Thinking about quality when producing statistics

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Office for Statistics Regulation

We provide independent regulation of all official statistics produced in the UK. Statistics are an essential public asset. We aim to enhance public confidence in the trustworthiness, quality and value of statistics produced by government.

We do this by setting the standards they must meet in the *Code of Practice for Statistics*. We ensure that producers of government statistics uphold these standards by conducting assessments against the *Code*. Those which meet the standards are given National Statistics status, indicating that they meet the highest standards of trustworthiness, quality and value. We also report publicly on system-wide issues and on the way statistics are being used, celebrating when the standards are upheld and challenging publicly when they are not.

Questions to guide thinking about quality

Statistics should be produced to a level of quality that meets users' needs, and quality assurance (QA) should be proportionate to the nature of the quality issues and the importance of the statistics in serving the public good.

In this guide we provide some questions that analysts producing statistics can use in considering quality at each stage of production. This list is adapted from a series of questions we asked teams during our review of the principles and processes underpinning the quality of HMRC's official statistics, and draws on QAAD Questions which help producers find out about administrative data. This quality guide is not a checklist but is designed to be used alongside your own organisation's guidance, as well as alongside external resources – check out the list at the end. GSS guidance on best statistical practice for quality assurance is available on the Policy and Guidance Hub.

> Quality is one of the three pillars of the Code of Practice for Statistics. It means that statistics fit their intended uses, are based on appropriate data and methods, and are not materially misleading. It requires skilled professional judgement about collecting, preparing, analysing and publishing statistics and data in ways that meet the needs of people who want to use the statistics.

Understanding the production process

- What are the steps in your statistical production process, from acquiring the data to final statistics? Can you map out the "data journey"? Why is it done in this way?

- Where are the highest risk points for errors in the process? What measures do you or could you take to mitigate risk at these points?

- How much time does your statistics output take to produce and how is this time split between data collection, analysis, report preparation and QA? Does the current balance feel effective?

- How do you know that the statistics output is ready? Who is responsible for final sign off?
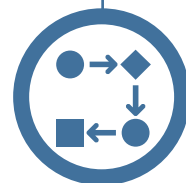
Tools used during the production process

- What analytical tools do you use during the production process? Are they the best for the job?

- How many manual steps are there in the process (e.g. updating cells in spreadsheets, moving data between software or copy-paste steps)? Could these be reduced to minimise the risk of error?

- Are any parts of the publication process automated? If so, how do you ensure that these are correct and can be inspected and understood by other staff or new members in the team?

Receiving and understanding input data

- When and how do you communicate with your data provider(s)?

- Does your data provider have a good understanding of how and why you are using their data?

- Is there a formal agreement in place that specifies when, what and how the data will be received? If not, do you think this would be helpful?

- Do you know what quality checks are carried out on the data before you receive them?

- How do you work with your data provider when your data requirements change?

- How do you know if your data provider makes a change to their systems or processes, which could impact the data you receive and/or the statistics you produce?

- What are the strengths and limitations of the data used in your publication? Are these communicated to people using your statistics?

Quality assurance

- What do you feel is done well with regards to QA in your team? What could be better?

- How do you ensure that input data are correct and in the expected structure and format?

- How do you assure yourselves that analysis carried out is correct?

- If you find anomalies or unusual trends in the data, what steps are taken to investigate them?

- Is your code or analysis ever peer reviewed by someone outside your team or organisation?

Version control and documentation

- How do you ensure that analysis is auditable and can be inspected and understood by colleagues?

- Could you reproduce the analysis and output from a previous publication?

- If changes need to be made to any code or analysis, how are these documented? Are changes checked by another member of the team?

Issues with the statistics

- What happens if you find a mistake in the data/your publication? How is it rectified? Is your approach consistent with your department's statistical revisions policy?

- What steps would you take to minimise the chance of a similar error happening again?

Other resources available

[The Code of Practice for Statistics](#) The Office for Statistics Regulation Code of Practice for Statistics provides producers of official statistics with the detailed practices they must commit to when producing and releasing official statistics. The Code articulates a range of aspects of QA in the Quality pillar that producers should refer to when planning QA.

[Quality Assurance of Administrative Data](#) (QAAD) Toolkit (February 2019) This toolkit from the Office for Statistics Regulation is intended to help statistical assessors review the areas of practice for the quality assurance arrangements of administrative data used to produce official statistics

[QAAD Questions](#) – what do I need to ask? Use this guide from the Office for Statistics Regulation as a prompt to help you find out more about your administrative data sources and any associated quality issues.

[The GSS 'Quality statistics in government' guidance](#), produced by the GSS Best Practice and Impact Division (BPI), also supports statistical producers in meeting the quality requirements of the Code and provides helpful steps and techniques to consider in QA. This guide includes an example of a "data journey".

[GSS Guidance on quality](#) Here is a useful web page with links to a range of guidance on managing quality in statistics, including communicating quality, uncertainty and change.

[GSS Quality Strategy](#) This strategy aims to improve statistical quality across the Government Statistical Service (GSS) to produce statistics that serve the public good.