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| Analytical Assurance guidance  October 2020 |
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As in all areas of government, analysis is central to the work of the GLA.

Analysis helps to shape and appraise alternative courses of action, provides insight into complex systems, measures system performance and improves efficiency. All our stakeholders, including the Mayor and the London Assembly, but ultimately all Londoners, need to have confidence in our analysis. The success of evidence-based policy and the efficient delivery of programmes and projects depends on robust analysis that is fit-for-purpose and understood.

The term ‘Analytical assurance’ describes a set of principles, processes and activities which aim to ensure that analysis is fit for purpose, proportionate and robust. All users need to understand the strengths, limitations and associated risks of an analysis and these should be communicated openly.

The GLA is placing increasing importance on transparency. In July 2018, the GLA Group voluntarily adopted the [UK Statistics Authority (UKSA) Code of Practice for Statistics](https://www.statisticsauthority.gov.uk/code-of-practice/the-code/). In doing so agreed it agreed to adopt the pillars of trustworthiness, quality and value that underpin the Civil service code of conduct.

This document sets out the principles of analytical assurance, drawing heavily upon existing guidance for analytical assurance in central government[[1]](#footnote-2),[[2]](#footnote-3),[[3]](#footnote-4). In line with the principle of proportionality, this guidance is however more ‘light touch’ than the processes developed by central government to meet the needs of their (often large) departments. Whilst the principles outlined in this document are well accepted, how they are judged to pertain to the work of GLA Economics and how they should be implemented is likely to change over time. This document will therefore need to be reviewed to ensure it keeps pace with developments across government and beyond.

# Why do we need analytical assurance?

Analytical assurance describes **a set of principles, processes and activities which aim to ensure that analysis is fit for purpose, proportionate and robust**.

Analysts understand that uncertainty is inherent within the inputs and outputs of any piece of analysis or research. Analytical Assurance is designed to convey to decision-makers the strengths, risks and limitations in the way that the analysis has been conducted and characterize the uncertainty in the analytical advice, while also ensuring that the strengths, risks and limitations of the analysis are clearly communicated to users. It is important to establish how much we can rely upon the analysis for a given problem.

Most of the processes and activities described in this document are not new and are being carried out to varying degrees for all analysis and research produced across the GLA. The value of this document lies in creating a shared understanding of analytical assurance, in clarifying roles and responsibilities and in the transparency of setting these out in a single document. In return, it should also help set the parameters around a culture that respects and places importance on the capacity, specialist skills and time required ­ primarily by analysts but also by others across the organisation ­ to conduct effective assurance.

# When is analytical assurance required?

Proportionality is a key principle in deciding the type and extent of assurance activities. In deciding an appropriate level of analytic assurance effort, consideration should be given to the consequences of relying on an analysis that is ‘wrong’. When these consequences are likely to be more acute, more widespread or simply more likely, investing in more analytical assurance effort will be worthwhile.

More analytical assurance effort will be required when:

* the analysis is expected to inform **‘business-critical’ decisions** – involving high financial, legal, operational or reputational risks to the GLA or GLA group.
* the analysis is expected to inform **frequent decisions**, since any errors would be perpetuated across multiple decisions.
* the intended analytic approach is **complex** or **novel**.

The three lines of defence model, explained in *Box 1*, is a useful concept to apply once the decision of how much effort to invest in analytical assurance for a particular project.

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| **Box 1: Three lines of defence model**  The three lines of defence model is a concept adapted to Analytical Quality Assurance from a model introduce by the Institute of Internal Auditors (IIA) in 2013 on managing corporate risks. This is related to the Quality assurance activities however, it is organized in three levels. The first line of defence refers to the analysis testing and review by the lead analysts and by their managers. The second line requires analysis testing and review by colleagues outside of the management line like steering groups, and internal peer review. The third line corresponds to external peer review and analytical audits. It is important to consider budget allocation for the third line review. Time management should be considered when applying the three lines defence model since peer review may take longer than expected.  **First line**  - Analysis testing and review by the lead analysts and by their managers  **Second line**  - Analysis testing and reviewed by colleagues outside of the management line  - Boards and steering groups  - Internal peer review  **Third line**  - External peer review  - Analytical audits |

Analytical assurance is just as important, and arguably more so, for urgent analysis that is limited in scope and turned around quickly than longer term analytical projects. In response to the increasing need to produce work at pace for urgent decision making, central government has issued urgent data quality assurance guidance[[4]](#footnote-5) sets out steps for assuring quality under extreme time constraints. Work must always be fit for purpose, even if time is limited. The same principle of proportionality applies, and time should be taken to convey the strengths, limitations and associated risks of an analysis to the end users.

# What does analytical assurance involve?

There are many activities that can be carried out to ensure analysis is robust and good quality. These include:

1. **Planning** appropriate analysis that is fit for purpose,
2. Efforts to **minimise error** during and after the analysis is conducted and maintaining **transparency**
3. **Interrogating** your results
4. **Critical appraisal** of the analytical approach
5. **Communication** to coordinate input from different parties and to ensure the analysis is understood and used appropriately
6. Planning

All projects should begin with a scoping exercise, leading to the development of an analysis plan in collaboration with policy colleges. This should include clear research questions (maybe also highlighting what is out of scope), the methods to be used, likely sources of data, any anticipated limitations of the analysis and project risks. It should also clearly identify the intended use of the analysis. A proportionate analytical assurance strategy can then be agreed and should be included in the project plan, which should be signed and dated by [key individuals](#_Who_should_carry).

1. Minimising error and maintaining transparency

At its most basic level, verification is required to ensure the analysis is doing what the analyst thinks it’s doing, i.e. is error-free. Verification includes simple sense checks carried out by the analyst throughout the development of quantitative analysis. For example, when developing a model, setting certain input values to zero to check that anticipated outputs follow, or running the model with alternative input data to check that it responds as expected. Calculations should also be looked at by a second analyst to check for consistency. To facilitate this, transparency in all aspects of quantitative analyses (e.g. well-structured spreadsheets, clear model operating instructions, transparent coding and sources of input data) is essential. The verification process can also highlight problems around the interpretation of these instructions. Errors can also occur due to poor version control, so a suitable approach version control should be part of an error minimisation strategy.

It is best practice to maintain a risk register and issue log of the analytical assurance efforts that have been performed and by whom. Clear protocols around the model control environment should be adhered to. Version control is important for both the analysis and for the supporting data and assumptions.

1. Interrogating results

Beyond error-checking, it is also important to consider whether the analysis is producing valid results. This is usually done by comparing the outputs of the analysis to external data. Determining the plausibility and implications of the resulting outputs may rely on the expertise of policy colleagues, particularly the relevant policy lead. It may also rely comparisons with external analysis.

1. Critical appraisal

Critical appraisal tools are available to help analysts be objective in reviewing choices made throughout a modelling process. These might normally be used when assuring a piece of work carried out by an external party, but can also be a helpful prompt in assuring work done internally.

Internal or external peer review will offer a fresh perspective and may challenge choices made in the analysis and research process. These challenges will often improve the description of what was done and justifications of the analytical approach taken. They may also lead to more fundamental changes to the analysis.

External peer review will naturally require more time then internal review, since it relies on individuals outside the organisation who will be working to different priorities. There are several options to consider in exposing GLA’s work to external review e.g. inviting external experts to sit on steering groups, organising workshops with external invitees and introducing formal peer review as part of project specifications. A recent example of GLA Economics was to appoint an Independent Expert Panel to provide challenge and review to the development of the evidence base for London’s Local Industrial Strategy.

1. Communication

Effective communication is crucial throughout the analytical process. Close working with the policy lead is essential to develop a full understanding the problem, design an appropriate analytical response and adopt credible assumptions – tasks which cannot be done by the analyst alone. Conducting the analysis and understanding the plausibility and implications of the resulting outputs also rely heavily on the input from policy colleagues. The supervisory analyst is responsible for ensuring quality assurance by acknowledging risks, limitations and major assumptions in the analysis and making sure these are understood by the final users.

The best way to communicate limitations of any analysis and uncertainty surrounding the results will vary according to the specific audience. The level of detail you need to provide should take account of the importance of the information and the user appetite and need for detail. Engaging with users and getting their feedback will help to achieve the right balance.

# Who should carry out analytical assurance?

At least three individuals will be involved in any analysis and research carried out by GLA Economics:

* **The policy lead:** the official leading on the piece of policy work and relying on analytical advice
* **The lead analyst:** the official involved in scoping work and who takes the primary role in completing the analysis
* **Supervisory analyst:** the official who has a supervisory role, in GLA Economics this is usually a Supervisory economist. The GLA’s Senior Economist will also need to review and sign-off high profile research and analysis.

Depending on the nature and profile of the project an **independent reviewer,** a competent official independent of the other roles or an externally procured expert, may also be required.

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|  | **Develop and sign off the analysis plan** | **Do the analysis** | **Quality assurance** | **Sign-off on the intended use of analysis** | **Produce an assurance statement** | **Sign off assurance statement** | **Ensure model and results are understood by end users** |
| **Lead analyst** | **** | **** | **** | **** | **** |  | **** |
| **Policy lead** | **** |  |  | **** | **** |  | **** |
| **Supervisory Analyst** | **** | **** | **** | **** |  | **** | **** |
| **Senior economist** |  |  | ****  ***if required*** |  |  | ****  ***if required*** | ****  ***if required*** |
| **Independent reviewer** |  |  | ****  ***if required*** |  |  | ****  ***if required*** |  |

*Adapted from the DfT Analytical Assurance Framework, 2014, p.8.*

**When should analytical assurance take place?**

Quality assurance considerations should be taken into account throughout the life cycle of the analysis and not just at the end. It is particularly important that when signing off the analysis plan at the beginning of an analytical project roles and responsibilities and the level of assurance that the project requires are agreed and clearly set out in the scoping document.

If required, independent reviewers should be involved throughout the project rather than just at the end, as would be the case for an academic peer review. This will maximise the quality of the final analytical output.

# How will others know if analytical assurance has been carried out?

An **Analytical Assurance Statement** is an internal briefing document designed to convey to decision-makers the strengths, risks and limitations in the way that the analysis has been conducted and the uncertainty in the analytical advice.

Following the approach taken by the Department for Transport’s Analytical Assurance Framework (2013), it is useful to think about the content of the statement in response to three dimensions:

1. the **scope for challenge** to the analysis;
2. the **risks of an erro**r in the analysis;
3. the **uncertainty inherent** in the analytical advice and the degree to which analytical **efforts** have been **taken to reduce it**.

The first two dimensions are related to the assurance of the analytical process and should be proportional to the impact of the analysis. These should be ranked in low, medium or high depending the level of assurance they present. The aim of the assurance activities is to reduce unnecessary uncertainty however it is important to note that a level of uncertainty will still be present, but this needs to be clearly explained and acknowledged.

To produce a clear statement that addresses these three dimensions, consider the following questions:

1. **Reasonableness of the analysis and scope for challenge**

* Have we been constrained by time or cost, meaning further proportionate analysis has not been undertaken?
* Is there further analysis that could lead to different conclusions?
* Does the analysis rely on appropriate sources of evidence?
* How reliable are the underpinning assumptions?

1. **Risk of Error and robustness of the analysis**

* Has there been sufficient time and space for proportionate levels of quality assurance to be undertaken?
* How complicated is the analysis? How innovative is the approach?
* Have sufficiently skilled staff been responsible for producing the analysis?

1. **Uncertainty**

* What is the level of inherent uncertainty (i.e. the level of uncertainty at the beginning of the analysis) in the analysis?
* Has the analysis reduced the level of uncertainty?
* What is the level of residual uncertainty (the level of uncertainty remaining at the end of the analysis)?

These questions should be answered by the analytical and policy leads in a first instance and then revised and approved by the supervisory analyst. The statement should include a short paragraph of each of the dimensions setting out the level of assurance (e.g. high, medium, low) and a justification. While analytical assurance statements are meant as internal briefing documents, their development will also help ensure that uncertainties and limitations of a particular piece of analysis are clearly set out for all readers in any associated GLA publication.

The concept of proportionality should also be taken into consideration when developing the analytical assurance statement. For example, a high cost project with high legal risks would require proportionally more assurance than a low-cost project with medium or low legal risks. Proportionality may also inform the way in which the analytical assurance statements are presented. While they should always be concise, they could range from a short section in a decision document to a stand-alone paper.

**Annex A1: Existing GLAE analytical assurance guidance**

* GLAE excel template, available here: Y:\0 Y Drive 2016\6 Admin\IT\GLA Excel template
* GLAE appraisal and evaluation guidance
* GLAE working papers template
* GLAE current issues note template
* Datastore ‘meta data’ spreadsheet requirements
* GLA Economics writing style guidelines

**Annex A2: Examples of application in the GLA framework**

**Example 1: Input-output tables**

[**The London Input-Output tables, Working paper 97 (April 2019)**](https://www.london.gov.uk/sites/default/files/london-input-output-tables-working-paper-97.pdf)

**Example 2: Immigration modelling**

[**Current Issues note 59**](https://www.london.gov.uk/sites/default/files/current_issues_note_59.pdf)- see pages 5 and 6

**Example 3: Appraisal & Evaluation team review of a Cost Benefit Analysis of the High Road West Tottenham carried out by Avison Young**

**Policy team: GLA Housing & Land and the London Borough of Haringey**

**August 2020**

The note below documents the analytical approach taken by Avison Young (AY) for the Cost Benefit Analysis of the High Road West scheme prepared for GLA Housing and Land and LB Haringey. GLA Economics have not audited the AY spreadsheet and calculations but have sought to provide assurance on the principles and methodologies used in the analysis. This note provides some commentary on the analysis and highlights key areas of risk and uncertainty.

Note: the CBA was undertaken over a condensed period of 3-4 weeks in July/August 2020.

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| **Analytical Assurance summary**  To the best of our knowledge, the CBA provides a reasonable assessment of the Value for Money of the scheme. The Initial BCR of 1.70 and Adjusted BCR of 1.77 meets the ‘Acceptable Value for Money’ range specified in the MHCLG Appraisal Guidance[[5]](#footnote-6).  Our key concern relates to the Library/ Training Centre benefits and their inclusion in the initial BCR. The MHCLG guidance stipulates that any calculations of external benefits not based on Green Book or Supplementary Guidance should be in the adjusted BCR. As highlighted below there are significant uncertainties associated with estimating the benefits and costs of the library which underline the need for it to be in the adjusted BCR.  We note that the MHCLG Agreement with the GLA stipulates that all schemes should have a BCR of 1.5 or above but does not specify whether this should be the initial or adjusted BCR. Based on the MHCLG guidance, both the initial and adjusted BCR should inform the VfM category and both are in the ‘Acceptable VfM’ range of between 1 and 2 regardless of where the Library benefits are included. |

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1. Department for Transport (2014) *Strength in Numbers: The DfT Analytical Assurance Framework* (<https://www.gov.uk/government/publications/dft-analytical-assurance-framework-strength-in-numbers>) [↑](#footnote-ref-2)
2. HM Treasury (2015) *The Aqua Book: guidance on producing quality analysis for government*

   (<https://www.gov.uk/government/publications/the-aqua-book-guidance-on-producing-quality-analysis-for-government>) [↑](#footnote-ref-3)
3. Department for Business Energy & Industrial Strategy (2018) *Quality Assurance: Guidance for models* (<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/737293/BEIS_QA_Guidance_for_Models.pdf>) [↑](#footnote-ref-4)
4. Government Data Quality Hub (2021) *Urgent data quality guidance* <https://www.gov.uk/government/publications/urgent-data-quality-assurance-guidance> [↑](#footnote-ref-5)
5. This is the Initial and Adjusted BCR assuming that the LF Grant will be a lump-sum paid upfront, as per the current proposal. In their report, AY have also provided the Initial and Adjusted BCR if it is assumed that the grant is spread over five years (1.73 and 1.81 respectively). [↑](#footnote-ref-6)