

ST1386/

# DRAFT END-POINT ASSESSMENT PLAN FOR THE DATA ENGINEER APPRENTICESHIP

| APPRENTICESHIP REFERENCE<br>NUMBER | LEVEL OF THIS END-POINT ASSESSMENT<br>(EPA) | INTEGRATED |
|------------------------------------|---------------------------------------------|------------|
| ST1386                             | 5                                           | No         |

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## Key Fields

## Introduction and overview

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This document explains the requirements for end-point assessment (EPA) for the [data engineer](#) apprenticeship. End-point assessment organisations (EPAOs) must follow this when designing and delivering the EPA.

[Data Engineer](#) apprentices, their employers and training providers should read this document.

A full-time [data engineer](#) apprentice typically spends **24** months on-programme (this means in training before the gateway). The apprentice must spend at least 12 months on-programme and complete the required amount of off-the-job training in line with the apprenticeship funding rules.

The apprentice must complete their training and meet the gateway requirements before starting their EPA. The EPA will assess occupational competence.

An approved EPAO must conduct the EPA for this apprenticeship. Employers must select an approved EPAO from the register of end-point assessment organisations (RoEPAO).

This EPA has **2** assessment methods.

The grades available for each assessment method are below.

[Assessment method 1 - project evaluation report, presentation and questions:](#)

- [fail](#)
- [pass](#)
- [distinction](#)

[Assessment method 2 - professional discussion:](#)

- [fail](#)
- [pass](#)
- [distinction](#)

The result from each assessment method is combined to decide the overall apprenticeship grade. The following grades are available for the apprenticeship:

- fail
- pass
- merit
- distinction

## EPA summary table

[Edit epa gateway form](#)[Edit available grades form](#)[Edit overall epa grading form](#)[Edit re-sits and re-takes form](#)

|                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>On-programme<br/>(typically 24 months)</b>        | <p>The apprentice must:</p> <ul style="list-style-type: none"> <li>• complete training to develop the knowledge, skills and behaviours (KSBs) outlined in this degree-apprenticeship's standard</li> <li>• complete training towards English and mathematics qualifications in line with the apprenticeship funding rules</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>End-point assessment gateway</b>                  | <p>The apprentice's employer must be content that the apprentice has attained sufficient KSBs to complete the apprenticeship.</p> <p>The apprentice must:</p> <ul style="list-style-type: none"> <li>• confirm they are ready to take the EPA</li> <li>• have achieved English and mathematics qualifications in line with the apprenticeship funding rules</li> </ul> <p>For the <a href="#">project evaluation report, presentation and questions</a>, the apprentice must submit a <a href="#">project brief</a>. To ensure the project allows the apprentice to meet the KSBs mapped to this assessment method to the highest available grade, the EPAO should sign-off the project's title and scope at the gateway to confirm it is suitable.</p> <p>The apprentice must submit the gateway evidence to their EPAO, including any organisation specific policies and procedures requested by the EPAO.</p> |
| <b>End-point assessment<br/>(typically 3 months)</b> | <p><b>The grades available for each assessment method are below</b></p> <p><a href="#">Project evaluation report, presentation and questions</a>:</p> <ul style="list-style-type: none"> <li>• fail</li> <li>• pass</li> <li>• distinction</li> </ul> <p><a href="#">Professional discussion</a>:</p> <ul style="list-style-type: none"> <li>• fail</li> <li>• pass</li> <li>• distinction</li> </ul> <p><b>Overall EPA and apprenticeship can be graded:</b></p> <ul style="list-style-type: none"> <li>○ fail</li> <li>○ pass</li> <li>○ merit</li> <li>○ distinction</li> </ul>                                                                                                                                                                                                                                                                                                                               |

## Re-sits and re-takes

- Re-take and re-sit grade cap: [pass](#)
- Re-sit timeframe: typically [3](#) months
- Re-take timeframe: typically [5](#) months

## Duration of end-point assessment period

[Edit duration of end-point assessment period form](#)

The EPA is taken in the EPA period. The EPA period starts when the EPAO confirms the gateway requirements have been met and is typically [3](#) months.

The EPAO should confirm the gateway requirements have been met and start the EPA as quickly as possible.

## EPA gateway

[Edit epa gateway form](#)

The apprentice's employer must be content that the apprentice has attained sufficient KSBs to complete the apprenticeship. The employer may take advice from the apprentice's training provider, but the employer must make the decision. The apprentice will then enter the gateway.

The apprentice must meet the gateway requirements before starting their EPA.

They must:

- confirm they are ready to take the EPA
- have achieved English and mathematics qualifications in line with the apprenticeship funding rules
- submit a [project brief](#) for the [project evaluation report, presentation and questions](#)
- [confirm that they have completed a suitable project that meets the knowledge, skills and behaviours.](#)

The apprentice must submit the gateway evidence to their EPAO, including any organisation specific policies and procedures requested by the EPAO.

## Order of assessment methods

[Edit order of assessment methods form](#)

The assessment methods can be delivered in any order.

The result of one assessment method does not need to be known before starting the next.

## Project evaluation report, presentation and questions

[Edit project evaluation report, presentation and questions form](#)

### Overview

A project involves the apprentice completing a significant and defined piece of work that has a real business application and benefit. The project must meet the needs of the employer's business and be relevant to the apprentice's occupation and apprenticeship.

This assessment method has 2 components:

- project with a project output
- presentation with questions and answers

Together, these components give the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method. They are assessed by an independent assessor.

## Rationale

This assessment method is being used because:

A project evaluation report is the most valid method as it allows the demonstration of professional competence.

The project is based on a real life example of the apprentices' everyday work in their industry. Therefore, ensuring that they can demonstrate the KSBs in practice.

Producing a project evaluation report and presentation reflects normal professional practice, so this assessment method is appropriate.

Apprentices are required to be concise and precise in their use of language in written and verbal communication.

The project evaluation report offers a realistic opportunity to combine project management, data visualisation and formal writing enabling the apprentice to reflect on approaches taken.

It is a holistic assessment method, allowing the apprentice to demonstrate KSBs in an integrated way.

By writing the evaluation report on the project and being questioned to understand rationale for choices made, risks and problems identified, resolutions and areas where further action could be required. This method will enable the apprentice to showcase their professional competency.

The project is completed before gateway and is not graded. The project evaluation report is assessed and must be completed after gateway.

## Delivery

The apprentice must complete a project based on any of the following:

- a specific problem
- a recurring issue
- an idea or opportunity

To ensure the project allows the apprentice to meet the KSBs mapped to this assessment method to the highest available grade, the EPAO should sign-off the project's title and scope at the gateway to confirm it is suitable. The EPAO must refer to the grading descriptors to ensure that projects are pitched appropriately.

The project output must be in the form of a report and presentation.

The apprentice must start the project after the gateway. The employer should ensure the apprentice has the time and resources, within the project period, to plan and complete their project.

The apprentice may work as part of a team to complete the project, which could include internal colleagues or technical experts. The apprentice must however, complete their project report and presentation unaided and they must be reflective of their own role and contribution. The apprentice and their employer must confirm this when the report and any presentation materials are submitted.

## **Component 1: Project report**

The report must include at least:

- an executive summary (or abstract)
- an introduction
- the scope of the project (including key performance indicators, aims and objectives)
- a project plan
- research outcomes
- data analysis outcomes
- project outcomes
- discussion of findings
- recommendations and conclusions
- references
- appendix containing mapping of KSBs to the report.

The report must also include:

To ensure the project allows the apprentice to meet the KSBs mapped to this assessment method to the highest available grade, the EPAO should sign-off the project's title and scope at the gateway to confirm it is suitable.

The project output must be in the form of an evaluation report.

The apprentice must start the project evaluation report after the gateway. They must complete and submit the report to the EPAO by the end of week 10 of the EPA period.

The employer should ensure the apprentice has the time and resources, within this period, to plan and complete their project evaluation report. The apprentice must complete their project evaluation report and the production of its components unaided.

The apprentice may work as part of a team to complete the project which could include technical internal or external support. However, the project evaluation report must be the apprentice's own work and reflective of their own role and contribution. The apprentice and their employer must confirm that the project evaluation report is the apprentice's own work when it is submitted.

The project report must have a word count of 3500 words. A tolerance of 10% above or below is allowed at the apprentice's discretion. Appendices, references and diagrams are not included in this total. The apprentice must produce and include a mapping in an appendix, showing how the report evidences the KSBs mapped to this assessment method. The apprentice must complete and submit the report and any presentation materials to the EPAO by the end of week 10 of the EPA period.

## **Component 2: Presentation with questions**

The presentation with questions must be structured to give the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method to the highest available grade.

The apprentice must prepare and deliver a presentation to an independent assessor. After the presentation, the independent assessor must ask the apprentice questions about their project, report and presentation.

The presentation should cover:

- an overview of the project
- the project scope (including key performance indicators)
- summary of actions undertaken by the apprentice
- project outcomes and how these were achieved

The presentation with questions must last 50 minutes. This will typically include a presentation of 20 minutes and questioning lasting 30 minutes. The independent assessor must use the full time available for questioning. The independent assessor can increase the time of the presentation and questioning by up to 10%. This time is to allow the apprentice to complete their last point or respond to a question if necessary.

The independent assessor must ask at least 6 questions. They must use the questions from the EPAO's question bank or create their own questions in line with the EPAO's training. Follow up questions are allowed where clarification is required.

The purpose of the independent assessor's questions is:

- to verify that the activity was completed by the apprentice
- to seek clarification where required
- to assess those KSBs that the apprentice did not have the opportunity to demonstrate with the report, although these should be kept to a minimum
- to assess level of competence against the grading descriptors

The apprentice must submit any presentation materials to the EPAO at the same time as the report - by the end of week 10 of the EPA period. The apprentice must notify the EPAO, at that point, of any technical requirements for the presentation.

During the presentation, the apprentice must have access to:

- audio-visual presentation equipment
- flip chart and writing and drawing materials
- computer

The independent assessor must have at least 2 weeks to review the project report and any presentation materials, to allow them to prepare questions.

The apprentice must be given at least 2 weeks' notice of the presentation with questions.

## Assessment decision

The independent assessor must make the grading decision. They must assess the project components holistically when deciding the grade.

The independent assessor must keep accurate records of the assessment. They must record:

- the KSBs demonstrated in the report and presentation with questions
- the apprentice's answers to questions
- the grade achieved

## Assessment location

The presentation with questions must take place in a suitable venue selected by the EPAO for example, the EPAO's or employer's premises. It should take place in a quiet room, free from distractions and influence.

The presentation with questions can be conducted by video conferencing. The EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided.

## Question and resource development

The EPAO must develop a purpose-built assessment specification and question bank. It is recommended this is done in consultation with employers of this occupation. The EPAO should maintain the security and confidentiality of EPA materials when consulting with employers. The assessment specification and question bank must be reviewed at least once a year to ensure they remain fit-for-purpose.

The assessment specification must be relevant to the occupation and demonstrate how to assess the KSBs mapped to this assessment method. The EPAO must ensure that questions are refined and developed to a high standard. The questions must be unpredictable. A question bank of sufficient size will support this.

The EPAO must ensure that the apprentice has a different set of questions in the case of re-sits or re-takes.

EPAO must produce the following materials to support the project:

- independent assessor EPA materials which include:
  - training materials
  - administration materials
  - moderation and standardisation materials
  - guidance materials
  - grading guidance
  - question bank
- EPA guidance for the apprentice and the employer

The EPAO must ensure that the EPA materials are subject to quality assurance procedures including standardisation and moderation.

## Professional discussion

Edit professional discussion form

### Overview

In the professional discussion, an independent assessor and apprentice have a formal two-way conversation. It gives the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method.

### Rationale



This assessment method is being used because:

It provides the apprentice with the opportunity to discuss and show case their depth of understanding the knowledge, skills and behaviours that may not naturally occur as part of the project.

It allows the independent assessor to consider the context and sector that the apprentice operates within, giving flexibility to ensure that all the KSBs can be assessed appropriately.

The professional discussion is cost effective, and it allows consideration of the potential need to conduct the EPA remotely.

## Delivery

The **professional discussion** must be structured to give the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method to the highest available grade.

An independent assessor must conduct and assess the **professional discussion**.

The EPAO will ask ten questions, two for each of the themes:

- Data quality and performance
- Problem solving
- Regulatory Compliance
- Continuous Improvement
- Continuous professional development

The EPAO must give an apprentice **2 weeks'** notice of the **professional discussion**.

The **professional discussion** must last for **80** minutes. The independent assessor can increase the time of the **professional discussion** by up to 10%. This time is to allow the apprentice to respond to a question if necessary.

The independent assessor must ask at least **10** questions. The independent assessor must use the questions from the EPAO's question bank or create their own questions in line with the EPAO's training. Follow-up questions are allowed where clarification is required.

The independent assessor must make the grading decision.

The independent assessor must keep accurate records of the assessment. They must record:

- the apprentice's answers to questions
- the KSBs demonstrated in answers to questions
- the grade achieved

## Assessment location

The **professional discussion** must take place in a suitable venue selected by the EPAO for example, the EPAO's or employer's premises.

The **professional discussion** can be conducted by video conferencing. The EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided.

The **professional discussion** should take place in a quiet room, free from distractions and influence.

## Question and resource development

The EPAO must develop a purpose-built assessment specification and question bank. It is recommended this is done in consultation with employers of this occupation. The EPAO should maintain the security and confidentiality of EPA materials when consulting with employers. The assessment specification and question bank must be reviewed at least once a year to ensure they remain fit-for-purpose.

The assessment specification must be relevant to the occupation and demonstrate how to assess the KSBs mapped to this assessment method. The EPAO must ensure that questions are refined and developed to a high standard. The questions must be unpredictable. A question bank of sufficient size will support this.

The EPAO must ensure that the apprentice has a different set of questions in the case of re-sits or re-takes.

The EPAO must produce the following materials to support the **professional discussion**:

- independent assessor assessment materials which include:

- training materials
- administration materials
- moderation and standardisation materials
- guidance materials
- grading guidance
- question bank

- EPA guidance for the apprentice and the employer

The EPAO must ensure that the EPA materials are subject to quality assurance procedures including standardisation and moderation.

## Grading

[Edit add grade descriptor form](#)[Edit mapping of ksbs to grade themes form](#)[Edit available grades form](#)

## Project evaluation report, presentation and questions

Fail - does not meet pass criteria

| THEME<br>KSBS                                                            | PASS<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF<br>THE PASS<br>DESCRIPTOR<br>S                                                                      | DISTINCTI<br>ON<br>APPRENTIC<br>ES MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS AND ALL<br>OF THE<br>DISTINCTI<br>ON<br>DESCRIPTO<br>RS |
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| Data product<br>design K6 K7 K9 K12 K13 K14 S1 S2 S3 S4 S5 S8 S28 B<br>1 | Demonstrates<br>how they have<br>collated,<br>evaluated and<br>refined user<br>requirements<br>to design and<br>build a<br>scalable data<br>product that | Justifies<br>how the<br>data<br>product<br>created met<br>the<br>requirement<br>s and served<br>multiple                                                 |

| THEME<br>KSBS | PASS<br>APPRENTICE<br>S MUST<br>DEMONSTRATE ALL OF<br>THE PASS<br>DESCRIPTOR<br>S                                                                                                                                                                                                                                                                                                                                                                     | DISTINCTI<br>ON<br>APPRENTIC<br>ES MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS AND ALL<br>OF THE<br>DISTINCTI<br>ON<br>DESCRIPTO<br>RS |
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|               | <p>serves multiple needs and complies with regulatory requirements. (K9, S1, S3)</p> <p>Explains how they collated, evaluated and refined business requirements, to design, build and maintain a system whilst ensuring that organisational strategies for sustainable, net-zero technologies are considered. (K12 &amp; S2)</p> <p>Explains how they identified and measured environmental impact in decision making, and selected approaches in</p> | needs (S1, S3)                                                                                                                                           |

| THEME<br>KSBS | PASS<br>APPRENTICE<br>S MUST<br>DEMONSTRATE ALL OF<br>THE PASS<br>DESCRIPTOR<br>S                                                                                                                                                                                                                                                                                                                                                                           | DISTINCTI<br>ON<br>APPRENTIC<br>ES MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS AND ALL<br>OF THE<br>DISTINCTI<br>ON<br>DESCRIPTO<br>RS |
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|               | <p>sustainability to ensure the use of less carbon across the life cycle of products and services. (K7, S28)</p> <p>Demonstrates how they used security, scalability and governance when automating data pipelines using programming languages and data integration platforms with graphical user interfaces. (K13, S4)</p> <p>Demonstrates how they produced and maintained technical documentation for a data product in order to meet organisational</p> |                                                                                                                                                          |

| THEME<br>KSBS | PASS<br>APPRENTICE<br>S MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS                                                                                                                                                                                                                                                                                                                                                | DISTINCTI<br>ON<br>APPRENTIC<br>ES MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS AND ALL<br>OF THE<br>DISTINCTI<br>ON<br>DESCRIPTO<br>RS |
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|               | <p>user requirements, whilst adapting to changing work priorities to ensure that deadlines are met. (S5, B1)</p> <p>Explains how debugging, version control and testing have an impact on software development and the principles for data products. (K6)</p> <p>Demonstrates how they have orchestrated workflows, tokenisation and anonymisation of sensitive data. (S8)</p> <p>Outlines the uses of different on-demand cloud</p> |                                                                                                                                                          |

| THEME<br>KSBS                                                                                         | PASS<br>APPRENTICE<br>S MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS                                                                                                                                                                                                                                                                                                                                                               | DISTINCTI<br>ON<br>APPRENTIC<br>ES MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS AND ALL<br>OF THE<br>DISTINCTI<br>ON<br>DESCRIPTO<br>RS |
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|                                                                                                       | computing<br>platforms.<br>(K14)                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                          |
| Data product deployment and<br>evaluation K2 K4 K8 K15 K17 K19 K20 K24 K25 K27 S<br>6 S10 S17 S25 S27 | Explains the<br>range of<br>deployment<br>approaches<br>such as<br>shadow,<br>canary and<br>blue green for<br>new data<br>pipelines and<br>automated<br>processes.(K8<br>)<br><br>Explains<br>techniques<br>such as star<br>schemas, data<br>lakes and data<br>marts and the<br>impact they<br>have on data<br>warehousing<br>principles.<br>(K15)<br><br>Demonstrate<br>how to<br>systematically<br>clean, validate<br>and describe<br>data at all | N/A                                                                                                                                                      |

| THEME<br>KSBS | PASS<br>APPRENTICE<br>S MUST<br>DEMONSTRATE ALL OF<br>THE PASS<br>DESCRIPTOR<br>S                                                                                                                                                                                                                                                                                                                                                 | DISTINCTI<br>ON<br>APPRENTIC<br>ES MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS AND ALL<br>OF THE<br>DISTINCTI<br>ON<br>DESCRIPTO<br>RS |
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|               | <p>stages of extract, transform and load, showing how combining disparate data sources and taking different approaches to data integration delivers value to an organisation. (K17, S6)</p> <p>Describes the types and uses of data engineering tools in their own organisation and how they apply them. (K20)</p> <p>Evaluates the strengths and weaknesses of prototype data products to integrate within an organisation's</p> |                                                                                                                                                          |

| THEME<br>KSBS | PASS<br>APPRENTICE<br>S MUST<br>DEMONSTRATE ALL OF<br>THE PASS<br>DESCRIPTOR<br>S                                                                                                                                                                                                                                                                                                                                                             | DISTINCTI<br>ON<br>APPRENTIC<br>ES MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS AND ALL<br>OF THE<br>DISTINCTI<br>ON<br>DESCRIPTO<br>RS |
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|               | <p>overarching data structure, taking into consideration the lifecycle of implementing data solutions in a business. (K24, K25, S25)</p> <p>Describes the approved organisational architectures and the relevant data development frameworks. (K27)</p> <p>Identifies data quality metrics and their frameworks and tracks them to ensure quality, accuracy and reliability of the data product. (K4, S27)</p> <p>Demonstrates the use of</p> |                                                                                                                                                          |



| THEME<br>KSBS | PASS<br>APPRENTICE<br>S MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS                                                                                                                                                                                                                                                                                    | DISTINCTI<br>ON<br>APPRENTIC<br>ES MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS AND ALL<br>OF THE<br>DISTINCTI<br>ON<br>DESCRIPTO<br>RS |
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|               | <p>tools and programming to query and manipulate data and implement automated validation checks, showing the methodologies used for moving data from one system to another for storage and handling. (K2, S10)</p> <p>Explains how they have worked with structured, semi-structured and unstructured data, developing algorithms to extract from sources (K19, S17)</p> |                                                                                                                                                          |

| THEME<br>KSBS                        | PASS<br>APPRENTICE<br>S MUST<br>DEMONSTRATE ALL OF<br>THE PASS<br>DESCRIPTOR<br>S                                                                                                                                                                                                   | DISTINCTI<br>ON<br>APPRENTIC<br>ES MUST<br>DEMONSTR<br>ATE ALL OF<br>THE PASS<br>DESCRIPTO<br>RS AND ALL<br>OF THE<br>DISTINCTI<br>ON<br>DESCRIPTO<br>RS |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Collaborative working K30 S23 S24 B2 | <p>Outlines the methods and techniques used to communicate messages about the data product that meet the needs of the audience. (K30, S24)</p> <p>Explains how they worked collaboratively with different stakeholders to develop and maintain working relationships. (S23, B2)</p> | <p>Evaluate the impact of the methods and techniques used to communicate messages about the data product to the audience. (K30, S24)</p>                 |

### Professional discussion

Fail - does not meet pass criteria

| THEME<br>KSBS                                               | PASS<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DISTINCTION<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS<br>AND ALL OF<br>THE<br>DISTINCTION<br>DESCRIPTORS |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Data quality and performance K1 K3 K5 K18 K28 S7 S16</p> | <p>Explains how they have worked with different types of data stores to monitor and optimise the performance of code (K1, S7)</p> <p>Defines data normalisation principles and the advantages that they achieve for data protection, redundancy and inconsistent dependency. (K3)</p> <p>Explains the inherent risks of data and how to ensure data quality (K5)</p> <p>Explains the principles of descriptive, predictive and prescriptive analytics. (K28)</p> <p>Describes how they use data ingestion frameworks such as streaming, batching and on</p> | <p>N/A</p>                                                                                                                                |

| THEME<br>KSBS                                         | PASS<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS                                                                                                                                                                                                                                                                                                            | DISTINCTION<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS<br>AND ALL OF<br>THE<br>DISTINCTION<br>DESCRIPTORS |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|                                                       | demand services to move data from one location to another in order to optimise data ingestion processes. (K18, S16)                                                                                                                                                                                                                                                                        |                                                                                                                                           |
| Problem Solving K21 K22 K23 S9 S11 S13 S19 S20 S21 B5 | <p>Describes technology and service management best practice. (K22)</p> <p>Explains how they identify and escalate risks and incidents, communicating downtime and issues with database access in line with policies in order to mitigate operational impact whilst ensuring business continuity. (K21, S11, S19, S20)</p> <p>Explains how they have maintained a working knowledge of</p> | N/A                                                                                                                                       |

| THEME<br>KSBS                         | PASS<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS                                                                                                                                                                                         | DISTINCTION<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS<br>AND ALL OF<br>THE<br>DISTINCTION<br>DESCRIPTORS |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|                                       | <p>data use cases within organisations. (S13)</p> <p>Explains how their analysis of root cause investigation is used to respond to incidents within data processing pipelines, whilst troubleshooting and providing resolutions to stakeholders. (K23, S9, S21, B5)</p> |                                                                                                                                           |
| Regulatory Compliance K10 K11 K26 S14 | Explains their use of organisational data, information security standards, ethical practices and data management policies and procedures to ensure data systems are used securely and in accordance with relevant                                                       | N/A                                                                                                                                       |

| THEME<br>KSBS                                                       | PASS<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS                                                                                                                                                                                                                       | DISTINCTION<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS<br>AND ALL OF<br>THE<br>DISTINCTION<br>DESCRIPTORS      |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                     | <p>legislation. (K11, S14)</p> <p>Explains the legislative and ethical aspects associated with the use and collation of data, including concepts of data governance and regulatory requirements. (K10, K26)</p>                                                                                       |                                                                                                                                                |
| <p>Continuous Improvement K16 K29 S12 S15 S18 S22 S26 S29 B3 B4</p> | <p>Outlines how they evaluate opportunities to extract value from existing data products whilst applying the principles of data and considering costs, environmental impact and potential operating benefits. (K16, S12)</p> <p>Explains how they identify new tools and technologies to optimise</p> | <p>Evaluates the impact that the implementation of identified new technologies would have on practices within the organisation. (S26, S29)</p> |

| THEME<br>KSBS | PASS<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DISTINCTION<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS<br>AND ALL OF<br>THE<br>DISTINCTION<br>DESCRIPTORS |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|               | <p>sustainable data products and services and recommend potential opportunities for use within the organisation.<br/>(S15, B4)</p> <p>Explains how they apply ways of working that support software development principles and advocate software development best practice when working with other data professionals.<br/>(S18)</p> <p>Explains their proactive approach to identify and remediate technical debt, assess for updates and obsolescence within their promotion of continuous improvement to the data system development</p> |                                                                                                                                           |

| THEME<br>KSBS                              | PASS<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS                                                                                                                                                                    | DISTINCTION<br>APPRENTICES<br>MUST<br>DEMONSTRATE<br>ALL OF THE<br>PASS<br>DESCRIPTORS<br>AND ALL OF<br>THE<br>DISTINCTION<br>DESCRIPTORS |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|                                            | <p>process. (K29 S22, B3)</p> <p>Explains how they identify and assess new technologies, as well as gaps in existing tools and technologies, that offer increased performance of data products and implementation of new practices. (S26, S29)</p> |                                                                                                                                           |
| Continuous professional development S30 B6 | Explains how they have taken responsibility for their own professional development and kept up to date with technological developments in data science, data engineering and AI. (S30, B6)                                                         | Evaluate the impact that keeping up to date with technological developments has had on their own professional development. (S30)          |

## Overall EPA grading

[Edit overall epa grading form](#)

Performance in the EPA determines the overall grade of:

- fail
- pass



- merit
- distinction

An independent assessor must individually grade the [project evaluation report](#), [presentation and questions](#) and [professional discussion](#) in line with this EPA plan.

The EPAO must combine the individual assessment method grades to determine the overall EPA grade.

If the apprentice fails one assessment method or more, they will be awarded an overall fail.

To achieve an overall pass, the apprentice must achieve at least a pass in all the assessment methods. [Both assessment methods are weighted equally in their contribution to the overall EPA grade.](#)

Grades from individual assessment methods must be combined in the following way to determine the grade of the EPA overall.

| PROJECT EVALUATION REPORT, PRESENTATION AND QUESTIONS | PROFESSIONAL DISCUSSION | OVERALL GRADING |
|-------------------------------------------------------|-------------------------|-----------------|
| Fail                                                  | Fail                    | Fail            |
| Fail                                                  | Pass                    | Fail            |
| Pass                                                  | Fail                    | Fail            |
| Pass                                                  | Pass                    | Pass            |
| Pass                                                  | Distinction             | Merit           |
| Distinction                                           | Pass                    | Merit           |
| Distinction                                           | Distinction             | Distinction     |

## Re-sits and re-takes

### Edit re-sits and re-takes form

If the apprentice fails one assessment method or more, they can take a re-sit or a re-take at their employer's discretion. The apprentice's employer needs to agree that a re-sit or re-take is appropriate. A re-sit does not need further learning, whereas a re-take does. The apprentice should have a supportive action plan to prepare for a re-sit or a re-take.

The employer and the EPAO should agree the timescale for a re-sit or re-take. A re-sit is typically taken within [3](#) months of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training is required and is typically taken within [5](#) months of the EPA outcome notification.

If the apprentice fails the project assessment method, they must amend the project output in line with the independent assessor's feedback. The apprentice will be given [4](#) weeks to rework and submit the amended [report](#).

Failed assessment methods must be re-sat or re-taken within a 6-month period from the EPA outcome notification, otherwise the entire EPA will need to be re-sat or re-taken in full.

Re-sits and re-takes are not offered to an apprentice wishing to move from pass to a higher grade.

The apprentice will get a maximum EPA grade of [pass](#) for a re-sit or re-take, unless the EPAO determines there are exceptional circumstances.

# Roles and responsibilities

[Edit roles and responsibilities form](#)

| ROLES      | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Apprentice | <p>As a minimum, the apprentice should:</p> <ul style="list-style-type: none"> <li>• complete on-programme training to meet the KSBs as outlined in the apprenticeship standard for a minimum of 12 months</li> <li>• complete the required amount of off-the-job training specified by the apprenticeship funding rules and as arranged by the employer and training provider</li> <li>• understand the purpose and importance of EPA</li> <li>• prepare for and undertake the EPA including meeting all gateway requirements</li> <li>• ensure that all supporting evidence required at the gateway is submitted in line with this EPA plan</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Employer   | <p>As a minimum, the apprentice's employer must:</p> <ul style="list-style-type: none"> <li>• select the EPAO and training provider</li> <li>• work with the training provider (where applicable) to support the apprentice in the workplace and to provide the opportunities for the apprentice to develop the KSBs</li> <li>• arrange and support off-the-job training to be undertaken by the apprentice</li> <li>• decide when the apprentice is working at or above the apprenticeship standard and is ready for EPA</li> <li>• ensure the apprentice is prepared for the EPA</li> <li>• ensure that all supporting evidence required at the gateway is submitted in line with this EPA plan</li> <li>• confirm arrangements with the EPAO for the EPA (who, when, where) in a timely manner</li> <li>• provide the EPAO with access to any employer-specific documentation as required for example, company policies</li> <li>• ensure that the EPA is scheduled with the EPAO for a date and time which allows appropriate opportunity for the apprentice to meet the KSBs</li> <li>• ensure the apprentice is given sufficient time away from regular duties to prepare for, and complete the EPA</li> </ul> |

| ROLES | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | <ul style="list-style-type: none"> <li>• ensure that any required supervision during the EPA period, as stated within this EPA plan, is in place</li> <li>• ensure the apprentice has access to the resources used to fulfil their role and carry out the EPA for workplace based assessments</li> <li>• remain independent from the delivery of the EPA</li> <li>• pass the certificate to the apprentice upon receipt</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| EPAO  | <p>As a minimum, the EPAO must:</p> <ul style="list-style-type: none"> <li>• conform to the requirements of this EPA plan and deliver its requirements in a timely manner</li> <li>• conform to the requirements of the RoEPAO</li> <li>• conform to the requirements of the external quality assurance provider (EQAP)</li> <li>• understand the apprenticeship including the apprenticeship standard and, EPA plan</li> <li>• make all necessary contractual arrangements including agreeing the price of the EPA</li> <li>• develop and produce assessment materials including specifications and marking materials (for example mark schemes, practice materials, training material)</li> <li>• maintain and apply a policy for the declaration and management of conflict of interests and independence. This must ensure, as a minimum, there is no personal benefit or detriment for those delivering the EPA or from the result of an assessment. It must cover: <ul style="list-style-type: none"> <li>○ apprentices</li> <li>○ employers</li> <li>○ independent assessors</li> <li>○ any other roles involved in delivery or grading of the EPA</li> </ul> </li> <li>• have quality assurance systems and procedures that ensure fair, reliable and consistent assessment and maintain records of internal quality assurance (IQA) activity for external quality assurance (EQA) purposes</li> <li>• appoint independent, competent, and suitably qualified assessors in line with the requirements of this EPA plan</li> <li>• appoint administrators, invigilators and any other roles where required to facilitate the EPA</li> </ul> |

| ROLES                | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      | <ul style="list-style-type: none"> <li>• deliver induction, initial and on-going training for all their independent assessors and any other roles involved in the delivery or grading of the EPA as specified within this EPA plan. This should include how to record the rationale and evidence for grading decisions where required</li> <li>• conduct standardisation with all their independent assessors before allowing them to deliver an EPA, when the EPA is updated, and at least once a year</li> <li>• conduct moderation across all of their independent assessors' decisions once EPAs have started according to a sampling plan, with associated risk rating of independent assessors</li> <li>• monitor the performance of all their independent assessors and provide additional training where necessary</li> <li>• develop and provide assessment recording documentation to ensure a clear and auditable process is in place for providing assessment decisions and feedback to all relevant stakeholders</li> <li>• use language in the development and delivery of the EPA that is appropriate to the level of the apprenticeship</li> <li>• arrange for the EPA to take place in a timely manner, in consultation with the employer</li> <li>• provide information, advice, and guidance documentation to enable apprentices, employers and training providers to prepare for the EPA</li> <li>• confirm the gateway requirements have been met before they start the EPA for an apprentice</li> <li>• host the EPA or make suitable alternative arrangements</li> <li>• maintain the security of the EPA including, but not limited to, verifying the identity of the apprentice, invigilation and security of materials</li> <li>• where the EPA plan permits assessment away from the workplace, ensure that the apprentice has access to the required resources and liaise with the employer to agree this if necessary</li> <li>• confirm overall grade awarded</li> <li>• maintain and apply a policy for conducting appeals</li> </ul> |
| Independent assessor | As a minimum, an independent assessor must:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| ROLES             | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | <ul style="list-style-type: none"> <li>• be independent, with no conflict of interest with the apprentice, their employer or training provider, specifically, they must not receive a personal benefit or detriment from the result of the assessment</li> <li>• have, maintain and be able to evidence up-to-date knowledge and expertise of the occupation</li> <li>• have the competence to assess the EPA and meet the requirements of the IQA section of this EPA plan</li> <li>• understand the apprenticeship's occupational standard and EPA plan</li> <li>• attend induction and standardisation events before they conduct an EPA for the first time, when the EPA is updated, and at least once a year</li> <li>• use language in the delivery of the EPA that is appropriate to the level of the apprenticeship</li> <li>• work with other personnel, where used, in the preparation and delivery of assessment methods</li> <li>• conduct the EPA to assess the apprentice against the KSBs and in line with the EPA plan</li> <li>• make final grading decisions in line with this EPA plan</li> <li>• record and report assessment outcome decisions</li> <li>• comply with the IQA requirements of the EPAO</li> <li>• comply with external quality assurance (EQA) requirements</li> </ul> |
| Training provider | <p>As a minimum, the training provider must:</p> <ul style="list-style-type: none"> <li>• conform to the requirements of the register of apprenticeship training providers (RoATP)</li> <li>• ensure procedures are in place to mitigate against any conflict of interest</li> <li>• work with the employer and support the apprentice during the off-the-job training to provide the opportunities to develop the KSBs as outlined in the occupational standard</li> <li>• deliver training to the apprentice as outlined in their apprenticeship agreement</li> <li>• monitor the apprentice's progress during any training provider led on-programme learning</li> <li>• ensure the apprentice is prepared for the EPA</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| ROLES | RESPONSIBILITIES                                                                                                                                                                                                                                                                                       |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | <ul style="list-style-type: none"> <li>• advise the employer, upon request, on the apprentice's readiness for EPA</li> <li>• ensure that all supporting evidence required at the gateway is submitted in line with this EPA plan</li> <li>• remain independent from the delivery of the EPA</li> </ul> |

## Reasonable adjustments

[Edit reasonable adjustments form](#)

The EPAO must have reasonable adjustments arrangements for the EPA.

This should include:

- how an apprentice qualifies for reasonable adjustment
- what reasonable adjustments may be made

Adjustments must maintain the validity, reliability and integrity of the EPA as outlined in this EPA plan.

## Internal quality assurance

[Edit internal quality assurance form](#)

Internal quality assurance refers to the strategies, policies and procedures that an EPAO must have in place to ensure valid, consistent and reliable EPA decisions.

EPAOs for this EPA must adhere to the requirements within the roles and responsibilities table.

They must also appoint independent assessors who:

- have recent relevant experience of the occupation or sector to at least occupational level 6 gained in the last 5 years or significant experience of the occupation or sector

## Value for money

[Edit value for money form](#)

Affordability of the EPA will be aided by using at least some of the following:

- completing applicable assessment methods online (for example computer-based assessment)
- using the employer's premises
- conducting assessment methods on the same day

## Professional recognition

[Edit professional recognition form](#)

This apprenticeship is not aligned to professional recognition.

# Mapping of KSBs to assessment methods

[Edit mapping of ksbs to assessment methods form](#)

| KNOWLEDGE                                                                                                                                                                           | ASSESSMENT METHODS                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>K1</b><br>Processes to monitor and optimise the performance of code.                                                                                                             | Professional discussion                               |
| <b>K2</b><br>Methodologies for moving data from one system to another for storage and further handling.                                                                             | Project evaluation report, presentation and questions |
| <b>K3</b><br>Data normalisation principles and the advantages they achieve in databases for data protection, redundancy, and inconsistent dependency.                               | Professional discussion                               |
| <b>K4</b><br>Frameworks for data quality, covering dimensions such as accuracy, completeness, consistency, timeliness, and accessibility.                                           | Project evaluation report, presentation and questions |
| <b>K5</b><br>The inherent risks of data such as incomplete data, ethical data sources and how to ensure data quality.                                                               | Professional discussion                               |
| <b>K6</b><br>Software development principles for data products, including debugging, version control, and testing.                                                                  | Project evaluation report, presentation and questions |
| <b>K7</b><br>Principles of sustainable data products and organisational responsibilities for environmental social governance.                                                       | Project evaluation report, presentation and questions |
| <b>K8</b><br>Range of deployment approaches for new data pipelines and automated processes, such as shadow, canary, and blue-green deployment.                                      | Project evaluation report, presentation and questions |
| <b>K9</b><br>How to build a data product that complies with regulatory requirements.                                                                                                | Project evaluation report, presentation and questions |
| <b>K10</b><br>Concepts of data governance, including regulatory requirements, data privacy, security, and quality control. Legislation and its application to the safe use of data. | Professional discussion                               |

| KNOWLEDGE                                                                                                                                                                                                                                                                                          | ASSESSMENT METHODS                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>K11</b><br>Organisational data and information security standards, ethical practices, policies and procedures relevant to data management activities such as data lineage and metadata management.                                                                                              | Professional discussion                               |
| <b>K12</b><br>How to cost build and maintain a system whilst ensuring that organisational strategies for sustainable, net zero technologies are considered.                                                                                                                                        | Project evaluation report, presentation and questions |
| <b>K13</b><br>The uses, security, scalability, governance, and cost of on or off-site premises solutions.                                                                                                                                                                                          | Project evaluation report, presentation and questions |
| <b>K14</b><br>The uses of on-demand Cloud computing platforms such as Amazon AWS, Google Cloud Platform, and Microsoft Azure.                                                                                                                                                                      | Project evaluation report, presentation and questions |
| <b>K15</b><br>Data warehousing principles, including techniques such as star schemas, data lakes, and data marts.                                                                                                                                                                                  | Project evaluation report, presentation and questions |
| <b>K16</b><br>Principles of data, including open and public data, administrative data, and research data including the value of external data sources that can be used to enrich internal data and examples of how business use direct data acquisition to support or augment business operations. | Professional discussion                               |
| <b>K17</b><br>Approaches to data integration and how combining disparate data sources delivers value to an organisation.                                                                                                                                                                           | Project evaluation report, presentation and questions |
| <b>K18</b><br>How to use streaming, batching and on-demand services to move data from one location to another.                                                                                                                                                                                     | Professional discussion                               |
| <b>K19</b><br>Differences between structured, semi-structured, and unstructured data.                                                                                                                                                                                                              | Project evaluation report, presentation and questions |
| <b>K20</b><br>Types and uses of data engineering tools and applications in own organisation.                                                                                                                                                                                                       | Project evaluation report, presentation and questions |



| KNOWLEDGE                                                                                                                                                                  | ASSESSMENT METHODS                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>K21</b><br>Policies and strategies to ensure business continuity for operations, particularly in relation to data provision.                                            | Professional discussion                               |
| <b>K22</b><br>Technology and service management best practice including configuration, change and incident management.                                                     | Professional discussion                               |
| <b>K23</b><br>How to undertake analysis and root cause investigation.                                                                                                      | Professional discussion                               |
| <b>K24</b><br>Processes for evaluating prototypes and taking them to implementation within a production environment.                                                       | Project evaluation report, presentation and questions |
| <b>K25</b><br>The lifecycle of implementing data solutions in a business, from scoping, through prototyping, development, production, and continuous improvement.          | Project evaluation report, presentation and questions |
| <b>K26</b><br>The ethical aspects associated with the use of and collation of data.                                                                                        | Professional discussion                               |
| <b>K27</b><br>Data development frameworks and approved organisational architectures.                                                                                       | Project evaluation report, presentation and questions |
| <b>K28</b><br>The principles of descriptive, predictive and prescriptive analytics.                                                                                        | Professional discussion                               |
| <b>K29</b><br>Continuous improvement including how to: capture good practice and lessons learned from experience; keep up to date with new technology and ways of working. | Professional discussion                               |
| <b>K30</b><br>The methods and techniques used to communicate messages to meet the needs of the audience.                                                                   | Project evaluation report, presentation and questions |
| SKILL                                                                                                                                                                      | ASSESSMENT METHODS                                    |
| <b>S1</b>                                                                                                                                                                  | Project evaluation report, presentation and questions |

| KNOWLEDGE                                                                                                                                                                                        | ASSESSMENT METHODS                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Collate, evaluate and refine user requirements to design the data product.                                                                                                                       |                                                       |
| <b>S2</b><br>Collate, evaluate and refine business requirements including cost, resourcing, and accessibility to design the data product.                                                        | Project evaluation report, presentation and questions |
| <b>S3</b><br>Design a data product to serve multiple needs and with scalability, efficiency, and security in mind.                                                                               | Project evaluation report, presentation and questions |
| <b>S4</b><br>Automate data pipelines such as batch, real-time, on demand and other processes using either programming languages and data integration platforms with graphical user interfaces.   | Project evaluation report, presentation and questions |
| <b>S5</b><br>Produce and maintain technical documentation explaining the data product, that meets organisational, technical and non-technical user requirements, retaining critical information. | Project evaluation report, presentation and questions |
| <b>S6</b><br>Systematically clean, validate, and describe data at all stages of extract, transform, load (ETL).                                                                                  | Project evaluation report, presentation and questions |
| <b>S7</b><br>Work with different types of data stores, such as SQL, NoSQL, and distributed file system.                                                                                          | Professional discussion                               |
| <b>S8</b><br>Orchestrate workflows, tokenisation and anonymisation of sensitive data                                                                                                             | Project evaluation report, presentation and questions |
| <b>S9</b><br>Identify and troubleshoot issues with data processing pipelines.                                                                                                                    | Professional discussion                               |
| <b>S10</b><br>Query and manipulate data using tools and programming such as SQL and Python, manage database access, and implement automated validation checks.                                   | Project evaluation report, presentation and questions |
| <b>S11</b>                                                                                                                                                                                       | Professional discussion                               |

| KNOWLEDGE                                                                                                                                                                                                                             | ASSESSMENT METHODS                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Effectively communicate downtime and issues with database access to stakeholders to mitigate the operational impact of unforeseen issues.                                                                                             |                                                       |
| <b>S12</b><br>Evaluate opportunities to extract value from existing data products through further development, considering costs, environmental impact and potential operational benefits.                                            | Professional discussion                               |
| <b>S13</b><br>Maintain a working knowledge of data use cases within organisations.                                                                                                                                                    | Professional discussion                               |
| <b>S14</b><br>Use data systems securely to meet requirements and in line with organisational procedures and legislation.                                                                                                              | Professional discussion                               |
| <b>S15</b><br>Identify new tools and technologies and recommend potential opportunities for use in own department or organisation.                                                                                                    | Professional discussion                               |
| <b>S16</b><br>Optimise data ingestion processes by making use of appropriate data ingestion frameworks such as batch, streaming and on-demand.                                                                                        | Professional discussion                               |
| <b>S17</b><br>Develop algorithms and processes to extract structured data from unstructured sources.                                                                                                                                  | Project evaluation report, presentation and questions |
| <b>S18</b><br>Apply and advocate for software development best practice when working with other data professionals throughout the business. Contribute to standards and ways of working that support software development principles. | Professional discussion                               |
| <b>S19</b><br>Develop simple forecasts and monitoring tools to anticipate or respond immediately to outages and incidents.                                                                                                            | Professional discussion                               |
| <b>S20</b><br>Identify and escalate risks with suggested mitigation/resolutions as appropriate.                                                                                                                                       | Professional discussion                               |
| <b>S21</b>                                                                                                                                                                                                                            | Professional discussion                               |

| KNOWLEDGE                                                                                                                                                                                               | ASSESSMENT METHODS                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Investigate and respond to incidents, identifying the root cause and resolution with internal and external stakeholders.                                                                                |                                                       |
| <b>S22</b><br>Proactively identify and remediate technical debt, assess for updates and obsolescence as part of continuous improvement.                                                                 | Professional discussion                               |
| <b>S23</b><br>Develop, maintain collaborative relationships using agile business methodology with stakeholders such as, business users, data scientists, data analysts and business intelligence teams. | Project evaluation report, presentation and questions |
| <b>S24</b><br>Present, communicate, and disseminate messages about the data product, tailoring the message and medium to the needs of the audience.                                                     | Project evaluation report, presentation and questions |
| <b>S25</b><br>Evaluate the strengths and weaknesses of prototype data products and how these integrate within an organisation's overarching data infrastructure.                                        | Project evaluation report, presentation and questions |
| <b>S26</b><br>Assess and identify gaps in existing tools and technologies in respect of own role, implementing changes required, adapting new practices to the department or organisation.              | Professional discussion                               |
| <b>S27</b><br>Identify data quality metrics and track them to ensure the quality, accuracy and reliability of the data product.                                                                         | Project evaluation report, presentation and questions |
| <b>S28</b><br>Identify and measure environmental impact in decision making to select approaches in sustainability that lead to the use of less carbon across the life of products and services.         | Project evaluation report, presentation and questions |
| <b>S29</b><br>Horizon scanning to identify new technologies that offer increased performance of data products.                                                                                          | Professional discussion                               |
| <b>S30</b><br>Implement personal strategies to keep up to date with technological developments in data science, data engineering and AI, and advance own skills.                                        | Professional discussion                               |

| BEHAVIOUR                                                                                                                                                                               | ASSESSMENT METHODS                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>B1</b><br>Takes accountability and adapts positively to changing work priorities, ensuring deadlines are met.                                                                        | Project evaluation report, presentation and questions |
| <b>B2</b><br>Works collaboratively with stakeholders and colleagues, developing strong working relationships to achieve common goals and promote mutual respect.                        | Project evaluation report, presentation and questions |
| <b>B3</b><br>Quality focus that promotes continuous improvement, innovation and creativity to the data system development process to improve processes and address business challenges. | Professional discussion                               |
| <b>B4</b><br>Keeps abreast of developments in emerging, contemporary and advanced technologies to optimise sustainable data products and services.                                      | Professional discussion                               |
| <b>B5</b><br>Use initiative and innovation to problem solve and trouble shoot, providing creative solutions.                                                                            | Professional discussion                               |
| <b>B6</b><br>Takes full responsibility for own professional development, seeking opportunities to enhance knowledge, skills and experience.                                             | Professional discussion                               |

## Mapping of KSBS to grade themes

[Edit add grade themes form](#)[Edit mapping of ksbs to grade themes form](#)

### Project evaluation report, presentation and questions - Project

| KSBS GROUPED BY THEME                                                            | KNOWLEDGE                                                                                                                                        | SKILLS                                                                                                                                                                    | BEHAVIOUR                                                                                                |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Data product design<br>K6 K7 K9 K12<br>K13 K14<br>S1 S2 S3 S4 S5<br>S8 S28<br>B1 | Software development principles for data products, including debugging, version control, and testing. (K6)<br><br>Principles of sustainable data | Collate, evaluate and refine user requirements to design the data product. (S1)<br><br>Collate, evaluate and refine business requirements including cost, resourcing, and | Takes accountability and adapts positively to changing work priorities, ensuring deadlines are met. (B1) |

| KSBS<br>GROUPED BY<br>THEME                                                    | KNOWLEDGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SKILLS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | BEHAVIOUR |
|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|                                                                                | <p>products and organisational responsibilities for environmental social governance. (K7)</p> <p>How to build a data product that complies with regulatory requirements. (K9)</p> <p>How to cost build and maintain a system whilst ensuring that organisational strategies for sustainable, net zero technologies are considered. (K12)</p> <p>The uses, security, scalability, governance, and cost of on or off-site premises solutions. (K13)</p> <p>The uses of on-demand Cloud computing platforms such as Amazon AWS, Google Cloud Platform, and Microsoft Azure. (K14)</p> | <p>accessibility to design the data product. (S2)</p> <p>Design a data product to serve multiple needs and with scalability, efficiency, and security in mind. (S3)</p> <p>Automate data pipelines such as batch, real-time, on demand and other processes using either programming languages and data integration platforms with graphical user interfaces. (S4)</p> <p>Produce and maintain technical documentation explaining the data product, that meets organisational, technical and non-technical user requirements, retaining critical information. (S5)</p> <p>Orchestrate workflows, tokenisation and anonymisation of sensitive data (S8)</p> <p>Identify and measure environmental impact in decision making to select approaches in sustainability that lead to the use of less carbon across the life of products and services. (S28)</p> |           |
| Data product deployment and evaluation<br>K2 K4 K8 K15 K17 K19 K20 K24 K25 K27 | Methodologies for moving data from one system to another for storage and further handling. (K2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Systematically clean, validate, and describe data at all stages of extract, transform, load (ETL). (S6)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N/A       |

| KSBS<br>GROUPED BY<br>THEME | KNOWLEDGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SKILLS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | BEHAVIOUR |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| S6 S10 S17<br>S25 S27       | <p>Frameworks for data quality, covering dimensions such as accuracy, completeness, consistency, timeliness, and accessibility. (K4)</p> <p>Range of deployment approaches for new data pipelines and automated processes, such as shadow, canary, and blue-green deployment. (K8)</p> <p>Data warehousing principles, including techniques such as star schemas, data lakes, and data marts. (K15)</p> <p>Approaches to data integration and how combining disparate data sources delivers value to an organisation. (K17)</p> <p>Differences between structured, semi-structured, and unstructured data. (K19)</p> <p>Types and uses of data engineering tools and applications in own organisation. (K20)</p> <p>Processes for evaluating prototypes and taking them to implementation within a production environment. (K24)</p> | <p>Query and manipulate data using tools and programming such as SQL and Python, manage database access, and implement automated validation checks. (S10)</p> <p>Develop algorithms and processes to extract structured data from unstructured sources. (S17)</p> <p>Evaluate the strengths and weaknesses of prototype data products and how these integrate within an organisation's overarching data infrastructure. (S25)</p> <p>Identify data quality metrics and track them to ensure the quality, accuracy and reliability of the data product. (S27)</p> |           |

| KSBS GROUPED BY THEME                         | KNOWLEDGE                                                                                                                                                                                                                                            | SKILLS                                                                                                                                                                                                                                                                                                                                                    | BEHAVIOUR                                                                                                                                                       |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               | <p>The lifecycle of implementing data solutions in a business, from scoping, through prototyping, development, production, and continuous improvement. (K25)</p> <p>Data development frameworks and approved organisational architectures. (K27)</p> |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                 |
| Collaborative working<br>K30<br>S23 S24<br>B2 | <p>The methods and techniques used to communicate messages to meet the needs of the audience. (K30)</p>                                                                                                                                              | <p>Develop, maintain collaborative relationships using agile business methodology with stakeholders such as, business users, data scientists, data analysts and business intelligence teams. (S23)</p> <p>Present, communicate, and disseminate messages about the data product, tailoring the message and medium to the needs of the audience. (S24)</p> | <p>Works collaboratively with stakeholders and colleagues, developing strong working relationships to achieve common goals and promote mutual respect. (B2)</p> |

## Professional discussion - Discussion

| KSBS GROUPED BY THEME                                                   | KNOWLEDGE                                                                                                           | SKILLS                                                                                                                                                           | BEHAVIOUR |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <p>Data quality and performance<br/>K1 K3 K5 K18<br/>K28<br/>S7 S16</p> | <p>Processes to monitor and optimise the performance of code. (K1)</p> <p>Data normalisation principles and the</p> | <p>Work with different types of data stores, such as SQL, NoSQL, and distributed file system. (S7)</p> <p>Optimise data ingestion processes by making use of</p> | N/A       |



| KSBS<br>GROUPED BY<br>THEME                                                  | KNOWLEDGE                                                                                                                                                                                                                                                                                                                                                                                                                            | SKILLS                                                                                                                                                                                                                                                                                                                                                                                                                                          | BEHAVIOUR                                                                                                   |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
|                                                                              | <p>advantages they achieve in databases for data protection, redundancy, and inconsistent dependency. (K3)</p> <p>The inherent risks of data such as incomplete data, ethical data sources and how to ensure data quality. (K5)</p> <p>How to use streaming, batching and on-demand services to move data from one location to another. (K18)</p> <p>The principles of descriptive, predictive and prescriptive analytics. (K28)</p> | <p>appropriate data ingestion frameworks such as batch, streaming and on-demand. (S16)</p>                                                                                                                                                                                                                                                                                                                                                      |                                                                                                             |
| <p>Problem Solving<br/>K21 K22 K23<br/>S9 S11 S13<br/>S19 S20 S21<br/>B5</p> | <p>Policies and strategies to ensure business continuity for operations, particularly in relation to data provision. (K21)</p> <p>Technology and service management best practice including configuration, change and incident management. (K22)</p> <p>How to undertake analysis and root cause investigation. (K23)</p>                                                                                                            | <p>Identify and troubleshoot issues with data processing pipelines. (S9)</p> <p>Effectively communicate downtime and issues with database access to stakeholders to mitigate the operational impact of unforeseen issues. (S11)</p> <p>Maintain a working knowledge of data use cases within organisations. (S13)</p> <p>Develop simple forecasts and monitoring tools to anticipate or respond immediately to outages and incidents. (S19)</p> | <p>Use initiative and innovation to problem solve and trouble shoot, providing creative solutions. (B5)</p> |

| KSBS<br>GROUPED BY<br>THEME                                              | KNOWLEDGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SKILLS                                                                                                                                                                                                                               | BEHAVIOUR                                                                                                                                     |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>Identify and escalate risks with suggested mitigation/resolutions as appropriate. (S20)</p> <p>Investigate and respond to incidents, identifying the root cause and resolution with internal and external stakeholders. (S21)</p> |                                                                                                                                               |
| Regulatory Compliance<br>K10 K11 K26<br>S14                              | <p>Concepts of data governance, including regulatory requirements, data privacy, security, and quality control. Legislation and its application to the safe use of data. (K10)</p> <p>Organisational data and information security standards, ethical practices, policies and procedures relevant to data management activities such as data lineage and metadata management. (K11)</p> <p>The ethical aspects associated with the use of and collation of data. (K26)</p> | <p>Use data systems securely to meet requirements and in line with organisational procedures and legislation. (S14)</p>                                                                                                              | N/A                                                                                                                                           |
| Continuous Improvement<br>K16 K29<br>S12 S15 S18<br>S22 S26 S29<br>B3 B4 | Principles of data, including open and public data, administrative data, and research data including the value of external data sources that can be used to enrich internal data and examples of how                                                                                                                                                                                                                                                                       | Evaluate opportunities to extract value from existing data products through further development, considering costs, environmental impact and potential operational benefits. (S12)                                                   | Quality focus that promotes continuous improvement, innovation and creativity to the data system development process to improve processes and |

| KSBS<br>GROUPED BY<br>THEME                                  | KNOWLEDGE                                                                                                                                                                                                                                                              | SKILLS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | BEHAVIOUR                                                                                                                                                                                  |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                              | <p>business use direct data acquisition to support or augment business operations. (K16)</p> <p>Continuous improvement including how to: capture good practice and lessons learned from experience; keep up to date with new technology and ways of working. (K29)</p> | <p>Identify new tools and technologies and recommend potential opportunities for use in own department or organisation. (S15)</p> <p>Apply and advocate for software development best practice when working with other data professionals throughout the business. Contribute to standards and ways of working that support software development principles. (S18)</p> <p>Proactively identify and remediate technical debt, assess for updates and obsolescence as part of continuous improvement. (S22)</p> <p>Assess and identify gaps in existing tools and technologies in respect of own role, implementing changes required, adapting new practices to the department or organisation. (S26)</p> <p>Horizon scanning to identify new technologies that offer increased performance of data products. (S29)</p> | <p>address business challenges. (B3)</p> <p>Keeps abreast of developments in emerging, contemporary and advanced technologies to optimise sustainable data products and services. (B4)</p> |
| <p>Continuous professional development</p> <p>S30<br/>B6</p> | N/A                                                                                                                                                                                                                                                                    | <p>Implement personal strategies to keep up to date with technological developments in data science, data engineering and AI, and advance own skills. (S30)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>Takes full responsibility for own professional development, seeking opportunities to enhance knowledge, skills and experience. (B6)</p>                                                 |

## Supporting information

### External quality assurance

[Edit external quality assurance \(eqa\) form](#)

**Option selected:** Ofqual

### Involved employers

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