

GSG Competency Framework

Updated Framework

Following consultation across the Government Statistical Service (GSS) the 2021 Government Statistician Group (GSG) Competency Framework replaced the 2016 GSG Competency Framework from 1 December 2021.

The 2021 GSG Competency Framework will begin to be used in recruitment campaigns from this date. However, candidates should be aware that over the transition period of the next few months recruitments may still be using the 2016 GSG Competency Framework. Candidates should consult the advert or vacancy manager if they are unsure which framework they will be assessed against.

You can find the 2016 GSG Competency Framework on the [Competency Framework webpage](#).

Introduction

The Government Statistician Group (GSG) competency framework is used to assess the technical skills of government statisticians and data scientists who belong to the [Government Statistician Group](#). All GSG statisticians and data scientists from grade Statistical Officer (Executive Officer grade) to Grade 6 are assessed against this when they enter the profession and as they progress through the grades.

Some data scientists in government are instead part of the Government Operational Research Service (GORS) or the Digital, Data and Technology (DDaT) function and should refer to the [OR competencies](#) or [DDaT Profession Capability Framework](#) as applicable.

Recruitment

For recruitment, badging panels and promotion boards, this framework is used to assess the Technical element of [Civil Service Success Profiles](#).

The Success Profile Framework was 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.

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. This will also set out any additional skills required for specific roles, such as data science skills.

[Guidance for the adoption of success profiles](#) for managers sets out the process for recruitment and badging in the statistics profession.

Each Strand of this Framework begins with an overall definition. This is enclosed in a box at the start of each Strand. Candidates will be assessed against this overall statement, with the examples providing an indication of expected performance at each statistical grade. Candidates will not be asked to demonstrate experience of all the example bullets.

Candidates will be asked to demonstrate their knowledge and experience of statistical techniques and methodologies. Any statistical technique can be used, but candidates should expect to answer questions relating to the detail of the technique, their use of it and any assumptions behind it.

Continuous Professional Development

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

This competency framework can be used by GSG members to plan their CPD throughout their careers, alongside the [Professional career framework for GSG members](#) and the [Learning pathways for the GSG](#).

Members of the GSG are expected to undertake relevant learning to maintain and develop statistical skills, data science skills and skills related to the civil service behaviours, and to maintain a record of their learning. This can be done using a [CPD log book](#).

UK Statistics Strategy

The framework helps us identify the skills we require to do statistics in government and supports us to recruit skilled statisticians to deliver the strategy for the UK statistical system: [Statistics for the public good](#).

We need a framework to help us to recruit individuals with these skills and develop those who are already within the profession. It helps us set a consistent standard on knowledge and skills and is updated as these requirements change.

Analysis Function

The GSG is one profession within the [Government Analysis Function](#), part of the [Civil Service](#). Other professions have their own competency frameworks.

Within the Analysis Function, 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 statisticians and data scientists should demonstrate an understanding of these competencies.

The [Government Analysis Function SCS Capability Framework](#) shows the capabilities required by analytical SCS, including GSG members.

Grade acronyms

| | |
|-------|----------------------------|
| StO: | Statistical Officer |
| HStO: | Higher Statistical Officer |
| SStO: | Senior Statistical Officer |
| G7: | Grade 7 |
| G6: | Grade 6 |

Statistical Strand 1: Acquiring data and understanding customer needs

Definition:

Work with users and data suppliers to obtain and use appropriate data. Ensure that data used has an appropriate level of quality, adequately representing the relevant population to maximise inclusion. Ensure that data are handled according to applicable governance processes (for example, the [Code of Practice](#)), regulations, and ethical considerations.

Examples of this competency at this level:

| | StO | HStO | SStO | G7 | G6 |
|--------------------------|--|--|---|---|---|
| User requirements | <p>Work with users and data suppliers to establish new uses of existing data sources taking ethical considerations into account.</p> <p>Use knowledge of familiar data sources to advise users on strengths and limitations.</p> | <p>Proactively work with users to establish new uses of existing data sources taking ethical considerations into account.</p> <p>Share expert knowledge of familiar data sources to enhance the understanding of users and other analysts.</p> | <p>Proactively engage users to design and implement new work, combining new and existing data sources taking ethical considerations into account.</p> <p>Share expert knowledge of familiar and alternative data sources to enhance the understanding of users and other analysts.</p> <p>Lead requirement gathering for complex analytical projects.</p> | <p>Build networks of users and interested parties across multiple areas to make best use of diverse new and existing data sources taking ethical considerations into account.</p> <p>Use knowledge of subject area and liaison with users to build requirements and plans for statistical development programmes.</p> | <p>Build networks of users and interested parties across a wide area to make best use of multiple new and existing data sources taking ethical considerations into account.</p> <p>Use knowledge of the wider subject area and liaison with senior users to oversee plans and develop ambitious strategies for statistical development programmes.</p> <p>Anticipate future data requirements needed by current and future users.</p> |

| | StO | HStO | SStO | G7 | G6 |
|---------------------------------|--|--|--|---|--|
| Collect and prepare data | <p>Extract data from existing data sources to enable new analysis.</p> <p>Combine data sources to generate more insightful data.</p> <p>Organises and manages own data sets.</p> | <p>Extract and manipulate data from multiple existing data sources to enable complex new analysis.</p> <p>Advise other analysts in best practice usage of familiar data sources.</p> <p>Assist in designing data collection activities (gathering new data or combining existing data sources).</p> <p>Organises and manages own data sets according to best practice.</p> | <p>Extract and manipulate data from multiple existing data sources (including unfamiliar sources) to enable complex new analysis.</p> <p>Advise other analysts in best practice usage of data sources in the subject area.</p> <p>Design innovative data collection activities (gathering new data or combining existing data sources).</p> <p>Ensures implementation of good data management practices across the team.</p> | <p>Able to extract and manipulate data from multiple existing data sources (including unfamiliar sources) to enable complex new analysis, and help others do so.</p> <p>Build an environment where other analysts are aware of and use best practice when engaging with data sources.</p> <p>Lead complex and innovative data collection and management activities (gathering new data or combining existing data sources).</p> | <p>Understands multiple existing data sources (including unfamiliar sources) and how to produce complex new analysis.</p> <p>Build an environment where other analysts are aware of and use best practice when engaging with data sources across the wider subject area and cross Department.</p> <p>Lead complex and innovative data collection and management activities (gathering new data or combining existing data sources).</p> <p>Collaborate with experts from other domains (e.g. scientific community, academia, and commercial sector) to inform and shape data collection methods.</p> |
| Data quality | <p>Perform and document quality checks on familiar data sources and use these to provide advice on whether data is suitable.</p> | <p>Perform and document quality checks on familiar data and innovates new quality assurance processes to improve the quality of the team's data sources.</p> <p>Provide advice on whether data is suitable.</p> | <p>Perform and document quality checks on familiar and other data sources, especially more complex extractions and designs.</p> <p>Communicate and embed new quality assurance processes to improve the quality of the team's data sources.</p> <p>Provide advice on what data can and cannot be used for.</p> | <p>Perform and document quality checks on familiar and other data sources, especially more complex extractions and designs.</p> <p>Drives and maintains a culture of quality assurance to ensure the quality of the team's data sources.</p> <p>Provide advice on what data can and cannot be used for.</p> | <p>Ensure that suitable quality checks are performed on data sources prior to use, and that these are documented.</p> <p>Drive and maintain a culture of quality assurance to ensure the quality of underlying data sources, ensuring common good practice across a wider area.</p> <p>Ensure data quality is clearly communicated to users and data is used appropriately.</p> |

Statistical Strand 2: Data Analysis

Definition:

Work with users to fully understand and document their requirements. Select and use appropriate statistical techniques and methodologies, understanding underlying assumptions of each. Innovate and seek out new ways of analysing the data. Ensure that analysis is reproducible, transparent and robust using coding and code management best practices. Ensure that analysis is inclusive and represents the population we serve. Ensure high quality outputs, taking account of bias and uncertainty.

Examples of this competency at this level:

| | StO | HStO | SStO | G7 | G6 |
|--------------------------|--|--|---|--|--|
| User requirements | <p>Work with users to establish their analytical requirements in a familiar work area.</p> <p>Ensure requirements are recorded and communicated appropriately.</p> | <p>Proactively work with users to establish their analytical requirements in a familiar work area.</p> <p>Ensure requirements are recorded and communicated appropriately.</p> | <p>Proactively engage with users to establish their analytical requirements, helping them to translate their analytical questions into tangible requirements in a timely way.</p> <p>Use and develop systems to ensure user requirements are recorded and communicated appropriately.</p> | <p>Work across multiple areas to proactively engage with users to establish their analytical requirements and develop solutions responsively.</p> <p>Promote analysis to potential users to drive the establishment of analytical questions and solutions in a timely way.</p> <p>Innovate systems to ensure user requirements are recorded, communicated, and reviewed.</p> | <p>Build networks of users and interested parties across a wide area to promote analysis and drive the establishment of analytical questions and ambitious solutions.</p> <p>Ensure that user requirements are regularly reviewed to drive innovation and change responsively.</p> |

| | StO | HStO | SSStO | G7 | G6 |
|------------------------------------|---|---|--|--|--|
| Select and perform analysis | <p>Describe the main theoretical and practical features, assumptions, strengths, limitations, and interpretations of some statistical techniques.</p> <p>Select and use appropriate statistical and analytical coding techniques to deliver a solution that meets user needs.</p> | <p>Describe the main theoretical and practical features, assumptions, strengths, limitations, and interpretations of some statistical techniques.</p> <p>Select and use a range of appropriate statistical and analytical coding techniques to deliver a solution that meets user needs.</p> <p>Justify and explain those techniques clearly and succinctly, to customers and colleagues.</p> | <p>Describe the main theoretical and practical features, assumptions, strengths, limitations, and interpretations of a range of statistical techniques.</p> <p>Select and use a wide range of appropriate statistical and analytical coding techniques to deliver a solution to complex problems that meet user needs. Justify and explain those techniques clearly and succinctly; and advise others on appropriate techniques.</p> | <p>Describe the main theoretical and practical features, assumptions, strengths, limitations, and interpretations of a wide range of statistical techniques.</p> <p>Use and advise others on a wide range of appropriate statistical and analytical coding techniques to deliver a solution to complex problems that meets user needs.</p> <p>Lead a team to develop their depth of understanding and use of statistical and analytical coding techniques and methodologies.</p> | <p>Advise others on a wide range of appropriate statistical techniques to deliver a solution that meets user needs.</p> <p>Lead across multiple teams to drive greater use and depth in understanding of statistical and analytical coding techniques and methodologies.</p> <p>Ensure that innovation is embedded within the team's culture, and more widely e.g. across department(s).</p> <p>Collaborate with experts from other domains (e.g. scientific community, academia, and commercial sector) to inform new analytical methods.</p> |
| Quality | <p>Use appropriate methods to perform quality checks on their own analytical work and participate in quality checking others' work.</p> <p>Ensure good standards of documentation and code management in their own work to ensure reproducibility.</p> | <p>Use appropriate methods to perform quality checks on their own and others' analytical work.</p> <p>Ensure good standards of documentation and code management in their own work and encourage similar standards across their team to ensure reproducibility.</p> | <p>Use appropriate methods to perform quality checks on their own and others' analytical work.</p> <p>Ensure good standards of documentation and code management in their own work and promote the highest standards across the team to ensure reproducibility.</p> <p>Drive up analytical standards through systems of quality assurance.</p> | <p>Use appropriate methods to perform quality checks on their own and others' analytical work, giving particular attention to complex and sensitive work.</p> <p>Ensure analytical reproducibility, transparency and collaboration across the team and with users.</p> <p>Devise and develop systems of quality assurance to build analytical capability.</p> | <p>Ensure suitable quality checks on analytical work across the team, with particular regard for complex and sensitive work.</p> <p>Embed a culture of analytical reproducibility, transparency and collaboration within the team and with users.</p> |

Statistical Strand 3: Presenting and disseminating data effectively

Definition:

Identify the needs and interests of different users and take these into account when presenting data to aid understanding and promote inclusion. Present data using appropriate techniques and provide a clear narrative, telling the story of the data. Ensure data is communicated in a way that maximises [Trustworthiness](#), [Quality](#) and [Value](#).

Examples of this competency at this level

| | StO | HStO | SStO | G7 | G6 |
|-------------------------------------|--|--|---|---|---|
| User requirements | Identify current users of data and gather feedback on how data is presented. | Identify current users of data and gather feedback to ensure products meet user needs and inform improvements in dissemination. | Identify current users of data and proactively seek out potential new users. Seek feedback to ensure products meet user needs and inform improvements in dissemination. | Apply knowledge of current and potential users to plan user engagement and maximise value from data. | Oversee plans and develop ambitious user engagement strategies taking account of wider engagement activities. |
| Present and disseminate data | Apply statistical understanding to draw conclusions based on evidence. Use a range of appropriate data visualisation and presentation techniques to communicate data findings to users. | Apply statistical understanding to draw conclusions based on robust evidence. Tell the story of the data in plain language to aid understanding. Explore innovative data visualisation and presentation techniques to communicate data findings to users. Understand the advantages and disadvantages of different ways of presenting data. | Apply statistical understanding to draw conclusions based on robust evidence from a range of sources. Tell the story of the data in plain language to maximise understanding. Explore and share innovative data visualisation and presentation techniques to communicate data findings to users. Help others understand the advantages and disadvantages of different ways of presenting data. | Apply statistical understanding to complicated and sensitive problems and draw evidence-based conclusions across the work of the whole team. Be an expert storyteller to impart the understanding from multiple data sources to users. Seek out and champion examples of data dissemination innovations from across the department. Build a team culture where other analysts are aware of and use best practice when communicating data findings. | Apply statistical understanding to complicated and sensitive problems and draw evidence-based conclusions across multiple teams. Take an overview across a wider area to bring together multiple analysis to form a coherent overarching story. Seek out and champion examples of data dissemination innovations from beyond the department. Build an environment beyond their own team where users of data are aware of and use best practice when communicating data findings. |

| | StO | HStO | SStO | G7 | G6 |
|----------------|--|---|--|---|---|
| Quality | <p>Ensure caveats and assumptions are communicated appropriately.</p> <p>Follow statistical protocols to maximise trust and prevent unintended disclosure.</p> | <p>Ensure caveats and assumptions are documented and communicated appropriately.</p> <p>Follow statistical protocols to maximise trust and prevent unintended disclosure.</p> | <p>Ensure caveats and assumptions are documented and communicated appropriately and analysis is presented with integrity</p> <p>Follow statistical protocols to maximise trust and prevent unintended disclosure, and encourage others to do the same.</p> | <p>Ensure caveats and assumptions are documented and communicated appropriately and analysis is presented with clarity and integrity</p> <p>Build a team culture where the importance of statistical protocols is emphasised and ensure these are followed to maximise trust and prevent unintended disclosure.</p> | <p>Work with senior colleagues and other stakeholders to ensure data are not misused, internally or in the public domain.</p> <p>Advocate for statistical protocols beyond their own team, help others realise their value and ensure protocols are followed to maximise trust and prevent unintended disclosure.</p> |