

**Department of Health and Social Care
Department for Business, Energy and Industrial Strategy**

**Response to House of Lords Science and Technology Select Committee report
“Life Sciences Industrial Strategy: Who’s driving the bus?”
1st Report of Session 2017–19
Government Response**

The Department of Health and Social Care and Department for Business, Energy and Industrial Strategy welcome the report of the House of Lords Science and Technology Committee on the Life Sciences Industrial Strategy and its recognition of the life sciences sector’s strategic importance to the UK.

The UK continues to have one of the most productive health and life sciences sectors in the world. Health and life sciences are worth over £70bn to the economy and provide jobs for almost 241,000 people across the country¹. In 2017, the UK received the highest level of life science foreign direct investment projects in Europe, the highest in the past 7 years and second only to the United States². The UK also continues to attract significant private equity investment, with over €750m invested in 67 UK projects in 2016².

The sector continues to grow and the Government is ambitious to do more. Government has committed to increase investment in R&D to 2.4 per cent of GDP by 2027 and 3 per cent over the longer term – delivering an estimated increase of £80bn over the next 10 years. Our ambition remains for the UK to be the best place in the world to develop and launch innovative medicines, technologies and diagnostics, deliver clinical trials, and maximise the potential of health and care data, for the benefit of patients and boosting growth.

We very much welcome the Committee’s focus on life sciences and the detailed scrutiny it has given to the Government’s approach. It is important to note that the Committee announced its inquiry before the sector’s Life Sciences Industrial Strategy was published and began taking evidence in parallel with the Government’s work with industry partners and other key stakeholders to undertake the first phase of implementation (via the Life Sciences Sector Deal), alongside putting in place the governance arrangements for the future. As acknowledged by the Committee, Government work in this area was actively ongoing during the course of the inquiry. The evidence given to the Committee in the immediate weeks and months following the publication of the Life Sciences Industrial Strategy naturally did not fully reflect the significant progress achieved at pace since then through a strong partnership between Government, the NHS and the life sciences sector.

The views and recommendations expressed within the report have in many instances now been superseded by Government action. This reassures us that we have the support of the Committee for actions we are taking to support and grow the life sciences sector in the UK and we are grateful for their detailed scrutiny.

In terms of headline progress, only 12 weeks after the publication of the Life Sciences Industrial Strategy, the Government published the initial stage of implementation in the form of the first ever Sector Deal. The Life Sciences Sector Deal (herein referred to as the Sector

¹ “Strength and Opportunity 2017: the landscape of the medical technology and biopharmaceutical sectors in the UK”, <https://www.gov.uk/government/publications/bioscience-and-health-technology-database-annual-report-2017>

² “Life Science Competitiveness Indicators, 2018”, <https://www.gov.uk/government/publications/life-science-sector-data-2018>

Deal) committed £500m of Government funding to the UK life sciences sector and was backed by investment from 25 organisations across the sector. It was secured through extensive collaboration between Government and the sector, working together strategically to enhance the attractiveness of the UK. Our globally-renowned NHS will be a key partner in delivering the deal.

Since the publication of the Sector Deal in December, the Government has:

- Set up the Accelerated Access Collaborative (AAC), held its first meeting and is on track to launch the full pathway this year.
- Issued a £30m contract for a Vanguard Study, the first phase of a programme to whole genome sequence all 500,000 participants of UK Biobank.
- Worked with industry stakeholders and the NHS to fully scope the competition for a digital pathology and radiology programme with artificial intelligence (AI), launched on 6th June 2018.
- Allocated £146m in support for medicines manufacturing from the Industrial Strategy Challenge Fund (ISCF), with £130m awarded so far.
- Announced the Medicines Manufacturing Innovation Centre, a £56m UK innovation centre, which will revolutionise how medicines are manufactured, located in Renfrewshire.
- Appointed Health Data Research UK to lead the delivery of Digital Innovation Hubs and agreed an outline vision and delivery plan to form the basis for the programme.
- Announced the mission, as part of the AI and Data Grand Challenge, to use data, artificial intelligence and innovation to transform the prevention, early diagnosis and treatment of diseases like cancer, diabetes, heart disease and dementia by 2030.
- Convened, alongside NHS and sector partners, the inaugural meetings of the Life Sciences Council (a strategic partnership between Government, NHS and the life sciences sector) and the Life Sciences Industrial Strategy Implementation Board (which oversees implementation of the Life Sciences Industrial Strategy including the first Sector Deal).

These actions cement the strong Government, NHS and sector partnership and demonstrate commitment across the board to maintain this momentum, ensuring that public and private sectors hold a committed stake in the success of the life sciences industry in the UK.

As a result of these rapid actions, the Government has received positive feedback on progress to date from industry partners including Professor Sir John Bell, ABPI (Association of the British Pharmaceutical Industry), BIA (BioIndustry Association) and companies in the life sciences sector. We are pleased to be able to share this feedback with the Committee:

Professor Sir John Bell:

“Since the launch of the Life Sciences Industrial Strategy, Government has made enormous progress implementing its recommendations. With the help of industry and charities it has launched the world’s largest genomics programme, is creating digital pathology centres with industry and digital innovation hubs to work with industry. This is in addition to a set of new manufacturing facilities. The new Life Sciences Industrial Strategy Implementation Board is functioning and the Office for Life Sciences (OLS) is working hard to deliver the rest of the report. No other sector has made such rapid and effective process.”

BIA:

“The House of Lords Science and Technology Committee is right to highlight implementation, accountability and buy-in from all parties to ensure an effective industrial strategy for UK life sciences.

Since the Committee took evidence last Autumn, there have been significant steps forward in support of that aim.”

GSK:

“We are pleased at how the Government has engaged industry, the speed in which we delivered a first Sector Deal in line with the Life Sciences Industrial Strategy and welcome the setting up of the Life Sciences Council and Life Sciences Industrial Strategy Implementation Board to oversee delivery of the work ahead of us.”

The remainder of this document sets out the detailed Government response to the recommendations made by the House of Lords Science and Technology Select Committee in their report.

Recommendation 1: We recommend that the Government should identify and publish the areas of life sciences not covered by the Bell report and the Life Sciences Sector Deal. Businesses and investors in parts of the life sciences not covered will then know the areas in which they are free to propose further sector deals. (Para 16)

Response: As the Committee’s report notes, Professor Sir John Bell’s report *“Life Sciences Industrial Strategy: A report to the Government from the life sciences sector”* (herein referred to as the Life Sciences Industrial Strategy) focuses on ‘Health life sciences’, which it defines as the application of biology and technology to health improvement, including biopharmaceuticals, medical technology (medtech), genomics, diagnostics and digital health. This is therefore the definition we and this sector used for the purposes of agreeing the Sector Deal.

Sector Deals are an opportunity for sectors to come to Government with proposals to establish a partnership with us to transform the productivity of their sector. The Government is prepared to work with any sector (including those outside of the definition above) which can self-organise behind strong leadership, offer a compelling case for sector-specific action, and set out clear proposals to transform the productivity and earning power of their sector.

Recommendation 2: There is some ambiguity about the status of the Bell report and its implementation. We recommend that the Government should adopt the Bell report in full and provide an implementation plan to which it and the other stakeholders can be held to account. (Para 18)

The evidence we have heard, particularly about the failings of the 2011 Life Sciences Strategy, has highlighted the importance of a detailed implementation plan that contains timelines, milestones and metrics for measuring success. The Bell report provides the vision for the sector; the Government must now work with stakeholders to draw up an implementation plan. (Paragraph 22)

Response: Professor Sir John Bell’s report, the Life Sciences Industrial Strategy, was independent advice to Government, setting out the actions the sector wanted to see to grow

life sciences in the UK. The Government has made clear that it strongly supports the vision set out in the Strategy to make the UK a top tier global hub for biomedical and clinical research and medical innovation, and that it would work in partnership with industry on the recommendations.

As a concrete signal of this commitment to the vision, only 12 weeks after the publication of the Life Sciences Industrial Strategy, the Government published the initial stage of implementation in the form of the first ever Sector Deal. The Sector Deal committed £500m of Government funding to the UK life sciences sector and was backed by investment from 25 organisations across the sector. It was secured through extensive collaboration between Government and the sector, working together strategically to enhance the attractiveness of the UK. Our globally-renowned NHS will be a key partner in delivering the deal.

Key components of the Sector Deal include:

Health Advance Research Programme (HARP)

The Health Advanced Research Programme aims to address the global healthcare challenges of the next 20 years. It will seize opportunities in new technologies such as genomics, digital diagnostics and AI, which will create new industries in the process.

Progress so far includes:

- Issued a £30m contract for a Vanguard Study to sequence 50,000 genomes, the first phase of the Biobank project.
- Launched a £50m ISCF competition to develop five centres of excellence across the UK in digital pathology and radiology.

Growth of Medicines Manufacturing

Government has committed to develop the manufacturing infrastructure for innovative medicines and enable small and medium-sized businesses to produce advanced therapies, supporting the ambition for the UK to become a global hub for advanced therapy manufacturing.

Progress so far includes:

- Allocated £146m in support for medicines manufacturing from the ISCF under the “Leading Edge Healthcare” challenge, with £130m awarded so far.
- Awarded £24m for three Advanced Therapies Treatment Centres that will be co-located in hospitals across the UK, with a further £6m allocated and expected to be awarded soon.
- Announced the Medicines Manufacturing Innovation Centre, a £56m UK innovation centre (that includes £13m ISCF support), which will revolutionise how medicines are manufactured, located in Renfrewshire. The MMIC aims to attract over £80m of R&D investment by 2028 and will create 80 high value jobs directly by 2023.

Accelerated Access Review (AAR)

Government has committed £86m to help make the UK one of the most pro-innovation healthcare systems in the world, encouraging innovators to develop and test treatments here and get them to patients faster.

Progress so far includes:

- Established the AAC and appointed Lord Darzi as the new Chair. The AAC is a unique forum that brings together key partners across the system to help get the most transformative and cost-effective treatments to patients faster.

- Re-licensed Academic Health Science Networks (AHSNs) for a further 5 years with more explicit focus on nation-wide adoption of proven innovations. For the first time since they were created, the AHSNs have committed to nation-wide adoption and spread goals for seven innovative programmes over the next two years.

Digital

Government will support development of measures to improve the UK's health data infrastructure. This will include working with NHS England (NHSE), NHS Digital and Health Data Research UK (HDRUK) to develop a number of regional, interoperable Digital Innovation Hubs (DIHs), and setting out clear and consistent national standards and approaches for data and interoperability.

Progress so far includes:

- Appointed HDRUK to lead the delivery of DIHs and agreed an outline vision and delivery plan to form the basis for the programme.
- Launched the Local Health and Care Record Exemplars competition, with three areas (Greater Manchester, Wessex (Hampshire, Isle of Wight and Dorset) and One London) selected to be taken through to the next stage of the process with the intention to appoint as Exemplars.

Skills

Government will work with the sector to ensure a highly-skilled workforce by reinforcing the skills base across the UK and enabling highly-skilled immigration. We will monitor uptake of apprenticeships and prioritise apprenticeship standards brought forward by the sector, and identified as Industrial Strategy priorities.

Progress so far includes:

- Established the Science Industry Partnership Cambridge hub in April to help meet the needs of the life sciences sector in the region.
- Initiated the Science Industry Partnership apprenticeship survey currently underway.

The Government has placed a strong focus on implementation planning. The Life Sciences Industrial Strategy Implementation Board (LSISIB) will oversee implementation of the Strategy, both in terms of monitoring and overseeing the delivery of commitments made in the Sector Deal, and driving progress on wider implementation, e.g. through future phases of work to implement the Strategy.

The LSISIB is jointly chaired by Government and industry, and includes within its membership senior representatives from Government, NHS, industry, charities, and other key sector representatives. The LSISIB had its inaugural meeting in March 2018 and met again in June. It will meet quarterly and will review the detailed implementation plan (with milestones, key metrics, and owners for each commitment), as well as a report on progress made so far.

In addition to the overarching plan monitored by LSISIB, key projects supported by the ISCF and delivered as part of the Sector Deal are subject to robust separate programme management under the ISCF governance and implementation frameworks.

All ISCF programmes are subject to oversight by a Programme Board of senior UK Research and Innovation (UKRI) directors. The ISCF Steering committee, chaired by Sir Mark Walport, sits above these Programme Boards and oversees all programmes. It meets monthly and reviews each programme in detail on a regular basis. In addition, there are

distinct advisory sub-groups comprised of industry experts and other key stakeholders. The remit of these groups includes the guidance of the programmes with respect to scope, priorities and key performance indicators.

Government (including through the LSISIB) is now working on priority areas of action for the next phase of implementation of the Strategy, which we will announce later this year.

Many positive actions have been taken in response to the 2011 Life Sciences Strategy, for example, launching the Early Access to Medicines Scheme and the development of the Biomedical Catalyst to support high-potential R&D projects for new treatments or diagnostics. However, we have also learnt lessons that have informed our approach this time round. For example, it is clear that one department or even Government alone could not deliver on the range of issues and actions the Life Sciences Industrial Strategy identifies.

To address this issue we have worked with the sector to establish a strong partnership: Government, the NHS, charities and industry are all committed to delivering the Strategy's vision. As outlined above we are also placing significant emphasis on implementation planning within this collaborative environment.

Recommendation 3: The Government remains focused on a transactional relationship with rather than a strategic partnership with the life sciences sector. This is inadequate. (Paragraph 26)

Response: The Government strongly agrees with the Committee that a strategic partnership with the sector is crucial to delivering on the vision in the Life Sciences Industrial Strategy. It is for exactly this reason we established the Life Sciences Council (LSC). The LSC is a partnership between Government and industry to provide strategic oversight of the future of UK life sciences. The inaugural meeting of the LSC took place on 16th May 2018. Its Terms of Reference are included at Annex A.

The LSC provides a forum to discuss how the UK can continue to be a global leader in bio-pharmaceuticals, digital and medtech and attract inward investment to the UK. It will also lead on the strategic development of the UK life sciences environment and foster a transparent relationship between the NHS and the bio-pharmaceutical, digital and medtech industries that will facilitate joint working for the benefit of patients, improve public health, and support the appropriate use of innovative medicines for NHS patients.

Pascal Soriot, industry co-chair of the LSC, said: "With two Secretaries of State and industry leaders representing medical devices, biotech as well as pharmaceuticals, the new LSC brings together expertise across UK life sciences to provide the strategic direction needed to thrive in the competitive global environment."

Recommendation 4: The first phase of the Life Sciences Sector Deal as published does not constitute a plan that will ensure the successful implementation of the Bell report. The Sector Deal is designed along the lines of those for other sectors. It does not take account of the important and central role of the NHS which necessitates greater Government involvement in the life sciences sector. (Paragraph 30)

Response: As noted in our response to Recommendation 2, the Sector Deal represents the initial phase of implementation to deliver on the Life Sciences Industrial Strategy's ambitious

vision. Once subsequent actions are agreed, further implementation planning and policy announcements resulting in an update to the Sector Deal will take place.

As Professor Sir John Bell has recently commented: “Since the launch of the Life Sciences Industrial Strategy, Government has made enormous progress implementing its recommendations...[and are] working hard to deliver the rest of the report. No other sector has made such rapid and effective progress.”

The NHS sits at the heart of the Sector Deal. NHSE and NHS Digital are members of the LSISIB and advised Professor Sir John Bell as the Strategy developed. The NHS is also at the heart of core programmes in the Sector Deal. NHSE, NHS Improvement (NHSI) and AHSNs are members of the AAC, and will be responsible for supporting increased uptake of products with the Accelerated Access designation. NHSE is closely involved in work on the DIHs and detailed work is underway to ensure these connect with the NHS’s plans for longitudinal care records provided through Local Health and Care Record Exemplars. In addition, NHSE and NHSI are closely involved in the plans for designating demonstrators of the use of AI in radiology and pathology through the ISCF competition.

Recommendation 5: We are disappointed that the Sector Deal does not contain the metrics, governance and oversight arrangements that the Government had promised in its written evidence. It lacks operational detail on how different arms of the Government will work together towards a single objective. Furthermore, it does not provide information about the provision and allocation of resources for many strands of implementation (particularly those involving the NHS). (Paragraph 31)

As a minimum, the Government must clarify urgently:

- **Which bodies are responsible for each aspect of operational delivery of implementation;**
- **The membership of these bodies;**
- **Their terms of reference; and**
- **The authority these bodies will have to coordinate policy and delivery across Government departments.**

In paragraph 49 we set out our proposals for the implementation of the strategy which go beyond the minimum standards set out above. (Paragraph 34)

The Government should propose and obtain agreement from all stakeholders to an implementation plan for the Bell report and the Life Sciences Sector Deal, which must be integrated with the implementation of the overall Industrial Strategy. (Paragraph 37)

Implementation and oversight are vital to the success of both the Life Sciences Industrial Strategy and the wider Industrial Strategy. The Government’s plans for implementation and oversight do not provide an effective model and as set out are a recipe for failure. Not only do they lack clarity and detail, they fail adequately to take account of the central role of the NHS in the life sciences sector. (Paragraph 47)

Response: As noted in our response to Recommendation 2, the LSISIB will oversee implementation of the Strategy, both in terms of monitoring and overseeing the delivery of commitments made in the Sector Deal, and driving progress on wider implementation. This is in line with the governance arrangements outlined (at a high level) within the Sector Deal.

The LSIIB will meet quarterly and will review implementation plans (with milestones, key metrics, and owners for each commitment), as well as take reports on progress made so far. The Terms of Reference and membership are included at Annex B.

In addition to the overarching plan monitored by LSIIB, key projects supported by the ISCF and delivered as part of the Sector Deal are subject to robust separate programme management under the ISCF governance and implementation frameworks, as the Committee would expect for any large Government-funded programme.

As emphasised in our response to Recommendation 4, the NHS is very much at the heart of our approach, with Simon Stevens sitting on the LSC and Ian Dodge (National Director – Strategy and Innovation, NHS England) and Sarah Wilkinson (Chief Executive Officer, NHS Digital) sitting on the LSIIB.

Recommendation 6: The Government must clarify exactly which documents comprise the Life Sciences Industrial Strategy. This is still unclear and successful implementation cannot be achieved until it is clarified. Most witnesses told us that they understand the strategy to be the Bell report and the Life Sciences Sector Deal and we have adopted that definition. (Paragraph 46)

Response: Professor Sir John Bell's report, the Life Sciences Industrial Strategy, was independent advice to Government, setting out the actions the sector wanted to see to grow life sciences in the UK. As set out above, just over 12 weeks after the publication of the Life Sciences Industrial Strategy, the Government published the initial stage of implementation in the form of the first ever Sector Deal which set out commitments and funding to implement some of the major asks from industry set out in the Strategy. The Sector Deal represents an important first step towards realising the Strategy's vision.

Recommendation 7: In the following paragraphs we set out our proposal for delivery, accountability and leadership which, drawing on the Government's model and suggestions made to us by witnesses, sets out a clear and effective system for implementing the Life Sciences Industrial Strategy. See also Figure 1, which shows our proposal in the form of a diagram. (Paragraph 48)

The Government's system for implementation is too complex and duplicative. We recommend that, in place of the Life Sciences Implementation Board and the Life Sciences Council, there should be a single body (referred to hereafter as the Life Sciences Governing Body) responsible for the delivery of the Life Sciences Industrial Strategy, which should:

- **Be co-chaired by the Secretary of State for Business, Energy and Industrial Strategy and the Secretary of State for Health and Social Care with executive leadership from Sir John Bell as Life Sciences Champion;**
- **Meet frequently;**
- **Have a membership of about 12, including senior figures from the NHS, industry, academia and the charities sector;**
- **Take the lead in drawing up an implementation plan, with clear milestones, timelines and criteria for success;**
- **Task subordinate working groups with the actual operational delivery of specific areas of the plan; and**

- **Report to a Cabinet Committee. (Paragraph 49)**

Response: The Committee's report and interviews therein reflect a moment in time. As acknowledged by the Committee, Government work in this area was ongoing during the inquiry. The Committee took evidence prior to Government finalising the governance and implementation arrangements around the Life Sciences Industrial Strategy. Government, the NHS and the sector have since jointly agreed and launched governance arrangements that provide the clear accountability, leadership and broad representation the Committee supports.

The LSC has strategic oversight of the life sciences industry in the UK and the conditions for success. It will play a large part of the role described above. We consider that setting up another body would be duplicative. The LSC Terms of Reference are included at Annex A.

The implementation of the Industrial Strategy overall is led by a Ministerial Taskforce, which is overseen the Prime Minister's Economy and Industrial Strategy Committee (EISC). This is explained in full under Recommendation 9.

Recommendation 8: The Secretaries of State for Business, Energy and Industrial Strategy and Health and Social Care should ensure the Life Sciences Governing Body has the backing required to do its work and should take responsibility for the cross-Government aspects of the strategy. (Paragraph 50)

Response: We agree with the Committee's recommendation. The Secretary of State for Business, Energy and Industrial Strategy, and the Secretary of State for Health and Social Care jointly co-chair the LSC. The first meeting of the LSC, held at Number 10 and supported by the Prime Minister, was also attended by the Secretary of State for International Trade, demonstrating the strong cross-Whitehall backing the LSC has to ensure it can fulfil its role.

Recommendation 9: We recommend the creation of a new statutory body, the Office for Industrial Strategy (OfIS) with the authority to scrutinise the implementation of the wider Industrial Strategy and the Life Sciences Industrial Strategy and to publish its findings. The remit of the OfIS should cover the implementation of the Patient Capital Review. The OfIS would be accountable to Parliament and report annually on progress made by each Government department in implementing the Industrial Strategy. (Paragraph 51)

Response: The implementation of the Industrial Strategy is led by a Ministerial Taskforce, which is overseen by the EISC. The EISC focuses on addressing long-term productivity growth, encouraging innovation and focusing on the industries and technologies that will give the UK a competitive advantage. The Ministerial Taskforce meets every two months to discuss the delivery of the policies we committed to in the Industrial Strategy White Paper and this is supported by a group of cross-Government sub-programme boards which bring together senior and working level officials from departments across Government.

In the Industrial Strategy White Paper Government committed to create an independent Industrial Strategy Council that will develop measures to assess and evaluate our Industrial Strategy. The creation of an Industrial Strategy Council is important to give the Strategy external challenge, establish its success measures and help the Strategy to endure. It will be an independent non-statutory advisory group, measuring the successful impact of the

individual elements and the Strategy as a whole. Membership will be multidisciplinary. Members will be invited based on their expertise, experience and skills and will include academics and leading business men and women with wide-ranging knowledge of local, national and international perspectives. Additional experts may be invited to review aspects of the Strategy according to need but core membership will remain the same for an initial two-year period. We are finalising the terms of reference and membership of the Council and further details will be set out shortly.

The creation of a new statutory body would therefore be duplicative in terms of scrutiny of the Life Sciences Industrial Strategy.

Recommendation 10: The current structure of the NHS stifles innovation. A focus on cost-control and a lack of co-ordination between the various bodies that make up the NHS means that the adoption and spread of innovations is not given the priority it requires. Unless the NHS's ability to adopt and spread innovations is improved, it will not be able to play a full role in the implementation of the Life Sciences Industrial Strategy. This will endanger the success of the strategy. (Paragraph 61)

Response: NHSE agrees that much more can be done to support the development of proven innovations, and to support access and uptake of these across the NHS. Work is underway in three areas to address this challenge:

- Expanding or initiating discrete programmes aimed at increasing adoption and spread.
- Simplifying the innovation landscape so that innovators can gain easier access to advice and development funding, and to develop policies and processes that encourage the adoption and spread of proven innovations.
- Strengthening NHSE's own capabilities, including through creating a dedicated new NHS Life Sciences and Innovation Group, led by Dr Samantha Roberts, within the Strategy and Innovation Directorate.

We have expanded or initiated a number of key programmes in the last year aimed at increasing adoption and spread of innovation in the NHS:

- AHSNs will be re-licensed for a further 5 years with more explicit focus on nation-wide adoption of proven innovations, following consideration at the May 2018 NHS England Board meeting. For the first time since they were created, the AHSNs have committed to nation-wide adoption and spread goals for seven innovative programmes over the next two years. Funding has been increased from £36m to £44m a year to enable this.
- Additional funding for the Innovation and Technology Tariff (ITT) /Payment (ITP), which provides proven innovations free of charge to the NHS, has trebled this year with 11 products currently covered by the programme and 70,000 patients benefitting over the last year.
- The AAC, initiated this year, will identify a further suite of innovative products which NHSE is committed to supporting alongside NHSI and the AHSNs, with bespoke adoption plans developed and monitored for each designated product.
- Within specialised commissioning we are supporting:
 - Uptake of biosimilars through use of a Medicines Optimisation Commissioning for Quality and Innovation (CQUIN) framework;
 - Early adoption of products from the Cancer Drugs Fund (e.g. interim funding arrangements, implementation 90 days post-marketing authorisation);

- Access to new innovative Hepatitis C treatments has been fast-tracked, and adoption supported by an incentive scheme; and
- Preparatory work in advance of the launch of CAR-T³.

In terms of simplifying the innovation landscape, a review is underway, led by Lord O'Shaughnessy, with participation from the Department of Health and Social Care (DHSC), NHSE, OLS and AHSNs. This aims to simplify the innovation landscape so that innovators can gain easier access to advice and development funding, and to develop policies and processes that encourage the adoption and spread of proven innovations. Working with clinicians, managers, policy makers, industry and charities we are developing plans to expand the pipeline of innovations proven to be effective, and their subsequent adoption at pace and scale.

Recommendation 11: NHS England and NHS Improvement must give the highest priority to the adoption and spread of innovation throughout the NHS. They should work together to align their strategies to maximise the chances of success in this area. (Paragraph 62)

Response: At a first joint Board meeting in May 2018, NHSE and NHSI set out far-reaching plans to create more integrated national leadership of the NHS, within the current legislation. A single NHS Innovation and Life Sciences Group is being formed in NHS England under the leadership of Dr Samantha Roberts, within the NHS Strategy and Innovation Directorate. This group will lead work across NHSE and NHSI, to co-ordinate and align strategies between both organisations to maximise our combined effect on uptake of innovation.

Both organisations are also giving high priority to supporting life sciences research, as shown through progress on implementing NHSE's *12 Actions to support and apply research across the NHS*. For example, in May, NHSE and its partners set out the actions that are now being taken to streamline the management of excess treatment costs, and simplify and accelerate the establishment of commercial contract research studies.

Recommendation 12: The NHS should give greater priority to the uptake and spread of innovation and to rewarding clinicians and managers who make such adoption successful. We recommend that the Government should explore how it can offer financial incentives to those NHS trusts that adopt and spread proven innovations. (Paragraph 71)

Response: Through the Life Sciences Industrial Strategy, the Five Year Forward View and the joint response to the AAR, Government and the NHS have already set out a clear vision of a system which prioritises innovation, delivering faster patient access to life-changing products.

We have begun to implement the actions to deliver on this vision. We have established the new AAC which will develop and own the Accelerated Access Pathway (AAP), an expedited route to market to bring breakthrough products to patients as quickly as possible by streamlining regulatory and market access decisions.

³ CAR-T therapy (chimeric antigen receptor T-cell therapy), is a type of treatment specifically manufactured for each individual patient in which a patient's T cells are reprogrammed in a laboratory so they will attack the patient's cancer cells.

We have backed this up through funding a number of support schemes designed to improve and expedite the uptake and adoption of innovations across the NHS, many of these provide a direct benefit to innovative Trusts. These include:

- Strengthening the AHSNs which spread innovation at scale and pace locally and nationally;
- Launching the ITT/ITP which has enabled diagnostics, devices and apps to be included under NHS national payment rules helping to accelerate uptake. The ITT was launched in April 2017, agreeing discounted national prices with suppliers and 'bulk buying' proven technologies at a national level, removing the need for multiple local price negotiations. Since the launch of the ITT, over 70,000 patients have benefitted; and
- Expanding the test bed programme which funds innovators to work with individual trusts to test combinations of innovations in clinical settings.

In addition, NHSE is exploring additional financial incentives for increasing the adoption of innovation, for example through the development of CQUIN indicators, and linkage to best practice tariffs. These and other potential measures will be considered as part of the innovation landscape review.

Recommendation 13: The Academic Health Science Networks have a role to play in driving the adoption at pace and scale of innovations throughout the NHS. Where they are working well AHSNs should be further developed. AHSNs should have a clear link to the Life Sciences Governing Body (see paragraph 49) (Paragraph 72)

Response: The Government fully agrees with the important role set out in the report for AHSNs. To support this, Government and NHSE are taking a number of steps to extend, expand and clarify the role of AHSNs to further improve the impact they have on the adoption of innovations.

At its May 2018 Board meeting, NHSE agreed to relicense the 15 AHSNs for a further five-year period, from October 2018. As part of this process, NHSE and DHSC will provide additional funding to drive greater collaboration between the 15 AHSNs supporting innovators, clinicians and patients to navigate the system to meet their needs. We know that many innovations may be better supported at local level first, and the new funding will increase AHSN capacity and capability to assess the local value of new technologies and promote diffusion of those products that deliver real benefits to patients. As part of the relicensing process, a clear set of metrics is being developed to understand the impact the AHSNs are having and to ensure funding is aligned with additional value being delivered.

The AHSNs have a number of clear links to the LSC, including a seat on the AAC (refer to Annex A – Life Sciences Council Terms of Reference).

Recommendation 14: We recommend that NHS England should mandate the uptake of those innovations that have been shown to improve patient outcomes and provide good value for money. (Para 73)

Response: The NHS is mandated to fund medicines that have met National Institute for Health and Care Excellence requirements under the technology appraisals process. NHSE's

new ITP mechanism has begun to supplement that process for proven medtech and digital products.

As part of the innovation landscape review, NHSE is considering how the ITP – and other potential approaches – should be developed to help accelerate the nationwide spread of proven, affordable innovations.

In the meantime, additional support is being provided to drive faster nationwide uptake of particular products, including support for the AHSNs and the innovation support schemes outlined in the answers to recommendation 11 and 12.

Recommendation 15: The problems standing in the way of exploitation of NHS healthcare data for the benefit of patients and the wider economy were explained to us by many witnesses. We did not, however, receive commensurate evidence about the possible solutions to them. This is probably in part because the focus of our inquiry was on the Life Sciences Industrial Strategy rather than the NHS. The Government has set out some early, welcome steps in the Life Sciences Sector Deal, including the establishment of Digital Innovation Hubs which we hope will go some way to tackling this. (Paragraph 82)

We recommend that the Government should develop solutions to the following problems associated with exploiting NHS patient data:

- **collection of data in a usable, standardised format across the NHS;**
- **the ability to link different systems across the NHS;**
- **access to NHS data by third parties and rules for commercial exploitation; and the**
- **public acceptance of and trust in the use of healthcare data for patient benefit and research.**

These solutions might include financial incentives for Trusts, a role for AHSNs in setting up Digital Innovation Hubs as described in the Life Sciences Sector Deal, a sustained and substantial public engagement campaign and the involvement of the proposed Centre for Data Ethics and Innovation. (Paragraph 83)

Response: We agree with the recommendations and progress is already being made in this important area. A key underpinning of this approach is building trust with the public, and professionalism and transparency in the use of their data, with information shared in a safe and secure manner.

To assist in moving this agenda forward, NHSE and the Local Government Association have looked to establish a set of Local Health and Care Record Exemplars (LCHREs) focused on establishing best practice in information sharing including the information governance approaches, the associated cyber standards, how public and professional engagement should be conducted, and the implementation of the associated technical and interoperability standards to enable information to be shared and linked across different systems in a consistent manner. Three areas (Greater Manchester, Wessex (Hampshire, Isle of Wight and Dorset) and One London) have been selected to be taken through to the next stage of the process with the intention to appoint as Exemplars, with a further two areas to be identified by the end of June 2018. The primary purpose of the LCHREs will be to support the delivery of individual care, but they will also provide a platform to explore the use of that

data – in an anonymised form – to support functions such as population health management and research.

As part of the Sector Deal, the Government announced the development of a number of regional DIHs which support the use of data for research purposes within the legal framework and meet the strict parameters for sharing data and the security standards set out by the National Data Guardian. DIHs will create controlled environments for real world clinical studies, the application of novel clinical trial methodology, and the comprehensive evaluation of new innovations so that patients can benefit from scientific breakthroughs much faster. DIHs are being delivered by HDRUK. They will look to utilise data from the LHCREs as well as from national services such as the Data Services Platform. This will enable linkage of datasets to support local populations as well as for national comparison.

The Data Service Platform includes a Remote Data Access Environment. This will bring a number of benefits to researchers following Independent Group Advising on the Release of Data approval to deliver a new, secure way to access and analyse data faster. To compliment this, NHS Digital provides the Data Access Request Service (DARS) which provides data extracts for applicants with an approved Data Sharing Agreement. Improvements have been made to the DARS process to simplify and streamline the process for applicants.

Standardising the format of data collection across the NHS is key to improving the use of data for individual care and research, and work is in progress to deliver this. The move to a single terminology, SNOMED CT⁴, for the direct management of care of an individual, across all care settings in England, is recommended by the National Information Board, in 'Personalised Health and Care 2020: A Framework for Action'. The mandating of SNOMED CT across primary and secondary care within England will ensure information can be shared consistently within and across health and care settings.

On the data sharing agenda, the Government is committed to working with stakeholders to ensure the health and care system in England realises the full benefits of sharing data in a safe, secure and lawful way. Our ability to unlock these benefits relies on the public having confidence in, and being reassured about, the way that the health and social care system uses data. The public want to know that their privacy and rights are safeguarded, understand how and when information about them is shared, how and when they can make an informed choice about whether to share data or not, and that their data is protected from inappropriate use.

We have introduced a new national data opt-out which will give people the choice of how their Confidential Patient Information will be used beyond their individual treatment and care. We want to enable data to flow in a legal, secure and appropriate way; and we will be transparent in the way that data is used. By 2020, individuals will be able to see who has accessed their data and for what purpose.

The General Data Protection Regulation and other data legislation will also provide safeguards and protections to individuals. We are putting the role of the National Data Guardian for Health and Care on a statutory footing, which will provide an independent and authoritative voice on how data is used in health and care. All patient data held by the NHS

⁴ SNOMED CT (Systematized Nomenclature of Medicine – Clinical Terms) is a structured clinical vocabulary for use in an electronic health record.

is handled within the legal framework and meets the strict parameters for sharing information and the security standards set out by the National Data Guardian.

It is within this context of the clear legal basis for information sharing, that NHSE, DHSC and OLS are committed to working with representatives of the public and industry to explore how to maximise the benefits of health and care data for patients and taxpayers.

Recommendation 16: While we welcome the ambition that lies behind the HARP proposal, we find the analogy to DARPA in the USA misleading. HARP will not have the scale or context of DARPA and should be conceived around the opportunities and needs of the UK. The Government must also clarify the sources and scale of funding for HARP. (Paragraph 87)

Response: The Government agrees with the Committee that the ambition behind the HARP proposal is welcome. The analogy to DARPA⁵ helps to frame the scale of this ambition; however, in working with stakeholders to develop our approach to delivering on the vision of HARP, we will anchor this in the context of UK need. Professor Sir John Bell was clear in the Life Sciences Industrial Strategy that HARP will, in the majority of cases, require NHS involvement for success and it should have the potential to create entirely new industries in the UK.

The Sector Deal highlighted that leading health charities are coming together to explore concepts and potential structures to shape the future of HARP, and development and scoping of the programme is still underway. All parties are committed to developing the proposal further to fully realise its potential. Government committed in the Sector Deal to laying out our approach to delivering on the vision of HARP in future phases of the Sector Deal. This will include clarity on how and at what scale it will be funded. OLS continues to work with leading health charities and expert stakeholders to develop and scope HARP, and determine exactly where Government action and intervention is appropriate and how it would be of additional benefit in relation to existing research and development programmes.

It is important to note that while the development of the HARP concept is ongoing, significant progress has been made on advanced health research programmes through UKRI and the ISCF since the launch of the Sector Deal. This includes a £30m contract issued as part of the programme to take forward whole genome sequencing of UK Biobank, and a competition launched with £50m of Government funding to establish centres of excellence in digital pathology and radiology/ in-vivo imaging with AI in the NHS.

Recommendation 17: The ability of research universities in the UK to attract global R&D investors to this country should make a significant contribution to the Government's commitment to raise R&D investment to 2.4% of GDP by 2027. It is a further reason—if one is needed—to support the very best basic science in the UK. (Paragraph 91)

Response: The UK's universities and research institutions are among the best in the world, and the Government recognises the significant role that these establishments play in attracting internationally mobile investment in R&D. The UK's science base remains a key

⁵ The Defence Advanced Research Projects Agency (DARPA) is an agency of the United States Department of Defense.

strength, punching well above its weight with 12% of total life sciences academic citations and 18% of the most-cited publications, the second highest share above China, Germany and Canada.⁶

Science is at the heart of our modern Industrial Strategy. That is why we committed in the Industrial Strategy White Paper to working with our leading universities, research institutes and UKRI to increase global investors' R&D activities taking place in the UK. In order to deliver the 2.4% ambition, we will continue to strengthen our science and research base, maximise the impact of public research, and foster an environment of collaboration in order to ensure the UK is the best place in the world for businesses to invest in R&D and innovation.

Recommendation 18: Without endorsing the specific targets that the Bell report sets, we agree that the UK's historic poor performance in this area is a concern because real economic value comes not from funding start-ups but from enabling scaleup. (Paragraph 96)

Response: We agree with the Committee's assessment that this is an area where the UK needs to improve and important progress is being made. The Government has recognised that improving the ability of firms to scale up will increase the economic value of the life sciences industry in the UK. Through the ISCF the Government has allocated £146m for medicines manufacturing under the "Leading Edge Healthcare" challenge, with £130m awarded so far. In addition, a further £6m has been awarded to grow advanced therapies manufacturing capacity in viral vectors. A combination of capital projects and collaborative research and development projects will enhance the UK's capacity and capability in the manufacture of synthetic and biological medicines. Building on our existing infrastructure supporting cell and gene therapy, these investments will make the UK a uniquely attractive location for complex medicines manufacturing and support our ambition to become a leading hub for advanced therapy manufacturing.

A number of UK SME businesses in the cell and gene therapy field experienced rapid growth and investment in 2017, including Oxford Biomedica, Touchlight Genetics and Adaptimmune. In April 2018, the Cell and Gene Therapy Manufacturing Centre opened. The Centre will help fast-growing cell and gene therapy companies, including current collaborators Autolus, Cell Medica, AdaptImmune, Freeline, to grow and develop their manufacturing operations in the UK.

The implementation of the Patient Capital Review (see Recommendation 19) will also support scale-up as the Committee notes in their Report (Paragraph 104).

Recommendation 19: The Government has responded positively to the Patient Capital Review and the subsequent consultation and its published action plan is a welcome contribution to raising R&D investment in the UK and creating the climate and the financial wherewithal for business growth. (Paragraph 107)

On the basis of the evidence we have received relating to the Patient Capital Review, relaxation of the rules on the allocation of pension fund assets to invest in patient

⁶ "Life Science Competitiveness Indicators, 2018", <https://www.gov.uk/government/publications/life-science-sector-data-2018>

capital projects could transform the availability of capital to the UK life sciences industry. (Paragraph 111)

Response: Since the Chancellor's Autumn 2017 Budget, the Government has made good progress on the implementation of the Patient Capital Review. The Government has doubled Enterprise Investment Scheme (EIS) annual investment limits for innovative knowledge-intensive companies and their investors from 6th April this year, and is acting to re-direct low-risk EIS and Venture Capital Trust (VCT) investment through a test to prevent capital preservation schemes. The Government has recently consulted on a new innovative EIS fund structure for investment in knowledge-intensive companies and is currently considering the responses. In addition, the Request for Proposals for the fund of funds programme (known as 'Managed Funds') was launched by the British Business Bank in May, and the £2.5bn British Patient Capital programme was launched in June. These measures demonstrate the Government's commitment to supporting innovative businesses to access the finance they need to scale up and achieve their full growth potential.

We agree with the Committee's view that greater UK pension scheme investment in patient capital could have a transformative effect on enabling high-growth innovative firms to access the finance they need to grow. Government recognises the importance of encouraging the development of a more open attitude to pension funds investing in patient capital as part of a diversified portfolio. Through the Patient Capital Review, HM Treasury heard similar concerns about how some regulations can be perceived as barriers to investment in patient capital by some institutional investors. To help address this, The Pensions Regulator will issue guidance on how trustees can invest in assets with long-term horizons, such as venture capital, as part of a diverse portfolio.

HM Treasury has also set up a taskforce made up of institutional investors, fund managers and regulators to explore how to tackle continuing barriers holding back defined contribution pension savers from investing in patient capital. The taskforce has identified a number of regulatory, behavioural and market practice issues which may hold back UK pension investment in patient capital. HM Treasury is currently exploring how to address these issues.

Recommendation 20: HM Treasury's continuing engagement in the implementation and further development of the Industrial Strategy in general and its implications for the Life Sciences Industrial Strategy will be critical. This engagement will include not only promoting the availability of funds but also the establishment of a competitive fiscal environment. We recommend that the Treasury should report regularly to Parliament on progress. (Paragraph 112)

Response: The modern Industrial Strategy sets out a clear plan to embrace technological change and thereby boost productivity and earning power throughout the UK. HM Treasury strongly endorses this approach.

HM Treasury is supportive of efforts to ensure the momentum behind the wider Industrial Strategy and the Grand Challenges is maintained. To ensure that the Industrial Strategy is a success, HM Treasury will continue to contribute to the collaborative, cross-Government efforts. The independent Industrial Strategy Council will focus on designing measurements and metrics to determine the success of the strategy overall, and the LSC, with its broad

group of sector partners, including the NHS, will provide appropriate governance for the Life Sciences Industrial Strategy.

As the lead department for the Industrial Strategy, the Department for Business, Energy and Industrial Strategy (BEIS) will lead on HMG's engagement with Parliament. HM Treasury will continue to provide oversight from a financial and economic perspective, ensuring that all expenditure delivers value for money to the taxpayer, and carefully examining the role that non-fiscal interventions, such as regulation, can play in meeting the objectives set out in the Industrial Strategy.

Recommendation 21: We further conclude that the implementation of HM Treasury's response to the Patient Capital Review and the implementation of the Sector Deals, particularly in Life Sciences, needs to be co-ordinated to be effective. This might be achieved by the Patient Capital Review implementation team being represented on the Life Sciences Governing Body (see paragraph 49). (Paragraph 113)

Response: We agree that the Committee makes an important point and we will invite a senior HM Treasury representative to join the LSC. We also agree that the implementation of the Patient Capital Review needs to be co-ordinated to be effective and HM Treasury is working with partners across Government on this.

Recommendation 22: The implementation of the Life Sciences Industrial Strategy and the Government's commitment to raise R&D investment to 2.4% of GDP by 2027 are closely intertwined. We recommend that the Government consults widely in the life sciences and other sectors before publishing plans to implement the 2.4% commitment and that the delivery plan for R&D investment is coordinated with the implementation plan for the Life Sciences Industrial Strategy. (Paragraph 114)

We welcome the Government's commitment to raising R&D investment in the UK to 2.4% of GDP by 2027 and the emphasis it has been given. We look forward to the Government's plan for delivering the increase. (Paragraph 123)

We recommend that the Government should review ways to increase further the attractiveness of the UK as a location for business investment in R&D, not least in the life sciences. We recommend that the review should include benchmarking of UK tax incentives against those in other research-intensive nations. We also recommend that the review should develop proposals for close cooperation between UK Research and Innovation, the Department for International Trade and the Department for Business, Energy and Industrial Strategy in attracting higher levels of foreign direct investment in R&D. (Paragraph 124)

Response: Coordination is taking place across Government to ensure that plans to reach the 2.4% R&D target are aligned with the implementation of the wider Industrial Strategy.

Since the publication of the Industrial Strategy in November 2017, we have engaged with businesses, academics and other stakeholders in the innovation ecosystem and the life sciences sector. Through this engagement, we are attempting to better understand the barriers to increased R&D investment by business, the greatest opportunities for R&D growth over the next decade, and the key policies Government should prioritise to reach the 2.4% target and deliver economic and societal impact.

We want to ensure the UK remains a world leader in global science and innovation collaboration, and to continue to make the UK the world-leading destination for international R&D investors and talent. Tax incentives play a pivotal role for international businesses looking to invest, which is why we recently increased the rate of R&D tax credit to 12%. We are working in close partnership with UKRI and the Department for International Trade to develop plans to reach the 2.4% R&D target.

Recommendation 23: We recommend that the Government should review both the opportunities for training scientists and clinicians in business and entrepreneurial skills, and for encouraging members of the financial sector to develop sufficient understanding of the basics of the science and technology in which they are investing their clients' money. (Paragraph 131)

Response: Government acknowledges the cross-sector importance of business and entrepreneurial skills and our reforms are making the technical education system more responsive to the needs of business and employers. Many providers are already working with employers to design and deliver programmes which equip people with skills employers need – including business and entrepreneurial skills.

Entrepreneurship education is an important component of high-quality careers provision and careers statutory guidance requires schools in England to offer pupils the opportunity to develop entrepreneurial skills and have access to advice on options available post-16, including entrepreneurship.

More widely, to respond to changes in the labour market, it is becoming increasingly important that people both up-skill and reskill throughout their career. Government announced a National Retraining Scheme at the Autumn 2017 Budget – an ambitious, far-reaching programme to drive adult learning and retraining. The scheme will give individuals the skills they need to progress in work, redirect their careers and secure the high-paid, high-skilled jobs of the future, focusing on those individuals and places that need it most. It will include a phased series of impactful interventions starting in 2018. These will be employer-driven programmes focused on areas where we know there is a very strong case for action, starting with digital and construction.

Recommendation 24: The Government and UK Research and Innovation should promote and expand the Rutherford Fund, aligning its objectives with those of the Life Sciences Industrial Strategy where appropriate. (Paragraph 144)

Response: The Government accepts this recommendation in part. The Industrial Strategy White Paper set out the Government's commitment to invest in world-class talent. The Rutherford Fund, which was launched in July 2017, is a £118m four-year programme, to attract highly skilled researchers to the UK, focusing on the provision of fellowships from early to senior career level. The Rutherford Fund is part of the Government's investment in research talent, which signals to the world that the UK is open to research and innovation talent.

On 21st June 2018, BEIS Secretary of State, Greg Clark, announced a major new investment of £1.3bn in UK talent and skills to grow and attract the best in science and innovation. These investments will support Industrial Strategy priorities and the Life Sciences Industrial

Strategy. The majority of Government-funded research talent schemes are open to international as well as UK applications.

Recommendation 25: Immigration policy is central to the continued success of the UK life sciences sector. Any inhibition of free movement arising from Brexit will add urgency to the case for reform. The Department for Business, Energy and Industrial Strategy should assess what is required in the way of scientific talent from overseas and work with the Home Office to ensure that immigration regulations can facilitate this. Furthermore, we recommend that the body responsible for implementing the Life Sciences Industrial Strategy should include senior representation from the Home Office so that immigration policy can be incorporated into implementation plans. (Paragraph 145)

Response: The Government acknowledges and values the vital contribution of scientific talent from overseas to the success of the UK life sciences sector, and the importance of ensuring that, following our exit from the EU, the UK life sciences sector can access the best global scientific talent.

We recognise that access to talent and ease of mobility remains a key issue for the life sciences sector in light of EU exit. BEIS continues to engage and consult with sector stakeholders on this issue. Sector stakeholders have also presented evidence to the independent Migration Advisory Committee (MAC) which, in July 2017, was commissioned by Government to assess the impact on the UK labour market of the UK's exit from the EU and how the UK's immigration system should be aligned with a modern industrial strategy. We acknowledge the MAC's interim report, published on 27 March, and look forward to the publication of the final report in September of this year. We will carefully consider the MAC's conclusions when making any final decisions about our future immigration system, which would not be implemented until 2021.

We are committed to ensuring that the sector (and wider economy) has access to the best scientists and researchers worldwide. To demonstrate this commitment – and as announced in the Autumn 2017 Budget – we have:

- Increased the number of Tier 1 Exceptional Talent visas available annually from 1,000 to 2,000 and streamlined the endorsement process, reducing time and paperwork commitments for applicants;
- Reduced the time required to apply for settlement (from five years to three) for those applying as Exceptional Talent migrants; and
- Waived the Resident Labour Market Test requirement under Tier 2 (our main immigration work route for skilled non-EEA migrants) for supernumerary research posts supported by awards and fellowships, as well as for researchers within established teams who are sponsored by higher education institutions and the UK research councils.

In addition, to support those at the early stages of their career, we have enabled faster switching between our Tier 4 study route and Tier 2, making it quicker for those looking to enter skilled work after they have completed their studies. Changes will shortly be introduced in Tier 5 (our temporary migration route), making it simpler for independent research institutions to sponsor non-EU researchers coming to the UK for up to two years, and enabling them to take part in a broader range of research and collaborative activities.

The Government works collaboratively – through cross-departmental forums – on a number of issues including those related to the life sciences sector. The migration and labour market issues raised in Professor Sir John Bell’s report, and by the sector generally, are cross-economy. It is therefore more appropriate to address them in other fora. In agreeing the membership of the LSC, its chairs have retained the flexibility to invite additional representatives as the agenda requires. Home Office will attend the LSC (or LSISIB) when it considers access to talent and migration issues.

Recommendation 26: We welcome Sir John Bell’s recommendations on the need to deliver a skilled workforce for the life sciences sector. However, without a clear implementation plan the chances of action in this area, which requires cross-departmental coordination, seem slim. Progress will require the full cooperation of and support from the Department for Education. We therefore recommend that the membership of the Life Sciences Governing Body should include a senior representative from the Department for Education. (Paragraph 163)

Response: The Government agree that education and skills are a key component of the Life Sciences Industrial Strategy. In agreeing the membership of the LSC, its chairs have retained the flexibility to invite additional representatives as the agenda requires. The Department for Education will attend the LSC (or LSISIB) when it considers education and skills issues.

Recommendation 27: While further education has an important role in developing the full range of skills, the further education sector has had a low profile in the Life Science Industrial Strategy and in ministerial announcements on the Industrial Strategy more widely. We welcome the Government’s announcement of the establishment of new Institutes for Technology. Closer integration of further and higher education in the implementation of the Life Sciences Industrial Strategy would be welcome. We recommend that the Department for Business, Energy and Industrial Strategy and the Department for Education publish a joint statement on the relationship between higher and further education in the implementation of the strategy. (Paragraph 164)

Response: The Government agrees with the Committee that both the higher and further educations sectors – and apprenticeships – have a key role to play in delivering the Life Sciences Industrial Strategy. We will ensure that we bring this perspective to the LSC and LSISIB. We also agree with the Committee’s broader point that the higher and further educations sectors cannot be considered in isolation. The Review of Post-18 Education and Training – which is currently underway – will look across the full post-18 education landscape, to ensure that funding arrangements across post-18 education and training are transparent and do not act as barriers to choice or provision. The Institutes of Technology will be collaborations between further and higher education providers and employers, and will specialise in delivering the higher-level technical skills, particularly STEM, that employers need. We do not think that a joint statement on the relationship between higher and further education in the implementation of the Strategy will advance these efforts.

Recommendation 28: Incremental development and strengthening of further education will not provide the boost needed to address the skills challenges identified

in evidence to this inquiry. We recommend that the Department for Education promote stronger and more varied relationships between the further education sector and the business community, for example by creating the further education equivalent of the widely praised Higher Education Innovation Fund that has done so much to enhance university-business relationships over the last decade. (Paragraph 165)

Response: The Government strongly agrees with the need to bring employers into the heart of skills policy making and provision – including through closer partnerships with further education providers. Through the Skills Advisory Panels (SAPs) programme we aim to give local areas – Mayoral Combined Authorities and Local Enterprise Partnerships – the capability and the tools to produce high-quality skills needs analysis and plans, and to encourage collaboration with and between local employers and providers. While we are looking at whether the way we fund, regulate and incentivise further education provision drives optimal outcomes, we do not believe that an equivalent of the Higher Education Innovation Fund would be the right vehicle for promoting collaboration in the further education sector. However, we will explore through the SAPs programme whether we can do more to encourage collaboration between employers and further education providers.

Recommendation 29: Increasing investment in the regions of the UK should not be at the expense of the golden triangle; the concentration of excellence in the south-east attracts private-sector investment. Such investment is essential to the Government's commitment to raise R&D levels to 2.4% of GDP by 2027. (Paragraph 178)

Response: The Government recognises the importance of the Golden Triangle in terms of its ability to attract private sector investment. In the Life Sciences Industrial Strategy, Professor Sir John Bell identified that “by most measures, the Golden Triangle is the third largest technology cluster in the world, after Silicon Valley and Boston, and is a clear driver for economic growth in the life sciences sector.”

Recent research commissioned by AstraZeneca identified that Cambridge has the potential to generate an additional £1 billion per annum and provide an extra 6,000 jobs by 2032⁷. By locating its strategic R&D centre and global corporate headquarters in Cambridge, AstraZeneca joins a growing number of businesses in a historic, thriving scientific community.

The Sector Deal demonstrates Government commitment to helping life sciences clusters flourish, including the Golden Triangle. The Government has announced a £215m Housing Deal with Oxfordshire and a £5m commitment to develop proposals for Cambridge South station. The Life Sciences Industrial Strategy highlighted the importance of facilitating convergent science activities, and the Government has invested in the Francis Crick Institute to bring expertise across scientific disciplines closer together. The Government has also announced the new Rosalind Franklin Institute in Oxford to improve health through physical science innovation.

The Sector Deal shows how the life sciences sector can play an important part in meeting the commitment to boost spending on R&D to 2.4% of GDP by 2027 with a stream of new commercial investments made, including the announcement of a major investment in

⁷ “Cambridge: Driving growth in life sciences: Exploring the value of knowledge clusters on the UK economy and life sciences sector”, AstraZeneca, 2018, <https://www.astrazeneca.com/media-centre/articles/2018/cambridge-life-sciences-cluster-set-to-deliver-an-additional-gbp1-billion-to-the-uk-economy-by-2032-03052018.html>

discovery science from MSD. Further to this, Johnson & Johnson and Guy's and St Thomas' NHS Foundation Trust have announced a new 15-year partnership to deliver an Orthopaedics Centre of Excellence at Guy's Hospital in London. Following a long-standing collaboration with the University of Oxford, Novo Nordisk have announced the establishment of a new £115m research centre in Oxford. AstraZeneca have relocated their new global corporate headquarters on Cambridge Biomedical Campus alongside an investment of £2bn per annum on UK-associated R&D. Vertex Pharmaceuticals has established its international headquarters in London and is growing its Oxford R&D site. These examples demonstrate how the Government and the life sciences industry are already working effectively together to further increase productivity, create high value jobs and increase exports in the south-east.

Recommendation 30: We recommend that UK Research and Innovation should include in its published strategy a commitment to maintaining the UK's position as one of the world top three nations in scientific discovery in the life sciences sector. (Paragraph 182)

Response: UKRI published a "Strategic Prospectus" on 14th May 2018, setting out the high-level aspirations of the new organisation to create a research and innovation system that is fit for the future and equipped to tackle the environmental, social and economic challenges of the 21st Century. It will ensure UKRI responds to important opportunities, fosters excellence and collaboration on the global stage, and draws on the inspiration and insight of our most talented researchers and innovators.

This document reflects that the search for new knowledge and solutions increasingly crosses disciplines and sectors. It recognises that our expertise spans all fields of knowledge, from the discovery of penicillin and the development of monoclonal antibodies, to the invention of the jet engine and the world-wide web, and that adapting to this new paradigm is essential to maintaining the UK's position as a world leader.

In the document UKRI reiterates its commitment to support the autonomy of individual councils when they are working within their subject domains and to champion both responsive and strategic modes of funding to enable discovery-led research to flourish in the UK and drive impact from new knowledge and breakthroughs. Each of UKRI's councils will be working with their communities to develop their Strategic Delivery Plans over the next year. These will set out our ambitions and proposals in each of the domains supported by UKRI.

Recommendation 31: We support the Government's efforts to improve the geographical spread of excellent research throughout the UK. Clusters containing universities, teaching hospitals, and companies large and small can help drive the success of the life sciences sector. The Government should identify clusters of excellence and encourage their growth. (Paragraph 183)

Response: The Industrial Strategy set out the Government's goal of helping prosperous communities to thrive across the UK. Life sciences is a UK-wide sector with world-class clusters found across the country – from biotechnology in Fife to medtech in South Wales. The Sector Deal supports the Government's aim to strengthen growth and opportunity across the country, with pioneering investments in Manchester, Leeds, Sheffield, Glasgow and South Wales.

For example, partners across the Leeds City Region, including universities, local authorities, the NHS and industry are establishing a £350m investment programme in the Leeds City Region's leading medtech hub. In Sheffield, experts in academia, industry and health are coming together at the Sheffield Olympic Legacy Park to deliver two pioneering projects: the Orthopaedic and Rehabilitation Research and Innovation Centre; and the Centre of Child Health and Technology.

We anticipate that the next phase of implementing the Life Sciences Industrial Strategy will be an opportunity to further identify and develop regional approaches, working closely with life sciences clusters and the Devolved Administrations. For example, we will work across the north of England in partnership with the Northern Health Science Alliance along with the local and global businesses, to support the growth of the North's life sciences and health innovation economy.

Building on the Science and Innovation Audits, we are launching a new competitive £115m Strength in Places Fund to support areas to build on their science and innovation strengths and develop stronger local networks. The fund will support collaborative programmes based on research and innovation excellence in places, right across the UK, which can demonstrate a strong impact on local productivity and enhance collaboration between universities, research organisations, businesses, local government and Local Enterprise Partnerships in England and relevant agencies in the devolved nations.

Recommendation 32: We recommend that the Government implements in full the recommendations of the EY review of Catapults that are relevant to the Life Sciences. (Paragraph 187)

Response: The independent review of the Catapult network was asked to provide recommendations on the future of the Catapult Network. EY delivered its findings and recommendations to BEIS Ministers in September 2017 and Ministers have broadly accepted them. Based on recommendations of the review, we are refreshing the network to ensure that it delivers the objectives of the Industrial Strategy. This will ensure the Catapult network is performance-driven with realistic, impactful and measurable performance indicators. UKRI is leading on implementation of the review and BEIS is working with them to deliver this.

26 June 2018

Annex A – Life Sciences Council – Terms of reference

The Life Sciences Council is a partnership between Government and industry to provide strategic oversight of the future of UK Life Sciences, including delivery of the Sector Deals.

Objectives

The Life Science Council's objectives are:

- a. To provide a forum to discuss how the UK can continue to be a global leader in bio-pharmaceuticals, digital and medical technologies and attract inward investment to the UK.
- b. To lead on the strategic development of the UK environment and foster a transparent relationship between the NHS and the bio-pharmaceutical, digital and medical technologies industries that will facilitate joint working for the benefit of patients, improve public health, and support the appropriate use of innovative medicines for our NHS patients.
- c. To promote strong and profitable bio-pharmaceutical, digital and medical technology industries in the UK capable of sustained research, development and manufacturing that should lead to the future availability of new and improved products both in the UK and globally.
- d. To jointly deliver on the vision laid out in the Life Sciences Industrial Strategy and agree joint actions to be delivered through Sector Deals.
- e. To monitor progress of the above and ensure that resources are deployed by Government and industry in a timely manner to realise the dual goals of maximising healthcare outcomes for patients and stimulating economic growth.

The Council's remit will include:

- I. Advising on setting strategic direction and oversight of the life sciences sector where Government, NHS, academia and industry (including but not limited to pharma, medtech, biotech and digital) can work together to achieve the LSC's objectives.
- II. Identifying and agreeing required priority actions and setting up time limited sub-groups to deliver pieces of work as needed.
- III. Monitoring progress and aiding relevant sub-groups to overcome issues that may arise.
- IV. Holding sub-groups to account for delivery of their aims.
- V. Supporting the Life Sciences Industry Champion in identifying and developing elements of subsequent Life Science Sector Deals.
- VI. The Council will assist the AAC to deliver its aims and can request updates but will not have oversight of the AAC.

The Council will be co-chaired by the Secretary of State for Business, Energy and Industrial Strategy and the Secretary of State for Health and Social Care (for Government) and the Chair of the British Pharma Group (for industry), and will meet twice a year minimum, with

secretariat support from the Office for Life Sciences, NHS England, ABPI and British Pharma Group.

The LSC will be the main forum for industry-Government relations including setting priorities for the next phase of the Sector Deal.

The membership of the LSC will be the below, refreshed at least every two years, and supplemented at the discretion of the chairs:

Life Sciences Council Membership

1. Secretary of State (DHSC) (Gov. co-chair)
2. Secretary of State (BEIS) (Gov. co-chair)
3. Under Secretary of State for Health
4. Under Secretary of State for Life Sciences
5. Chair British Pharma Group (Industry co-chair)
6. NHS England – Chief Executive
7. Office for Life Sciences – Director
8. Life Sciences Champion
9. UK Research and Innovation – Chief Executive Officer
10. Wellcome Trust – Chief Executive
11. Association of British Pharmaceutical Industries – Chief Executive
12. Association of British Healthcare Industries – Chief Executive
13. UK BioIndustry Association (BIA) – Chief Executive
14. Industry CEO 1 (UK)
15. Industry CEO 2 (Japan)
16. Industry CEO 3 (EU)
17. Industry CEO 4 (US)
18. Industry R&D (Government Nominee)
19. Digital and Data Specialist
20. Medtech CEO/EU lead
21. Industry Innovation (Government Nominee)
22. Department for International Trade
23. BEIS DG
24. National Institute of Health Research

Membership is non-delegable. Where members represent geographic regions peer to peer transfer is acceptable.

In the first instance there will be subgroups covering the following topics:

- EU Relationships
- Implementing the Life Sciences Industrial Strategy [see also Annex B]
- Medical Technologies
- Access to Medicines (Not Pricing)
- Manufacturing
- Research, Innovation and Data

Supplemental note on the subgroups outlined above:

The subgroups are primarily focussed on policy development within their area of expertise. Aside from the Life Sciences Industrial Strategy Implementation Board (where this is one of their objectives) their purpose is not implementation of the Sector Deal, but policy development for the next phase of implementation of the Life Sciences Industrial Strategy.

Annex B – Life Sciences Industrial Strategy Implementation Board – Terms of reference

The Life Sciences Industrial Strategy⁸ Implementation Board is the expert group responsible for advising the Life Sciences Council on delivery of the Strategy's vision to ensure the UK is a top tier global hub for biomedical and clinical research, and medical innovation.

It is responsible for monitoring and overseeing the delivery of commitments made in the Life Sciences Sector Deal⁹, the first phase of implementation of the Strategy. The board will be accountable for the delivery of the Deal and will report on progress to the Life Sciences Council.

The board will also help to set the direction for future phases of activity to implement the Strategy's vision, within the strategic framework agreed at the Life Sciences Council. It will help to prioritise areas for Government and the sector to take forward next, working in partnership.

The board's remit will include:

- I. Supporting Professor Sir John Bell, the Life Sciences Sector Champion in identifying and developing priority areas of focus for future phases of Strategy implementation, within the strategic framework set by the Life Sciences Council.
- II. Working with other expert groups as needed, including commissioning their input on specialist areas, to support the development of future phases of Strategy implementation.
- III. Reporting on progress to the Life Sciences Council, at appropriate points.
- IV. Input into and sign-off of overall Sector Deal implementation plan and success metrics.
- V. Monitoring progress against the implementation plan and supporting owners of Sector Deal projects in overcoming issues that may arise, e.g. in developing risk mitigation strategies and recommending corrective actions where required.

The Board will be co-chaired by Prof Sir John Bell and Lord Henley, and will meet quarterly, with secretariat support from the Life Sciences Council secretariat.

Membership will need to be regularly reviewed, particularly as new programmes are developed for future phases of Strategy implementation, to ensure the size of the Board remains manageable and it can function effectively.

The Implementation Board does not have a role in relation to industry-Government relations outside of that which is necessary to deliver the Sector Deal and the Life Sciences Industrial Strategy. Other work programmes, which may run simultaneously, will be overseen by the Life Sciences Council.

⁸ The Life Sciences Industrial Strategy (LSIS), written by Professor Sir John Bell and published in August 2017 - independent advice to Government from the sector, setting out recommendations for the actions needed to grow the UK life sciences sector.

⁹ The Life Sciences Sector Deal, published in December 2017, is the first phase of implementation of the LSIS. It includes commitments from both Government and the sector to help realise the vision of the LSIS.

Membership

1. Under Secretary of State for Life Sciences (Co-chair)
2. Life Sciences Champion (Co-chair)
3. Under Secretary of State for Health
4. Chief Scientific Adviser
5. Medicine Manufacturing Industries Partnership – Chair
6. NHS England – Chief Executive
7. Office for Life Sciences – Director
8. Healthcare Charity representative
9. UK Research and Innovation – Chief Executive Officer
10. Clinical Research Innovation and Data Expert Group – Chair
11. Association of British Pharmaceutical Industries – Chief Executive
12. Association of British HealthTech Industries – Chief Executive
13. UK BiIndustry Association– Chief Executive
14. Accelerated Access Collaborative – Chair
15. Innovate UK – Interim Executive Chair
16. Medical Research Council – Executive Chair
17. UK Biobank – Chief Executive
18. NHS Digital – Chief Executive Officer
19. NHS Trust – Chief Executive Officer
20. Science Industry Partnership – Chair
21. Industry Med Tech representative
22. Investment Community representative 1
23. Investment Community representative 2
24. Industry/Pharma representative 1
25. Industry/Pharma representative 2
26. Industry/Pharma representative 3
27. Industry/Pharma representative 4