# Next Generation Higher National Unit Specification

## Data Flow (SCQF level 8)

**Unit code:** J6CE 48

**SCQF level:** 8 (16 SCQF credit points)

**Valid from:** session 2023–24

## Prototype unit specification for use in pilot delivery only (version 1.0) June 2023

This unit specification provides detailed information about the unit to ensure consistent and transparent assessment year on year.

This unit specification is for teachers and lecturers and contains all the mandatory information required to deliver and assess the unit.

This edition: June 2023 (version 1.0)

# Unit purpose

This specialist unit expands learners' knowledge, understanding and application of mapping and modelling data flows in a business environment. It is particularly suitable for those who are studying a Higher National Qualification in data science or computing.

Learners should have appropriate communication, numeracy and digital literacy skills before starting this unit. Although no previous knowledge or experience of data flow is required, we recommend they have completed the Data Flow unit at SCQF level 7.

The unit covers the concepts of data flow analysis, and the application, value and usage of data flow analysis within businesses. Learners understand how data flow analysis is conducted using a recognised data flow methodology. In addition, they cover the importance of following a recognised methodology and the benefits to a business of using such a methodology in practice.

# Unit outcomes

Learners who complete this unit can:

1   interpret a data flow that has been mapped, using a recognised methodology
2   provide feedback and recommendations on a provided data flow diagram
3   create a data flow diagram using source information provided
4   present a business case for undertaking a data flow analysis exercise

## Evidence requirements

Learners must provide product evidence.

The evidence must include:

♦   analysis of a data flow diagram within a business context
♦   feedback on a data flow diagram, defining at least two of the following:
    —   risk (financial or cyber security)
    —   weakness (operational, cyber security or resources)
    —   dependency on certain business assets
    —   optimisation of infrastructure or hardware
    —   suggested business resilience improvements
    —   suggested cost savings
♦   creation of a data flow diagram
♦   the business case for undertaking data flow analysis within a business

Learners must provide a minimum of **one** example of each of the evidence requirements. They must produce this evidence without assistance, but you should provide them with case study material, including data flow diagrams and business case scenarios.

The evidence must collectively demonstrate that learners:

♦   can interpret a data flow diagram
♦   know how to build a data flow diagram in line with a recognised methodology
♦   understand how data flow methodologies can benefit a business
♦   can present the benefits of understanding data flows
♦   understand the positive impact of incorporating a data flow methodology on at least one key business challenge (such as cyber security or regulatory compliance)
♦   know how to attribute cost or time values to a data flow
♦   can present findings of data flow analysis within a business context
♦   can communicate the results of data flow analysis confidently to non-technical colleagues

Learners can produce evidence over an extended period, under lightly controlled conditions, including access to reference materials. Authentication is required. Evidence could be in the form of a portfolio, built as the unit progresses, based on a case study or real-life business scenario. This can also include an oral presentation.

The standard of evidence should be consistent with the SCQF level of this unit.

You should use appropriate level descriptors when making judgements about the evidence.

# Knowledge and skills

The following table shows the knowledge and skills covered by the unit outcomes:

| Knowledge | Skills |
|---|---|
| Learners should understand:<br><br>♦ the appropriate use of dependencies and their implications to the flow of data<br>♦ the appropriate use of connections and their implications to the flow of data<br>♦ the appropriate use of spatial relationships and their implications to data flow impact analysis<br>♦ the appropriate use of redundancies and how they can be used to depict business resilience<br>♦ how to place business assets on an organisation and system diagram<br>♦ how business assets are positioned in a data flow diagram<br>♦ the rules associated with positioning of assets relative to other assets on an organisation and systems diagram<br>♦ the rules associated with positioning of assets relative to other assets on a data flow diagram<br>♦ how to place relationships between business assets in an organisation and system diagram<br>♦ the benefits to an organisation of data flow analysis in relation to:<br> — cyber security<br> — business process management<br> — digital transformation<br> — regulatory compliance<br> — technology risk management | Learners can:<br><br>♦ interpret a data flow diagram<br>♦ contextualise and define data flows<br>♦ describe the interconnectivity between business assets in a data flow context<br>♦ describe the dependencies between business assets in a data flow context<br>♦ create an accurate organisations and systems diagram with all relationships and dependencies depicted<br>♦ create an accurate data flow diagram illustrating a specific flow of data in an organisation<br>♦ depict interconnectivity and dependencies between business assets in a data flow context<br>♦ list the business benefits of undertaking data flow analysis in relation to specific business functions and operations<br>♦ present concise arguments supporting the benefits of undertaking data flow analysis within an organisation<br>♦ describe the value to a business of undertaking a data flow analysis |

# Meta-skills

Throughout the unit, learners develop meta-skills to enhance their employability in the data science sector.

### Self-management

Learners convert raw information into easily understood and communicated data flow diagrams. This requires them to filter and sort information in a logical manner and select relevant data from a larger data pool.

### Social intelligence

Learners analyse a business case, and define business objectives and challenges. They use this analysis to present the gathered information in an audience friendly format, which engages stakeholders and proposes solutions to complex business problems.

### Innovation

Learners detect themes and patterns in information gathered regarding business resources and assets. They are required to put these into a holistic business context allowing analysis, while providing the opportunity to detect potential risk.

Learners deconstruct scenario information and come to logical conclusions regarding potential fail points within a business. They are required to provide their judgement and advice on key areas in need of improvement.

# Literacies

Throughout this unit, learners have opportunities to develop their literacy skills.

### Numeracy

Numeracy is developed through assigning time and cost values to data flows.

### Communication

Communication is developed through the requirement to present gathered information in an audience friendly format and propose solutions to complex business problems.

### Digital

Digital skills are developed through opportunities for learners to broaden their digital skills by incorporating the concept of data flow and its importance and benefits to modern organisations.

# Delivery of unit

While the exact time allocated to this unit is at your centre's discretion, the notional design length is 80 hours.

We suggest the following distribution of time:

**Outcome 1** — Interpret a data flow that has been mapped, using a recognised methodology (25 hours)

**Outcome 2** — Provide feedback and recommendations on a provided data flow diagram (20 hours)

**Outcome 3** — Create a data flow diagram using source information provided (25 hours)

**Outcome 4** — Present a business case for undertaking a data flow analysis exercise (10 hours)

# Additional guidance

The guidance in this section is not mandatory.

You can tailor the unit content to specific learner contexts. As a minimum, we strongly recommend that you provide an overview of the importance of data flow to organisations in relation to:

♦ cyber security
♦ digital transformation
♦ regulatory compliance
♦ technology risk management
♦ business process management

The depth of content can vary dependent on the course cohort or specialism studied. For example, in a cyber security context, you could cover data flow analysis in more depth and highlight areas where data could potentially be at risk or accessed by unauthorised individuals. In a network and infrastructure engineering context, potential points of failure could be identified and analysed, and secure models simulated. In a business context, reliance on individuals or process bottlenecks could be pinpointed and potential solutions presented.

In all contexts, you should emphasise the benefit of using a recognised methodology to calculate the values associated with data flows. It is important that learners appreciate the value of data flow for decision making and business improvement.

One methodology that you can use to demonstrate this is Dataflow by OBASHI, although others such as Yourdon/Demarco or Structured Systems Analysis and Design Method (SSADM) may be suitable.

In comparison to the Data Flow unit at SCQF level 7, the focus of this level 8 unit is depth rather than breadth. We expect learners to use their developed skills and knowledge to conduct analysis and model data flows. If you teach the unit using Dataflow by OBASHI as the methodology, you can use the OBASHI Platform for support. This gives learners the opportunity to build and analyse data flow diagrams and introduces a practical element to the unit.

## Approaches to assessment

One approach to assessment is for learners to maintain a portfolio of digital artefacts throughout the life of the unit. This portfolio could contain:

♦ analysis of data flow diagrams

♦ data flow diagrams created by the learner

♦ presentation(s)

♦ reports relating to business case scenarios


Learners can produce their portfolios over the life of the unit, adding their best work as and when they produce it. They can do this under lightly controlled conditions, in which case authentication is required.

# Equality and inclusion

This unit is designed to be as fair and as accessible as possible with no unnecessary barriers to learning or assessment.

You should take into account the needs of individual learners when planning learning experiences, selecting assessment methods or considering alternative evidence.

Guidance on assessment arrangements for disabled learners and/or those with additional support needs is available on the assessment arrangements web page.

# Information for learners

## Data Flow (SCQF level 8)

This section explains:

♦ what the unit is about

♦ what you should know or be able to do before you start

♦ what you need to do during the unit

♦ opportunities for further learning and employment


## Unit information

This unit follows on from the Data Flow unit at SCQF level 7 and is for learners who wish to build on their knowledge and understanding of data flows. It provides you with the opportunity to analyse business scenarios from a data flow perspective and build data flow diagrams. The unit combines practical and theoretical activities and you can apply the knowledge and skills you gain in the workplace. It also provides you with a critical understanding to today's increasingly valuable data flows.

You have the opportunity to use a cutting-edge enterprise platform that supports the mapping and modelling of data flows. You can demonstrate evidence of your progression through the unit on the platform, and you create and analyse your own data flow diagrams either from case studies or business scenarios. Finally, you present your findings and analyses as part of your assessment.

Throughout this unit, you develop meta-skills in self management, social intelligence and innovation, including focusing, communicating, sense-making and critical thinking skills.

# Administrative information

**Published:** June 2023 (version 1.0)

**Superclass:** RB

## History of changes

| Version | Description of change | Date |
|---|---|---|
|  |  |  |
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Note: please check [SQA's website](#) to ensure you are using the most up-to-date version of this document.

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