# GORS Technical Framework

A guide relating to the technical requirements for members of the Government Operational Research Service

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## Introduction

The Government Operational Research Service (GORS) technical behaviours framework is used to assess the technical skills of government operational researchers and data scientists who belong to, or are applying to join, the Government Operational Research Service. All GORS members, including data scientists, are assessed against this when they enter the profession and as they progress through the grades. This framework includes 'pre-GORS' requirements that covers students and apprentices who are not yet eligible to become full GORS members.

## Data Science

Operational researchers employ a vast array of quantitative and qualitative analytical techniques and methods to solve problems. Data Science comprises a particular collection of techniques, and many of these are commonly used by operational researchers within Government. As such, joining the GORS profession offers a route into the Civil Service for data scientists, who will find a natural home in GORS and benefit from being part of the GORS community. Many of our members lead and work in dedicated data science teams.

GORS is an analytical profession, and all members need to have a degree or degree apprenticeship in a highly numerate subject.

## Role in recruitment

Our technical framework is used to assess the technical element of the Civil Service Success Profiles (or Devolved Administration equivalents) for recruitment, badging panels and promotion boards.

The Success Profile Framework aims to attract and retain people of talent from a range of sectors and experiences, in line with the commitments made in the Civil Service Diversity and Inclusion Strategy.

Generally, at least one other element of the Success Profiles Framework will be tested as part of the assessment of candidates. Details of which elements will be assessed and how candidates will be assessed against these are included in the job advert or equivalent. The advert will also set out any additional skills required for the role(s) available.

Guidance for managing recruitment in the OR profession is available to existing GORS members from the GORS members' site.

Our Technical Framework provides an overall definition for each behaviour. You will be:

- assessed against this overall statement, with the examples providing an indication of expected performance at each grade
- asked to demonstrate experience in relation to the example bullets, though it is not generally vital to address every single one
- asked to demonstrate your knowledge and experience of operational research techniques and methodologies, appropriately covering both qualitative and quantitative approaches

Any operational research techniques can be used, but you should expect to:

- answer questions relating to the detail of the techniques,
- explain them using everyday language
- describe how they are used, and any assumptions behind them
- describe the pros and cons of the techniques, giving due regard to the specific context in which you have used them

## GORS grades

The GORS grades included in this framework and the corresponding Civil Service grades are shown below. Full GORS members are paid as a minimum at H-level as determined by the pay scale for badged operational research analysts within their current department. GORS students will be graded below H-level and paid as at that lower grade. GORS Apprentices who are not yet GORS members may be at any grade but should check with their Line Manager or GORS HoP if unsure. In general, GORS Apprentices should be judged by the behaviours corresponding to their substantive Civil Service grade.

| GORS grade | Civil Service grade[1] | Scottish Government (SG) |
|---|---|---|
| GORS | Administrative Officer (AO) or Executive Officer (EO) or equivalent | Below B2 |
| Level 2 | Higher Executive Officer (HEO) or equivalent | B2 |
| Level 3 | Senior Executive Officer (SEO) or equivalent | B3 |
| GORS Fast Stream Analyst (GFSA) | HEO/SEO or equivalent | B2/B3 |
| Grade 7 | Grade 7 | C1 |
| Grade 6 | Grade 6 | C2/C3 |

## GORS Badging Boards

Badging boards are applicable to people who are already in the Civil Service and wish to join GORS. They differ from standard external recruitment in that no other elements of the Success Profiles are assessed, only the GORS Behaviours. A short presentation (or problem structuring test) is also required.

## Grade 7 and Grade 6

In line with the Civil Service Success Profiles, the high-level descriptions for these grades are combined. Generally, more of a focus on aspects such as Leadership and Seeing the big picture is expected in Grade 6 examples when compared with Grade 7. It is for vacancy holders and badging boards to set out any more precise requirements at these grades. The

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[1] The names of Civil Service Grades differ in some departments/administrations.

latest GORS guidance on managing badging boards is available from the GORS members' site.

## New Recruits

Most staff newly recruited to GORS via the GORS mainstream will enter at 'Level 2'. The requirements at Level 2 are split into 'minimum' and 'experienced'. Where candidates are particularly strong, they may be recruited at Level 3. GORS CMU will inform the recruiting department which of these three (Level 2 (minimum), Level 2 (experienced), Level 3) the candidate passed at.

Candidates joining at Level 2 (minimum) should demonstrate suitable progress toward Level 2 (experienced) to pass their probation. The requirements to pass probation are set at department level and although the GORS framework can be used to inform a probation discussion, it is not the only factor which determines whether a candidate passes probation.

The GORS Head(s) of Profession within each department are responsible for setting out an internal process to formally reach Level 2 (experienced). Ideally, an experienced external GORS member who is at minimum GORS Level 3 should be involved in this process.

Vacancy managers advertising roles on promotion should ensure that candidates have reached at least Level 2 (experienced).

## Student placements

Summer and placement students on GORS are assessed using the Pre-GORS requirements. Guidance should be provided within departments on transitioning from placement student to full GORS member.

## Continuous Professional Development

Members of the GORS are expected to demonstrate professionalism and follow the Continuous Professional Development (CPD) policy for GORS[2].

This competency framework can be used by GORS members to plan their CPD throughout their careers, alongside the upcoming professional career framework for GORS. For existing GORS members, a CPD log may occasionally be requested as part of the recruitment or fluid grading process at the discretion of those running the process.

## Analysis Function

GORS is a profession within the Government Analysis Function, part of the Civil Service. Each profession within the Analysis Function has their own technical framework. The Analysis Function Career Framework can help plan career development, and the Analysis Function Learning Curriculum sets out learning and development opportunities available to government analysts, including statisticians and data scientists.

## Senior Civil Service

Senior Civil Service (SCS) government analysts are assessed against the competencies set out in the Government Analysis Function SCS Capability Framework. The FAQs for existing members has details on how these frameworks are related.

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[2] Existing GORS members can find a CPD log on the GORS members website.

## Overview of behaviours

GORS has three separate behaviours, each with their own focus and requirements. These cover the key expectations applicable for GORS members across the Civil Service.

Each behaviour consists of three strands. These are cumulative, so the requirements within each strand either build upon or may be superseded as one progresses through the grades, starting with the Pre-GORS requirements.

A high-level overview of their purpose is below, followed by setting out the detailed requirements for each strand within each behaviour.

### Knowledge and application of OR

This covers the behaviours required to ensure you have the right skills to be an effective analyst in Government, including the ability to explore and understand data, break down complex problems, and use the right technique(s) to tackle analysis. It is vital that GORS analysts develop both quantitative *and* qualitative technical skills to maximise their effectiveness[3].

#### Effective use of data[4]

A good analyst requires a good overview of the data landscape and is able to use this knowledge to assess suitability in relation to possible analysis to produce the required outputs. They explore potential data sources and consider their suitability and limitations to understand the feasibility, possibilities, uncertainties and caveats of analysis.

#### Problem structuring

Skilled analysis requires a good understanding of the system in which one works, one's direct role within it, and the scope for wider influence. This means that analysts need to be able to break down complex problems and structure work into specific questions that can be tackled through analysis of data and modelling.

#### Tools and techniques

Different problems require bespoke approaches to not only complete, but complete effectively. Analysts therefore should develop appropriate breadth and depth in a range of analytical tools and techniques, know their suitability, strengths, and limitations to critically select the right technique(s) to tackle each problem.

### Achieving impact with analysis

This covers the behaviours required to be able to create an impact with analysis to benefit citizens of the UK, including understanding stakeholder needs, communicating to a variety of audiences, and ensuring quality analysis.

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[3] Another characterisation here might be knowledge of 'soft' and 'hard' OR techniques. Knowledge and expertise in both is a professional requirement for GORS Level 2 and above.
[4] 'Data' here is to be understood in its broadest sense of any information relevant to the analysis, whether the approach taken is qualitative or quantitative.

### Understanding analytical requirements

To achieve an impact, it is vital that the right work is being done and the right outputs produced. Analysts should scope analytical projects, understand the (direct and indirect) stakeholder needs and wider context, so that analysis can be appropriately directed to meet these needs and maximise impact.

### Communicating analysis

Analysis must be well communicated to have the right impact. As such, analysts must consider how they communicate their own or others' analysis, appropriately communicate key caveats and tailor what and how they communicate to their audience to ensure analysis has a positive impact.

### Analytical quality assurance

Avoiding and addressing mistakes is vital to ensure that all analysis has the right impacts at the right time. Some mistakes are inevitable, but minimising their likelihood of occurring and understanding the potential impact of any errors or uncertainties is at the core of good analysis. Proportional quality assurance is fundamental to producing robust analysis that meets agreed QA standards.  It is the responsibility of all analysts to promote and follow best practice to build greater trust and impact with stakeholders.

## Sustaining and developing OR

This covers the behaviours required for being an active member of GORS, leading directly and indirectly to inform better decision-making across Government. This includes contributing to the wider analytical community, promoting learning and development, and the ability to complete work independently.

This aspect of the framework is designed for use in badging and fluid grading exercises, though they remain expectations for all ORs. Recruiting managers may choose to make use of this behaviour in addition to the other two if they so wish.

### Developing a personal analytical network

It is important that analysts contribute to and network with the wider analytical community to maintain knowledge of activity and enable innovations in analysis. Developing and maintaining networks is core to both their personal effectiveness and that of the Analysis Function as a whole.

### Professional development

Both existing and potential GORS analysts must give sufficient priority to pursuing personal learning and development and promotes a learning culture to develop a broad knowledge of OR techniques and technologies. By prioritising their learning analysts will improve their effectiveness and efficiency across their entire career.

## Capability development

It is important that analysts can complete work with independence appropriate to their level. They must understand where to both seek advice and provide support in relation to the analysis being done.

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## Knowledge and application of OR – detailed requirements

| Pre-GORS | • Shows an interest and aptitude for performing analysis and an awareness of its importance in effective decision-making<br>• Demonstrates an awareness of both qualitative and quantitative approaches to problem-solving and their suitability<br>• Recognises the importance of data quality, identifying and raising issues relevant to work. |
| --- | --- |

| | Effective use of data | Problem structuring | Tools and techniques |
| --- | --- | --- | --- |
| **Level 2** (Minimum expectation) | • Explores and understands data and its limitations | • Understands the importance of a structured approach to problem solving<br>• Suggests and can justify potential analytical approaches to answering specific questions | • Describes analytical techniques in technical and non-technical terms and gives examples of when to use it<br>• Suggests sensible approaches to addressing a problem using qualitative or quantitative analytical techniques |
| **Level 2** (Experienced) | • Collects and prepares data for analysis.<br>• Identifies potential data sources and assesses suitability for use | • Brings together information from a range of sources<br>• Helps to break down complex problems and structure work | • Understands a couple of techniques in depth, discuss their strengths and limitations.<br>• Makes sensible suggestions on possible techniques, showing awareness of any alternative methods<br>• Explains principles of a range of techniques to a lay audience.<br>• Demonstrates a wider awareness of various tools, techniques and visualisation approaches |
| **Level 3** | • Critically assesses data sources; and considers the wider impacts of their limitations.<br>• Accounts for data limitations and takes steps to mitigate their effect on analysis.<br>• Knows how to best structure information to facilitate analysis | • Leads on breaking down complex problems into more manageable elements<br>• Leads on structuring analysis with involvement of appropriate experts and stakeholders | • Demonstrates an ability to apply a range of analytical techniques appropriately<br>• Undertakes research to understand strengths of available tools, possible techniques and selects appropriate approaches<br>• Recommends and advises on specific OR techniques and knows pros and cons, including limitations |
| **Grade 7 and Grade 6** | • Explores novel uses of existing data and seeks out new data sources to aid analysis<br>• Advises others on suitability of data for the given purpose | • Takes the lead in working with customers to understand and structure a problem<br>• Structures problems where requirements are unclear or key information is lacking | • Demonstrates awareness of a broader range of techniques and approaches and understands the contexts in which they may be applied<br>• Acts as a source of expertise on a range of analytical techniques, or know where to direct others<br>• Onboards new analytical tools and software to improve analysis where appropriate |

## Achieving impact with analysis – detailed requirements

| Pre-GORS | • Understands appropriateness of different analytical approaches<br>• Identifies and communicates key messages from analysis for expert and non-expert audiences<br>• Checks own work for errors | | |
| --- | --- | --- | --- |
| | **Understanding analytical requirements** | **Communicating analytical impact** | **Quality assurance of analysis** |
| **Level 2** (Minimum expectation) | • Follows direction to meet the requirements for their analysis<br>• Works with others to solve problems | • Provides summaries of analysis using appropriate methods<br>• Shows an awareness of limitations in their analysis | • Demonstrates consistent sense checking and review of one's own work for errors or inconsistencies and takes action to resolve issues |
| **Level 2** (Experienced) | • Develops relationships with stakeholders to understand their analytical requirements<br>• Understands the wider context of their analysis | • Clearly communicates results in an audience appropriate way – visually, orally, and written<br>• Communicates the results and impacts of a piece of analysis<br>• Identifies and conveys limitations and caveats with data or analytical techniques<br>• Presents own work and ideas on effective analytical approaches | • Seeks out and appropriately uses department- recommended analytical best practice guidance and templates<br>• Carries out agreed quality assurance of their work, flagging any change to activities resulting from changing circumstances<br>• Ensures QA is integrated into analysis and highlights residual risks to key stakeholders<br>• Acts on feedback to continually improve the quality of analysis produced |
| **Level 3** | • Leads scoping conversations with stakeholders<br>• Challenges stakeholder assumptions appropriately and constructively | • Independently briefs analytical outputs<br>• Ensures outputs understood and used appropriately<br>• Effectively communicates analysis to senior and non-technical customers, covering appropriate caveats, limitations and key uncertainties | • Knows QA procedures and ensures appropriate, proportionate QA for all analytical work<br>• Ensures QA is carried out and communicates with caveats and limitations<br>• Plans end-to-end QA process within model design cycle.<br>• Proactively seeks feedback to ensure that analysis continues to meet and adapts to customer needs |
| **Grade 7 and Grade 6** | • Proposes analytical projects to address business needs<br>• Identifies analytical opportunities in the wider stakeholder community | • Ensures analysis is appropriately communicated, including potential impacts of uncertainty<br>• Leads on technical reports<br>• Champions and defends analytical work of their team to stakeholders | • Manages QA, highlights and records risks and escalates issues appropriately<br>• Ensures analysis supplied from outside team is fit-for-purpose (e.g. other teams, government bodies, contractors)<br>• Leads on QA strategy for team's work and ensures appropriate sign off<br>• Ensures that work is continually evaluated and considers ways to improve |

## Sustaining and developing OR – detailed requirements

| Pre-GORS | • Demonstrates a commitment to development of analytical skills<br>• Acts with integrity and professionalism, understands importance of best practice and adherence to core standards and codes of conduct<br>• Understands the importance of awareness of the work of others, and identifies opportunities for join up and collaboration | | |
|---|---|---|---|
| | **Developing a personal analytical network** | **Professional development** | **Capability development** |
| **Level 2**<br>**(Minimum expectation)** | • Participates in the wider analytical community | • Shows evidence of a commitment to acquiring analytical knowledge and their Continual Professional Development | • Proactively identifies and seeks assistance for their analysis<br>• Works with support to complete required analysis to a given deadline |
| **Level 2**<br>**(Experienced)** | • Takes an active role in supporting the analytical community<br>• Builds networks beyond their immediate team<br>• Presents their work to other analysts | • Proactively finds relevant learning opportunities to develop analytical and OR knowledge<br>• Supports and inducts more junior staff | • Supervises analytical student projects or otherwise proactively develops smaller pieces of analytical work<br>• Independently completes a piece of analytical work to a given specification |
| **Level 3** | • Makes an active contribution towards their departmental analytical capability<br>• Seeks opportunities to develop contacts across government and professions | • Identifies areas for personal development and actively seek suitable training<br>• Coaches and develops junior staff within their team | • Manages analytical work from start to finish, including scoping of analysis<br>• Advises other analysts |
| **Grade 7 and Grade 6** | • Takes a leading role to develop and promote analysis or the analytical community, within their department or across government | • Steers analytical capabilities of area by raising awareness of OR-based approaches.<br>• Aids in analytical recruitment<br>• Coaches and mentors junior staff within capability areas | • Leads on multiple projects at once and resolves analytical issues that arise<br>• Proactively identifies analytical issues and seeks appropriate resolution<br>• Leads others in undertaking analysis, including specific capability development of staff |

# Annex

## Notes on Sustaining and developing OR

The expectations for this behaviour depend on the experience of the applicant, and on the context in which it is being assessed.

For example, when assessing 'Developing a personal analytical network':

- for a candidate entirely new to GORS, there is no expectation that GORS-specific examples should be used
- for an existing GORS member going through a fluid grading process, examples should focus on activities they are doing to support GORS, for example, as part of a GORS committee or a group organising teach-ins or seminars
- for a lapsed GORS member, or one looking to be badged at a higher grade, examples could be less GORS specific and rely a broader interpretation of what constitutes an 'analytical community'

These differences are entirely a reflection of where a candidate's examples are likely to be drawn from, and not a means by which to apply different standards to different candidates.

Vacancy holders/badging panels should consider the specifics of their case, seeking advice from HoPs if required and ensure sufficient clarity for candidates on the expectations.

## FAQs for existing members

### Why have the behaviours been changed?

The fundamentals of the behaviours have not been changed. They are still asking for essentially the same things.

What has changed is that:

- the behaviours are now more structured, with each behaviour split into three 'strands'

- the language has been revised so that it is clearer, and appropriately encompasses the broad range of skills and experience required within GORS now and in future

- 'Level 1' or 'Potential to reach Level 2' have been removed. All new GORS members enter at Level 2 or above

- Level 2 is separated into 'minimum requirements' and 'experienced'. This retains the profession's ability to bring in new staff as before while maintaining the same standards it has always had at each grade

### Should interviewers ask questions on every strand within each of the behaviours assessed?

In interviews, candidate's responses often cut across several strands when responding to questioning. The strands can help when asking follow-up questions to identify where more information may be helpful. The interviewer, along with the panel, should use their usual judgement as whether the overall response is sufficient.

## Do the descriptions for lower grades apply to higher grades?

Yes. All behaviours are cumulative. Candidates and interviewers should look at the requirements lower grades (including pre-GORS) to ensure that these are being suitably addressed in both applications and interviews. Vacancy holders should also bear this in mind when drafting job specifications.

## How does this work for the SCS?

There is a separate Senior Civil Service (SCS) Capability Framework for badged analysts. The table below shows an approximate mapping from the SCS analyst behaviours to the GORS behaviours.

| | Knowledge and application of OR | Achieving impact with analysis | Sustaining and developing OR |
|---|---|---|---|
| **Accountable for quality, methodology and process of analysis** | X | X | |
| **Communicating, influencing and consulting to ensure analysis is at the heart of decision making** | | X | X |
| **Building analytical capability and capacity to deliver** | | | X |
| **Setting strategic analytical direction** | X | X | X |
| **Professional Accreditation and Continuous Professional Development** | | | X |

## What does this all mean for the interview process?

The process itself has not changed. Interviewers should take the same approach as before, using the behaviours document as a guide to the kind of questions to ask in each area.

## What has happened to GORS Level 1/ Potential to reach Level 2'?

These no longer exist. All GORS members now join as Level 2 or higher.

## What is the difference between GORS Level 2 (minimum) and Level 2 (experienced)?

These are the same grade. The former is a requirement to join GORS, the latter is an expectation of progress after some time in the Civil Service. Members will be assessed against the latter in due course under the process set out by their GORS HoP.

## How do people move from GORS Level 2 (minimum) to Level 2 (experienced)?

For members joining at Level 2, some will be assessed as 'experienced' on entry. For those assessed at Level 2 (minimum) the GORS Head(s) of Profession within each department are responsible for setting out this process. Ideally, an experienced external GORS member who is at minimum GORS Level 3 should be involved in this process.

Vacancy managers advertising roles on promotion should ensure that candidates have reached at least Level 2 (experienced).

## What 'other elements' of Success Profiles will/should be tested?

This is down to the vacancy holder. It could be any of the others – Civil Service behaviours, Experience, Strengths, etc. For details of GORS recruitment via the mainstream or Fast Stream, please contact GORS CMU.

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Any enquiries regarding this publication should be sent to us at:

gors.recruitment@hmrc.gov.uk

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