



# **BCS’ Response to the Open Consultation: Invest 2035: the UK’s Modern Industrial Strategy November 2024**

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## Who we are

BCS, The Chartered Institute for IT is the professional body for information technology. Our purpose as defined by our Royal Charter is to promote and advance the education and practice of computing for the benefit of the public. We bring together industry, academics, practitioners, and government to share knowledge, promote new thinking, inform, and shape public policy.

BCS has over 70,000 members including businesses, entrepreneurs, public sector leaders, academics, educators, and students, in the UK and internationally. We accredit computing degree courses in over ninety UK universities. As a leading information technology qualification body, we offer a range of widely recognised professional and end-user qualifications. We are the leading end point assessment organisation for digital apprenticeships. BCS is the home of Computing at School, our network of computing teachers, academics, and employers.

## 1 Executive Summary

### People and Skills

#### 1. What is the biggest barrier to growth in the UK, and what is the proposed solution?

The most significant barrier to growth in many regions outside of London is a lack of high-productivity firms and specialised STEM skills. To address this, the report recommends increased investment in human capital, particularly in STEM education and training, to meet the needs of these sectors. This investment should begin early in education, as there is a significant drop-off in computing education at the age of 14. Closing the gender gap in information technology is also crucial, as it can help address the digital skills shortage. To build trust and accountability in technology, we expect that anyone with a significant role in information technology should be competent and ethical, and show they are accountable by being professionally registered. This includes leaders who use technology in critical national infrastructures like health and other public services. In practice, that commitment means being a registered Chartered IT Professional (CITP), just as we expect for accountants or engineers.

#### 2. How can the UK government encourage employer investment in training, specifically within growth-driving sectors?

The UK government can incentivise employer investment in training by:

- Providing financial incentives, such as vouchers for training, grants, or tax breaks, for companies that invest in digital apprenticeships and skills development programs.
- Protecting Level 7 funding for apprenticeships to ensure the talent pipeline meets the demand for highly skilled current and future tech professionals
- Removing the 5% co-funding requirement for non-levy paying organisations to participate in apprenticeship programs.
- Providing levy underspend directly back to non-levy paying employers to support apprenticeships for those starting their careers.

- Offering financial incentives through the apprenticeship levy to encourage more women to participate in apprenticeships.
- Supporting the development of flexible work arrangements to attract and retain women in the technology sector.

### **3. What role can digital apprenticeships play in the UK's economic growth?**

Digital apprenticeships can provide a valuable pathway into IT careers and address the digital skills gap. The government should consider measures to incentivise employers to offer more opportunities to new entrants, ensuring a balance between recruiting new talent and upskilling existing staff. In particular, the feedback we've had from SMEs is that financial incentives would help them to take on more digital apprenticeships.

## **Innovation and Technology**

### **4. How can the UK government best leverage data to support the Industrial Strategy's objectives?**

The government should focus on:

- Unlocking data access and breaking down silos while maintaining public trust in secure and ethical data sharing. This requires the deployment of a scalable data library and exchange service.
- Enabling innovation and best practice at scale through legislation, policy, and standards, developing a skilled workforce, and fostering a strong community across the public and private sectors.
- Ensuring data is used in accordance with the principles of safety, security, robustness, transparency, explainability, fairness, accountability, governance, contestability, and redress, as outlined in the "A Pro-Innovation Approach to AI" White Paper.

### **5. What are the key barriers to Research and Development (R&D) commercialisation in the UK?**

Unpredictable funding and lagging investment in **Research and Development (R&D)** compared to other G7 nations hinders commercialisation. The government should consider:

- Boosting investment in R&D and ringfencing current government support, providing a stable long-term model for state investment in innovation.
- Tying R&D funding to specific missions, such as green energy or economic growth.

## **Infrastructure and Sustainability**

### **6. How can the growth of data centres be managed sustainably, given their significant energy demands?**

New data centres must be built and operate sustainably. The government should:

- Ensure data centres are located strategically to minimise environmental impact and aid regional growth.
- Incentivise the use of sustainable materials and waste heat utilisation in data centre construction.

- Encourage the development of a smart grid capable of handling increased energy demands from data centres and AI.

### **7. How can investment in infrastructure support the Industrial Strategy?**

Strategic investment in infrastructure, including data centres, transportation, and renewable energy, is crucial for the Industrial Strategy's success. This investment can:

- Create jobs, boost the economy, and attract foreign direct investment.
- Support the growth of key sectors, such as technology and clean energy.
- Enhance regional development and reduce economic disparities.

### **8. How can the Industrial Strategy support growth in city regions and clusters across the UK?**

The government should:

- Empower city regions and clusters with the resources and autonomy to develop and implement their own growth plans, tailored to their specific strengths and opportunities.
- Encourage collaboration between local businesses, universities, and government to foster innovation and drive economic growth.
- Ensure that strategic investments in infrastructure and skills development are targeted towards areas with the greatest potential for growth.
- Promote digital inclusion and address digital poverty to ensure that all regions and communities can benefit from technological advancements.

## **2 Response to the Consultation's Questions**

### **Sector Methodology**

#### **1. How should the UK government identify the most important subsectors for delivering our objectives?**

According to the Rt Hon Liz Kendall MP, Secretary of State for Work and Pensions<sup>1</sup>, too many people are *'trapped in low paid, poor quality work, with little prospect of improving their lot in life'*.

Following the government's own logic, it seems appropriate that the industrial strategy supports as many people as possible to escape from such work and have opportunities to access pathways into higher skilled, professionally qualified jobs that drive innovation and productivity. Sectors that are best able to provide such opportunities should therefore be considered by government.

A lack of high productivity firms across UK regions was identified in research published in 2023 by the Productivity Institute<sup>2</sup>. That is one of the reports highlighted in the accompanying Green Paper to this consultation. They found that many UK firms have been following an unsustainable path of:

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<sup>1</sup><https://www.gov.uk/government/news/kendall-launches-blueprint-for-fundamental-reform-to-change-the-dwp-from-a-department-of-welfare-to-a-department-for-work>

<sup>2</sup> <https://www.productivity.ac.uk/wp-content/uploads/2023/11/TPI-Agenda-for-Productivity-2023-FINAL.pdf>

- low wage
- low investment
- and low productivity

Their report identifies that a characteristic of high productivity firms is that they are especially adept at adopting and using digital technologies to create business value. The report points out that historically the main long-term driver of productivity growth has been process innovation and that digital technologies are likely to be key enablers for continued process innovation in the future. For example, they quote other studies that found US manufacturing firms using big data for predictive analytics have had significantly higher sales and productivity than others.

However, that was only where those firms had made appropriate complementary investments in:

- hardware
- skills and
- workplace organisation.

Among UK firms, the Productivity Institute found that higher productivity is linked to the use of digital tools and skills. This is particularly so for firms using more than one digital technology and combining this with in-house skills.

BCS recommends using the above criteria for identifying subsectors where emerging digital technologies are likely to lead to government's stated objective of '*better diffusion and adoption of both established and novel technologies, ideas, and processes*'.

Based on the Artificial Intelligence Sector study,<sup>3</sup> where data on instances of AI companies across sectors is used as a proxy measure for whether there are a significant number of businesses capable of using digital technology to drive productivity as described above, suggests the following sectors should be considered:

- Information Technology
- Financial Services
- Consumer Goods
- Professional Services
- Healthcare and Wellness
- Marketing and Advertising
- Life Sciences and Biotech
- Manufacturing
- Entertainment and Media
- Education and Training
- Construction and Real Estate
- Logistics and Supply Chain
- Environmental and Sustainability
- Aerospace and Defence
- Automotive and Transportation

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<sup>3</sup> <https://www.gov.uk/government/publications/artificial-intelligence-sector-study-2023>

- Agriculture and Food

In addition, we suggest another sector to add to the list is retail, which employs over three million workers and is the second largest employer outside of the public sector. Retail has embraced technology from online shopping to same day deliveries. However, a 2022 report by the British Retail Association<sup>4</sup> said that ‘Digital Skills are now needed by 79% of retail jobs, but 62% of leaders say they can’t find the people with the right experience’, the skills gap is their biggest challenge for retail leaders.

It is also an industry sector that employs very large numbers of younger and older people drawn from widely diverse backgrounds, so the positive impact of investment in technology and digital skills in this sector can have a widespread halo effect on other industry sectors, particularly in light of the relatively high rates of employee churn in the retail sector. We recommend that any subsequent policy interventions ensure that businesses are incentivised to invest strategically in developing a professionally qualified workforce, which will ensure they have the absorptive capacity necessary for emerging digital technologies. To build trust in technology, we expect that anyone with a significant role in information technology should be competent and ethical, and show they are accountable by being professionally registered. This includes leaders who use technology in critical national infrastructures like health and other public services. In practice, that commitment means being a registered Chartered IT Professional (CITP), just as we expect for accountants or engineers.

## **2. How should the UK government account for emerging sectors and technologies for which conventional data sources are less appropriate?**

Please see the answer to Q3, which outlines principles that should be taken into consideration in accounting for other areas.

## **3. How should the UK government incorporate foundational sectors and value chains into this analysis?**

Any analysis should be underpinned by and aligned with existing international agreements the government is a signatory to. Of particular note is that the UK is a signatory of the OECD Declaration on a Trusted, Sustainable and Inclusive Digital Future<sup>5</sup>. Signatories to the declaration are committed to:

- Working together and with all stakeholders to promote a safe, secure, inclusive and sustainable digital environment, underpinned by an open, free, global, interoperable, reliable, accessible, affordable, secure and resilient Internet, and by respect for the rule of law, human rights and democratic values in order to enable economies and societies to prosper.

It also commits signatories to:

- Advancing a human-centric and rights-oriented digital transformation that includes promoting the enjoyment of human rights, both offline and online, strong protections for personal data, laws and regulation fit for the digital age, and

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<sup>4</sup> <https://brc.org.uk/news/corporate-affairs/are-retail-jobs-in-crisis-because-of-a-digital-skills-gap/>

<sup>5</sup> <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0488>

trustworthy, secure, responsible, and sustainable use of emerging digital technologies and artificial intelligence.

The government should ensure that any analysis of foundational sectors and value chains considers how they will advance the above OECD principles.

With reference to the end-to-end retail and consumer products value change there are a wide range of legislative efforts both nationally and internationally associated with, for example, supply chain transparency to sustainability through digitally enabled collaboration and data sharing. The Modern Slavery Act and Incoming EU Digital Product Passport legislation are targeting the positive adoption of technology to aid the traceable flow of verifiable information about product supply chains and their environmental, ethical, and social value performance.

## Sectors

### 4. What are the most important subsectors and technologies that the UK government should focus on and why?

**Artificial Intelligence** - Sir Patrick Vallance published his report on 'Pro-innovation Regulation of Technologies Review – Digital Technologies<sup>6</sup>' in 2023 in which he states: *'Advances in digital technologies, such as artificial intelligence (AI), are and will continue to be a significant contributor to the UK's future competitiveness, productivity, and sustainable growth. With our strong research base, we are in a favourable position to capture the economic prize presented by emerging digital technologies.'*

BCS wholeheartedly agrees with this assessment, which illustrates why artificial intelligence (AI) is a suite of key cross-sector technologies that government should focus on.

**Technologies to enable free flow of data with trust:** The consultation identified accelerating digital transformation as a key component of the industrial strategy. For that to be effective government should reiterate as part of the strategy its recognition of the G7 and subsequent G20 commitments to the OECD principles for the free flow of data with trust<sup>7</sup>.

That will have implications for prioritising policy interventions that ensure the industrial strategy seeks to *'maximise the benefits of measures for enhancing data access and sharing, while protecting individuals' and organisations' rights and taking into account other legitimate interests and objectives, alongside broader efforts to promote and enable a culture of responsibility for data governance throughout the data value cycle.'*

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<sup>6</sup>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file)

[/1142883/Pro-innovation\\_Regulation\\_of\\_Technologies\\_Review\\_-\\_Digital\\_Technologies\\_report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1142883/Pro-innovation_Regulation_of_Technologies_Review_-_Digital_Technologies_report.pdf)

<sup>7</sup> <https://www.oecd.org/en/topics/policy-issues/data-flows-and-governance.html>

**Climate change:** As identified by 2021 the Royal Society report Computing for Net Zero<sup>8</sup>, one of the key challenges in tackling climate change is that there are interdependencies in the global socioeconomic systems that affect the climate, with co-benefits and trade-offs in pursuing different Sustainable Development Goals. Data and digital technologies offer tools to support a better-connected system, and to yield overall solutions that are better than the sum of its parts.

The strategy green paper identifies Clean Energy industries as a priority, but alongside those the strategy also needs to consider how the UK can contribute globally to developing the types of digital technologies and data gathering and sharing technologies identified by the Royal Society.

**Quantum technologies:** In 2023, the previous Sunak government published the National Quantum Strategy Missions<sup>9</sup>. These missions are still of significance and provide initiatives that support the stated aims of the industrial strategy. BCS recommends these are areas for government to focus on in the strategy.

## 5. What are the UK's strengths and capabilities in these subsectors?

For further details we recommend following the links provided in our answer to Q4.

## 6. What are the key enablers and barriers to growth in these subsectors and how could the UK government address them?

Researchers at the University of Harvard Business School<sup>10</sup> published a report in Feb 2024 showing that if non-London cities had the same skills profile as the national average, and saw the agglomeration benefits typical of West European cities of similar size, then:

- UK GDP could rise by £55bn
- This would bring in around £13bn of additional tax revenue every year.

The report found that a binding constraint to growth in many regions outside of London is not a lack of skills in general, but a lack of high productivity firms in the right sectors, alongside specialised STEM skills. One of the recommendations in the report is that: *'Recent years have seen post-16 education funding cut by 16% from 2013/14 to 2019/20. Devolved policymakers should engage employers to address local labour shortages and to support growth of high-productivity, high-pay work; identifying sectoral shortages; and investing in human capital (particularly to improve STEM skills and address shortage occupations).'*

BCS recommends ensuring businesses are incentivised to invest in developing a skills pipeline leading to professional qualification to address this critical lack of STEM skills in regions outside London.

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<sup>8</sup> <https://royalsociety.org/-/media/policy/projects/climate-change-science-solutions/climate-science-solutions-computing.pdf>

<sup>9</sup> <https://www.gov.uk/government/publications/national-quantum-strategy/national-quantum-strategy-missions>

<sup>10</sup> [https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/working.papers/Final\\_AWP\\_225.pdf](https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/working.papers/Final_AWP_225.pdf)



## Business Environment

### 7. What are the most significant barriers to investment? Do they vary across the growth-driving sectors? What evidence can you share to illustrate this?

#### Data Centres, Sustainability and AI:

The use of AI is set to rise exponentially, and to cope with its demands we'll need to build more data centres, build an AI-ready grid, and factor in the increased use of resources such as land and energy. But this has to be done sustainably. **See question 4 and 14 for our more detailed response.**

Looking at the growth area of AI it's important to remember this sector is nascent, as is the technology sector developing AI products. Whilst essential as a tool for productivity for the future, there are a range of foundational capabilities that must exist in businesses to unlock AI's potential.

Data literacy, governance and quality, data infrastructure, data analysis and data science, for example, must all be in place for AI to become effective. The gold rush approach to AI adoption can have considerable financial risk for businesses encouraged by the government (or influenced by the commercial interests of early innovators) and those risks need to be explicitly managed to avoid wasted investment and unintended consequences.

Of particular concern are the cultural challenges of AI adoption into businesses where these foundational capabilities and competences are not well recognised or developed.

#### Inhouse training

Again, taking the retail sector as an example, it believes it has been disproportionately adversely impacted as a sector by tax changes announced in the recent Budget. As it is already a low margin sector, where inhouse digital training of frontline staff is not a given, there could be an argument in favour of some form of government incentive to stimulate investment in digital technologies and skills development to work alongside the sector's own need to invest in such training to deliver productivity and sustainable profitability. Various organisations such as the Higher Education Policy Institute<sup>11</sup>, the UK Trade and Business Commission<sup>12</sup>, and World Skills UK<sup>13</sup>, point out that a key factor in attracting foreign direct investment (FDI) is the availability of a highly skilled workforce. For additional detail see our answer to Q1 and Q6.

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<sup>11</sup> <https://www.hepi.ac.uk/2023/05/12/high-quality-skills-as-a-means-of-attracting-fdi-and-reducing-regional-inequalities/>

<sup>12</sup> <https://www.tradeandbusiness.uk/evidence/skillsandinvestment>

<sup>13</sup> <https://www.worldskillsuk.org/wp-content/uploads/2022/02/Promoting-technical-skills-to-win-foreign-investment.pdf>

### 3 Business Environment - People and Skills

**8. Where you identified barriers in response to Question 7 which relate to people and skills (including issues such as delivery of employment support, careers, and skills provision), what UK government policy solutions could best address these?**

#### AI and Data skills:

The significant shift in skills requirements with AI and emerging technologies will lead to roles being displaced, which we are already seeing from some of the larger employers in the UK.

Globally, a recent report from McKinsey **Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages states**<sup>14</sup>: *‘Current gen AI and other technologies have the potential to automate work activities that absorb up to 70 percent of employees’ time today. These shifts will mean that up to 12 million workers in Europe and the United States will need to change jobs. Lower-wage workers may need support in upskilling to be competitive in the new market.’*

Therefore, organisations will need structured support to prepare for this and to manage it using skills frameworks, such as SFIA Plus <sup>15</sup>, along with upskilling and reskilling programmes to build on transferable skills with the technical skills needed.

The consultation Green Paper identified that the UK economy suffers from a *‘weak diffusion and adoption of technologies, ideas, and processes’*.

This is likely to be especially the case in AI. The DSIT commissioned ‘AI Skills for Business Competency Framework’<sup>16</sup> is a result of government policy to improve diffusion of AI technologies and AI systems across all sectors.

The Framework outlines a wide range of competencies that Data Science professionals should develop. Many of these apply equally to businesses wanting to adopt AI products or services. For example, a small selection (not exhaustive) of competencies from the Framework includes being able to:

- Identify and enforce processes to ensure AI systems are robust, secure, and safe throughout their entire lifecycle so that, in conditions of normal use, foreseeable use or misuse, or other adverse conditions, they function appropriately and do not pose an unreasonable safety risk.
- Ensure high technical standards, in line with software development best practices; for example, software testing, version control, continuous integration and continuous delivery.
- Rigorously evaluate appropriate approaches to augment human skills with artificial intelligence.

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<sup>14</sup> <https://www.mckinsey.com/featured-insights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages>

<sup>15</sup> <https://www.bcs.org/it-careers/sfiaplus-it-skills-framework/>

<sup>16</sup> [https://www.turing.ac.uk/sites/default/files/2023-11/final\\_bridgeai\\_framework.pdf](https://www.turing.ac.uk/sites/default/files/2023-11/final_bridgeai_framework.pdf)

- Anticipate and evaluate possible future applications of AI and consider their positive and negative effects.

BCS recommends the industrial strategy prominently endorses and promotes the use of the Framework by business, which would result in better AI products and services, which would help drive economic growth.

The industrial strategy should recognise the value of working with organisations developing professional good practice for AI. This includes the Alliance for Data Science Professionals,<sup>17</sup> which has member organisations including BCS, The Chartered Institute for IT,<sup>18</sup> The Royal Statistical Society<sup>19</sup>(RSS), The Operational Research Society<sup>20</sup>, The Institute of Mathematics and its Applications<sup>21</sup>, The Alan Turing Institute<sup>22</sup> and The National Physical Laboratory (NPL).<sup>23</sup> The Alliance is also supported by the Royal Academy of Engineering<sup>24</sup> and The Royal Society<sup>25</sup>.

The strategy should also ensure the new Skills England body, once it's fully up and running, has formalised links with appropriate organisations like BCS, which is an end point assessor of Digital Apprenticeships, and the Alliance for Data Science Professionals to ensure apprenticeship standards and technical qualifications are aligned with good professional practice.

Skills England should also develop strategic links with other professional bodies that are relevant to the industrial strategy, including BCS amongst others.

### **Digital Apprenticeships - key to digitalisation of the economy:**

According to DfE data<sup>26</sup> there has been a gradual increase in apprentices following the Digital route over the last three years, as shown in the table below:

	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>
<b>Business Analyst (ST0117)</b>	480	800	1,460

<sup>17</sup> <https://alliancefordatascienceprofessionals.com/>

<sup>18</sup> <https://www.bcs.org/>

<sup>19</sup> <https://rss.org.uk/>

<sup>20</sup> <https://www.theorsociety.com/>

<sup>21</sup> <https://ima.org.uk/>

<sup>22</sup> <https://www.turing.ac.uk/>

<sup>23</sup> <https://www.npl.co.uk/>

<sup>24</sup> <https://raeng.org.uk/>

<sup>25</sup> <https://royalsociety.org/>

<sup>26</sup> <https://explore-education-statistics.service.gov.uk/data-tables/fast-track/7a8d32fc-520b-4ed2-beeb-08dc3901786a>

<b>Data Analyst (ST0118)</b>	3,720	4,020	5,380
<b>Data Technician (ST0795)</b>	1,200	2,890	4,310
<b>Information Communications Technician (ST0973)</b>	160	3,820	3,560

A digital apprenticeship can provide an excellent route into a career in IT. Our recent BCS report, ‘Protect. Improve. Grow. The Future of Digital Apprenticeships<sup>27</sup>’ found:

- Two thirds of businesses (66%) think digital apprenticeships are effective in addressing digital skills gaps in England, according to the BCS study, which includes a YouGov poll.
- But more than half (55%) said better financial incentives for employers would make digital apprenticeships more attractive to them and prospective apprentices.
- Government grants or tax breaks would be a ‘huge motivator’ to get more digital apprentices into small organisations, the BCS research revealed.

The 5% ‘co-funding’ requirement for non-levy paying organisations to take on apprentices was also found to be a barrier – removing it would reduce the disproportionate impact on small and medium enterprises (SMEs).

Our report recommends:

*Measures could be implemented to incentivise employers to offer more opportunities to new entrants, ensuring there is a balance between recruiting new talent and upskilling existing staff. This could include financial incentives, such as a commitment to provide levy underspend directly back to non levy paying employers to help fund apprenticeships for those starting a career.*

To encourage more employers to take on women to do apprenticeships we would recommend that a financial incentive is offered through the apprenticeship levy. Technology is a male dominated sector where women make up only 21% of the workforce. Making the tech sector more female-friendly by removing barriers to participation - such as supporting flexible working - would benefit the career aspirations of women, the economy, and bridge the skills and gender-gap. Getting more women to participate in tech careers is vital if technology, including in emerging fields such as AI, is to be relevant, applicable, and accessible to all UK citizens.

<sup>27</sup> <https://www.bcs.org/media/lxjjuglz/the-future-of-digital-apprenticeships.pdf>

Our recent BCS Diversity report<sup>28</sup> said: *The tech profession must address its stark disparity in part time roles, where only 5% of jobs are part-time, compared to 23% in other sectors. To attract and retain women, particularly those balancing family responsibilities, part-time and job-sharing roles must be expanded. Employers should adapt hiring practices to offer flexible job structures that cater to diverse needs, making tech careers more accessible and sustainable for women who might otherwise leave the sector.*

Building a skilled, digitally literate workforce needs to start early - 94% of girls and 79% of boys drop computing at age 14<sup>29</sup>. The computing curriculum is abstract and unmotivating, with insufficient connections to how computing can be applied to address the world's great challenges. The key stage 3 curriculum and the GCSE in particular need updating to reflect this and to include AI and data.

All young people need to leave school digitally literate and this needs to be recognised in a qualification to give employers, universities, and training providers the confidence that young people are sufficiently digitally literate. This goes beyond low level functional skills and includes critical thinking about the opportunities and risks digital technology presents.

For more information see the BCS response to the government's Curriculum and Assessment Review - Call for Evidence<sup>30</sup>.

Closing the gender gap in information technology can solve many of its issues around the digital skills shortage – over 500,000 women are 'missing' from the profession<sup>31</sup>. Thousands of people aged 50 and over, and people with disabilities, are also under-represented in the digital sector. This matters because we will only create systems that work for everyone in society if they are created by teams that reflect all of society.

### Higher Education

According to HESA data<sup>32</sup>, there were just over 23,500 first year undergraduates starting a full-time computing degree at a UK university in 2023. Again, numbers of undergraduates starting computing degrees has been gradually increasing year on year.

However, these figures seem remarkably low when compared to the aspirations of other countries, such as for example South Korea. The South Korean government's Comprehensive plan<sup>33</sup> for digital expert cultivation has identified the need to develop 160,000 beginners, 710,000 intermediate, and 130,000 advanced digital experts by 2026.

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<sup>28</sup> <https://www.bcs.org/policy-and-influence/equity-diversity-and-inclusion/bcs-diversity-report-2024-addressing-the-under-representation-of-women-in-technology/>

<sup>29</sup> <https://www.bcs.org/articles-opinion-and-research/house-of-lords-committee-backs-bcs-call-for-reform-of-computing-qualifications-for-14-16-year-olds/>

<sup>30</sup> <https://www.bcs.org/media/jmcf1hn/bcs-response-to-curriculum-and-assessment-review-call-for-evidence-nov-24.pdf>

<sup>31</sup> <https://www.bcs.org/articles-opinion-and-research/diversity-2023-the-missing-756-000/>

<sup>32</sup> <https://www.hesa.ac.uk/data-and-analysis/students/what-study>

<sup>33</sup> [https://mags.acm.org/inroads/march\\_2024/MobilePagedArticle.action?articleId=1959558#articleId1959558](https://mags.acm.org/inroads/march_2024/MobilePagedArticle.action?articleId=1959558#articleId1959558)

This comparison demonstrates that the UK needs a significant step change in its apprenticeship and higher education digital skills pipeline if it is to compete for foreign direct investment (FDI) with other technology intensive economies.

The industrial strategy should identify the level of capacity required in the UK's digital skills pipeline to ensure the UK remains competitive and can successfully digitalise the economy over the next decade, together with policy interventions necessary to increase the capacity to the level required.

We would also **recommend that careful consideration is given to retaining the funding of Level 7 apprenticeships**. The feedback we have received from training providers and industry figures is that this funding is needed through the growth and skills levy. These higher-level qualifications are required to ensure that the UK has the skills it needs now and, in the future, to take advantage of the opportunities presented by emerging technologies.

Concerns about the shortage of higher-level skilled tech candidates were outlined in government data in the Employer Skills Survey 2022<sup>34</sup>, which will be refreshed and re-published in 2025. The Employer Skills Survey provides a comprehensive overview of the skills and training requirements in the UK's tech and digital sector. It is one of the trusted sources of data listed on the Skills England website as part of its 'data driven decision making' mission.

Unlike many other sectors, tech skills require continuous investment from employers, educators, and practitioners.

Here are some key points from the research around **recruitment and training challenges**

- **High Demand for Specialists:** The sector faces challenges in recruiting specialists with expertise in emerging technologies such as artificial intelligence, machine learning, and blockchain.
- **Competition for Talent:** Intense competition for skilled professionals often leads to prolonged vacancies and increased recruitment costs.
- **Continuous Learning:** Employers emphasize the need for continuous professional development to keep pace with rapid technological advancements.

#### **9. What more could be done to achieve a step change in employer investment in training in the growth-driving sectors.**

Please see our answer to Q8

## **4 Business Environment - Innovation**

#### **10. Where you identified barriers in response to Question 7 which relate to RDI and technology adoption and diffusion, what UK government policy solutions could best address these?**

Developing digital competency across a range of undergraduate degree programmes could be seen as a 'skills issue'. For instance, the need to develop data research skills amongst

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<sup>34</sup> <https://explore-education-statistics.service.gov.uk/find-statistics/employer-skills-survey/2022>

undergraduates was identified amongst early and later career social science researchers, according to a report last year from the Economic and Social Research council's Data-Driven Research Skills (DDRS) Steering Group.<sup>35</sup>

The report said: *'A life course model of DDRS training is proposed whereby it is acknowledged that DDRS training needs to move beyond a core focus on the postgraduate and very early postdoctoral career stages, to promotion and support of DDRS training across the academic life course, including during the mid and later career stages.'*

A good example of a programme that has nurtured such data skills is Q Step, which was aimed at social science undergraduates, and 'addressed the shortage of graduates with the skills to apply quantitative methods in both research and professional settings,' according to an independent evaluation<sup>36</sup> by Technopolis<sup>37</sup>.

It found students who took Q-Step quantitative skills modules during their social science degrees had a better earning potential, and deeper understanding of the role of data, than students on similar courses:

- Q-Step helped to address the shortage of graduates with the skills to apply quantitative methods in both research and professional settings.
- Q-Step equipped students with a deep and secure grasp of the skills needed to make sense of data and a grounding in the ways that data can be used to better understand society.
- The programme increased quantitative teaching capacity at participating universities and prompted a range of further investment and initiatives designed to boost quantitative methods across these institutions, as well as in other universities and educational organisations.
- Student satisfaction levels, for Q-Step programmes, were high as a result of good quality teaching and work placements.

That programme was funded by the Nuffield Institute and the ESRC between 2013 until 2021, when universities then took over the funding of the modules. Bearing in mind the points raised in our answer to Q3 around the comparatively low number of undergraduates starting computing degrees, relaunching this, or indeed something wider, could be an answer to addressing this skills gap.

In its evaluation Technopolis pointed to the success of the programme, including the work placements approach: *'Q-Step provides a successful proof of concept for increasing the number of quantitatively skilled social scientists. A total of 1,101 students are estimated to have taken up a Q-Step degree programme in 2019/20, a fivefold increase in comparison with 2014/15. 11,171 students took up Q-Step modules in 2019/20, up from 8,813 in 2015/16 – a 27 per cent increase (based on data available from HESA).'*

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<sup>35</sup> <https://www.ukri.org/wp-content/uploads/2023/09/ESRC-181222-DataDrivenResearchSkills-ScopingReport.pdf>

<sup>36</sup> <https://www.nuffieldfoundation.org/publications/q-step-evaluation>

<sup>37</sup> <https://www.technopolis-group.com/>

As far as funding is concerned, one avenue that could be explored is a long-term programme in partnership with industry, paid for through the foundations or trusts set up by companies as part of their Corporate Social Responsibility. The incentive is that this type of scheme is equipping the workforce with the skills needed by industry, the UK economy and society. In addition, such a programme can help address the shortages of quantitatively skilled managers/ decision makers in organisations by educating them to be IT literate and skilled in using data to make vital business case decisions.

### **11. What are the barriers to R&D commercialisation that the UK government should be considering?**

In the lead-up to the Budget, scientists voiced concerns in Research Professional <sup>38</sup> that funding for the EU Horizon programme could be taken from other areas of government, such as the UK Research Innovation's grants programme, to pay for the £1 billion membership of the Horizon Programme. Whether or not this was a valid concern, this reaction illustrates scientists' uncertainty about funding.

It is estimated that, in 2020, R&D spending in the UK was equivalent to 2.9% to 3% of GDP. This was above the OECD and EU average. Among G7 nations, the USA spent the most on R&D (3.47% of GDP) followed by Japan (3.27%) and Germany (3.13%). The UK was fourth as a share of GDP<sup>39</sup> spent on R&D.

We recommend consistent, long-term funding for R&D programme, which is essential for building strong partnerships between academia, industry, and for the economy.

It's estimated £1 of R&D from public support stimulates up to £4 of private investment<sup>40</sup>. This barrier to commercialisation could be tackled by boosting investment in R&D and ringfencing the government support - providing a more stable long-term model for state investment in innovation.

Research Professional News also reported <sup>41</sup> the Science Minister Patrick Vallance is looking at considering new ways to tie R&D funding to distinct funding pots for key government missions such as green energy, or kickstarting economic growth. This could be useful, not only for the country, but also for wider commercialisation of innovation.

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<sup>38</sup> <https://www.theguardian.com/science/2024/oct/26/uk-scientists-fear-1bn-funding-cut-for-new-research>

<sup>39</sup> [https://commonslibrary.parliament.uk/research-briefings/sn04223/#:~:text=It%20is%20estimated%20that%2C%20in,%25\)%20and%20Germany%20\(3.13%25\).](https://commonslibrary.parliament.uk/research-briefings/sn04223/#:~:text=It%20is%20estimated%20that%2C%20in,%25)%20and%20Germany%20(3.13%25).)

<sup>40</sup> <https://www.ncub.co.uk/insight/unlocking-growth-the-impact-of-public-rd-spending-on-private-sector-investment-in-the-uk/#:~:text=8%20August%202024-,Unlocking%20growth:%20The%20impact%20of%20public%20R&D%20spending%20on,sector%20investment%20in%20the%20UK&text=It%20is%20well%20evidenced%20that,with%20the%20key%20findings%20here.>

<sup>41</sup> <https://www.researchprofessionalnews.com/rr-news-uk-politics-2024-9-science-minister-hints-at-new-mission-led-r-d-fund/>



A 2022 report from the Institute for Public Policy Research (IPPR) <sup>42</sup> argues that if the UK government invested more in R&D, then it would also attract more inward investment - a stated goal of the government's recent International Investment Summit.

We welcome the government's continued commitment to tax efficient investment in early-stage technology businesses through the Enterprise Investment Schemes and Venture Capital Trusts<sup>43</sup>, which are essential to attract private sector investment in digital and technology innovation.

Recent changes to the Capital Gains Tax and Carried Interest treatment for Venture Capitalists and Private Equity investment funds could disincentivise private sector investment, and this should be monitored and reviewed to ensure the UK remains a powerhouse for technology innovation.

## 5 Business Environment - Data

### 12. How can the UK government best use data to support the delivery of the Industrial Strategy?

As we said above in Q1 - data provides the evidence needed to shape policies and it must also be deployed to ensure these policies have delivered the desired results - but that will need a targeted, safe, ethical approach to collecting and sharing of data.

We recommend government focuses on the strategic areas identified in the Central Digital and Data Office<sup>44</sup> blog<sup>45</sup> :

The five key themes identified were:

- Unlocking access and breaking down silos while maintaining public trust in secure and ethical data sharing across the public sector and nationally. Which requires deployment of a scalable data library and exchange service, to transform the way Government manages public sector data.
- Delivering mission aligned outcomes fast and sustainably through a targeted approach to priority services with a focus on AI enablement, real-time data exchange and event driven architectures.
- Incentivising change with the right system-wide inputs, building a common vision and definition of value, addressing cultural barriers, and establishing strong governance and transparency that builds public trust.
- Enabling innovation and best practice at scale through legislation, policy, and standards; a skilled workforce and strong community across the public and private sectors.
- Reducing cost and increasing resilience across the public sector and UK economy with modern data architectures and infrastructure; secure by design; optimising and standardising partnering and procurement

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<sup>42</sup> <https://www.ippr.org/media-office/uk-lags-62-billion-behind-in-r-d-as-its-global-share-of-investment-falls-ippr-reveals>

<sup>43</sup> <https://www.gov.uk/government/news/boost-for-uk-growth-as-start-up-investment-schemes-extended>

<sup>44</sup> <https://cddo.blog.gov.uk/>

<sup>45</sup> <https://cddo.blog.gov.uk/2024/09/16/activating-data-for-national-benefit-and-transformed-public-services/>

We also strongly encourage government to ensure data is used in accordance with the principles laid out in the previous administrations “A Pro-Innovation Approach to AI” White Paper, published<sup>46</sup> in March 2023, which are:

- Safety, security, and robustness
- Appropriate transparency and explainability
- Fairness
- Accountability and governance
- Contestability and redress

**13. What challenges or barriers to sharing or accessing data could the UK government remove to help improve business operations and decision making?**

Please refer to our answer to Q3, which covers the need for the strategy to be aligned with the OECD Declaration on a Trusted, Sustainable and Inclusive Digital Future<sup>47</sup>.

We will give our reaction to the government’s new Data Use and Access Bill at a later date.

## **6 Business Environment - Infrastructure**

**14. Where you identified barriers in response to Question 7 which relate to planning, infrastructure, and transport, what UK government policy solutions could best address these in addition to existing reforms? How can this best support regional growth?**

Data centres consume large amounts of power, and data centre growth and the exponential increase in power and cooling demand for AI will put pressure on grid capacity and natural resources. We welcome the easing of existing planning restrictions for data centres and stress that new data centres must be built, and function, sustainably if the government is to achieve its net zero objectives.

GB Energy needs to think about smart grids and a range of innovations that can store renewable power so it can be released to meet peaks of demand to cope with the surging demand for energy this will spark.

On the plus side if we get this right, it’s estimated that because of the unprecedented demands and growth of Data Centres there is the potential for them to contribute additional billions to the UK economy by 2035, according to a new report from techUK Foundations For The Future: How Data Centres Can Supercharge UK Economic Growth<sup>48</sup>.

The report’s key findings are:

1. A Gross Value-Added boost: £44 billion additional GVA between 2025-35 from the construction and operation of data centres

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<sup>46</sup> <https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach/white-paper>

<sup>47</sup> <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0488>

<sup>48</sup> <https://www.techuk.org/resource/techuk-report-foundations-for-the-future-how-data-centres-can-supercharge-uk-economic-growth.html>

2. An employment boost: 40,200 additional jobs directly employed in (often high-paid) data centre operational roles by the year 2035; 18,200 additional jobs directly employed in data centre construction roles over the period 2025-35
3. A tax boost: an additional £9.7 billion in tax revenue generated by the industry

We would concur with many of the policy recommendations in the techUK report around sustainability, planning reforms, skills development and rewarding operators with ‘robust plans for measuring, monitoring and reporting progress on their journey towards net zero, aligning with International Sustainability Reporting Board (ISSB)’

Regarding the government’s progress so far: **National Planning Policy:** We welcome the government’s commitment to overhaul the planning regime and the recent focus on Digital Infrastructure in the consultation on Proposed reforms to the National Planning Policy Framework.<sup>49</sup> We hope this will result in providing detailed planning guidance for data centres at the planning portal level and adequate training for planning officers.

**Sustainability:** We approve of the presumption in favour of sustainable development in the draft National Planning Policy Framework<sup>50</sup>. We hope this will result in using a spatial strategy to locate data centres outside of the southeast (i.e. around London), to areas with more available land and natural resources. This can also aid regional growth, so long as there is local investment in the higher-level technology skills needed by the data centres. In addition to using sustainable materials in the construction of data centres, we advise building the capacity of incorporating waste heat into local communities should be a priority.

**Energy distribution:** The national grid needs to be AI ready and better suited to carrying renewable energy. We are pleased that the National Energy System Operator (NESO) has been formally commissioned by the government to provide advice as to how this can be achieved.

**Regulation:** The establishment of Regulation Teams by DSIT is a good starting point - we recommend a close focus on a Single Point of Failure (SPOF) for Data Centres. We would recommend a single portal for reporting and permits.

**Energy Efficiency Regulations:** Adopt and adapt energy efficiency regulations from Europe, the US, and APAC in collaboration with industry.

We agree with the recommendation in techUK’s above report which says regarding monitoring - *‘whilst it is necessary to balance the need for both lowering energy demand and decarbonisation measures to be considered and implemented, rewarding operators with robust plans for measuring, monitoring and reporting progress on their journey towards net zero, aligning with International Sustainability Reporting Board (ISSB) Standards.’*

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<sup>49</sup> <https://www.gov.uk/government/consultations/proposed-reforms-to-the-national-planning-policy-framework-and-other-changes-to-the-planning-system/proposed-reforms-to-the-national-planning-policy-framework-and-other-changes-to-the-planning-system>

<sup>50</sup> [https://assets.publishing.service.gov.uk/media/66acffddce1fd0da7b593274/NPPF\\_with\\_footnotes.pdf](https://assets.publishing.service.gov.uk/media/66acffddce1fd0da7b593274/NPPF_with_footnotes.pdf)

We would also advise a review and enhancement of government support for innovation and grant support to bridge the gap between IT services and data centres infrastructure (see more regarding support for R&D in Q11.)

In specific relation to the adoption of renewable energy by **the distribution and logistics sector**, there needs to be recognition and incentivisation of investment in commercial grade nationally accessible EV infrastructure (for haulage and last-mile logistics) and encouragement for commercial property developers, owners and operators to incorporate renewable energy generation schemes within their developments (and retrofit where possible).

Investment in large-scale solar, wind, air, and ground-source capabilities as sustainable sources of energy for industrial parks, warehouses, retail parks and other commercial/public realm real estate (hospitals, etc) should be incentivised and actively co-ordinated by the government. A co-ordinated and collaborative approach is required to boost our national distribution and logistics infrastructure to reduce reliance on diesel, including for heating and cooling and transport.

**15. How can investment into infrastructure support the Industrial Strategy? What can the UK government do to better support this and facilitate co-investment? How does this differ across infrastructure classes?**

Please see our answer to Q14

## **7 Business Environment - Energy**

**16. What are the barriers to competitive industrial activity and increased electrification, beyond those set out in response to the UK government's recent Call for Evidence on industrial electrification?**

Please see our answer to Q14

**17. What examples of international best practice to support businesses on energy, for example Purchase Power Agreements, would you recommend to increase investment and growth?**

Please see our answer to Q4

## **8 Business Environment - Competition**

**18. Where you identified barriers in response to Question 7 which relate to competition, what evidence can you share to illustrate their impact and what solutions could best address them?**

Please see our answer to Q8

**19. How can regulatory and competition institutions best drive market dynamism to boost economic activity and growth?**

- Innovation thrives on freedom and autonomy in the pursuit of a clear purpose and vision. The BCS view is that regulation should allow organisations as much freedom and autonomy as possible to innovate, provided those organisations can

demonstrate they are ethical, competent, and accountable when measured against standards that are relevant to the area of innovation.

- Pro-innovation regulation should enable effective knowledge transfer, the sustainable deployment of new technologies, as well as stimulate organisations to embrace innovative thinking as core to their strategic vision and values.
- Such principals should underpin a framework of responsible innovation that is used to inform regulators and would also present an opportunity to significantly refresh expectations for pro-innovation organisational governance across whole supply chains.

## **9 Business Environment - Regulation**

**20. Do you have suggestions on where regulation can be reformed or introduced to encourage growth and innovation, including addressing any barriers you identified in Question 7?**

The Regulatory Innovation Office should have within its remit the additional principle of

- incentivising innovation by creating a virtuous cycle of higher standards implemented through exemplary professional practice.

Refer to our answer to Q19 for further details.

## **10 Business Environment - Crowding in Investment**

**21. What are the main factors that influence businesses' investment decisions? Do these differ for the growth-driving sectors and based on the nature of the investment (e.g. buildings, machinery & equipment, vehicles, software, RDI, workforce skills) and types of firms (large, small, domestic, international, across different regions)**

Please refer to our answers to Q1, Q6, and Q8.

## **11 Business Environment - Mobilising Capital**

**22. What are the main barriers faced by companies who are seeking finance to scale up in the UK or by investors who are seeking to deploy capital, and do those barriers vary for the growth-driving sectors? How can addressing these barriers enable more global players in the UK?**

Please refer to our answers to Q1, Q6, and Q8 and Q11.

**23. The UK government currently seeks to support growth through a range of financial instruments including grants, loans, guarantees and equity. Are there additional instruments of which you have experience in other jurisdictions, which could encourage strategic investment.**

## **12 Business Environment - Trade and International Partnerships**

**24. How can international partnerships (government-to-government or government-to-business) support the Industrial Strategy?**

Please refer to our answer to Q3.

**25. Which international markets do you see as the greatest opportunity for the growth driving sectors and how does it differ by sector?**

## 13 Place

**26. Do you agree with this characterisation of clusters? Are there any additional characteristics of dimensions of cluster definition and strength we should consider, such as the difference between services clusters and manufacturing clusters?**

The Industrial Strategy states that it will ‘concentrate efforts on places with the greatest potential for our growth sectors: city regions, high-potential clusters, and strategic industrial sites.’

We welcome the statement in the foreword to this consultation of the government’s focus on ‘devolving significant powers to Mayoral Combined Authorities across England, giving them the tools they need to grow their sectoral clusters and improve the local business environment through ambitious Local Growth Plans.’

Concentrating on areas with the ‘greatest potential’ is welcome - so long as there are also strategic plans - and a paradigm shift of emphasis - to regenerate the economically inactive in some of the more deprived areas of the UK.

Improving digital skills in these areas can do much to improve access for this cohort to vital services, whether that is tackling long term disability, sickness, or mental health issues. Digital poverty is still a major issue and needs to be directly addressed so this cohort can fully participate in society and the workplace.

Analysis from the Pathways to Work Commission Report<sup>51</sup>, on behalf of Barnsley Metropolitan Council and South Yorkshire Mayoral Combined Authority, focuses on how to get people who are economically inactive back into work. Alan Milburn the former Labour MP for Darlington said in the forward to the report: *‘too much of the diagnosis about why people are economically inactive is wrong. And too much of the current prescription is making things worse not better. It is time for a radically new approach. One that is built on a new national ambition to build a more inclusive economy where people have a right to work, and an expectation that those who can, should be helped to do so.’*

The report says a *‘seismic shift is taking place beneath the surface of the UK economy’* because more than one in five working age people are out of work and not seeking a job. The report’s findings *‘suggests that seven in ten people who are currently economically inactive would like to take a job that is aligned to their skills, interests and circumstances.’* If applied nationally, the report argues, the figures suggest there may be over 4.5 million economically inactive people who could be in the market for a job now or in the future.

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<sup>51</sup> <https://www.barnsley.gov.uk/media/opbpxkz/bmbc-pathways-to-work-commission-report.pdf>

The report looks at how Barnsley - a post-industrial, former mining town - could attract private sector investment - which is central to ensuring the economic prospects of its residents.

As well as boosting overall educational attainment in preparation for better job prospects, the report states *'local agencies should focus on how to increase the number of good quality better paying jobs, including creating a national centre of excellence for digital and AI technologies.'*

That would need for residents both in and out of work to be upskilled. The report believes the *'borough would need an additional 18,500 residents with degree-level (or equivalent) qualifications to match the national average'*. And the report concludes that significant digital skills from the earliest age are vital to keep up with the technological changes that are driving new jobs.'

We conclude from research such as this that whilst concentrating on clusters that can already provide the greatest potential for economic growth, there must be an emphasis on regional cohesion and a holistic approach to regeneration in these areas. And investment for investing in digital skills, from the basics to the higher levels is essential across all types of clusters.

This will take wider cross-governmental departmental joined up thinking, and a strategy for improving digital skills. Otherwise, these areas risk being left behind.

**27. What public and private sector interventions are needed to make strategic industrial sites 'investment-ready'? How should we determine which sites across the UK are most critical for unlocking this investment?**

See question Q14, 26 above

**28. How should the Industrial Strategy accelerate growth in city regions and clusters of growth sectors across the UK through Local Growth Plans and other policy mechanisms?**

See question 26 - and to emphasise that the government should be clear and inclusive in its approach to avoid leaving areas behind as the rate of technology changes gathers pace.

**29. How should the Industrial Strategy align with devolved government economic strategies and support the sectoral strengths of Scotland, Wales, and Northern Ireland?**

Consultation with the devolved nations is vital and central to the government's commitment around multi-stake-holder commitment, and lessons can be learnt from the different strategies deployed by the devolved nations and vice versa. BCS has strong membership hubs in the devolved nations and our experts would be more than happy to be involved in any cross border or devolved nations' consultations.

## **14 Partnerships and Institutions**

**30. How can the Industrial Strategy Council best support the UK government to deliver and monitor the Industrial Strategy?**

The suggestion in the Green Paper that there could be a ‘new approach to business engagement, setting out best practice and simplifying routes to engagement.’ We would support this as it would provide a forum for the Industrial Strategy Council to hear from experts in the field - in our case, technology, innovation, professionalism, and the digital skills gap.

We recommend a strong engagement with professional bodies such as the BCS, amongst others, as we bring together industry, academics, practitioners, and the government to share knowledge, promote new thinking, and to inform and shape public policy. BCS has over 70,000 members including businesses, entrepreneurs, public sector leaders, academics, educators, and students - all of whom can give valuable insights to the Industrial Strategy Council and give their informed reactions to the delivery of the Industrial Strategy. Our members also work across several sectors, including education, digital skills to more specialist areas such as AI, cyber-security, and data. We are a valuable resource, and our expertise and policies can inform cross-departmental government thinking.

### **31. How should the Industrial Strategy Council interact with key non-government institutions and organisations?**

The role of BCS, and other professional bodies, can play a strategic role in the development and delivery of the Industrial Strategy. As such, we recommend holding regular specific meetings with us where we can systematically address the key tech opportunities and challenges of the Industrial Strategy.

In addition, the National Engineering Policy Centre<sup>52</sup>, of which BCS is a partner, brings engineering and technology thinking to the heart of policymaking, creating positive impacts for society. The NEPC has a membership of over 450,000 of the engineering workforces. With the NEPC we are in a partnership of 42 professional engineering organisations that cover the breadth and depth of our professions, led by the Royal Academy of Engineering. Together we provide insights, advice, and practical policy recommendations on complex national and global challenges. The National Engineering Policy Centre say it would be pleased to offer its services to the Industrial Strategy Council, both as a source for insights and collaborative policymaking, but also as a route to the partners of the Policy Centre to connect with their specific and extensive expertise, many of whom have international footprints.

### **32. How can the UK government improve the interface between the Industrial Strategy Council and government, business, local leaders and trade unions.**

BCS has over 50 specialists’ groups<sup>53</sup>, and several industry-based networks which we either convene or belong to. We have previously, for instance, worked with the TUC on its AI Employment Bill. BCS membership includes many leading industry experts, and regional and devolved nations’ branches. Our members would be more than willing to engage with the Industrial Strategy Council to provide or place-based expertise.

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<sup>52</sup> <https://nepc.raeng.org.uk/>

<sup>53</sup> <https://www.bcs.org/membership-and-registrations/member-communities/>



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