMP	Loop-mediated isothermal amplification method
LAMPORE	A combination of LAMP and nanopore sequencing
LEP or LEPs	Lead Engagement Partners
LFD	Lateral Flow Device
LTS	Local Testing Sites
MDC	Medicines Discovery Catapult Limited
MHRA	Medicines and Healthcare products Regulatory Agency
MoD	Ministry of Defence

MoJ	Ministry of Justice
MI	Management information
MTUs	Mobile Testing Units
NHSD	NHS Digital
No.10	British Prime Minister's Office, 10 Downing Street
NPEx	National Pathology Exchange
OLS	Office for Lise Sciences
ОМІР	Operational Management Information Platform
PCR	Polymerase Chain Reaction
РНСО	Public Health and Clinical Oversight team
PHCSO	Public Health, Scientific, and Clinical Oversight team
PHE	Public Health England
PPE	Personal Protective Equipment
RTS	Regional Testing Site
SUII	Serious Untoward Incident Investigation
ТТІ	Test, Trace and Isolate
UKHSA	UK Health Security Agency

Schedule 2

Glossary of Key Individuals named in this Statement

(the table below reflects the roles of individuals at the time of working on the National Testing Programme and may not capture changes to their roles since)

Name	Role/Background/Experience				
Deloitte					
Bellman, Joel	Partner who leads Deloitte's Digital business for Government team. He has over 20 years of experience shaping and delivering technology services, working predominantly across Whitehall and the broader public sector.				
Byles, James	Lead Partner for Private Sector Industries across our Enterprise Technology and Performance business. He has 19 years of experience leading the build or transformation of supply chains particularly in the Retail industry. Prior to this, James held several operational management roles at Boots the Chemists, including within their supply chain functions. James is a non- practicing pharmacist.				
Coleman, Philip	Partner who leads Deloitte's Workforce Transformation practice within Human Capital in the UK. He has over 20 years of experience in shaping and delivering enterprise transformation programmes and has led on some of the most complex transformation challenges.				
Cook, Dominic	Partner in the Major Programmes team at Deloitte. Prior to joining Deloitte, he was a qualified lawyer at international law firm Bird & Bird LLP for 26 years, 20 years of which he was a Partner. During that time, he held various management roles including Head of Commercial, Executive Director on the Global Board and Management Committee member. Since joining Deloitte, he has acted as a lead in the governance and review of a range of significant public sector engagements. Such engagements have spanned across health, IT, defence, and justice.				
George, Rebecca CBE	Former Managing Partner for Government and Public Services in Deloitte NSE LLP.				
Hadley, Jayson	Partner who leads Deloitte's UK Government and Public Services business.				
Hird, Richard	Partner in Deloitte's Strategy and Operations practice. He has experience working with clients to adopt new technologies to accelerate their strategic development and improve their operational effectiveness. Prior to joining Deloitte, he had 10 year career in the Royal Navy.				
Name	Role/Background/Experience				
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Jones, David	Lead Advisory Partner for Healthcare and Life Sciences for Deloitte. His background prior to joining Deloitte was working in a corporate development role in the care sector and he therefore was familiar with the regulatory landscape, had knowledge of the care home system, and had connections with many of the leading providers.				
May, Liz	Public Sector Advisory Partner at Deloitte. She specialises in providing financial and operational improvement services. In particular, she specialises in the NHS industry and has specific expertise in Commissioning organisations, Community and Mental Health Services.				
Miely, Kelly	y, Kelly Advisory Partner in Deloitte's Retail & Consumer Product team. She has over 20 years of experience designing delivering fit for the future supply chain, buying merchandising and product development capabilities. Prio joining Deloitte, she worked in at an online e-commerce st up and for a global retailer in planning, sourcing merchandising roles.				
O'Connor, Marc	Partner in Deloitte's Major Programme's team who leads Deloitte's Capital Projects consulting business globally. He is a Chartered Quantity Surveyor and has 15 years of international experience in management consultancy and before that another 15 years of experience in the construction industry. He has project and programme management expertise in the set up and delivery of a wide range of asset/operations, including real estate development, healthcare construction and fit out and major infrastructure programmes.				
Owen, Nick CBE	Chair of Deloitte from 2015 to 2021.				
Parker, Rob	UK leader of Deloitte Major Programmes, leading on complex programme and transformation delivery.				
Phillips, Rachel	Lead Partner for Deloitte UK's Workforce Planning and Analytics practice. She has over 15 years of experience delivering organisation and workforce transformation projects with complex government organisations, globally.				
Scott, Martyn	Director in Deloitte's Major Programme's team with over 20 years of experience of defining and delivering some of the UK's largest and highest profile Public Sector programmes, including key roles in the London 2012 Olympics. He is one of our leading proponents of our next-generation programme delivery methodologies and specifically focuses on our largest scale engagements and clients.				
Siegel, Sara	Lead Partner for Healthcare for Deloitte UK and Deloitte NSE LLP. She has worked with health providers and pharmaceutical and medical technology companies in the US, Europe, and Asia				

Name	Role/Background/Experience					
	over the past 25 years. She focuses on business transformation, and adoption of emerging technologies.					
Standing, Mike	Deloitte Life Sciences and Health Industry leader for Europe, Middle East, and Africa with over 30 years of experience designing and building life science research and development, supply chain and product launch transformation programmes (now retired from Deloitte).					
Willetts, Martin	at Deloitte focusing on major IT programmes across the public and private sectors, with the last 15 years spent shaping and delivering consumer-facing digital experiences and associated business transformations.					
Government Ministers and	nd MPs					
Bell, Aaron MP	Member of the House of Commons Science and Technology Committee					
Bethell, James (Lord, 5th Baron Bethell)	Former Parliamentary Under-Secretary of State for Innovation at the DHSC					
Clark, Greg MP (Rt Hon)	Chair of the House of Commons Science and Technology Committee					
Hancock, Matt MP (Rt Hon)	Former Secretary of State for Health and Social Care					
Stringer, Graham MP	Member of the House of Commons Science and Technology Committee					
Warr, William	Special Advisor to the Prime Minister					
DHSC and Office for Life	Sciences					
Aldridge, Justine	Deputy Director of Laboratories, NHS Test and Trace, DHSC					
Ashworth, Neil	Director of Delivery Channels / Head of Distribution, DHSC					
Blandford, Ed (Dr)	Senior Policy Manager, Office for Life Sciences					
Cook, Gary	Deputy Director, Office for Life Sciences					
Cooper, Alex	Mass Testing Operations Director, DHSC					
Dominiczak, Anna (Professor Dame)	Director of Laboratories, Testing, DHSC					

Name	Role/Background/Experience		
Eastman, Kester	Deputy Director, Test and Trace Programme, Mass Testing of Labs and Category Director Consumables, Reagents and Equipment, DHSC		
Fellowes, Laura	Point of Care Lead, Deputy Director, DHSC		
Fowler, Aiden (Dr)	Deputy Chief Medical Officer, DHSC		
Gretton, Cosima (Dr)	Deputy Director, New Covid-19 Testing Technologies (LAMP), DHSC		
Latham, Rod	Operational Policy Director, Covid-19 Key Worker Testing Programme, DHSC		
Markland, Charles (Dr)	Operational Response Analyst, Covid-19 Key Worker Testing Programme, DHSC		
Moran, Nicholas Covid-19 Response Team, DHSC			
McCord, Andrew	Head, Mobile Processing. Lead for Integrated Mobile Testing, DHSC		
McLeod, Kristen	Director, Office for Life Sciences, DHSC. Senior Responsible Officer for the UK Testing Programme		
Sambles, Gavin	Director of Delivery Channels, DHSC		
Surrey, Tom	Co-Deputy Director, Covid-19 Response, Adult Social Care, DHSC		
Turner, Jamie	Policy lead for prisons, DHSC		
White, Debbie	Leader for testing sites, DHSC		
UKHSA			
Davies, Lindsey (Professor)	Joint Clinical Advisor, UKHSA		
Fowler, Tom (Dr)	Director of Public Health, Testing, UKHSA		
Harries, Jenny (Professor Dame)	ne) Deputy Chief Medical Officer for England, DHSC/PHE (July 2019) Chief Executive of UKHSA (April 2021)		
NHS & other public healt	th organisations		
Coupe, Mike	Director of Testing, NHS Test and Trace		
Davison, Ben	Interim Executive Director of Product Development, NHS Digital		

Name	Role/Background/Experience				
Dawson, James	Delivery Director, NHS Digital				
Day, Chris	Director of Engagement, CQC				
Fordham, Hannah	Lateral Flow Supplies Deputy Lead, NHS Test and Trace				
Harding, Dido (Baroness)	Head of NHS Test and Trace				
Hewlett, Mark	COO, NHS Test and Trace				
Hill, Sue (Professor Dame)	Director of Testing Technologies, Validation and Regulatory Compliance, NHS England & NHS Improvement				
Marsh, Sarah-Jane	Testing Divisional Director, NHS Test and Trace				
Sienkiewicz, Alex	Director, Public Health England				
Cabinet Office, Home Office, and other public sector security services					
Dickinson, Helen	Permanent Secretary for Covid-19 Taskforce (Director Innovation (Lessons Learned), Cabinet Office				
Edwards, Luke	Senior Civil Servant, Home Office				
Gunkel, Joanna	Lead for Covid-19 Testing, HMPPS				
Watson, Steve	Civil Servant, Home Office				
Private Companies					
Higgins, Nigel	Group Chairman, Barclays Bank				
Molloy, Chris (Professor)	Chief Executive Officer, Medicines Discovery Catapult Ltd				
Universities					
Bell, John (Professor Sir)	Leader of the Infections Diseases & Microbiology Group, the University of Oxford				
Crook, Derrick (Professor)	Derrick Professor of Microbiology, the University of Oxford and Consultant in Microbiology and Infectious Diseases, NHS Oxford				
Peto, Tim (Professor)	Leader of the Infections Diseases & Microbiology Group, the University of Oxford				

National Testing Programme Engagements

No.	Deloitte Project Name	Client Name	Contract Name	Contract Start Date / Signed Date	
1	Cube - Phase 1	DHSC	Support to COVID-19 testing - Pillar 2 WORK PACKAGE 0 (WP0) - Core delivery support	19-Mar-20	
1	Cube - Phase 1	DHSC	Pillar 2 WORK PACKAGE 1 (WP1) – Operational Management Information	15-Apr-20	
1	Cube - Phase 1	DHSC	Pillar 2 WORK PACKAGE 2 (WP2) - Next phase scale up	13-Apr-20	
1	Cube - Phase 1	DHSC	Pillar 2 WORK PACKAGE 3 (WP3) - Results management	01-Apr-20	
1	Cube - Phase 1	DHSC	PILLAR 2 WORK PACKAGE 4 (WP4) - Digital Build Part A	19-Mar-20	
1	Cube - Phase 1	DHSC	PILLAR 2 WORK PACKAGE 5 (WP5) - Digital Build Part B	01-Apr-20	
1	Cube - Phase 1	DHSC	PILLAR 2 WORK PACKAGE 6 (WP6) - Raw Materials and Logistics Management	24-Mar-20	
1	Cube - Phase 1	DHSC	PILLAR 2 WORK PACKAGE 7 (WP7) – Research and Evaluation	13-Apr-20	
1	Cube - Phase 1	DHSC	PILLAR 2 WORK PACKAGE 8 (WP8) – Subject Insight and Behaviours	13-Apr-20	

No.	Deloitte Project Name	Client Name	Contract Name	Contract Start Date / Signed Date	
1	Cube - Phase 1	DHSC	Pillar 2 Work package 9 (WP9) - Satellites	13-Apr-20	
1	Cube - Phase 1	DHSC	PILLAR 2 WORK PACKAGE 10 (WP10) – Digital Adoption	10-Apr-20	
1	Cube - Phase 1	DHSC	PILLAR 2 WORK PACKAGE B (WPB) – Regional Test Sites	29-Mar-20	
1	Cube - Phase 1	DHSC	PILLAR 2 WORK PACKAGE C (WPC) - Home Test Pilot Rollout	06-Apr-20	
1	Cube - Phase 1	DHSC	DHSC PILLAR 2 WORK PACKAGE D (WPD) – Labs Operations		
1	Cube - Phase 1	DHSC	PILLAR 2 WORK PACKAGE 11 (WP11) – Operations Target Operating Model	20-Apr-20	
1	Cube Phase 2	DHSC	National Testing Programme: Deloitte Support Phase 2	20-Jun-20	
1	Cube Phases 3 & 4	DHSC	National Testing Programme: Deloitte Support Phases 3-4	01-Sep-20	
1	Cube Phase 5	DHSC	National Testing Programme: Deloitte Support Phase 5	16-Feb-21	
1	Cube Phase 5 (variation)	DHSC	Variation Form No:1 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	28-May-21 (signed date)	
1	Cube Phase 5 (variation)	DHSC	Variation Form No:2 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	31-Aug-21 (signed date)	

No.	Deloitte Project Name	Client Name	Contract Name	Contract Start Date / Signed Date
1	Cube Phase 5 (variation)	DHSC	Variation Form No:3 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	02-Sep-21 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:4 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	25-Sep-21 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:5 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	25-Sep-21 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:6 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	17-Nov-21 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:7 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	30-Sep-21 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:8 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	24-Sep-21 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:9 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	29-Nov-21 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:10 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	08-Dec-21 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:11 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	10-Dec-21 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:12 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	01-Apr-22 (signed date)

No.	Deloitte Project Name	Client Name	Contract Name	Contract Start Date / Signed Date
1	Cube Phase 5 (variation)	DHSC	Variation Form No:13 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	30-Jun-22 (signed date)
1	Cube Phase 5 (variation)	DHSC	Variation Form No:14 Variation to the Call-Off Contract underneath MCF2 Lot 3, 'NATIONAL TESTING PROGRAMME (NTP): DELOITTE SUPPORT PHASE 5'	19-Jul-22 (signed date)
1	Cube (smaller engagements contracted separately) - Project Jupiter	UKHSA	Call-Off Order Form for RM6187 Management Consultancy Framework Three (MCF3) - CALL-OFF REFERENCE: WP5102	30-Nov-21
1	Cube (smaller engagements contracted separately) - Project Jupiter	UKHSA	RM6187 Framework Schedule 6 (Order Form and Call-Off Schedules - CALL-OFF REFERENCE: PRO 5102	01-Apr-22
1	Cube (smaller engagements contracted separately) - WP15A	UKHSA	Call-Off Order Form for RM6187 Management Consultancy Framework Three (MCF3) - Call-off reference: PRO_5210	30-Dec-21
1	Cube (smaller engagements contracted separately) - WP15 Estates	DHSC	Call-Off Order Form for RM6187 Management Consultancy Framework Three (MCF3) - Call-off reference: 2169	01-Oct-21
1	Cube (smaller engagements contracted separately) - WP15 Strategic Projects	DHSC	Call-Off Order Form for RM6187 Management Consultancy Framework Three (MCF3) - Call-off reference: 5059	25-Nov-21

No.	Deloitte Project Name	Client Name	Contract Name	Contract Start Date / Signed Date	
1	Cube (smaller engagements contracted separately) - WP21 Strategic Partner	UKHSA	Call-Off Order Form for RM6187 Management Consultancy Framework Three (MCF3)- CALL-OFF REFERENCE: 5043	01-Nov-21	
1	Cube (smaller engagements contracted separately) - WP23 New Testing Technology	DHSC	Consult 18: Multidisciplinary Consultancy Services Service Level Agreement (SLA)	01-Oct-21	
1	Cube (smaller engagements contracted separately) - WP28 PHCO	DHSC	Call-Off Order Form for RM6187 Management Consultancy Framework Three (MCF3) - Call-off reference: 5006	01-Oct-21	
2	Tesseract	NHS Digital	Digital Solutions for Test and Trace Service	20-Jun-20	
2	Tesseract	NHS Digital	Digital Test Platform – Service Continuity, Transition and Exit Contract	01-Jul-21	
3	COVID-19 PMO support	NHS X	Programme/Portfolio Management Office service for NHSX COVID- 19 Delivery Projects	20-Apr-20	
3	COVID-19 PMO support	NHS X	Variation Form to G Cloud 11 Call Off Contract (RM1557.11)	09-Sep-20	
4	Test and Trace Organisation Design Review	DHSC	Test and Trace Organisation Design Review (DHSC-106C Final COVID Project Engagement Letter)	24-Jun-20	

No.	Deloitte Project Name	Client Name	Contract Name	Contract Start Date / Signed Date		
4	Test and Trace Organisation Design Review	DHSC	CALL OFF SCHEDULE 12: VARIATION FORM (14.1.2021 - MCF2 Variation Template 2_OperatingModelv02_Signed)	01-Sep-20		
4	Test and Trace Organisation Design Review	DHSC	Call Off Order Form for Management Consultancy Services (Deloitte HR Op Model RM6008-MCF2-Order form v1.5_DeloitteSigned rocksig)	01-Sep-20		
4	Test and Trace Organisation Design Review	DHSC	CALL OFF SCHEDULE 12: VARIATION FORM (Variation Form HR Op Model Phase 3 Deloitte Signed rock)	20-Oct-20		
4	Test and Trace Organisation Design Review	DHSC	Call Off Order Form for Management Consultancy Services (Deloitte HR Op ModelPhase4 RM6008-MCF2-Order form v4)	05-Apr-21		
4	Test and Trace Organisation Design Review	DHSC	Call-Off Order Form for RM6187 Management Consultancy Framework Three (MCF3) (PRO5411 Delloite-UKHSA MCF3 Call Off Contract signed DH)	01-Apr-22		
4	Test and Trace Organisation Design Review	DHSC	VARIATION FORM V-02420 (PRO5239 - V002 (1563) Dec21- March22 Ext Signed.pdf DH)	04-Jan-22		
4	Test and Trace Organisation Design Review	DHSC	RM6187: Management Consultancy Framework Three Call Off Variation (Final-Deloitte-C75553-July22Extensions- V05184UKHSA_UKHSA Signed_)	30-Jun-22 (signed date)		
5	Covid-19 International Travel: Enforcement Managed Service	Home Office	CALL OFF SCHEDULE 12: VARIATION FORM No. of Call Off Order Form being varied: CCCC19A15 (Variation Form 19 Self Isolation Services v1.0 Signed)	8-Feb-21		
5	Covid-19 International Travel: Enforcement Managed Service	Home Office	Call Off Order Form for Management Consultancy Services (Deloitte_ECHO_Call Off Order Form v.1.2 - Signed Both)	22-Mar-21		

No.	Deloitte Project Name	Client Name	Contract Name	Contract Start Date / Signed Date
5	Covid-19 International Travel: Enforcement Managed Service	Home Office	CALL OFF SCHEDULE 12: VARIATION FORM (Deloitte_ECHO MCF2 Call Off Schedule 12 Variation Form v1.0 - Signed Both)	15-May-21
6	Prism	UKHSA/DHSC	RM6100 Technology Services 3 Agreement Framework Schedule 4 - Annex 1 Lots 2, 3 and 5 Order Form (1775 PS 100322 Test Supply Chain Organisation Management Order Form (13871915.1) HAS)	14-Mar-22
7	Pyramid	DHSC	Delivery partners for Trace, Contain & RTTS WP10031 - CCZN21A62 - C portfolio	25-Oct-21
7	Pyramid	DHSC	Delivery partners for Trace, Contain & RTTS portfolio WP10030 / CCZN21A62 – A (TT Delivery Partners - Order Form - Lot A Deloitte Final Version 26 October 2021(113250066.3))	25-Oct-21
8	Covid Certification Delivery Support (Digital Vaccine Passport PMO)	NHSX	Technology Services 2 Agreement RM3804 Framework Schedule 4 - Annex 1	15-Mar-21
8	Covid Certification Delivery Support (Digital Vaccine Passport PMO)	NHSX	Call Off Order Form for Management Consultancy Services	17-Sep-21
9	The Future of Contract Tracing	UKHSA	TEST AND TRACE DELIVERY PARTNERS FOR TRACE, CONTAIN & RTTS PORTFOLIO Lot C STATEMENT OF WORK PROCESS	06-Nov-23

Project Cube Work Packages

			Work package covered devolved nations				าร
Client	Work package	Overview of work	Phase 1 (19/03/20 - 19/06/20)	Phase 2 (20/06/20 - 31/08/20)	Phase 3 (01/09/20 - 10/11/20)	Phase 4 (11/11/20 - 15/02/21)	Phase 5 (15/02/21 - 30/09/21)
		Support with providing a COVID-19 home					
DHSC	Home Delivery	testing service that enables the subject to self- test at home.	E, NI, S, W	E, NI, S, W	E, NI, S, W	E, NI, S, W	E, NI, S, W
	Supply Chain	Data & Analysis support to the Operational					
DHSC	Analysis	Supplies Team.	E	E	E	E	E
		Enable local authorities and the National Testing					
		Programme to work together to deliver joined-up					
DHSC	Localisation	testing.			E		
		To provide rapid analytical and strategic support					
		across the National Testing Programme in					
		critical functions such as new technologies,					
		product management, and use cases. This					
	Architecture &	included the stand-up of new functions or					
DHSC	Capacity	special projects (e.g. Borders, Sequencing).		E, NI, S, W			
		Provision of Testing Operations Management					
		Information (MI) via the OMIP Platform. Support					
DHSC	Testing Ops MI	for ongoing maintenance and resilience on the		E, NI, S, W			

			Wa	ork package	covered dev	olved natior	IS
			Phase 1 (19/03/20 -	Phase 2 (20/06/20 -	Phase 3 (01/09/20 -	Phase 4 (11/11/20 -	Phase 5 (15/02/21 -
Client	Work package	Overview of work	19/06/20)	31/08/20)	10/11/20)	15/02/21)	30/09/21)
		Platform, as well as delivery support for all new					
		Testing Ops MI requests.					
		Provide project management and delivery					
		support for the team with responsibility for public					
	Public Health &	health and clinical advice and governance					
	Clinical Oversight	oversight of testing operations and mass testing					
DHSC	(PHCO)	activities.			E	E	E
		Work with other government departments					
		(OGDs) to operationalise demand from policy					
	Design & Build	decisions to deliver asymptomatic testing across					
	Leadership and	each of the use cases – education, adult social					
	Coordination	care (ASC), public and private sector institutions					
DHSC	(Central PMO)	and underrepresented groups.	E, NI, S, W				
		Provide capacity to NHSTT Finance to deliver					
		bespoke financial analysis, modelling and					
		business case development support on a					
		project-by-project basis. In addition, to support					
		the development and implementation of					
	Surge Finance	governance processes to manage and update					
DHSC	Support	delivered products.	E, NI, S, W				

			Wa	ork package	covered dev	olved natior	IS
			Phase 1	Dhace 2	Dhase 2	Dhase 4	Dhaco 5
			(19/03/20 -	(20/06/20 -	(01/09/20 -	(11/11/20 -	(15/02/21 -
Client	Work package	Overview of work	19/06/20)	31/08/20)	10/11/20)	15/02/21)	30/09/21)
DHSC	Business Continuity Programme	Working with key suppliers to enhance the operational resiliency of Pillar II NTP Supply and Logistics through the winter period.				E, NI, S, W	
		Support with running and scaling the S&VC					
		channel to help enable target of sustained					
		testing of up to 150,000 subjects per day					
	Satellites &	not limited to) vulnerable high risk organisations					
	Vulnerable	such as adult social care, prisons and primary		ENIS	ENIS	ENIS	
DHSC	Communities	care.	E, NI, S, W	W	W	W	
		Scale supply chain and logistics capability to					
	Scale up: Supply	support Mass Testing for the Scale-up 2					
DHSC	Chain & Logistics	Logistics area	E, NI, S, W	E, NI, S, W			
		Support with maintaining a holistic programme					
		view across critical aspects of the end-to-end					
	Capacity	system through continued development and					
DHSC	Management	maintenance of the Digital Twin.	E, NI, S, W	E, NI, S, W			
		Support with testing accessibility for excluded					
	Population	groups, focussing on insight and support with		E, NI, S,	E, NI, S,	E, NI, S,	E, NI, S,
DHSC	Engagement	graphic design.		VV	VV	VV	W

			Wa	ork package	covered dev	olved natior	IS
Client	Work package	Overview of work	Phase 1 (19/03/20 - 19/06/20)	Phase 2 (20/06/20 - 31/08/20)	Phase 3 (01/09/20 - 10/11/20)	Phase 4 (11/11/20 - 15/02/21)	Phase 5 (15/02/21 - 30/09/21)
		Support the DHSC operations team managing					
		to the NHS distributions network in the LIK					
		Support the project management of a DHSC-led					
		procurement process to award contracts for					
		international freight services to transport test kits					
DHSC	Freight	to the UK.	E, NI, S, W				
		Support increase of testing capacity in line with					
	Mass Testing Tech	Moonshot objectives by coordinating end-to-end					
DUGO	and Innovations	operationalisation activities for new testing					
DHSC	Delivery	technology and practices			E, NI, S, W	E, NI, S, W	E, NI, S, W
	New Testing	technology strategy and the operational					
	Technology &	readiness of technologies and innovation to					
	Product	increase testing capacity and capability, aligned					
DHSC	Development	(where practicable) to demand.					E, NI, S, W
		Support the expansion of the RTS and LTS					
		network capacity to agreed targets. Continue to					
		support the improvement of the network as					
	Regional and Local	directed by DHSC including delivery of change					
DHSC	Test Sites	and continued support to DHSC regarding	E, NI, S, W				

			Wa	ork package	covered dev	olved natior	าร
Client	Work package	Overview of work	Phase 1 (19/03/20 - 19/06/20)	Phase 2 (20/06/20 - 31/08/20)	Phase 3 (01/09/20 - 10/11/20)	Phase 4 (11/11/20 - 15/02/21)	Phase 5 (15/02/21 - 30/09/21)
		oversight of the network regional operations					
		(until DHSC fill these roles).					
		Provide project management support for testing					
		supply operations into the NHS/PHE and					
		associated laboratories, as required to meet the					
	Lab Reagent and	capacity demands of various testing					
DHSC	Operating Supplies	technologies.			E, NI, S, W		
		Support testing programme to deliver COVID					
		testing capacity and capability through a					
		network of lighthouse and partner labs. This					
		includes the operational support for existing labs					
		through relationship management, load					
		balancing and management information (MI), as					
		ansure appropriate capacity delivery against					
		Test and Trace targets and (where practicable)					
DHSC	Laboratories	continuous improvement		ENISW	FNISW	ENISW	ENISW
		Continue to provide support with the increase		_,, 0, **	_, , , , , , , , , , , , , , , , , , ,	_,,,	_,, 0,
		scale and reliability of the supply chain service					
	End-to End Supply	as it matures and evolves with the new					
DHSC	Chain	technologies changes as well as additional	E, NI, S, W	E, NI, S, W	E, NI, S, W	E, NI, S, W	E, NI, S, W

			Wa	ork package	covered dev	olved natior	IS
Client	Work package	Overview of work	Phase 1 (19/03/20 - 19/06/20)	Phase 2 (20/06/20 - 31/08/20)	Phase 3 (01/09/20 - 10/11/20)	Phase 4 (11/11/20 - 15/02/21)	Phase 5 (15/02/21 - 30/09/21)
		Partners organisations. Support in the transition					
		within the DHSC Supply Chain & Logistics team					
		and facilitate handover to DHSC resources.					
		Support daily operations of the end-to-end supply chain.					
		Provide support with the increase scale and					
		reliability of the supply chain service as it					
	End-to End Supply	matures and evolves with the new technologies					
DHSC	Logistics	organisations	E, NI, S, W				
	End-to-End Supply						
	Chain & Logistics	Support all procurements that are being run from					
DHSC	Commercials	the DHSC logistics commercial team.	E, NI, S, W				
	Supply Operations –						
DUDC	Swabs/Consumables	Support future supply and allocations	_	_			
DHSC	leam	operations.	E	E			
DURC	Systems, Data and						
DHSC	Analytics		E, NI, S, W	⊏, NI, S, W	E, NI, S, W	E, NI, S, W	E, NI, S, W

			Wa	ork package	covered dev	olved natior	IS
			Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Client	Work package	Overview of work	19/06/20)	31/08/20)	10/11/20)	15/02/21)	30/09/21)
		Support the Customer national testing					
-	Strategic	programme communications team with					
DHSC	Communications	delivering against their strategy.	E, NI, S, W				
DUDO	O	Communication support to the testing					
DHSC	Communications		E, NI, S, W				
		Support with the procurement and development					
DURC	Commoroial	of long-term supplier relationships to support the					
DHSC	Commercial	Ta ranidh, agala high agaitivity diagnastia	E, INI, 5, VV	E, INI, S, VV	E, INI, S, VV	E, INI, 5, VV	E, INI, 5, VV
		to tapidly scale high sensitivity diagnostic					
		flows to address current acute supply					
		challenges and to enable high-risk use-cases to					
		be supported. In addition, the mena-labs legacy					
	Scale up - Labs &	are proposed to become world class life science					
DHSC	Processing	hubs.				E	Е
	g	Support with stabilising and maintaining the				_	
		current labs and test site workforces, as well as					
		designing, enabling and creating a sustainable					
		workforce and training solution as the network					
		changes/expands and to support 3rd party					
DHSC	Workforce	testing.	E,S	E,S	E,S	E,S, NI	E,S, NI

			Wa	ork package	covered dev	olved natior	าร
Client	Work package	Overview of work	Phase 1 (19/03/20 - 19/06/20)	Phase 2 (20/06/20 - 31/08/20)	Phase 3 (01/09/20 - 10/11/20)	Phase 4 (11/11/20 - 15/02/21)	Phase 5 (15/02/21 - 30/09/21)
DUCC	Service Operations					-	-
DHSC	Continuous improvement of architecture, systems and integrations	Provide data and architectural expertise to support the Test and Trace change initiatives. Provision of technical resources to support transition planning for the migration of services and data between systems as the landscape of Trace applications evolves. Deliver application programme interface (API) integration for ease of access to tracing data and deliver ways of working op model development. Support the Trace team with critical BI backlog requirements as well as prioritising and maintaining reporting and analytics backlog. Enable the Trace Decision Support function to provide insights into Test and Trace leadership. Support the Service Operations Centre (SOC) with discovering, designing and delivering critical BI backlog requirements as well as prioritising and maintaining reporting and analytics backlog. SOC's remit now spans across Test, Trace and				E	E

			Wa	ork package	covered dev	olved natior	IS
Client	Work package	Overview of work	Phase 1 (19/03/20 - 19/06/20)	Phase 2 (20/06/20 - 31/08/20)	Phase 3 (01/09/20 - 10/11/20)	Phase 4 (11/11/20 - 15/02/21)	Phase 5 (15/02/21 - 30/09/21)
		Contain and our support will scale up as new		,	,	,	,
		services and reporting requirements emerge an					
		evolve.					
		Support the ongoing development,					
DUSC	Community Testing	operationalisation and optimisation of the	E	_	E	E	E
DISC	Community resting	Support delivery through surveillance studies	<u> </u>	L		L	L
		associated with the vaccine monitoring and Joint					
		Biosecurity Centre (JBC), support with					
		innovation on new antibody technologies for					
		large scale testing, develop appropriate					
	Delivery Support to	documents for knowledge sharing and manage					
DHSC	Pillar 3	the project management office (PMO).	E	E	E	E	E
		Support surveillance studies with on boarding					
		new studies, commercial optimisation of vendor					
		and third parties, coordinated communication					
	Delivery Support to	activities and operational alignment with Testing					
DHSC	Pillar 4	Ops.	E	E	E	E	E
		Support the test leadership team in their role of					
	PMO & Programme	overall management of test by providing efficient					
DHSC	Leadership	and effective leadership and PMO services,	E, NI, S, W				

			Wa	ork package	covered dev	olved natior	IS
Client	Work package	Overview of work	Phase 1 (19/03/20 - 19/06/20)	Phase 2 (20/06/20 - 31/08/20)	Phase 3 (01/09/20 - 10/11/20)	Phase 4 (11/11/20 - 15/02/21)	Phase 5 (15/02/21 - 30/09/21)
		capabilities and capacity, aligning to other areas across the wider organisation.					
		In collaboration with the DHSC Mobile Testing Team and stakeholders, define, implement and embed a range of improvement and development activities in the following areas: organisational structure and staff development; operational excellence; digital maturity initiatives and skills transfer (across incident response, mobile testing units (MTU) and regional test sites (RTS) / local test sites (LTS)); mobile lab integration to MTU operations; management information and analytics; business continuity					
DHSC	Mobile Test Units	and resilience. Deploy Oracle Inventory Management & Kitting capability to pre-defined third-party logistics (3PL) sites, to enable a single view of stock				E, NI, S, W	E, NI, S, W
DHSC	Raw Materials & Logistics	across the network and to improve test site replenishment. Deploy Oracle mobile receipting and counting functionality to all operational RTS and LTS in line with the programme roll-out plan	E	E, NI, S, W			

			Wa	ork package	covered dev	olved natior	IS
Client	Work package	Overview of work	Phase 1 (19/03/20 - 19/06/20)	Phase 2 (20/06/20 - 31/08/20)	Phase 3 (01/09/20 - 10/11/20)	Phase 4 (11/11/20 - 15/02/21)	Phase 5 (15/02/21 - 30/09/21)
		for these facilities. Provide 24/7 support to the					
		live Oracle and RF-SMART solution – across					
		integration and supply planning (for central					
		allocations) as applicable.					
		Support the Asymptomatic Testing Leadership					
	Mass Testing Ops	team in their role of overall management of the					
DHSC	PMO	National Testing Programme.	E, NI, S, W				
		Provide resources to the Office of the Chief					
		Scientific Officer for England (CSO) to support					
DUGG		its scale up to meet the demands of the Test and			_		
DHSC	Enabling CSO Office	Trace Programme			E		
		Support with providing programme					
		management, resource management, supply					
		operations, sourcing and allocation of					
		validation of new technologies and securing					
	Labs Supplies and	contract and volume with new suppliers for Mass			ENISW		
DHSC	Innovation	Testing.	F. NI, S. W	F. NI, S. W	(30/10)		
	New Supplier	Provide support to New Suppliers Mapping team	_,, 0, 11	_, , . ,	E. NI. S. W		
DHSC	Mapping	led by Richard Bartlett	E, NI, S, W	E, NI, S, W	(30/10)		

			Work package covered devolved nations			าร	
Client	Work package	Overview of work	Phase 1 (19/03/20 - 19/06/20)	Phase 2 (20/06/20 - 31/08/20)	Phase 3 (01/09/20 - 10/11/20)	Phase 4 (11/11/20 - 15/02/21)	Phase 5 (15/02/21 - 30/09/21)
	Support for Suppl						
DHSC	Managers					E, NI, S, W	
	Supply Chair	Support in defining the strategy and vision for					E, NI, S,
DHSC	Design	the DHSC Supply Chain & Logistics team.					W
		Support the Supply Chain and Logistics					
		business to design and implement solutions that					
		underpin and de-risk business processes. The					
		solutions will drive efficiencies in the existing					
		Pillar II supply chain operation, supporting End					
		to End polymerase chain reaction (PCR) testing,					
		lateral flow device (LFD) and personal protective					
	Supply Chair	equipment (PPE) through the programme scale					E, NI, S,
DHSC	Systems and Data	up.					W

Partner / Organisation	Role in the Programme
Government Departments and Organisat	ions
Cabinet Office	Provided ministerial input and governance, alongside DHSC
Care Quality Commission (CQC)	Independent regulator for England's health and adult social care services and one of the stakeholders who Deloitte worked with to facilitate testing in care homes
Department of Health and Social Care (DHSC, the Office for Life Sciences)	Deloitte's main client for Project Cube and the early part of Project Tesseract
Genomics England	Worked in conjunction with clinicians at NHSD in undertaking the clinical assessments related to the Home Channel
Government Digital Service	One of the key stakeholders Deloitte engaged with in relation supporting the digital build workstream
HM Prison and Probation Service (HMPPS)	Provided oversight and instructions to Deloitte (via the DHSC) in relation to the testing of the prisons sector
Home Office	Deloitte client in respect of the engagement on self-isolating following international travel
Medicines and Health Regulatory Agency (MHRA)	Regulatory Agency responsible for medicines and medical devices that provided regulatory validation and approval

Public and Private Sector Partners involved in the National Testing Programme⁶

⁶ The schedule lists only those partners mentioned in this statement. It is not an exhaustive list of all organisations involved in the National Testing Program or Deloitte's Covid-19 response engagements.

	for certain supply and products used in the
	Programme
Ministry of Defence (MoD)	Provided co-ordination and personnel
	support to the Programme and played a key
	role in set up and running of MTUs
Ministry of Justice (MoJ)	Provided (through HMPPS and ultimately
	the DHSC) instructions, oversight,
	governance, and input in relation to testing
	of the prison estate
NHS Digital (NHSD)	Government client that contracted directly
	with Deloitte in respect of the later part of
	Tesseract engagement
NHS England	Public body responsible for clinical
	governance
NHS Test and Trace	Operation set up to enact the Government's
	five-pillar strategy for Covid-19 testing
NHSX	Government client that contracted directly
	with Deloitte in respect of the PMO support
	and a key Tesseract partner
Public Health England (PHE)	Key governance partner that was replaced
	by UKHSA
UK Health Security Agency (UKHSA)	Government client that contracted directly
	with Deloitte in respect of Prism and a key
	clinical governance partner
Private Companies and Commercial Sup	pliers
Amazon	One of the key logistics and distribution
	suppliers who assisted with the Programme
Amazon Web Services (AWS)	Software supplier in respect of the cloud
	platform used to host some of the Digital
	Infrastructure

Barchester Healthcare	Care home provider, who alongside HC-
	One partook in the initial pilot to trial sample
	a collection kits to care homes
Boots	One of the key private-sector partners of
	the Programme who assisted with the set-
	up, supply and resources required for the
	testing process
	Dravidad lagistica convisco
	Provided logistics services
HC-One	Care home provider, who alongside
	Barchester Healthcare partook in the initial
	pilot to trial sample collection kits to care
	homes
IPSOS	Supported the DHSC in the Population
	Engagement study
Oracle	Software company who provided the
	software used to design and build the
	Supply Planning Tool
Priory Group	Specialist care home used to pilot testing in
	homes primarily caring for those with
	learning disabilities and mental health
	issues
Kandox	One of the key private-sector partners of
	the Programme who assisted with the
	supply and processing of sample collection
	kits
Reed Talent Solutions	Specialist recruitment company engaged
	by the DHSC to assist with recruiting
	personnel for Lighthouse Labs
Royal Mail	One of the key logistics and distribution
	suppliers who assisted with the Programme

Salesforce	Provided the Salesforce Service Cloud for
	use with the Digital Infrastructure that
	allowed bulk ordering of sample collection
	kits
Thermo Fisher Scientific	One of the key private-sector partners of
	the Programme that assisted with the
	supply of sample collection kits
Voyage Care	Specialist care home used to pilot testing in
	homes primarily caring for those with
	learning disabilities and mental health
	issues
YouGov	Supported the DHSC in Population
	Engagement study
Laboratory Network	
AstraZeneca	Owned / operated the Lighthouse Lab in
	Cambridge, alongside University of
	Cambridge and GlaxoSmithKline
Berkshire and Surrey Pathology Services	Owned / operated the Lighthouse Lab in
	Brants Bridge, Berkshire
GlaxoSmithKline	Owned / operated the Lighthouse Lab in
	Cambridge alongside University of
	Cambridge and AstraZeneca
Health Services Laboratories (HSL)	Owned / operated the Lighthouse Lab in
	London, in partnership with University
	College London Hospitals NHS Foundation
	Trust (UCL)
Medacs Healthcare plc	Clinical workforce provider who assisted
	with the recruitment of the workforce in
	respect of Lighthouse Labs

Medicines Discovery Catapult (MDC)	Director of Lighthouse Lab Network
	appointed by the DHSC and Lighthouse
	Laboratory Network partner
Newcastle Upon Tyne Hospitals NHS	Owned / operated the Lighthouse Lab in
Foundation Trust	Baltic Park, Newcastle
PerkinElmer	Owned / operated the Lighthouse Lab in
	IP5 Newport, Wales
Bandox	Owned / operated the Lighthouse Lab in
	County Antrim Northern Ireland
UK Biocentre	Owned / operated the Lighthouse Lab in
	Milton Keynes
University College London Hospitals NHS	Owned / operated the Lighthouse Lab in
Foundation Trust (UCL)	London, in partnership with Health Services
	Laboratories (HSL)
University Hospitals Plymouth NHS Trust	Owned / operated the Lighthouse Lab in
	Plymouth
University of Cambridge	Owned / operated the Lighthouse Lab in
	Cambridge, alongside AstraZeneca and
	GlaxoSmithKline
University of Glasgow	Owned / operated the Lighthouse Lab in
	Glasgow, in collaboration with the Scottish
	Government and expertise from BioAscent
	Discovery Ltd and the University of Dundee
lest Site Management and Logistics	
Clipper Logistics plc	Retail logistics company that assisted with
	the end-to-end supply chain process
G4S Limited	Facilities management for test sites
Levy	Facilities management for test sites

MITIE Limited	Facilities management for test sites
Serco Limited	Facilities management for test sites
Sodexo Limited	Facilities management for test sites and staffing
Non-Profit Organisations	
Good Things Foundation	Worked in partnership with Deloitte to design a process that would allow those with restricted access to digital technology to arrange a test
Imperial College London	Supported the DHSC in Population Engagement study
Kings College London	Supported the DHSC in Population Engagement study
Office for National Statistics	Supported the DHSC in Population Engagement study
University of Huddersfield	Took part in the early pilot for 'students home for Christmas'
University of Leicester	Took part in the early pilot for 'students home for Christmas'
University of Oxford	Supported PHE with testing kit validation and compatibility
Wellcome Sanger Institute	Tested new variants as they emerged

Infrastructure

INFRASTRUCTURE	FUNCTION
Digital	
Existing (not designed/built by Deloitte during the Programme)	
National Pathology Exchange (NPEx)	National service for NHS laboratories to connect through a single hub that allows test requests and pathology results to be sent digitally from any lab to any other lab.
Gov.UK Notify	Public sector platform used to send emails, text messages and letters to users.
NHS Wales Informatics Services (NWIS)	Organisation responsible for NHS data in Wales, to which data related to Welsh resident subjects was transmitted in accordance with policy.
NHS Login	NHS online account platform, which was used to allow repeat users to register once then subsequently log in to their account to avoid having to re-enter personal details.
Government Digital Service design elements	Digital infrastructure built in accordance with existing GDS design elements.

New (designed/built/run by Deloitte during the Programme)	
Operational Management Information Platform (OMIP)	Deloitte platform used to provide important, timely, and reliable testing operations MI to the Programme. This was decommissioned in August 2022 (on the instructions of UKHSA).
Core Digital Platform for Covid-19	The single environment that contained the:
	1) Tactical Portal - Initial online portal to replace the manual spreadsheet system at test sites for data recording. This platform was subsumed into the Self-Referral Portal and Subject Portal (referred to below) as the infrastructure was further developed.
	2) Self-Referral Portal - Online portal enabling key workers to self-refer for testing without the need for an employer referral.
	3) Subject Portal - Online portal for the registration of a subject for testing, including test centre selection, booking confirmation and next steps instructions. This also included, later on, functionality for the uploading and handling of LFD test results in organisations such as care homes and prisons; and
	4) integration and database layers required (for example, for the Testing Mobile Apps Suite and NPEx data sharing).
	As part of the Halo migration, this single environment was broken down into five environments which were re-tendered or decommissioned on the instructions of NHSD:
	i) Site Management (transitioned to Accenture in April 2022);
	ii) Individual Based Testing (decommissioned in April 2024);
	iii) Core Services (transitioned to Accenture in September 2022);
	iv) External Data Services (transitioned to Accenture in September 2022); and

	v) Organisation-Based Testing (transitioned to Accenture in April 2022).
Employee Referral Platform	Online portal to allow authorised employers (i.e. NHS Trusts) to refer key workers for priority testing. This was decommissioned in February 2021 (on the instructions of NHSD).
Testing Mobile App Suite:	A suite of dedicated apps for the test site workforce, designed to support and improve the Programmes end-to-end testing journey. A number of cloud services were decommissioned and then management of these apps transferred from Deloitte to Accenture in September 2022 (on the instructions of NHSD).
i. Register App	Enabled testing site staff to register testing subjects on site and associate a sample ID with the subject.
ii. Inventory app	Allowed testing site staff to conduct inventory management tasks.
iii. Security app	Validated subject's appointment using vehicle registration or QR code.
iv. Check-in app	Matched testing subject ID with testing sample.
v. Log collections app	Enabled testing site staff to perform collection activities.
vi. Consolidate app	Enabled staff at consolidation centres to route boxes to specific testing sites/labs and specify number of samples within box.

vii. Dispatch app	Allowed laboratory staff to count and reconcile the number of samples in boxes arriving at labs and record the date/time box is received by the courier and its designated location.
viii. Validate app	Allowed lab staff to confirm arrival of sample boxes and verify remaining lifespan of the samples contained to prioritise older samples.
ix. Log results app	Enabled laboratory staff to submit result for sample ID by scanning barcode.
x. Study app	Enabled laboratory staff to associate multiple samples with a subject ID.
Organisation-Led Testing Platform (OLT) – ordering	Enabled bulk orders for test kits from organisations such as care home and prisons (used for both PCR and LFD testing). Management of this platform transferred from Deloitte to Accenture in March 2024 (on the instructions of UKHSA).
Contact Centre Assisted Digital Service	Service set up to assist those without a smartphone or email and/or proxy to book/register a test.
Enquiries, Feedback and Complaints (EF&C) platform	A case management platform which reduced demand for call centre staff in the 119 call centre. Management of this platform transferred from Deloitte to Accenture in March 2024 (on the instructions of UKHSA).
Supply Planning Tool	An automated system managing stock replenishment and demand forecasting.

Application portal	Built in conjunction with Reed to run a recruitment campaign to source applications for lab support positions.	
Lab barcodes	Barcode system deployed in labs to assist in prioritising samples for testing.	
LDF webinars	Developed with the DHSC for use in care homes to train staff on how register results from LFD sample collection kits.	
Physical Infrastructure		
New (new infrastructure built on existing land)		
Regional Test Sites (RTS)	X100 at peak	
Local Test Sites (LTS)	X500 at peak. Mobilised, to bring testing to a community level for those unable to access testing by car.	
Mobile Testing Units (MTU)	X c. 500 at peak. Could be set up at speed and operate in areas not served by RTS and LTS.	
Laboratory Network		
Existing		

Milton Keynes Lighthouse Lab	UK Biocentre but re-purposed to act as Lighthouse Lab
Glasgow Lighthouse Lab	University of Glasgow repurposed to act as Lighthouse Lab
Manchester/Alderley Park Lighthouse Lab	Medicines Discovery Catapult repurposed to act as Lighthouse Lab
Cambridge Lighthouse Lab	University of Cambridge, AstraZeneca and GlaxoSmithKline lab repurposed to act as Lighthouse Lab
Newport Lighthouse Lab	Perkin Elmer repurposed to act as Lighthouse Lab
London Testing Alliance	Health Services Laboratories (HSL) in partnership with University College London Hospitals NHS Foundation Trust (UCL)
Brants Bridge Lighthouse Lab	Berkshire and Surrey Pathology Services repurposed to act as part of the 2nd wave of Lighthouse Lab opening
Baltic Park Gateshead Lighthouse Lab	Newcastle Hospitals NHS Foundation Trust repurposed to act as part of the 2nd wave of Lighthouse Lab opening
Plymouth Lighthouse Lab	University Hospitals Plymouth NHS Trust repurposed to act as part of the 2nd wave of Lighthouse Lab opening

Partner Labs	Commercial labs that that were given regular sample allocations to provide additional capacity to the Lighthouse Labs	
Surge Labs	Commercial labs with shorter term contracts that were allocated samples when demand required to support Partner and Lighthouse Labs	
New		
Rosalind Franklin Covid Laboratory	Mega Lab built in Leamington Spa that became operational in June 2021	
Schedule 7

PCR Testing Over Time



Schedule 8

LFD Testing Snapshot – February to April 2021



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