

BCS PRACTITIONER AWARD IN DATA ARCHITECTURE

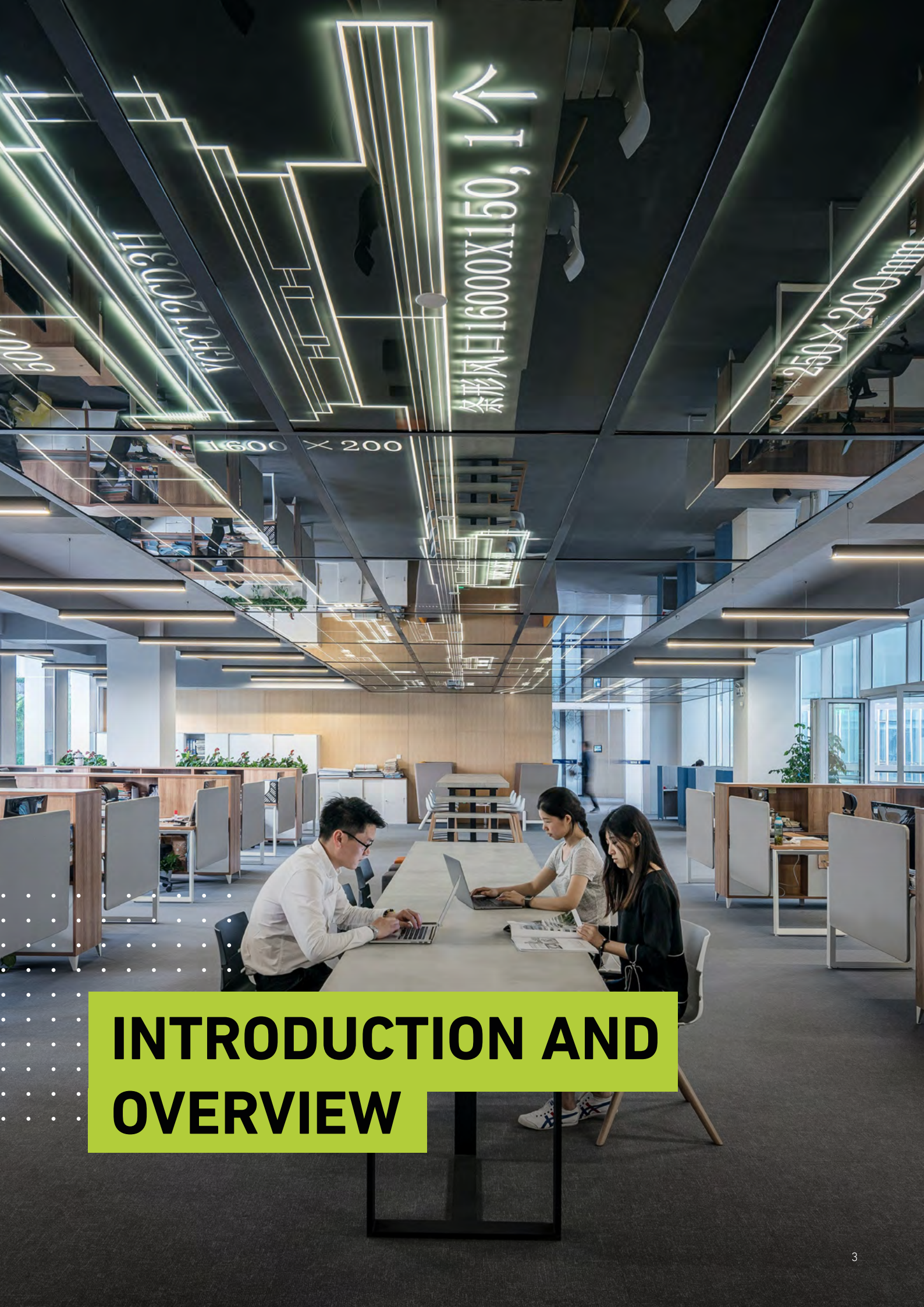
SYLLABUS

This professional certification is not regulated by the following United Kingdom Regulators - Ofqual, Qualifications Wales, CCEA or SQA.



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INTRODUCTION AND OVERVIEW

INTRODUCTION

What is the role of data architecture?
How does data architecture sit within the domains? Data architecture is a sub domain within enterprise architecture which focuses on how data, metadata and information is used within the enterprise.

The Practitioner Award in Data Architecture will give candidates an in-depth understanding of the role of Data Architecture, including the activities undertaken by data architects. It will also explore how the role of Data Architecture fits in with the other architecture domains.

LEARNING OUTCOMES

Upon the completion of this award, candidates will be able to demonstrate a practical understanding of:

- The role of data architecture.
- The relationship of data architecture to other disciplines
- The activities undertaken by data architects.
- The data requirements, data maturity and how data is used.
- How data and artefacts are governed.



QUALIFICATION SUITABILITY AND OVERVIEW

Centres must ensure that learners have the potential and opportunity to gain the qualification successfully. Candidates will need to have passed the BCS Foundation Certificate in Architecture Concepts and Domains and have a good standard of written English and Maths.

This qualification is suitable for candidates who are looking to progress their career within a data role. It can be taken in combination with other Practitioner Awards and the Practitioner Certificate in Enterprise and Solution Architecture.

This is an occupationally focused qualification which will:

- test a learner's ability to recall and apply knowledge in a range of scenarios.
- demonstrate a practical understanding of key concepts across the topic areas.
- enable a learner to progress in their career.

Candidates can study for this award by attending a training course provided by a BCS accredited Training Provider or through self-study.

TOTAL QUALIFICATION TIME	GUIDED LEARNING HOURS	INDEPENDENT LEARNING	ASSESSMENT TIME
17 hours	15 hours	2 hours	30 minutes



TRAINER CRITERIA



It is recommended that to deliver this award effectively, trainers should possess:

- The BCS Practitioner Award in Data Architecture.
- A minimum of 2 years' training experience or 1 year with a recognised qualification.
- A minimum of 3 years' practical experience in the area of IT architecture.

SFIA LEVELS

This award provides candidates with the level of knowledge highlighted within the table, enabling them to develop the skills to operate successfully at the levels of responsibility indicated.

LEVEL	LEVELS OF KNOWLEDGE	LEVELS OF SKILLS AND RESPONSIBILITY (SFIA)
K7		Set strategy, inspire and mobilise
K6	Evaluate	Initiate and influence
K5	Synthesise	Ensure and advise
K4	Analyse	Enable
K3	Apply	Apply
K2	Understand	Assist
K1	Remember	Follow

This syllabus has been linked to the SFIA knowledge skills and behaviours required at level 4 for an individual working in data architecture. For further information regarding the SFIA Levels please visit: <https://www.bcs.org/it-careers/sfiaplus-it-skills-framework/>

SFIAPLUS

This syllabus has been linked to the SFIA knowledge, skills and behaviours required at level 4 for an individual working in the following subject areas.

KSB19

Understanding the needs, objectives and constraints of those in other disciplines and functions.

KSB22

Establishing relationships, contributing to an open culture and maintaining contacts with people from a variety of backgrounds and disciplines. Effective, approachable and sensitive communicator in different communities and cultures. Ability to adapt style and approach to meet the needs of different audiences.

KSCA3

Methods, techniques and technologies for ingesting, securing, processing and using data and information within and beyond an organisation.

KSB24

Working collaboratively with others to achieve a common goal.

KSB01

Acquiring a proper understanding of a problem or situation by breaking it down systematically into its component parts and identifying the relationships between these parts. Selecting the appropriate method/tool to resolve the problem and reflecting critically on the result, so that what is learnt is identified and assimilated.



SYLLABUS

1. THE ROLE OF DATA ARCHITECTURE (8%) K2

1.1 Explain the role of data architecture.

Indicative content

- a. Responsibilities of data architecture:
- Communicate between the technical and non-technical.
 - Model and own the data landscape.
 - Analyse and synthesise data.
 - Manage metadata
 - Understand and adhere to relevant data governance.

Guidance

The candidate should be able to define the role of data architecture and the relationship between data and business. They should be able to understand that data is a representation of information that can be converted to information via interpretation. Information has meaning within a context and is unstructured, whereas metadata is an intermediate category that can be defined as 'data about data'.

2. DATA ARCHITECTURE IN RELATION TO OTHER DOMAINS (16%) K4

2.1 Analyse how architectural frameworks are used in different architecture domains.

Indicative content

- a. TOGAF (The Open Group Architecture Framework).
- b. Zachman (The Zachman Framework).
- c. DAMA (DMBOK2).

Guidance

The candidate should be able to explain and analyse the use of the different frameworks and how they are applied in different contexts. This includes differentiating between general, and data-specific frameworks.

2.2 Describe key artefacts used by data architects.

Indicative content

- a. Artefacts:
 - Data lifecycle model.
 - Data catalogue.
 - Data integration reference model.
 - Data lineage model

Guidance

The candidate should be able to describe key artefacts used within data architecture. This includes explaining the purpose of each artefact and how they are used across the organisation to contribute towards strategic objectives.



3. THE ACTIVITIES UNDERTAKEN BY DATA ARCHITECTS. (34%) K4

3.1 Analyse data architecture responsibilities and artefacts in specific contexts.

Indicative content

- a. Responsibilities of data architecture (1.1).
- b. Artefacts in data architecture (2.2).

Guidance

The candidate should be able to interpret the activities undertaken in data architecture and connect them to specific responsibilities and artefacts (introduced in 1.1 and 2.2). This includes analysing specific scenarios and applying appropriate responsibilities and artefacts.

3.2 Analyse how high-level and low-level designs are used in business.

Indicative content

- a. Use and purpose of high-level designs.
- b. Use and purpose of low-level designs.

Guidance

The candidate should be able to identify distinctions between the two different designs. High-level designs capture the fundamental elements and relationships between data and systems, whereas low-level designs focus on the specific details which may involve developers, data administrators, systems analysts, and security professionals.

3.3 Analyse how different levels of abstraction are used in different scenarios.

Indicative content

- a. Conceptual.
- b. Logical.
- c. Physical.
- d. View or external.

Guidance

The candidate should be able to analyse the different levels of abstraction required in specific scenarios. This includes explaining the differences between the different levels of abstraction, their purpose, and when they should be used.

3.4 Analyse the use of data models in specific contexts.

Indicative content

- a. Process mapping.
- b. Data flow diagrams.
- c. Entity relationship diagrams.
- d. Data lifecycle model.
- e. Data catalogue/dictionary.

Guidance

The candidate should be able to analyse data models used in data architecture. This includes identifying and applying appropriate models to specific scenarios.



4. REQUIREMENTS, MATURITY, AND USE (34%) K4

4.1 Analyse how data architecture interacts with stakeholders.

Indicative content

- a. Senior stakeholders.
- b. Business stakeholders.
- c. Technical stakeholders.
- d. Subject matter experts.

Guidance

The candidate should be able to explain the roles and responsibilities of other stakeholders that interact with data architecture. This includes analysing specific scenarios to identify individual responsibilities and decision makers.

4.2 Analyse how the data maturity of an organisation is recorded.

Indicative content

- a. DAMA model.
- b. Capability Maturity Model Integration (CMMI).
- c. Data glossary .
- d. Data dictionary.
- e. Data repository.

Guidance

The candidate should consider the role that data management plays in data architecture. They should be able to identify and examine the different levels of data maturity according to models such as DAMA (levels 0 – 5) and the CMMI (Initial, Managed, Defined, Quantitatively Managed, Optimising). They should consider how and when these models should be used, their purpose and objectives. The candidate should also be able to examine what would indicate different levels of data maturity e.g. a data glossary, data dictionary or a data repository.

4.3 Analyse how data is stored in an organisation.

Indicative content

- a. Databases (types and methods).
- b. Confidentiality, integrity, and availability.
- c. Security (encryption, backups).

Guidance

The candidate should be able to recognise and use various databases including: relational, hierarchical, network, object-oriented, multi-dimensional (data cubes and hypercubes), and NoSQL. They should be able to examine how data can be stored securely in an organisation with reference to confidentiality, integrity, and availability.

4.4 Analyse how data is used in an organisation.

Indicative content

- a. Transactional and operational.
- b. Management information.
- c. Data Science Modelling.

Guidance

The candidate should understand how data is used in an organisation. This includes how data influences different elements of a business. The candidate should also be able to analyse different types of data use in specific scenarios.

5. GOVERNANCE (8%) K4

5.1 Analyse how effectively data is being governed in accordance with key principles, policies and standards.

Indicative content

- a. UK GDPR and data protection.
- b. Data residency legislation.
- c. Compliance (internal/external).
- d. ISO standards.
- e. Bodies of governance.

Guidance

The candidate should be able to effectively examine how data is being governed against key principles, policies and standards. They should be aware of UK legislation but also have an awareness of international differences e.g. consider whether the cloud is UK based or international and any legalities.

EXAMINATION FORMAT

This award is assessed by completing an invigilated online exam that candidates will only be able to access at the date and time they are registered to attend.

Adjustments and/or additional time can be requested in line with the [BCS reasonable adjustments policy](#) for candidates with a disability or other special considerations, including English as a second language.

TYPE

20 MULTIPLE CHOICE AND
MULTIPLE RESPONSE
QUESTIONS

DURATION

30 MINUTES

SUPERVISED

YES
THIS AWARD WILL BE
SUPERVISED

OPEN BOOK

NO
(NO MATERIALS CAN
BE TAKEN INTO THE
EXAMINATION ROOM)

PASSMARK

(65%)
13/20

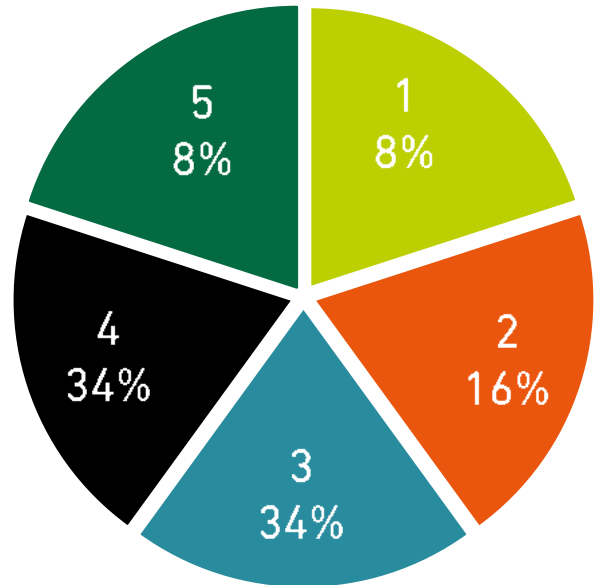
DELIVERY

DIGITAL

QUESTION WEIGHTING

Each primary subject heading in this syllabus is assigned a percentage weighting. The purpose of this is:

- Guidance on the proportion of content allocated to each topic area of an accredited course.
- Guidance on the proportion of questions in the exam.



Syllabus Area

- 1** The Role of Data Architecture
- 2** Data Architecture in Relation to other Domains
- 3** Activities undertaken by Data Architects
- 4** Requirements, Maturity, and Use.
- 5** Governance

Question Type



RECOMMENDED READING

The following titles are suggested reading for anyone undertaking this award. Candidates should be encouraged to explore other available sources.

TITLE: Solution Architecture Foundations

AUTHOR: Mark Lovatt

PUBLISHER: BCS

PUBLICATION DATE: 2021

ISBN: 978-1-78017-5676

TITLE: Data Governance

AUTHOR: Alison Holt (editor)

PUBLISHER: BCS

PUBLICATION DATE: 2021

ISBN: 978-1-78017-3757

TITLE: Managing Quality Data

AUTHOR: Tim King and Julian Schwarzenbach

PUBLISHER: BCS

PUBLICATION DATE: 2020

ISBN: 978-1-78017-4594



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DOCUMENT CHANGE HISTORY

Any changes made to the syllabus shall be clearly documented with a change history log. This shall include the latest version number, date of the amendment and changes made. The purpose is to identify quickly what changes have been made.

VERSION NUMBER	CHANGES MADE
Version 1.0	Document created.

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