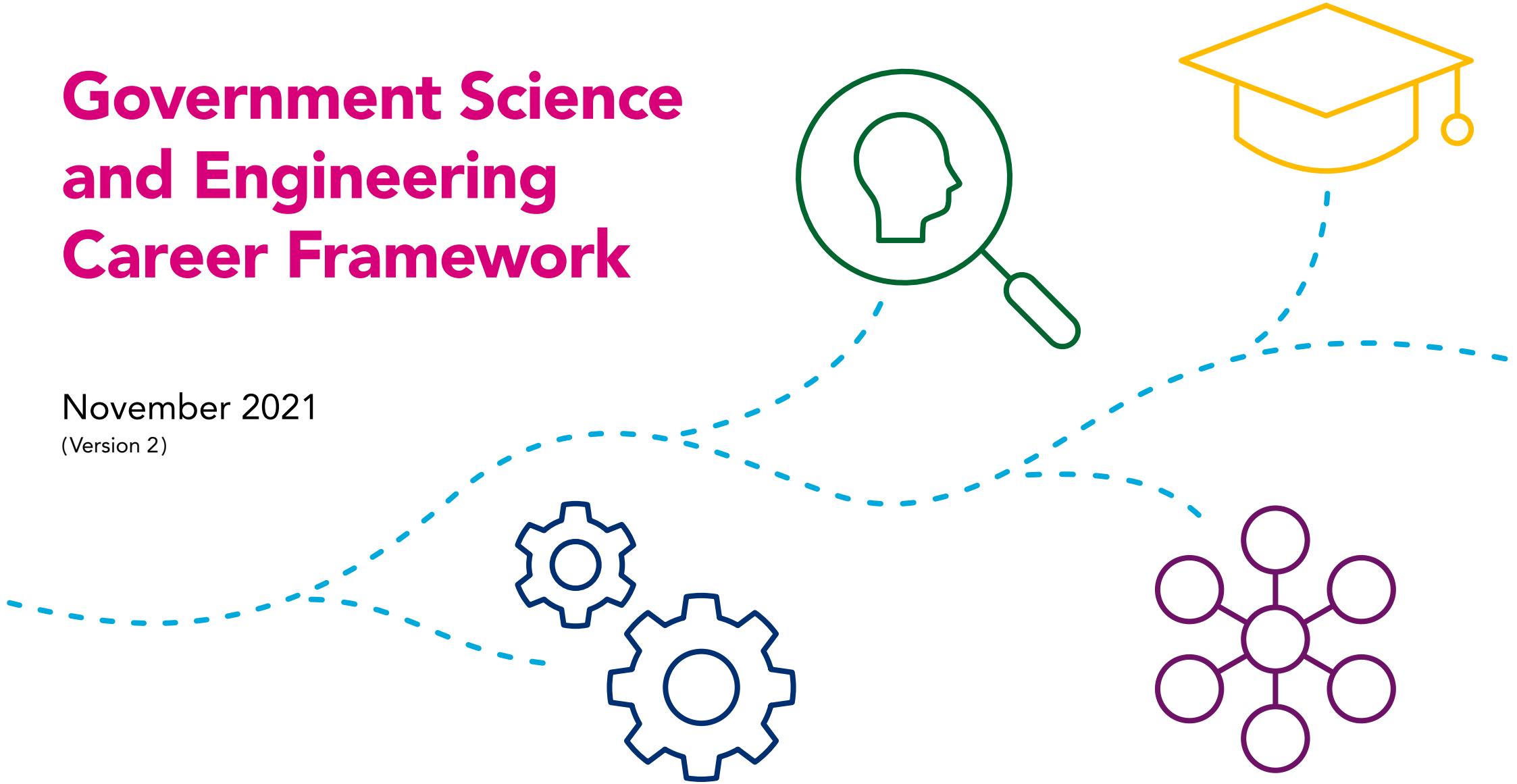
Government Science & Engineering

Government Science and Engineering Career Framework



November 2021

(Version 2)

A quick guide to the GSE Career Framework

What is it?

The Government Science and Engineering (GSE) Career Framework sets out a standard for careers across GSE. It explains the technical skills, knowledge and experience required to be an effective scientist or engineer in government. This framework links to Civil Service Success Profiles, and groups GSE roles into job families.

Who is it for?

Anyone interested in science and engineering careers across government and the public sector. It supports personal and career development, managers, and recruitment.

Glossary

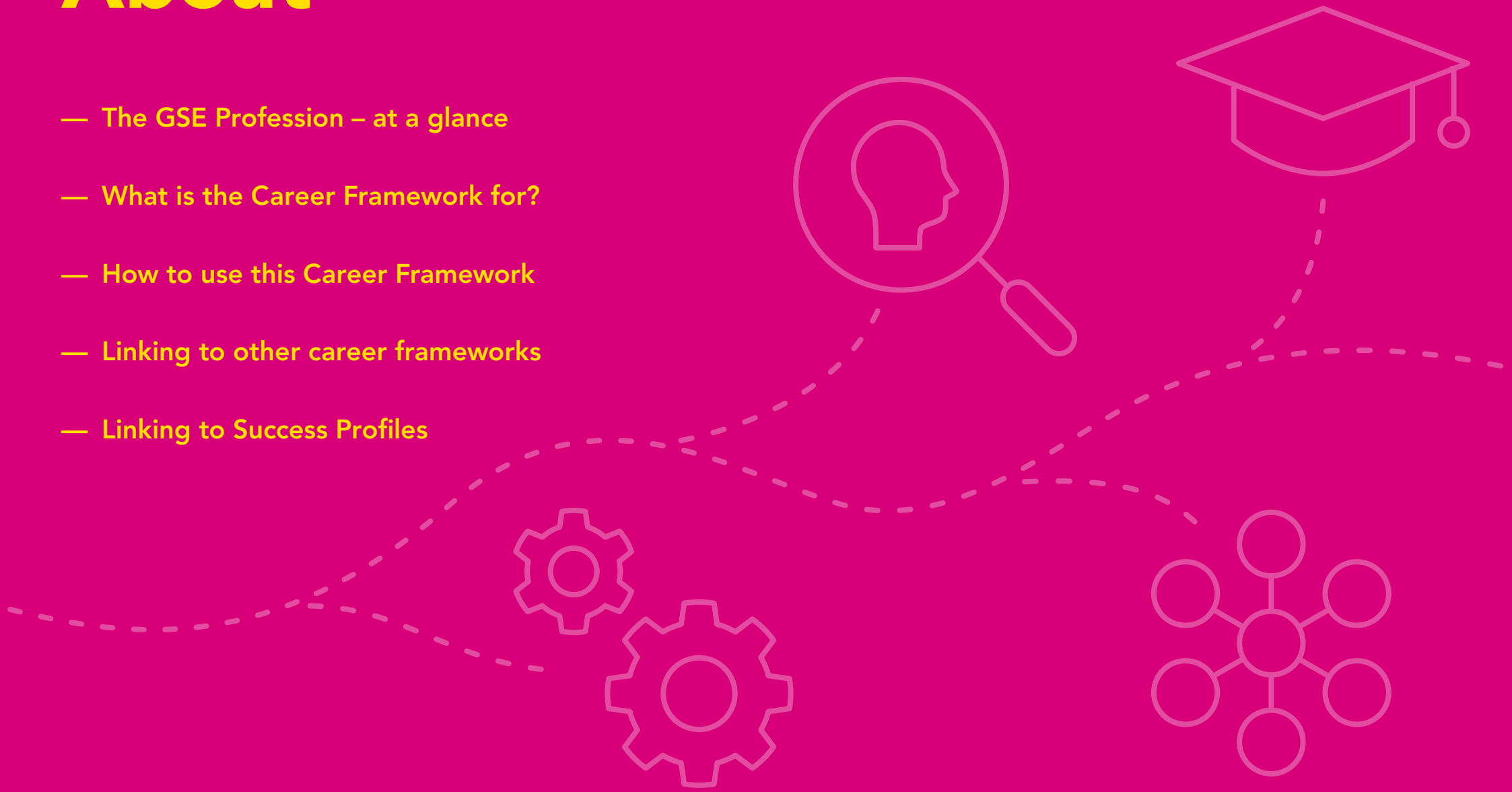
Check out the end of the document for the inevitable list of jargon!

How do I use it?

1. Go to the About section for information on how to use the career framework for your specific needs, and to find out more about GSE.
2. Go to Skills and experience to self-assess your GSE skills, and to determine what stage your knowledge and experience is at.
3. Go to Job families to see how GSE roles are grouped, and the suggested development pathways. Consider the skills and experience needed for your next career move. See career profiles for example roles of each job family across government and public bodies.
4. Once you have reviewed your own skills, experience and knowledge against the job family and career stage you would like to reach, consult the Development section on how to address any skills gaps.

Contents

About



The GSE Profession – at a glance

The Government Science and Engineering (GSE) Profession is a professional network of civil, crown and public servants who work in, or are interested in, science and engineering across government.

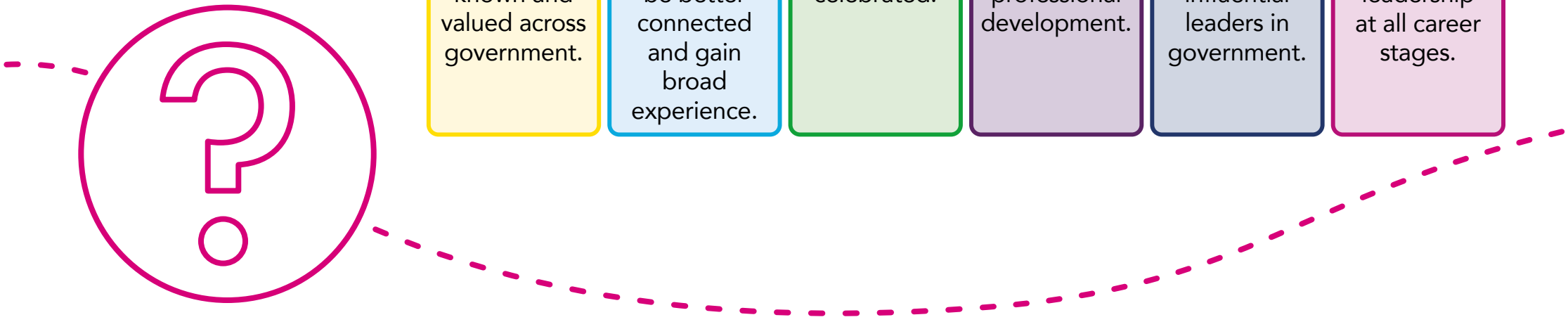
Our vision is for "a high profile, proud and effective GSE profession that attracts fresh talent and has a secure place at the heart of government decision making".

Our vision:
Making a real difference through government science and engineering

Embedding science and engineering in government

Building diverse people-capability

Expertise	Interchange	Inclusivity	Learning and development	Talent	Leadership
Building a strong GSE community whose expertise is known and valued across government.	Providing systems that allow scientists and engineers to be better connected and gain broad experience.	Creating a profession where everyone is nurtured and celebrated.	Providing full and accessible support for science and engineering professional development.	Growing diverse STEM talent from early career to highly influential leaders in government.	Enabling scientists and engineers to demonstrate technical leadership at all career stages.



The GSE Profession – at a glance

What the GSE Profession offers

- Access to a dynamic, diverse, member-driven, cross-government professional network.
- Access to opportunities such as links to professional bodies/institutes, networking events, STEM activities, visits or seminars and talks.
- Opportunities for personal development by promoting your area of science and engineering, supporting your departmental Head of Science and Engineering Profession (HoSEP) and access to career development tools like this framework and other learning and development tools.

Become a member or find out more

- Sign up to the profession here. If you've changed the organisation you work for, you will need to re-register.
- Visit the GSE blog, a main route for GSE communication.
- Read the GSE Story, highlighting the rich history of government scientists and engineers.

Champion the importance of Science & Engineering across government

- Become an active ambassador for the profession and become a GSE Champion.
- Find out more about what it means to be a Champion here.
- There is also the opportunity to become a GSE Learning and Development Champion, to find out more contact gse@go-science.gov.uk
- Your organisation may already have a network set-up for the local science and engineering community; find out more via your local HR Business Partner. If one doesn't already exist, why not set one up?

What is the Career Framework for?

The Government Science and Engineering (GSE) Career Framework is designed to aid people wishing to start or develop a career in GSE, replacing the GSE skills framework. It provides:

Support for personal development

- Explains the skills, knowledge and experience necessary to be an effective scientist or engineer within a government context.
- Demonstrates the variety of possible GSE careers.
- Provides people with guides on how to structure their development.
- Supports effective career conversations by evidencing learning and development gaps.
- Signposts available learning and development resources.

Understanding of wider opportunities

- The development section signposts a range of potential opportunities for users to explore more.
- It covers: industry connections, ongoing science and engineering across government and public bodies, and maps this framework across to other government professions.

Support to managers and recruitment

- The GSE skills assessment tool will help highlight skill gaps across teams.
- The GSE Profession offers recruitment guidance for recruiters and candidates which provides best practice when considering experience and skills required for GSE roles and progression. Please contact the GSE Profession team for details.

Connection to the GSE profession

- Provides a career anchor to the GSE profession for individuals not currently in science or engineering roles.

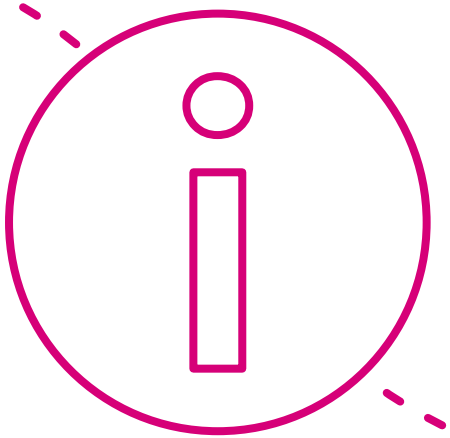
How to use this Career Framework

This framework can be used in different ways depending on your needs.

For personal development and career planning

To use this framework for development, follow these steps:

1. Assess your skills and experience against the GSE technical skills and GSE knowledge and experience levels.
2. Align your current role to one of the four GSE job families.
3. Consider whether you would like to progress within your job family or change your role completely.
4. Identify the requirements for that job family at each career stage.
5. Discuss any gaps in skills or experience in your career conversations. Consult the development section for next steps.



For wider career opportunities

Consult the development section for inspiration on different careers and placements across government and the public sector.

The development section signposts ongoing science and engineering across government, industry partners, and other professions.

For managers and recruitment

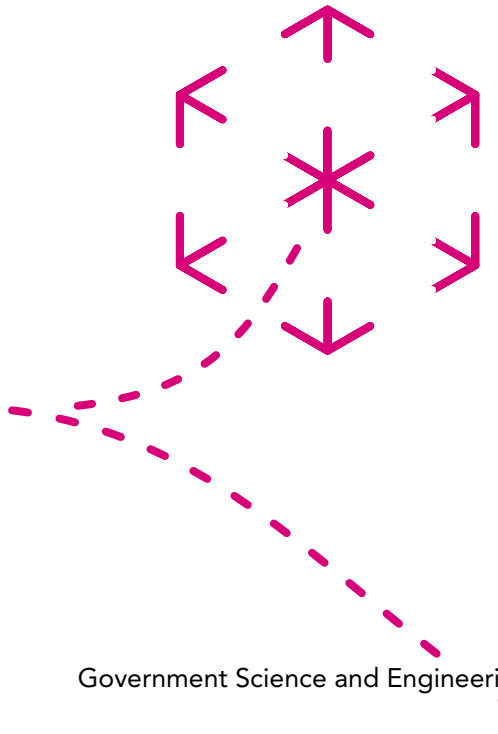
Support for this can be found in two places within the framework.

The skills and experience section illustrates overall requirements for government scientists and engineers. These can be used for recruitment and career conversations. Job families outline how these progress throughout a GSE career.

The development section signposts an upcoming online learning tool which tests users against the GSE Career Framework. This will provide information about gaps in skills and learning and development offers.

Linking to other career frameworks

The Government Science and Engineering (GSE) career framework can be either used as a standalone tool, or with another career framework. This may be a framework delivered by your organisation, or from another government profession.



Alongside an organisation career pathway

This framework focuses on skills, knowledge and experience to make you an effective scientist or engineer within a government context, complementing existing organisation specific requirements.

Use this framework, alongside an organisation's framework, incorporating some GSE technical skills into your career conversations, alongside required departmental skills, and, if relevant, success profile behaviours.

Use the knowledge and experience section as evidence for any wider GSE learning and development required for your next step.

You should be able to map your current chosen organisational/departmental career pathway to one of the broad GSE job families.

Alongside other professional frameworks

We are an inclusive profession and welcome people who are members of other government professions. We also encourage the use of additional government professional career frameworks where relevant. See a list of government professions here, by scrolling to 'High profile groups' and searching for 'profession'.

Use this framework, alongside another professional framework, by adding relevant GSE technical skills to your career conversations, alongside those from other profession's frameworks, and, if relevant, success profile behaviours.

Find out if there are opportunities in other frameworks for secondments, role swaps or additional training needed for your development.

We work closely with other government professions and functions where there is significant overlap with GSE, such as policy, analysis, and property. To see more about these overlaps, visit the development section here.

Linking to Success Profiles

"The Success Profile Framework is being introduced to attract and retain people of talent and experience from a range of sectors and all walks of life, in line with the commitment in the Civil Service Workforce Plan."

How do they link to this career framework?

In the Civil Service, the Government Science and Engineering (GSE) Career Framework forms the **Technical** and **Experience** elements of the Success Profiles. The **skills and experience** section describes: technical skills (forming the technical element) and, knowledge and experience (the experience element).

How do I use this framework with Success Profile behaviours?

This framework highlights skills that demonstrate an exemplar government scientist or engineer and shows the experience required at each stage to aid development into Senior Civil Servant roles.

People are encouraged to incorporate some of these skills alongside Success Profiles **Behaviours**, and department specific skills in their career conversations, or as part of a recruitment exercise.

Experience is the knowledge or mastery of an activity or subject gained through involvement in or exposure to it.

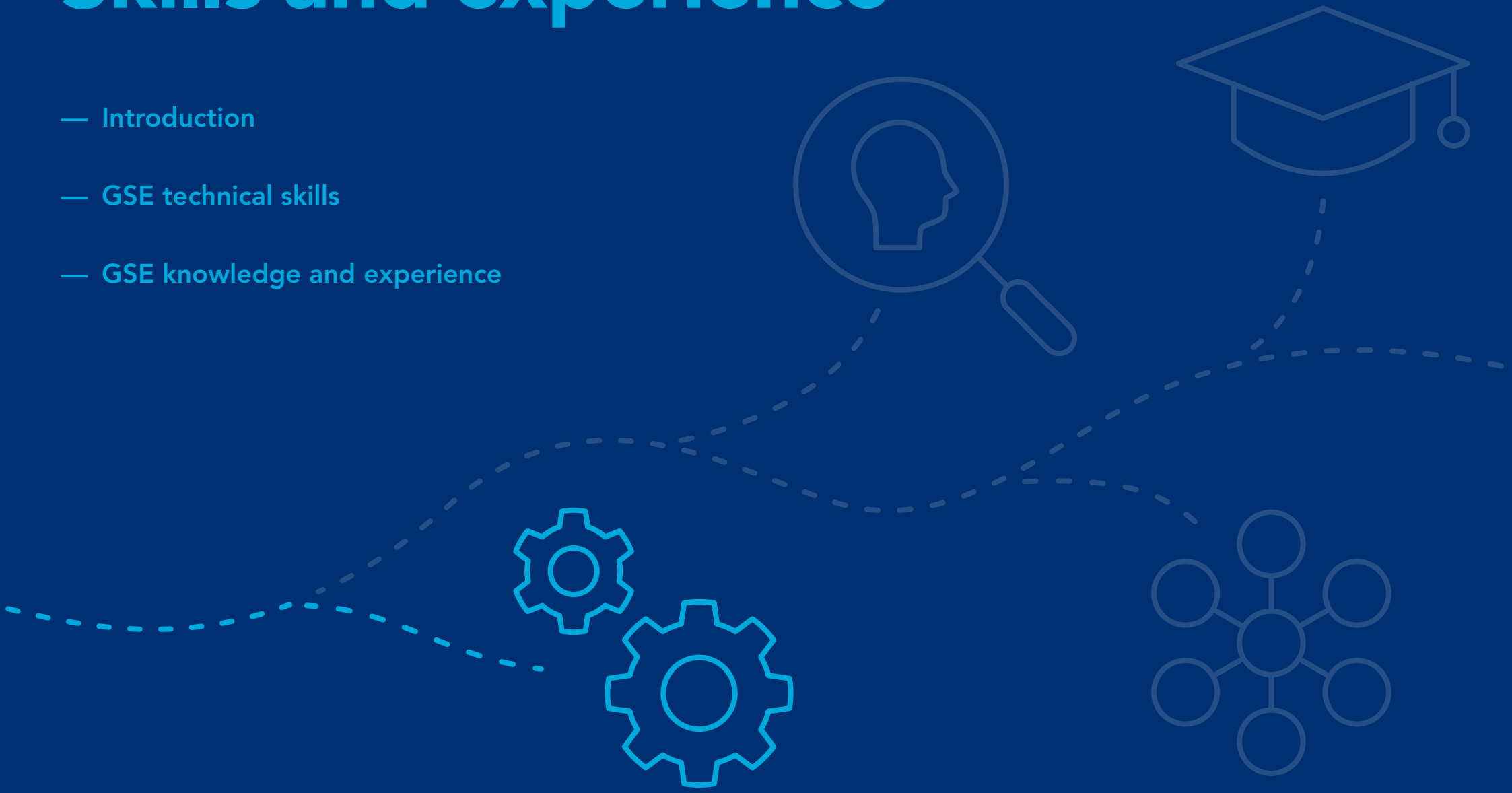
Strengths are things we do regularly, do well and that motivate us.

Ability is the aptitude or potential to perform to the required standard.

Technical is the demonstration of specific professional skills, knowledge or qualifications – this is where the GCS Competency Framework fits in.

Behaviours are actions and activities that people do that result in effective performance in a job. These are based on competencies, but they have been refreshed and rewritten for Success Profiles.

Skills and experience



Introduction

Using GSE technical skills

These skills are designed to make you an effective scientist or engineer within a government context, complementing existing organisation specific requirements. For recruitment, they describe the **technical element** of civil service success profiles. The GSE Profession offers recruitment guidance for recruiters and candidates which provides best practice when considering experience and skills required for GSE roles and progression. Please contact the GSE Profession team for details.

Use these skills in your career conversations alongside specific organisation skills and success profiles **behaviours**, if relevant. Evidence of progression in each skill is defined by the **skill levels**: Awareness, Practitioner and Leading. These reflect how confident you are in using these skills and how often you practice them. As a general guide, Awareness reflects an understanding of how that skill could be developed and why it is required, Practitioner reflects regular use of that skill, and Leading means you should be able to mentor others in developing this skill.

The skills are grouped by:

- Building and applying knowledge
- Communicating science or engineering (S/E) for government
- Developing the GSE community
- Technical oversight and management
- Broad thinking.

Using GSE knowledge and experience

This section describes entry points for each career stage within GSE. They provide a common language, aligned to career progression, for GSE learning and development offers across government. For recruitment, they form part of the **experience** element of civil service success profiles.

Use the knowledge and experience levels to assess where you currently are in your career, and see what is needed for your next career move. Use any gaps as evidence for development in your career conversations.

Career stages describe a stage in your own professional development, namely: Foundation, Emerging, Experienced and Leader. They provide a common language for people's careers across departments and organisations. You may find you move up and down this scale depending on your learning requirements when entering new job role, it is not always a linear progression.

GSE technical skills

Building and applying knowledge (page 1 of 2)

Skill	Explanation
Applying knowledge	Understands and objectively, and effectively, applies scientific and engineering approaches with rigour and integrity. This may be through gathering and analysing information, producing effective literature reviews, critiquing techniques, designing or conducting research, undertaking fieldwork, computational modelling, writing evaluations and / or contributing to knowledge sharing including peer reviewed journal papers.
Developing / maintaining expertise	Promotes and undertakes continued professional development, seeking learning and development opportunities to increase knowledge and experience in their specialism and applies these appropriately. Ensures work is supporting appropriate decision making. Where appropriate, holds suitable transferable qualifications, or demonstrated by appropriate professional registration.
Complying with requirements / standards	Understands the relevance of, and complies with, statutory and/or non-statutory requirements relating to legislation, voluntary codes of practice/conduct guidance, and quality assurance processes. May be responsible for explaining such requirements to colleagues, or responsible for contributing to the development of these requirements. Understands and applies the **concordat** on research integrity and professional institutes standards.
Designing systems and solutions	Developing and designing scientific, technological or engineering solutions to tackle novel or challenging problems, or to maximise exciting opportunities. Undertakes the appropriate investigations and research needed to design systems and solutions. Implements and evaluates the effectiveness of the scientific, technical or engineering solutions throughout the system lifecycle.

GSE technical skills

Building and applying knowledge (page 2 of 2)

Skill	Explanation
Cultivating reputation	Develops and maintains a positive, well-respected and influential scientific / engineering reputation both across government and externally, including through assessments, publications, presentations at conferences, and representation on relevant professional or academic bodies.
Quality assurance	Ensures quality and ethical research is conducted in own area and those of others, by applying objective quality assurance processes. Where appropriate, refers to further guidance available both within and outside of government. Strikes an appropriate balance between technical quality, cost, safety and timely delivery.
Regulatory Knowledge	Understands the regulatory framework in which their department operates, how their working contributes to this, and the impact of the decisions being made. Recognises and communicates uncertainty and risk. Understands the health and safety implications of their role and manages, applies and improves safe systems of work.

GSE technical skills

Communicating science and engineering for government

Skill	Explanation
Engagement with others	Builds solid links to internal and external specialists and stakeholders; demonstrates how this knowledge is benefiting science and engineering capability across government or wider science and engineering community. Represents their organisation externally in a positive and effective manner. Demonstrates professional and considerate conduct when working with others. Builds and manages effective partnerships.
Interfacing with policy	Understands how to provide scientific, technical or engineering advice to policy. Understands and promotes the significance of this advice and evidence in policy making, and helps develop systems that promote its use. Evaluates the use and impacts of evidence-based policy across government throughout the policy lifecycle. Communicates advice and evidence in a clear, unbiased and understandable manner to non-specialists by considering audience needs and background, and understanding how advice will sit within the policy landscape.
Providing and handling evidence	Generates, collates and provides succinct scientific, technical or engineering evidence to fulfil requirements. Provides critical analysis and investigation of sources, and contributes to the robustness of the evidence base. Provides evidence in a format that can be circulated or published across government or externally by considering the background and needs of varying audiences.
Disseminating science and engineering	Adapts communication styles to different audiences, including public communication or technical official communication. Communicates complex, technical ideas such as risk and uncertainty clearly to stakeholders from different backgrounds. Audiences could range from those with no scientific or engineering expertise, to different specialists at conferences or industry contacts. Can deliver clear presentations and written proposals, providing effective "bottom line" summaries that are understandable to non-specialists.

GSE technical skills

Developing science and engineering capability

Skill	Explanation
Developing science and engineering communities within government	Demonstrates commitment to the GSE Profession through leadership or support for cross-government professional development activities allied to their discipline. Builds a diverse network for self and others to share professional knowledge and know-how. Explains and promotes the role of the GSE Profession and makes an active contribution to its future development.
Improving capability	Engages with their organisation and the GSE Profession to provide professional development activities and strategies for their team or organisation. Considers science and engineering capability needs within their organisation and develops processes to meet these needs, ensuring a people-centric approach.
Mentoring	Supports and develops others not necessarily under their management or in the same discipline. Encourages others to develop their area of science and engineering interest and/or career.
Science and engineering public engagement	Increases public awareness of government science and engineering work and encourages diverse groups of talented individuals to explore careers in government science and engineering. Helps coordinate, and encourages others to take part in, STEM outreach events. Shares impact of own work with the public where relevant.
Promoting diversity and inclusion	Creates opportunities for all by contributing to diversity and inclusion networks and team/organisational initiatives where possible. At all stages, considers the full range of audiences of their work and ensures that a variety of stakeholders are consulted. Where appropriate, ensures evidence and analysis is gathered from a range of sources.

GSE technical skills

Technical oversight and management

Skill	Explanation
Being an intelligent customer	Identifies the technical problem to be solved, defining further questions to be asked or research needed, and scopes project requirements/specifications. Ensures that those working on projects have a clear understanding of what is required of them and the relevant scientific, technical or engineering capabilities to implement solutions. Writes or reviews bid documents and procures/commissions technical work efficiently. Provides regular and consistent critical and technical oversight of these projects, ensuring integrity of the work throughout.
Overseeing technical work	Effectively approves, directs and reviews scientific, technical or engineering work of others. Champions good practice, openness to scrutiny, promotes integrity, collaboration, and manages risk effectively. Provides clear scientific, technical or engineering leadership to projects, portfolios or programmes. Helps identify learning and development opportunities for members of their team, enabling continuous improvement.
Technical delivery/project management	Plans and manages technical elements of a project, identifying the techniques and resources required for efficient and effective delivery. Communicates workstreams to team members. Arrives at clear and defensible conclusions, with outcomes expressed credibly and transparently. Provides robust management and communications of business sensitive and confidential information including where appropriate budgets and resources.
Professional leadership	Is a leader in their team, area, and/or technical community. Supports and develops others, promotes role models and good practice, and helps build others' technical knowledge and/or supports their career progression. Understands the limitation of own knowledge, knowing when to gather advice, escalate issues and seek learning and development opportunities.

GSE technical skills

Broad thinking

Skill	Explanation
Technical adaptability	Understands the wider context and impact of their work supporting their organisation's objectives, government policy and broader scientific, technical or engineering communities. Applies scientific, technical or engineering principles and methodologies to different problems and technical areas and regulatory regimes. Identifies links and impacts from broader areas, harnessing links to new technologies.
Improving systems and practices	Brings about continuous improvement and contributes to and promotes good practice. Identifies problems and formulates scientific, technical or engineering approaches to solutions, ensuring safety and sustainability. Speaks up when there is an opportunity for science and engineering to benefit other areas of government and helps implement changes that will provide sustained benefits.
Horizon scanning	Understands the importance of, and utilises horizon scanning to, inform strategy, develop research plans, and manage risk. Anticipates impact of political/societal events on scientific and engineering capability and/or regulatory frameworks.
Systems thinking approaches	Recognises the need for, and employs where possible, systems thinking approaches when tackling highly complex, broad problems which require multi-disciplinary and multi-organisational responses. Draws upon a wide range of processes, models and tools, working across diverse areas to develop effective interventions and build strong networks and cohesive teams.
Knowledge Asset Management	Considers how knowledge assets could be generated from ongoing work, where examples of knowledge assets include intellectual property, software, data, know-how, expertise and other intellectual resources. Also considers how they could be used externally or across government to generate wider social, financial and economic benefits. Promoting knowledge asset generation and management across government.

GSE knowledge and experience

Career Stage	Suggested level of knowledge and/or experience for this stage	Suggested examples of how to demonstrate this
Foundation	• Has a foundation understanding of science or engineering (S/E) concepts. • Is keen to develop knowledge of how S/E is used across government either broadly or more specifically.	• Foundation understanding shown through demonstrable interest in science or engineering, experience of S/E exposure gained through placements, apprenticeships, or through education such as qualifications equivalent to STEM A-levels or bachelor's degree. • Proactively seeks experience in science or engineering.
Emerging	• Developing a solid understanding in a specific area of S/E or of underlying S/E principles which could be applied to several topics. Is developing the ability to effectively and regularly apply their knowledge to their role. • Where relevant, is undertaking training in extra vocational training to enable the use of S/E knowledge in their role. • Developing a broad awareness of S/E in government or knowledge of how their specific area of training is used in government.	• Solid understanding shown through apprenticeships on subjects directly relevant to the job role, or relevant qualifications which have provided a good appreciation of underlying S/E principles and how to use them in current role up to masters or doctoral level in any science or engineering discipline. • Vocational training may be role specific or associated with another profession and relevant to role. • Awareness of S/E across government could be through training, placements or secondments. • Eligible / applying for external chartership or accreditation.

GSE knowledge and experience (page 2 of 2)

Career Stage	Suggested level of knowledge and/or experience for this stage	Suggested examples of how to demonstrate this
Experienced	• Strong knowledge of a specific S/E area or confident knowledge across several S/E areas. Understands how to apply this knowledge readily. • If relevant, has strong additional vocational training relevant to one or more S/E topic(s) and applies this knowledge effectively and regularly. • Gaining experience in contributing to the development or use of S/E research/developments/technologies. Gaining experience of using S/E knowledge across different government departments, bodies or external partners. • Experience of effectively guiding others in their use of S/E.	• Strong knowledge shown through relevant academic positions such as post-doctoral or senior government research/S&E positions. • Confident knowledge across several areas shown through academic or governmental training or experience in conducting or applying S/E research across different topics. • Other vocational training may be non-GSE professional skills gained through placements or non-GSE roles such as policy writing, or role specific vocational training for roles such as patent examiner.
Leader	• Deep knowledge of a specific S/E area or strong knowledge across several S/E areas. • If relevant, has significant additional training relevant to one or more S/E topic(s) and applies this knowledge effectively and regularly. • Is highly practiced and effective at applying this knowledge readily. • Significant experience leading, managing or utilising emerging research / developments / technologies. Significant experience collaborating or communicating across different government departments, bodies or external partners.	• Deep knowledge shown through leading teams, or research, in government or senior academic positions. • Strong knowledge shown through several roles with experience in applying different areas of S/E. • Demonstrable evidence from other vocational training. • Gaining experience in leading roles in external organisations, or different government departments and bodies.

Job families

- Introduction to Job Families
- GSE Affiliate
- Cross-discipline
- Specialist
- Deep Specialist

Introduction to Job Families

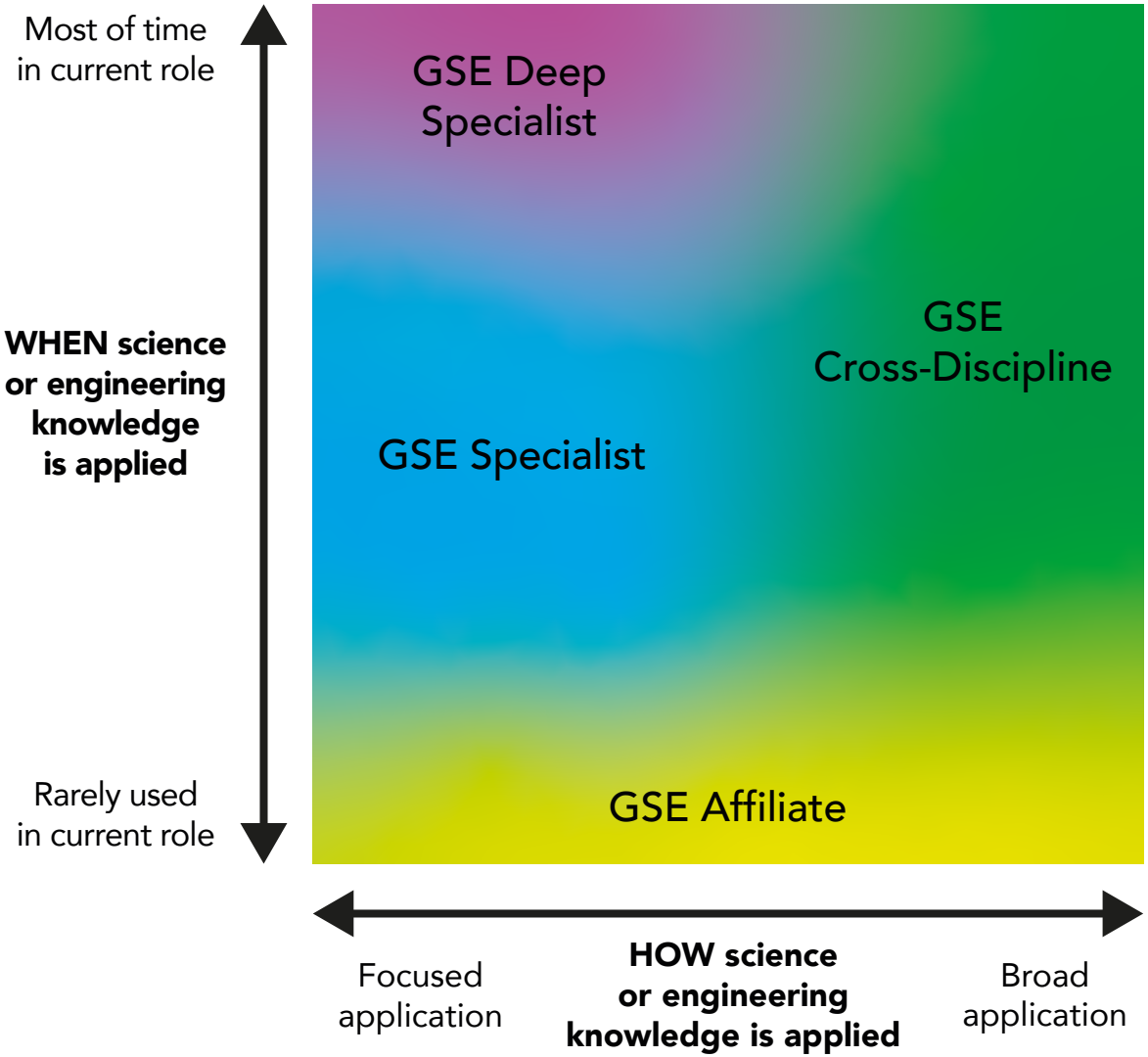
What are they?

Job families, or career pathways, are groupings of roles used by professions in government. Job families describe how each Government Science and Engineering (GSE) role engages with science and engineering.

The GSE job families are: Affiliate, Cross-discipline, Specialist and Deep Specialist. Read the about pages for each to see which one best describes your role, and the role you may like to move to.

Why do I need to choose a job family?

GSE job families are flexible and are there to guide your development towards the type of career you would like. Use the job families to identify which skills you need to develop to achieve your career goals, and as evidence for any learning or training required.



Introduction to Job Families

How do I use job families?

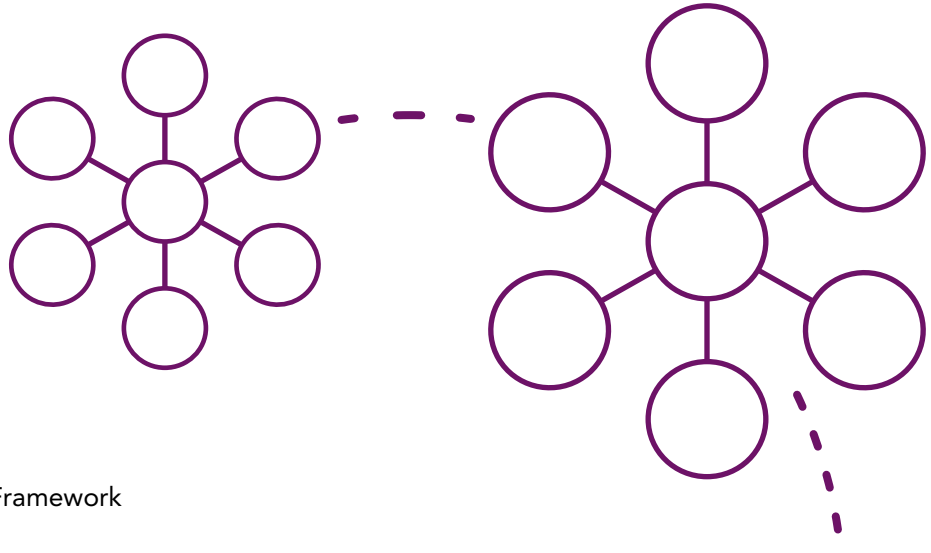
1. Read through the introduction page for each job family and decide where your role currently sits.
2. Consider which **GSE technical skills** you currently have, and what level you may be at for each. Also, consider which stage in your career your **knowledge and experience** level currently reflects. Skills levels and career stages are described to the right.
3. For each job family, there is a skills grid which indicates the recommended development for each career stage, according to skill group and knowledge and experience. Consider what your next step will be, and whether there is required learning and development to get there. To evidence progression in a skill group you can evidence any skill within that group.

Skills levels

Progression of a skill is defined by skills levels: Awareness, Practitioner and Leading. These reflect how confident you are in using these skills and how often you practice them. As a general guide, Awareness reflects an understanding of how that skill could be developed and why it is required, Practitioner reflects regular use of that skill, and Leading means you should be able to mentor others in development of this skill.

Career stages

These reflect stages in your own professional development. They are: Foundation, Emerging, Experienced and Leader. These stages provide a common language for people's careers across departments and organisations.



GSE Affiliate

About

This job family covers all job roles that are not directly related to technical science and engineering and exists for people who want to stay connected to the Government Science and Engineering (GSE) Profession.

Who is this Job Family for?

Someone with a background or interest in science and engineering (S/E), but not currently applying S/E expertise in their work.

Those who seek an anchor to the GSE community, want to continue to build their S/E skills, or remain interested in the S/E work that goes on across government.

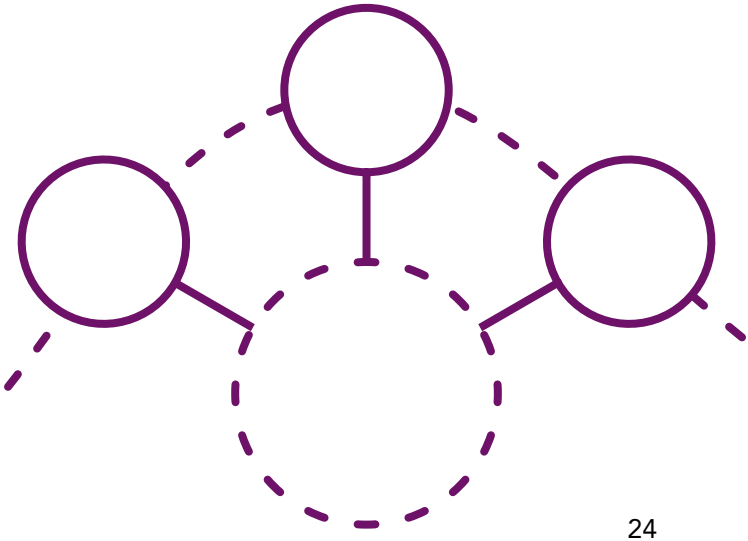
This job family is considered an inclusive gateway job family for people wanting to remain connected to, or join, the GSE Profession. Therefore, there are no specific skills, knowledge or experience required for each stage as those joining will come from many different backgrounds. Please consult the job family that most interests you in GSE to guide future development.

What makes a good GSE Affiliate?

A GSE Affiliate should be an ambassador at all levels, for both science and engineering in government and the GSE profession. They should apply their ways of scientific, logical and systematic thinking to the work they undertake, even if the subject matter is not directly connected to science or engineering.

Example roles

GSE Affiliates will be in roles that span government. These could include: private office roles, policy roles not directly related to science or engineering matters, project management roles, coaching roles, public science and engineering communication, corporate function roles, or commercial roles.



Cross-discipline

About

This job family covers roles that apply scientific or engineering (S/E) knowledge to a broad number of S/E topics.

Who is this job family for?

Someone who regularly adapts to working on different S/E topics and who readily applies overarching S/E methodologies to each area. Such methodologies could include: awareness of research language, ability to design research, communicating with scientific communities.

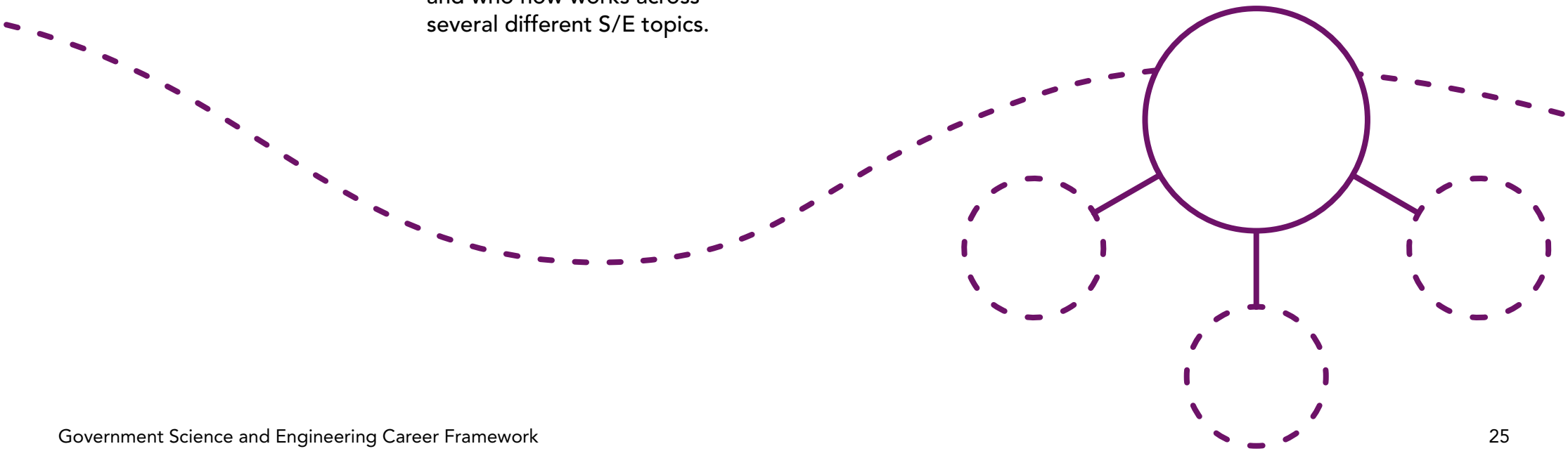
Someone who has S/E training and who now works across several different S/E topics.

What makes a good cross-discipline professional?

Someone in this job family should be highly adaptable and able to communicate complex ideas to a wide range of audiences. They should be dedicated to increasing awareness of Government Science and Engineering (GSE) and its profession across the different departments and areas they work in.

Example roles

Scientific policy advisor, horizon scanning, certain Science and Engineering Fast Stream (SEF) placements, technical official communication, intelligent customer, leader of an interdisciplinary S/E team.



Cross-discipline
Skills grid

	Foundation	Emerging	Experienced	Leader
Building and applying knowledge	A	A	P	P
Communicating S&E for government	A	P	L	L
Developing for the GSE community	A	P	L	L
Technical oversight and management	A	A	P	L
Broad thinking	A	P	L	L

Knowledge and experience

Please consult the suggested **knowledge and experience** for each stage.

A **Awareness:** an understanding of how this skill could be developed and why it is required

P **Practitioner:** regular use of this skill

L **Leading:** you should be able to mentor others in development of this skill

Specialist

About

This job family covers all roles that apply specialist knowledge or training in a science/ engineering (S/E) related area across many contexts.

Who is this job family for?

Someone who has specialised training, knowledge or experience in a S/E related topic, but the majority of their time is not spent solely on that topic. They may have re-trained from a different specialism but are still able to evidence deep subject matter knowledge in the current specialist area.

Someone whose role requires them to have non-S/E contexts to their work, which may require non-S/E training and development. This could be in procurement, project management, legal knowledge, policy work, leading different teams, or commercial functions. For each area, they are still required to have some specialist knowledge and apply it across these different contexts.

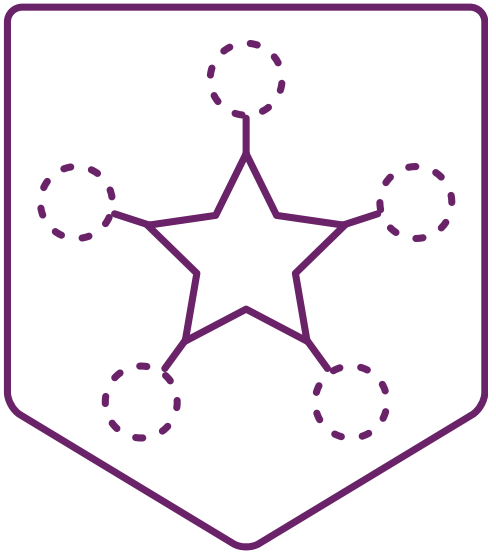
Someone who is not centred on practicing or utilising their specialist knowledge day to day, but rather has a broad range of responsibilities.

What makes a good specialist?

A specialist should be practiced at applying their specialist knowledge across different contexts and teams, and be able to communicate their topic readily to different people. They should be undertaking specific training required for their role, alongside maintaining knowledge of their specialist area.

Example roles

Specialist scientific policy advisor, scientific consultant, patent examiner, scientific strategic head, technical project management.



Specialist
Skills grid

	Foundation	Emerging	Experienced	Leader
Building and applying knowledge	A	P	L	L
Communicating S&E for government	A	P	L	L
Developing for the GSE community	A	A	P	L
Technical oversight and management	A	A	P	L
Broad thinking	A	A	P	L

Knowledge and experience

Please consult the suggested **knowledge and experience** for each stage.

A **Awareness:** an understanding of how this skill could be developed and why it is required

P **Practitioner:** regular use of this skill

L **Leading:** you should be able to mentor others in development of this skill

Deep Specialist

About

This job family covers all roles that require a high level of science or engineering (S/E) training in a specific area and the core element of their role is to utilise and develop that knowledge and experience daily.

Who is this job family for?

Someone who has a deep knowledge in a specific S/E topic and utilises this specialist knowledge in their day to day role and operates mostly in that specific context.

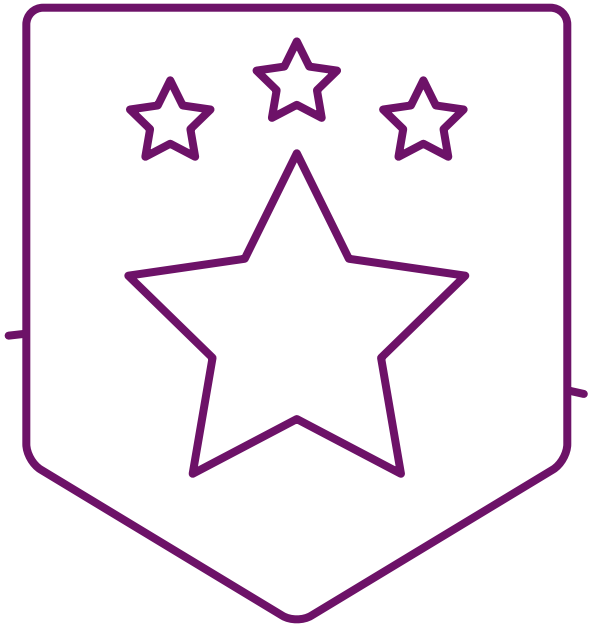
Someone whose role is centred on developing, utilising or practicing their deep specialist skillset. They may occasionally operate in different contexts as a deep specialist, but mainly work in their specific area.

What makes a good deep specialist?

A deep specialist should practice their specialism with integrity and always be self-auditing. They should be dedicated to developing the Government Science and Engineering (GSE) community including mentoring and passing on their experience and knowledge.

Example roles

Regulatory scientist, scientific software engineer, toxicologist, entomology research technician, S/E inspector, research engineer, research scientist, computational experts, head of specialist area, senior technician, science fellow.



Deep Specialist
Skills grid

	Foundation	Emerging	Experienced	Leader
Building and applying knowledge	P	L	L	L
Communicating S&E for government	A	A	P	L
Developing for the GSE community	A	A	P	L
Technical oversight and management	A	P	L	L
Broad thinking	A	A	P	P

Knowledge and experience

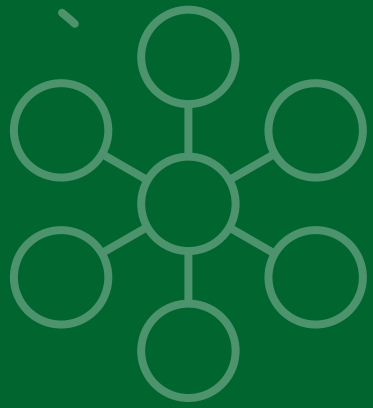
Please consult the suggested **knowledge and experience** for each stage.

A **Awareness:** an understanding of how this skill could be developed and why it is required

P **Practitioner:** regular use of this skill

L **Leading:** you should be able to mentor others in development of this skill

Career profiles



- Caroline (GSE affiliate job family)
- Jennie (Cross-discipline job family)
- David (Specialist job family)
- Jim (Specialist job family)
- Helen (Specialist job family)
- Laura (Deep Specialist job family)
- Rachel (Deep Specialist job family)
- Masaya (Deep Specialist job family)

Caroline

GSE Job family: GSE affiliate

H&S Lead Advisor / Corporate Affairs Manager (page 1 of 2)

Describe your current role

My current role ensures NIBSC meets all legal requirements and scientists can fulfil their roles in ensuring and improving public health. Elements include business continuity, risk assessment, policy and procedures, information management, assurance mapping of governance and quality-related activities, staff inductions, learning and development, supporting STEM activities, line management and internal communications.

What's a career highlight of yours?

During my 'First Real Job' at an Agricultural Research Institute I investigated autocrine control of milk secretion, by an inhibitory factor in milk, using goats as the model animal. We identified a unique regulatory milk protein in several species, including humans and bats! At Division of Medicine at Imperial college I investigated immuno-therapeutic approaches to better target and destroy tumours.

Now, having moved away from the bench I understand how much else I had to offer building on my scientific, organisational and communication skills.

Do you have any career advice?

Seeing the bigger picture – understand the limits of some positions and consider where do I want to be next year and in five years.

Understand your skill set and how transferable they are. Where you see areas for improvement – set realistic goals. Do not beat yourself up when things don't go well, everything is a steppingstone.

Caroline's journey

1982–88
PhD in gene regulation and chromosome structure
Glasgow University

1987–96
Research Scientist in Mammary Gland Biology/Physiology
Hannah Research Institute

1996–97
Non-clinical Scientist
MRC Collaborative Centre

1997–2007
Research Associate/ Investigator Scientist
MRC Clinical Sciences Centre

2007–12
Research Fellow
Imperial College

Caroline

GSE Job family: GSE affiliate

H&S Lead Advisor / Corporate Affairs Manager (page 2 of 2)

Ask for feedback and support, getting help and support to build your resilience and emotional intelligence is something I would recommend. Loyalty is admirable but you must remember your own wellbeing and personal development. If you are not in a supportive environment – don't stay!

Take advantage of coaching and mentoring schemes. Coaching is not for poor performers; it is a recognised developmental tool. I think career frameworks that allow you to look at yourself holistically are valuable and augment local initiatives occurring in your organisation. Be proud of your achievements and support others in their development.

Any extra advice?

Believing in yourself and your ability to grow, adapt and change is very important. When I moved to London and started a series of fixed term grant-funded posts I realised it could not go on forever and started to build/develop additional areas and loved being useful, organising and driving things forward. It was only when I looked for jobs near the end of my contract I started to think seriously about what I had to offer apart from obvious scientific expertise. Things turned out well, but I should have been doing a lot more a lot sooner, and it has made me passionate in supporting others on their career journey.

A key moment was transitioning from interim Divisional Resources Manager to the Corporate Managers Role and saw what others saw in me – someone who gets the job done, analytical ability, strengths in communication, problem solving, organisation, positivity. I began to feel comfortable selling myself and being that person.

2012–14

Divisional Resources Manager (DRM)
NIBSC

2014

NEBOSH National General Certificate in Occupational Health and Safety
The Rapid Results College Ltd (RRC)

2014–19

Corporate Affairs Manager
NIBSC

1997–2007

Level 5 Certificate in Coaching and mentoring
ILM

2014–19

Corporate Afairs Manager/ Interim NIBSC Lead H&S Advisor (0.4/0.6 FTE)
NIBSC

Jennie

GSE Job family: Cross-discipline

UK Mission Innovation lead (page 1 of 2)

Describe your current role

I am Head of Secretariat for Mission Innovation (MI) and also lead the international energy innovation strategy in BEIS. I lead a virtual international team based in governments in the UK, EC, Austria, Canada, China and South Korea that drives forward the vision and impact of MI to support our 25 member governments.

In my role I constantly have to stay up-to-date with emerging technology and scientific developments across the entire energy landscape. I have a very broad high-level knowledge and then delve in more deeply when I need to through engagement with researchers, start-ups, the private sector and international organisations. My scientific background is very helpful, enabling me to rapidly understand technical concepts and feel confident discussing ideas with academics and business leaders.

What's a career highlight of yours?

I have too many! The experiences that have really shaped me and where I have learned the most are when I've set-up and led organisations, from a social enterprise whilst at university to a global network developing early-career sustainable science leaders. Those were crucibles to rapidly learn project management, leadership and fundraising skills. Living and doing research in Rio de Janeiro was unforgettable and I would encourage everyone to experience working abroad. I am incredibly privileged to be able to bring all of those experiences together in the job I do now - straddling the intersection between policy and innovation and being in the position to have real global impact.

Jennie's journey

2002–06
MSc Chemistry
University of Nottingham

2006–07
Events and Training Coordinator
People and Planet

2007–11
PhD Chemistry
University of York

2011
RSC Fellowship
Parliamentary Office of Science and Technology

2012–14
Post-doctoral fellowship
Federal University of Rio de Janeiro

Jennie

GSE Job family: Cross-discipline

UK Mission Innovation lead (page 2 of 2)

Do you have any career advice?

Build a network of people who can challenge, support you and nurture you to flourish – they may be at the next desk, in another department or external but you need to go out and find them. In every role I've had, whether in academia, NGOs or the public sector, the key to having impact has been to find the people who have the knowledge that I don't have, those who have the contacts that I need to deliver change and the people who share the same energy and vision who can buoy me up when things are tough. Find those people and be reciprocal in your support.

No-one will ever write this as career advice, but I find "networking" quite overrated! Building on day-to-day working relationships and keeping in touch with ex-line managers etc. is more important to me personally.

What led you to where you are now?

A really important experience in my transition from being an academic to working in policy was a fellowship I had during my PhD at the Parliamentary Office of Science & Technology. That was rapid immersion in learning how to distil, evaluate and communicate scientific knowledge for policy-makers and to understand what was relevant.

2014–15

Post-doctoral fellowship
University of York

2015–17

Policy Officer
UK Collaborative on Development Sciences

2017–18

Deptuty Head MI Secretariat and UK MI policy lead
BEIS

2017–now

Head MI Secretariat
BEIS

David

GSE Job family: Specialist

Chief Engineer, Department for Transport (page 1 of 2)

Describe the role

I lead the Infrastructure Efficiency and Engineering team in DfT, which provides engineering advice to the whole department, with a particular emphasis on getting the best value we can for the transport user and the tax payer out of the £billions we spend on new transport infrastructure, such as HS2. That essentially means two things:

- Effective engineering; i.e. doing the right thing (which might mean not building new infrastructure) to meet desired policy outcomes and benefits, and
- Efficient engineering – having decided what the right solution is, delivering it as efficiently as possible, through new ways of working, innovation, better construction contracts and a real understanding of what transport infrastructure should or could cost.

My team is also responsible for the department's whole-life carbon management programme – establishing a framework to measure and reduce the carbon generated building and operating our transport infrastructure. I also act as professional head for all engineers in the department, alongside our science colleagues in the Science and Engineering profession and we have recently established a virtual engineering team beyond my own team which includes specialist engineers, such as those in vehicle certification, and people who trained as engineers but now use those skills in other areas such as policy making or project management.

David's journey

1979
Sponsored Student Training Scheme
British Rail

1983
BA in Engineering
University of Cambridge

1990
Became a Chartered Civil Engineer

1991
Permanent Way Maintenance Engineer
British Rail

1993
Project Engineer
British Rail

David

GSE Job family: Specialist

Chief Engineer, Department for Transport (page 2 of 2)

What's a career highlight of yours?

I was involved in writing a white paper having just managed the national ecosystem assessment and it was a fantastic process. I got to sit opposite the team as they were writing with them firing questions at me asking what they could say and what made sense. Working together, incorporating new evidence to policy directly and efficiently, delivering something robust yet not in scientific jargon was absolutely brilliant. Having other governments from around the world ask us how we managed to make this happen only added to the experience!

Do you have any career advice?

Make the most of whatever job you are in at the time. Great opportunities will then come to you.

What led you to where you are now?

Approaching the end of my career in engineering, I was approached by civil service head-hunters looking for a senior engineer to join DfT. I saw it as an opportunity to influence government thinking in a profession I care passionately about, and to serve the public directly, and to my delight that has proved to be the case.

1998
Operations Performance Manager
Great Western Railway

1999
Senior Project Manager
Great Western Railway

2003
Engineering Director
Scott Wilson Consultants

2016
HS2 Phase 1 Railway Systems procurement sponsor
DfT

2020–now
Chief Engineer
DfT

Jim

GSE Job family: Specialist Consulting fellow (page 1 of 2)

Describe your current role

I am a Consulting Fellow in the Defence Science and Technology Laboratory (DSTL). Alongside my work advising and challenging defence and security decision makers in MOD and Whitehall on how to enact change initiatives, I provide corporate memory, manage S&T knowledge, mentor and coach colleagues, and build effective networks and capabilities essential to maximising the impact of the S&T across Government.

What's a career highlight of yours?

As a textile researcher, I ran shipboard trials of workwear, including an eventful visit to HMS Somerset as she patrolled the exclusion zone around The Falkland Islands, where I was notably the only person to ever head that far south without encountering a penguin.

During my tenure as Research Programme Leader for MOD's investment in Human Sciences, we reached out to innovators for the first time, putting in place the foundations of the strong and expansive external capability available to defence and security today.

I supported the early stages of the integration of The Home Office's Centre for Applied Science & Technology and Dstl, working with a joint team to bring together the the two organisations to create stronger combined capabilities supporting S&T users across the whole of defence and security.

The greatest personal satisfaction comes from supporting colleague's career development, whether in a formal line management role or as a mentor and coach. It's great to see people move forward and enrich their careers and to know that you've made even a small contribution to their progress.

Jim's journey

1988–92
BSc(Hons) Textile Technology
University of Huddersfield

1984–92
Textile Technologist
Scandura Industrial Textiles / Biscor Belting

1993–97
MSc Defence Systems Engineering
Royal Military College of Science – Cranfield University

1992–2001
Military textile researcher
Stores and Clothing Research and Development Establishment

2001–03
Staff Officer
Centre for Defence Analysis

Jim

GSE Job family: Specialist Consulting fellow (page 2 of 2)

Do you have any career advice?

I've come across a range of advice since before I was a textile apprentice in 1984. A very pragmatic suggestion from my Deputy Head Teacher at Heckmondwike Grammar School, was that a vocational route to a degree might suit me better than A Levels (he was right in hindsight). More recently, I received reassurance from a respected senior colleague not to fear changing course, whatever stage of your career you are at.

The most enduring and guiding principle across a very varied career is simple. When opportunity knocks, take it. A career in Government Science and Engineering will provide an absolute wealth of variety and interest; looking back over my career so far, I always get great satisfaction from the times where I chose to say yes to something, even if it was a leap into the unknown!

Any other tips?

I always try to see each day as an opportunity to learn something new and to experience something unique. Defence and security is so massively diverse and complicated that it would feel wrong not to be building a better understanding of how this system works (or indeed where it doesn't) and not to bring that growing experience to bear on some of the uniquely difficult challenges the decision makers who rely on our advice face every day.

The network of knowledge and experience that exists from your colleagues should also never be under-estimated or under-exploited. Whenever you find yourself 'not knowing the answer' to a problem, its wise not to forget that someone else probably does, or at least has relevant experience to draw on about how to solve it!

2003–07

Research Programme Leader
MOD Research Acquisition Organisation

2007–10

Group Leader
Dstl Land Battlespace Systems Department

2010–14

Department Manager
Dstl Land Battlespace Systems Department

2014–17

Deputy Head Integrated S&T Assurance
MOD Defence Science and Technology

2017–now

Consulting Fellow
Dstl Defence and Security Analysis Division, Systems Thinking and Consulting Group

Helen

GSE Job family: Specialist

Head of Patent Examining group (page 1 of 2)

Describe your current role

I currently head up a team of 15 Patent Examiners, made up of 3 Associate Patent Examiners, 5 Patent Examiners and 7 Senior Patent Examiners, all of whom have STEM degrees. The team examine Patent applications relating to various modes of transport including aircraft, trains and boats.

My job has three main aspects: the people management aspect – which includes ensuring examiners develop the right skills to do their job, providing pastoral care to support examiners through the 7 year training phase and beyond, and performance management which involves checking the quality of Examiner's work.

The legal aspect – where I provide expert guidance to examiners on the Legal and practice aspects of the job.

The leadership and strategy aspect – working with other group heads to ensure adequate resourcing and planning to meet customer needs.

Our current focus is tackling our large examination backlog.

What's a career highlight of yours?

My career highlights are mostly associated with times when I have worked really hard for something and been successful. The first was obtaining my degree in Astrophysics which was the hardest thing I have ever done. The next was securing promotion to Senior Patent Examiner as it was proof that I had found a job I was good at and I enjoyed.

Highlights from my current role including developing and embedding a "treat Voucher" reward scheme at the IPO. Setting up a team to promote STEM in the workplace by delivering regular Technical poster sessions covering a wide range of STEM topics.

As one of the first people to take up the recently created group head role I have been involved in shaping the new management structure in the Patents division.

Helen's journey

1994–97
BSc Astrophysics
Cardiff University

1997–98
Graduate recruit
The Meteorological office

1998–19
Sales assistant
House of Fraser

Helen

GSE Job family: Specialist

Head of Patent Examining group

Do you have any career advice?

Keep looking for the job that is right for you. I tried several different types of job before joining the IPO, none of them felt right, but I knew straight away that the IPO was the place for me.

Don't stay in your comfort zone for too long as it can lead to complacency and limit your growth and development. Be willing to try new things and say "yes" to opportunities that come your way. This will help you to identify where your strengths lie and is likely to open new doors for you that you may not have previously considered.

Be proactive, if you want a particular role you need to be prepared to put the work in to get it, it won't fall into your lap. Finally, don't chase the grade, look for the job you are going to enjoy doing.

Any other tips?

Follow your passions and see where they take you. As I child I was fascinated by Space, I loved looking at the stars and wanted to understand them. I was also very interested in human development and behaviour, so I studied Maths, Physics and Psychology at A-level. This didn't answer my Space questions, so I went on to study Astrophysics. The degree trained me to be a scientist and opened the door to STEM careers. I spent several years working as a Patent Examiner specialising in LCD display technology. My current role brings together my interest in both Physics and psychology with the addition of Law, every day I consider technical Patent specifications, apply the relevant legal provisions and deal with a wide range of personality types.

I am currently looking forward to my next challenge as I will shortly be moving to head up a different group of Patent examiners who deal with Telecommunication technology. I will need to brush up on my relevant technical skills and start to understand the needs of a whole new group of people.

I now have a strong and varied skill set that can translate across other areas of government and beyond.

1999–2000

Administrator
Legal and General

2001–16

Patent Examiner
Intellectual Property Office

2016–now

Head of Patent Examining group
Intellectual Property Office

Laura

GSE Job family: Deep Specialist

Head of Behavioural Science (page 1 of 2)

Describe your current role

I am currently seconded to Cabinet Office, having set up a behavioural science team supporting the Brexit Communications Centre. My team contains people from psychology, economics and law and helps make better assumptions about behaviour when designing campaigns and other communications. We focus on improving campaign strategies (what exactly are we trying to achieve? Which behaviours are you trying to drive?) and make tactical recommendations to assist the campaigns in reaching their aims. It's an incredibly complex and fast-moving space, spanning many really interesting topics (e.g. business, borders, EU funding).

What's a career highlight of yours?

Setting up a behavioural science consultancy working across different countries, supporting German development institutes, I am so proud of this. For example, in Costa Rica last year working on improving the use of public transport I had to pinch myself a little bit. I feel so grateful working in behavioural science globally.

Currently I am working on conflict resolution in Nigeria and Iraq and it's a dream come true.

I am hugely proud of setting up the behavioural science team supporting Brexit. Being able to recruit my own team (within a few weeks!) and them all saying "yes" was amazing. Working with talented scientists on some of the trickiest problems in the UK Government is something I will tell my grandchildren about.

Laura's journey

2008–11
BSc Psychology
University College London

2011–14
PhD in Cognitive Decision Sciences
University College London

2014–now
Partner and Co-founder
Decision context

2014–15
Guest Teacher, Behavioural Science for Management and Policy
LSE

Laura

GSE Job family: Deep Specialist

Head of Behavioural Science (page 2 of 2)

Do you have any career advice?

I have always been very focussed on applied behavioural science, but have managed to simultaneously keep options to achieve career aims relatively open. For example, I set up my own consultancy which allows me to gain experience faster than working for the civil service alone. I gained a lot from working in a broad range of topics and situations, and constantly seek out areas that will challenge me rather than what I can already do.

I remove the identity of "behavioural scientist" when I solve problems. I see people getting boxed in providing advice to clients how they expect it to come. Breaking free of those expectations allowed me to solve problems as I see fit, and not thinking about "being the behavioural science person in the room".

No-one will ever write this as career advice, but I find "networking" quite overrated! Building on day-to-day working relationships and keeping in touch with ex-line managers etc. is more important to me personally.

Any other key experiences?

I was always very focussed on psychology - I went to university to study psychology whilst I was still at school! This relentless focus has helped me develop into a deep specialist.

Having built a reputation as an expert in a narrow area within another narrow area (communications in behavioural science) I was lucky to be approached by the Cabinet Office. My reputation is partly because I enjoy teaching – I've done a LOT of talks, and people now associate me with my field which really opens doors.

2015–16

Behavioural Science Manager
DWP

2017–18

Deputy Head DWP Behavioural Science
DWP

2018–now

Lead Scientist
DWP Behavioural Science

2019–now

Head of Behavioural Science – Brexit Communications
Cabinet Office

Rachel

GSE Job family: Deep Specialist

Technical Advisor (page 1 of 2)

Describe your current role

I currently work in the Infrastructure Efficiency and Engineering team for the Department for Transport, as a Technical Advisor.

Providing engineering support and guidance for projects, most recently I have had the opportunity to review documents for the Union Link connection, Hammersmith bridge as well as the chance to help build and promote the engineering community across the DfT.

The main bulk of my career has been as a Civil Engineer within the Rail sector, I have had the benefit of moving between different departments and sectors to progress my personal skills and abilities. However, after twelve years in this industry I felt the time was right for a new challenge.

What's a career highlight of yours?

My career to date has taken me to many locations and allowed me to work on lots of different schemes and projects. There are a lot of builds that I am proud to have been a part of, there is something quite exciting about driving past a structure or getting on a train at a location that you have helped shape.

But for me I think there is really something quite special about all the work that people don't get to see, all the rare opportunities. That is what I have enjoyed the most: walking out on the track of Paddington station on cold and fresh Christmas day with not a single train or a passenger insight; or accessing Heathrow via the tunnel portal and walking out of Terminal 5; but I think my favourite has to be the project hand back at Old Oak Common,

Rachel's journey

2007–10
Advanced Apprentice Scheme
Network Rail

2011–13
HNC Railway Engineering
Sheffield Hallam University

2013–16
Senior/Principle Technical Officer
Network Rail – London

2013–17
BEng (Hon) Civil and Environmental Engineering
University of the West of England

2016–18
Assistant Engineer Infrastructure Projects
Network Rail – Swindon

Rachel

GSE Job family: Deep Specialist

Technical Advisor (page 2 of 2)

and the walk out across the roof of the train depot, that view of London was really quite special.

Do you have any career advice?

Really push yourself and take every opportunity that is offered, get as much as you can out of every job you take. When I look back, I am amazed at how far I have come and how much I have achieved really push your personal limits and never be afraid to ask for help or support.

Any other key experiences/tips?

Where you can give back to the next generation.

When I think back to the start of my career it is built on people taking the time to share their experiences and knowledge, doing their best to guide and support me, and listening to my questions and concerns.

I owe an insurmountable debt to all of them and feel it is so important to keep paying this forward.

2018–19

EngTech
ICE

2018–21

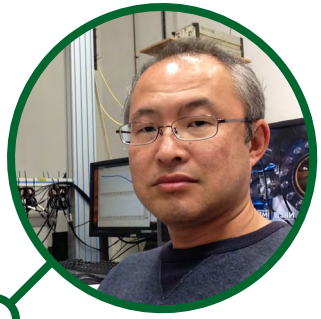
Asset Protection Engineer
Network Rail – Swindon

2020–now

Experiential Learning
ICE

2021–now

Technical Advisor Infrastructure Efficiency and Engineering
DfT



Masaya

GSE Job family: Deep Specialist

Science Area Leader of the Quantum Electrical Metrology Group (page 1 of 2)

Describe your current role

I am a semiconductor physicist working at the National Physical Laboratory (NPL). I lead a team of scientists developing new technologies that will improve the system of electrical measurements. One of our main projects is to develop an accurate standard for electrical current by manipulating individual electrons one at a time.

What's a career highlight of yours?

I would say my most significant career highlight is right now, looking back at what my team has achieved since I joined NPL. We started with a small team of scientists and barely had a facility to do proper research. Over the years we gradually built up our capability, improved the accuracy of our devices by three orders of magnitudes, and now we regularly produce research papers in high-impact journals. We often have visitors from all over the world to learn our expertise and I am supported by my very talented team members. It is not easy to find such a collection of people working in the same lab elsewhere. So, I think being here right now is my highlight.

Do you have any career advice?

I believe that the most important factor in doing our job well is enjoyment. I feel incredibly fortunate that what I really enjoy (finding a way to control individual electrons) is leading to what we need to develop (primary ampere standards). This enjoyment gives me a powerful drive to work hard towards our goal. It is of course difficult to find a job that we enjoy all

Masaya's journey

1991–95
BEng in Electrical Engineering
Kobe University, Japan

1995–96
MSc in Physics
Lancaster University

1996–2000
PhD in Physics
University of Cambridge

2000–09
Research Associate
University of Cambridge

Masaya

GSE Job family: Deep Specialist

Science Area Leader of the Quantum Electrical Metrology Group

aspects of. Sometimes we have to do things that we don't really want to do, but doing those tasks becomes much easier if there are significant areas that we enjoy. So, my suggestion would be to keep looking for an opportunity to do what you love and take it if you find one.

What led you to where you are now?

What first got me interested in the job I do now was a computer. When I was in school, my parents bought me a computer and in those days we had to do our own programming to use computers at all. One of the computer languages that I tried (but failed) to learn was the machine language. The machine language directly operates the instructions in a computer chip. While I was struggling to make sense of it, I became interested to learn how exactly computer chips work. This was the main reason why I went to a university to study semiconductors (from which computer chips are made). During my course, my interest shifted to quantum-mechanical phenomena that happen when we confine electrons into a small space in semiconductors. So, I decided to take up a PhD project on single-electron transport. Since then, I have been working on single-electron device research for more than 20 years.

2009–13

Senior Research Scientist
National Physical Laboratory

2013–now

Principle Research Scientist
National Physical Laboratory

2019–now

Science Area Leader
National Physical Laboratory

Development

- How to use the development section
- Wider opportunities
- Skills development
- Managing your career
- How to approach learning and development

How to use the development section

This section of the Career Framework is designed to aid your development once you have reflected on where you currently are in your career. If you feel you need to improve a skill, gain a new experience through a placement or role in a new area, gain chartership or just find out more about what you could do to develop yourself, this is where you can find it.

Wider opportunities

This section aims to provide inspiration about the breadth of opportunities available to scientists and engineers wanting to work in and around government. It signposts:

- Science and engineering ongoing across government
- Different professions across government and how they relate to government science and engineering (GSE)
- External partners in industry that are linked to GSE

Skills development

This section signposts you to upcoming learning and development tools, existing and upcoming apprenticeships and learning offers, as well as talent management programmes to support you throughout your career.

Managing your career

This page describes how to use this framework to manage your career, outlining the shared responsibility between individuals and managers.

Wider opportunities

External partners and chartership

To accelerate your professional development, the Government Science & Engineering (GSE) Profession has developed a programme of support for gaining membership and chartership through external professional institutions. We have developed close partnerships with a number of science and engineering bodies, who provide professional development and application support exclusively for GSE members.

By becoming a chartered engineer or scientist with these institutions, you acquire a professional qualification that recognises the skills developed in your career so far. Whether you are a deep-specialist or a cross-discipline scientist or engineer, you are likely to be eligible. For more information on this please contact us at: GSE@go-science.gov.uk.

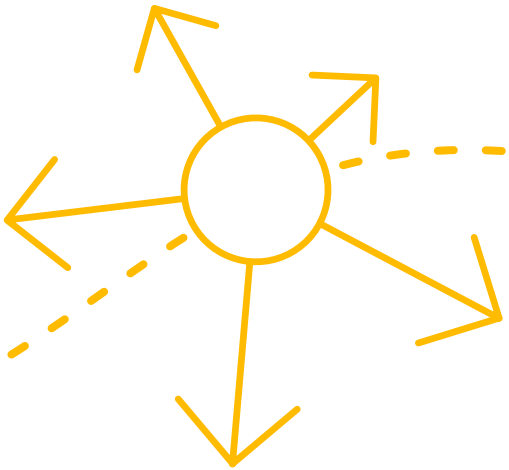
S&E across government

Connections to a wide range of ongoing science and engineering (S&E) is a large benefit of being a member of the GSE profession. To gain an insight into the range of work that goes on across government, visit the GSE blog for shared ideas, stories and opportunities.

Realising our ambition through science, a recent review of the government's science capability, is another source of insight on the wide variety of science and engineering activity across government. This review, led by the Government Chief Scientific Advisor and HM Treasury, makes the case for why scientists and engineers are needed at every level of the Civil Service.

Considering S&E in a wider context, the Concordat to Support Research Integrity ("Concordat") provides a national framework for good research conduct and its governance. Research integrity means upholding the highest standards in research, including legal, ethical and professional standards; and having the right environment and processes in place to support this. Chief Scientific Advisers from all UK government departments have signed up to the principles of the Concordat for the forms of scientific research that are undertaken in their departments.

Keep connected with people from different S&E backgrounds across government through Knowledge hub. This allows you to connect with others, create your own groups, share documents, knowledge and stories. Sign up and, if you're a GSE member, request access to the 'Government Science & Engineering Profession' group.



Different professions

We work closely with other government professions to increase opportunities for GSE members, and to signpost where the technical skills developed within a GSE role are applicable to wider areas. Here are a few crossover examples between GSE and related professions:

- The **Analysis Function** groups together several analytical professions that have significant overlap with GSE such as: **Digital, Data and Technology**, **Government Statistical Service**, Geography and the **Government Social Research** profession. These have several overlaps with GSE such as roles relating to Data Scientist, Methodologist and Mathematical Modeller. View these roles, and many more, in the latest Analysis Function career framework **here**.
- There is significant overlap with the **Policy profession**. There is commitment to strengthen this relationship and increase ease of movement between the two professions through joint learning and development. The Policy profession is developing a new career framework alongside the **Policy Professional Standards**. Find out more about the Policy profession and keep up to date with their career framework **here**.
- The **Project Delivery** profession has roles that those managing scientific projects may find support from, such as Project Planner. Find out more about potential role overlaps and development opportunities with the latest Project Delivery Capability Framework **here**.
- The **Operational Delivery** profession has overlap with GSE through common skill areas such as analysis, as well as job families like Validation and Compliance. Visit the Operational Delivery **homepage** to find their most up to date career framework and learn more.
- The **Property** profession has strong links to engineering and they outline engineering job roles in the context of property. Learn more about the property profession and their roles through the property **career framework**.

We continually aim to increase opportunities for cross learning and development. Consult the links provided, consider joining one of the professions mentioned here to access any suitable learning and development, or consider asking your manager about secondments within one of these professions.

Skills development

GSE skills assessment tool

The GSE profession has developed a skills assessment tool that allows you to:

- track your technical skills as a science or engineering professional against the GSE career framework, allowing you to easily assess how developed you are in each;
- add comments against each technical skill, designed to help you think about and record your personal evidence;
- track the development of skills that will help you achieve your career aims;
- access science and engineering related learning opportunities tailored to your development goals;
- record your learning and development objectives;
- capture your scientific or engineering specialisms.

To find out more and to sign up for the tool, please contact us at: GSE@go-science.gov.uk.

Online resources

A wealth of training related to the GSE technical skills is available through the Learning Platform for Government (LPG). For instance Data Quality, a course examining questions to ask to determine validity of data and analysis, could support 'Building and Applying Knowledge', or Drafting for Success, a programme for people new to drafting complex documents could support 'Communicating S&E for Government'. The LPG also supports learning for the Success Profile Behaviours required for all levels up to Director General. There will also be a science and engineering learning catalogue which will signpost people (scientists and non-scientists) across government to different learning products on science and engineering related topics. Contact us at: GSE@go-science.gov.uk to find out more.

Visit the GSE Blog for opportunities in mentoring, volunteering, job vacancies and skills workshops.

Apprenticeships

There are exciting postgraduate level apprenticeships available. The Systems Thinking Practice Apprenticeship and Systems Thinking (MSc Systems Thinking in Public Service) Apprenticeship have now been launched. For more information, visit this page and you can email: GSE@go-science.gov.uk.

Leadership programmes

Management Fundamentals outlines a range of courses aimed at developing management capability across the Civil Service.

Leadership Academy is open to those new, existing or external to the Civil Service and offers a range of talent management programmes to help you in shaping the future of the Civil Service.

The Science and Engineering Fast Stream is a 3-year Civil Service leadership scheme for high potential individuals trained in science or engineering and is open to both internal and external Civil Service applicants.

Positive Action Pathway is for Civil Servants in under-represented groups, specifically LGBT+, BAME, women, and disabled colleagues, from AA to grade 6.

The Future Leaders Scheme is a 2-year scheme for high-potential grades 6 and 7 across the Civil Service and arm's length bodies.

The Senior Leaders Scheme is a 2-year scheme for high-potential deputy directors (SCS pay band 1) across the Civil Service and arm's length bodies.

Managing your career

Ultimately, you have personal responsibility for your career development. Use this career framework to inspire your development, allowing others to support you by evidencing your development needs.

The GSE profession is committed to supporting its members to develop into effective scientists or engineers within a government context. To do this, we have laid out ways this framework can support your development. We suggest using the career development cycle.

The career development cycle

- Review your current position
- Create a career plan
- Hold career conversations
- Put your plan into action
- Repeat the cycle

Review your current position

Use the framework and the GSE skills assessment tool to consider: what skills, knowledge and experience do I currently have? What career stage am I currently at? Which job family am I currently in? Consider which elements of your job you enjoy, whether there are any constraints, what motivates you, which areas you'd like to grow, and what skills and experience you'd like to develop.

Create a career plan

Think where you'd like to be. Start by considering which job family and career stage you'd like to be at, then if you know of one, consider a specific role. If you want inspiration, consult the **wider opportunities** section. Next, use the GSE skills assessment tool to consider the required skills, experience and knowledge to get to that place, and start thinking about potential learning. This is where the upcoming online learning tool will be able to help next year.

Hold your career conversation

These are normally held once a year but can be whenever you want to refresh your career plans. You can use the GSE skills assessment tool to discuss your progress over the past year and, using your career plan, discuss whether your career goals are realistic. Review your self-identified skills and gaps, and ask whether there are any additional development needs you hadn't considered. With your manager's help, identify short, medium, and long-term goals to get you to next career stage. Use this framework as evidence for increasing your skill level for technical skills, or for required development using the **experience and knowledge** section.

Put your plan into action

Consider how you can integrate your plan as an everyday activity. It is important at this stage to consider people that can help you along the way. Keep your manager informed of steps you are taking to keep you motivated, seek out people with relevant skills and experience for potential role models or mentors, and think about a potential network you could be building.

Repeat the cycle

Every 6–12 months, take stock of your progress, repeating this career development cycle. Take note of any consistent blockers to your development and discuss these with your support network and manager.

How to approach learning and development

Throughout your career development cycle, you will be engaging in learning and development. GSE follows the widely used 70:20:10 model for learning and development, where the split represents the relative amount of learning time a person typically spends on the following three activities to optimise their development. These ratios should not be taken literally but are a relative indication of time. The GSE skills assessment tool is a very useful resource to capture all of your learning and development in one place.

70: On the job experience

This is often regarded as the most beneficial as it enables you to put your knowledge into practice and embed learning by taking on new responsibilities at work and learning from experience.

20: Peer learning

This focuses on how we share our knowledge and experiences with others and how we learn from them.

10: Formal learning

This covers all forms of formal courses and learning programmes. These may be delivered through e-learning, in a classroom and distance learning.

Responsibilities

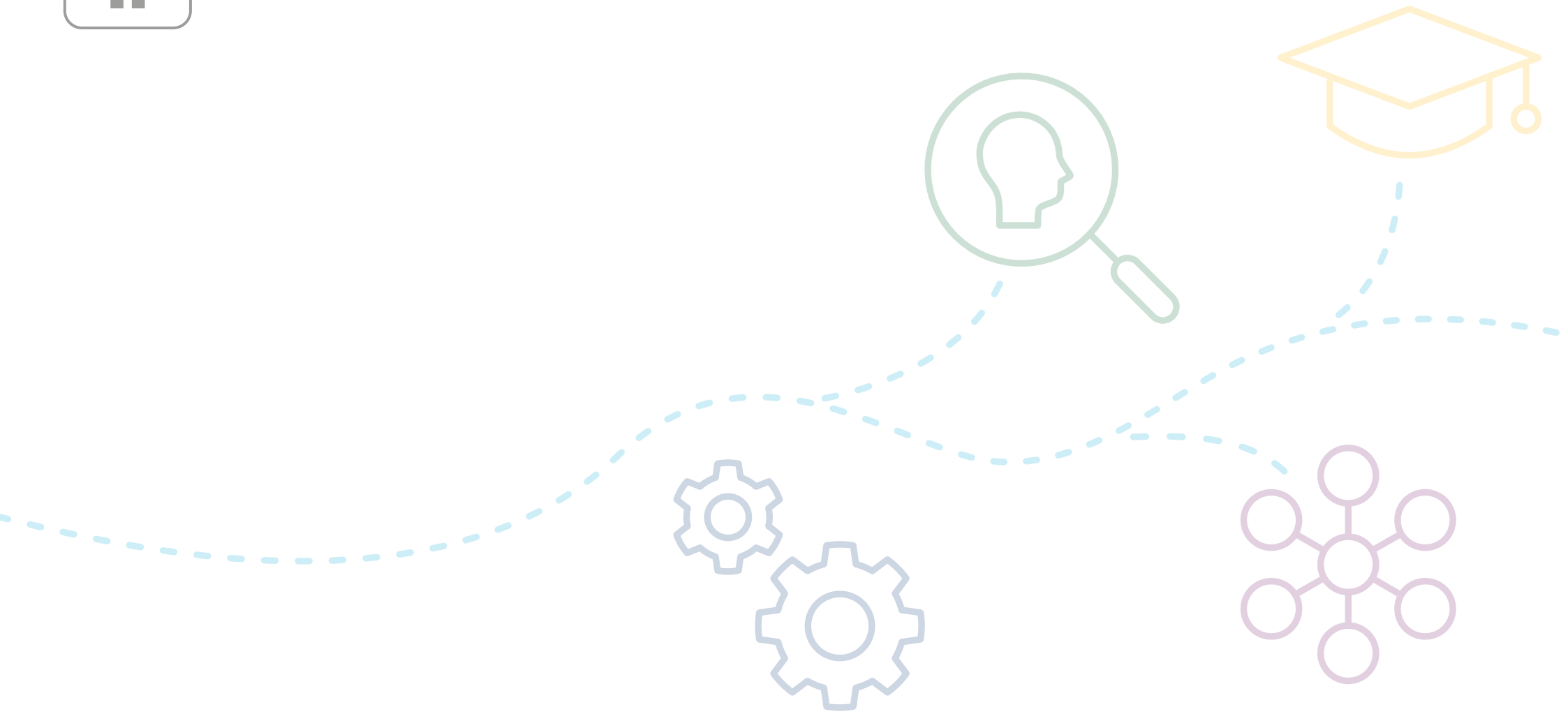
Both you and your manager have shared responsibilities in your development. Your line manager should guide and encourage employees who are actively committed to their development. They should provide honest feedback and help you assess your skills and experience against your career plan. Where possible, they should help support you in finding development opportunities to address any gaps. It is up to the individual to take the initiative and take an active part in the career plan cycle, continuing to refresh this plan. Where you receive feedback and help assessing your strengths and gaps, you should take this on board and make best efforts to embark on the relevant training or development.

Glossary

Affiliate	A GSE job family for roles indirectly related to technical science and engineering fields, and exists for people who want to stay connected to the GSE profession
Awareness (skills level)	Reflects an understanding of how that skill could be developed and why it is required
Career stages	These reflect stages in your own professional development. There are four career stages: Foundation, Emerging, Experienced and Leader. These stages provide a common language for people's careers across departments and organisations
Cross-discipline	A GSE job family for roles that apply underlying science or engineering knowledge to a broad number of topics
Deep Specialist	A GSE job family for roles where an intense level of specialist science or engineering training, in a specific area, is required. These roles utilise and develop that knowledge and experience daily
GSE	Government Science and Engineering
GSE Champion	An ambassador for the GSE profession, championing the importance of Government Science and Engineering in your organisation
GSE L&D Champion	An ambassador for the learning and development strand of the GSE profession, championing the importance of and supporting key L&D initiatives such as the GSE skills assessment tool, in your organisation
GSE knowledge and experience	Levels that describe the entry points for knowledge and experience typically reflected at each GSE career stage
GSE technical skills	Skills that describe an effective scientist or engineer in a government context. They form the technical element of the Civil Service Success Profiles

Glossary

HoSEP	Departmental Head of Science and Engineering Profession
Job Family	A term used by all government professions to describe a grouping of job roles
Leading (skills level)	Reflects the ability to mentor others in development of that skill
Learning Platform for Government	An internal-facing learning platform for the Civil Service. This will form the Civil Service learning platform
Practitioner (skills level)	Reflects regular use of that skill
S/E	Science and/or engineering
SEF	The Civil Service Science and Engineering Fast Stream
Skills grid	Suggested developmental pathways for each of the job families, describing suggested skill, knowledge and experience levels for each career stage
Skills groups	Groupings of the GSE technical skills
Skills levels	Progression of a skill is defined by skill levels: Awareness, Practitioner and Leading. These reflect how confident you are in using these skills and how often you practice them
Specialist	A GSE job family for roles that apply specialist knowledge or training in a science/engineering related area in various contexts
STEM	Science, Technology, Engineering and Maths
Success Profiles	The recruitment framework used within the Civil Service



Find out more about GSE:

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email: gse@go-science.gov.uk