

# **BCS Level 5**

## **Data Engineer Apprenticeship**

Assessment Method 1

Project Evaluation Report, Presentation, and  
Questions

Apprentice and Employer Guide

**February 2024**

**IfATE Standard V1.0**

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## Change history

Changes made to this document are recorded below. This includes the latest version number, date of the amendment, and details of the change. The purpose is to identify the updates undertaken.

Version Number & Date	Changes Made
V1.0 February 2024	Document created.

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IfATE (2021), EPA plan for Data Engineer apprenticeship standard, Accessible at: <https://www.instituteforapprenticeships.org/apprenticeship-standards/data-engineer-v1-0>.

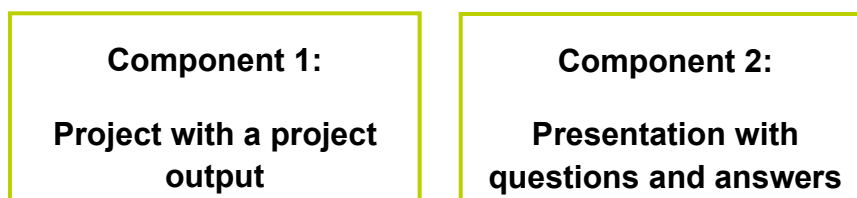
## Overview

This document provides information about the requirements and format of assessment method 1 (AM1), which comprises a project report and presentation with questions. This is part of your end point assessment (EPA).

Apprentices undertake AM1 and assessment method 2 (AM2) following entry through the gateway. These assessment methods can be undertaken in any order. Each knowledge, skill and behaviour (KSB) criterion is assessed by one assessment method only.

## Structure of assessment method 1

The two components of AM1 are:



A project involves the completion of a significant and defined piece of work that has a real business application and benefit. It enables apprentices to demonstrate their professional competency and enables them to meet the criteria in practice; it offers a realistic opportunity to combine skills such as project management, formal writing and reflection.

The questioning element provides an opportunity to supply further detailed evidence to support the apprentice's demonstration of the mapped knowledge, skills and behaviours (KSBs) to this method.

If apprentices or employers have questions about any part of the assessment process, they can discuss these with their training provider as a first port of call.

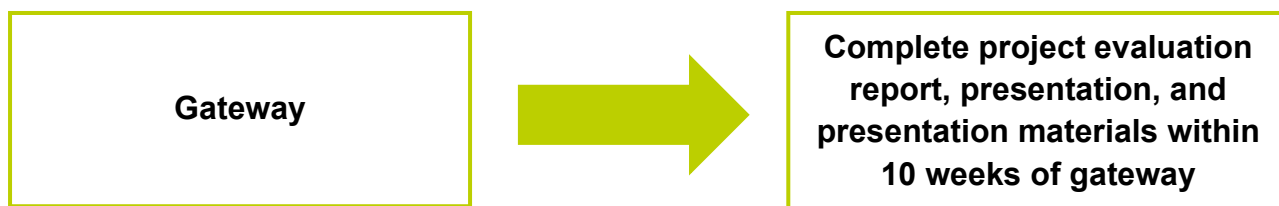
The employer should ensure that the project has a real business application and will ensure that it meets the requirements of the EPA (including suitable coverage of the KSBs assigned to this assessment method).

## Component 1 – Project report

The project itself is undertaken and completed on programme and pre-gateway to the EPA and is not graded. BCS will sign off the project evaluation report's title and scope at the gateway to confirm it is suitable.

The report and presentation are completed after gateway and submitted to the end-point assessment organisation (EPAO) by the end of week 10 of the EPA start date.

The project and project report should allow for the grading criteria and KSBs relevant to the EPA to be demonstrated (as detailed under the 'Assessment grading' section of this guide).



The employer must make sure that the apprentice has sufficient time and the necessary resources to plan and complete the project. Whilst completing the project evaluation report, presentation and presentation materials, the apprentice should be subject to normal workplace supervision.

## Choosing a project topic

Apprentices and employers should consider what relevant work-based project is most suitable for demonstrating the required criteria. Coverage of all assessment criteria (not only the KSBs) should be planned for when designing the project.

The project may cover the following project ideas:

- A specific problem
- A recurring issue
- An idea or opportunity

## What should the project report include?

The report must include at least:

- An executive summary
- An introduction
- The scope of the project (including key performance indicators, aims, and objectives)
- A project plan
- Research outcomes
- Data product outcomes
- Project outcomes
- Discussion of findings
- Recommendations and conclusions
- References

- Appendix containing mapping showing how the report evidences the KSBs mapped to this assessment method.

The project report should acknowledge sources.

The project report must include an appendix, showing how the apprentice thinks they have met each criterion.

The apprentice will need to consider the availability of company and external resources required to complete the project. They must also ensure they are fully aware of the criteria the project report is intended to assess as that is what the grading of the project report will be based on.

The apprentice may work as part of a team to complete the project, which could include technical internal or external support however the report will be the apprentice's own work and will be reflective of their own role and contribution.

When the report and any presentation materials are submitted, the employer and the apprentice must confirm that they are the works of the apprentice.

## **Word count**

The word limit for the project report is specified as 3500 words with a tolerance of plus or minus 10%. Please note, if the word limit is exceeded, the project report may be rejected and the EPA cannot progress. The same applies to time limits on video or audio evidence.

Apprentices are asked to include all content they wish to be assessed in the main body of the project. Note that appendices, references, diagrams, etc. are not included in the overall word count total. Apprentices are advised that the appendices may not be read in full so should not be used for presenting new information, however, they may be referred to as specified within the main project text.

## **Component 2 – Presentation with questions**

### **Overview**

In the presentation with questions, the apprentice delivers the submitted presentation to an independent assessor on the project. After the presentation, the independent assessor must ask the apprentice questions about their project, report, and presentation.

The apprentice must prepare and submit their presentation to the EPAO by the end of week 10 of the EPA period.

The independent assessor will conduct questioning and assess answers provided by the apprentice. Apprentices must be given at least 2 weeks' notice of the date and time for the presentation with questions component.

During the presentation, the apprentice may have access to:

- Audio-visual presentation equipment
- Flip chart and writing and drawing materials
- Computer

If required, the above must be provided by the training provider or employer.

## What should the presentation include?

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

## Delivering the presentation

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 can increase the time of the presentation by up to 10% 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.



The independent assessor will ask open questions, such as 'Tell me more about...' or 'How were you involved with...?', to draw out more evidence for the relevant KSBs.

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

## Venue

The project report with questions will be conducted online and should take place in either:

- the employer's premises (in a quiet location)
- a suitable venue selected by the EPAO (for example a training provider's premises)
- at home

## Assessment grading

The following table outlines the pass and distinction criteria for AM1.

### Criteria

Theme/KSBs	Pass	Distinction
<b>Data product design</b>  K6, K7, K9, K12, K13, K14, S1, S2, S3, S4, S5, S27, B1	<p>Demonstrates how they have collated, evaluated and refined user requirements to design and build a scalable data product that 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, S2)</p> <p>Explains how they selected sustainable solutions in relation to data products and environmental social governance to ensure the use of less carbon across the various stages of product and service delivery. (K7, S27)</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 have taken accountability produced and maintained technical documentation for a data product in order to meet organisational user requirements, whilst adapting to changing</p>	<p>Justifies how the data product created met the requirements and served multiple needs. (S1, S3)</p>



	<p>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>Outlines the uses of different on-demand cloud computing platforms. (K14)</p>	
<p><b>Data product deployment and evaluation</b></p> <p>K2, K4, K8, K15, K17, K19, K20, K24, K25, K26, S6, S9, S16, S24, S26</p>	<p>Explains the deployment approaches processes for new data pipelines and automated processes.(K8)</p> <p>Explains techniques such as star schemas, data lakes and data marts and the impact they have on data warehousing principles. (K15)</p> <p>Demonstrate how to systematically clean, validate and describe data at all 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 overarching data structure, taking into consideration the lifecycle of implementing data solutions in a business. (K24, K25, S24)</p> <p>Describes the approved organisational architectures and the relevant data development frameworks. (K26)</p> <p>Identifies data quality metrics and their frameworks and tracks them to ensure quality, accuracy and reliability of the data product. (K4, S26)</p> <p>Demonstrates the use of tools and programming to query and manipulate data and implement automated validation checks, showing the methodologies used for moving</p>	<p>Evaluates the success of the algorithm developed (S16)</p>

	<p>data from one system to another for storage and handling. (K2, S9)</p> <p>Explains how they have worked with structured, semi-structured and unstructured data, developing algorithms to extract from sources. (K19, S16)</p>	
<p><b>Collaborative working</b></p> <p>K30, S22, S23, B2</p>	<p>Outlines the methods and techniques used to communicate messages about the data product that meet the needs of the audience. (K30, S23)</p> <p>Explains how they worked collaboratively with different technical and non-technical stakeholders, using adaptive business methodology to support an inclusive culture and develop and maintain strong working relationships in order to achieve common goals. (S22, B2)</p>	<p>Evaluate the impact of the methods and techniques used to communicate messages about the data product to the audience. (K30, S23)</p>

**Further information and guidance are available in the EPA plan and on MyBCS via the links below.**

[Data Engineer IfATE V1.0 EPA Plan](#)

**BCS members need to follow the ‘Apprenticeships’ link under the ‘Career Development’ menu point. Non-members can find the information relating to apprenticeships via the main page.**

[MyBCS - How to prepare for each assessment method](#)

# Good luck!