Main Guidance

Who should read this resource?

The Main Guidance is a **step-by-step guide** for those who are **developing or managing the development of a data analytics tool** in children's social care.

It includes a **set of questions** at the end of each lifecycle stage to help guide the project. It also points out where you can find further advice and information in relevant Explainers (see below).

It should be followed by:

- **Data practitioners** who **haven't previously developed or used data analytics tools**
- **Data practitioners** who **have developed and used data analytics tools,** but would like additional advice and support
- **Data practitioners working with a third party** to develop data analytics tools
- **Project Managers**

Other audiences (Information Governance, Procurement Officers/ Commissioners, Children's Services teams) **should be involved in advising or making decisions** across the development of a tool. However, they **do not need to read** the Main Guidance.

The Main Guidance flags where data practitioners will need to bring in different audiences at each lifecycle stage and phase.

Where a decision is made to procure tools, software or consultants, **Commissioners of Children's Services** or Procurement Officers should read Considering procurement

High level overview of the development lifecycle

Below, we have outlined a high level overview of the development lifecycle, which is followed in the Main Guidance.

Explore page 4

Exploratory
Explore technical and organisational capability to decade whether a data analytics tool is possible
page 6

Problem Identification
Engage with Children's Service teams to explore problems and identify good outcomes
page 8

Choose a Solution
Explore available datasets, expertise and resources, and decide on a tool to be developed
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Ethics Triage
Identify and address ethical risks, put governance in place and complete a Business Case
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Develop page 22

Design
Understand user requirements, explore acceptable data use, and co-design outcomes
page 24

Develop
Explore and test mechanisms to protect privacy, iterate a prototype, and develop feedback loops
page 30

Testing
Complete systems (Alpha and Beta) testing, and user testing
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Pre-Deployment
Consider public communication and evaluation, and seek appropriate sign off to implement the tool, and complete user training and upskilling
page 36

Implement page 40

Deploy
Begin evaluation of the tool, and publicly share information about it
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Monitor
Review and update the tool, including continued engagement with users and affected stakeholders
page 43

Retire
Where the tool isn't meeting expected outcomes or is no longer relevant, take the tool out of commission
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Overview of Explore Phase

Where possible, the Explore phase should be completed internally by the local authority. You may wish to hire a client-side contractor or consultant to support you, if you don't have the resources or expertise in-house. See **Procurement** for more information.

The table below:

- Outlines the key actions you should take at each stage of the Explore Phase
- Suggests stakeholder groups that you should engage with

Stage	Actions	Groups
Exploratory Page 6 Explore technical and organisational capability to decide whether a data analytics tool is possible	• Complete a **Data maturity self-assessment** to understand Children's Services data literacy. Draw on **Information Governance** where appropriate. • Decide whether it is technically feasible or desirable to explore development of a data analytics tool.	
Problem Identification Page 8 Engage with Children's Service teams to explore problems and identify good outcomes	• Consider data literacy of Children's Services teams, with support from **Service Leads** and **Heads of Service** • Engage with Children's Service teams using data, to explore problems and identify good outcomes, with support from **Service Leads** and **Heads of Service.** Understand their views and concerns around data analytics tools. • Complete a **User Needs table** • Decide whether a data analytics solution is appropriate	

Choose a Use Case

Page 11

Explore available datasets and resource, and confirm a tool for development

- Begin to develop a **Business Case**
- Consider **different types of data analytics solutions** to address the problem identified
- Consider your context, including: **available datasets, data quality, resources and expertise**
- Engage with **Children's Services** to prioritise a tool for development
- Make a decision to **procure software or consultants,** with support from **Commissioners of Children's Services** or **Procurement Officers**

Ethics Triage Page 18

Identify and address ethical risks, put governance in place, and complete your Business Case

- Complete the **Ethics Triage self- assessment,** with support from **Information Governance**
- Begin a Data Protection Impact Assessment, with support from **Information Governance**
- Establish **appropriate governance,** with support from **Senior Leaders in Children's Services, Information Governance** and **Digital Transformation**
- Sign off on a Business Case, with support from **Senior Leaders in Children's Services** (and an oversight group)

Ethics Workbook

- Complete the ethics **questions** under 'Explore', sharing your responses for discussion with your **oversight group.**

Exploratory Stage

Do you have the technical and organisational capability to develop a data analytics tool?

Those developing or managing development of data analytics may complete the steps in the Exploratory and Problem Identification stages in a different order to that which we have set out.

Whichever order you choose to follow, you should ensure that any decision to develop a data analytics tool:

- Responds to a clear **problem** that has been defined by those in Children's Services**,** and
- Makes a strong case that any action is likely to improve **outcomes** for children, families and practitioners.

You will likely need to engage with:

Documents required:

We advise that you complete the Local Government Association's data maturity self-assessment for your Children's Services Directorate. This can:

- Help to better understand your technical and organisational capability
- Help to guide your decision about whether developing a data analytics tool is appropriate, i.e. technically possible or desirable.

Complete a data maturity self-assessment

The self-assessment explores five components of data maturity:

- How you use data to inform decisions and run services
- Attitudes towards data and its uses
- How data is stored, accessed, shared and quality assured
- The capacity of your authority to undertake data analysis and data science
- The governance of data, approaches to data protection and privacy.

You may wish to engage with **Children's Services teams** to help you answer some of these questions.

It can be helpful to discuss your data maturity result with your **Information Governance team** to consider how and whether you should proceed to explore the value of data analytics.

What does your result mean?

➢ A higher score on all five components of the data maturity assessment
This suggests that you have good technical capability. You may develop data analytics tools or models, including those which are more advanced. You can proceed to the **Problem Identification** stage.

- A lower score on some components
  This may mean you need to focus on improving these areas before developing data analytics. For example, you may have well managed and governed data, but lack the data science skills necessary to develop a tool.

  A low in-house technical score doesn't mean you can't develop or use a tool. You may procure expertise from third parties including academics, private sector developers or non-profit organisations. See **Procuring third party expertise** for more information.

- A lower score across all components
  This means that you are unlikely to be able to develop a data analytics tool in-house. You should focus on improving data maturity. You may need to work with an external company or organisation to support you to do this.

Improving data maturity

You may find open source analysis templates and tools useful. For example, **Data2Insight** hosts data resources which have been designed to support data analysts in Children's Services.

You could also encourage senior leaders to enrol you on relevant training courses (e.g. R, Python, PowerBI), to help utilise data in Children's Services. Explainers on **data quality** and **data use and sharing**, and DfE guidance on improving recording systems [LINK TBC] may also be helpful.

Problem Identification Stage

What are the demands and pressures you face delivering children's social care? Could a data analytics tool help you to address them?

This stage will help you to engage with potential users of data analytics, i.e. those who would use data and insights to make decisions in children's services.

The aim of engagement is to seek their views on:

- Identifying a problem that should be addressed, which improves service delivery and outcomes for children and families.
- Discussing whether better data use could be part of the solution.

You will likely need to engage with:

Documents required:

In this section, you should fill in a user needs table. A user needs table identifies the following, and can guide whether a data analytics tool is appropriate.

- Users
- What they're trying to do (objectives)
- How they currently do it
- The problems and frustrations they experience
- What users need to achieve their goals

Tips for engagement:

- **Engaging early** with potential users about data analytics is crucial. It can help to inform decisions about whether a data analytics tool is appropriate, and if so, where and how.
- A survey or monthly **forum** can be a useful way to engage with practitioners and managers working in children's social care.
- Bringing a **Stakeholder Engagement Lead,** who is comfortable engaging with potential users, onto your project team can help to build trusted relationships.
- Having **vocal support for data** from a Director, Assistant Director or Head of Service for Children's Social Care can encourage potential users to engage.
- Providing reassurance that you will engage closely with them throughout the design and development. This will help to make sure that any data analytics tool will be of practical value. As well as avoiding adding additional burden or unnecessary work.
- Refer to Co-design for further information.

Identify potential users

In this section, potential users should be interpreted broadly. You should have a clear idea of who could be impacted by the use of a data analytics tool. They will include those who:

- Work directly or indirectly with children and families
- Use data to make decisions that relate to children and families.

They are likely to include:

- Social care and other practitioners,
- Managers,
- Senior decision-makers,
- Service providers,
- Service users,
- Multi-agency partners such as the police,
- Organisations representing service users.

Explore Children's Services data literacy

You should build on your understanding of Children's Services' data maturity.

Engage with Children's Services teams to understand whether data analytics could be appropriate by exploring:

- Their data literacy
- How comfortable they feel about data analytics
- How they currently use and trust data and technology in their role.

You may find the **Introduction to data analytics** resource helpful to explain data analytics, and the opportunities for use in children's social care.

You may ask the following questions to prompt discussion:

- Do they always have access to the information that they need?
- Could additional information help them to do their job?
- What are the main challenges in using data in their role?
- What are their reactions to data analytics?
- Do they have any questions or concerns about data analytics?

➔ **CASE STUDY:** Some local authorities have found it helpful to organise a workshop with potential users to help explore how and where data analytics can be beneficial. In the workshop, they have taken real life case review scenarios, and explored where better use and sharing of information could have made a difference to the outcome of the case.

Identify demands and pressures in Children's Services

Identifying demands and pressures will help to centre how and where data analytics could be of most value.

Explore potential users' thoughts on:

- What are the key demands, pressures and challenges that they face in delivering children's social care?
- What key outcomes are they driving towards?

- How could better information and analysis address key demands and/ or support desired outcomes?
- What other (non-data) solutions could address key demands and/ or support desired outcomes?

In discussions around how better data could support good outcomes (bullet point 3 above), you should ask:

- Who could benefit and how?
- What data is needed?
- What action could be taken as a result of knowing the information?
- How would this change (and improve) how decisions are currently made?
- What, in addition to data, might be needed?

Prioritise a problem to address

You should draw on your user research to prioritise a problem to address. Data analytics may or may not be part of the solution.

➔ Stakeholders agree that data could help to address the problem. Move ahead to **Choosing a use case.**

➔ A data analytics tool is not the right solution to address the problem identified. It is still important to invest in the following to help improve your data maturity. It can also put you in a stronger position to develop and use data analytics in the future.

- Data quality (**Data quality explainer)**
- Access to data (**Data use and sharing explainer)**
- Data linking,
- Data recording systems (link to DfE's guidance on recording systems TBC)
- Data infrastructure

Choosing a data analytics solution

This stage will help you explore how different data analytics solutions can help you to respond to the problems identified in the previous stage. It will also help to ensure that the solutions are appropriate for your data maturity.

You will likely need to engage with:

Documents required:

You should begin a **Business Case**, which draws on your user research, and sets out:

- Your chosen data analytics solution,
- The value of the work,
- The datasets, resources and expertise that would be required,
- The rationale for procuring or commissioning software, if necessary.

Tips for this stage:

It can be helpful to draw on other local authorities' experiences, where they have developed similar tools. This can help you to understand more about the following issues:

- The effectiveness of their tools
- The challenges they faced
- How they approached/ overcame them.

Research has also found that it can be easier to demonstrate the value of a data project where they could demonstrate that other local authorities had done something similar successfully. This type of knowledge sharing can take place in local government networks, such as the Local Government Association's Advanced and Predictive Analytics Network.

Explore different types of data analytics solutions

Data practitioners should explore different data analytics solutions that address the problem that has been identified and prioritised.

As described in **Introduction to data analytics**, data analytics is deliberately used as a broad term in this guidance. Problems may be addressed by different analytics solutions. You should choose an analytics solution that best fits with their data maturity and capability.

➔ **EXAMPLE:** If you wanted to better understand and manage your resource and funding:

A Children's Services team with **medium data maturity** and less advanced technical expertise:

- Use descriptive analytics to understand how need has changed over time. This can help to make decisions about which local areas or issues should be prioritised for

funding or resources.

- ➔ A Children's Services team with **high data maturity** and technical expertise in advanced statistical methods and developing machine learning models
  - ◆ *May* use predictive analytics to help forecast future needs, for example, forecasting the number of care placements needed. This could also lead to specific recommendations being made for where to allocate funding or resources in the future.

Box X: Linking data maturity to type of analytics developed

As a general guide, we advise that:

- ➔ At a **medium data maturity,** local authorities may be able to develop a data analytics tool in-house. You should focus on the possibilities for descriptive and diagnostic analytics.

You should avoid developing a predictive tool, as it's unlikely that you will have the technical capability and data governance processes required. It may be helpful to work with an external company, organisation or academic team to support you to develop a descriptive or diagnostic tool. See **Procuring third party expertise.**

- ➔ At a **higher data maturity**, local authorities teams are encouraged to use descriptive and diagnostic analytics to improve their provision of children's social care.

You should demonstrate confident and effective use of descriptive and diagnostic analytics, before seeking to develop predictive analytics.

- ➔ At a **high data maturity**, you may be able to develop a more advanced tool. This may include a tool which makes predictions around the likelihood of an event happening.

However, tools which make predictions are likely to be deemed higher risk. This is especially true where predictions relate to individual children and families.

Developing a predictive analytics tool will require:

- Advanced technical expertise,
- Strong engagement and support from stakeholders who are likely to be impacted by it
- Robust governance mechanisms including an external oversight group who can effectively scrutinise and challenge throughout development.

Any form of machine learning should only be undertaken by experienced data scientists with relevant experience. You should note that initial evaluations of **machine learning** have not demonstrated effectiveness in identifying individual risks to cohorts of children.

You should avoid developing a predictive tool which provides little opportunity for a practitioner or user to reach their own conclusions.

- For example, a tool which automatically refers children who have received a 'high risk' score for assessment without a professional considering the evidence.

Identify the datasets needed

Data analytics tools may draw upon many different data sources. Having a range of data from multi-agency sources can help to provide a holistic view of a child, area or service.

Data practitioners should:

- Identify and catalogue the datasets that are available and accessible to children's social care. They should be those which are most ***relevant*** for the data analytics tool.
- Note who owns the datasets, and their source.
- Consider whether it would be valuable to receive additional datasets from external organisations.
    - You may wish to engage with your Information Governance teams who may support development of common information sharing frameworks and data sharing agreements with partner organisations.
    - See **Data use and sharing** for more information.

Understand the quality of datasets you want to use

Data practitioners should be confident that the datasets you want to use are good enough to develop a tool. Are they accurate, complete and representative of the population under consideration?

To help you to understand the quality (and limitations) of the data, you can:

- Record the size of each dataset,
- Identify missing data, and
- Assess whether certain data fields have been recorded in a consistent format.
- Complete an audit on data to assess its accuracy, completeness and representativeness.

You should also consider whether the overall decision-making process that the tool is supporting is a fair one.

There are multiple and sometimes conflicting definitions of fairness that are applicable to different contexts.

- For example: A tool might perfectly reflect existing inequality. In this scenario, the tool has a fair process, but the outcome may be unfair. This is because it may over-represent those from lower socio-economic backgrounds.

For some local authorities, the datasets you want to use won't be good enough to gain meaningful insights from data analytics tools.

If your data quality is poor and you don't have the resources to improve it, we would advise that you don't proceed to developing a data analytics tool.

However there are practical steps you can take to improve your data quality, see **Data quality** for information. The case study below outlines how data analysts identified how to reduce errors in data.

- ➔ **CASE STUDY:** Data practitioners **mapped data cleaning** to identify common errors in Looked After Children data. They found that most errors were caused by inconsistent data in the three areas:
  - Data is inconsistent with previous years
  - Data is missing or incorrect
  - Multiple reviews are recorded for the same child
- ➔ They also analysed error logs on historic returns, which helped them to understand the scale of the problem, and then identified opportunities to reduce errors.

Understand your systems architecture

An organisation's ability to implement data analytics solutions can be inhibited by complex or legacy IT systems. Understanding of your existing IT infrastructure and systems architecture can help you to know whether data analytics is feasible. It can also help you to identify what changes might be needed to facilitate it.

Changing your systems architecture is a big task. Ensuring data systems are interoperable can be a challenge. Speak to your Case Management System provider and IT infrastructure teams for help in accessing data held within them. This can help to make sure that the data can be used effectively, for example, for extracting, aggregating or analysing. [Link to DfE guidance on data recording systems, TBC].

You may find the Crown Commercial Service's Digital Transformation Guide for technology procurement in local government helpful. It provides advice on procuring software which avoids vendor lock-in.

- ➔ **CASE STUDY:** You may wish to better understand what your current systems architecture looks like, and how it can facilitate data sharing and analytics. One local authority:
  1. Sent a detailed questionnaire to understand existing technology systems. This included:
     a. How data was stored
     b. Format of storage
     c. How data was usually accessed
  2. Held interviews with Information Analysts to map processes for data use to help identify key challenges across:
     a. Aggregating
     b. Cleaning
     c. Analysing
  3. Analysed spreadsheet templates to understand:
     a. Data currently shared
     b. Types of analysis that could be supported

Consider resourcing and costs

It is important to consider and estimate the total costs involved, to help to demonstrate value for money. This will be important in writing a strong Business Case.

Costs involved in developing and implementing a data analytics tool can include:

- Resourcing to manage and complete the design and build,
- Operational costs and maintenance,
- Additional costs such as public engagement, establishing an ethics committee or sourcing independent evaluation,
- Resourcing to provide appropriate training for users (including social workers). See **Training** in **Pre-Deployment.**
- Changing your systems architecture/ infrastructure (if necessary)

The total costs involved may be more or less expensive, depending on things like:

- Your data maturity
- Whether you have developed data analytics tools previously
- Whether you will need to bring on external expertise (temporarily via procurement or permanently by hiring data scientists)
- The complexity of the data analytics tool you want to develop
- The risks involved.

➔ **RESOURCE:** The Rees Centre has developed a Cost Calculator tool that can be used to explore the relationship between needs, costs and outcomes of services provided to Looked After Children. It uses statutory return data to explore how costs might be affected when a new practice or service is introduced.

Seek feedback from Children's Services teams

You should check-in with your Children's Services team, to:

- Share the user research you've completed so far
- Details about the tool you want to develop.

You may wish to consider their reactions to the following questions:

- What could the potential impacts be - positive or negative - for you?
- What could the potential impacts be - positive or negative - for children and families?
- Do you have any concerns about the different options? What are they? Can you think of ways that your concerns could be addressed?
- How appropriate is the tool for your local context?
- To what extent do you think it will support and improve the provision of children's social care?
- Do you support the development of the tool?
- Are there other challenges that you feel need to be addressed?

In addition, you should consider the needs of different stakeholders and users. Social workers might want or need something more interventionist that family representatives are comfortable with.

Begin to draft a Business Case

A Business Case can help you to communicate with senior leaders and other key stakeholders about the importance of the project. The decision to develop or use a data analytics tool will likely require sponsorship and a Business Case to be signed off.

It will consider:

1. Project rationale
2. Expected benefits of the project
3. Economic case for investment
4. Risks and opportunities
5. How success will be measured

A strong Business Case will utilise evidence and data from the previous stages to support its assumptions. This includes stakeholder research that relates to:

- Desirable outcomes, objectives and impacts
- Undesirable outcomes
- Any redlines

You should also establish how the tool will improve decision-making and positively impact a range of stakeholders. This may include:

- Children and families
- Child practitioners
- Senior decision-makers
- Safeguarding partners outside of the local authority

Identifying successes of similar projects by other local authorities' may also help you to demonstrate the value of the work in your Business Case. If helpful, KPMG has produced guidance for local governments to support strong business cases.

Procuring third party expertise

You should consider:

1. The type of technical expertise needed to develop data analytics solutions
2. The pros and cons of procurement

See **Procurement** explainer for further information and advice, if you decide to procure a tool or services. In the explainer, we set out roles and responsibilities that you must discuss and agree with your supplier in advance to help mitigate the risks set out below.

Technical expertise required

There are different options for procuring expertise to support the development of a data analytics tool. You should decide whether you:

1. Have the technical capability and resources to develop a tool in-house
2. Need to bring external consultants onboard to support you to improve data governance
3. Need to bring data science contractors/ developers onboard to build a bespoke a data analytics tool

4. Can procure an off-the-shelf tool which meets your needs.

Opportunities and risks for procurement

In-house development

+ Offers local authorities greater control over the data being used.
- Requires a fuller understanding of data quality and infrastructure. This is helpful when monitoring the tool.
- Requires significant investment and internal expertise, especially where a local authority is building more advanced tools in-house. This may not be feasible for many local authorities.
- Carries risks if a project doesn't work.

Procuring third party services or tools

+ Can offer specialist data science expertise that may not be available to most local authorities.
+ Suppliers and consultants likely to have relevant local government experience.
- Limited evaluation of the effectiveness of third party tools (e.g. impact, cost and accuracy).
- Lack of internal technical expertise means it can be difficult to oversee and scrutinise third parties.
- Local authorities have a responsibility to understand how decisions are made, yet commercial sensitivities may prevent providers from sharing information about how a model is developed.

Ethics triage

What are the risks and how will you address them?

At this stage, you should complete an Ethics Triage to help you better understand the risks associated with your solution.

You should also begin relevant Impact Assessments, put appropriate governance and oversight in place ahead, and have your Business Case signed off.

You will likely need to engage with:

Documents required:

In this stage, you will complete:

- An Ethics Triage
- Relevant Impact Assessments
- Your Business Case

Complete the Ethics Triage

Having identified a problem and chosen a data analytics solution, you should complete the Ethics Triage.

The Ethics Triage is an online self-assessment tool. It can help you better understand:

- The 'riskiness' of the data analytics tool you are developing.
- The specific risks associated with the tool
- What proportionate data governance looks like, i.e. proportionate to the risk of your project
- Where you can find specific advice and information to address the specific risks
- How you can more thoroughly respond to relevant impact assessments (including data protection, equality and children's rights).

To complete the Triage, you should have a high level understanding of the use case you have agreed to explore, which includes:

- Your data maturity score
- The intended value of your use case
- Who is likely to benefit, and how
- The type of analytics (descriptive, diagnostic or predictive) that you will use
- The datasets needed to develop the tool, and a general understanding of their quality
- Those who will be directly using and affected by the tool
- How you expect insights from the tool to be used
- The resources and expertise you have to develop and use the tool effectively

The Triage should take no more than 15 minutes to complete. It should be completed by:

- Data practitioner who will be developing the tool
- Project manager
- Information Governance representative

After completing the Triage, you should:

- Record the results of the Triage, taking note of the themes that were flagged
- Read the explainers corresponding to the themes that were flagged
- Identify appropriate measures that you can take to help address and mitigate the risks that have been identified. You may consider whether any parts of your proposed solution could be amended to reduce the risks.
- Discuss the results from the Triage with an oversight and/ or scrutiny group for advice on how to proceed and measures that can help to mitigate the risks identified.

Begin relevant Impact Assessments

Impact assessments are a useful tool to identify risks on your project, and develop ways to manage them. They are particularly important for higher risk data projects. You do not need to complete all of the following impact assessments, but you could combine Impact Assessment questions to create an 'integrated' assessment.

Box X: Types of impact assessment

We recommend that data analytics projects will likely require a **Data Protection Impact Assessment (DPIA)** because of the potential impacts they present to a child or family. The ICO has developed DPIA templates or you may use your organisation's own template. Your **Information Governance team** can provide support.
An **Equality Impact Assessment (EIA)** can help you to demonstrate that you have complied with the Equality Act 2010 and Human Rights Act 1998. EIAs are recommended where a project may present a high risk to an individual's rights.
A **Child Rights Impact Assessment** can help to demonstrate how and where you have considered children's rights, their views and perspectives. The European Network of Ombudspersons for Children guidance suggests questions you may ask across the design and development of a project.

Establish appropriate governance

Good governance ensures that there is appropriate accountability for, and scrutiny of, decisions. You should engage with Information Governance teams for support and advice.

Good governance includes:

Element of governance	Detail on measures needed

Assigning clear responsibility and accountability for the development of a data analytic tool at the outset.	• Identifying the key decision-makers and decision points along the lifecycle. • Ensure that decisions made at the right levels within a local authority • Ensure that decisions are made with appropriate levels of independent oversight • A risk process which identifies, monitors and raises risks during development to appropriate levels of seniority.
Ensuring consistency and standardisation.	• Repeatable processes to identify, address and test ethical considerations. This can also help to ensure consistency of approach and auditability. • Standardised processes to evaluate and capture learnings from the project • Lessons learned disseminated with the wider local government community. This can help to make sure development is consistent and can promote continuous improvement.
Developing robust mechanisms to allow for internal input and challenge, as well as external advice on decision-making.	• Scrutiny groups can ensure that you have sufficient input, advice and challenge across the development and use of a tool. • A scrutiny group should include technical, legal and subject matter expertise. It's a good opportunity to bring in a diversity of voices. For example through including representation from individuals with strong links to local communities and/ or who are care experienced. • Independent scrutiny may be required where you are developing a particularly high risk tool

Establish appropriate scrutiny and oversight

Groups or networks that you may include in an oversight group include:

- Internal and/ or regional local government data or technology networks who have technical expertise or experience developing data analytics tools. This can include Digital Transformation Leads,
- Children's Services practitioners, managers and senior leaders,
- Affected stakeholder groups, for example, via your Children in Care councils or Care Leaver Boards, or external community, voluntary or civil society organisations,
- Legal experts, via Information Governance,
- Elected representatives - particularly those responsible for Children's Services.

Independent scrutiny

You may need to establish an independent scrutiny group to advise across the development and use of the tool. This includes where:

- You don't have internal technical expertise
- The Ethics Triage has identified your solution as high risk, or has flagged the importance of oversight and governance.

You may draw on external experts, including from local academic and civil society partnerships. See **Governance and oversight** for more information on establishing appropriate scrutiny.

Before moving to the Develop Phase, you should:

- **Complete the ethics questions under the Explore section of the Ethics Workbook**
- **Senior leaders in Children's Services should sign off on the Business Case, to allow you to progress**.

Overview of Develop

Stage	Actions	Groups
Design **Page 24** Understand user requirements, explore acceptable data use	• Take **initial measurements** for benchmarking and establish criteria to measure success • Explore **acceptable** data use, privacy and access with **users and affected stakeholders** • **Co-design the user interface** • Consider whether **new processes** are required to incorporate new innovation with **Children's Services** • Put data governance **processes and software development practices** in place	
Development **Page 30** Develop prototypes which are iterated with input from users	• Explore and **build-in appropriate protections** • **Iterate** the prototype with **users, affected stakeholders and technical experts** • Establish technical and other **feedback loops**	
Testing **Page 34** Systems Testing, i.e. Alpha, Beta and user testing	• Complete **Alpha** testing to understand the accuracy of the tool on historic data • **Validation** of the tool • Complete **Beta** testing to understand the accuracy of the tool on a live subset of data. Beta testing includes **user testing,** which qualitative and quantitative feedback • Review of testing results by **users, affected stakeholders and technical experts**	

Pre-deployment

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Prepare to deploy the tool in a live setting

- Provide **training** for **users** so that they can use the tool as intended
- Provide **training** for **data practitioners** so that they can **review, update and maintain** the tool
- Where relevant, a **third party provider** to provide a detailed **handover** to a local authority team
- Check **governance and resourcing**
- Prepare for **evaluation**
- Prepare to share details about the tool **publicly**
- Update **impact assessments,** and prepare to publish them

Ethics Workbook

- Complete the ethics questions under 'Develop', sharing your responses for discussion with your oversight groups

Design Stage

How will you design a data analytics tool that best meets the needs of users, children and families?

This stage will help project teams to prepare to develop the tool. You should:

- **Identify your user group** and affected stakeholders, and consider how to **best engage** with them throughout the design
- Take **initial measurements** for **benchmarking** and establish **criteria to measure success**
- Explore **acceptable** data use, privacy and access with **users and affected stakeholders**
- **Co-design the user interface**
- Consider whether **new processes** are required to incorporate new innovation with **Children's Services**
- Put data governance **processes and software development practices** in place

You will likely need to engage with:

Documents required:

You may wish to build on the user needs table you developed in Problem Identification as you design the user interface.

Identify your users and affected stakeholders

Users and affected stakeholders will be engaged in co-design throughout the development of the tool. Taking your solution, identify:

- Users of the tool
- Those who might be affected by it. This includes organisations or groups who could represent their perspectives.

The riskiness of your tool will dictate how broad your user engagement needs to be.

➢ **EXAMPLE:** You are developing a descriptive tool that provides evidence to help senior leaders to make strategic decisions about resource allocation.

- You will need to engage with senior leaders.

➢ **EXAMPLE:** You are developing a tool that predicts individual children who are unlikely to be ready for school at age five. This can enable scarce resources to be targeted appropriately at the families who need it the most.

Stakeholders you might engage in co-design include:

- Heads of Early Intervention or Early Help
- Children in Care Council, Care Leaver Board, Experts by Experience Group and/ or

Children's Scrutiny Panel
- SENCO and Designated Safeguarding Leads
- Key Stage 1 teachers at local primary schools
- Local nursery and preschool teachers
- Local community and voluntary service providers and agencies who work with families and pre-school children
- Families with preschool children who engage with community services, and/ or families with children in Key Stage 1 at local primary schools
- Academics and civil society groups whose research focuses on school readiness

Identify and collect data to help evidence outcomes and measure effectiveness

You should have worked with key stakeholders to identify desirable outcomes, objectives and impacts for the tool in your Business Case. You now need to think about what evidence you may need to collect to demonstrate the effectiveness of a tool, and how you will measure it.

Establishing success criteria

Data analytics tools should demonstrably improve outcomes in children's social care. This may be that it:

- Improves existing decision-making processes, for example:
    - Providing relevant and accurate insights to decision-makers
    - Saving time by streamlining administrative tasks
    - Providing value for money
- Changes behaviour or attitudes
- Leads to better outcomes for children and families.

You should engage with users and affected stakeholders to understand their views on:

- Outcomes and impacts that they want to see - and how these could be achieved
- What redlines or undesirable outcomes would look like - and how these could be avoided

Setting accuracy thresholds

If you are developing a predictive analytics use case, you should set appropriate thresholds for accuracy including:

- **Precision**
- **Recall**
- **Other relevant metrics**
- Accuracy against different **demographic groups.**

Setting an appropriate level of accuracy is contextual and can depend on the decision that a tool is supporting.

- For example: the risk of harm to a child may likely be higher if a tool misses a child protection case, than when it misses a child-in-need case.

Benchmarking

Data practitioners should now collect and record qualitative and quantitative data to help to evidence the status quo. This is likely to include:

- How the decision making process currently works
- Current user behaviour in the decision making process
- Data to evidence outcomes among children and families
    - Children's outcomes
    - Support they receive
    - Services they have interacted with
    - Demographic data, for the purposes of monitoring for unfair outcomes and bias.

N.B. Collecting and analysing demographic data for the purposes of testing for fairness is permitted within UK data protection law where explicit consent has been provided. Engage with your Information Governance team for more information.

See **Testing and evaluation** for more information about establishing success criteria and benchmarking.

Consider acceptable data use

Data practitioners should have already identified the datasets that are likely to be needed to develop the tool.

You should now engage with your users and affected stakeholders to consider their views on:

- Acceptable data use
- How access to data should be monitored and restricted to protect children's privacy, where necessary.

➢ **EXAMPLE:** It can be helpful for a practitioner working with a child to receive a notification when the child has experienced an adverse event at home. However, it is unlikely to be appropriate for all practitioners to know about the event.

Share the datasets you think are necessary for developing and using the tool with your affected stakeholders. Explore their responses to the following questions:

- What are your views/ reactions to the datasets that we want to use to develop and test the tool? Do you think they are relevant?
- What data do you think users should be able to access and use?
- Conversely, what information do you think is inappropriate for users to access and use?
- Do you have any concerns about how data could be shared, used or accessed?
- How should access to data be restricted and monitored?
- How can we improve children's safety and privacy?

You may find it helpful to draw on the methods below to support discussion. In the Development stage, you will integrate these methods into your prototype and do iterative testing with users.

BOX X: Methods to restrict data use and access

Limiting access to information that may be sensitive (e.g. only

Limiting information that can be accessed by practitioners to only

managers can access it) or surfacing information that led to a risk score (without showing the score itself) can help to avoid stigmatising a child or their family.

Pseudonymised data means that children and families' names and other information that identifies them is removed. This means that their identity is protected if a professional doesn't need to know it. It may be that only those who cross a predefined risk threshold can be identified to the relevant child and family practitioners.

that which is necessary. If the tool supports decisions around assessment, more information might be needed than at the referral stage.

Using a larger dataset, which includes data on a larger number of children and families, to develop a tool may improve the representativeness of the dataset, and reduce the risk of bias. It may also help to flag children who may be vulnerable but aren't already known to Children's Services.

Co-design the tool's interface

Project teams should conduct user research to iteratively design, develop and test prototypes with users of the tool. This will help to support user-centred design, to create a tool which supports users to make decisions without becoming an additional burden.

Developing multiple iterations of a tool means that users have the opportunity to make the tool as relevant and useful as possible. We will consider feedback loops to engage users and affected stakeholders in the **Development stage.**

You should understand:

- Users' data literacy
- How users normally use data
- Whether users trust data and technology
- What tools and technology they have previously used, and how
- What has worked well and frustrated them in previously technology they've used

You can build on the **user needs table** developed in the Problem Identification stage.

You should think about how to make the tool as easy to engage with and understand as possible. Especially where practitioners or senior leaders have lower data literacy. This may necessarily mean making the tool less technically complex.

➢ **CASE STUDY:** Social Finance worked with Leeds and Stockport Council to develop **Family Context**. It was collaboratively designed with child and family practitioners.

Child and family practitioners had little information on the family or which services they've previously engaged with. They spent a lot of their time searching for information, which inhibited timely decision-making.

Social Finance worked with end users to understand how information should be presented. They developed and iterated on a prototype based on user feedback and input. Child and family practitioners wanted:

- Simple presentation, larger font size
- Expanded functionality to make information more digestible
- Information on *when* the last contact with a service occurred
- Information on how recent the information was, how far back the search went and which geographic areas had been checked

Consider new processes to incorporate innovation

When new innovation is developed, you should engage with those in **Children's Services** to discuss how existing processes, policies and culture may need to be adapted to support it.

For example:

- How will the tool be incorporated into existing case management systems and ways of working?
- Might you need to create an additional stage for practitioners to review insights together with managers?
- What mechanisms or processes are needed for users to challenge the result from a tool?
- What might be the impact of the tool in terms of resourcing and workload, if the tool helps to identify additional children and families who need support?
- Might additional training or upskilling be needed (beyond just understanding how to use the tool)?

Revisit data quality

You should have assessed the quality of the datasets you want to use in **Choosing a Use Case.**

Identifying bias

Is it likely that certain groups would be over- or under-represented in the data used to develop the tool? For example, are there historical trends or practices that mean certain demographic groups:

- Are absent from the dataset?
- Make up the majority of individuals in the dataset?

You should also consider whether there are variables in the dataset that could be used as proxies for protected characteristics.

Now, you should take steps to mitigate data quality issues, for example, through:

- Data cleaning
- Making the datasets more representative, possibly through additional data collection.
- Recording the limitations of the data, for example, missing data.

See **Data quality** for more information.

Adopt appropriate data practises

Local authorities should adopt good practices for sharing and using data. For example:

Role-based access control systems

This can make sure that only authorised and named personnel are able to access higher sensitivity datasets or databases. This can minimise the risk of sensitive data about children and families being used inappropriately.

Robust logging infrastructure

This can create an audit trail of how data is accessed, used, and modified. This is invaluable in troubleshooting errors or problems caused by a data-driven tool. It can also log and flag potentially suspicious searches, e.g. family members.

An application programming interface (API)

An API defines a standard set of functions for accessing data which can be easily accessed via software code or through a browser. Making data accessible via APIs can enable sharing in a more efficient, automated, and secure way, for example by limiting sharing of a dataset to the specific records that are required.

Organisations should seek to implement authenticated APIs, rather than sharing datasets as spreadsheets via email, for example. Where data is shared externally, ensure that it is shared with an appropriate recipient, e.g. a Safeguarding Lead.

Good software development practices

Data practitioners should also ensure that they have good software development practises in place.

This can include:

- Writing robust and comprehensive unit tests
- Performing thorough code reviews
- Using version control software such as Git.

➢ **RESOURCE:** You may find the following **open source training materials** collated by the Software Sustainability Institute can help you to build reproducible analysis.

Development Stage

Have you implemented mechanisms to ensure safe and effective use of the tool?

This stage will guide you through the first iteration of a tool's development to create a prototype, or multiple prototypes.

This stage will be an iterative process. It's important that users, affected stakeholders and technical experts are engaged to test and provide feedback and input. This can allow for incremental changes to the tool which are easier to track and revert if necessary.

In this guidance, Alpha and Beta testing have been moved to the Testing stage for clarity.

You will likely need to engage with:

Explore and build in appropriate protections

Data practitioners should explore different options for protecting data.

This will likely require you to do the following:

- Minimising data use to that which is necessary and proportionate
- Restricting access, as discussed in the Design stage ('Consider acceptable data use')
- Appropriately de-identify sensitive datasets in line with the ICO's Anonymisation Code of Practice.
- Consider and document re-identification risks in your DPIA.
- Explore how different de-identification techniques might affect the tools' performance.
- Complete user testing to understand how de-identification techniques affect the usability and accuracy of the tool.
- See Data use and sharing for more information on privacy-preserving mechanisms that can help manage and mitigate these risks.

BOX X: Balancing privacy and transparency

A key challenge of providing access to sensitive data is balancing privacy and transparency.

In order to make use of data, it needs to be accessible (transparency). This may necessarily compromise data subjects' privacy to some degree.

De-identification techniques include redaction, tokenization, or k-anonymity. When applied to sensitive datasets, they conceal all but the minimum amount of information necessary from the person accessing the data. This is known as pseudonymisation or anonymisation.

Traditional de-identification techniques are limiting in that they:

- Necessarily reduce the utility of data
- May also be vulnerable to a number of re-identification attacks. For example, when bringing together datasets from different agencies there is an increased risk that individuals could be re-identified through data linking, even on datasets previously deemed anonymous).

A set of emerging privacy enhancing technologies (PETs) are addressing these shortcomings. They can enable data to be accessed with strong guarantees of privacy and security, whilst maintaining the data's utility. They allow for valuable sensitive data to be used. CDEI's **PETs Adoption Guide** can help data mature local authorities to explore how PETs can be applied in practice.

Build in feedback loops

There should be processes in place to handle and respond to feedback, to ensure that any feedback is taken onboard.

Different types of feedback loops may be more or less appropriate for different stakeholders. For example, you may wish to develop:

1. A process to encourage feedback and challenge during the development of the tool, which will likely involve users, Children's Service teams, and technical experts
2. A technical mechanism and/ or feature which is built into the tool which will allow users to directly and easily challenge a specific result
3. A process to bring in technical and security experts in red-teaming the tool. Red-teaming is a process of challenging a policy or intervention with the aim of reducing risks when a tool is deployed live
4. A process to facilitate users sharing their experiences around testing and using the tool (see **Testing** below)
5. A forum or process for public stakeholders to provide general feedback about questions or concerns they have about a tool (see **Pre-Deployment** below)

Any feedback process should be clear on:

- How users and other stakeholders should engage with it
- How users and other stakeholders can raise or flag concerns
- Whether the process is anonymous
- Who will respond to it, and take it forward
- How users and other stakeholders will be included in any resolution
- How users and other stakeholders will be informed about how their concern is addressed.

In addition, any feedback process should:

- Be intuitive and easy to use
- Align with/ link to existing processes where possible
- Be well-known among users and other stakeholders

Iterate the prototype based on user and expert feedback

It can be helpful to 'demo' prototypes of the tool to bring it to life. This can help users to visualise the tool.

You should engage with the following stakeholders as new prototypes are developed or updated:

- Users
- Affected stakeholders
- Technical experts

You may wish to ask the following questions:

- What do you like and dislike about it?
- Is it easy to use?
- How easily do you think this tool would fit into the existing decision making process?
- Would you use it as part of your work?
- What kind of training would you like to have to support you to use this tool?
- How could it be improved?
- Do you have any concerns about how it might be used?

Testing Stage

Do the results from testing meet the threshold you set for success? Is the tool sufficiently effective, reliable and robust to be used in children's social care?

This stage will help you undertake appropriate testing of the tool in a controlled environment. This is known as '**Systems Testing**.' It will guide your decision on whether the tool is ready to be used in a live setting.

Controlled testing is essential before moving ahead with deployment. Testing should provide clear evidence that the tool is:

- Accurate
- Robust and reliable
- Effective for its intended purpose
- Works better than existing approaches and/ or
- Delivers a new capability
- Likely to meet the outcomes and objectives you set out in your Business Case.

If it does not, the project may need to return to the Development stage for redesigning. Or it may not be able to proceed at all.

The Test stage should ideally be separated into two testing parts. Users should be included in the testing.

- **Alpha testing** is "lab-based" tests against historic data, to ensure that the tool is technically functional.
- **Beta testing** is operational tests in a real-world environment

If you have procured an off the shelf tool, you should make sure that it is tested and evaluated in your context.

You will likely need to engage with:

Documents required:

- If you are completing testing internally, you should refer to the **Testing and evaluation** explainer.

Complete alpha testing

If you are Alpha testing, you could use historic data to test the prototype. You should test:

- Accuracy, which includes precision and recall rates.
- Accuracy on different demographic groups. This can help identify where there may be different and unfair outcomes for different groups.

- Security of a tool and its underlying infrastructure. Cybersecurity standards like the ISO27001[1] or through external penetration (pen) testing are good ways to test security. Pen testing simulates a cyberattack to evaluate the security of a system, and identify potential weak spots.

To help you validate the results, bring in internal technical and security expertise, members from your scrutiny group, and/ or external expertise from local academia and civil society groups.

Complete beta testing

You should be mindful of the limitations of only testing with historic data (e.g. Alpha testing), as results can be misleading. You are likely to get more meaningful performance metrics by testing the tool on live data. This is why Beta testing is important.

- For example, a tool that uses a predictive model trained on historic data will not account for recent policy changes designed to impact outcomes.

Beta or 'scenario testing' means piloting the tool in a live context to evaluate its accuracy 'in the field'. It can:

- Help to ensure that the tool is sufficiently reliable and robust
- Help you to prepare for and mitigate differences in performance ahead of live deployment.

In Beta testing:

- The tool will be presented with new and unfamiliar live data
- Testing will take place in a way that does not yet impact on members of the public.
- Users will use the tool.

To keep testing separate, wou may wish to:

- Use live data which runs in parallel to existing processes
- Establish a ring-fenced area or sandbox
- Anonymise the names of individual children or families.

The exact approach to beta testing will depend on the technology being developed.

It may include:

1) Running new systems in parallel to existing ones on a common population (if possible) to assess differences in outputs and outcomes.
    a) This can help to ensure the new tool does not impact decision-making. It means that performance can be safely assessed in a live setting before taking a decision to roll it out more fully.

2) Testing a data-driven intervention in a limited geographic area.

3) Taking a phased approach to live deployment, for example, trialling the tool on a real subset of live data for a set period of time. You could:

[1] ISO/IEC 27001 on Information Security

a) Pass data-driven insights to users responsible for decision-making over a limited time period
b) Then assess the extent to which use of the data-driven insights is improving the quality of decision-making.

User testing

Ahead of user testing, users should have appropriate training, see **'Provide training for users'** in the next stage. You should make sure that a broad range of user skill levels and abilities are included in user testing.

Observation

During user testing, an observer may monitor how users' use the tool, including:

- Whether users appeared confident in using the tool
- Whether users used the tool as intended, or in other ways
- How and whether users incorporated or discarded insights from the tool into their decision-making process

User feedback

After any test or review period, you should also seek feedback from users. You could explore:

- What users like and dislike about the tool
- How they think it could be improved
- Whether users feel that the tool is intuitive and easy to use
- Whether they think it has a positive or negative effect in supporting their decision-making
- Whether additional training would be helpful to support them to use the tool
- How easily they think the tool fits into the existing decision making process
- Whether users trust the results
- Whether they feel comfortable to flag a concern or suspected error in the tool
- To what extent they feel they are able to reach their own conclusions

Review Alpha and Beta test results with affected stakeholders and experts

You should share the results from testing with users and technical experts for feedback.

- What are their responses to the results?
- Are they concerned about any aspects of the tool or its test results?
- How confident are they that the tool would be accurate and effective where deployed live?
- Could they envision any adverse impacts?

You should only proceed to the pre-deployment stage if:

- Results from technical and user testing indicate that the tool is effective, accurate and reliable
- The tool has been validated by experts outside of your project team

Pre-deployment

Do you have appropriate governance in place for live deployment?

This stage will help you to ensure that the right governance is in place ahead of deployment. You will:

- Provide training for all intended users
- Providing upskilling for data practitioners managing and reviewing the tool
- Revisit data governance
- Ensure a robust handover between third party developer and the local authority, where procuring
- Prepare for evaluation
- Prepare to share information about the tool publicly.

Documents required:

- Algorithmic Transparency Standard template. This template identifies categories of information about the tool that you should make publicly available to support public trust.

You will likely need to engage with:

Provide training for users and managers

The purpose of training is to ensure that:

- Users can use the tool effectively and challenge the results appropriately
- Data practitioners can review and update the tool, including ongoing testing and maintenance as necessary.

Who should provide training?

- Those who have developed the tool should provide appropriate training.
- If you are working with a third party developer, the developer should provide training to users and data practitioners for when the developer is no longer involved. See **Procuring third party expertise** for more information.
- Information Governance teams may provide support.

User training

Users should understand:

- That an analytics tool should complement their professional judgement. Using language such as 'support tool', 'another part of the jigsaw' and other phrases that centre on professional expertise over the technology can be useful.
- The rationale for the tool

- What the tool is intended to do
- The expected benefits, outcomes and impacts
- Initial results from systems testing (alpha and beta testing, described above)
- How the tool works including its capabilities and limitations
- How and where it should be incorporated into the decision making processes
- How users should use the tool to achieve optimal results. You could demo what the tool does for clarity.
- How users should consider the information provided by the tool - considering its capabilities and limitations.
- Mechanisms that have been put in place to mitigate the risks.
- How and where the views of practitioners and other affected stakeholders have been incorporated into the design of the tool.
- How users can directly challenge a result.
- How users can provide ongoing feedback.
- How they should appropriately use and disclose sensitive data.

Working with users, you should identify areas where more information, training or upskilling is needed. **The tool may need to be adapted if users:**

- **Don't understand how it works,**
- **Don't trust its results,**
- **Don't feel confident to challenge its results.**

Revisit resourcing, governance and oversight

You should ensure that there is sufficient expertise, capacity and resource assigned to named individuals for the ongoing monitoring and review of a tool once it is live.

Establish regular points for data practitioners or other technical experts to review the tool. Special consideration should be given to a tool which is dependent on up-to-date data, as it is likely to need to be updated at semi-regular intervals to remain effective.

- For example, models developed using machine learning algorithms may need to be retrained on more up-to-date training data.

Your risk process should continue to identify, monitor and raise risks to appropriate levels of seniority. An oversight group should be in place to continually monitor and scrutinise the results of the tool once it has been deployed.

Robust handover between third party and local authority

Where you have procured third party expertise, you should ensure that there is a detailed and robust handover from the third party to you.

While the third party will gradually reduce their involvement, you may wish that they continue to provide the following support:

- Monitor and and review the tool after it has been deployed
- Identify any changes or updates that should be made on the tool

In addition, the third party should provide thorough training and upskilling for data practitioners who will be responsible for reviewing, updating and maintaining the tool. Training and upskilling may include:

- Sharing technical details about the tool, including what it's intended to do and its function
- The tools' limitations and the potential risks in using the tool. Third parties should outline ways that data practitioners can mitigate and address risks.
- How data practitioners should review, test and update the tool, and schedules for reviewing it.

Prepare for evaluation

You should consider how the tool will be evaluated in a live environment to:

- Help demonstrate effectiveness
- Identify where it needs to be improved or adapted.

You should bring an independent evaluator onboard to evaluate the effectiveness of the tool, where you are developing a high risk or novel use case. For example the tool you have developed identifies individual children and families, or makes predictions. You could engage with local universities, academic institutions or an evaluation consultancy to do this.

Process evaluation focuses on:

- Identifying the strengths and weaknesses of the processes surrounding the use of a tool
- Considering users' perceptions and reactions to the tool
- Observing staff using a tool, noting where and what they paid attention to and which parts of the tool were used
- Making recommendations for adjusting the structure and/ or implementation of the tool.

Impact/ outcome evaluation aims to provide an overall assessment of the outcomes of a tool in terms of its benefits, merits and worth. Outcome evaluation may be a longitudinal process taking place over several months or even years.

You should:

- Compare outcomes with the benchmarking data you collected at the beginning of the project
- Measure outcomes against the success criteria that you set at the Design stage.

<u>Controller trials</u>

Well-designed controlled trials can provide significant confidence in the efficacy of a data analytics tool, ultimately leading to better outcomes for children.

Local authorities should communicate transparently about any controlled trial, to minimise the perception that a trial may be "experimenting" on children.

Having an independent expert evaluator conduct the trial can build greater trust in the process.

Refer to **Testing and evaluation** for more information about process and impact evaluations.

Prepare to share details of the project publicly

Failing to communicate or communicating poorly with the public about your use of data analytics can leave them wary and distrustful. In the worst cases, it may result in the public rejecting a tool or approach.

Those involved in the development of a tool are encouraged to complete an **Algorithmic Transparency Standard template**. Completing the template will help you to provide clear information about any data analytics tool they use, and why they use them.

You can find **guidance** on how to complete the Transparency template.

As part of the Transparency Standard, you should:

- Establish and resource a forum or process for public stakeholders. This is so that they can provide general feedback about questions or concerns they have about a tool.
- Review and update any Impact Assessments to ensure that they are accurate. These should be published as part of the Transparency Standard..

You should ensure that you have relevant sign off, including from the **Corporate Communications** team, before you publish this information.

Before moving to the Implement Stage, you should:

- **Complete the ethics questions in the Develop section of the Ethics Workbook.**
- **Senior leaders in Children's Service should agree that the tool can and should be deployed live.**

Overview of Implement

Stage	Actions	Groups
Deployment **Page 41** Deploy the tool in a live setting, and evaluate its success.	• Share information publicly about the tool, via the **Transparency Standard** • Complete appropriate evaluation of the tool in a live setting, which should include process and impact evaluations. • Communicate the results of the evaluation with a range of stakeholders.	
Monitoring **Page 42** Monitor and review the tool via technical testing and user feedback.	• Complete ongoing technical review and monitor of the tool. Draw on third party expertise where necessary. • Seek feedback from users and affected stakeholders at regular intervals.	
Retirement **Page 43** Retire a tool where it is no longer relevant or meeting its intended objectives.	• Take a phased approach to retirement. • Consider how a tool is incorporated into existing processes	
Ethics Workbook	• Complete the ethics questions under 'Implement', sharing your responses for discussion with your oversight group	

Deployment and Monitoring Stage

How is the tool effective in supporting more informed decision-making?

This stage will help you:

- Complete appropriate evaluation of the tool in a live setting,
- Complete continual review and monitoring of the tool.

You will likely need to engage with:

Begin process and impact evaluations

Relevant experts should begin an evaluation of the tool in a live context. You should understand:

- Whether and how behaviour has changed since the tool has been used
- Users' views on the functionality of the tool
- Whether the tool's insights are changing decision-making
- Whether insights informing decision-making are improving outcomes in children's social care

User observation and interview

Users of the tool can be interviewed and observed as they use the tool. This can enable an understanding of:

- Its impact on their work
- Their perception of whether it is providing benefits, for example by improving their decision-making, or helping them use their time more efficiently.

You may ask users the following questions:

- Which aspects of the tool do you like and dislike?
- Have you used the tool? How often? Which components are you using the most?
- To what extent is the tool intuitive and easy to use? To what extent do you like using it?
- What benefits have you seen from using the tool? (E.g. Does it free up time?)
- What are the limitations of the tool? How could they be improved?
- Have you seen any unintended consequences from using the tool? This may include outcomes that you feel are unfair?
- To what extent has it helped or inhibited you from performing your role?
- How well do you think that the tool fits into existing processes?
- Do you trust the results from the tool?
- Have you ignored the results of the tool? When and why?
- Have you provided feedback about the tool? How was it addressed?
- What additional training do you think you could benefit from?

See Testing and evaluation for more information about process and impact evaluation.

Publishing the results of any evaluations can help to demonstrate transparency, and encourage trust.

Share information publicly

You should publish your details of your tool (via the Algorithmic Transparency Standard or otherwise), as well as any impact assessments you completed.

Public information should be reviewed and updated as necessary, to ensure that it is accurate.

Make sure that you also communicate the results from evaluation and testing, in a way which is appropriate for different stakeholders. This will likely include:

- Technical experts and data scientists
- Senior leaders and managers
- End users
- Those affected by the tool
- General public

See **Testing and evaluation** for suggestions for the information that you should share with each of these stakeholder groups.

Technical review and re-training

Data practitioners, with the support of technical experts and third parties where appropriate, should complete systems testing (i.e. technical review) of the tool at semi-regular intervals.

This may include:

- Testing the tool's accuracy, including on different demographic groups
- Testing the tool's security
- Reviewing data quality of input data
- Re-training the tool

See **Testing and evaluation** for more information about systems testing.

User and affected stakeholder review

Users and affected stakeholders should provide feedback on the tool at semi-regular intervals. This will help you to:

- Understand whether and how the tool continues to be relevant and effective
- Identify benefits and how the tool is meeting the outcomes you set
- Identify any negative or adverse impacts that need to be addressed.

With these stakeholders, you may consider:

- Whether the tool is still relevant and necessary
- Whether the outcomes and objectives for the tool remain important
- Whether they understand how to - and feel comfortable to - flag concerns about the tool.

- Whether there are appropriate forums and communication channels in place to support open feedback about the tool
- Whether there is evidence that the tool is being used.

Retirement

Where there is clear evidence that the tool is no longer relevant or is not meeting its intended objectives, it may need to be deprecated and then retired.

You should consider how the tool is integrated into your workflows and other IT systems. How would these be impacted by taking the tool out of service?

A phased approach, where the tool is first deprecated before being decommissioned may be beneficial.

The government's service manual provides advice on retiring a product or service.