

Science  
Industry  
Partnership

**Strategic Skills  
Action Plan**

Supported by

**Cogent skills**  
for science industries



The SIP Strategic Skills Action Plan is positioned at the heart of the Government's post-16 Reforms and is ensuring a clear sectoral connection to both Government Industrial Strategy and its broader productivity agenda.

The Plan aims to develop the skills for a strong industrial economy, encouraging innovation, boosting productivity and creating opportunities for young people in science. This will be delivered through designing new technical routes, with high quality training delivered through Apprenticeships, investing in specialisms and in highly skilled vocational learning.

It makes clear that the public and private sectors must come together on developing and implementing policy – from ensuring a robust system for Technical Education to a clear and employer-backed plan for Brexit to limit uncertainty and drive growth.

SIP employers have come together to take responsibility for the skills they need to grow excellence – ensuring a demand led education infrastructure – securing the skills needed for UK competitiveness. We are determined to make technical education an option that leads to long term success and to support the continued delivery of lasting change in the skills system. We want to create more opportunities for young people regardless of background or academic achievement. We want to develop a skills system and a range of learning opportunities that is open and fair to all.

The Science Industry Partnership has already developed a comprehensive Skills Strategy for the science industries, setting out the skills required through to 2025. This Strategic Skills Action Plan builds upon this strategy, outlining the actions needed to address the skills gaps and challenges faced by the sector to create a pipeline of high quality home grown talent. It is directed at aligning people and skills development to wider industry growth, innovation and productivity challenges, helping to create a vibrant science economy that will shape Britain's future.

The Action Plan sets out clear objectives around which the key actions are focussed to achieve the sectors' skills ambitions– ranging from raising standards and embedding vocational skills into education, to upskilling the current workforce and promoting the wide variety of science related careers. It also aims to monitor and ensure the supply of skilled people in to shortage or “red list” occupations such as Computational Scientists, Health Economists, Formulation Scientists, Control and Instrumentation Engineers and Process Safety Engineers. It sets out to future-proof the skills agenda by driving up provision to meet the needs of these skills shortage occupations and develop new, multidisciplinary skill sets for emerging technologies in areas such as Advanced Therapies, Decarbonisation technologies and Industrial Biotechnology.

This document identifies a range of employer-led activities for attracting young people into jobs across the sector, creating new jobs, increasing and supporting Apprenticeships, developing graduate employability and embedding work placements in relevant degrees. It also seeks to ensure training for the current workforce is standards-led, and is taking action to build HE programmes around strategically important subjects.

I would like to express my gratitude to everyone who has worked on the Action Plan. Above all I am immensely indebted to the individuals and organisations who contributed to the consultation and with whom we will continue to work as we implement the strategy.

**Malcolm Skingle**  
**Director, GSK and**  
**Chair of the SIP Board**

# Science Industry Partnership Vision



The SIP's Vision remains "Employers taking ownership of the skills needed to generate innovation and growth in the UK science industry". Through the SIP, companies from across the sector have come together to take responsibility for skills. Our ambition is to ensure we are producing home grown talent to meet the sector's demand for skills and to achieve greater innovation, as well as to secure transferable and multidisciplinary skills throughout the sector. We also recognise we need to influence policy, to ensure the right environment and infrastructure is in place for such skills to take root.

## To achieve this vision the SIP Skills Strategy 2025 set out the following Strategic Objectives:

- 1. Secure and embed vocational skills in the workforce through raising standards and responsiveness in education and training provision**
- 2. Build and update the transferable skills base in the science based workforce**
- 3. Provide mechanisms for the upskilling of the existing scientific workforce**
- 4. Attract young people to the Science Industries**
- 5. Monitor and respond to emerging skills needs**

These objectives will be delivered via a broad range of commitments and collaboration with partners; collectively these commitments are aimed at creating a highly skilled and highly productive science-based economy, where diverse talent can flourish and contribute to success.

# Background and Context

From the Apprenticeship levy to Brexit, the shifting policy and skills landscape will mean change ahead for the science industries. This Strategic Skills Action Plan takes account of the implications for industry around the key challenges the sector is facing.

In recent months, the UK has witnessed the outcome of the referendum on European Union membership – which sees us moving towards a “Brexit”. We’ve also seen the publication of the Sainsbury Review – which set out the most significant transformation of post-16 education in decades, and of course April 2017 sees the introduction of the Apprenticeship levy.

Skills are now entirely under the remit of the Department for Education (DfE) having been moved from the control of the former Department for Business, Innovation and Skills (BIS) – since replaced by the Department for Business, Energy and Industrial Strategy (BEIS). On the face of it the opportunities created by integrating HE, FE, Skills and Apprenticeships with schools could bring a more seamless approach to transitioning from learning to work, and reflects the ambition of the Government’s recent Post 16 Skills Plan.

However, the SIP is clear that there needs to be a continued strong link between Skills and Industrial Strategy and this plan sets out to engage with and work closely with both BEIS and the DfE to support their ambition and ensure the clear overlap is factored into policy thinking.

The Science Industry Partnership Strategic Skills Action Plan ensures that its strategic objectives are fully aligned with the key policy developments and opportunities in the wider landscape:

## Apprenticeship levy

The Government has of course confirmed its Apprenticeship levy is going ahead as planned. While it is focused on larger employers, it is also linked to a wider Apprenticeship reform agenda that impacts on all employers.

This Plan is aimed at managing all the risks involved, so we make a successful transition to the new system and ensure it is responsive to employer’s needs. The actions include establishing an employer support function, via an Apprenticeship Training Agency (ATA) to ensure science employers maximise value and quality. The Plan also proposes that a mechanism is introduced to ensure levy raised from science companies is spent within the sector and that employers are supported to use levy funding for in-company delivery of training.

## Post-16 Skills

Earlier this year we saw the publication of the long-awaited report from the Sainsbury Review of Technical Education and the resulting Government Post-16 Skills Plan. The SIP believes this Post-16 Skills Plan is good news for learners and employers, as it provides an unprecedented opportunity to position academic and technical qualifications on an equal footing. The core of the Plan sees the development of 15 new “pathfinder” technical routes, which include STEM options in Health and Science and Engineering and Manufacturing.

The SIP has stepped forward as a ready-made employer panel to lead on STEM Standards for the new routes; it will work with Government on the Post-16 Skills Plan to influence the development of policy that supports delivery of the sectors’ skills priorities, including provision for specialist and emerging skills.

## New Standards

The overall objective of the new Apprenticeships standards is to ensure that Apprenticeships are truly employer led. The SIP will work with the new Institute for Apprenticeships and Technical Education to develop new Apprenticeship Standards, shape the learning and set out universally agreed standards for the new Post-16 routes proposed. It will also ensure national standards are linked to appropriate professional accreditation and professional registration. In addition, the SIP’s Occupational Map for the Science Industries will support the development of necessary Apprenticeship Standards and Technical routes and identify links between nations’ standards. The Map, associated job descriptions, gap and demand analysis will enable the prioritisation and development of the new Apprenticeship Standards through an Apprenticeship New Standard Development Plan. This in turn will enable employers to make effective use of the levy for Apprenticeships.

## Higher Education (HE)

In May, the former Department for Business, Innovation and Skills (BIS) published its HE White Paper, Success as a Knowledge Economy: Teaching Excellence, Social Mobility and Student Choice. The SIP is highly supportive of the Paper’s focus on ensuring students are prepared for the world of work. Support and significant ambition for Student Internships in industry, Degree Level Apprenticeships and specialist Masters Level courses are a key feature of the Strategic Plan. The SIP is also establishing an HE Group to bring academia, industry and stakeholders together to take action on higher level skills.



## Productivity and Industrial Strategy

We know that boosting productivity\* is the economic challenge of our age and is a major focus for Government. Indeed growing productivity has been stated as “the key to ensuring that Britain is the most prosperous major economy in the world by the 2030s”. This Strategic Skills Action Plan focuses on training that meets industry needs and getting people into jobs and good careers – so productivity will follow. A responsive and demand-led system is a critical to delivering productive people.

Industrial Strategy is also the watchword of the current Government and the sector is keen to define, with Government, what success looks like, and to ensure a joined up approach that works across the sector and its supply chain, and importantly has a horizon beyond a single Parliament.

## Funding

Devolution deals are providing specific localities with the power to make their own funding decisions and there are clear actions to seek out local funding opportunities, for example to work with Local Enterprise Partnerships (LEPs) on industry priorities. The SIP has successfully bid for a number of local projects which are delivering science skills into the sector and the Plan has a clear purpose to continue this work.

## Brexit

The SIP is seeking clarity on the skills agenda post “Brexit”. Areas under the spotlight for the science industries include what the decision means for EU nationals working in the UK and intra-company transfers, the ability to recruit skilled individuals and the impact of Brexit on UK Science. The UK has a world leading science base – but a key concern is continued access to talent. This is supported by the SIP’s recent research which forecasts the sector’s demand for skilled people out to 2025 – a projection of between 180,000 - 260,000 new scientific staff, many in new technology-based occupations.

This Plan recognises the need to be proactive and to work with the Government and partners to ensure the very best environment for science-based companies.

This Plan sets out a clear role for the SIP in the influencing, shaping and implementation of UK Skills Policy, together with a range of collaborative actions to attract young people into the sector and ensure the current workforce is equipped with the most up to date skills.

It is aimed at both ensuring the sector’s skills requirements are not adversely affected by leaving the EU and to working with Government to build an Industrial Strategy.

We must take collaborative and decisive action on the UK’s science skills base to ensure the sector continues to offer opportunities to all who want to be part of a skilled and highly productive scientific workforce.

## SIP Skills Strategy Forecasts



# 180,000 to 260,000

Overall the science industries cumulative demand for staff between 2015 and 2025 will be in the range of 180,000 to 260,000.



# Up to 142,000 professional level jobs

Within these totals, between 96,000 to 142,000 are professional level jobs (broadly equating to graduate entry roles).



# Up to 73,000 technical level jobs

50,000 to 73,000 are technical level jobs (broadly apprentice entry roles).



# Up to 77,000 new jobs created

The majority of demand will be replacement demand for people leaving the industry (largely due to retirement) accounting for between 177,000 to 185,000 jobs across the science industries by 2025. New jobs created due to growth will account for up to 77,000 jobs.

\* <http://bit.ly/FixingtheFoundations>

# Strategic Skills Action Plan

Skills Strategy Strategic Objective	Strategic Actions	Action supported by
1) Secure and embed vocational skills in the workforce, through raising standards & responsiveness in education & training provision	1.1 Establish an employer apprenticeship support offer through the Science Industries Apprenticeship Training Agency (ATA) supporting the sector to get best value and quality for the sector	SIP Apprenticeship Working Group (SAWG)
	1.2 Identify regional skills funding opportunities and access these, with the support of SIP members, to deliver solutions to science industry skills priorities	SIP, LEPs
	1.3 SIP to support the Institute for Apprenticeships & Technical Education through the development of an occupational map, Trailblazer Standards and the new Technical Pathways for Further Education (FE)	SIP, Life and Industrial Science Trailblazer Group, SAWG, DfE
	1.4 Create a network of industry partners and stakeholders working collaboratively on the development of science skills to optimise activity and provide consistent messages on the skills needs of the sector	Cogent, with Professional Bodies, Trade and Cluster Associations
	1.5 Aggregate employer demand through the SIP to create a critical mass of learners, stimulating responsive high quality local and regional provision	Cogent
	1.6 Promote and grow a national SIP assured provider network, delivering easy access to vocational training and CPD	SIP
	1.7 National apprenticeship Standards to be linked to appropriate professional accreditation and professional registration	Professional Bodies
2) Build and update the transferable skills base in the science based workforce	2.1 Establish a SIP HE skills group to bring academia, industry and stakeholders together to agree and take action to meet higher level skills requirements, including the development of Higher and Degree Apprenticeships	SIP HE Skills Group
	2.2 Expand the availability of placement opportunities to enhance graduates practical and transferable skills, and quality assure the relevance of work experience gained through completion of the SIP Graduate Output Profile	Cogent Industry Academia
	2.3 Professional bodies to extend and update degree accreditation criteria to meet employer skills needs, to include: <ul style="list-style-type: none"> <li>– Multidisciplinary skills</li> <li>– Mathematical and statistical skills</li> <li>– Computing skills</li> </ul>	Professional Bodies
	2.4 Ensure relevant Apprenticeship and Technical Education Standards include: <ul style="list-style-type: none"> <li>– Appropriate mathematical, statistical and computing skills</li> <li>– Enhance transferable skills through embedded behavioural competence</li> </ul>	Life and Industrial Science Trailblazer Group, SAWG, DfE, Professional Bodies, The Tech Partnership
	2.5 Support the development of training provision facilitating the transfer of skilled staff from established industries into emerging areas e.g. Pharmaceuticals to Advanced Therapy Medicinal Products (ATMPs), Oil and Gas to Industrial Biotechnology	Cogent SIP
	2.6 Work with regional partners and stakeholders to identify and publicise funding streams to support short course training needs for the SME workforce	Cogent
	2.7 Support identification of and access to commercialisation training, especially for SMEs	Cogent



Skills Strategy Strategic Objective	Strategic Actions	Action supported by
<p>3) Provide mechanisms for the upskilling the existing scientific workforce</p>	<p>3.1 Promote the use of online learning and multi-media platforms for the science sector workforce</p>	<p>Cogent, Professional Bodies</p>
	<p>3.2 Make a proposal to Government regarding the apprenticeship levy, to:            – Ensure levy raised from science companies is spent within the science sector            – Enable in-company delivery of training</p>	<p>SIP</p>
	<p>3.3 Develop Apprenticeship Standards to allow companies to use levy funding to provide CPD training to the existing workforce</p>	<p>Life and Industrial Science Trailblazer Group, SAWG</p>
	<p>3.4 Support Professional registration as a mechanism to ensure continual upskilling of the workforce through CPD</p>	<p>Professional Bodies, supported by industry</p>
<p>4) Attract young people to the Science Industries</p>	<p>4.1 Build understanding of the value of vocational learning as a pathway to higher level qualifications and successful careers through the identification, mapping and promotion of good careers schemes</p>	<p>SIP Careers Group, STEM Learning, Professional Bodies, Trade Bodies</p>
	<p>4.2 Grow the SIP STEM Ambassador Network to include representation across the science industry subsectors</p>	<p>SIP Careers Group, STEM Learning</p>
	<p>4.3 Develop and promote a work experience structured programme to support more companies to offer opportunities</p>	<p>Cogent, MMIP</p>
	<p>4.4 Promote social mobility and diversity in the sector through:            – Fair and equal apprenticeship promotion, recruitment and selection processes            – Supporting staff from under-represented groups to become SIP Ambassadors</p>	<p>Industry, STEM Learning 'Insight into Industry' Scheme, SIP Careers Group, SAWG</p>
<p>5) Monitor and respond to emerging skills needs</p>	<p>5.1 Conduct an annual review, working with the Ministerial Councils, of the SIP Red, Watch and Wish Lists <sup>1</sup></p>	<p>Cogent SIP Members</p>
	<p>5.2 Support the development of solutions to meet demand for technology specific skills e.g. skills for development and deployment of decarbonisation technologies for energy intensive industries and specialist regulatory and sterile manufacturing knowledge for ATMP's</p>	<p>Cogent, Industry, Professional Bodies, Catapults</p>
	<p>5.3 Develop and communicate our understanding of the effect of Brexit on the sector, assessing the impact on skills</p>	<p>SIP, coordinating with trade &amp; Professional Bodies / sector organisations</p>

<sup>1</sup> The Red List denotes those areas and occupations identified in the SIP Skills Strategy with immediate shortages, requiring immediate action. The 'Watch List' denotes those occupations where possible future shortages are anticipated. The 'Wish List' denotes those areas where multidisciplinary skills are in high demand, but rarely available.

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