



Government Science  
& Engineering

# GSE Profession Strategy

Ensuring the GSE Profession can support its people to make a real difference through government science and engineering

# Foreword

## This is a crucial time for science and engineering in government and for the country.

Over the last 12 months, we have seen first-hand a dramatic growth in our reliance on science and engineering advice across government in our response to the pandemic. We intend to act on this, placing science and engineering at the heart of government decision-making. We must build an enduring capability that will stand the test of time, to ensure that government is able to face the challenges of the future, but also to take advantage of the many opportunities as we build a sustainable and enduring recovery. We need to make science and engineering a core part of our skills and capability and champion technological innovation, while harnessing their potential to support colleagues across government.

To achieve this ambition, we need to invest in our people and build strength through diversity. The Government Science and Engineering Profession (GSEP) brings together people from all walks of life and gives scientists and engineers a voice in central government. It connects scientists and engineers from across the whole public sector to key decision-makers in government. The profession enables scientists and engineers to grow in strength and should be the first port of call for any government colleagues looking for knowledge and expertise in that specialist area.

Experience within the profession has shown that learning from each other and challenging ourselves, whether through formal training or experience within industry and academia, is central to what we do. We must remain open to outside challenge and connected to cutting-edge science and innovation. The horizons of the science and engineering profession stretch across government departments, academia and business. It brings together the thoughts and expertise of many talented and valuable individuals and encourages the movement of both brilliant people and brilliant ideas.

We will be best placed to help the United Kingdom capitalise on the wide-ranging opportunities ahead when we recognise and reward the qualities of our own people, and break down barriers to allow them to develop their skills further inside and outside government. All this will ensure that the profession plays its full part in supporting the government to achieve its priorities.

The testing goals set out in this strategy reflect our ambitions to make a real difference through government science and engineering. We are committed to turning the vision into a reality and making the work of the GSEP even more influential in shaping a positive future for the United Kingdom.



A handwritten signature in blue ink, appearing to read 'P Vallance'.

**Sir Patrick Vallance,**  
Government Chief  
Scientific Adviser



A handwritten signature in black ink, appearing to read 'Michael Gove'.

**Michael Gove,**  
Chancellor of the  
Duchy of Lancaster



# Contents

- 2 Executive summary
- 3 Who are the GSE Profession?
- 5 Why should you join the GSE Profession?
- 7 Our vision for the future
- 8 Achieving our vision
  - Identifying and promoting our expertise
  - Increasing connections and interchange
  - Supporting our diverse membership
  - Providing professional learning and development
  - Growing GSE talent
  - Enabling GSE leadership
- 31 How to get involved

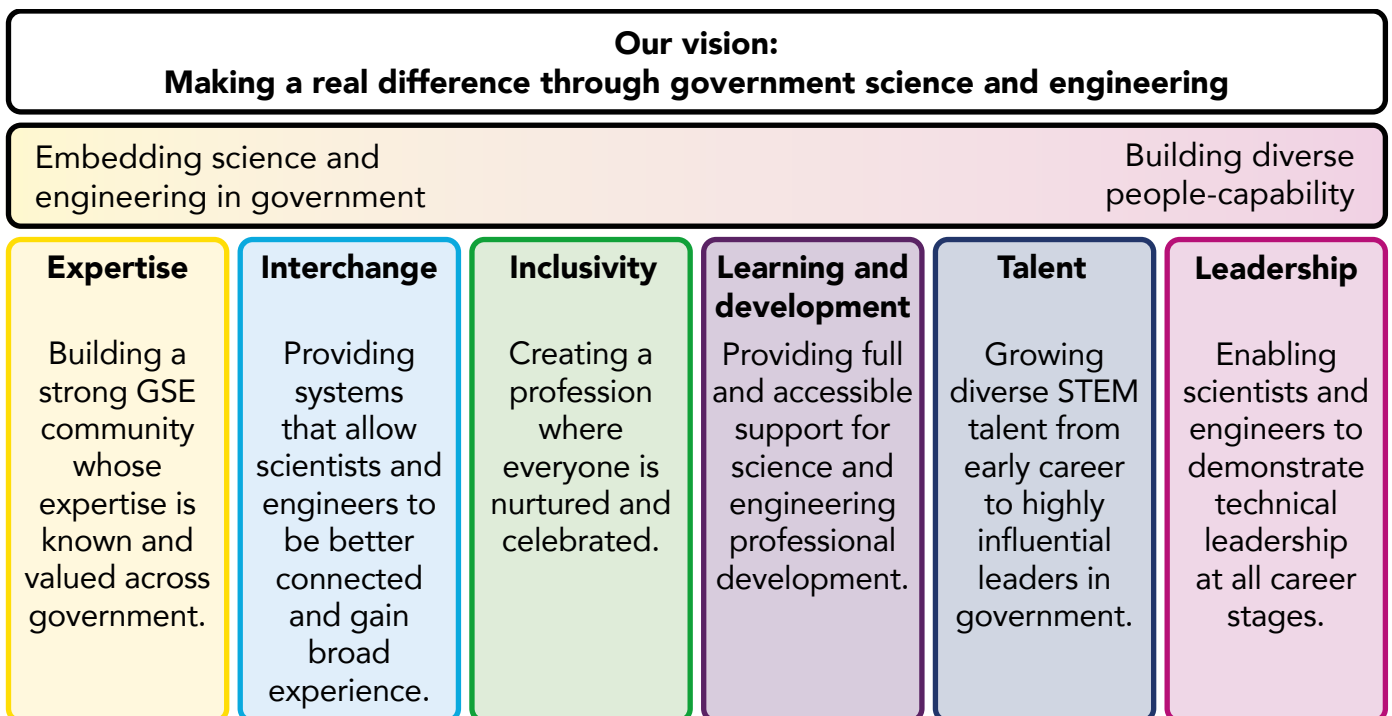
# Executive summary

**This strategy sets out how the Government Science and Engineering Profession (GSEP) will enable members and colleagues to reach our vision: making a real difference through government science and engineering.**

Our strategy has been developed with the help of so many of our members, departments, leaders and networks. Its story truly exemplifies the diverse and inclusive nature of the GSEP.

Scientists and engineers are collaborators by nature. Building a strong, inclusive GSEP will enable innovative collaboration and community-driven continued professional development, and will bolster a sense of belonging. We will continue to build an offer that supports and enables its members to be the best they can be. By promoting the GSEP offer clearly, we will galvanise more scientists and engineers across government to join the GSEP community. We will ensure that government decision-makers are aware of this incredible community, highlighting the extraordinary value government scientists and engineers bring, from world-class research to problem-solving, system design and horizon scanning.

This strategy follows on from our 2016 strategy and, while lots has been achieved since then, we still have a way to go. From the 2016 strategy, our members asked for clearer evaluation monitoring so they could see how GSEP progresses. We've taken on board this feedback and that's why this strategy sets out six new strategic themes to reach our vision with accompanying strategic goals. We promise to monitor progress by publishing clear, measurable objectives for each theme which members can track and use to hold the GSEP to account.



# Who are the GSE Profession?

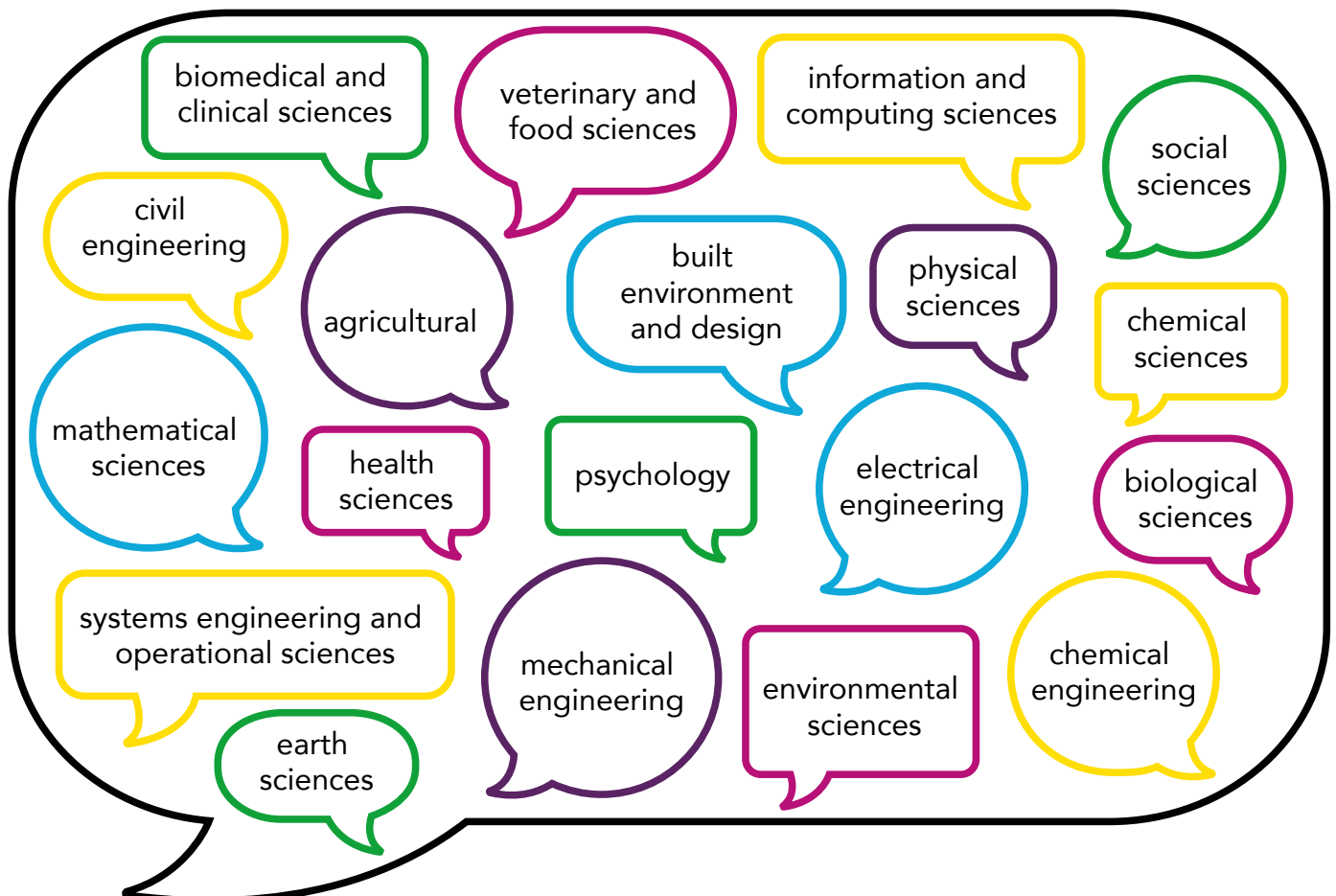
The GSEP is a diverse cross-government group of people who are connected to science and engineering either by their role, skillsets or interests.

Our members work across government as civil, crown or public servants, either in the UK or abroad. We are an open profession and welcome people regardless of whether they are a member of another profession. Our Head of Profession is the Government Chief Scientific Adviser (GCSA) and each department and key organisations will have a Head of Science and/or Engineering Profession (HoSEP).

[Find out more about the profession](#) and [become a member](#).

**We define scientists and engineers working in government as** people who do any of the following:

- continually seek to build and apply technical knowledge,
- are passionate about building STEM communities and capabilities in others,
- deliver high-quality research and solutions to technical problems,
- are impartial communicators of technical subjects,
- help ensure rigorous evidence use in policy,
- champion the use of science and engineering in decision-making.

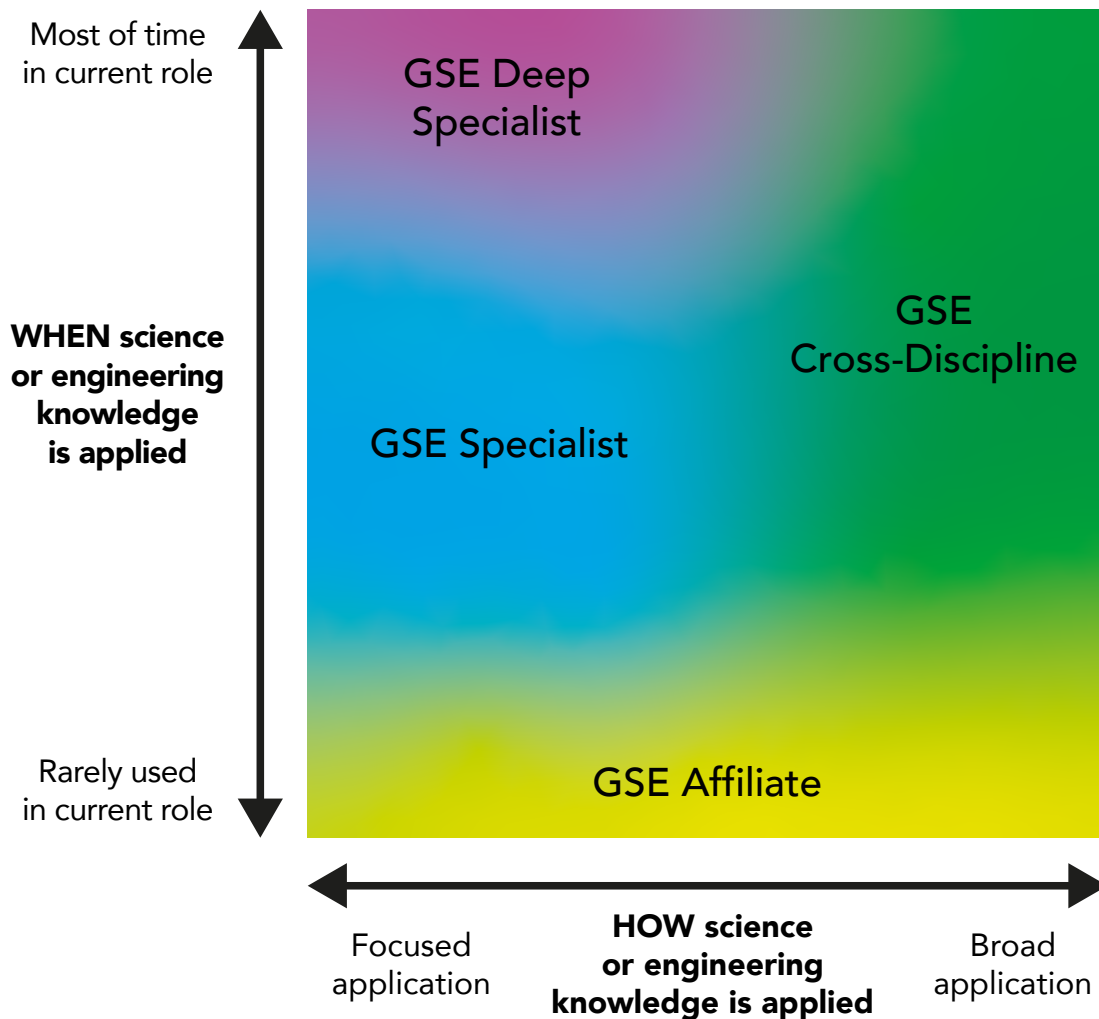


**Our profession has a wide range of diverse roles**, ranging from deep specialist regulators or building engineers to those building STEM capability or connecting the GSEP to other professions. Government Science and Engineering (GSE) roles can be defined in four groups: GSE Deep Specialist, GSE Cross-Discipline, GSE Affiliate or GSE Specialist.

These groups exist to help you structure your development and you may find yourself moving between them quite often. The below diagram helps describe what each one of our job families are and shows the flexibility between them.

28% of our members identified as GSE Deep Specialists, 28% as GSE Cross-Discipline, 10% as GSE Affiliate and 32% as GSE Specialist.<sup>1</sup>

90% of GSE members feel they use their specialist knowledge in their role.<sup>1</sup>



<sup>1</sup> Preliminary results from the 2021 GSE annual survey, results taken from 576 people. For ability to use specialist knowledge in role, 58% answered 'yes' and 32% answered 'partially'. 2% of people answered 'unsure' for which GSE job family they were in.

# Why should you join the GSE Profession?

Become a member of our profession, join a friendly cross-government science and engineering community, and receive career support and development opportunities. We are constantly working to bring our members new offers and will update you on our progress!

We already offer our members:

- Regular signposting of science and engineering **events, networks and inter-disciplinary learning** from across government through our [blog](#) and monthly newsletter – [become a member](#) to receive the newsletter.
- Defined and supported science or engineering career guidance used across government. The [GSE Career Framework](#) sets out **technical skills and career pathways** when you're planning your personal development or recruiting science or engineering roles.
- Access to a [GSE Skills Assessment Tool](#) which allows you to **track your skills and behaviours** as you go through government and can be used for **continued professional development**. The tool also recommends and signposts a **wide learning catalogue** containing science and engineering learning opportunities from great apprenticeships to free online resources.
- The chance for your **voice to be heard at the centre of government**. We are an inclusive profession and rely on member input to achieve our goals. As a member, you can **join our governance structure** as a Shadow Board member or **join our action groups** on diversity and inclusion, leadership, talent and more. Email [gse@go-science.gov.uk](mailto:gse@go-science.gov.uk) for more information on getting involved.

"Being a member of the GSE Profession is a great way of keeping my skills and knowledge current across a broad range of science and engineering disciplines. The networking across departments is valuable, and there are great opportunities to showcase the value the profession can bring to high-quality public service delivery and policy-making."

Alan Pain, Department for International Trade

The **GSE Shadow Board** is a diverse group of members who help make governance decisions for the profession. New members are always welcome across all grades and departments.

## We're working hard to offer our members:

- An increased **sense of community** by providing ways our scientists and engineers across government can socialise and knowledge share. This will include annual GSE events, peer-to-peer mentorship, online hubs and member seminars.
- Support paths for members to **become registered or chartered** with professional institutions such as: **IoP**, **RSC**, **RSB**, **IET**, **IMechE**, **ICE** and **IChemE**.
- Increased access to **secondments and other interchange opportunities** across government, academia and industry.
- More **science and engineering learning** for all, regardless of background, from policy makers to deep specialists. Our upcoming Science and Engineering 101 learning package is suitable for everyone. This will include an induction to the GSEP and how science and engineering operates within government.
- Advice and support to help members progress and **secure senior roles** within the Civil Service and apply to more accelerated development schemes. This will be achieved by promoting a 'science/engineering leader' mentality through **professional mentors** and other resources.
- Support for departments in reviewing critical roles and exploring options to **increase skills retention**, skills capability and attraction through appropriate and competitive reward options.
- More support for our diverse range of members, from **role modelling** and shared stories to supporting managers to develop returners' programmes. We want to increasingly recognise our diverse members' success through **celebratory diversity events** and driving towards a more inclusive workforce.
- More support for GSE talent including a **robust alumni network** that will help connect our early and senior talent. This rich and diverse network will offer advice and specialised learning and development opportunities.



We have committed to growing our membership by 40% for March 2022. As part of this commitment, we will be increasing our communications and engagement to ensure that all civil, crown and public servants are aware of the increasing GSEP offer.



Email  
**[gse@go-science.gov.uk](mailto:gse@go-science.gov.uk)**  
to join now!





# Our vision for the future

## Making a real difference through government science and engineering.

Our vision reflects what our members are passionate about – making a difference to society by supporting the delivery of trusted evidence and inspirational solutions into government decision-making. The GSEP will enable its members to reach this vision through our two strategic drivers: better embedding science and engineering in government and building the capability of our diverse membership.

### Our vision

**Making a real difference through government science and engineering**

### Strategic drivers

**Embedding science and engineering in government**

**Building diverse people-capability**

### Strategic themes and goals

#### Expertise



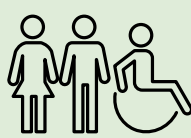
Building a strong GSE community whose expertise is known and valued across government.

#### Interchange



Providing systems that allow scientists and engineers to be better connected and gain broad experience.

#### Inclusivity



Creating a profession where everyone is nurtured and celebrated.

#### Learning and development



Providing full and accessible support for science and engineering professional development.

#### Talent



Growing diverse STEM talent from early career to highly influential leaders in government.

#### Leadership



Enabling scientists and engineers to demonstrate technical leadership at all career stages.

### Strategic outcomes and measurable objectives

A plan for each theme will be published by the GSE team over the next year containing measurable outcomes.

Our strategic drivers can be described as:

1. **Embedding science and engineering in government** – identifying and championing our internal science and engineering expertise to improve decision-making.

We will better connect our members across departments and professions. This will ensure our members are known and recognised for their expertise. We will support the development of effective systems to embed science and engineering into government. To meet increased demand, we are committed to attracting more scientists and engineers in government to join our profession as well as new talent into government. We will achieve this by communicating a clear GSEP identity and offer.

2. **Building diverse people-capability** – enabling our diverse range of scientists, engineers and support staff to achieve excellence.

It is our commitment to ensure all voices are supported and empowered, including different backgrounds, levels of experience, and across all technical specialisations. By ensuring knowledge, support and opportunities are available both in and out of government, we will be able to support our talent and leaders at all career stages to become highly influential and effective at using science and engineering across government.

## Achieving our vision

### How will we achieve this vision?

The rest of the strategy sets out how we will achieve our strategic themes through setting clear short- and long-term goals. We've also compiled a range of case studies to highlight the great work that is already going on in each area and about what more needs to be done.

The goals set out over the next few pages show key milestones for the GSEP. Detailed objectives for each strategic theme will be published in individual plans over the next year.

Members of the GSEP let us know how important it is that we regularly communicate our progress. Therefore, we want to update each of the tables over the next few pages every year and show you what has been achieved.



# Identifying and promoting our expertise

**Building a strong GSE community whose expertise is known and valued across government.**

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
<p>We want to inspire people to identify as a scientist or engineer working in government and join the profession.</p> <div data-bbox="127 873 430 1187" style="border: 1px solid #c08040; border-radius: 50%; padding: 10px; text-align: center; margin: 10px auto; width: 150px;"> <p>Publish and promote a GSE lifecycle with case studies by November 2021.</p> </div>	<p>Produce a GSE lifecycle with inspirational multimedia case studies of science and engineering in government showcasing each stage using diverse role models by November 2021.</p> <p>Increase GSE blog contributors by 30% to ensure diversity of content.</p>	<p>Establish clearer routes for us to be able to promote our scientists and engineers.</p> <p>Empower GSEP members and champions to generate and promote inspirational case studies themselves by providing clear guidance.</p>
<p>We want to ensure our collaborators and colleagues know of our expertise and where to find it.</p>	<p>Map out who our collaborators are and find out how best to engage with them by summer 2022.</p>	<p>Create a central database of generated analysis, evidence and case studies.</p> <p>Continue engaging with our collaborators to ensure we are connecting with them effectively.</p>
<p>We want to strengthen our ability to respond to cross-government science and engineering needs by recording our skills and expertise.</p>	<p>Begin to capture expertise of members through recording tools (the <b><u>GSE Skills Assessment Tool</u></b>) and report our progress in April 2022.</p>	<p>All departments using the GSE Skills Assessment Tool to record members' expertise and capability.</p> <p>Departments use the GSE Skills Assessment Tool to access expertise across government, producing case studies as examples by December 2022.</p>

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)

We want to increase our engagement with scientists and engineers across government by having a clear identity and communicating a strong offer.

Increase the number of GSEP members by 40% for March 2022.

Produce a clear GSEP offer and induction to the profession by December 2021, stating how we work effectively with other professions.

Develop an effective web presence, more blogs, increased social media presence and have an improved onboarding process.

Ensure all departments signpost the GSEP induction to civil, crown and public servants so that the GSEP is a well-known profession upon entering government.



# Showcasing our expertise: Ministry of Defence Engineering

**It is key to the GSE Profession that we identify and promote our internal expertise across all areas of government.**

Within the Ministry of Defence, the Engineering Profession is made up from around 55,000 engineers and technicians from across the Royal Navy, British Army, Royal Air Force, and the Civil Service. We wanted to highlight Defence Engineering and some of their incredible expertise.

Military and civilian defence engineers deliver some of the most complex projects, developing and applying cutting edge technology while working in environments ranging from the seabed to space, in the Arctic to the desert. We maintain our leading edge by drawing on our personnel's diverse skills and diverse thinking, drawing talent from all walks of life.

The Defence Engineering People Vision is to have an agile, skilled and diverse profession of engineering talent, and to be a profession that is competent and inspired to employ their technical ability and enable MOD to achieve its current and future goals. We have included some testimonials from our people on their roles and the impact they have on society.

Dr Pitt OBE, Head of Materials Department and Civil Service engineer with the Royal Navy, tells us about her experience and what she loves about her role:

"In 1998 I joined what is now Navy Command's **1710 Naval Air Squadron**, and I am now leading a team of 17 scientists and engineers as a civil servant. The best part of the job is using every bit of my scientific and engineering knowledge and skill set to get to the root cause of problems and issues the military are facing, and making a real difference to operational effectiveness and safety."



Corporal McCann, Class 1 Recovery Mechanic in the British Army, shares with us his military experience and how he gained his expertise:

“I joined the Army as a **REME** Recovery Mechanic in 2011. Upon completing both phases of my basic training, I began my in-service apprenticeship whilst serving overseas and 18 months later, I was in possession of the NVQ level 3 in Engineering. Building on this, I have proceeded to work around the world with other nations and gained experiences no civilian job can give you. Fast forward to 2021 and I have completed my Class 1 Course, which now qualifies me to teach and pass on my knowledge to the next generation of tradesmen.”



Major Tillman, Defence Head of Profession Engineering team shares how he applied his military experience to capability building:

“I have been in the **Corps of Royal Engineers** (the Sappers), British Army since 1990. In my Combat Engineer role, I gained skills such as bridge construction, road construction, water supply from raw source to potable product, and demolitions of bridges and structures using explosives. I also had an Armoured Engineer role, which involved skills including the operation, maintenance and fault diagnosis of a tracked bridge laying vehicle capable of launching and recovering a 26-meter bridge. Currently, I work as part of the Head of Profession (Engineering) team where I develop the team’s communication channels to effectively keep our around 55,000 Defence Engineers informed and primed.”

**For more examples of government expertise**, follow Defence Engineering on Twitter (@DefenceEng) and visit **TRS recruitment website**, the one-stop-shop to look for engineering roles across MOD.

Going forward, the GSEP wants to continue showcasing and promoting our varied expertise across government. If you want to showcase your or your team’s fantastic work, get in touch with **[gse@go-science.gov.uk](mailto:gse@go-science.gov.uk)**



## Increasing connections and interchange

Providing systems that allow scientists and engineers to be better connected and gain broad experience in and out of government.

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
<p>We want to create a standardised language of skills to enable more unified learning and development opportunities.</p> <div style="border: 1px solid #0070C0; border-radius: 50%; width: 150px; height: 150px; margin: 20px auto; display: flex; align-items: center; justify-content: center; text-align: center;"> <p>Publish mapping of GSE skills to professional institutions by September 2021.</p> </div>	<p>Work with pilot departments and organisations to agree a standardised way to reference science and engineering capabilities by November 2021.</p> <p>Map GSE technical skills across to competencies used by science and engineering professional bodies by September 2021.</p>	<p>Establish and agree a central list of science and engineering capabilities used across government by October 2022. Increase the number of organisations that are aware of this agreed skills list.</p> <p>Embed the agreed list's use in departments own capability tracking efforts.</p>
<p>We want to support GSE members gaining work experience in different science and engineering areas across government, industry and academia. It is important to ensure equality of opportunities by considering flexible locations and time commitments.</p>	<p>Scope existing government secondment and exchange programmes for scientists and engineers, finding baseline numbers and publish by April 2022.</p> <p>Promote the STEM Futures programme and encourage uptake by technical partners.</p>	<p>Develop a clear framework that brings together and promotes the use of exchange programmes for scientists and engineers in government, increasing the number of people using the framework by September 2022.</p> <p>Grow STEM Futures programme through increased technical hubs and partners by February 2023.</p>

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
We want to enable knowledge sharing across our members by building GSE technical communities.	<p>Explore ways the GSEP can host communities of interest across government by summer 2022.</p> <p>Develop and promote case studies of technical collaboration by January 2022.</p>	<p>Establish a cross-government community of interest forum.</p> <p>Promote more case studies of emerging collaborations between scientists and engineers across government.</p>
We want to enable more networking between scientists and engineers in government to strengthen the GSE community and provide more development opportunities between our members.	<p>Explore ways the GSEP could socially connect its members.</p> <p>Use GSE communication methods, such as our newsletter and blogs, to advertise and promote existing cross-government networks.</p>	<p>Offer solutions where GSE members could connect socially by December 2022.</p> <p>Widen the promotion of existing science and engineering networks across government by October 2022.</p>

## Creating a cross-government approach to skills capture

### The GSE Profession (GSEP) is leading an initiative to better understand and capture the science and engineering specialisations across government.

The COVID-19 pandemic demonstrated that rapidly identifying common core skills across government is essential in responding to science and technology challenges effectively.

The Defence Science and Technology Laboratory (Dstl) was able to provide skills and capabilities for the government response, which included support on statistical analysis and modelling, and support to Public Health England (PHE) and the National Health Service (NHS). Such support was also a collaborative effort, drawing on the National Laboratory Alliance (NLA), a group of public-sector research establishments (PSREs). Understanding the capabilities across the alliance proved crucial for laboratories to be able to rapidly support one another when asked.





Using a common language when talking about capabilities is also important for individual PSREs, like Dstl, who have such a diverse and niche set of expertise requirements.

Dstl have been working with the GSEP to develop a Government Science and Engineering Skills Framework. This framework will be a simplified, systematic skills taxonomy and will be general enough to be relevant across GSE while still having enough fidelity to map to PSREs. Dstl are piloting the framework and, through consultation with subject matter experts, are evolving the taxonomy from 40 GSE specialisations, which were previously too specific, to a more structured format more suited to better describe science and engineering disciplines and specialisms across government.

The framework will allow the GSEP and its members to more effectively communicate and capture science and engineering capability across government. Having a common skills language will increase knowledge sharing across government, enable exchange of resources and employees across organisations, enable increasingly targeted recruitment, and allow easier understanding of people's capabilities across government organisations.

The framework would also be advantageous to the NLA by enhancing their current facilities inventory by linking to technical capabilities to each PSRE facility. This would again enable better use of knowledge, skills and expertise at organisational levels, while allowing more impactful secondment, interchange and mentoring opportunities.

Overall, a common language of skills and capabilities will allow the GSEP to increase the connections, knowledge and interchange opportunities of its members. Across government, the extraordinary range of skills and capabilities would be better understood, and we would be more agile in responding to the needs of the UK. This all helps towards cementing the UK as a 'Science Superpower'.

**“There is a wealth of expertise and knowledge held within the PSRE community. Developing a common language will help identify that expertise in a time of emergency, support professional development, increase the ability for partnerships, and maximise the best from our collective investment.”**

**– Prof. Bryn C Hughes,  
FREng, Head of Science and  
Engineering Profession  
at Dstl**



## Supporting our diverse membership

**Creating a profession where everybody's STEM talent is nurtured and celebrated, delivering world-class science and engineering.**

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
We want a better understanding of the diversity of our membership, so we can best support them.	<p>Create an annual survey of GSEP members on their characteristics, skills capabilities, qualification levels and connection to the profession.</p> <p>Promote the annual survey widely to ensure a range of views are captured.</p>	<p>Use the annual survey to pick up emerging trends and fully adapt the GSEP offers to our diverse membership.</p> <p>Achieve a minimum of 40% completion rate for GSEP annual survey beyond 2022 through further promotion.</p>
We want to ensure that science and engineering expertise is drawn upon from a diverse range of sources.	Understand and communicate key networks that are involved in using science advice within government.	Provide colleagues with clear access to a wide range of networks through an expertise database, to ensure advice is drawn from a wide range of sources.
We want to empower our members across all grades, characteristics and technical specialisations to feel confident in contributing to the profession.	<p>Continue to grow the GSE Shadow Board which all GSEP members can join.</p> <p>Working with the GSE Shadow Board, contribute to a GSE science system project, which defines roles within the profession, including refreshing the GSE Champion roles and empowering them.</p> <p>Develop a role models blog.</p> <p>Support three pilot mentoring schemes focused on connecting specific groups within the profession.</p>	<p>Follow recommendations from the GSE science system project, including how best to use the GSE Champions network.</p> <p>Increase the number of GSE Champions by 20% and the number of representatives at the GSE Shadow Board.</p> <p>Provide best practice guidance for peer mentoring schemes to expand the offer to every department across government.</p> <p>Look to increase ways to connect communities of interest.</p>

Analyse results from the first GSE annual survey by October 2021.

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
We want to help ensure our profession is representative of the community we serve.	<p>Through the Diversity and Inclusion Action Group (DIAG), establish sub-working groups that help tackle challenges related to characteristics such as gender, ethnic background, disability and social mobility.</p> <p>Support for all areas of inclusion through senior blogs and events.</p> <p>Develop a returners' pack to assist recruiting managers develop programmes to help those who have taken a long break, or who wish to change their career, transition back into work.</p>	<p>Increase the number of active participants by 20% for all DIAG sub-working groups, ensuring representation across grades and departments.</p> <p>Embed the use of the returners' pack in at least six government departments.</p> <div style="border: 1px solid green; border-radius: 50%; width: 150px; height: 100px; margin: 20px auto; text-align: center; padding: 10px;"> <p>Publish a GSE returners' pack by August 2021.</p> </div>

## GSE Connect: piloting how women can support women

Through the GSE Diversity and Inclusion Action Group (DIAG) we are trying to increase support for our members. We want to ensure that all levels are represented, celebrated and supported throughout their careers in science and engineering in government.

DIAG is trialling a scheme called GSE Connect which offers partnering, support, coaching, networking, and co-mentoring for women working in STEM-related roles. The initial pilot was launched in February 2021 as part of **International Day of Women and Girls in Science** and within a few hours it was fully booked! This level of engagement shows the incredible need for personal peer support to help different groups develop their careers in GSE.



GSE Connect recognises that normal mentoring schemes are not always practical for women within the STEM environment. Traditional mentoring places a great deal of pressure on a small number of senior women to act as mentors, which in turn limits the number of people who can take part and ignores the fact that everyone has something they can offer someone else – be it career inspiration, encouragement, support, advice, or just a sympathetic ear from someone in a similar situation. The cross-departmental aspect of GSE Connect aims to ease the feelings of isolation often reported by women working in STEM areas.

GSE Connect randomly pairs women from different organisations, roles and backgrounds within the GSE Profession and encourages them to meet regularly. It provides women with a chance to discuss issues that are important to them in their career and their personal and professional development. This type of targeted support and community building is incredibly valuable to ensure members get the chance to be open and honest with others about their hopes, aspirations and the barriers they face.

GSE Connect has been running for just under four months and initial feedback has been positive with members meeting regularly, setting development goals and encouraging each other to meet those goals (and holding them to account if they don't). So far, it has provided GSE members with a great opportunity to learn about other organisations and opportunities across GSE and expand their networks.

Once the pilot is complete, the plan is to expand the number of women able to take part in the scheme by early 2022. The speed in setting up GSE Connect, and the successful uptake of this pilot, has really inspired the GSEP to support further DIAG ambitions.

GSE Connect is an inspirational example of GSE members and GSE Champions getting together and developing initiatives that promise big impacts on the lives and careers of their fellow GSE members for years to come.

There are many other ideas that could be taken forward which is where you can help! The DIAG is constantly recruiting GSE members from all backgrounds and departments and are a committed and exciting group to be a part of. Things will only happen if there are people to do them, so consider **joining the GSEP** and become part of the DIAG.





# Providing professional learning and development

Providing full and accessible support for science and engineering professional development.

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
<p>We want to increase the amount of science and engineering learning offers that are available to government users, from those who are new to technical topics all the way to experts.</p> <div style="border: 1px solid purple; border-radius: 50%; width: 150px; height: 150px; display: flex; align-items: center; justify-content: center; margin: 20px auto;"> <p>Release Science and Engineering 101 from December 2021.</p> </div>	<p>Release a Science and Engineering 101 learning offer to provide ground-level skills in science and engineering from December 2021.</p> <p>Promote the <a href="#">GSE Skills Assessment Tool</a> across all departments and establish baseline capability levels by July 2022.</p> <p>Collaborate across departments and professions to collate GSE relevant learning offers and signpost in the GSE Skills Assessment Tool.</p>	<p>Monitor uptake and completion of courses, engage with networks and use the <a href="#">GSE Skills Assessment Tool</a> to understand what learning gaps exist and need to be filled by further learning.</p> <p>Embed the GSE Skills Assessment Tool in departments so that it is regularly used in career conversations.</p>
<p>We want to make our learning more accessible, ensuring it can be used by civil, public and crown servants alike and accommodates different learning styles and personal circumstances.</p>	<p>Increase promotion of the <a href="#">GSE Skills Assessment Tool</a> and simplify use, enabling easy access to the GSE learning catalogue.</p> <p>Gather member views on barriers to learning through engaging our learning and development networks, publishing these to members in July 2022.</p>	<p>Encourage use of GSE Skills Assessment Tool and continually update based on member feedback. With the support and leadership of departments, we aim to have a minimum of 50% of GSE members actively using the tool.</p> <p>Adapt all future learning offers based on member feedback on barriers to learning.</p>

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
We want to provide stronger links to professional bodies and professional development opportunities for members, to provide external recognition for our members and enable more career development opportunities.	<p>Launch clear routes to registration and chartership to members, starting with key science and engineering professional bodies in August 2021.</p> <p>Provide guidance for departments to support individual partnership agreements and potential accreditation offers in September 2021.</p>	<p>Determine whether accreditation of elements of the profession would be possible by December 2022.</p> <p>Increase the number of GSEP members attending our recognition offer events by 20% through continued engagement with departments.</p> <p>Connect with more professional bodies to ensure inclusivity.</p>
We want to embed the GSE technical skills from recruitment to review, to allow scientists' and engineers' tracked development throughout their career, providing support for both individuals and managers.	<p>Refresh the <b><u>GSE Career Framework</u></b> in September 2021 to ensure technical skills are known and understood.</p> <p>Produce guidance for departments, managers and individuals in September 2021 on using the GSE technical skills through careers, from recruitment to tracking in role through the <b><u>GSE Skills Assessment Tool</u></b>.</p>	<p>Embed the <b><u>GSE Career Framework</u></b> in all departments and support managers in its use in recruitment and performance reviews through more guidance.</p> <p>Align learning offers to GSE job roles and establish if there are any support gaps that need to be addressed and see if secondments could address them.</p>

Publish GSE Career Framework recruitment guidance in September 2021.



# STEM Futures: developing technical capability through hands-on opportunities

**STEM Futures is a collaborative development programme that provides technical skills, knowledge and experience.**

The scheme originated in the Ministry of Defence, but quickly spread across many government organisations, universities and industry enterprises. Opportunities include expert mentorship, shared facilities, technical lectures, educational tools and courses, and even on-the-job experience through placements. Each placement is with one of 21 partner institutions and is connected to a technical hub based on the placement topic. The technical hubs currently cover:

- data
- quantum
- reliability
- sensing
- space
- weapons, ordnance, munitions and explosives.

The scheme provides a unique and competitive offer, promising a rich variety of experiences and career-long personal development.



Through the delivery of an established and effective contractual framework, STEM Futures has successfully run eight placements so far. Each placement has helped individuals develop valuable networks, skills and experience which they were able to bring to their current roles.

A STEM Futures chemist, currently on secondment in the Future Pyrotechnic Countermeasures Solution team at Dstl, was fortunate enough to experience a placement with Roxel and developed valuable networks.

**"I have found the STEM Futures programme extremely useful in making invaluable connections across industry and have been able to learn a breadth of knowledge I do not believe I would have gained had I not been on the secondments STEM Futures has provided."**

**– STEM Futures chemist seconded to Roxel**

Similarly, a STEM Futures scientist at Dstl, now in a permanent role in the Future Pyrotechnic Countermeasure and Solutions team, benefitted from placements with Cranfield University in the Formulations team and at Defence Equipment and Support in the Defence Ordnance Safety Group.

This programme perfectly reflects our ambitions to provide technical learning opportunities which help develop a strong professional career across government. Going forward, we hope to use our networks to increase its involvement with technical hubs, reach out to more partners, and help promote the scheme to all its members.

It is important to the GSEP that STEM Futures grows in an inclusive way and becomes accessible for those with different personal circumstances.

**Join the GSEP** to get involved. If you want more information about the programme, get in touch with [stemfutures@dstl.gov.uk](mailto:stemfutures@dstl.gov.uk)

**“During one placement I worked as a practical researcher in novel formulation methods, whilst for my second placement I provided safety advice to Defence Equipment and Support project teams on energetic materials. In my current role, working with pyrotechnics, I am able to use skills I gained from both placements, including thermal analysis, writing reports that present and assess data, and making appropriate recommendations for future work.”**

**– STEM Futures Scientist at Dstl**

**Take a look at all the STEM Futures partners engaged in this exciting programme!**

**OUR PARTNERS**





## Growing GSE talent

Growing diverse STEM talent from early career to highly influential leaders in government.

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
<p>We want to attract a diverse range of STEM individuals and skills.</p> <div style="border: 1px solid black; border-radius: 50%; width: 150px; height: 150px; display: flex; align-items: center; justify-content: center; margin: 20px auto;"> <p>SEFS cohort increase by up to 30% for 2022 intake.</p> </div>	<p>Increase the Science and Engineering Fast Stream (SEFS) cohort by a minimum of 10% each year, using a strong sense of identity and have more STEM individuals in the overall Fast Stream.</p> <p>Increase the promotion of STEM apprenticeships in departments and increase STEM outreach to diversify our early career talent pools through an annual STEM Challenge event.</p>	<p>Work with departmental leads and their HR teams to set targets for the uptake of science and engineering apprenticeships.</p> <p>Develop a competitive GSE reward framework across all departments to attract talent by December 2022.</p>
<p>We want to identify our most talented people and increase their opportunities for senior leadership roles.</p>	<p>Support GSE members' access and confidence in joining Civil Service corporate development schemes, by offering bespoke GSE offers by May 2022.</p>	<p>Communicate and embed GSE talent offers in departments.</p> <p>Career planning in place within departments so GSE members can apply for senior roles.</p>
<p>We want to develop confident science and engineering leaders that use their expertise to influence policy-making, decisions and lead others.</p>	<p>Ensuring the SEFS learning curriculum offers leadership development including access to Chief Scientific Advisers and external leaders by May 2022.</p> <p>Trial talent leadership programme by April 2022.</p>	<p>Develop bespoke leadership learning offers including established mentorship and coaching by December 2022.</p> <p>Develop our SEFS and Direct Access Schemes alumni through networking events with industry and academia with minimum 80% engagement from previous cohorts.</p>

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
We want to keep our talent engaged with wider government and senior leaders through developing GSEP networks.	<p>Offering out Chief Scientific Adviser seminars across our wider talent pools by September 2021.</p> <p>Establish a talent working group in October 2021 that spans the GSEP to identify purposeful networks.</p>	Action interventions raised from talent working group, such as broadening existing networks to wider government, industry and academia.
We want to retain our talent by offering continued development and having a strong sense of belonging.	<p>Develop a bespoke professional recognition package for SEFS by December 2021.</p> <p>Propose career pathways to senior leader roles from entry talent schemes by July 2022.</p>	<p>Promote recognition package for wider talent pools.</p> <p>See an improvement by seeing a 20% increase in positive responses to belonging through the GSE annual survey.</p> <p>Promote career pathways for talent pools across all departments.</p>
We want to effectively deploy our talent to increase the representation of scientists and engineers in senior leadership.	Draw on our alumni network to understand placements and identify key skills and roles for SEFS that will equip them for senior leadership by July 2022.	<p>Use GSEP talent pathways to illustrate where our members can go.</p> <p>Offer our talent pools placements from the emerging GSE interchange programme.</p>
<div data-bbox="603 1480 906 1783" data-label="Text"> <p>A clear and strong SEFS identity published in 2021.</p> </div>		



## Continually growing STEM talent in government

The GSE Profession (GSEP) and Science and Engineering Fast Streamers (SEFS) are extremely passionate about ensuring future STEM talent comes from diverse backgrounds.

SEFS regularly participate in and initiate STEM outreach events to show young people that STEM careers in government allow you to make a real difference.

STEM Challenge is a new outreach programme launched this year aiming to promote science and engineering and build skills critical to the GSEP like problem solving, creativity and teamwork. It also will give pupils an idea of the kind of engaging and complex problems that governments are facing around the world. The STEM Challenge for 2021 presents 'a vision of a carbon neutral day in 2050' considering food production, sustainable homes and humans in space.

The GSEP already include outreach as part of the SEFS programme, regarding it as a crucial step to identify early talent and is key for our future leaders' development. The GSEP still want to do more.

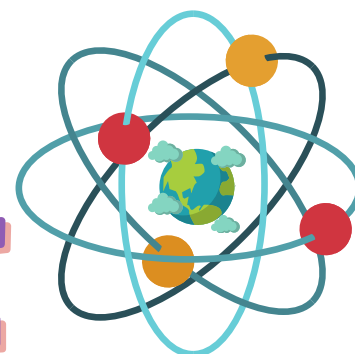
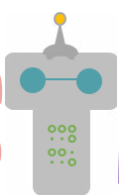
The STEM Challenge aims to be run annually and the GSEP aims to increase its support in the future by connecting outreach organisers to senior leaders and other keen GSE members across government.

"There's a real enthusiasm for STEM outreach within the SEFS community. It's a great way to give back and help improve social mobility. The past year has highlighted how crucial STEM skills are in government and STEM outreach is increasingly important in ensuring the government can respond to future challenges."

– Severine Demaude,  
Government  
Science and  
Engineer Fast  
Streamer



# STEM CHALLENGE



"As a woman of mixed heritage with a STEM background, I was delighted to promote government careers. Pupils are often unaware of the opportunities that a science education provides, so it was fantastic to be able to show how they could be developing and delivering policies in and beyond the UK!"

– Samona Baptiste,  
Government  
Communication  
Service Fast  
Streamer

Another new supportive network linked to the GSEP that will grow in the future is the new Fast Stream Science and Technology (S&T) Network. This network is a community led by fast streamers interested in STEM which provides networking, outreach and learning opportunities, while championing S&T throughout government. They have ambitions to build their outreach programme and start promoting S&T in wider society, schools and universities. They hope to promote STEM subjects and skills to students by linking school and university taught STEM content to real-world applications and their own experiences in government.

All these up-and-coming initiatives exemplify the passion and enthusiasm held by GSE and its talent to increasing future skills and capability of our profession. If you want to get more involved with outreach and support this great work, **join the GSEP** and get in touch with **[gse@go-science.gov.uk](mailto:gse@go-science.gov.uk)**





# Enabling GSE leadership

**Enabling scientists and engineers to show technical leadership at all career stages.**

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
<p>We want to define what it means to be a GSE leader by getting views from our community and openly communicating with our members.</p> <p><b>Set up a leadership task group with representatives from at least five departments by 2022.</b></p>	<p>Establish an 'Enabling GSE leadership' cross-government working group in October 2021. This group will define GSE leadership and support those who are GSE leaders.</p> <p>Develop a set of values for a GSE leader across all grades in line with best practice by June 2022.</p>	<p>Embed GSE leader values within departments and provide guidance to managers in supporting their GSE staff's development.</p> <p><b>Publish a set of GSE leader definitions and values by June 2022.</b></p>
<p>We want to make members aware of different career and leadership pathways across government.</p>	<p>Connect with departments and other professions to understand what current leadership programmes exist and how they could be improved.</p> <p>GSE to trial a leadership empowering mentorship programme by July 2022.</p>	<p>Communicate to members how different departments approach science and engineering leader pathways by November 2022.</p> <p>Establish best practice for forums where GSE members could discuss leadership challenges and solutions.</p>

What do we want to achieve?	Strategic goals: How will we achieve this?	
	Short term (next 12 months)	Longer term (one year onwards)
We want to ensure that scientist and engineer qualities are recognised and valued within wider government leadership culture.	<p>Promote internal scientist and engineer leaders who provide expert advice and lead in supporting GSE people through established communication routes.</p> <p>Signpost learning opportunities for scientists and engineers to help communicate their expertise effectively among colleagues and government leaders by May 2022.</p>	<p>Continue to build GSE leadership examples through publishing at least ten diverse profiles online each year.</p> <p>Through the GSE leadership working group, evaluate gaps in learning opportunities and develop new learning if required.</p>
We want to ensure scientists and engineers can progress and access all leadership opportunities offered in government.	<p>Establish a baseline of how many scientists and engineers take part in departmental development offers by April 2022.</p> <p>Promote learning offers specifically for specialists looking to develop inclusive non-technical leadership skills by May 2022.</p>	<p>Help prepare scientists and engineers for departmental development programmes through targeted interventions by January 2023.</p>
We want to allow continuous career development for scientists and engineers as they gain technical expertise across government.	<p>Promote the GSE technical skills in departmental recruitment practices to ensure a benchmark for scientists and engineers, and to allow development outside of specific discipline.</p> <p>Promote learning offers aligning to the domain strand of government skills campus throughout 2022.</p>	<p>Continue to embed the GSE career framework in departments, so that managers are comfortable using transferable GSE technical skills in development reviews.</p>



# Leadership in HSE: leading the way in empowering their scientists and engineers

Enabling science and engineering leadership is crucial across government and is a key priority for the GSE Profession (GSEP) and the Health and Safety Executive (HSE). HSE has been fully engaged with the national response to the COVID-19 pandemic which has seen science, engineering and evidence at the heart of advice to inform policy-making and government decision-making.

Empowering science and engineering leaders is therefore critical for underpinning HSE's direction, focus and credibility and ensuring science and engineering continues to play a key role in government, providing evidence to anticipate and meet needs. In particular, empowered leaders will ensure HSE deliver their mission: "To prevent death, injury and ill-health to those at work and those affected by work activities" and achieve joint objectives they share with Defra: "To protect the health of people and the environment through enabling safe and sustainable use of pesticides and biocides".

HSE supports their leaders through clearly establishing leadership responsibilities and promoting their leaders. Their leadership responsibilities include:

- developing HSE scientists and engineers as professionals, including skills and competence development, training and mentoring
- managing individuals and teams, including healthy and safe ways of working
- establishing and developing specialist functions/capabilities, including providing robust, impartial evidence-based advice to inform policy-making, the operational delivery of new stand-alone chemical regimes in Great Britain, and forensic incident investigation
- leading development of scientific and engineering strategies to support HSE's overall strategy
- leading engagement with industry and professional bodies to support HSE's mission
- prioritisation, management of delivery, oversight and assurance of technical work
- strategic planning and engagement with policy and operational colleagues to support regulatory excellence.

**"Since joining HSE, I have worked with colleagues in other departments to recruit high calibre talent into government and supported the GSE Profession's commitment to diversity and inclusion by ensuring the makeup of the GSE talent pool mirrors that of the wider GB society."**

**– Joseph Isimite,  
Process Safety Specialist  
Inspector**

- maintaining strong national and international links with key science and research institutes to leverage our funding through joint work, and to influence others to develop evidence to meet HSE's areas of research interest
- networking, engagement and dissemination activities within government, other regulators and industry to share information and our scientific knowledge for mutual benefit
- taking account of foresight and horizon scanning knowledge and information to equip ourselves to address current and future issues

HSE also support their leaders through being proud of, and championing, them. For great examples of HSE leadership, explore the [HSE's 2021 Annual Science Review](#).

For instance, Sarabjit Purewal, a Principal Specialist Inspector in our Chemicals, Explosives and Microbiological Hazards Division, received an OBE for services to health and safety and cybersecurity. Sarabjit is a chartered electrical engineer and co-lead for the specialist Electrical, Control and Cybersecurity team.



**“Much of the credit for this must go to my team and to colleagues in our Energy Division. I want to thank them for their professionalism, expertise and commitment over the years in making HSE a leading authority in this area.”**

**– Sarabjit Purewal,  
Principal Specialist  
Inspector**

Going forward, HSE's scientific leadership will need ever-increasing support as responsibility for the safety of chemicals, among other things, has transferred to the UK since its exit from the European Union. HSE will continue to encourage its colleagues to work with the [GSE Career Framework](#) to help identify learning and development opportunities to enhance their skills and expertise. HSE will also look to embed elements of the framework into performance management arrangements where appropriate.

The GSEP hope to work with an increasing number of departments to support them in empowering their science and engineering leaders, following this inspiring example set by HSE.





Government Science  
& Engineering

## How to get involved

If this strategy has inspired you to get more involved in government science and engineering and help us achieve our vision, you can:

**[Become a member](#)**

**[Find out more about the GSE Profession](#)**

Email **[gse@go-science.gov.uk](mailto:gse@go-science.gov.uk)** for information and to find out how you can get involved.