Witness Name: Robert Harrison

Statement No.: 1

Exhibits: 94

Dated: 16 September 2025

UK COVID-19 INQUIRY

WITNESS STATEMENT OF ROBERT HARRISON

I, Robert Harrison, will say as follows.

INTRODUCTION

1. I have been a civil servant in the Foreign, Commonwealth and Development Office ("FCDO"), and its predecessor departments, since 2002.[1] For the majority of that time, my roles have been focused on national security issues. In August 2019 I was seconded to the Cabinet Office as Director of the Assessment Staff in the Joint Intelligence Organisation ("JIO"). As I describe in more detail below, my involvement in the response to the Covid-19 pandemic began on 20 March 2020 and continued until 21 February 2022.

2. I have prepared this witness statement in response to the Inquiry's request for evidence dated 20 June 2025 ("the Rule 9 request"). As requested, I have attempted in this statement to assist the Inquiry by providing objective and subjective evidence in relation to the range of issues raised in the Rule 9 request.

3. In preparing this statement, I have been assisted by lawyers instructed by the Cabinet Office. I have also consulted several members of my former team in an effort to ensure factual accuracy, but the views expressed here, and any errors, are my own.

[1] For convenience, I refer to the FCDO and its predecessor departments as "FCDO" throughout this statement.

4. I used WhatsApp on my official mobile phone throughout the pandemic for informal communication with colleagues across Government and beyond. I continued to use this handset until October 2024 when it ceased to function and I returned it to the Cabinet Office. I have checked and the Cabinet Office has confirmed that no messages are retrievable from this device. The Cabinet Office has however obtained and provided me with some threads in which I was a participant. As requested in the Rule 9 request, details of the potentially relevant threads have been provided to the Inquiry.

5. I have retained access to all emails from this period, and to other potentially relevant documents. I have referred to some of them in the course of this statement and these are exhibited. As requested in the Rule 9 request, all key emails (and other documents) have been provided to the Inquiry.

6. I have structured this statement as follows:

Section 1: My role and involvement
Section 2: The Directorate General for Analysis
Section 3: Working Relationships
Section 4: Coordination
Section 5: Economic data, analysis and modelling
Section 6: Working relationships with HM Treasury
Section 7: Recommendations
Section 8: Reflections and conclusion

SECTION 1: MY ROLE AND INVOLVEMENT

7. There were three distinct phases to my involvement in the response to the pandemic. First, between March and April 2020 I was involved in formulating a national strategy for Covid-19 response and renewal. Second, from April to October 2020 I was co-director of the International Comparators Joint Unit. Third, from October 2020 to February 2022 I was Director General for Analysis in the Covid-19 Taskforce. I explain my role in each of these three phases below.

Covid Strategy for Response and Renewal (March-April 2020)

8. On 20 March 2020 I was asked by the Cabinet Secretary, Sir Mark (now Lord) Sedwill, to work with Sir Philip Barton, who was at the time a director general in the FCDO, to produce a national strategy for the UK's response to Covid-19. We were asked to do this work because Philip and I had worked together on developing the Government's Russia Strategy in 2017, which Sir Mark Sedwill had regarded highly. We wrote a first version on 21 March 2020, with input from colleagues from HM Treasury ("HMT"), the Department of Health and Social Care ("DHSC"), the Government Office for Science ("GO-Science"), and others. It was discussed at the Prime Minister's Strategy Group on 22 March 2020 and put before Cabinet on 24 March 2020 **[RH/01 - INQ000625720]**. The scope of this work evolved into a strategy for long term recovery and renewal from the pandemic, on which I worked closely with the No 10 Policy Unit, with input from across government and beyond. There were a number of senior official discussions on this topic, including a Cabinet Secretary-chaired 'Deep Dive' with permanent secretaries on 17 April 2020 **[RH/02 - INQ000625679; RH/03 - INQ000625680]**.

International Comparators Joint Unit (April-October 2020)

9. On 23 April 2020, No 10 commissioned Sir Simon Gass, the Chair of the Joint Intelligence Committee ("the JIC"), to establish a new capability to assess international responses to the pandemic, including other countries' public policy decisions and scientific analysis; how their approaches affected the spread of the virus; and the applicability of their approaches to the UK. I was asked to lead this work with the FCDO's Chief Economist, Kumar Iyer. We formed the International Comparators Joint Unit ("ICJU") comprising 30-40 staff from JIO and FCDO, and established a multidisciplinary expert group, the International Best Practice Advisory Group ("IBPAG"), **[RH/04 - INQ000562989]** to quality-assure ICJU's analysis.

10. From 23 April to 9 October 2020, ICJU produced 49 analytical products, to priorities agreed weekly with No 10. I was not directly involved in decision-making during this phase but No 10 wrote to Sir Simon Gass on 15 June 2020 to say that the work of the ICJU "has been critical in providing an improved basis of assessed information for decision-making on everything related to Covid-19" **[RH/05 - INQ000196546]**; and on 29 September 2020 the Cabinet Secretary told Sir Simon Gass that "he had never seen examples of all-source international assessment that had as much impact as

ICJU's work. It was part of almost every decision." **[RH/06 - INQ000625734]**. On 9 October 2020 the ICJU was absorbed into the Covid-19 Taskforce.

Director General for Analysis, Covid-19 Taskforce (October 2020-February 2022)

11. Shortly afterwards, I was appointed by the Cabinet Secretary, Simon Case, as Director General for Policy and Analysis in the Covid-19 Taskforce. I started in this role on 19 October 2020, working first to James Bowler, the Cabinet Office's Second Permanent Secretary and head of the Taskforce, and later to Simon Ridley when he succeeded James Bowler as head of the Taskforce in July 2021.

12. I agreed with Simon Ridley at an early stage that we should adjust the scope of our respective roles, with the policy elements of my role, including the teams responsible for economic and vaccine policy, being transferred to him and the Science & Projects team, whose responsibilities included commissioning of the Scientific Advisory Group for Emergencies ("SAGE"), being transferred to me. This resulted in a clearer separation between the Taskforce's analytical function, responsible for assessing and presenting what the evidence said, and the policy function, responsible for advising Ministers on what to do about it. A third director general, Kathy Hall, was responsible for delivery.

13. The scope of my role was described in the job description as follows **[RH/07 - INQ000625702]**:

    a. *Providing cross-cutting analytical services in support of the COVID-19 response, including macro and microeconomic and social and health factors.*

    b. *Exploitation of cross-government, external and international data sources and research in order to provide a rich data picture of the pandemic and our response.*

    c. *Building the data and analysis capability (initially through the Prime Minister's daily data dashboard) to inform and drive Cabinet decision-making.*

    d. *Leading a team of around 80 people.*

    e. *Budgetary responsibilities of around £11m, including staffing costs and consultancy spend.*

14. My core responsibilities included leading the Taskforce's data and analysis teams; coordinating the analytical effort across government; acting as one of the principal

intermediaries with the scientific community; and representing 'the voice of the evidence' in internal discussions about the design and implementation of policy. I was also responsible for continuing to build the Taskforce's data and analysis capability and, during the second half of 2021, making the case for this to be retained and repurposed as a standing analytical function within the Cabinet Office.

SECTION 2: THE DIRECTORATE GENERAL FOR ANALYSIS

15. The Cabinet Office's Corporate Witness Statements for Module 2, dated 25 January 2023 **[RH/08 - INQ000092893]** and 20 July 2023 **[RH/09 - INQ000248852]**, described the role of the Covid-19 Taskforce and how it evolved over time. I agree with and adopt the evidence set out in those statements. I refer the Inquiry to section 3 of the first statement ('The Development of the Covid-19 Dashboard and the Role of Evidence') and section 2 (especially sections 2.11-2.17) of the second statement ('Data and Analysis') in particular. These extracts are copied at Annex A below.

16. My role within the Taskforce was as head of the Directorate General for Analysis ("DGA"), whose role and structure I described in June 2021 in the following terms **[RH/10 - INQ000625727]**:

"DGA provides integrated data and analysis to the Prime Minister and Cabinet to inform decisions on the Government's response to the pandemic. We draw on data, evidence and expertise from across Whitehall (and beyond) to ensure that decisions are taken with the best possible understanding of the likely health, economic and social outcomes. Multidisciplinary teams cover health, science, economics, behaviour, social policy/public services, foresight, data science, and the data dashboard. DGA coordinates an analytical effort across HMG (HMT, ONS, JBC, DHSC, SPI-M, GOS, SAGE, PHE, BEIS, DCMS) and works with them to produce integrated analysis for which there is cross Whitehall consensus. We have data flows from departments feeding the Dashboard which is used to brief the Prime Minister and senior officials on a regular basis. DGA comprises the Analysis and Data Directorate (ADD), the International Comparators Joint Unit (ICJU, a joint enterprise with FCDO), the Science and Projects team, and a Public Data Team loaned by ONS."

Staffing and Skills

17. DGA varied in size from around 100 to 130 staff, under a Senior Civil Servant ("SCS") leadership team of a director general, two directors and between eight and ten deputy directors. It included individuals with a very broad range of skills and professional backgrounds including statisticians, operational researchers, economists, data scientists, data engineers, behavioural scientists, and analysts. During 2020 the team had been supported by consultants from McKinsey, but by the end of the year we had recruited sufficient staff from within the civil service not to need to extend the McKinsey contract.

18. A staff list dated 2 November 2021 listed 168 staff who had worked in DGA. Of these, only c.40% were permanent Cabinet Office employees. The remainder were seconded from twelve ministerial departments (BEIS, DEFRA, DfE, DHSC, DIT, DWP, FCDO, HMT, HO, MHCLG, MOD, MOJ), a similar number of agencies and non-departmental public bodies (CEFAS, CMA, DSTL, EHRC, HMRC, OFSTED, ONS, PHE, UKIC, UKRI), the armed forces, universities, the Scottish and Welsh Governments, and agency staff on contract. The Taskforce was a Cabinet Office team and the Treasury, like other departments, did not have a formal role, but a significant number of staff were loaned from the Treasury or had experience working there, including both of my directors and (I estimate) one third to one half of my SCS leadership team.

19. Where we lacked specific skills, we were able to draw on others from outside government. For example, in 2021 we seconded to the Cabinet Office two epidemiological modellers, first Nicholas Willams from the London School of Hygiene and Tropical Medicine ("LSHTM") and later Louise Dyson from Warwick University, to improve our ability to work with academic modelling groups. We also benefited from two external advisory groups, in addition to SAGE and its subgroups. Throughout the pandemic, our international work was quality-assured by the multi-disciplinary International Best Practice Advisory Group. When in November 2020 we took on responsibility for presentation of data to the public in press conferences held by the Prime Minister, Chief Medical Officer and Government Chief Scientific Adviser, the Royal Statistical Society nominated two Fellows who were experts in this field, Michael Campbell and Kevin McConway, to join the Public Data Advisory Group.

20. We maintained contact with others with no formal relationship with government,

including some who were sceptical of the Government's approach. We did this initially at the request of the No 10 parliamentary affairs team but I found these interactions a valuable source of ideas and challenge. For example, between November 2020 and February 2021 we engaged a team from the Legatum Institute who were developing a methodology for cost-benefit analysis, and from this point on I maintained contact with Dr. Raghib Ali and through him a group of lockdown-sceptical scientists **[RH/11 - INQ000625709]**.

Products

21. The Rule 9 request asks me to provide an explanation of the 'data packs' produced by DGA, how these were compiled, how cross-departmental consensus was reached, and how these integrated economic and public health data.

22. DGA produced a number of different products. Some of these were data products, presenting visualisations of data with little or no interpretation or analysis. For this reason, we did not usually seek formal consensus on the content, but we circulated them in advance of key meetings to ensure alignment and provide opportunities for challenge. They included:

    a. The Dashboard itself. Before each Dashboard briefing, we would circulate an 'alignment' message summarising the points that we intended to brief, and the slides in PDF format (as the interactive Dashboard was unwieldy for live briefing). I have exhibited to my statement typical examples for a Dashboard briefing on 25 October 2021 **[RH/12 - INQ000625685; RH/13 - INQ000625686; RH/14 - INQ000625687]**.

    b. An automated daily data brief. I exhibit an example from 1 September 2021 **[RH/15 - INQ000625705; RH/16 - INQ000625706]**.

    c. Data packs for key meetings such as Covid-O. I exhibit an example produced for the Covid-O meeting on 5 April 2021 to support the decision on whether to proceed with Step 2 of the Roadmap **[RH/17 - INQ000091854]**.

23. My team also produced a range of analytical products to support policy development and decision making. These products made analytical judgements based on data and other evidence, on which we sought to reach cross-departmental consensus. We produced a range of products for different purposes:

a. Products summarising the evidence at key decision points. For example, for each of the steps of the Roadmap, we produced an analytical pack assessing progress against the four published tests, as well as other issues relevant to the decision, including wider economic and social impact. As an example, I exhibit the pack produced for Step 4 of the Roadmap, dated 8 July 2021 **[RH/18 - INQ000625663]**.

b. Long form 'In Depths' and short form 'Spotlights' which were not produced for specific decision-points, but to support policy development or to highlight important issues. As examples, I exhibit a Spotlight on the impact of the pandemic on the economy, dated 3 March 2021 **[RH/19 - INQ000625666]**, and an In Depth report on the socioeconomic impact of working from home, dated 30 March 2021 **[RH/20 - INQ000625670]**.

c. Sometimes we would produce a series of Spotlights providing regular updates on an issue of particular importance. For example, as Variants of Concern were identified as the principal risk to the Government's strategy, we produced a weekly Spotlight on this topic from 22 April 2021 **[RH/21 - INQ000625667]** until 30 March 2022 **[RH/22 - INQ000625668]**.

d. Sometimes a Spotlight would generate significant interest and be expanded into an In Depth. For example, we produced a Spotlight on Long Covid on 16 February 2021 **[RH/23 - INQ000625664]**, and an In Depth on 13 April 2021 **[RH/24 - INQ000625665]**.

e. Our Foresight team produced Scenarios with a longer horizon. For example, we produced four iterations of scenarios for Winter 2021 in June, September, November and December 2021. These products described a range of plausible future scenarios and their economic, societal and international implications. I exhibit the first in this series **[RH/25 - INQ000625669]**.

f. ICJU produced regular reports on how other countries were affected by and responding to the pandemic. I exhibit an example from October 2020 on the economic impact in comparator countries **[RH/26 - INQ000625690]**.

g. Sometimes reports would highlight issues which the evidence suggested were important and needed more attention in policy discussions. For example, we produced reports on the importance of ventilation **[RH/27 - INQ000625660]**, on

the risks of high prevalence **[RH/28 - INQ000624073]**, and on the cumulative impact on disadvantaged groups **[RH/29 - INQ000625671]**.

24. Typically, these products would be produced by teams of analysts in the Taskforce. Usually, they would draw on primary analysis done by others; DGA's role was to synthesise this and present it in a form suitable for decision-makers.

25. The draft report would be quality-assured by the responsible deputy director and then circulated for challenge. Sometimes we would hold meetings with analysts across government to test and debate the judgements. Sometimes input and challenge would be sought by correspondence; it often required several iterations before consensus was reached. Sometimes we would seek challenge from outside government. For ICJU products, and some others, we would share them in draft with the International Best Practice Advisory Group; visualisations used for press conferences were shared with the Public Data Advisory Group.

26. Occasionally we produced papers which were themselves designed to challenge consensus. For example, in June 2021, Ministers sensed that there was an emerging consensus for delaying the move to Step 4 of the Roadmap, and we were asked to conduct a 'Red Team' exercise to make the strongest possible case for proceeding, to identify the things which would need to be true for it to be safe to proceed, and convene a panel to test this against the available evidence **[RH/30 - INQ000625673]**. The results of this exercise, properly caveated, were included in the pack that went to Ministers to support their decision **[RH/31 - INQ000625662]**; they ultimately decided to delay Step 4 by four weeks.

27. The final product would then be signed off at a senior level; depending on the importance this might be by the responsible deputy director, director or me. For reasons of analytical independence, analytical products were signed off by senior analysts, and not by other senior officials or by Ministers.

28. The final version would then be circulated, as widely as possible. The majority (about 80% according to the DGA product library) were circulated to a wide distribution across government. The remainder were circulated only within the Taskforce, or to restricted distributions.

29. In addition to products shared within government, we also contributed extensively to the evidential content of government publications. Examples include:

a. Published summaries of the impact of various policy options. I exhibit as an example the report on the impact of social distancing published in July 2021 as one of four reviews (on COVID status certification, international travel, large events and social distancing) to which the Government had committed in the Spring Roadmap **[RH/32 - INQ000182182]**.

b. Data packs to accompany publications. I exhibit as an example the data annex that accompanied the publication of the 2021 Roadmap **[RH/33 - INQ000625726]**.

c. Slides for press conferences by the Prime Minister, the Government Chief Scientific Adviser and the Chief Medical Officer. The visualisations were quality assured by the Public Data Advisory Group, and the slides for each press conference were then selected by the CMO, GCSA and the No 10 communications team. I exhibit an example from 14 September 2021 **[RH/34 - INQ000625688; RH/35 - INQ000625689]**.

SECTION 3: WORKING RELATIONSHIPS

30. In this section I identify and describe, as requested in the Rule 9 request, my working relationships with the Prime Minister, senior officials and others during my time in the roles described above.

The Prime Minister & his team

31. Before joining the Covid Taskforce, I had only one interaction with the Prime Minister, to brief him on ICJU analysis at a 'teach-in' on 11 June 2020. However, I worked closely with Tom Shinner, the Prime Minister's Covid adviser, and the No 10 foreign affairs team who were responsible for commissioning ICJU.

32. After joining the Taskforce I regularly attended meetings with the Prime Minister, other ministers and senior officials. I worked closely with the Prime Minister's team in No 10, including Dan Rosenfield and later Steve Barclay MP, the No 10 Chiefs of Staff; Henry Cook, the principal special adviser on Covid; the Private Office team of Stuart Glassborow, Imran Shafi and later Will Musker; Rosie Bate-Willams in the communications team; Nikki da Costa of the parliamentary affairs team; and occasionally with Munira Mirza and the Policy Unit. Ben Warner, the Prime Minister's chief adviser on digital and data and Laura Gilbert, the director of the No 10 Data Science team ("10DS"), were close colleagues and key members of the collective analytical effort.

Senior civil servants in the Cabinet Office

33. Prior to starting in the Taskforce, I worked relatively little with senior officials in the Cabinet Office. While working for Sir Philip Barton on Covid strategy and recovery, he represented our work with other senior officials. During my time in ICJU, we were commissioned directly by No 10 and while our products went to senior officials in the Cabinet Office, I did not engage directly. During this period, the organisation of the Covid response was confused and congested, and senior officials had little bandwidth to engage.

34. After joining the Taskforce, I engaged extensively with other senior officials in the Cabinet Office. The Cabinet Secretary took a close interest. I worked with Deputy Cabinet Secretary Helen MacNamara and her team on preparations for Winter 2020-21; with Mark Sweeney, the head of the Economic and Domestic Secretariat; and with David Halpern and the Behavioural Insights Team.

35. From July 2021 until February 2022, I worked with senior officials including Jonathan Black, the Prime Minister's Coordinator on Economic Affairs, to develop a proposal to retain and repurpose the analytical team as a standing capability **[RH/36 - INQ000625738; RH/37 - INQ000625739]**, and then with the Cabinet Office's Chief Operating Officer and Finance Director to construct a bid.

36. From September 2021, a significant portion of my team's effort was dedicated to supporting the Supply Chains Unit under Jess Glover.

37. I worked regularly with the private offices of Michael (now Lord) Gove MP and Steve Barclay MP in their capacities as Chancellor of the Duchy of Lancaster ("CDL") and members of the Covid ministerial 'Quad'.

Senior civil servants in HM Treasury

38. For most of my time in the Taskforce, my principal interlocutor in the Treasury was James Benford, Director of the Economics Group, and I worked very closely with him and members of his team. When James was absent, my principal contact was Lousie Tinsley, his deputy director. I had occasional contact with Clare Lombardelli, the Chief Economic Adviser, and Elizabeth Perelman, the Chancellor's Principal Private Secretary. Later in 2021, during the Omicron wave, I worked with a broader range of Treasury officials to address a series of specific, detailed questions from the Chancellor.

Senior civil servants in other UK Government departments

39. I worked closely with senior officials from across Government, mostly but not exclusively from the analytical community. The core analytical group included the Covid Taskforce, HM Treasury, the Office for National Statistics, the Joint Biosecurity Centre ("JBC"), 10DS, and the secretariats of SAGE and the Scientific Pandemic Influenza Group on Modelling ("SPI-M"). In addition to those mentioned above, I worked particularly closely with Clare Gardiner, the head of JBC (and later her successor Steven Riley), her deputy (later Deputy Chief Medical Officer) Tom Waite, and Fergus Cumming, its Chief Economist; with Professor Dame Angela McLean, the co-chair of SPI-M's operational sub-group ("SPI-M-O"); Paul Allen, Libby Richards and Tom Irving of SPI-M Secretariat; Ian Bell, the Deputy National Statistician and Emma Rourke, the Director responsible for the ONS's Covid Infection Survey; Simon Whitfield and Stuart Wainwright from the Government Office for Science; and later with Susan Hopkins and other colleagues in Public Health England, especially on vaccine effectiveness and variants of concern.

40. The 'Heads of Analysis' group also included the departmental directors of analysis from the Departments of Health and Social Care; Business, Energy and Industrial Strategy, Transport, International Trade, Education and Culture. I engaged regularly with Sir Patrick (now Lord) Vallance, the Government Chief Scientific Adviser, Chris (now Sir) Whitty, the Chief Medical Officer, and Sir Ian Diamond, the National Statistician.

Senior officials in the Devolved Administrations and in Local Government

41. While working for Sir Philip Barton on a strategy for Covid response and renewal, I had some valuable interactions with senior officials from the devolved administrations ("DAs") and local government. For example, I recall comparing approaches with Peter May, Permanent Secretary for the Department of Justice in the Northern Ireland Government **[RH/38 - INQ000625730]**; and a conversation with Rebekah Sutcliffe, an executive director of Oldham Council, to discuss how to make our work useful and relevant at a local level **[RH/39 - INQ000625731]**.

42. After April 2020, I had limited direct contact with officials in the DAs, other than with those who attended SAGE and other advisory groups. My team provided Dashboard briefings to DA officials at COBR meetings. ICJU reports were routinely shared. But my primary role in the Taskforce was to provide advice to the Prime Minister and UK

Government. Direct contact with the DAs was handled by other senior officials within the Taskforce. I had no direct contact with officials in local government during my time in the Taskforce.

Parties external to government

43. I worked extensively with people outside government. In addition to academics on SAGE and its sub-groups, I established and chaired two expert advisory groups: the International Best Practice Advisory Group and the Public Data Advisory Group. I also had contact with others who had no formal advisory relationship with government, to explore whether they had analytical tools, models or other approaches from which we might benefit: these included bodies such as the Royal Society and the Royal Statistical Society; private companies; think tanks; industry groups; academics and clinical practitioners.

Challenges in working relationships

44. I am asked in the Rule 9 request whether I experienced any challenges in working with those listed above, and how these challenges were addressed. I should first acknowledge that the pandemic placed extraordinary pressure on the Government, and everyone working for it - indeed, on every individual citizen. At the beginning of the pandemic, little was known of the characteristics of the virus, and at the outset the Government was not organised or equipped to deal with the crisis. It took some time for the Government to build the capabilities needed. Throughout the pandemic, there was a high level of uncertainty and a range of reasonable views about how the Government should respond. The stakes were sky high. Under these circumstances, some friction was inevitable. For reasons which I will explain below, a degree of friction was a necessary and desirable consequence of establishing a new, improved way of working. I describe below three areas where we experienced challenges but also valuable learning which I hope will be of assistance to the Inquiry, and which also informs my recommendations:

    a. How the analytical community worked together to provide decision-makers with a single, integrated assessment of the health, economic and other impacts of the pandemic;

    b. How analysts worked with policy officials, and how this changed.

c. The relationship with HM Treasury, about which I am asked specifically in the Rule 9 request.

The Role of Evidence In Decision-Making

45. As context for what follows, it is important to describe how my professional experience affected my approach.

46. Until Covid, I had spent my entire career in the national security community. This community was deeply affected by the lessons learned from the Iraq war, detailed in the Butler and Chilcot Reports published in 2004 and 2016. As a result, a number of changes had been made, including a systematic effort to strengthen the independence of the assessment community; to professionalise this community and improve its analytical tradecraft; and to apply a clearer separation of analysis and assessment (what the evidence said) from policy (what to do about it). The national security community also benefited from the existence of established institutions, like the JIC, whose role it was and is to reach an authoritative, cross-departmental consensus view on which policy discussions and decisions can be based.

47. Covid was my first experience working on domestic policy issues, and I was surprised by some of the differences that I encountered. For example, there was no standing body that fulfilled the JIC's function for domestic policy. During the pandemic, SAGE (an emergency committee and not a standing body) fulfilled this function for scientific advice, but there were no formal mechanisms to reach cross-departmental consensus on other evidence, or to integrate these various inputs. Consequently, different departments sometimes presented different or even competing analyses, reflecting their departmental responsibilities and priorities.[2] It is extremely difficult for Ministers who may not be experts in the relevant fields to determine which of several competing analyses should form the basis for their decisions, especially in crisis conditions.

48. Similarly, the separation between analysis and policy was less clear than I was used to. Of course, there are many factors to be taken into account in Government decision making. Evidence is one. Others include the political agenda or manifesto commitments of the Government of the day; the views of different departments,

[2] The Inquiry Legal Team has asked me to provide examples of occasions on which different departments presented different and/or competing analyses in relation to the economic response. I recall this being a general issue (i.e. not limited to economic matters) but cannot remember, and I have not been able to locate, any specific examples. As I have explained in this statement (see, for example, paragraphs 54 and 88-89), my team produced lots of economic analysis to support core government decision-making but was not directly involved in the "economic response".

Ministers and their political advisers; parliamentary handling considerations; public communications; and many others. There are different approaches for bringing these together. One is what I would describe as 'triangulation' between the various factors, with evidence one amongst many. An alternative 'evidence first' approach is a two stage process: first, an analytical process to reach a common position on what the evidence says, including uncertainties and confidence levels depending on the strength or otherwise of the evidence base; and second, consideration of what to do about it, taking other factors into account.

49. My professional experience led me to favour the latter approach. I believe Ministers should expect their discussions and decisions to be supported by robust, objective, high quality-analysis, unaffected by their policy preferences. If a separation between analysis and policy is not maintained, there is a risk that the treatment of the evidence is affected by policy preferences, and is not truly objective. At the extreme, evidence may be selected or tailored to support a particular position, a practice derided as "policy-based evidence-making". It is my firm view that if we make policy first, then look for the evidence to justify it, we will make bad policy.[3]

50. I have read and taken note of the Inquiry's Module One report on pandemic preparedness, and the comments therein about the dangers of unchallenged consensus and 'groupthink'. I should therefore clarify what exactly I mean by analytical consensus and why I believe this is desirable.

51. A good analytical consensus reflects both what is known and what is not known. It uses probabilistic language and confidence statements to reflect uncertainty. It is reached after a process of rigorous, systematic challenge. Analytical approaches such as scenarios and red team exercises can be used to challenge a policy consensus, or open up a policy debate; I have described in my statement and exhibited examples to demonstrate how we sought to use such approaches during the pandemic. The approach which I describe and advocate was itself a response to the Butler Report's criticism of institutionalised 'groupthink'.

52. I do not believe that an analytical consensus can or should be determinative of policy. During Covid, there was always a high level of uncertainty, and a range of reasonable

[3] The Inquiry Legal Team has asked me to elaborate on this statement, and to provide examples of any occasions on which I consider that evidence was selected or tailored to support a particular position in relation to the economic response. Again, I am making a general point and do not now recall any specific examples. And again, my statement relates to the elements of the Covid response in which I was directly involved, not the "economic response".

options within the parameters defined by the available evidence. Choices within those parameters were political in a positive sense, properly taken by elected representatives who could be held to account.

53. My general approach was to transplant the principles and working practices from the national security community to the Covid response. I outlined this intent to my senior team shortly after my arrival in the Taskforce **[RH/40 - INQ000625733]**. This model was by no means perfect, but I believed it was better than the alternatives. This approach was the source of some friction at first, but I saw this as 'growing pain' as a different way of working took root. We made considerable progress during the pandemic, some but not all of which has been preserved,[4] and my recommendations below address how these positive changes might be more deeply embedded, structurally and culturally, in the centre of government.

SECTION 4: COORDINATION

54. The Rule 9 request poses a series of questions concerning the coordination of the economic response to the pandemic. My statement mostly covers coordination of the analytical effort, and the economic analysis produced to support core government decision-making, because these are the areas in which I was most directly involved. I address some specific issues relating to the economic response in paragraphs 88 and 89 below.

Low point: Autumn 2020

55. I joined the Covid Taskforce on 19 October 2020. Looking back, it was one of the most difficult periods of the whole response. Cases were heading up relentlessly; we crashed into the second lockdown in my second week in the Taskforce. The relationship between the political and scientific communities was under strain: trust on both sides was fragile, and disagreements were playing out in the press. I recall that two particular decisions were the focus of criticism: the Eat Out To Help Out scheme, which had been introduced without consulting the Government's scientific advisers or the Taskforce and increased social mixing at a time when infections were rising; and the Government's rejection of SAGE's advice to impose a 'circuit-breaker' lockdown. At the start of December, we emerged from lockdown into the system of regional tiers,

[4] As set out in the recommendations section of this statement.

but these didn't hold the growth of the more transmissible Alpha variant. By Christmas most of the country was in Tier 4, and by January we were back in national lockdown.

56. In retrospect though, this period was a turning point in a number of ways. Having tried the options short of lockdown, with very limited success, widely divergent views had converged, and it was generally (albeit reluctantly) accepted that a further lockdown was the only viable approach to contain the accelerating Alpha wave. Moreover, by this point the Cabinet Office had organised itself better and established a Taskforce, with a substantial analytical capability, to coordinate the UK's response.[5] The data available to the Government and its scientific advisers had improved significantly from the early days of the pandemic. And, critically, vaccines had been developed and started to be rolled out in December 2021, offering strategic options which had not been available earlier.

57. I recall from this time a widespread concern within my team and the wider analytical community that policy was insufficiently evidence-driven. My impression was that policy was developed, at breakneck pace and under huge pressure, by triangulating between a number of considerations, of which the evidence was one. This was apparent, for example, in the development and implementation of regional tiers during the Autumn.[6] On 23 November I wrote to the analytical group **[RH/41 - INQ000625700]**:

"No 10 is concerned that a public health recommendation that places no regions in Tier 1 will carry unacceptable political risk. They have asked for an option, to accompany the recommendation, which places 5-10% of the country in T1 and sets out the consequences. ... Our expectation would be that doing this (perhaps taking the bottom 5-10% with lowest prevalence or fastest rate of decline) would lead to rapid progress to Tier 2/3, and (probably) longer under more stringent restrictions overall, with health and economic consequences."

[5] The Inquiry Legal Team has asked me why, in my view, it was not until Winter 2020-2021 that the Covid-19 Taskforce was fully effective in relation to the economic response. I am not well placed to comment on the period before my arrival on 19 October 2020, but I am aware that the Cabinet Office corporate statements for Module 2 of the Inquiry cover the evolution of the analytical capability in the Taskforce.

[6] The Inquiry Legal Team has asked me to provide any examples where this was apparent in relation to the economic response. I do not recall any specific example in relation to the economic response. I have explained in this statement that although my team produced a lot of economic analysis to support government decision-making, it was not directly involved in the economic response. The point is a general one, and this is the best illustration of it.

58. I do not intend this example as criticism, and ultimately Ministers decided to place only three local authorities in Tier One, but I include it to illustrate the sort of policy development by triangulation which I have described above.

59. Although there was some join up between departments, there was no established mechanism to agree analytical consensus. Analysts across government convened sporadically, normally around specific pieces of work, and were not empowered to decide what analysis would be put forward to Ministers. As a result, Ministers and departments with different departmental priorities would sometimes advance different analyses to support their preferred policy approaches, and I recall some ministerial meetings being derailed by debates about whose analysis was to be preferred (though I cannot now remember the specifics). Data had improved since the early days of the pandemic, and were available to decision-makers via an interactive Dashboard, but there were still wide uncertainties and many unknowns. Some good analysis was being produced, but most of this was in the form of short paragraphs produced at pace and inserted into policy papers, rather than in separate, quality-assured analytical products over which analysts had editorial control and space for detail (including uncertainties). Scientific advice was being commissioned piecemeal by policy teams, so it was difficult to align commissioning and to integrate scientific advice with other analysis, including economic analysis. Moreover, many of the staff who had joined during the early phase of the Covid response on short-term loans had returned to their departments, and the Taskforce's analytical team had been understaffed through the Summer and early Autumn.[7] Those who remained were exhausted by the sustained, often short-notice demands on them. For all of these reasons, I communicated to my team two overriding priorities: to increase the impact of analysis on policy, and moderate the impact on staff.

Improvement: Winter 2020-21

60. During the course of the Winter, we implemented a number of practical improvements within the analytical community and established a different working relationship with our policy colleagues. The two together enabled better use of evidence in policy formulation and decision-making, culminating in the publication of the Spring Roadmap in February 2021.

[7] The Cabinet Office's corporate statements for Module 2 explain how the Taskforce's analytical team evolved to become DGA. The Inquiry Legal Team has asked me how many were responsible for economic analysis in Summer to early Autumn 2020. I do not know the answer to this.

61. By mid-December 2020, we had instituted a weekly meeting of the main analytical units across government as a mechanism to coordinate analysis and reach analytical consensus. From January 2021, we also established a daily 'Exit Analysis' meeting of working level analysts to align effort across departments. We moved to a model where analysts across government worked together to present decision-makers with a single, authoritative, shared assessment of the available evidence. This combined advice from SAGE with analysis of economic and societal factors to provide an integrated, holistic assessment.

62. We established a high-trust 'analytical bubble' within which we could share policy options under consideration with analysts across government before these were decided or formally communicated to departments. We also embraced a culture of vigorous challenge. SPI-M-O's mantra of *Tell Me Why I'm Wrong* was widely adopted within the analytical community, inviting divergent views and reducing barriers to challenge **[RH/42 - INQ000625729]**. We engaged much more closely with the scientific community, and were more open about what the Government was trying to achieve and the policy options they were considering. I, and other members of my team, attended meetings of SAGE and its subgroups, provided insight on the discussions within government, and fed back on how scientific advice was being used. Trust steadily improved on both sides, and better-informed scientific advisers were able to give better advice.

63. We implemented a more centralised, coherent, collaborative approach to commissioning. My team took control of the commissioning process, working with policy colleagues in the Taskforce to identify and clarify their requirements, then tasking the analytical and scientific community centrally. I exhibit to my statement an example of a commission from December 2020 **[RH/43 - INQ000625675]**. We developed a 'Master Questions List' to identify key gaps and ensure that analytical effort was directed to answer them **[RH/44 - INQ000625724; RH/45 - INQ000625725]**. We also established a Foresight function dedicated to longer-term, scenario-based thinking. These changes were important: by commissioning work well in advance we were able to reduce the strain on the system, produce higher quality analysis rather than rushing to meet deadlines, and get ahead of events rather than scrambling to react.

64. This allowed us to improve the quality of our analytical output. We settled on standard formats for long and short form products, embedded analytical best practice

(bottom line up front, confidence statements, probabilistic language, etc), and allowed time for challenge in our production process, to assure quality and achieve consensus.

65. We established the data streams, tools and practices at the centre of government to allow decision-makers to track key data on a regular basis. Every key meeting started with a Dashboard of the latest data, usually presented by a DGA director, Steffan Jones, with the Chief Medical Officer, Government Chief Scientific Adviser and other experts on hand to explain and interpret them. By the end of 2020, we had more data than decision-makers could easily or usefully track, so we streamlined the Dashboard presentations, focusing on a limited number of key metrics, visualised in a consistent way, so that non-experts could become familiar with them.

66. We also improved communications to the public. The Office of National Statistics lent us a 'public data team' to lead on production of slides for press conferences, and we established an advisory group of statisticians from inside and outside government to ensure that the visualisations used met professional standards and best practice on communication of uncertainty to the public.

67. These changes together allowed us to put the analytical effort on an organised and sustainable footing, improve the quality of our analytical output, and relieve some of the unsustainable pressure on the human beings involved.

68. These practical improvements enabled and co-evolved with an important change in how the analytical community interacted with policy officials. I encouraged analysts to be more assertive with our policy and political colleagues, so that we worked with them in partnership rather than as service providers. We asserted editorial control over any analytical content, and offered robust challenge if analytical conclusions were not fully and accurately represented in advice to Ministers **[RH/46 - INQ000625678]**. This way of working depended on greater willingness of analysts to offer challenge, but also on the positive response of policy and political colleagues to it. I believe that a culture of analytical independence produced not conflict but a much better balanced and mutually respectful relationship with policy colleagues. As we introduced better working practices, the quality of analytical input improved, and policy colleagues had greater confidence in it. It became a virtuous circle.

Result: The Roadmap

69. By the time of the publication of the Spring Roadmap in February 2021, the situation had been transformed. The relationship between policy and analysis was symbiotic. The Roadmap was not only informed by the best available evidence, but was designed in a way that allowed future decisions to be evidence-led. On 25 January 2021, I wrote to the analytical community to seek ideas on how the unlocking plan might be designed to make it as easy as possible to detect the effect of each step before taking the next one **[RH/47 - INQ000625697]**. During discussions about the design of the Roadmap in January and February 2021 we argued (based on advice from the modellers) that a minimum of five weeks between steps was necessary for data to reflect the impact of the previous step, and despite a clear preference to unlock as quickly as possible, Ministers decided to follow this advice. The phrase "data not dates" was a design principle, not just a comms line, as the decision to delay Step 4 in June 2021 later proved.

70. As an illustration, I attach a summary of the analytical work which supported the development of the Spring Roadmap, dated 19 February 2022 **[RH/48 - INQ000217016]**. The coversheet shows that this was a collaborative effort agreed by analysts in the Taskforce, SPI-M, JBC, the Treasury, GO-Science and 10DS. It included: modelling of various unlocking strategies; data and projections of vaccine rollout and effectiveness; advice from SAGE; longer term risks including viral resurgence and incidence of Long Covid; factors affecting the rate of economic recovery; the economic impact of each unlocking step; impact on key sectors of the economy, especially distressed sectors such as hospitality; social impact, including of reopening schools and on disadvantaged groups; possible changes in public behaviour; and comparisons with other countries. This document was circulated only within government, but much of this analysis is visible in the published Roadmap **[RH/49 - INQ000089798]** or in the supporting data annex **[RH/33 - INQ000625726]**.

SECTION 5: ECONOMIC DATA, ANALYSIS AND MODELLING

Data and Dashboard

71. The Cabinet Office's corporate statements for Module 2 cover at a high level the evolution of the Dashboard and how it was used (see Annex A). By the time I arrived in the Taskforce the interactive Dashboard was well established, was being used regularly to brief decision-makers, and was available to users across government.

72. The data available to the Taskforce, including economic data, improved steadily throughout the pandemic. My team had access to a wide range of economic data, principally via the ONS. Many of the usual sources of economic data were significantly lagged, and we needed earlier indicators of changes in economic activity. To address this gap, the ONS established a number of new surveys, including the Business Impact and Conditions Survey, and amended others, such as Opinions and Lifestyle Survey. They also obtained and made available a number of high frequency data sources, including prices, financial transactions and card spending, mobility data from transport and mobile telephony usage; restaurant bookings, job adverts and a range of other metrics. These data allowed us to draw conclusions quickly on how the virus, and interventions to control it, affected economic activity, although it remained difficult to draw from them confident judgments on the overall health of the economy. Many depended on public behaviour in response to viral transmission and government interventions; this was a key uncertainty which affected both epidemiological and economic analysis, and I will return to this point later in my statement.

73. Data transfer between departments also improved. Initially, the vast majority of datasets were ingested manually: spreadsheets were emailed to the Cabinet Office and manually imported into the Dashboard's underlying data store. Over time, a number of Application Programming Interfaces ("APIs") were set up to support the transfer of data to the Cabinet Office, and quality assured Reproducible Analytical Pipelines ("RAPs") were put in place to process data and generate a range of visualisations quickly.

Economic analysis

74. In June 2021, the DGA 'team biography' described the work of the economy team as follows **[RH/10 - INQ000625727]**:

"The economy team provides strategic analysis and leadership ensuring that the economic impacts of major policy decisions and choices on COVID-19 are well understood and factored into decision-making.

The team has provided independent analysis and curated input from Whitehall (HMT, BEIS and other departments) that have informed choices made in the Roadmap, the decision to delay moving to Step 4, setting out the regional and local consequences of Tiering decisions and examining the economic costs of individual NPIs. The team

has also recently contributed to the Social Distancing and Certification Reviews and the Events Research Programme.

The team also runs an ongoing research programme examining the longer-term consequences of COVID-19. For example, it has built an evidence base on Working From Home and is considering how the labour market could change.

The team is increasingly working across Cabinet Office with EDS [the Economic and Domestic Secretariat] to consider how these longer-term impacts will affect wider Government priorities such as levelling-up."

75. My team produced a substantial number of products relating to the socio-economic impact of the pandemic. I exhibit to my statement a summary of these reports which we produced in July 2021 to advertise how the Taskforce might be able to support planning for Recovery **[RH/36 - INQ000625738; RH/37 - INQ000625739]**.

Integrated analysis

76. I have described in general terms how DGA worked with the wider analytical community across government to integrate analysis covering the health, economic and wider societal impact of Covid-19. Much (though not all) of the primary analysis was done by others; for economic analysis, primarily by the Treasury, the Department for Business Energy and Industrial Strategy, and the Office for National Statistics. The unique contribution of the Taskforce was to integrate the inputs into a single picture. The examples referenced above, and exhibited to my statement, demonstrate how we did this. In this section I will explain the logic of our overall approach.

77. On a number of occasions the Government was asked to publish cost-benefit analyses ("CBAs") of proposed policy interventions. For example, in November 2020, 70 MPs of the Covid Recovery Group wrote to the Prime Minister to ask for a full CBA of the proposed system of regional tiers **[RH/41 - INQ000625700]**. I recall discussions within the analytical community and with No 10 about this request. We advised that a CBA was not practicable in the time available and, more importantly, that a CBA was not the best analytical approach. Instead, DHSC (as the department responsible for laying the regulations relating to regional tiers) published an 'Analysis of the health, economic and social effects of COVID-19 and the approach to tiering' **[RH/50 - INQ000136696]** which set these out without attempting to quantify the net costs and

benefits in monetary terms.

78. It may be helpful to explain why we decided on this occasion and subsequently that CBA was not the right approach, because this has been a recurring question during the pandemic and afterwards.

79. There were a number of difficulties with constructing a useful CBA. Some were the familiar problems of uncertainty about input assumptions and uncertainty about the impact (separately and cumulatively) of interventions, which affected all of our analysis. But there were additional difficulties with constructing a CBA. One was the difficulty of anticipating, valuing and then quantifying the impact on all of the potential positive and negative effects. The health and economic impacts were, theoretically, quantifiable, although the most widely used methodologies for valuing health outcomes, such as quality-adjusted life years ("QALYs"), were not uncontroversial. But uneven effects across the country, or disproportionate impacts on disadvantaged groups, were difficult to capture, and other important issues, such as impact on individual liberties, were not quantifiable at all. Defining a counterfactual baseline of what would happen in the absence of the policy intervention was very difficult, and without a robust counter-factual any estimates of costs and benefits would have been of little value. The final issue was the impossibility of estimating the cascading impact and aggregate costs in the event that NHS capacity was exceeded. We had no data on this, so it was not a tractable analytical problem. We could not see beyond the event horizon, and the 'marginal cost' of every hospital admission as we approached it became impossible to quantify.

80. Nevertheless, we explored CBA approaches with others outside the UK government. For example, in November 2020 we started working with a team from the Legatum Institute who developed a proof-of-concept methodology and applied it to the bounded question of when to reopen schools. The initial driver for this collaboration was to support the No 10 Parliamentary team in their engagement with sceptical parliamentarians, but this was a valuable exercise which demonstrated the utility of working with those outside government and its formal advisory structures. Legatum's paper, published on 18 February 2021, provided a worked example of the cost-benefit approach **[RH/51 - INQ000625707; RH/52 - INQ000625708]**. Their conclusions were consistent with the Government's decision to reopen schools on 8 March but not earlier, unless assumptions about the infection rate and the estimated impact of reopening schools were both at the most optimistic ends of the estimated ranges. We

had reached the same conclusions, and concluded that the CBA did not offer sufficient additive value to be worth the significant additional effort involved in producing such analyses for future decisions, bearing in mind that this would necessarily affect our ability to do other work.

81. This discussion of cost-benefit analysis illustrates a broader point, which I will also make later in my statement in relation to epi-macro modelling. There was no single analytical method or model, even conceptually, that could crunch all the data and tell Ministers what was the single best course of action. We could have constructed a cost-benefit analysis and produced numbers quantifying the net costs and benefits in monetary terms, but these would have been spuriously accurate, and we would not have been able to stand behind the results with any confidence or credit.

82. Covid was a problem of towering complexity and deep uncertainty. It was multi-dimensional, and different analytical approaches were appropriate for different dimensions. It could not be reduced to a single equation, even if we had good data for all the variables, which we did not. Even more importantly, many decisions involved subjective value judgements, which the data could not possibly be expected to decide – our role as analysts was to give democratically elected and accountable Ministers the best available information to help them to make these choices.

83. The Government had decided at an early stage that the costs and risks of allowing the NHS to be overwhelmed were unacceptable, and that the first priority was to prevent this. Our analytical as well as our strategic approach was shaped by this decision, with hospital admissions the 'objective function'.[8] For example, the 'four tests' in the 2021 Roadmap all related to this priority, and did not include an economic test.

84. This does not mean that economic factors, and wider societal factors too, were not considered. In every pack we produced to support decision-makers, we included alongside the tests our best estimates of the likely economic and wider social impact. For example, during January and February 2021, my team worked with analysts in the Treasury and BEIS to develop a simple model to compare the economic impact of different strategies for easing restrictions by comparing their impact on GVA (Gross Value Added, an economic measure of the value of goods and services produced),

[8] In mathematics, particularly in optimisation problems, an objective function is a mathematical expression that represents the quantity you want to maximise or minimise. It's a core component in determining the best possible solution within a set of constraints.

including regional and sectoral variations **[RH/53 - INQ000625692]**. Some of the conclusions from this work were presented in the summary of the analytical work which supported the development of the Spring Roadmap, dated 19 February 2022 **[RH/48 - INQ000217016]**.

85. The debate within government was sometimes caricatured as 'health' vs 'economy' but this is misleading. Few disputed that very high levels of mortality and morbidity would also be bad for the economy. More often, 'health' vs 'economy' debates were about how much 'headroom' there was below the threshold of hospital capacity, and how much risk the Government was willing to take of this threshold being exceeded. It was a persistent problem that the NHS was unable or unwilling to provide numerical thresholds **[RH/54 - INQ000625735]** – most of our analysis and SPI-M's modelling instead used previous peaks as reference points – so some debate about where the true thresholds were was inevitable.

86. But other equally vigorous debates were about how this headroom should be used. For example, during the development of the Roadmap, I recall debates about whether the early unlocking steps should be optimised to stimulate economic activity or to remove the most onerous impositions on individual liberties. Again, this was a political and values-based judgement, not an analytical one, though analysis could help Ministers understand some of the tradeoffs.

87. We tried in products for decision points to make Ministers aware of all relevant issues, not just the four published tests. Moreover, we used other products to highlight important issues which might be obscured by a narrow focus on the 'objective function' of hospital admissions. For example, in July 2021 we produced a report highlighting the harmful impact – on health, the economy, and society – of high numbers of infections, even if these did not lead to hospitalisations **[RH/28 - INQ000624073]**. This report was initially circulated in draft to a very small distribution in the Taskforce and No 10, and was not initially circulated further at the request of the No 10 Chief of Staff, but I recall that someone in No 10 (I believe it might have been Nikki da Costa, but I cannot now be sure) told me that it "changed everything". This report was reissued and circulated more widely in time for the final step of the Roadmap, and influenced the Government's communications approach which urged continued caution and gradual behavioural change.

Economic response

88. The Rule 9 request asks a number of questions about work undertaken by my team in relation to the economic response to the pandemic. I understand this to be a reference to economic support measures, such as the furlough and business loan schemes, and general management of the economy during the pandemic. My team had very little involvement in these decisions. I assume they were informed by internal Treasury analysis, or analysis from BEIS, DWP, and other economic and spending departments, though it is possible that they drew on products produced by my team. I am aware, for example, that a Spotlight on barriers to compliance with self isolation **[RH/55 - INQ000625661]** and underlying analysis by JBC were used within the Treasury to inform internal discussions about increasing support payments, although the Treasury's response was clear that the Chancellor had decided not to extend such payments in this way **[RH/56 - INQ000625691]**.

89. As I recall, there was a parallel process for management of the economic response, which I was not part of. There were 'Economy Dashboard' briefings to the Prime Minister and the Chancellor, involving officials from No 10, the Treasury, and the Cabinet Office's Economic and Domestic Secretariat ("EDS"). I never attended these meetings, and was not provided with the materials produced for them by EDS. The only reference I can find is an email on which I was copied by Stuart Glassborow, the Prime Minister's Deputy Principal Private Secretary, on 9 November 2020, in which he asked EDS to coordinate the content of their briefing packs with Steffan Jones, the Director in DGA responsible for the Covid Dashboard, to ensure that they did not present data which was already being covered by him **[RH/57 - INQ000625701]**.

Supply chains

90. There was one aspect of the economic response in which my team was heavily involved. In late September 2021, the resilience of supply chains became a pressing priority for the Government. A new Supply Chains Unit was established in the Cabinet Office led by Jess Glover (director general) and Emma Payne (director). On 30 September 2021, I wrote to Emma Payne to offer analytical support for the Supply Chains Unit, including two deputy directors and c.20 experienced analysts **[RH/58 - INQ000625695]**. The initial offer was for a two-week surge, after which the intent was for the Cabinet Office Situation Centre ("SitCen") to take on this work, but we later concluded that they did not have capacity to do so, and my team committed to

supporting the Supply Chains Unit on an ongoing basis. It was still doing so when I left the Taskforce in February 2022.

91. On 18 October 2021, the first presentation of the Supply Chains Dashboard to the Prime Minister took place. I am asked specifically about a meeting with Steve Barclay MP on 26 October 2021, which I believe was to prepare for the second Dashboard briefing. This was delivered by Steffan Jones, who was the regular briefer for the Covid-19 Dashboard, and Olivia Hampsher-Monk, one of the two deputy directors responsible for our analytical work on supply chains. I attach a note dated 25 October 2021 summarising the key points to be made at the Dashboard briefing **[RH/59 - INQ000625737]**, and Olivia's account of the meeting which was circulated on 27 October 2021 **[RH/60 - INQ000625703]**.

92. Over the following months, my team provided ongoing support for the Supply Chains Unit, including regular Dashboard briefings for Strategy (Covid-S) meetings chaired by the Prime Minister and Operations (Covid-O) meetings chaired by CDL. The initial focus was on near-term risks (food, HGV drivers, ports and public services) but we also looked further ahead to identify upstream risks. In addition to maintaining a Dashboard, we produced a number of other analytical products to support this work. For example, on 25 October 2021 we published an ICJU report on how other countries were responding to supply chain challenges **[RH/61 - INQ000625704]**; on 25 November 2021 we published an In Depth paper on labour market shortages **[RH/62 - INQ000625716]**; and on 22 December 2021 we published a summary of how supply chains might be affected by the rise of the Omicron variant **[RH/63 - INQ000625713; RH/64 - INQ000625714]**. This work demonstrated that the analytical capability we had built for Covid could be repurposed as a strategic analytical function able to provide data and analysis on a range of domestic policy priorities.

Economic modelling

93. I am asked to explain my comment, at a panel discussion at the London School of Hygiene and Tropical Medicine on 13 March 2024, that economic modelling was not as transparent or robust as other types of modelling.

94. From my perspective, the epidemiological modelling by SPI-M-O was extremely transparent. I was directly involved in commissioning the modellers; I attended meetings of SPI-M-O and SAGE and was able to listen to and participate in their debates; I was able to test assumptions and ask questions of the modellers (or put

them on behalf of others); consensus statements summarised the conclusions of multiple models and the expert discussion based on them; the modelling papers, with assumptions, were available to me and to decision-makers; and they were all published, usually immediately after a major publication or announcement. Membership of these groups and attendance at meetings was also published. Challenge was actively encouraged. Most of the data available to modellers was also published in machine-readable format through the PHE (later UKHSA) Public Data Dashboard, and available to modellers outside SPI-M-O and to members of the general public. This set a very high standard of transparency.

95. Economic modelling did not attain this standard. The Taskforce worked closely with the Treasury's Economics Group led by James Benford, and he and his team made an extremely valuable contribution to the collective analytical effort. This included scrutiny and challenge of SPI-M-O's models and assumptions, and collaboration on a 'Toy Model', which I will return to at paragraph 105 below. The Treasury shared some economic analysis but rarely shared the modelling behind it. I do not recall seeing any economic modelling of a standard comparable with SPI-M-O's epidemiological modelling.

Epi-macro modelling

96. I am asked to what extent 'epi-macro modelling' was used during the pandemic. We did explore the potential of several epi-macro models. For example, in April 2020 I met a team from the management consultancy Oliver Wyman who demonstrated their Pandemic Navigator model. This looked sufficiently interesting for us to submit it to the Royal Society's RAMP (Rapid Assistance in Modelling the Pandemic) initiative, but RAMP's review found that the model contained several fundamental flaws and strongly advised against its use to inform government policy. We looked at this model again in November 2020 after the US Centre for Disease Control included it in a public list of useful models. Oliver Wyman had also advertised their engagement with BEIS, so we consulted BEIS's head of analysis who had trialled it, but his strong advice was not to pursue further **[RH/65 - INQ000625732]**. Dame Angela McLean, as SPI-M-O co-chair, also advised against its use. I set out these conclusions in an email to Dan Rosenfield in January 2021 when some outputs from this model were shared with him directly **[RH/66 - INQ000625722]**.

97. This is just one example, but we were unable to identify any epi-macro models which

were sufficiently robust to be used to support decision-making. I should add that several such models would have been required to avoid over-reliance on any single one: SPI-M-O's consensus statements always drew on the results of multiple models for this reason.

98. The Rule 9 request asks for my opinion on whether greater use of epi-macro modelling might have better informed the Government's economic response to the pandemic, and whether greater use of such models would enable the government to respond better to a future one. I do not feel qualified to answer these questions: I do not have the necessary expertise, and while I acquired a working familiarity with epidemiological modelling during the pandemic, I did not see comparable economic models and I have not followed how academic work on epi-macro models has progressed since the pandemic. But I offer below some lay reflections, mostly in the form of questions.

99. Would combined epi-macro models have been more useful than a two-stage process in which the output scenarios of epidemiological modelling were then used as inputs to economic models to estimate the economic impact, under the same set of assumptions? Having attended many meetings of SPI-M-O, I recognise that the value to decision-makers came partly from the models themselves and partly from debating the outputs within an expert group, all of which was then captured in a consensus statement. A two-stage process would have allowed epidemiological experts to debate the first stage, and economic experts to debate the second.

100. Would either approach have produced results which were of practical utility for decision-makers, under very high levels of uncertainty? We always found it very difficult to isolate the epidemiological impact of any single measure as they were never imposed in isolation, and it was difficult to predict how the impact of a set of measures would combine. This was equally true of economic impact. Would compounding epidemiological uncertainties with economic ones have produced estimates which were too wide to be useful?

101. Public behaviour in response to government action and to levels of infection was a key uncertainty in the epidemiological modelling, and would have applied equally to economic modelling. In general, precautionary behaviour increased with the stringency of restrictions but there were times when it increased spontaneously as infections rose: one notable example was during the 'pingdemic' in the Summer of

2021, which produced a reduction in viral transmission comparable to lockdown. This prompted a vigorous debate about the degree to which public behaviour would self-regulate without the need for legal restrictions. This played out during the Omicron wave and I am certain that it would be a critical question in the event of a future pandemic. Finding a way to incorporate these behavioural feedback loops should be an area of focus for the modelling community, and this would be a prerequisite for useful epi-macro models.

102. There might, perhaps, have been value in epi-macro modelling to explore whether health and economic harms were positively or negatively correlated, and therefore whether health and economic objectives were fundamentally in tension. This might have helped ease a key source of friction at the heart of the Government's response.

103. I am not convinced that combined epi-macro models were necessary to achieve this outcome. But I do think the response might have improved had economic models been more available, and/or more transparent, with an expert group similar to SAGE or SPI-M-O. There was a huge difference in the volume, quality and transparency of evidence on the two sides of the equation, and this sometimes unbalanced the discussions. In January 2022 I wrote to Sir Ian Diamond, the National Statistician and head of the analysis profession, stating my view that *"It remains an embarrassment that two years into the pandemic, we have a suite of epi models but nothing equivalent on the economic side to assess the relative impact of policy options."* **[RH/67 - INQ000625710]**. This remains my view now.

SECTION 6: WORKING RELATIONSHIPS WITH HM TREASURY

104. In this section I set out my reflections on the working relationship with HM Treasury, and consider the question of whether the Treasury was open and transparent in sharing analysis. As asked in the Rule 9 request, I have provided a number of examples, followed by some general observations.

Example 1: Toy Model and Roadmap, January-February 2021

105. In early 2021 we identified a requirement for a simple model which could be used to support internal discussions and policy development. There were a range of views about this. There were real concerns, held by important stakeholders including, as I recall, both Sir Patrick Vallance and Ben Warner, that if a simple model were made

widely available, it would be mis-used or over-used to support decisions, rather than relying on conclusions drawn from SPI-M-O's suite of sophisticated, quality-assured models. However, other simpler models were circulating at the time, including Oliver Wyman's Pandemic Navigator (which I have discussed above), and we decided that it would be prudent and useful to meet an unmet demand by building and quality assuring a simple model within government, and making it available with clear caveats and limitations on use.

106. During January 2021, a team from the JBC led by Fergus Cumming developed a 'Toy Model', working with my team in the Taskforce, 10DS, the SPI-M secretariat and the Treasury.[9] This model was then quality-assured by Dame Angela McLean, co-chair of SPI-M-O. Fergus Cumming's statement for Module 2 of the Inquiry describes how the model was developed and used, and exhibits the documentation **[RH/68 - INQ000276280; RH/69 - INQ000273551]**.

107. This was a simplified epidemiological model, designed to help decision-makers understand the interrelationship between the transmission of the virus, various interventions and epidemiological outcomes by allowing users to adjust a limited number of parameters: for example, to see how different vaccine rollout speeds, or different assumptions about the effectiveness of vaccines, might affect hospital admissions. It was not designed to provide accurate forecasts: numerical axes on output charts were removed so that users would focus on rough trajectories and relative magnitudes rather than precise numbers. For this reason, the Toy Model's outputs were not suitable to support decision-making, but could be used to help shape commissions to SPI-M-O who could provide more robust results based on multiple models. The limitations and caveats on use of the Toy Model were clearly set out in the documentation and on the front page of the user interface **[RH/70 - INQ000625723]**.

108. On 20 January 2021, a Strategy meeting was held involving the Prime Minister and the Chancellor; I was not present. At this meeting, some outputs from the Toy Model were discussed, and according to the record of the meeting, the Chancellor asked that *"in future discussions, we run through the model in more detail, setting out the key assumptions, and running out beyond the Spring."* **[RH/71 - INQ000625699]**. His Principal Private Secretary wrote after the meeting with some more detailed

[9] I was told that the term 'Toy Model' was borrowed from physics, where it is used to describe a deliberately simplistic model with many details removed so that it can be used to explain a mechanism concisely.

requirements, saying that HM Treasury thought this was *"doable with the existing model and just building it out"* **[RH/72 - INQ000625677]**.

109. It became clear that HMT had adapted and 'built out' the JBC model to show numerical outputs over a longer time period, without consultation with other stakeholders, including those who had developed and quality-assured it. This caused considerable irritation, which is evident in emails from that time **[RH/73 - INQ000625698; RH/74 - INQ000196028]**. Given the wide range of views about the model, and the nervousness that it might be misused, this put at risk the collective endeavour. Had the Government Chief Scientific Adviser declared no confidence in it, we would have lost a valuable tool in which we had invested significant effort. I was conscious that Dame Angela McLean had taken some personal risk in endorsing the model, despite the concerns of others. I understood that my colleagues in HMT were under pressure to meet the Treasury's internal requirements, but it was a principle within the analytical group that analysts would work together rather than each department doing its own thing. Had every department adapted the Toy Model for its own purposes, it would quickly have become a liability. And developing a simplified toy model beyond its inherent design limitations ran the risk of creating misleading results.

110. This issue was managed. I convened a meeting of the group who had developed the model to consider the Chancellor's request. We agreed a response, with active input from Treasury counterparts, which I emailed to No 10 on 22 January 2021 **[RH/75 - INQ000625676]**. We advised that while it was theoretically possible, given time, to develop the Toy Model as the Chancellor had described, this would exceed its design parameters and the agreed limitations on its use. We warned that it might produce results which could mislead decision makers. Instead, we proposed a commission to SPI-M to address the Chancellor's questions. We also formed a Governance Group, which included the Treasury, to ensure that the Toy Model was properly used in future.

111. Following some tense exchanges over the Toy Model, a number of people asked the Treasury for reciprocal transparency over its economic analysis **[RH/75a - INQ000196025; RH/75b - INQ000626361; RH/74 - INQ000196028; RH/73 - INQ000625698]**. In response, James Benford presented the Treasury methodology for modelling economic impact to the cross-departmental analytical group on 26 January 2021, and the following day shared slides which set this out in more detail

[RH/76 - INQ000625721].

112. This example is representative of the working relationship during the development of the Spring Roadmap: strained at times, but ultimately positive and collaborative. The Treasury participated actively in the cross-departmental analytical effort, and were often the source of valuable challenge. Tensions arose but were managed. The improvements we achieved during 2021 would not have been possible without the Treasury's involvement.

113. On 21 February 2021, after the publication of the Roadmap, James Benford wrote to me and to my director, Ben Cropper to thank us for our efforts in marshalling the analytical community to reach an evidence-based consensus, despite widely divergent perspectives. I replied, "*Your challenge - always courteous and constructive - has undoubtedly made the final product better. I'm hugely grateful to the HMT team and to you for your leadership role. Having HMT fully on board has been a game-changer.*" **[RH/77 - INQ000625696]**.

Example 2: working from home, October/November 2021

114. At other times, my experience was less positive. For example, during Autumn 2021, we developed a set of analyses on the impact of four 'Plan B' measures which might be used in the event of a spike in infections, and which were in fact deployed in December 2021 in response to the Omicron variant. The most controversial was a requirement to work from home, which was likely to have the greatest impact on transmission but also the highest economic impact. The Taskforce produced a draft Spotlight which included a Treasury estimate that mandating working from home could reduce consumption by £11-18bn per annum **[RH/78 - INQ000625672]**.

115. On 25 October 2021, the Politico website published these numbers, attributing them to an internal Treasury impact assessment. Following the leak (which was the subject of a leak inquiry, although I do not know what this concluded) the Treasury distanced itself from the figures **[RH/79 - INQ000625684]**. As James Benford was absent on extended leave at the time, I spoke to Clare Lombardelli, the Treasury's Chief Economic Adviser, on 15 November 2021 in an attempt to obtain clarity. She stated that these figures were not based on Treasury analysis, but I was able to demonstrate that they were from previous correspondence with Treasury officials, which I forwarded to her after the call. I again asked for the analysis and assumptions on which these figures were based **[RH/80 - INQ000625719]**.

116. On 17 November 2021, Clare Lombardelli sent me a note setting out the Treasury's conclusions and general approach, but not the modelling itself. I therefore replied that I did not feel able to use the figures, even as approximations. I was frustrated by the Treasury's refusal to share their workings, but as I wrote in my reply to Clare, preserving my team's relationship with the Treasury was my paramount consideration **[RH/81 - INQ000625717; RH/82 - INQ000625718]**.

Example 3: workforce absences, January 2022

117. On 10 January 2022 my team circulated a draft analytical pack on reducing the period of self-isolation, which cited the Treasury's analysis of the impact on workforce absences **[RH/83 - INQ000625681; RH/84 - INQ000625682]**. The Treasury's response insisted that their analysis should not be attributed to them, and should only be referred to as 'internal analysis'.

118. I challenged this, pointing out that it was disingenuous not to reference the Treasury as the source, and that every other piece of supporting analysis in the pack had been attributed to the department that produced it **[RH/85 - INQ000625683]**. I subsequently escalated the issue to Louise Tinsley, James Benford's deputy, in his absence; she reiterated her department's insistence that this analysis should not be attributed to the Treasury **[RH/86 - INQ000625694]**.

119. I decided to consult colleagues including Sir Ian Diamond, as head of the analysis profession within government. I noted that the Treasury's analysis did not appear to be of the highest standard, citing the views of Chris Whitty and Sir Patrick Vallance; that the Treasury had shared some assumptions, but not their modelling; and that they insisted that their analysis was used but not attributed to them, citing "leak risk". I expressed my view that analytical products should be fully auditable and clear about who had produced the primary analysis; that this was an issue of principle, that all departments must observe the same standards and share their workings so that their work could be scrutinised, challenged and cited by others; but that I was reluctant to damage the working relationship with the Treasury **[RH/67 - INQ000625710; RH/87 - INQ000625711; RH/88 - INQ000625712]**.

120. After speaking to Sir Ian Diamond, I decided not to push the issue to breaking point. I wrote to Louise Tinsley to say that, as time was short, I had done as the Treasury asked and referred to their work as "HMG internal analysis", but suggested that we return to the general principle at a later time, and asked her to share the

model or spreadsheet that supported their analytical note **[RH/89 - INQ000625693]**. The Treasury did not share the model or spreadsheet.

Transparency

121. The Treasury demanded a high level of transparency from others. In December 2021, during the Omicron wave, I clocked up 116 hours in a single week, working through three consecutive nights to address detailed questions from the Chancellor. For example, at 9:43pm on 17 December 2021 I received a request for all the assumptions used by the SPI-M modelling groups to be set out in a specific format requested by the Chancellor, in time for a further meeting with him at 11:00am the following day **[RH/90 - INQ000625715]**.

122. We worked through the night to meet this deadline; the result was later published in a statement by the SPI-M-O co-chairs **[RH/91 - INQ000625728 (Annex C)]**. This was punishing but the circumstances were exceptional. We had committed to a culture of transparency precisely to enable active scrutiny and challenge, and to ensure that all stakeholders had confidence in the analytical conclusions reached.

123. But the examples above demonstrate that the picture in the other direction was mixed. This is how I would summarise my experience of working with the Treasury during this period:

124. The Treasury found transparency uncomfortable. It was less open than other departments, and demanded a level of transparency from others which it did not always reciprocate. This caused irritation amongst others in the analytical community.

125. My impression was that this represented a departmental position, or even a departmental culture, which individual officials managed as best they could. Colleagues who had worked in or with the Treasury explained that department's reticence, in part, as a reaction to the criticism it had received for its published assessment of the impact of Brexit, which had been lambasted by critics as 'Project Fear'.

126. The Treasury was suspicious of an ingrained bias in SPI-M's modelling, and in any analysis which rested on it. I recall more discussions with the Treasury about SPI-M's assumptions and conclusions than I do about economic modelling. Their challenge was welcome and valuable, but it is possible that this absorbed limited

expert capacity which might otherwise have been used for economic analysis.

127. These obstacles could be overcome. Our best and most balanced analysis was produced when the Treasury participated most fully. This was particularly evident in the development and roll out of the Roadmap in the first half of 2021.

128. At other times, however, the Treasury fell far short of the levels of transparency it demanded of others. Officials asserted conclusions but declined to share the analysis and assumptions on which these were based, preventing their analysis from being properly scrutinised or challenged. Sometimes, the Treasury insisted that its analysis was used but not attributed to them. This fell short of the standards expected of others, and the Treasury's own standards for government analysis: the 'Aqua Book', Treasury guidance for producing quality analysis for government, requires that *"evidence bases contain a variety of facts, figures and analysis all of which must be correctly sourced, appraised and referenced."* **[RH/92 - INQ000625674]**.

129. My own position was somewhat conflicted. I felt a responsibility to set and enforce common standards for the whole analytical community, which was generally extremely open and collaborative. The Treasury was the only department with which this was regularly a struggle. But I recognised that the working relationship with the Treasury was vital, and invested significant effort in keeping them inside the tent. I was supported in this by some exceptional colleagues, including colleagues inside the Treasury: James Benford played a particularly important role. When the relationship came under strain, my concern to preserve a working relationship with the Treasury affected how far I felt able to press them to adhere to standards generally expected of others. And ultimately I had no power to compel them to do so.

SECTION 7: RECOMMENDATIONS

130. The Rule 9 request asks me to identify any recommendations I would ask the Chair to consider.

131. I have read the Expert Report for Module 9 prepared by Gemma Tetlow, Chief Economist at the Institute for Government. I agree with and endorse her recommendations, and will focus in particular on Recommendation 3, that the Cabinet Office should have a stronger standing analytical function for domestic policy issues.

132. Between 9 April 2020 and 2 February 2022, I wrote a series of papers arguing that Covid-19 was an opportunity to fill a longstanding capability gap in the centre of government. Lack of capability for strategic assessment and analysis had been highlighted repeatedly, including in a series of reports by the Public Administration Select Committee. I observed that the JIC had existed since 1936 and provided HMG with a strategic assessment capability on issues relating to national security, foreign affairs and defence, but HMG had no comparable capability in the domestic space, and no capability to support strategic assessment with world-class data and analytics. I recommended retaining and repurposing DGA as a strategic analytical function able to provide the Cabinet Secretariat with analysis on a range of domestic policy priorities, embedding a clearer distinction between analysis and policy in the domestic space. For reasons which I explained earlier in my statement, I had in mind a model analogous to JIO, with the function able to:

a. Rationalise commissioning of data from departments, asking once and using widely.

b. Visualise and present data-derived insight to senior decision-makers via a briefing service and high-quality products tailored to their needs.

c. Coordinate analytical effort across HMG against the Government's top priorities, and provide a single, authoritative, objective assessment.

d. Provide a responsive service to support policy development and decision-making.

e. Monitor emerging risks, redeploy effort quickly, and sustain an enhanced level of response on concurrent crises.

f. Conduct long range foresight and comparative analysis of international best practice to inform policy development and risk assessment.

g. Innovate and experiment with new technology and analytical techniques, drawing on data and capabilities from across Government, academia and the private sector.

133. The Cabinet Secretary agreed in principle with these recommendations and commissioned costed proposals. I developed a bid for a unit of 159 staff at an annual cost of £18.2m. The Cabinet Office's business planning process led to the establishment of the Joint Data and Analysis Centre ("JDAC") when the Covid

Taskforce was disbanded in March 2022, though on a somewhat smaller scale than I had proposed and it has since shrunk: at the time of writing this statement, I understand that JDAC comprises c.60 staff, and will fall to c.40 on current plans. It was also decided that JDAC should be led by a director within the Economic and Domestic Secretariat of the Cabinet Office, rather than becoming an independent unit.

134. The Chair may wish to recommend that the Government go further. I continue to advocate for a larger, more empowered analytical unit within the Cabinet Office, building on JDAC. This unit should be fully independent, alongside but not embedded within the Economic and Domestic Secretariat, and led by a director general or even a permanent secretary (since the Butler Report, the JIC Chair has been an official of permanent secretary level to ensure that they can deal with the most senior officials in government as peers, and in their last role in government so that they are demonstrably beyond influence).

135. This enhanced JDAC unit could support a committee, chaired by this senior official, comprising the senior analytical, scientific and economic advisers to the Government, including the National Statistician, the Government Chief Scientific Advisor, the Chief Economic Adviser to the Treasury, and heads of analysis from relevant domestic departments. This committee should be empowered to reach an authoritative, cross-departmental consensus on the available evidence, and JDAC should be empowered by the Prime Minister and the Cabinet to compel departments to share the data and analysis needed to support its work. The primacy of its analytical judgements should be recognised across government, and major government decisions with cross-departmental impact should rest on them, as major decisions on foreign policy and national security rest on 'key judgements' of the JIC. It should be supported by standing advisory groups with experts from outside government covering a broad range of disciplines. Full buy-in and participation of the Treasury would be essential.

136. The intent would be to embed institutionally what is essentially a cultural change in how the Government works, applying lessons learned in the national security community, and again during the pandemic, more generally. I have explained above, and will not repeat here, my full rationale. This recommendation is in line with other, more detailed recommendations on the reform of the centre of government, such as the Report of the Institute of Government's Commission on the Centre of Government

published in March 2024 **[RH/93 - INQ000625736]**.

SECTION 8: REFLECTIONS AND CONCLUSION

137. Covid-19 was a global catastrophe. I grieve for those who lost loved ones, and for those whose lives have been blighted by the enduring effects of the pandemic. I hope that this Inquiry will offer the families affected some closure, and a degree of comfort. I also hope that we, as a public service and as a nation, squeeze every last drop of learning from the experience, and that lessons are not only identified but implemented to make government better.

138. Many people want to put the pandemic behind them. This is understandable. But it is a statistical certainty that we will face another pandemic. The next one might be worse: it was simply luck that this virus largely spared the young. And in the difficult and dangerous world in which we find ourselves, the next crisis might be of an entirely different nature.

139. I am certain that I, and all involved, made mistakes and could have done better. But I do not think that we could have tried harder. One of my scientific colleagues often used to say, "all human beings are the same to a first approximation". He said this as a biologist, but it often came to my mind as I watched our elected representatives grappling, in a deeply human way, with unfamiliar concepts and having to make regular, life and death decisions.

140. It is appropriate that we focus on the things we could have done better, and hold ourselves accountable. But we must not forget the things we did well. From the early, chaotic days in March and April 2020, I observed steady improvement. It was faltering at first, and there were mistakes and setbacks, but the trend was positive. By 2021, I think that the system was working better than government usually works. Covid was a very unusual learning opportunity for government because the feedback loop from decision to consequences was so short. This drove learning into the system, and encouraged close attention to data and evidence. It would be a further tragedy if this learning is not captured and embedded. This Inquiry is our last, best chance to do so. As I have said earlier in my statement, the national security community was transformed by the Butler and Chilcot Reports, and I hope that this Inquiry will have a similar impact in the domestic space. The extent of the national

sacrifice demands no less.

141. I would be remiss if I did not recognise the extraordinary efforts of my colleagues in the Taskforce and the wider analytical community. The Cabinet Secretary wrote to me in June 2021, *"They are some of the hidden heroes of COVID and are the future of the service and government."* **[RH/94 - INQ000625740]**. I must also thank the many academics and scientists who served the country in an entirely voluntary capacity. We placed sustained and often unreasonable demands on them, and some were subject to uncomfortable, even unacceptable treatment. But the Government's ability to draw on world class expertise was instrumental in helping the country navigate the unprecedented challenges of the pandemic. Maintaining the ability to do so in future, and improving our ability to draw equally effectively on other disciplines, is surely one of the most important lessons learned during Covid, and one we must not take for granted.

142. Early in the pandemic, I read Albert Camus' *The Plague*, and I will close my statement with two lines which remained with me throughout:

"The only weapon against plague is honesty."

"What is true of all the evils in the world is true of plague as well. It helps us to rise above ourselves."

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 in its truth.

Signed: **Personal Data**

Dated: 16 September 2025

Annex A

Extract of Section 3 the Cabinet Office Corporate Witness Statement for Module 2, dated 25 January 2023 [INQ000092893]

3. SECTION 3: THE DEVELOPMENT OF THE COVID-19 DASHBOARD AND THE ROLE OF EVIDENCE

3.1. The Cabinet Office including No.10 sought to ensure that decision-making meetings on COVID-19 were supported by data, analysis and expert advice. Many government departments held data relevant to the response and conducted analysis aligned to their departmental interests and responsibilities. The Scientific Advisory Group for Emergencies (SAGE) and its sub-groups provided expert scientific advice[10]. The role of the Cabinet Office including No.10 was to integrate these various inputs and present a single, integrated picture for decision-makers. The structures and processes to do so evolved during the course of the pandemic.

3.2. At the start of the relevant period, the CCS was principally responsible for monitoring the emerging situation in Wuhan. The first email update was circulated by CCS to senior officials and private offices in the Cabinet Office including No.10 on 13 January 2020 (Exhibit SC/1 - INQ000106878). The CCS Director chaired the first cross-government ad hoc senior officials meeting on the novel coronavirus on 17 January 2020 (the minutes and actions are at Exhibit SC/2 – a) INQ000097687, b) INQ000097689 and c) INQ000097688)[11].

3.3. On 21 January 2020 the World Health Organisation (WHO) published its first situation report on the novel coronavirus[12] and on 23 January 2020 the Health Secretary updated the House of Commons on "the outbreak of a new coronavirus in China and the UK's response to protect the British public"[13].

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[10] List of participants of SAGE and related sub-groups, available here: https://www.gov.uk/government/publications/scientific-advisory-group-for-emergencies-sage-coronavirus-covid-19-response-membership/list-of-participants-of-sage-and-related-sub-groups [INQ000086860]

[11] This statement refers to the 'novel coronavirus' before 11 February 2020, and 'COVID-19' thereafter.

[12] Situation Report available here: https://www.who.int/docs/defaultsource/coronaviruse/situation-reports/20200121-sitrep-1-2019-ncov.pdf [INQ000086848]

[13] Hansard available here: https://hansard.parliament.uk/commons/2020-0123/debates/38D462B1-70F8-4CC6-AABD2CCF4E271C34/WuhanCoronavirus [IN0000086862]

3.4. From 24 January 2020, the CCS, with contributions from relevant government departments, circulated a Commonly Recognised Information Picture (CRIP) on the coronavirus (see also 2.29).

3.5. From 4 February 2020, the CCS, with contributions from relevant government departments, produced a daily cross-department Situation Report (SitRep) on the novel coronavirus. It included information on the current domestic and international situations and response, the latest scientific advice and communications. It was shared with staff based in the Cabinet Office including No.10, other government departments and the devolved administrations.

3.6. From 16 March 2020, the cross-department SitRep and the GRIP were replaced by a COVID-19 Dashboard (the Dashboard), operated for the initial months by the CCS.

3.7. The Dashboard provided a range of data available at the time related to COVID-19 including on mortality, infection, health, restrictions and mobility, the economy and the public sector. The Dashboard's interactive charts were downloaded and shared daily via a portable document format (PDF) from 16 to 23 March 2020 to a large cross-government and devolved administration distribution list.

3.8. On 24 March 2020, the CCS launched the interactive version of the Dashboard on a dedicated website, which was available across government. It was updated at close of play each day. Once it was updated, an email alert was sent to users along with a PDF version of the Dashboard. The interactive Dashboard was used to brief the Prime Minister and senior members of cabinet.

3.9. The range of data sources covered by the Dashboard expanded over time. For example, a wide range of data came through the NHS, testing, vaccination and other public health infrastructure for which DHSC was responsible. A key surveillance tool feeding into the Dashboard was the COVID-19 Infection Survey (CIS) which was carried out by the Office for National Statistics (ONS) and commissioned by Public Health England in April 2020, with the first results made available in May 2020.

3.10. From late summer 2020, the Dashboard was used to present regular, often daily, updates to the Prime Minister and others, and to brief Cabinet and other ministerial meetings (see Sections 4 and 5). This continued until February 2022.

3.11. The other principal analytical function within the Cabinet Office in the first phase of the pandemic was the JIO, which produced a series of reports on the progress of the pandemic globally.

3.12. The International Comparators Joint Unit (ICJU) was established in April 2020 as a joint team between (what is now) the Foreign, Commonwealth and Development Office (FCDO) and the Cabinet Office. It was made up of analysts, data scientists, economists and social researchers. The ICJU worked closely with the FCDO's overseas network and used open source data to understand the pandemic in other countries and how they were responding to it using comparative analysis, including on specific issues such as social distancing and international travel. This helped to identify possible lessons learned and to inform UK policy development and decisions. ICJU products were shared with No.10, the Cabinet Office and broadly across departments and the devolved administrations.

3.13. In summer 2020, a new analytical team was set up in the Cabinet Office. Initially two directors were brought in from other departments, who continued to grow and shape the analytical team, supporting strategic policy development for the roadmap. The team worked with CCS to evolve the Dashboard and provided analytical support to policy options which considered economic, social and health impacts. The remit of the separate 10DS team was to support more general policy decisions across the breadth of the government's agenda. Its specific work on COVID-19 was only to repackage data streams already in the COVID-19 Dashboard into a more general overview dashboard covering the Prime Minister's priorities in the round. The director of 10DS also provided feedback and advice on the publicly released COVID-19 data slides as part of the quality assurance process.

3.14. In summer 2020, the Cabinet Office established a science and projects team which provided a mechanism to ensure that commissions to SAGE and its sub-groups were aligned to ongoing policy development.

3.15. For certain periods of the pandemic, the ONS loaned a team to produce visualisations for use in press conferences. From November 2020 this team was supported by an advisory group comprising members of the Government Statistical Service and Fellows of the Royal Statistical Society, to ensure the clarity and accuracy of data presented to the public during these press conferences.

3.16. During the summer and autumn of 2020, the relevant data and analysis teams in the Cabinet Office were progressively merged into a single entity within the Taskforce (see also Section 5). This worked especially closely with DHSC, the Joint Biosecurity Centre, the ONS, HM Treasury and the secretariats of SAGE and its sub-groups. This sought to ensure that the analytical effort across government and commissions to SAGE and its sub-groups were coordinated and aligned to the needs of policy development and decision-making. As part of this, in the summer of 2020, the Taskforce took on responsibility for running the Dashboard.

3.17. These capabilities supported policy formulation and decision-making. The Spring 2021 'Roadmap', for example, was explicit that decisions on unlocking the national lockdown that was in place at the time would be guided by "data, not dates"[14]. It set out four tests which the Government used to decide if it was safe to move from one `step' to the next. The five week gap between steps was chosen to allow sufficient time for data on the impact of the previous step to be collected and the impact assessed.

Extract of Section 2 of the Cabinet Office Corporate Witness Statement for Module 2, dated 20 July 2023 [INQ000248852]

Data and analysis

2.11. The Taskforce equipped decision makers with a single analytical picture that included the health, economic and societal impacts of COVID-19. Much (though not all) of the primary analysis was done by others; the unique contribution of the

[14] COVID-19 Response - Spring 2021 (Roadmap); available here: https://www.cov.uk/government/publications/covid-19-response-spring-2021 [INQ000086863]

Taskforce was to commission and integrate the inputs into a single analytical picture.

2.12. Section 3 of the Cabinet Office corporate statement describes, at a high level, the development of the COVID-19 Dashboard (which brought together data and evidence), the creation of several analytical teams in the Cabinet Office to support the response, and how these were progressively merged into a single entity within the Taskforce. This grew into a substantial analytical capability of between 100 and 150 staff.

2.13. The Taskforce's analytical capability comprised thematic teams covering health, science, economics, behavioural insights, social policy and public services, plus long range foresight and data science functions. It established data flows from departments feeding the Dashboard, as well as a range of other data assets (e.g. a daily data brief, interactive forecasting/modelling tools and bespoke data packs). The International Comparators Joint Unit combined public data and reporting from the Foreign, Commonwealth and Development Office (FCDO) global network to assess international responses to the pandemic, bringing international best practice into domestic policy development. A Public Data Team produced material tailored for public communications, to professional statistical standards. The Taskforce drew on academic expertise through two expert advisory groups, as well as SAGE.

2.14. The Taskforce worked very closely with analysts across government, and with SAGE and its subgroups, to reach cross-government consensus and present ministers with the best collective understanding of the evidence, while always noting the uncertainties. The conversation between analysts supported, but was distinct from, discussions about policy responses, on which departments will often have taken different views, consistent with their different policy objectives. The analytical community included, among others: the Taskforce data and analysis team; SAGE and its subgroups; CMO and GCSA; the different functions that ultimately formed part of the UK Health Security Agency (UKHSA) including Public Health England (PHE) and the Joint Biosecurity Centre (JBC); the Office for National Statistics (ONS); HM Treasury; the Department for Business, Energy and Industrial Strategy (BEIS); and, the Behavioural Insights Unit.

2.15. The Taskforce provided regular (often daily) real-time Dashboard briefings for the Prime Minister. Paragraph 3.4 provides further detail. In addition, Dashboard updates were typically given at the start of other key meetings supported by the Taskforce (including COVID-S, COVID-O and other cross-government fora) to help ensure that all decisions were supported by the most up-to-date data and analysis.

2.16. The Taskforce produced a range of other products to inform decision-making, ensuring these were aligned to the most pressing policy priorities. These products included: analytical packs to support major policy decisions; other summaries of data (e.g. daily data brief); regular products comparing international responses (from the International Comparators Joint Unit); longer range, scenario-based foresight products; visualisations for use in press conferences and public communications; and, analytical products on a range of relevant subjects including all aspects of health, economics, societal and distributional impacts of COVID-19. Work was commissioned in advance to support the development of the strategic plans laid out in Section 5, or at other key decision points. This included time for internal and cross-government challenge into the production process, to achieve consensus and assure quality.

2.17. The Taskforce's analytical capability benefited from a variety of professional backgrounds including statisticians, operational researchers, economists and data scientists. The Taskforce sought to apply analytical best practice, borrowing heavily from the approach of the Joint Intelligence Organisation and the Intelligence Assessment community, including for example confidence statements and probabilistic language to clearly highlight areas of uncertainty.