| | |
|---|---|
| **Unit title:** | Locating and Accessing Data Sources |
| **SQA code:** | J6V4 47 |
| **SCQF level:** | 7 |
| **SCQF credit points:** | 6 |

## History of changes

**Publication date:** September 2022

**Version**: 01

| Version number | Date | Description | Authorised by |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

© Scottish Qualifications Authority 2022

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Unit template: January 2022

| **Unit title:** | Locating and Accessing Data Sources (SCQF level 7) |
|---|---|

**Unit purpose**

This is about individuals utilising knowledge of data sources including how they are collected, where and how they are stored and their interrelationships, both within and external to the organisation to verify relevance and accessibility of potential data sources. This also involves collecting from data from multiple sources.

**Learning outcome**

To identify and establish data sources to the key required internal and external data sources as well as determining data availability and accessibility to provide usable data in line with legislative and organisational requirements.

| **Performance requirements** | **Knowledge and understanding** |
|---|---|
| 1. Reviewing the organisational data architecture and locating data sources from within or outside of the organisation.<br>2. Identifying and resolving security and data protection issues related to data access including obtaining necessary authorisation.<br>3. Accessing data sources securely using approved tools and processes.<br>4. Analysing data sources to identify the structures used and documenting the relationships between different data structures.<br>5. Creating and documenting data structures.<br>6. Identifying data that are subject to additional restrictions including personal data, financial data and for sharing data between different departments and teams.<br>7. Extracting metadata from databases and modelling tools.<br>8. Creating data dictionaries to define structure and contents of data sets (including different databases, applications, or warehouse).<br>9. Extracting data securely and store data in line with organisational requirements. | 1. The internal and external data sources that can be utilised including open data such as government data, sector specific data, geospatial data, or microdata, such as business and household surveys.<br>2. Industry standard data structures, fields, naming and data types.<br>3. The ways data architecture defines organisational data models, tools, standards, data structures and data naming conventions.<br>4. How to read and review data model diagrams.<br>5. The differences between conceptual, logical, physical data models.<br>6. The different characteristics of data generation and implications of these including batch, micro-batch and streaming.<br>7. How to access and extract data from a range of data sources, including spreadsheets, documents, surveys, databases, file structures and data warehouses.<br>8. The differences between structured, semi-structured and unstructured data sets and how to work with these<br>9. How to work with real-time data sources. |

| Performance requirements (continued) | Knowledge and understanding (continued) |
|---|---|
| 10. Writing software to perform basic data processing including extracting and ingesting data into the data analysis environment.<br>11. Identifying opportunities to automate regular data access and management tasks. | 10. The use of data tools using application interfaces (API) to allow external repositories to extract data and files.<br>11. That reference data, their values and definitions need to be managed for completeness and currency.<br>12. The risks associated with data access and the concept of minimum required access.<br>13. How security and accessibility requirements may differ depending on where and how data is stored. |

## Additional information about the unit

### Assessment (evidence) requirements:

There should be a mix of **product**, **performance** and **knowledge** evidence for this unit.

The evidence should be produced as a by-product of normal work activities. The evidence should relate to the learner's work role. For example, the evidence relating to the learner's ability to access data sources should relate to data sources relevant to the learner's job.

Examples of product evidence include data dictionaries and source code. An example of performance evidence is observation of the learner resolving security and data protection issues related to data access. An example of knowledge evidence is written evidence that the learner understands the differences between structured, semi-structured and unstructured data sets.

Most evidence should be sourced from routine work activities. However, simulation is permissible when it is not possible to produce all the required evidence in this manner. For example, this may be necessary when the source data is confidential or high value.

Further guidance on the assessment (evidence) requirements for this unit, and other units, can be found in the Assessment Guidance document.

### Guidance on instruments of assessment:

It is anticipated that most evidence will be generated as a by-product of routine workplace activities carried out as part of the learner's job role. However, there may be occasions when specific activities have to be undertaken to satisfy specific performance requirements or demonstrate specific knowledge and understanding. For example, identifying opportunities to automate regular data access and management tasks may not be routinely undertaken in a specific workplace.

In these circumstances, learners will be required to acquire the new knowledge and understanding, and apply this to a relevant work task. In exceptional circumstances, it is permissible for learners to undertake a simulated task using an artificial dataset to produce the required product or performance evidence.

It may be possible for one type of evidence to imply another. For example, the act of accessing data sources securely using approved tools and processes (performance evidence) may provide evidence of the learner's understanding (knowledge evidence) of how to access and extract data from a range of data sources. Combining assessment (evidence) in this way is encouraged. However, it is vital that each piece of evidence is clearly related to performance requirements and knowledge and understanding.

Professional recorded discussion and/or personal reflective statements can be used to demonstrate knowledge and understanding.

## Additional information about the unit (continued)

### Details of the relationship between the unit and relevant National Occupational Standards (if appropriate):

This unit is related to the following National Occupational Standards:

ESKITP801301: Assist in Delivering the Data Management Infrastructure to Support Data Analysis and Reporting.

ESKITP801401: Deliver Data Management Infrastructure Projects to Support Data Analysis and Reporting.

ESKITP802301: Assist in Delivering Routine Data Analysis Studies.

ESKITP802401: Design and Implement Data Analysis Studies.

https://www.ukstandards.org.uk/

### Details of the relationship between the unit and other standards or curricula (if appropriate):

### Assessment requirements specified by a sector or regulatory body (if appropriate):

Please refer to the Overarching Assessment Strategy for Competence-based Qualification and the associated sector-specific guidance relating to Digital Technology (Diploma in Digital Technology at SCQF Level 8) produced by SQA Accreditation (2022).

### Meta-skills signposting:

This unit aligns to the following meta-skills:

- Critical thinking
- Curiosity
- Focusing
- Integrity
- Sense making