

INDUSTRIAL STRATEGY BRIEFING UPDATE

Background to Proposed Strategy as of Feb 17

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WHAT IS THE INDUSTRY STRATEGY?

A proposed strategy with the objective of improving living standards and economic growth through increasing productivity and driving growth across the whole country.

It is currently a Green Paper with a set of proposals for discussion and consideration, formed of 10 pillars that frame the approach that will be taken. A programme of new policy is also set out across each pillar:

- Investing in science, research and innovation
- Developing skills
- Upgrading infrastructure
- Supporting business to start and grow
- Improving procurement
- Encouraging trade and inward investment
- Delivering affordable energy and clean growth
- Cultivating world-leading sectors
- Driving growth across the whole country
- Creating the right institutions to bring together sectors and places

KEY AREAS FOR CONSIDERATION

Investing in science, research and innovation

The investing in science, research and innovation pillar will see an investment of an **additional £4.7 billion by 2020-21 in R&D funding** (an increase of around 20% to total government R&D spending) and includes an Industry Strategy Challenge Fund.

It includes the creation of a new **Industrial Strategy Challenge Fund** to help the UK capitalise on its strengths in science and innovation.

New investment has also been committed for R&D facilities and knowledge sharing with £100 million until 2020-21 to extend and enhance the Biomedical Catalyst and a further £100 million until 2020-21 to incentivise universities to collaborate on technology transfer and partnering with business.

Challenges and Opportunities

- Innovation is not just about breakthrough technologies or scientific and engineering processes. Effective adoption of technology throughout businesses and improvements in management and workforce skills are just as important, as are new ways of providing services
- Excellence is a source of future competitive advantage. Other countries have been increasing their investment in R&D in relation to GDP. The UK invests in total 1.7 per cent of GDP in private and public R&D funding. This is below the OECD average of 2.4 per cent and far behind the leading backers of innovation
- Translating our leadership in global research into commercial outcomes, a longstanding weakness in comparison to other countries
- The UK now produces a similar number of spin-off companies as US universities, and substantially more than Japanese institutions, when measured per unit of research funding, but registers far fewer patents

- Not one of the UK's world-class research universities features in the 'Top 10' list compiled by Reuters covering innovation and commercialisation

Approach

- The creation of UK Research and Innovation (UKRI) which will bring together the Research Councils and later-stage innovation funding through Innovate UK
- UKRI will develop and deliver a clear strategy from fundamental research through to business innovation to enable us to identify future opportunities and keep the UK at the cutting edge of new technologies and developing solutions to global challenges

Initial Priorities for Investment

- improving how we **translate our world-class research into commercial outcomes**
 - including identifying potential new types of interventions to enable research and business to collaborate (such as skills, or funding time away from the laboratory in businesses)
- creating new funding streams to support **world-class clusters of research and innovation** in all parts of the UK, whether they are led by business or universities, and for large or small projects where they meet quality thresholds
- Build the **pipeline of talent** for an innovative economy through substantially increasing the number of PhDs and research fellowships in STEM subjects
- Ensure that the UK **attracts top international talent**, exploring potential programmes to attract leading academics who can anchor strong departments
- Develop a new **capital spending roadmap** to provide the modern infrastructure to support fundamental research
- Deliver **sector-specific funding** to support business investment in R&D
- Creation of the **Industry Challenge Fund**

Purpose of Industry Challenge Fund

The Industrial Strategy Challenge Fund creates a new funding stream which will enable UKRI to back technologies at all stages where the UK has the potential to take an industrial lead, from early research to commercialisation.

It aims to help identify and develop UK industries that are fit for the future, driving progress in technologies where the UK can build on existing areas of industrial and research strength.

Programmes delivered by the **fund will be industry-led** and powered by multi-disciplinary research and business-academic collaboration.

Potential Areas of Funding – Early Suggestions for Potential Challenge Areas

- Smart and clean energy technologies (such as storage and demand response grid technologies)
- Robotics and artificial intelligence (including connected and autonomous vehicles and drones)
- Satellites and space technologies
- Leading edge healthcare and medicine
- Manufacturing processes and materials of the future
- Biotechnology and synthetic biology
- Quantum technologies

- Transformative digital technologies including supercomputing, advanced modelling, and 5G mobile networks.

Activity Types

- Joint research projects between businesses and academic researchers
- Placing graduate students into companies
- Setting up demonstrators to test near-to-market technologies in real-world environments
- Creating centres to bring together academic experts with entrepreneurs to promote commercialisation
- In some cases a challenge could lead to the creation of a new institution to drive forward a priority technology e.g. a new research institution to act as a focal point for work on battery technology, energy storage and grid technology is currently being reviewed.

ENTERPRISE DEVELOPMENT AND TECHNOLOGY TRANSFER

Independent research on approaches to commercialisation in different institutions, including how they approach licensing intellectual property and taking equity in spin-outs, and examining the impact these have on spin-out creation and growth, will be commissioned. Findings will be used to identify and spread best practice among universities' technology transfer offices.

How to maximise the incentives created by the Intellectual Property system to stimulate collaborative innovation and licensing opportunities is currently being reviewed – including considering the opening up of registries to facilitate licensing deals and business-to-business model agreements to support collaboration.

OTHER PILLARS OF NOTE

Driving growth across the whole country

- The additional R&D investment (including the Industry Challenge Fund) to back world-class research and innovation will also be used to support local economies across the country. This will also cover expanding existing streams supporting universities' commercialisation activity to allow them to do more for their local economy and support more local small businesses

Creating the right institutions to bring together sectors and places

- Developing local industry clusters based around local expertise, putting in place the right institutions with the right powers to help support local areas of economic strength which may involve creating new institutions or strengthening existing ones
- Includes the creation of competitive new funding streams to back the clusters of innovative businesses across the country
- The Government will support networks of universities where they want to come together to improve commercialisation, e.g. N8, SETsquared

Cultivating World Leading Sectors

- Business are being encouraged to collaborate with other stakeholders, such as universities, to produce a clear proposal for boosting the productivity of their sector, setting out detailed plans to address challenges such as:
 - delivering upgrades in productivity, including in supply chains

- promoting competition and innovation
- facilitating long term investment
- commercialising research across sectors
- Example: As part of the government-industry £3.9 billion commitment to the sector, we are jointly investing £14 million with Rolls-Royce and Loughborough University in a collaborative research and technology project to reduce engine emissions

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Alex Cassidy, Feb 17