



Dear Secretary of State,

2 May 2017

The Industrial Strategy

The UK is approaching a pivotal stage in preparing its economy for life outside the EU. The General Election, the creation of UK Research and Innovation (UKRI) and the Industrial Strategy together create opportunities to reshape the relationship between government, business and universities. The Government's commitment to increased investment in science and innovation provides a welcome foundation.

This letter sets out key issues for the next Government as it develops the recent consultation into an effective Industrial Strategy. It builds on discussions within the House of Lords Science and Technology Committee and valuable evidence from witnesses, some of whom also contributed to the industrial strategy consultation by other routes. More detailed commentary is given in the attached Annex. The full transcripts of our evidence sessions are available on our website.¹

We are convinced of the potential benefits of a strong Industrial Strategy, with science and innovation as pervasive themes. The Green Paper, however, resembles a portfolio of tactics rather than a coherent strategy. The Government needs to develop the Green Paper significantly to create an Industrial Strategy that is fit for purpose with clear goals as to its intended economic outcomes, and which can be implemented and monitored effectively.

Pathways to prosperity

The strategy should set out pathways of practical steps to a more productive, environmentally sustainable, regionally dispersed economy in the UK, building on existing research excellence at every opportunity. The Green Paper provides some long term aspirations but lacks detail on how to reach them and on how success will be measured.

Difficult decisions

The Green Paper does not set out how many sector deals the Government aspires to or whether it aims to make a deal with every sector. How will industries of the future – ones that do not map onto sectors – be nurtured? Will niche industries be overlooked? Will the Government continue the highly successful approach of supporting scientific excellence wherever it is found or will it try to build new capacity in specific regions?

Regulatory reform and other pre-requisites

The Committee was particularly surprised to see little emphasis, and no coherent approach, to tax and regulation for industry and science. These dimensions, together with the

¹ <http://www.parliament.uk/business/committees/committees-a-z/lords-select/science-and-technology-committee/inquiries/parliament-2015/science-and-technology-and-the-industrial-strategy/>

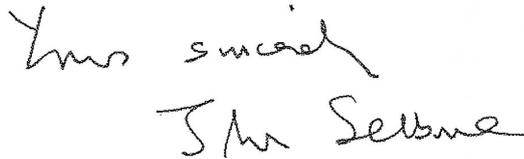
availability of “patient” finance and appropriate skills, are key elements of the relationship between government, businesses and universities. The Government needs to take on board its own responsibilities for providing or enabling such pre-requisites of a successful strategy. Witnesses reinforced our view that Brexit opens important opportunities in these areas and they now need urgent attention.

Need for oversight

Strategies are only as successful as their implementation. The Government should set out the process through which this Industrial Strategy will be monitored and developed over time. For example, a new body could oversee the delivery and development of the Strategy: an Office for Industrial Strategy (OfIS), along the lines of the Office for Budget Responsibility (OBR), could reach across UK Government and Devolved Administrations and report independently on performance against objectives set out in the strategy.

Conclusions

There have been repeated failures in this country to convert strategic aspiration into reality; to widen the regional distribution of prosperity; to harvest the economic benefits of science; and to raise productivity and prosperity to their full potential. This time the Government needs to get it right. A powerful, well-judged industrial strategy has the potential to unleash the huge energy and enterprise of the business and academic communities just at the time when we will need them most.



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Appendix:

Science and innovation will play key roles in addressing each of the three challenges set out in the Green Paper and should therefore infuse the entire industrial strategy.

We welcome the emphasis given to science and innovation in the first of the 10 key pillars in the Green Paper. Science and innovation are also mentioned in a few places elsewhere in the document. Nick Hurd MP, Minister of State for Climate Change and Industry, reassured us that science and innovation already “runs as a thread through all the pillars of the industrial strategy”.²

Strong science and innovation are key to addressing each of the three challenges set out in the early pages of the Green Paper and we see an advantage in raising the profile of science and innovation in every dimension of the strategy while setting out detailed science and innovation material in a distinct chapter.

Such an approach could develop existing science and innovation interests across the Government to bring together the individual chapters into a coherent and cohesive strategy. For example, the Department of International Trade has already advertised a new post of Chief Scientific Adviser “to forge the links between science and technology, business and trade”.^{3,4} We are aware of calls for a similar post to be created in the Department for Exiting the EU.

Professor Dame Ann Dowling, President of the Royal Academy of Engineering, told us that “implicitly, these are not separate pillars; they need to work together as a continuum. In the drafting, they may not show the linkages as much as they might”.⁵

We hope that the role of science and innovation will be given more prominence across all pillars of the strategy as the White Paper is developed.

A successful industrial strategy must have strong engagement from industry

The government must create a new partnership with industry and universities in order for the industrial strategy to be effective. This cannot be a partnership with only the usual suspects from industry. This partnership must also include new and emerging sectors.

Heather Jones, CEO of the Scottish Aquaculture Innovation Centre, told us:

“[T]his strategy ... needs to be led and have buy-in from industrialists. I think without that you risk government push rather than industrial pull, and all the evidence shows that it is industry that exploits changing market dynamics more quickly than governments. There are many references throughout this document to the opportunity for getting that alignment better

² [Q 38](#) (Nick Hurd MP)

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https://www.civilservicejobs.service.gov.uk/csr/jobs.cgi?owner=5070000&ownertype=fair&jcode=1537652&posting_code=0&language [accessed 18 April 2017]

⁴ As recommended by this Committee in its report, [A time for boldness: EU membership and UK science after the referendum](#) (1st Report, Session 2016-17, HL Paper 85)

⁵ [Q 7](#) (Dame Ann Dowling)

between the academic base and the industrial base. The Catapults and the [Scottish] Innovation Centres are doing that, and I think it would be helpful for government to continue thinking about how to find those growth sectors.”⁶

Dame Ann Dowling told us that the strategy would work only if there was, “a real wish to have a partnership between government and business including ... the strong research and innovation base that we have in the UK and therefore universities”.⁷

Professor Hywel Thomas, Pro Vice-Chancellor, Research, Innovation and Engagement, University of Cardiff stressed the importance of industrial leadership, “if the industrialists are involved at an early stage in the planning and development of these ideas, that is the right way forward. That is the key to everything”.⁸

We were encouraged by Mr Hurd’s reassurance that the Government is “open to suggestions from the market”⁹ and also by the consultative nature of the Green Paper. We hope that this translates into an industry led industrial strategy as the White Paper develops and beyond.

Emerging sectors of business need to be given a voice in the industrial strategy, alongside key incumbent industries

The Green Paper announces five sectoral deals and suggests that the Government would be open to making further deals with sectors who can “organise behind strong leadership ... to address shared challenges and opportunities”.¹⁰ We are concerned that this approach provides an explicit advantage to articulate incumbent sectors over emergent industries of the future which have yet to build the relationships and leadership needed to organise a sector deal.

We heard from Professor Richard Jones of Sheffield University and the Industrial Strategy Commission, that:

“The sector argument is one I am a bit nervous about because it renders one open to lobbying and to rent-seeking behaviour. I think it is very important to ask: what are the sectors that do not have lobbying power now that might be important in 20 years? ... When we look at the complexity of a modern economy, an awful lot of it does not map so clearly into sectors”.¹¹

Heather Jones told us that there was, “scant mention of niche sectors or sectors with particular regional importance”.¹²

We were pleased to hear Nick Hurd MP recognise the challenge that exists for the Government:

⁶ [Q 12](#) (Heather Jones)

⁷ [Q 3](#) (Dame Ann Dowling)

⁸ [Q 4](#) (Professor Hywel Thomas)

⁹ [Q 35](#) (Nick Hurd MP)

¹⁰ Department for Business, Energy and Industrial Strategy, *Building our Industrial Strategy*, January 2017: https://beisgovuk.citizenspace.com/strategy/industrial-strategy/supporting_documents/buildingourindustrialstrategygreenpaper.pdf [accessed 06 April 2017]

¹¹ [Q 15](#) (Professor Richard Jones)

¹² [Q 15](#) (Heather Jones)

“We have to get parts of the economy that are not used to dealing with government thinking, “We can go and talk to them”. We have to go out and reach them, using all channels to encourage them to understand what we are trying to do and come in.”¹³

The Government should describe in the White Paper specific mechanisms by which emerging sectors of the future, niche sectors and those with specific regional focus will be able to engage with the strategy and gain advantage from it. The Government should also set out within the strategy the plans to support incumbent sectors and set out plans for emerging and niche sectors. This is not a zero sum game and support for incumbents sectors does not need to be diminished for emerging businesses to flourish. However, as it currently stands the Strategy does not provide enough detail on how the government will support emergent sectors and businesses that exist across sectors whilst explicitly setting out how incumbent sectors can get support.

The industrial strategy will also require long term involvement between the Government, industry and the research base in both strategic and specific areas, as well as a commitment to projects and investment. This is even more necessary as the UK has to develop its own policy approach, as the UK can no longer rely on participation in EU policy initiatives and investments.

One of the aims of the creation of UKRI was to foster interdisciplinary activity. Professor Sir Mark Walport, interim Chief Executive, UK Research and Innovation, told us:

“The truth is that some are more obviously sectors than others. We talk about the creative industries, and there is the Creative Industries Federation, but there is no small group of businesses that could be said to be the sector. It is diversity that makes it so strong. It is important that we can support knowledge-based growth through UK Research and Innovation wherever it can be found, and part of that is the convening power. Again, one thing that UK Research and Innovation can do is use its whole to convene perhaps more effectively than sometimes the individual parts can do.”¹⁴

The Government should use the creation of UKRI to help craft ways to support research and businesses that do not easily fit into existing sectors.

Brexit presents opportunities for the UK to gain competitive advantage from taxation and regulatory reform

Brexit presents opportunities for businesses in the UK to gain competitive advantage from reforms to taxation and regulation that were previously not possible as part of the European Union framework. In the science and innovation domain, this goes much further than R&D tax credits.

The Government rightly incentivises collaboration between universities and industry and these incentives have proved highly successful over the last 10-15 years. However, if universities wish to share accommodation with business – clearly one avenue for collaboration – then the university can become liable for a sizeable tax bill. This is a consequence of harmonisation of VAT rules within the EU. As Dame Ann Dowling explained:

¹³ [Q 41](#) (Nick Hurd MP)

¹⁴ Oral evidence taken on 21 March 2017 (Session 2016-17) [Q 8](#) (Professor Sir Mark Walport)

“One thing that one might hope for in relation to the flexibility that we have following leaving the European Union might be VAT on shared buildings, for example. It has been a bugbear with universities that if more than 5% of the building is occupied by an industrial partner, they have to pay VAT on the whole building.”¹⁵

Neil Woodford told us of other opportunities:

“Brexit is an opportunity not to abandon regulation but to tweak it to make the UK more competitive. There is plenty of opportunity to do that in medical sciences, for example.”¹⁶

He also suggested other action on tax that the Government could take to boost the industrial strategy:

“The Government can incentivise more capital to flow from savers into early-stage disruptive scalable science here in the UK through carefully targeted fiscal incentives, such as inheritance tax incentives.”¹⁷

The transfer of regulatory responsibilities from the EU to the UK will be a long and complicated process, initiated by the forthcoming Great Repeal Bill. This process will provide many opportunities for the UK to use regulatory reform to build competitive advantage as it leaves the EU by aligning regulations to the needs and aspirations of the UK in a wider world. While the detail will take time to develop, the industrial strategy would be an ideal place for the Government to set out its vision and its overall philosophy for this reform of regulation and taxation. Nick Hurd told the Committee:

“...tax and regulation matter enormously and are two of the most powerful levers that the Government have, but they are tools, while the pillars are more about aims and aspirations. Tax and regulation are critical tools that need to be deployed in an intelligent way, and we need to hear from the market about how they can be used more sensibly in pursuit of our goals.”¹⁸

We were concerned that coherent, overarching aspirations for taxation and regulation were absent from the Green Paper and no views on the overarching approach were sought in the consultation. We hope that the Government will set out plans to fill this gap before the White Paper is published.

The Government must act to improve the availability of long-term capital

In the Green Paper the Government recognises that there is an “under-supply of long-term funding – “patient capital” – and later stage venture capital for growing UK companies” and is conducting a Patient Capital Review to help address this.¹⁹ Our inquiry identified this as a vital area for the industrial strategy and we welcome the Government’s initiative.

¹⁵ [Q 10](#) (Dame Ann Dowling)

¹⁶ [Q 22](#) (Neil Woodford)

¹⁷ [Q 22](#) (Neil Woodford)

¹⁸ [Q 40](#) (Nick Hurd MP)

¹⁹ Department for Business, Energy and Industrial Strategy, *Building our Industrial Strategy*, January 2017: https://beis.gov.uk/citizenspace.com/strategy/industrial-strategy/supporting_documents/buildingourindustrialstrategygreenpaper.pdf [accessed 06 April 2017]

We learned from Professor Jackie Hunter, CEO, BenevolentBio, that:

“Innovate UK, for example, has done a very good job of supporting the early transition of research out of universities, but it is the next stage, the scale-up stage, where much larger and longer-term funds are required.”²⁰

She further told us that:

“From a BenevolentBio point of view, we want to grow and be a big company in the UK. We want to be able to use our IT not only for commercial benefit but for that of the UK economy and UK health and well-being. I feel passionately that we need long-term, patient investors to enable that to happen. We have the science, we have the technology.”²¹

We heard from fund manager Neil Woodford of Woodford Patient Capital Trust, that:

“It is the failure of the fund management industry ... to embrace the long-term patient capital approach that is required for success in this sector. It is a fundamental problem in the fund management industry, which is multifaceted and is principally the product of an obsession with short-termism.”²²

He also observed that:

“[I]nternational long-term patient capital providers such as sovereign wealth funds, the super funds in Australia, Asian sovereign wealth, Middle Eastern sovereign wealth and, indeed, US VC money are now recognising this gap, the gap being that there is great science here but no scale-up capital. They are stepping into that gap.”²³

We await the results of the Patient Capital Review and hope that the Government will take action to improve the availability of long term capital, particularly to emerging science-based firms with the potential to grow significantly. The Government should prioritise increasing the availability of patient capital in its suggestions for reforming taxation to support the industrial strategy.

The Government should build on existing research excellence to address economic disparities between countries and regions of the UK.

The Green Paper puts a strong emphasis on place and includes “Driving growth across the whole country” as one of its key pillars.²⁴ This, alongside the Government’s recent regional science and innovation audits, shows the Government’s commitment to involving science and innovation in attempts to narrow existing regional differences in economic performance and productivity. However, it is unclear whether this is a threat to the excellence-based approach to science funding which serves the UK so well in facing tough international competition. We

²⁰ [Q 21](#) (Professor Jackie Hunter)

²¹ [Q 27](#) (Professor Jackie Hunter)

²² [Q 21](#) (Neil Woodford)

²³ [Q 22](#) (Neil Woodford)

²⁴ Department for Business, Energy and Industrial Strategy, *Building our Industrial Strategy*, January 2017: https://beis.gov.uk/citizenspace.com/strategy/industrial-strategy/supporting_documents/buildingourindustrialstrategygreenpaper.pdf [accessed 06 April 2017]

heard from witnesses that the Government should start by building on research excellence where it already exists.

Professor Iain Gray, Vice-President, The Royal Society of Edinburgh, told us that Science and Innovation audits will “provide evidence of where the centres of excellence and expertise sit in the UK that can help to focus discussions”.²⁵

Professor Hywel Thomas from Cardiff University told us that:

“I would argue that in the various places and the various regions it is important to build on the excellence that is there. ... It may be worth exploring a little further the question of skills and where the EPSRC, for example, allocates its doctoral training centres, as well as the criteria used for the allocation of those centres and whether there is a case for some sort of place-based dimension to be added to that.”²⁶

Professor Jackie Hunter told us that you cannot create this excellence simply by creating a catapult.²⁷

From a business perspective Sir Michael Arthur, President, Boeing Europe, told us:

“We are there because there are centres of excellence that we wanted to partner with. That is the pure reason for us; we do not do public policy, we do centres of excellence.”²⁸

The Government must build on the research excellence that already exists throughout the country. However the Government needs to provide more specific plans on how it will respond to the results of science and innovation audits and harness strong science and research even more closely to its economic development agenda. Will the Government direct UKRI to build scientific capability in specific parts of the UK or will it remain committed to supporting research excellence wherever it is found?

Devolved Governments need to be deeply involved in the development and delivery of the industrial strategy

The Government presents the industrial strategy as a vision for the whole UK. However, policy and delivery responsibilities for key features of the Green Paper are devolved to Administrations in Scotland, Wales and Northern Ireland. These include skills, higher education, economic development and areas of procurement and infrastructure. In order for the strategy to be successful it must involve close collaboration with the devolved administrations.

Professor Hywel Thomas told us it was important for the industrial strategy to “tie in with devolved government and then to tie in a city deal in the devolved region. ... The space is quite busy, and it seems advisable for that to be done in a coordinated way”.²⁹

Heather Jones explained that:

²⁵ [Q 6](#) (Professor Iain Gray)

²⁶ [Q 8](#) (Professor Hywel Thomas)

²⁷ [Q 31](#) (Professor Jackie Hunter)

²⁸ [Q 30](#) (Sir Michael Arthur)

²⁹ [Q 9](#) (Professor Hywel Thomas)

“It matters in that there is a risk of twin-tracking, of duplication. ... For example, the Green Paper talks about biotechnology as one of the five priority areas. There is a life sciences industry leadership group in Scotland that is full of industrialists, and they were not consulted on that. There is, obviously, the opportunity for things to diverge, and I think that would be exactly the wrong thing to come out of a UK strategy.”³⁰

It remains unclear what role, if any, the devolved administrations played in the creation of the Green Paper. We understand that the Government is holding ministerial forums with the devolved administrations but evidence of a clear commitment to co-operation and co-ordination is lacking.

We asked Nick Hurd about Scottish representation on the Economy and Industrial Strategy cabinet sub-committee. He said that the Secretary of State for Scotland will be involved in that process.³¹ According to a statement from the Prime Minister’s Office, the Secretary of State for Scotland is not a member of that cabinet sub-committee³² and in any case key policy and delivery areas are devolved to the Scottish Government and are outside the responsibilities of the Secretary of State for Scotland.

There is clearly more work needed to engage devolved administrations in this UK- wide strategy. We hope the initial ministerial forums with devolved governments are the beginnings of much deeper collaboration. The White Paper and future work on the industrial strategy should be based on extensive consultation and collaboration with devolved governments.

The Government needs to close the skills gap

The Green Paper includes “Developing skills” as one of the key pillars.³³ The gap between the needs of industry and the skill levels in the population was repeatedly raised by our witnesses. There was a particular concern that action to reform technical education should be industry led.

Dame Ann Dowling told us:

“A big area that we need to do much better on is skills. ... it will be crucial to track whether we are preparing people in sufficient numbers for the highly paid, quality jobs that our companies need to fill. There is a need to match the workforce to the requirements of companies.”³⁴

She also told us that:

³⁰ [Q 15](#) (Heather Jones)

³¹ [Q 37](#) (Nick Hurd MP)

³² Prime Minister’s Office, *New Cabinet committee to tackle top government economic priority*, August 2016 <https://www.gov.uk/government/news/new-cabinet-committee-to-tackle-top-government-economic-priority> [accessed 06 April 2017]

³³ Department for Business, Energy and Industrial Strategy, *Building our Industrial Strategy*, January 2017: https://beisgovuk.citizenspace.com/strategy/industrial-strategy/supporting_documents/buildingourindustrialstrategygreenpaper.pdf [accessed 06 April 2017]

³⁴ [Q 2](#) (Dame Ann Dowling)

“We talk about a country and an economy that works for everyone, and we have been talking about skills, but what we are really missing is diversity. ... In the highly-skilled physical science, engineering and technology well-paid jobs, women and ethnic minorities are underrepresented.”³⁵

Professor Iain Gray explained:

“Leadership is an important thing and is not brought out in the skills section very strongly. Nor are entrepreneurial skills and some of the softer skills brought out very strongly in the report, and attracting the right kind of high-level capable entrepreneurial talent around technology is not brought out strongly enough. We are seeing a reaction to something that is trying to swing the pendulum in relation to technician support without regard to the broader context.”³⁶

Professor Robert Allison, Vice-Chancellor and President, Loughborough University, told us about the work he is doing at his university to raise the profile of technical education:

“Students at [Loughborough] college are not seen in the town ... as second-class citizens. If they want to do so ... [we] give them the opportunity to transfer into the University to continue their education ... It is also about going all the way down into schools. Young children ... get put off these subjects aged between seven and 11 because it is all about maths at that age. We could work with the college in a very different way if the industrial strategy outcome supports us. For example ... the qualifications framework has to be much more flexible.”³⁷

Sir Michael Arthur from Boeing explained that “the Government’s emphasis on skills, particularly STEM skills, is vital. We have to do more in this area just on basic education in the next generation of technologies”.³⁸

The newly announced reforms to technical education provide an opportunity for Government to facilitate industry led technical education to tackle the skills gap. The Government should take advantage of this opportunity to build consensus with industry and within government to ensure greater coherence between the skills need and the school system. This is particularly the case with digital skills where a large gap appears between the requirements of the future and the level of provision in the education system. Enhancing digital skills at all levels will be key to a successful long term industrial strategy. STEM subjects should be given much more emphasis in primary as well as secondary schools.

Procurement is a promising area for action in the industrial strategy

Witnesses highlighted procurement as a promising area for action in the industrial strategy. We hope that the Government will introduce substantive changes to public procurement, aligning the immediate needs of customers in Government with wider opportunities for economic development and innovation across the UK.

Professor Iain Gray suggested it as an area that needs to be different for the strategy to be a success:

³⁵ [Q 11](#) (Dame Ann Dowling)

³⁶ [Q 3](#) (Professor Iain Gray)

³⁷ [Q 12](#) (Professor Robert Allison)

³⁸ [Q 26](#) (Sir Michael Arthur)

“We were slightly cynical about the industrial strategy—“What’s going to be different this time?”— but the procurement agenda keeps coming up, and it is great to see the recognition of the role of procurement and the commissioning of the review of the Small Business Research Initiative under David Connell, but what is he going to say that is different, and what are we going to do differently this time? The whole procurement process and the non-financial kind of support for research and innovation are really important to draw out, but we need to do it. We need to act on it.”³⁹

The challenge is for the Government to co-ordinate within itself to drive public policy. It is encouraging that Nick Hurd MP recognised this challenge:

“It is a perennial challenge for government, but it is the right one. We have made substantial progress on procurement. ... This whole process has highlighted a big challenge for government in how we think and act, not least because the silos are breaking down out there when it comes to how sectors interact with each other.”⁴⁰

We recommend that the Government continues to focus on procurement and for it to provide more detail in the White Paper and, following the review of the Small Business Research Initiative, introduce reforms across Government departments that align the procurement and economic development agenda more closely. In particular, we would like to see a wider range of specific opportunities for innovative firms to participate in public procurement.

³⁹ [Q 7](#) (Professor Iain Gray)

⁴⁰ [Q 38](#) (Nick Hurd MP)