Foreword

The Health and Safety Executive’s (HSE) mission is “The prevention of death, injury and ill health to those at work and those affected by work activities”. It delivers this mission through regulation, policy, engagement, inspection, enforcement and commercial activity, and in each of these areas the approach taken is underpinned by science and evidence. This Science and Evidence Delivery plan outlines the areas where HSE will be investing its resources to provide support for these activities over the coming year.

When considering the breadth of areas that this science and evidence delivery plan covers, we have acted to ensure that the mix of activities will support ‘Helping Great Britain Work Well’ – the strategy for the health and safety system. This includes both helping to anticipate future challenges to health and safety, and delivering today’s needs including investigating workplace incidents and disseminating lessons learned. To help ensure an appropriate balance in our portfolio of scientific work, we have restructured it into six Science Hubs each of which is led by a Science Hub Lead. The Hub Leads have discussed the content of each programme with internal and external stakeholders to ensure that our scientific activity is prioritised according to the needs of HSE, and is aligned with our Science and Evidence Strategy and Investment Plan. Furthermore, they have considered the need to be prepared with the right evidence to support the rapid deployment and delivery of new technologies, industrial processes and ways of working, which included making use of our first Foresight Report. You can read more about our Hub Leads in our 2017 Science Review.

In delivering this science and evidence plan, it is important that we understand the context in which the knowledge we generate will be used, and the stakeholders that will use it, both in HSE and those in the wider health and safety system. Therefore, as this delivery plan progresses, we will be considering better ways of communicating what we do to ensure that the evidence is available in a format that matches stakeholders’ requirements and helps ensure the outputs are used to underpin longer-term impacts on health and safety. This will include a more detailed consideration of how we communicate uncertainty in the evidence base, so that the information can be used to inform effective decision making in either the policy or the operational delivery areas. We will also make use of our national and international scientific networks to prevent duplication of effort where we can and to ensure that we are making best use of knowledge generated by both ourselves and others in our field.

Over the last twelve months, we have also been developing approaches that are enabling other stakeholders to invest and collaborate in our research activities through our programme of ‘Shared Research’. This has helped us to establish some projects which are jointly sponsored by HSE (as the regulator) and other stakeholders, including the “regulated”. In doing so, we gain the knowledge and experience of industry, regulators and other Governments to help shape and steer the programme, and the sponsors gain early insight into the findings of the research activity. We will continue to offer new opportunities for others to contribute to the delivery of this plan.

Science, and the evidence it provides, are crucial in GB’s goal-based regulatory regime for health and safety at work. In today’s world, the pace of change is such that innovation requires a modern regulator not only to learn from the past, but also to consider the risk landscape that will be presented by the future world of work. I hope that the delivery of this science and evidence plan will help us to achieve that aim, and to keep GB working well.

Professor Andrew Curran,
Chief Scientific Adviser and Director of Research
Regulatory frameworks which are fit for the future

Vision: Regulatory frameworks which are fit for the future ensuring health and safety compliance and enabling innovation in the workplace.

The aim of the programme of work in this science hub is to further develop our understanding of the current and future world of work and to ensure that our regulatory framework is fit for purpose. In recent years, HSE has undertaken an extensive review of health and safety regulations and has simplified the regulatory framework, making legislation easier to understand and comply with. We will continue with this work, ensuring science, engineering evidence and analysis underpins and makes a significant contribution to the government’s better regulation agenda and Business Improvement Target.

Research in this science hub will be developed to understand how well current regulatory frameworks can accommodate expected trends in work demographics, working patterns, technologies, health hazards, new uses for old substances and how regulatory frameworks may need to change. It will also provide the evidence base to target improvements in regulation where required. We will develop evidence for innovative approaches to regulation through further collaboration across HSE and other government departments, to make sure we maintain our world-class reputation for regulatory excellence.

Our operational scientific expertise will be used to support regulation of the Electromagnetic Fields Regulations and the policy development and operational implementation of the Ionising Radiation Regulations and the Radiation Emergency Preparedness and Information Regulations. Operational specialist expertise on cybersecurity will be developed in-house to allow us to engage with key stakeholders (government and industry) to influence both policy and operational delivery. We will develop further our understanding of risk control, risk perception and risk communication to underpin regulatory frameworks. Work in this science hub links to the following key action in HSE’s Business Plan:

- Provide an effective regulatory framework
- Sustaining regulatory excellence

Our priorities for 2017/18

- Develop an improved approach to using our evidence base to inform future regulatory approaches to ensure serious risks are diagnosed and proportionate action is taken.
- Provide analytical support to policy development including impact assessments (IAs) and post-implementation reviews.
- Contribute to the government’s work on the UK’s exit from the European Union, including preparing for any necessary changes to the chemicals regulatory regime.
- Conduct a series of debates across HSE focussing on policy, new technology and alternative modes of regulation to build evidence to support innovation within our regulatory approach.
- Deliver workshops to engage with thought leaders and industry about improvements to our regulatory approach, ensuring a wide range of views are considered and any change in process is appropriate and proportionate.
## Our key projects for delivery 17/18 and beyond

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact &amp; analysis</strong></td>
<td>Making the best use of statistical evidence, economic and social analyses e.g. final-stage IAs for Gas Safe (Installation and Use) Regulations (GSIUR) and for the transposition of the Basic Safety Standards Directive</td>
<td>On-going</td>
</tr>
<tr>
<td><strong>International standards</strong></td>
<td>Development of a methodology to establish and evaluate risk zones around large rigid frame dump trucks</td>
<td>Q1¹</td>
</tr>
<tr>
<td><strong>Regulatory approaches</strong></td>
<td>Agree a research programme using outputs from the science hubs and Foresight Centre to develop an improved approach to our use of evidence in future regulatory approaches</td>
<td>Q3</td>
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<tr>
<td></td>
<td>Inspection principles for the assessment of initial integrity in chemical and petrochemical plant</td>
<td>Q3</td>
</tr>
<tr>
<td></td>
<td>Develop an understanding of the current use of biocides in food contact applications to inform HSE’s regulatory approach</td>
<td>2018</td>
</tr>
<tr>
<td><strong>Local exhaust ventilation (LEV)</strong></td>
<td>Investigate the feasibility of using effective commissioning of LEV to establish benchmarks for performance monitoring and potentially replace the need for annual statutory TExT</td>
<td>2018</td>
</tr>
</tbody>
</table>

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1. The dates given for all delivery/milestones are based on the latest information and therefore subject to change.
The right evidence for the future

Vision: To take a long term view on the development of the evidence base that can support HSE’s long term strategic approach.

HSE’s work is underpinned by robust scientific evidence. Our evidence needs often change to reflect the rapid and complex changes in the workplace, workforce, working patterns and the working environment, and, as a result, the changes of priorities and prevention strategies. Our aim to ensure that in developing the evidence base this will continue to fit current priorities and prevention strategies and is flexible enough to adapt to any future changes. To ensure our evidence gathering systems continue to be effective and efficient, the evidence base development will need to be more coherent, strategic, future-proofed and focussed on priority areas. We will also share some of our technical expertise in data analytics with other regulators and enhance our regulatory intelligence networks.

We will develop a measurement strategy and an associated research programme to enable us to measure the impact of our activity on short term workplace behavioural changes and risk exposure reduction, as well as on long term outcomes related to the prevention of work-related ill health and injury. Specifically, a suite of leading indicators will be developed to measure the success of our interventions relating to our Health and Work programme.

The major benefit arising from this hub will be that HSE’s priorities, targeted interventions and decisions will be informed by more robust evidence, and the impact of our various activities can be better evaluated.

Work in this science hub links to the following key actions in HSE’s Business Plan:

• Sustaining regulatory excellence
• Lead and engage with others to improve workplace health and safety

Our priorities for 2017/18

• Collect, compile and publish statistics on work-related ill health, injuries and associated impacts.

• Develop a measurement strategy for the Health and Work programme, including the priority areas of stress, musculoskeletal disorders and occupational lung disease.

• Provide on-going reactive statistical and analytical support to HSE’s policy, sector and operational teams.

• Explore a fit for purpose, forward-looking occupational health surveillance system for HSE.
## Our key projects for delivery 17/18 and beyond

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National statistics</strong></td>
<td>Publish a suite of health and safety statistics</td>
<td>Q3</td>
</tr>
<tr>
<td><strong>Data collection</strong></td>
<td>Collating all recent HSE derived occupational hygiene-related isocyanate data</td>
<td>Q1</td>
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<tr>
<td></td>
<td>Scoping study to identify and evaluate options for gathering operational intelligence in major hazard works</td>
<td>Q3</td>
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<tr>
<td></td>
<td>Pilot data-sharing platform with other government departments</td>
<td>Q4</td>
</tr>
<tr>
<td></td>
<td>Updating the HSE evidence base for wood dust exposure</td>
<td>On-going</td>
</tr>
<tr>
<td><strong>Indicators</strong></td>
<td>Develop suite of indicators and plans for research, data collection and reporting to support the measurement and evaluation of HSE’s Health and Work programme</td>
<td>Q3</td>
</tr>
<tr>
<td><strong>Risk assessment</strong></td>
<td>Assessment of risks at fairground rides</td>
<td>Q1</td>
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<tr>
<td></td>
<td>Chlorine dispersion modelling</td>
<td>Q3</td>
</tr>
<tr>
<td></td>
<td>Consent applications and production of planning zone maps</td>
<td>Q4</td>
</tr>
<tr>
<td><strong>Analytic and modelling</strong></td>
<td>Building Information Modelling – how new technology can improve health and safety outcomes in construction</td>
<td>Q2</td>
</tr>
<tr>
<td><strong>Methodology</strong></td>
<td>Development of a dustiness proficiency testing scheme</td>
<td>Q4</td>
</tr>
<tr>
<td><strong>Occupational health surveillance</strong></td>
<td>Feasibility of developing a national exposure intelligence system</td>
<td>On-going</td>
</tr>
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**Links to #HelpGBworkwell**
The impact of demographic change on the health and safety of the future workforce

Vision: To provide a body of evidence that supports mitigation, prevention and management of the impact of demographic changes on the health and safety of the future workforce; that informs interventions and solutions and positions HSE as the thought leader in this area.

A future health and safety challenge is how to manage the risks arising from changes in the demographic profile of Great Britain's workforce. The aim of this science hub is to identify emerging hazards and risks arising from these changes, including consideration of the interaction between demographic changes, and changes to the work environment and work organisation. The topic of demographics is typically considered to involve the statistical study of human populations (e.g. in terms of size, distribution and characteristics), but we are adopting a wider interpretation of the term to cover contextual factors (e.g. changes in the workplace, including technological change and changes in exposures) and factors such as skills.

The longer term aspirations for the demographics programme of work are to mitigate, prevent and manage the impact of demographic changes on the health and safety of the workforce and help optimise efficient and productive future working while minimising adverse health effects. The outputs from the programme will inform appropriate interventions and solutions and position HSE as the thought leader in the area of demographic change. Dutyholders will be better prepared and use appropriate interventions and solutions to manage demographic risks; demographics evidence will be used to support delivery of commitments in our sector action plans and our policy making will be informed by demographic, and foresight evidence and relevant for the future workforce.

There are ten areas where gaps in demographics knowledge and evidence have been identified, these are: Understanding and managing extended working lives; Competency and skills for the world of work; Risk attitudes and behaviours; Working with chronic conditions; Impact of technology; Insecure and remote working; Impact of sedentary work; Impact of occupational exposures on working for longer; Women's health; and Understanding and managing communication and engagement in the future workforce. Gaining knowledge now about the health and safety implications of extending working lives in particular, is becoming more important as people work in to older age, with the increased likelihood of having chronic conditions. We also need to understand the extent to which safety culture and attitudes to risk and risk behaviours may be changing, or are likely to change in the future, as multiple generations work together and as technology changes where, and how, work is done.

Work in this science hub will link to the following actions in HSE's Business Plan:

- Secure effective management and control of risk
- Lead and engage with others to improve workplace health and safety

Our priorities for 2017/18

- Understanding and managing extended working lives (including understanding the impact of occupational exposures on working for longer, and working with chronic conditions).
- Competency and skills for the world of work.
- Understanding the health and safety impact of a 24/7 ‘always on’ working culture (e.g. by age and gender) - how employers manage 27/7 working and how workers cope with the demands of it.
- Risk attitudes and behaviours.
Research questions have been identified for each of the ten areas where there are gaps in demographics knowledge and evidence. For 2017/18 these questions will be used to inform the development of project proposals under the four priorities listed above. These priorities predominated in the synthesis of scientific evidence and stakeholder input from recent HSE workshops.
The right intervention strategy for the British industrial asset base

Vision: Effective intervention strategies that enable innovation with the British industrial asset base whilst minimising risk and improving occupational health and safety.

Great Britain has many highly specialised industries, which are strategically important to the country’s economy and social infrastructure e.g. oil and gas, chemicals, explosives, mining and the bioeconomy. These sectors can potentially cause great harm to their workers, the environment and the public if not properly managed. New technologies are being introduced to secure future energy supply (e.g. onshore exploitation of shale gas), reduce carbon emissions (e.g. renewables) and improve productivity. Work in this science hub will ensure that HSE has the science and evidence needed to underpin our policy in these specialised sectors and to support operational activities now and in the future.

Our work will focus on developing our understanding of how materials and structures degrade over time (asset life extension and decommissioning); informing risk based inspection using non-destructive and autonomous techniques and how designers and manufacturers contribute to improvements in occupational health and safety.

We aim to have improved evidence on the emerging risks from new technologies, advanced manufacturing methods and ageing infrastructure, giving dutyholders and stakeholders a better understanding of their potential impact.

Work in this science hub links to the following key actions in HSE’s Business Plan:

- Reduce the likelihood of low-frequency, high-impact catastrophic incidents
- Secure effective management and control of risk

Our priorities for 2017/18

- Support the key elements of leadership, worker involvement, competence and asset integrity across all major hazard sectors.

- Focus on decommissioning and ageing infrastructure, and the integrity of new assets and emerging technologies.

- Provide scientific support where required to targeted interventions focusing on the control of high-consequence risks from cooling towers, fairgrounds and major construction projects.
## Our key projects for delivery 17/18 and beyond

<table>
<thead>
<tr>
<th>Degradation</th>
<th>Investigate root causes of valve degradation and failure</th>
<th>Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assessment of tower crane slewing brakes to inform update of relevant standard</td>
<td>Q2</td>
</tr>
<tr>
<td></td>
<td>An investigation of the degradation of underground polyethylene pipework for LPG conveyance</td>
<td>2018</td>
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<tr>
<td></td>
<td>Conduct an integrity assessment of bolts used for flanged joints on offshore installations</td>
<td>2018</td>
</tr>
<tr>
<td></td>
<td>Investigate chloride stress corrosion cracking in stainless steels at ambient temperatures</td>
<td>2019</td>
</tr>
<tr>
<td>Vapour cloud explosions</td>
<td>Understanding the factors that affect severity of VCE</td>
<td>2019</td>
</tr>
<tr>
<td>Explosives</td>
<td>Review of quantity distance (QD) relationships for explosives</td>
<td>Q3</td>
</tr>
</tbody>
</table>

## Links to #HelpGBworkwell

![Link Icons]
Vision: To identify, develop and analyse the evidence base needed to help people in the health and safety system ensure a healthy productive workforce.

We will commission work in this science hub to identify and develop the evidence necessary to implement our Health and Work programme, and more widely, to help people in the health and safety system take greater responsibility for health at work. The Health and Work programme will focus on reducing levels of work-related stress, musculoskeletal disorders (MSD) and occupational lung diseases. These conditions are widespread, have life-limiting or life-altering impacts, and have the greatest economic consequences.

Despite these occupational ill health conditions being extensively researched internationally, significant evidence gaps remain, in particular with respect to the contemporary situation in Great Britain, in respect of practical and effective control measures, presenteeism and evidence-based evaluations of successful interventions. The rapidly changing nature of work means that in the future, other health issues, such as ageing workforces, obesity, sedentary behaviour and cardiovascular disease, may become increasingly important.

We will collate health outcome data (e.g. self- and doctor-reported symptoms, lung function, X-rays and other types of health surveillance data) to identify and better understand current and future health trends and issues. Understanding the interaction between work and non-work factors on chronic health conditions will also be a focus of work in this science hub. We also hope to catalyse engagement with dutyholders and other stakeholders to take greater responsibility for health at work.

Work in this science hub area links to the following key actions in HSE’s Business Plan:

- Lead and engage with others to improve workplace health and safety

Our priorities for 2017/18

- Provide evidence and analysis to support the implementation and evaluation of the Health and Work programme and sector plans; provide technical support for inspection activity relating to the programme.

- Improve our understanding of the future nature and burden of occupational health risks taking account of the future world of work.

- Improve our understanding of the consequences of work-related ill-health including on quality-of-life/well-being and impacts on productivity and employment.
### Our key projects for delivery 17/18 and beyond

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health &amp; Work programme</strong></td>
<td>Agree a supporting science and evidence programme with opportunities for shared research</td>
<td>Q2</td>
</tr>
<tr>
<td><strong>Occupational lung disease</strong></td>
<td>Professional cleaning and occupational risks for asthma and occupational risks for asthma. Measurement of ambient levels of asbestos in workplaces. Exposure and respiratory health in brick manufacturing, foundries and stone workers. Collaboration with occupational health providers and the British Thoracic Society to obtain X-rays from workers undergoing health surveillance and from cases of silicosis being treated by respiratory specialists.</td>
<td>Q4 2018 Starting 2017/18</td>
</tr>
<tr>
<td><strong>MSD</strong></td>
<td>Updating and digitalisation of the Manual handling Assessment Charts (MAC) Tool. Understanding barriers to reducing MSD in the food and drink industry; investigation of the feasibility of using consumer-focused wearable electronic devices to collect MSD exposure data.</td>
<td>Q2 2018 Q3</td>
</tr>
<tr>
<td><strong>Stress</strong></td>
<td>Longitudinal evaluation of the Management Standards pilots in healthcare, education and prisons. Feasibility study - health and well-being outcomes following adoption of the Management Standards approach in HSE. Collation, evaluation and benchmarking of data obtained through digital versions of the Management Standards tools.</td>
<td>Q1 2018 Q4 Starting 2017/18</td>
</tr>
<tr>
<td><strong>Future world of work</strong></td>
<td>Development of a chronic occupational disease model. Feasibility study - the impact of sit-stand desks on sedentary behaviour, health and well-being. Attitudes to health and safety in apprentice workers.</td>
<td>On-going Q4 Starting 2017/18</td>
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**Links to #HelpGBworkwell**

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- ![Link Image](https://via.placeholder.com/150.png)
- ![Link Image](https://via.placeholder.com/150.png)
Lessons learned from investigations

Vision: Equip HSE with a lesson learning strategy that makes a tangible contribution to the prevention of death, injury and ill health in GB workplaces

HSE receives information on around 80,000 reportable health and safety incidents each year and around 4,000 of these incidents are subsequently investigated. In addition, our inspectors carry out approximately 20,000 proactive workplace inspections each year, generating intelligence on prevailing working practices and areas of health and safety concern. The potential for us to use these data sources to learn lessons, including why different failures in health and safety occur and how they might be prevented, is substantial.

To date, our ability to use these sources in a joined-up way to generate lessons learned has been limited because of how it is stored i.e. disparately, in multiple formats - reports, spreadsheets and databases, and as free text. Recent developments in, and increased use of, data analytic tools and applications, such text mining, natural language processing, predictive analytics and statistical machine learning, has meant that the task of generating data driven insights and learning from health and safety data sources, particularly free text sources, is now more achievable.

The aim of this science hub is to ensure that the generation of lessons learned insights from our routine sources of health and safety data is maximised, and that these are used across HSE and the wider health and safety community. Benefits will include the development of more effective, targeted risk control strategies and guidance provided to industry. There will be opportunities for us to better engage with, and influence, stakeholder groups particularly SME’s.

Technical support for investigations, inspections and enforcement

HSE’s main focus is on the health and safety of workers, but our regulatory interest extends to cover the impact on the general public, consumers and the environment. Of the inspections and investigations undertaken each year, a significant proportion require particular science or engineering knowledge to identify the causes of problems and to identify solutions which meet the key criteria of being reasonable and practicable. We have specialists from over 20 disciplines that provide expert technical knowledge in support of investigations. This corporate expertise and knowledge, and the facilities available within our Science Division, are unparalleled and means that our inspectors can call on immediate support at any time. We also have access to external experts where we do not have the necessary capability.

Work in this science hub links to the following key actions in HSE’s Business Plan:

- Secure effective risk management and control of risk
- Sustaining regulatory excellence

Our priorities for 2017/18 and beyond - Lesson learned

- Improve methods of capturing, recording and storing of knowledge generated by investigation activities, maximising the potential to generate wider learning.
- Enhance our ability to make full use of the knowledge generated from investigation activities, particularly how it is brought together and synthesised.
- Enhance our ability to generate data-driven knowledge, insights and learning from our diverse range of routine health and safety data sources, with particular emphasis on how it is brought together and analysed.
- Enhance our ability to share knowledge, insights and learning, internally and across the wider health and safety system.
Our priorities for 2017/18 and beyond – Technical support for investigations, inspections and enforcement

• Sustain improvement in the provision of timely/immediate technical support to investigate incident investigations, anywhere in the UK.

• Ensure our science is undertaken to support incident investigations, including development and deployment of appropriate new techniques and technologies that improve the effectiveness and efficiency of the enforcement process.

• Provide specific investigation support and any subsequent enforcement activity resulting including management of evidence and subsequent expert witness input.

Links to #HelpGBworkwell
**Work with strategic stakeholders and key partners**

In conjunction with partners in the UK and internationally, we will capitalise on our know-how and flagship specialist facilities to secure continued growth of our newly established shared research programme. This programme supports external investment and collaboration in our research portfolio, allowing resources and expertise to be shared for the benefit of all.

Work in this area links to the following key actions in HSE’s Business Plan:

- Lead and engage with others to improve workplace health and safety
- Growing commercial activities

**Our key projects for delivery 17/18 and beyond**

<table>
<thead>
<tr>
<th>Shared research</th>
<th>Expected Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSHEW - Assessment of slip-resistant footwear for NHS healthcare workers</td>
<td>On-going</td>
</tr>
<tr>
<td>Composite wraps</td>
<td>On-going</td>
</tr>
<tr>
<td>Escalator safety: secure shared research contracts with partners</td>
<td>Q2</td>
</tr>
<tr>
<td>Work-related stress &amp; wellbeing: hold stakeholder workshop to identify opportunities for shared research in support of the Health and Work programme</td>
<td>Q2</td>
</tr>
<tr>
<td>Cobots: hold industry workshop to scope opportunities for shared research</td>
<td>Q1</td>
</tr>
<tr>
<td>Flammable mists: workshop held to identify knowledge gaps and discuss potential for a new shared research project</td>
<td>On-going</td>
</tr>
<tr>
<td>Finalise the establishment of the joint International Institute for Risk and Regulatory Research with the University of Manchester</td>
<td>Q4</td>
</tr>
<tr>
<td>Secure research contracts under the Institute brand for delivery in 2017/18</td>
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<table>
<thead>
<tr>
<th>Data-sharing</th>
<th>Expected Completion</th>
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</thead>
<tbody>
<tr>
<td>Develop pilot data-sharing platform with other government departments (subject to external/cross-government funding being secured)</td>
<td>Q4</td>
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</table>

**Links to #HelpGBworkwell**
Foresight

The workplace is changing at a very fast pace with several trends and drivers impacting on and shaping the future world of work. To respond to this challenge our Foresight Centre will continue to fulfil its core function of horizon scanning, and associated futures activities, to identify potential threats, risks, emerging issues and opportunities to the health and safety system. We anticipate that the outcomes from this work will contribute to HSE and the wider health and safety system being able to keep pace with change – to be better placed to anticipate and tackle new health and safety challenges. We want to ensure that we identify the trends that are shaping the future world of work so that issues can be addressed early enough: demonstrating that the health and safety system is an enabler of innovation and contributor to the UK’s Industrial Strategy.

We will continue to undertake structured horizon scanning (following a Technical, Economic, Environmental, Political, Societal and Ethical taxonomy) to identify the issues with the potential to affect occupational health and safety. This intelligence will be used to develop our strategic evidence base of the future world of work and help support our science hub leads to identify gaps in knowledge, future research questions and potential shared research opportunities.

Work undertaken in the Foresight Centre links to the following key action in HSE’s Business Plan:

- Sustaining regulatory excellence

Our key projects for delivery 17/18 and beyond

<table>
<thead>
<tr>
<th>Reporting</th>
<th>Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redesign and re-launch the Foresight Centre webpages</td>
<td></td>
</tr>
<tr>
<td>Deliver the annual Foresight Report 2017, theme: ‘Energy’</td>
<td>Q4</td>
</tr>
<tr>
<td>Work with others to address issues and opportunities arising from the Foresight Report 2016</td>
<td>On-going</td>
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</tbody>
</table>

Links to #HelpGBworkwell
We will develop and maintain our scientific capability and manage capacity to maximise its contribution to delivering HSE’s mission. Development of our scientific staff will be aligned with the Government Science and Engineering Profession Strategy. We will establish a suite of Frameworks to support capability maintenance and development across the full breadth of science and technology disciplines required by the organisation. Frameworks will include:

- **Foresight and horizon scanning**: To strengthen HSE’s ability to respond proactively to future hazards and risks, this framework will support our Foresight Centre in delivering horizon scanning and futures work across HSE.

- **Science and evidence capability maintenance**: Work under this framework will ensure we are able to maintain the required level of expertise in a scientific/technical area, through knowledge transfer, sharing, mentoring and coaching. It will include the maintenance of our key facilities and infrastructure.

- **Science innovation**: Work to support science teams in developing novel ideas and activities and which need to be undertaken in a short time-frame in order to maximise benefits.

- **Data infrastructure management**: This framework will help ensure that our science and evidence data sources, databases, data repositories and image libraries are effectively managed, up to date and can be easily accessed by users.

- **Scientific publication**: This framework will support the production of peer-reviewed journal and conference publications and national and international conference presentations.

- **Science credibility**: Our Chief Scientific Adviser is committed to ensuring that we maintain our reputation and credibility in the delivery of world-class applied science and evidence. This framework will support membership of national and international scientific expert committees and networks. It will support work to raise the profile of our health and safety science and evidence with industry and health and safety professionals.

We will explore options to develop a PhD/Masters programme, which aligns to the apprenticeships programme and will:

- Increase flexibility in our science and evidence technical skills base to address our evidence needs in the short to medium term

- Develop our knowledge and capability in new technical areas and

- Develop closer working collaboration with academia and their industrial partners

Work in this area links to the following key actions in HSE’s Business Plan:

- Investing in people and capability

- Sustaining regulatory excellence
Governance, assurance and engagement

HSE’s Science, Engineering and Evidence Assurance Committee, a panel of independent external experts and sub-committee of the HSE Board, provides assurance to the HSE Board on the quality and relevance of our science and evidence strategy and delivery. Science and Evidence Investment Governance Groups, which include independent external experts, for each of the science hubs will provide assurance to the Science and Evidence Investment Governance Board of direction and progress. HSE’s Evaluation Committee will independently evaluate the performance and benefits of the science hubs.

HSE’s Workplace Health Expert Committee, a formal scientific expert committee provides expert opinion to our Chief Scientific Adviser and gives HSE access to independent, authoritative, impartial and timely expertise on workplace health.

Publication of our scientific and analytical work is essential to maintain independent credibility of our scientific capability, both in its capacity to inform and support operational regulatory and policy making functions. Assurance will be guaranteed via publication of our research findings in independent peer reviewed scientific journals (by open access where available). Assurance of science quality will also be provided by challenge through the courts for expert witness statements and accreditation of our Research Ethics Panel.

We will communicate the findings of our science and evidence work through the publication of our annual Science Review which contains case studies demonstrating the impact of our science. We will extend our opportunities for further external communications and engagement via digital and social media.

We will engage with stakeholders through involvement in HSE Board and industry events, attendance at national and international conferences, work with the appropriate Government Professions and international networks such as the Partnership for European Research in Occupational Safety and Health and the International Commission on Occupational Health. We will work to further develop and invigorate our STEM activities.

Work in this area links to the following key actions in HSE’s Business Plan:

- Lead and engage with others to improve workplace health and safety

Our key projects for delivery 17/18 and beyond

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<tr>
<th>Reporting</th>
<th>Deliver the annual Science Review 2018</th>
<th>Q4</th>
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<tr>
<td>Governance</td>
<td>Set up and hold inaugural meetings of the Science and Evidence Investment Governance Groups</td>
<td>Starting 2017</td>
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Links to #HelpGBworkwell
Helping Great Britain Work Well six strategic themes

Acting together: promoting broader ownership of health and safety in Great Britain

Tackling ill health: highlighting and tackling the costs of work-related ill health

Managing risk well: simplifying risk management and helping businesses to grow

Supporting small employers: giving SMEs simple advice so they know what they have to do

Keeping pace with change: anticipating and tackling new health and safety changes

Sharing our success: promoting the benefits of Great Britain's world-class health and safety