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UK COVID-19 INQUIRY

MODULE 5 CORPORATE WITNESS STATEMENT OF UK RESEARCH AND INNOVATION

WITNESS STATEMENT OF PROFESSOR CHARLOTTE DEANE

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UK COVID-19 INQUIRY MODULE 5
CORPORATE WITNESS STATEMENT OF UK RESEARCH AND INNOVATION

WITNESS STATEMENT OF PROFESSOR CHARLOTTE DEANE

I, Professor Charlotte Deane, will say as follows:

1. I make this statement on behalf of UK Research and Innovation ("**UKRI**"). My professional work address is Polaris House, North Star Avenue, Swindon, SN2 1ET.

2. I am providing this statement on behalf of UKRI in response to the Rule 9 request for evidence ("**the Rule 9 request**") from the Covid-19 Inquiry ("**the Inquiry**") to UKRI in relation to Module 5 of the Inquiry.

3. UKRI is a non-departmental public body which was sponsored by the then Department for Business, Energy and Industrial Strategy ("**BEIS**") during the COVID-19 pandemic response. BEIS responsibilities relating to science, technology and innovation were transferred to the Department for Science, Innovation and Technology ("**DSIT**"), which was created on 7 February 2023.

4. As the Executive Chair of the Engineering and Physical Sciences Research Council ("**EPSRC**") in UKRI, I currently coordinate and oversee activities carried out by the EPSRC. I joined UKRI as the Deputy Executive Chair of the EPSRC in September 2019. Between

March 2020 and December 2021, in addition to my role as Deputy Executive Chair of the EPSRC I was the COVID-19 Response Director at UKRI. I left UKRI in December 2021 and I started my current role as Executive Chair of the EPSRC in January 2024. Alongside my current role as the Executive Chair of the EPSRC, I am a Professor of Structural Bioinformatics in the Department of Statistics at the University of Oxford and I have held a number of senior roles at the University of Oxford, including Head of the Department of Statistics and Deputy Head of the Mathematical, Physical and Life Sciences division.

5. Part of my role as UKRI COVID-19 Response Director was to liaise with the Government and to enable this I joined the Scientific Advisory Group for Emergencies ("**SAGE**") in February 2021. I have a reasonable degree of personal recollection of certain aspects of the material covered in this statement in respect of which I was directly involved. I have liaised with colleagues with relevant knowledge and experience within UKRI to prepare this statement and to address gaps in my knowledge or recollection. Their contributions have been used to respond to the questions in the Rule 9 request. My statement relies upon those contributions. I have also relied upon colleagues to search for documents that are relevant to the questions in the Rule 9 request, and to provide these.

6. This is the second witness statement that I have submitted to the Inquiry on behalf of UKRI. My first witness statement relates to Module 4 of the Inquiry which explores a range of issues in respect of vaccines and therapeutics.

Background to this statement

7. As explained to the Inquiry, UKRI does not have access to an eDisclosure platform. UKRI has therefore undertaken a largely manual review process to identify relevant documents to inform the drafting of this statement and to assemble the initial bundle of exhibits provided to the Inquiry with this statement.

8. To make this resource-intensive manual review of relevant documents more manageable,

UKRI has focused its searches within UKRI data repositories, Microsoft SharePoint[1] and email accounts of UKRI staff in key roles between 1 January 2020 and 28 June 2022 as specified by the Rule 9 Request and when most of the relevant information on decisions relating to the questions raised were considered to be made. Keywords and compound search terms were identified that informed these searches. This approach identified the relevant information and location within UKRI systems, and searches were supplemented by work with UKRI officials in key roles, to validate search results and inform further targeted searches.

9. For ease of reference, I have structured my statement in line with the structure of the Rule 9 request. UKRI has produced a glossary of terms, provided at Annex A, to assist the Inquiry with acronyms used throughout this statement.

Section A: Background

Overview of UKRI's work, its structures and processes

10. UKRI was established on 1 April 2018 by the Higher Education and Research Act 2017 ("**HERA**"), which brought together UKRI's nine councils:

    1. the Arts and Humanities Research Council ("**AHRC**");
    2. the Biotechnology and Biological Sciences Research Council ("**BBSRC**");
    3. the Economic and Social Research Council ("**ESRC**");
    4. the EPSRC;
    5. the Medical Research Council ("**MRC**");

[1] Information relates to all digital unstructured information in the form of documents and emails, as well as chat messages and data in database systems. 97 searches were conducted up to 08 January 2025 using keywords and terms based on relevant committees, topic areas and individuals. Searches were carried out on:

1. O365 UKRI tenancy (where digital documents for UKRI Corporate Hub, AHRC, BBSRC, EPSRC, ESRC, IUK, MRC, NERC, RE are held) – this includes Teams, chat, SharePoint, OneDrive, and Exchange Online.
2. The email accounts included accounts that had been disabled up to 90 days, before their permanent deletion.
3. Innovate UK's Data Warehouse, the Innovation Funding Service (IFS) and the IFS Post Award Systems, to confirm the Data Warehouse output.

6. the Natural Environment Research Council ("**NERC**");
7. the Science and Technology Facilities Council (STFC);
8. Innovate UK; and
9. the research and knowledge exchange functions of the Higher Education Funding Council for England ("**Research England**").

11. UKRI's powers and duties stem from Parts 3 and 4 and Schedule 9 of HERA and are detailed at Section 93 of HERA. In accordance with Section 93(1) UKRI may, in summary, carry out, facilitate, encourage, and support research, knowledge advancement and knowledge exchange in relation to science, technology, humanities and new ideas, in addition to other, ancillary, activities including providing advice in relation to any matter within its functions, and promoting awareness and understanding of its activities.

12. UKRI's purpose is, and was during the period relevant to the Inquiry's Rule 9 request, to invest in and facilitate research and innovation ("**R&I**") activities across the UK, and through Research England (which directly supports higher education providers in England to carry out research and knowledge exchange activities) and act as the engine for the UK as an R&I powerhouse. Information regarding UKRI's 2022-27 Strategy can be found at **CD2/1 - INQ000472209**.

13. Each of the nine constituent bodies of UKRI has an Executive Chair and a Council. Council members advise the Executive Chair as to aims and objectives and how best to support UKRI's overall mission. Council members include representatives from the academic community, business, civil and public sector.

14. UKRI is and was during the period relevant to the Inquiry's Rule 9 request, the UK's largest public funder of R&I. UKRI's research project funding decisions are made independently of government to protect UKRI's independence, and to encourage research independence and excellence, in accordance with the Haldane principle. This states that decisions about which research projects to fund should be made through independent evaluation by experts, based on the quality and likely impact of that research. S.103 of HERA applies the Haldane Principle to UKRI bodies listed in s.95 of HERA. As Innovate UK is not listed in s.95 of HERA, the Haldane Principle does not apply to it.

15. UKRI works across the UK (and internationally) through the research councils and Innovate UK and engages closely with the devolved funding bodies to ensure a collaborative and coherent approach to R&I.

16. Innovate UK supports UK businesses to grow through innovation. It helps inspire companies to find opportunities, involve relevant organisations, and bring people together. Innovate UK also provides investment to ensure that these companies have sufficient resources.

Key decision-makers within UKRI

17. The table below contains a summary of information on key individuals within UKRI in relation to the topics outlined in the Provisional Outline of Scope for Module 5.

Individual and Internal/External Role	**Topic Outlined in Provisional Outline of Scope for Module 5**
Professor Sir Mark Walport, UKRI Chief Executive and adviser to SAGE.	Professor Sir Mark Walport was UKRI Chief Executive Officer (CEO) between 1 April 2017 and 28 June 2020. In this role, Professor Sir Mark Walport sat on the UKRI Board and regularly attended UKRI Board meetings in 2020. As UKRI Chief Executive, Professor Sir Mark Walport was responsible for leading UKRI's COVID-19 response, ensuring a coherent and well-managed approach.
Professor Dame Ottoline Leyser, UKRI Chief Executive.	Professor Dame Ottoline Leyser became UKRI Chief Executive on 29 June 2020, and remains in this role to date. In this role, Professor Dame Ottoline Leyser sat on the UKRI Board, and regularly attended UKRI Board meetings from June 2020 to July 2022.
Professor Charlotte Deane, UKRI COVID-19 Response Director and advisor to the Vaccine Taskforce ("**VTF**") and SAGE.	I led UKRI's response to the pandemic between March 2020 and December 2021. In this role, I co-ordinated and oversaw UKRI's response to the COVID-19 pandemic, including the responsive funding of R&I initiatives focussed on addressing impacts of the pandemic.

Professor Patrick Chinnery, MRC Director of Clinical Services and Chair of the UK COVID-19 Therapeutics Advisory Panel ("**UK-CTAP**").	Professor Chinnery was MRC Clinical Director between 1 March 2019 and 30 September 2023. In this role, Professor Chinnery was responsible for clinical and commercial translational research, and data science supported by MRC. In his role as chair of UK-CTAP, Professor Chinnery advised on what treatments should be tested in the RECOVERY+ platform.
Professor Fiona Watt, MRC Executive Chair.	Professor Watt was the MRC Executive Chair between 1 April 2018 and 9 January 2022. As MRC Executive Chair, Professor Watt worked with other heads of funding organisations, as well as government officials, to advise on the research response to the pandemic. As MRC Executive Chair, Professor Watt also had oversight of the research performed by MRC institutes, centres, and units.
Indro Mukerjee, Innovate UK Chief Executive.	Indro Mukerjee was the Innovate UK Chief Executive between 5 May 2021 and 30 September 2024.
Dr Ian Campbell, Innovate UK Interim Executive Chair.	Dr Campbell was Interim Executive Chair of Innovate UK between 4 May 2018 and 30 November 2020. Dr Campbell led Innovate UK and oversaw its governance and operations. As Innovate UK's Interim Executive Chair, Dr Campbell oversaw the initial stages of Innovate UK's response to the pandemic, including a £750 million business investment programme and other COVID-19 innovation funding competitions.
Dr Ian Muir, Innovate UK Director for Health and Life Sciences and seconded to the VTF.	Dr Muir held the position of Director for Health and Life Sciences within Innovate UK between 24 February 2020 and 15 January 2021. In his role in the VTF, Dr Muir worked with both industry and The Medicines and Healthcare products Regulatory Agency ("**MHRA**") to streamline the licensing process for manufacturing. Dr Muir led the Fill-Finish strand of the programme and was

	responsible for the procurement of the Fill-Finish manufacturers. Dr Muir's focus in his VTF role was on the process of packaging bulk material ready for distribution to hospitals, vaccines centres, primary care etc.
Dr Andy Jones, Innovate UK, Industrial Strategy Challenge Fund ("**ISCF**") Medicines Manufacturing Challenge Director and adviser to the VTF.	Dr Jones held the position of ISCF Medicines Manufacturing Challenge Director within Innovate UK between 15 October 2018 and 1 December 2022. This challenge included the Vaccines Manufacturing Innovation Centre ("**VMIC**") in its portfolio. Dr Jones also had close engagement with the BEIS team of the VTF. During the period March/April 2020 to October 2021 Dr Jones gave input as requested by the VTF Manufacturing and Supply Chain workstream.
Professor Mark Gillan, Innovate UK, was the Vice-Chair in respect of the COVID-19 response covering innovation, and supporting me in this regard.	Professor Gillan held the position of Chief Technology Officer for Innovate UK between 6 January 2020 and 30 September 2020. During this time Professor Gillan was responsible for managing core Innovate UK funding and objectives for the Catapults (nine technology and innovation centres, which are part of Innovate UK's portfolio of products and services). This extended to oversight of their contribution to the Cabinet Office-led Ventilator Challenge.

UKRI's key relationships

18. As a non-departmental public body, UKRI worked and continues to work closely with a range of government departments and agencies, and with the devolved administrations. These existing relationships played an important role in UKRI's COVID-19 response, as members of UKRI's Executive Committee and other senior staff were able to draw on relationships with senior officials across departments, agencies and administrations. Examples of relevant relationships between UKRI and the Government which had developed prior to the start of the pandemic included joint working between UKRI and the Department of Health and Social Care ("**DHSC**"), the Department for International Development (DFID), HM Treasury and the

Cabinet Office. UKRI also had relationships with other government bodies (e.g. Chief Scientific Advisors and the Office for Life Sciences) as well as extensive relationships with a range of private organisations. These relationships were leveraged to deliver activities relevant to the COVID-19 pandemic, some of which are detailed below.

Overview of UKRI's COVID-19 response

19. UKRI's objectives in relation to the pandemic were broad and included mobilising the UK R&I community to conduct research on COVID-19 and funding research into:

    19.1. COVID-19;
    19.2. Its impacts; and
    19.3. Mitigating those impacts in accordance with the current, emerging and potential needs of the UK Government and other bodies or organisations affected by the pandemic (e.g. public services and private enterprise).

20. UKRI's objectives also included ensuring that the outcome of this R&I was fed rapidly and efficiently into Government.

21. UKRI allocated funding as rapidly as possible to ensure that awards could be delivered within tight timeframes and mitigate the impact and effects of the pandemic. As a result, the R&I response to the pandemic was unprecedented in its scale and speed.

22. In summary, UKRI's funding activities, among others, included:

    22.1. Setting up and running the UKRI-NIHR Rapid Response Initiative Call launched in February 2020, which consisted of two specific calls (for applications addressing vaccines and therapies, and improving understanding of COVID-19), and then a rolling call from March 2020 to July 2020 (the UKRI-NIHR Rapid Response Rolling Call), and setting up and running the UKRI Agile Call from March 2020 to December 2020;
    22.2. Setting up a process for repurposing existing UKRI-funded research projects to rapidly change scope of objectives in support of addressing the COVID-19 response;
    22.3. Additional support for centres and consortia to enable them to pivot towards the pandemic; and

22.4. Support for Research and Development ("**R&D**") intensive small and medium sized enterprises from Innovate UK's grants, business support and loan schemes. Further information detailing Innovate UK's COVID-19 support to companies can be found on UKRI's web page at **CD2/2 - INQ000555616**.

23. Most of UKRI's pandemic response was R&I focused. It funded new ideas and products which could be developed further, commercialised and then made available for procurement if appropriate. As described in this statement below, UKRI was also involved in activities in accordance with Government plans, for example the secondment of staff to various organisations and government departments which could benefit from the support and expertise of UKRI staff.

24. Further, at the start of the pandemic, UKRI was approached by business and individuals as a potential informal gateway to Government to offer their goods and services to assist in the pandemic response, and by government departments for industry and business contacts.

Overview of UKRI's skills, experience and expertise in the procurement and distribution of key healthcare related equipment and supplies

25. UKRI did not have a direct role in the procurement and distribution of key healthcare equipment or supplies during the pandemic, other than in the fairly limited procurement of healthcare equipment or supplies for UKRI's laboratories, as detailed below. However, UKRI did have an indirect role in the procurement of equipment related to R&I activity as funded by UKRI, as detailed in this statement below. It also had an indirect role in procurement as directed by the UK Government, for example, the VMIC, detailed in this statement below.

26. UKRI's role in addressing challenges in the procurement of key healthcare equipment and supplies in the pandemic included:

26.1. Inviting applications for funding that addressed specific impacts of the pandemic;
26.2. At the direction of Government, pivoting existing investments to provide funding to a private organisation to scale up VMIC to manufacture vaccines domestically; and
26.3. Using its understanding and knowledge of the UK healthcare sector to connect

stakeholders with Government.

Section B: Experience during the pandemic

UKRI's role in the design, manufacture and supply of key healthcare related equipment and supplies during the pandemic

27. UKRI did not design, manufacture, or supply healthcare equipment and supplies during the pandemic.

28. UKRI provided funding and other support to organisations in the design, manufacture, and supply of key healthcare equipment and supplies during the pandemic. This included:

Funding research and innovation

29. UKRI provided funding to researchers and innovators across business, academia, institutes, and the public sector focused on addressing challenges associated with the design, manufacture, and supply of key healthcare equipment and supplies. This funding was provided through a number of mechanisms, including:

    29.1. The UKRI Rapid Response call for R&I to tackle the pandemic, which supported a wide range of R&I projects including those focused on manufacturing, supply chain resilience, and novel design and materials for healthcare equipment and supplies; and
    29.2. Innovate UK's Business Innovation Support programme, which provided additional grants and loans to support R&D in small and medium sized companies in response to the pandemic. The scope of this funding included, but was not limited to, the development of healthcare products and services.

30. UKRI highlighted priority areas for R&I funding, as directed by Government advisory bodies such as SAGE, details of which are provided at **CD2/3 - INQ000472212**. This included some areas relevant to the design, manufacture, and supply of healthcare-related equipment and supplies, such as:

30.1. Engineering and physical sciences approaches for national recovery and transformation, including adaptable and reconfigurable manufacturing to allow scale-up of COVID-19 related products quickly, efficiently, and at volume.

30.2. Understanding, monitoring and controlling COVID-19 transmission through better design and manufacturing of PPE or other protective materials (including recyclable and reusable materials), new anti-viral surfaces and cleaning methodologies; managing air and people flows and adapting urban environments; and control engineering approaches to preventing transmission within the built and urban environments.

30.3. Diagnostics covering adaption of existing medical imaging and diagnostic tools to support the detection of COVID-19; development of new diagnostic tools for the rapid identification of COVID-19 from human and environmental samples; and the development of strategic frameworks to prioritise technology solutions in diagnostics.

Supporting the expansion of vaccine manufacturing capabilities

31. UKRI supported the development and scaling up of UK vaccine manufacturing capabilities, including the expansion of the VMIC and other vaccine-related infrastructure. For example, in collaboration with the Government's VTF, UKRI delivered additional funding (provided by BEIS) to transform and significantly expand VMIC into a facility, which was capable of producing 40-70 million vaccine doses within six months. This enabled a population-level pandemic response capability.

32. UKRI's also played an important role in enabling the UK's wider vaccine manufacturing capability, through its investment in VMIC. In March 2020, the University of Oxford's Jenner lab asked the VMIC to support the establishment of a clinical supply chain for the experimental Chaddox vaccine. VMIC's contributions to this included:

32.1. Establishing a partnership with Oxford Biomedica ("**OXB**") that included the installation of equipment at OXB in Q2 2020, enabling production of a UK Covid-19 vaccine to start. Subsequently, OXB established large scale vaccine production, producing approximately a third of UK's vaccines in 2020 at this facility; and

32.2. At the direction of the VTF, in mid-2020 UKRI instructed VMIC to purchase 8 million vials, stoppers, and closures to meet potential pandemic demand. VMIC was preparing

to produce 50-70 million doses of the Chaddox vaccine in multi-dose vials over 4-6 months. Production and delivery times for vials and stoppers were increasing dramatically and vials were in short supply globally. VMIC accordingly procured these vials.

Pivoting investments

33. UKRI pivoted investments during the pandemic to enable flexibility of activity within its investments so that they could pivot to address challenges associated with the pandemic.

Lighthouse laboratories

34. In March 2020, Lighthouse laboratories were created through a partnership between DHSC, MDC, UK Biocentre and the University of Glasgow and supported by the NHS and Public Health England to increase the UK's capacity to process COVID-19 tests. UKRI's role in this pivoting was to enable flexibility of activity within existing investments, including through cashflow management. For the avoidance of doubt, UKRI was not involved in the procurement of consumables or equipment for Lighthouse laboratories, nor in the procurement by the UK Government of testing services from the Lighthouse laboratories.

35. At the request of the UK Government, organisations receiving core funding from UKRI, including the MDC and UK Biocentre, worked in partnership with DHSC (who were responsible for the contractual arrangements of the laboratories) and the organisations above to establish two of the founding Lighthouse laboratories, the Alderley Park Lighthouse Lab ("**APLL**") in Cheshire and the Milton Keynes Lighthouse laboratory. APLL was set up to provide rapid diagnostic capability for COVID-19, focusing on PCR testing. Lighthouse laboratories were each able to process up to 100,000 tests per day by September 2020. Further details are available in the press release at **CD2/4 - INQ000555624**. UKRI's involvement was to provide expertise where applicable to the laboratories and all procurement and funding was provided by DHSC.

The Francis Crick Institute

36. The Francis Crick Institute ("**the Crick**") is a partnership between six biomedical research

organisations: MRC; Cancer Research UK; the Wellcome Trust; Imperial College London; King's College London; and University College London. It addresses fundamental questions about disease and human health and bridges the gap between research and application. During the pandemic, the Crick rapidly repurposed some of its laboratories into COVID-19 testing facilities which supported local hospitals, care homes, and allowed the Institute to continue research. Further details about Crick's COVID-19 response can be found at **CD2/5 - INQ000555625**. UKRI did not have a role in any procurement activity.

London Biofoundry

37. Prior to the pandemic, UKRI had invested in London Biofoundry (located at Imperial College London) whose purpose was to advance the fundamentals of synthetic biology. In February 2020, the London Biofoundry pivoted its UKRI-supported work to allow it to address challenges encountered in scaling up whole population PCR testing. The London Biofoundry developed an open PCR-testing platform, enabling them to work flexibly with the funding that had already been provided by UKRI to complete their synthetic biology work. The platform was being used by April 2020 for front line testing of patients at Charing Cross and St Mary's hospitals in London and delivering 3,000 tests a day for DHSC. The platform was subsequently adopted by the NHS Imperial Trust hospitals, as well as for staff, student and community testing at Imperial College. By October 2021, over 800,000 tests had been processed by the platform. Further information is available within an article at **CD2/6 - INQ000555626**.

Contributing to consortia in the Ventilator Challenge

38. The Ventilator Challenge was established on 16 March 2020 when the Prime Minister asked companies to help design, manufacture and build ventilators to enable the UK to meet demand for the treatment of COVID-19 patients. The Government worked with the R&I community through UKRI to address this need. UKRI had no part in the initial establishment or organisation of the Ventilator Challenge but contributed as set out below.

The High Value Manufacturing Catapult

39. The High Value Manufacturing Catapult ("**HVM Catapult**") was established by Innovate UK in 2011 to accelerate the commercialisation of innovative new products and processes. The relationship between UKRI and the HVM Catapult (a not-for-profit company) was managed by Mark Gillian, Chief Technology Officer for Innovate UK during the pandemic. HVM Catapult led the Ventilator Challenge UK Consortium (VCUK), which combined the knowledge and skills of UK technology and engineering businesses to deliver 13,437 ventilators, approved by MHRA, to the NHS in response to the anticipated escalation in COVID-19 cases. UKRI funded HVM Catapult and helped establish direct relationships between Cabinet Office and HVM Catapult. UKRI had no role in the contractual arrangements, which were between the Government and HVM Catapult, other than sharing templates for non-disclosure agreements to be used between the Cabinet Office and HVM Catapult. The consortium ended when the Government decided that clinical demand for ventilators had ceased.

Formula 1

40. Seven UK-based Formula 1 teams formed a consortium called Project Pitlane to contribute to the UK Government's request for ventilators when Innovate UK contacted Formula 1's Chief Technology Officer for assistance. Formula 1 agreed to provide the use of its technology and core skills of rapid design, prototype manufacture, test and assembly on a not-for-profit basis. UKRI also seconded an employee for 3 to 4 months to Project Pitlane in March 2020, who was based at the Red Bull facilities in Milton Keynes, where the Bluesky ventilator system was developed. Their role was to support regulatory and design issues. They helped source components through their contacts, including some artificial lung models needed as part of the testing process, but which were scarce due to the pandemic. However, the project did not receive regulatory approval and the device was never used clinically.

41. Separate to the consortia above, UKRI also seconded an employee to work with the MHRA. They assisted in drafting the guidance issued by the MHRA for the clinical requirements of the ventilators.

42. In addition to the above, approximately 70 UKRI staff volunteered to deliver training in how to test ventilators, supporting companies that had collaborated on prototype ventilators, and also assisted with other operations such as testing and logistics at the Penlon site in Abingdon. This was part of an effort to support delivery of 10,000 new ventilators in the space of a few months to address UK ventilator needs. The training and support was provided on a voluntary basis by UKRI staff acting in a personal capacity.

Virusend

43. The Ministry of Defence ("**MoD**") contacted Innovate UK on 5 May 2020 and asked for assistance with the commercialisation of a new antiviral spray, which had been developed in the MoD's Defence Science and Technology Laboratories ("**Dstl**") at Porton Down for cleaning military equipment. The primary support for the product commercialisation was through Ploughshare Innovations Limited, a company established and owned by the MoD, and a private company, Pritchard Sprays Ltd. Innovate UK worked directly with Dstl and had no role with Ploughshare or Pritchard Sprays Ltd. Separately, Pritchard Sprays Ltd was a recipient of a grant from UKRI.

44. UKRI, including Innovate UK, supported the commercialisation process through several activity strands:

    44.1. Connecting MOD and Dstl to healthcare regulators through a former employee with previous relevant experience from MHRA and who also advised on a fast-track approach to the necessary regulatory requirements;
    44.2. A £177k grant to Pritchard Sprays Ltd from UKRI's COVID-19 funding programme, details of which can be found at **CD2/7 - INQ000555627**, which helped to pay for regulatory testing; and
    44.3. Connections between MoD and Crown Commercial. Crown Commercial set up access to government procurement frameworks through their normal commercial processes.

Directing enquiries and offers of support from businesses to Government

45. During the pandemic, UKRI received many enquiries from businesses, including those that had previously interacted with UKRI, having received UKRI funding and/or support from Innovate UK Business Connect (at the time known as the Knowledge Transfer Network (KTN)). These businesses wanted to support the UK response to the pandemic and could offer PPE, ventilators, diagnostics tests, laboratory space, healthcare equipment and supplies to the Government.

46. Businesses tried to get in touch with Government in any way and approached UKRI in view of its strong government links. Enquiries also came from individuals who were also trying to contact Government through different routes. However, most enquiries were made by businesses.

47. Given the unprecedented circumstances of the pandemic, the nature and extent of the enquiries fielded by UKRI were outside the usual course of its work. There were initially no processes in place within UKRI to meet this demand. UKRI reviewed enquiries to confirm whether the business needed funding for the development of a potential R&I project within UKRI's remit or whether they had developed a product or service which they wanted to make available to Government.

48. At the beginning of the pandemic there were no formal routes to put people and businesses in touch with the Government. Over time designated emails and websites/forms were established which were predominantly the route companies were directed to.

49. UKRI was informally requested by BEIS in mid-March 2020 to direct any companies offering a solution to a pandemic need to contact the Cabinet Office via a designated COVID-19 enquiries email address, which was generally the route used. As well as referring businesses, UKRI also referred skilled individuals to Cabinet Office.

50. UKRI had no role in the subsequent submission of businesses to the Cabinet Office, including any subsequent referral by government officials to what became known as the 'High Priority Lane', discussed further below.

51. UKRI also directed businesses to the BioIndustry Association ("**BIA**") website which had up to date information on government contact details for its members. BIA provided contact details for companies to register their details for the supply of ventilators and their

components, for innovation/technology, and for testing and diagnostic capacity and products that they could offer to the Government for use in the pandemic.

Responding to requests from Government

52. Government departments and offices, such as the Cabinet Office, also contacted UKRI through Innovate UK in March 2020 seeking information on potential suppliers of healthcare equipment. Innovate UK conducted internal searches on companies previously funded by Innovate UK, (using SIC code analysis), performed some due diligence checks on companies, and passed public record details of the companies to Cabinet Office. There was no known follow-up between Cabinet Office and Innovate UK. The checks did not constitute UKRI endorsement of the businesses. Information about all Innovate UK funding of these companies is in the public domain on UKRI transparency databases. These requests were limited and ad hoc at the start of the pandemic.

UKRI's experience during the pandemic of the UK's ability to design and manufacture key healthcare equipment and supplies domestically, including any strengths and weaknesses encountered and how these issues were overcome

53. UKRI's experience of the UK's ability to design and manufacture key healthcare equipment and supplies during the pandemic was gained in a number of ways, including:

    53.1. Disruption to the operations of our own laboratories;
    53.2. The shaping of funding activities to address challenges encountered in the design and manufacture of key healthcare equipment and supplies;
    53.3. The pivoting of existing investments to address challenges encountered in the design and manufacture of key healthcare equipment and supplies; and
    53.4. Supporting existing investments to continue to undertake non-COVID-19 R&I.

54. In UKRI's experience, the UK showed the following strengths in its ability to design and manufacture key healthcare equipment and supplies domestically:

    54.1. An ability to pivot existing investments at pace to address the challenges and impacts of the pandemic, as enabled by UKRI's control of our funding.

54.2. An ability to collaborate across government departments.

54.3. A strong engineering skills base that, because lockdowns prevented ordinary commercial work, was able to support and accelerate COVID-19 critical work (such as the contribution of Formula 1 teams to the Ventilator Challenge).

55. UKRI experienced the following weaknesses in the UK's ability to design and manufacture key healthcare equipment and supplies domestically:

55.1. Supply chains were disrupted with wide-reaching impacts including the ability to deliver R&I.

55.2. Delays to healthcare-related projects specifically due to impacts of the pandemic, through, for example, the reprioritisation of R&I teams' activities to focus on frontline healthcare delivery, laboratories being closed or activities being disrupted due to lack of PPE or other equipment or consumables.

UKRI's procurement of healthcare supplies for its own laboratories

56. UKRI owned large national laboratories (and other facilities) and employed a significant number of biomedical scientists during the pandemic who continued to carry out existing research alongside new research in response to the pandemic. UKRI accordingly required additional PPE supplies for pandemic research work.

57. However, the pandemic and subsequent UK lockdowns significantly disrupted the supply chains for laboratory consumables and PPE. Many contracted suppliers were unable to deliver laboratory inventory stock during the lockdowns, and this negatively impacted on the availability of critical items such as pipette tips, PCR consumables (plastic products used for laboratory testing), face masks, nitrile gloves and hand sanitiser. For example, the majority of nitrile gloves came from Malaysia where factories closed during the pandemic causing global supply issues. Filtered pipette tips, crucial for COVID-19 testing and research, were in high-demand and often prioritised for medical facilities, leaving research facilities with limited access. UKRI laboratories reported delays of approximately 12 months for supplies of gloves and Filtering Face Piece 2 and 3 protection from their usual suppliers as they either did not have stock or stock was reserved for the NHS.

58. These shortages posed a severe risk to the ability of UKRI laboratories to continue operations safely and effectively. Continuity of research during the lockdowns relied heavily on the resourcefulness of local teams. Staff utilised personal networks to secure critical items, with local deals. MRC's Laboratory of Molecular Biology secured a steady supply of face masks following an employee's chance meeting outside of work with the CEO of a local medical supply company. Another UKRI laboratory was eventually able to obtain an alternative specification of a glove from an importer in Northern Ireland. However, these were of inferior quality and prone to ripping as they were of insufficient thickness.

59. UKRI laboratories in the British Antarctic Survey and the British Geological Survey donated PPE stock to the NHS (local GP surgeries and NHS hospitals) as neither of these laboratories were clinical settings and were subject to lockdown, retaining only sufficient stock on site to support reduced research activities.

Shaping of UKRI funding calls and competitions related to COVID-19

60. The UK's R&I community identified challenges with, and opportunities to improve, the UK's ability to design and manufacture key healthcare equipment and supplies domestically. These initiatives were supported by UKRI through a series of open calls and competitions, detailed above, including the £174 million UKRI COVID-19 Agile R&I response opportunity (launched 31st March 2020) and the £750 million Innovate UK Covid Response Programme (first competition launched 3rd April 2020). None of these were exclusively focused on the UK's ability to design and manufacture key healthcare equipment and supplies, but healthcare equipment and supplies were within scope. UKRI's Gateway to Research lists 143 R&I projects funded in 2020 and 2021 where PPE is referenced as part of the project abstract **[CD2/8 - INQ000555628]**.

61. Examples of UKRI funded R&I projects relating to PPE include:

    61.1. Radical Fibres, a company created by Surrey University, that focused on creating the next generation of PPE using materials that capture viruses, details of which can be found at **CD2/9 - INQ000555629**; and

    61.2. A virucidal coatings project with Pennog Ltd and University of Bangor to develop and evaluate the efficacy of naturally derived coatings to deactivate viruses on PPE, details

of which can be found at **CD2/10 - INQ000555607**.

62. UKRI's 'Business-led innovation in response to global disruption' competition, attracted a record 20,000 applications, with over 800 businesses awarded £40 million of funding to fast-track new projects and services specifically designed to boost economic recovery from the impact of COVID-19. Within this general competition, Innovate UK received 2,025 applications related to the healthcare sector and awarded 357 grants totaling £16.9 million. Some findings for applications related to the healthcare sector included:

    62.1. 48% said that their project would not have been delivered without Innovate UK's support;
    62.2. 40% reported generating revenue via a sale of intellectual property, product or service as a result of the project; and
    62.3. 9% reported international adoption of their technology.

63. These positive findings demonstrate that the intervention did help overcome some of the problems faced in this area. The finance provided to companies with relevant ideas enabled them to bring products or services to markets which they would not otherwise have been able to do.

64. UKRI's business-led COVID-19 funding specifically targeted, among other outcomes, improved resource efficiency and the uptake of practices supporting the circular economy (i.e. practices which lead to sustainability), both of which had an association with domestically driven supply and manufacturing solutions. Whilst funding was not specifically targeted at the healthcare manufacturing sector, some projects funded were in this sector, as detailed below. This demonstrated, to some extent, the innovative capacity for healthcare manufacturing in the UK that was of a sufficient quality to gain competitive public funding.

65. UKRI funded numerous business-led projects targeting mitigation measures, such as domestic manufacture and improving reusability, to reduce the carbon footprint of PPE distributed for use. This included self-sterilising masks, investigating the production of PPE barriers using sustainable materials, and domestic production of PPE items using efficient 3D printing methods. It was reported that these mitigation measures could have reduced the carbon footprint by 75%.

66. The Innovate UK COVID-19 Funding Response Evaluation Report for COP26 identified strengths and weaknesses related to the design and manufacture of healthcare equipment and supplies in the supported business-led projects funded by Innovate UK **[CD2/11 - INQ000472275]**.

UKRI's experience of the major strengths and weaknesses in the UK's ability to design, manufacture and supply key healthcare equipment and supplies during the pandemic, including cost, speed and workforce available in the UK

67. UKRI experienced strengths and challenges in the UK's ability to design, manufacture, and supply key healthcare equipment and supplies during the pandemic.

Strengths

Response of the UK's research and innovation community

68. The UK's R&I community quickly put themselves forward to help tackle impacts of the pandemic, including those addressing challenges in the UK's ability to design, manufacture, and supply key healthcare equipment and supplies. As referenced throughout this statement, individuals and teams from across academia, industry, government, and the third sector developed new and innovative process, products, and services that were rapidly commercialised and deployed across society, including within the NHS and the private sector.

Ability to rapidly mobilise research and innovation funding and resource

69. The UK's public funders of R&I rapidly mobilised funding and resources through streamlined mechanisms, such as UKRI-NIHR Rapid Response Call. This enabled the UK's R&I community to find innovative solutions to challenges encountered in the pandemic, including in the design, manufacture, and supply of key healthcare equipment and supplies, delivering new products, services, and processes at pace.

70. Further funding and resources were also rapidly mobilised through mechanisms such as:

    70.1. The UKRI-NIHR Rapid Response Rolling Call, which was launched on 1 April 2020 in order to continue to develop knowledge so as to inform government policy to combat the pandemic; and

    70.2. The Agile Call launched in March 2020, which had a much broader thematic remit that extended beyond a biomedical focus to include economic, societal, environmental, and technological challenges and consequences stemming from the pandemic.

71. Applications for funding to UKRI went straight to panel with the establishment of the Rapid Response Rolling Call and the Agile Call, and proposals were reviewed at a much-accelerated pace compared to UKRI's normal approach.

Repurposing of existing investments

72. Building upon the UK's internationally-recognised strong R&I base, UKRI set up a process for repurposing existing UKRI-funded research projects to rapidly change scope of objectives in support of addressing the COVID-19 response. Projects totaling more than £147 million of UKRI investment were repurposed.

73. As described above, the repurposing and scaling of the VMIC facilitated production of the Oxford-AstraZeneca vaccine, accounting for approximately one-third of the UK's onshore vaccine supply in 2020. The flexibility to shift funding towards critical projects, such as the procurement and installation of VMIC equipment at Oxford Biomedica, accelerated vaccine production timelines by months.

The flexibility of the highly skilled workforce

74. The UK's high skills base in some sectors, such as the automotive sector, was flexibly applied to the pandemic response. Highly skilled collaborative communities, like those located at the UK's universities, R&I campuses, and across businesses, acted quickly to train staff to help design and test essential equipment needed for the response to COVID-19. Other sectors offered their services and skills, often alongside experienced collaborators and consultants,

including UKRI staff, in response to the Ventilator Challenge. In addition, many firms and research groups produced simple products, like 3D printed face shields and sanitizer. An example project is 3P Innovation repurposing a manufacturing line to produce visors for NHS and healthcare workers, details of which can be found at **CD2/12 - INQ000555609**.

Weaknesses

Ability to sustain the manufacture, and supply of PPE

75. UKRI's experience supports the Government's acknowledgment within its strategy, *Personal protective equipment (PPE) strategy: stabilise and build resilience*, of challenges in the UK's ability to sustain the manufacture and supply of PPE with an unprecedented increase in demand **[CD2/13 - INQ000555610] [CD2/14 - INQ000555611]**. For example, UKRI's laboratories experienced difficulties procuring PPE during the pandemic, as detailed above.

76. Companies faced challenges including a lack of financial resource and workforce to convert ideas to products and services. This was partially addressed by UKRI's business-led funding programmes, such as FAST Start, which was part of the Business Innovation Support Programme. FAST Start also provided support to companies for their innovation activity in respect of existing markets and to enable companies to pivot away from their traditional markets to address new ones. For example, the pandemic caused a surge in demand for disposable masks and wipes, which caused additional waste. As such, one project funded by UKRI was for the use of pineapple leaf fibers to provide microbiologically safe and sustainable alternatives to existing fibers and yarns.

Workforce capacity and supply chain resilience

77. The availability of skilled biomanufacturing personnel limited the UK's ability to rapidly expand mRNA vaccine production operations. Further information can be found in Innovate UK's report at **CD2/15 - INQ000555612**. As described elsewhere in this statement, supply chain disruption, including for raw materials, reagents, and consumables, led to delays and reliance on international suppliers during a time of intense global competition.

Whether UKRI's skills, expertise and experience were adequately utilised prior to and during the pandemic

78. UKRI does not have a public policy role and, specifically, does not have a formal role or responsibility for pandemic preparedness. UKRI carries out its functions as directed by Government. Therefore, UKRI does not have a corporate view on whether its skills, expertise and experience were adequately utilised prior to and during the pandemic. The following reports provide independent assessments of UKRI's response to the pandemic:

    78.1. *Process review of UKRI's research and innovation response to COVID-19: Final Report by the Technopolis Group* (dated 15 September 2021) **[CD2/16 - INQ000096921]**;
    78.2. *Impact evaluation of UKRI's funding response to COVID-19: Final report and its annex by the Technopolis Group* (dated January 2023 and published on 14 September 2023) **[CD2/17 - INQ000326361] [CD2/18 - INQ000472232]**; and
    78.3. *UKRI and BEIS stabilisation interventions to mitigate against the negative impacts of COVID-19 on the research sector, Process and early-impact evaluation report by RAND Europe* (dated July 2024 and published 13 November 2024) **[CD2/19 - INQ000555615]**.

Section C: Industrial strategy

Key features and policies of an industrial strategy for emergencies, such as pandemics, for the procurement and/or manufacturing of key healthcare equipment and supplies

79. UKRI does not have a corporate view on the key features and policies of an industrial strategy for emergencies, such as pandemics, for the procurement and/or manufacturing of key healthcare equipment and supplies. UKRI is involved in many of the mechanisms the Government uses to gather expert advice and has contributed to the *Industrial Strategy Green Paper, Invest 2035: The UK's Modern Industrial Strategy*. However, this is part of an ongoing consultation, and it would not be appropriate for UKRI to comment on potential government policy that is in development.

International comparisons and approaches to (emergency) industrial strategy which are relevant to the Module 5 Scope and any advantages or disadvantages

80. UKRI conducts international comparisons of key policies and agency activities to inform our own strategy and product development and benchmark UK and UKRI performance. UKRI has not conducted any such comparisons relating to emergency industrial strategies, but are aware of the following sources that may be useful.

Related to the COVID-19 pandemic:

81. *OECD Policy Responses to Coronavirus:* a series compiling data, analysis and recommendations on a range of topics to address the health, economic and societal crisis **[CD2/20 - INQ000555617]**.

82. *First lessons from government evaluations of COVID-19 responses: A synthesis:* evidence from 67 such evaluations produced in OECD countries during the first 15 months of the pandemic **[CD2/21 - INQ000555618]**. These first evaluations show that many governments came to similar conclusions and provided insights that informed policy responses to the pandemic.

83. *Institutional implications for science and industrial capacity: policy lessons from the UK's pandemic response*: focused on the UK's efforts in building lab testing capabilities and increasing production of PPE **[CD2/22 - INQ000555619]**.

84. *Policy and institutional responses to COVID-19: South Korea:* examining nuances in South Korea's response, including advanced data analytics for contact tracing and targeted efforts to encourage consumer spending on certain industries **[CD2/23 - INQ000555620]**.

Evidence from other economic crisis/emergencies:

85. *International sectoral R&D trends after the global financial crisis: What can we learn for current policy? (May 2020)*: highlighted that the UK's post-recession profile of R&D spend across sectors was more varied than in most other countries, and examined differences in innovation policy that may help explain this **[CD2/24 - INQ000555621]**.

Sectors and industries, relevant to procurement and/or manufacturing of key healthcare equipment and supplies, that the UK has a comparative advantage and any advantages or disadvantages

86. Based on UKRI Horizon Scanning, foresighting, and market analysis, which informs our programme developments, the UK has a comparative advantage in:

    86.1. Medical technology, including medical imaging, devices, equipment, and digital medical technologies.
    86.2. Manufacturing of medical devices and supplies.
    86.3. Advanced engineering: prototyping and reverse engineering.
    86.4. Health-related innovation, including rapid response and scale-up of manufacturing capacity.

87. Reasons for each of these are provided below.

88. The UK medical technology sector develops, manufactures, and supplies devices, equipment, and technologies that improve healthcare. The US Department of Trade states on its website that the sector generates annual turnover of approximately $33 billion, based on a strong foundation of small to medium-sized companies around the UK, with clusters in the Southeast of England and the midlands. The US Department of Trade states that "*Many multi-national companies, including leading US medical technology manufactures have offices and manufacturing facilities in the UK.*" and "*As a significant percentage of domestically produced medical products are exported, this is a large export market that is very receptive to new and innovative technology.*" Further information can be found on the US Department of Trade's web page at **CD2/25 - INQ000555622**.

Medical technology, including medical imaging

89. The UK remains a world leader in medical imaging, with over 50 years of innovative research in magnetic resonance imaging (MRI); structural biology, and sub-cellular biology. The advanced imaging enabled by a number of UKRI funded facilities had an impact on the global

response to the pandemic. For example, imaging by the Rutherford Appleton Laboratory and Diamond Light Source characterised a third of all COVID-19 variants and helped to identify the Spike proteins as the main target for vaccines. Imaging by the Central Laser Facility enabled greater understanding of the disease replication cycle. Such capabilities are essential in identifying disease mechanisms and gene sequences that can be used as either drug targets or biomarkers for diagnostics.

Medical technology including digital medical technology

90. The US Department of Trade highlights that the UK's leading sub-sector for Medical Technology is Digital Technology. On its website it refers to the NHS having created "*the need for a vast, efficient digital health infrastructure*" and that digital health is "*a very well developed and competitive market that plays host to numerous leading technology companies*" and "*also offers opportunities for smaller companies and developers.*" **[CD2/25 - INQ000555622]**.

Advanced engineering, prototyping and reverse engineering

91. The Engineering profession is estimated to generate £645 billion gross value added (GVA) to the UK's economy annually; equivalent to 32% of the country's economic output. The Ventilator Challenge, described above, provides an example of the UK's capability. It also shows the ability to pull skills from and develop solutions in from other sectors (such as Formula 1 or non-healthcare manufacturing sectors) in times of crisis.

Health-related innovation, including rapid response and scale up of manufacturing capacity

92. The UK has a broad, and relatively well-connected medical technology and medical manufacturing, services, and supply innovation ecosystem. This gives the UK a comparative advantage in development, adoption and diffusion of innovation as elements of the ecosystems can combine quickly and effectively help the response in crises, as well as in everyday innovation. This is addressed above.

Further reflections

93. UKRI does not have any further reflections to offer on the UK's procurement and manufacturing response for key healthcare equipment and supplies in the pandemic.

Statement of truth

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

Signed: PD

Name: Professor Charlotte Deane

Dated: 23 January 2025