

How AI Can Support Your Organisation

BCS Foundation Award

The background of the slide features a stylized illustration of a human head in profile, facing right. Inside the head, a large, glowing blue circle contains the letters 'AI' in white. A network of thin, light blue lines connects various points across the head and extends outwards. Several of these connection points are marked with small, square icons containing a white silhouette of a person. The overall color scheme is a mix of teal, blue, and white, with a subtle gradient.

AI

CONTENTS

- 3. Introduction
- 4. Qualification Suitability and Overview
- 4. Trainer Criteria
- 5. SFIA Levels
- 5. Learning Outcomes
- 6. Syllabus
- 16. Examination Format
- 17. Recommended Reading List
- 17. Using BCS Books

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
----------------	--------------

V1.0	Document Creation
------	-------------------



Introduction

This award is designed for those wishing to gain an understanding of how artificial intelligence (AI) can play a role shaping the future of their organisation.

Candidates will explore the evolution of AI from its inception to present day, and identify potential future AI opportunities which exist to drive organisational strategy at all levels. It will consider how AI can make improvements to processes, products and services, enabling an organisation to gain a competitive edge within the market, and the benefits and potential implications it has for the human workforce.



Qualification Suitability and Overview

There are no specific entry requirements for this award. However, some professional experience in a business or IT environment may be advantageous.

The award is suitable for any individual wishing to understand the opportunities presented by AI, and how these can benefit an organisation.

This award has been created alongside a selection of other awards available from BCS which offer candidates a clear pathway of progression into other disciplines of IT. This makes it ideally suited for those looking for a change in career, an upskilling workforce, and sustainable employers.

This award represents 5 credits that can count towards the credits required for a BCS Foundation Certificate or Diploma in a relevant discipline.

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 Qualification Time	Credits
50 hours	16 hours	33.5 hours	0.5 hours	5

*Examples of Independent Learning include reading of articles or books, watching videos, attendance of other types of training or work shadowing.

Trainer Criteria

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

- BCS Foundation Certificate in Artificial Intelligence or a similar qualification.
- A minimum of 2 years' training experience or a recognised training qualification.

SFIA Levels

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

Level	Levels of Knowledge	Levels of Skill 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

SFIA Plus	KSC04
This syllabus has been linked to the SFIA knowledge skills and behaviours required at level 3 for an individual working in an analytical role.	Applying techniques which help investigating, analysing, modelling and recording a business area or system of interest. Example, but not limited to: business environment analysis.

Further detail around the SFIA Levels can be found at www.bcs.org/levels.

Learning Outcomes

Upon completion of the award, candidates will be able to demonstrate:

- 1. An understanding of the evolution of AI
- 2. An understanding of the shape and structure of organisations
- 3. An understanding of the role of AI in an organisation
- 4. An understanding of the art of the possible

Syllabus

1. The Evolution of AI (10%) (K1/2)

Candidates will be able to:

1.1 Outline a brief history of AI and how it has evolved over time..

Indicative content

- a. Bayes Theorem
- b. Ada Lovelace - algorithm and computer coding
- c. Alan Turing - breaking enigma
- d. Advent of machine learning and neural networks – Dartmouth College Summer Research Project on Artificial Intelligence and Project Mercury (Katherine Johnson, Dorothy Vaughan and Mary Jackson)
- e. Smart systems
- f. Neural networks
- g. Digital cloud computing

Guidance

The aim here is to set the scene with regards to where AI started and how it has got to where it is now – stressing the point that AI is not a new concept and that we are currently experiencing the next phase in the evolution of AI. It is equally important to realise that the future is unknown, and technology is evolving quickly so keeping skills up to date is imperative to success.

Candidates will be able to:

1.2 Describe the key features of the 3rd and 4th Industrial Revolution.

Indicative content

- a. Digital Transformation
- b. Cyber systems
- c. Sustainability
- d. Eco systems
- e. Internet
- f. Smart phones

Guidance

Introduce learners to the 3rd Industrial Revolution and the lessons we have learned from it e.g. pace of change, data privacy, concerns around ownership, file sharing etc. Introduce learners to the concept of the 4th Industrial Revolution (where we are now) and the main issues that relate to it e.g. automation, Digital Transformation of a business, the need for a business to sustain itself in a competitive market.

Syllabus

2. Shape and Structure of Organisations (20%) (K1/2)

Candidates will be able to:

2.1 Describe the different features of different organisational structures.

Indicative content

Legal status of organisation Types of organisation:

- a. For profit organisations
- b. Not for profit organisations
- c. Public organisations
- d. Charities
- e. Private Limited company
- f. Public Limited company
- g. Sole trader

Organisational structures:

- a. Flat
- b. Hierarchical
- c. Functional
- d. Divisional
- e. Matrix

Guidance

Introduce the different structures of organisations, exploring the defining features of each. Explore the different legal status/obligations of each, for example – taxation, reporting lines and shareholding. Linking the shape and structure of organisations to how or when they can utilise AI.

Candidates will be able to:

2.2 Explain the purpose of the mission, vision, values, and organisational strategies.

Indicative content

- a. Provides direction
- b. Purpose
- c. Guides behaviour
- d. Inspires
- e. Plan

Guidance

Consider how and why an organisation has a specified mission and vision. These help to define the purpose of the organisation and drive the daily operations, as well as influence the culture and enable future planning. Consider the risks of operating with a vague or unestablished mission, such as, conflicting values across teams.

Candidates will be able to:

2.3 Describe the factors that influence organisational culture.

Indicative content

- a. Top down culture
- b. Bottom up culture
- c. Organisation ethical culture (e.g. code of conduct, bias)
- d. Equality and diversity
- e. Agile
- f. Size
- g. Background
- h. Governance
- i. Stakeholders

Guidance

Introduce the concept of culture, exploring its meaning in an organisation. Consider the value and impact of a diverse workforce – the importance of variety and inclusion in decision making, ethics and growth plans and so on. Differing sectors and organisations have different responsibilities, for example – heavily regulated/not, individual, or multi-site – consider the implications of these factors on culture.

3. The role of AI in an organisation (30%) (K1/2)

Candidates will be able to:

3.1 Identify ways AI and learning from experience can improve the process of an organisation.

Indicative content

- a. Effectiveness
- b. Predictive analytics – intention marketing/ targeted marketing
- c. Expectation management
- d. Customer Experience (CX)
- e. User Experience (UX)
- f. Achieve strategic goals

Guidance

Discuss uses/potential uses of AI in an organisation, for example – being able to quickly identify patterns in customer buying habits or personalise an interaction with a customer. Compare this to the human equivalent of the same tasks, the processes are potentially more efficient, cost effective and consistent. Consider CX (the sum of a customer’s entire interaction with the organisation) and how this interaction could be altered using AI – for example, contacting a business – what if the first point of contact was not a person, but rather, an AI solution? Highlight the need to document any “lessons learned” throughout the implementation of any AI project, in order to draw from experience and continually improve the effectiveness of the solution..

Candidates will be able to:

3.2 Identify the use of AI to improve product.

Indicative content

- a. Smart products, i.e. smart phones, smart cities
- b. Drives demand
- c. Competitive
- d. Inclusivity

Guidance

Extend the previous discussion, focusing specifically on the use of AI to improve a product and the potential benefits of this. For example, a product/device that reacts to user input with a personalised response (e.g. online shopping websites) may provide a competitive edge over a similar service which does not have this ability, but ultimately provides the same end result for the user. The idea that AI products are not replacing current products and therefore are able to drive the demand for those products, such as an Amazon Echo. The use of AI in products has been said to drive inclusivity through the reduction of bias, for example in tools used to filter job applications, although there are counter arguments to this.

3. The role of AI in an organisation (30%) (K1/2)

Candidates will be able to:

3.3 Explain the need for humans and artificial intelligence to work together to deliver optimal results.

Indicative content

- a. Working together
- b. Complimenting
- c. Future
- d. Decision making
- e. Empathy
- f. Evolution of the workforce

Guidance

The aim here is to understand the ways in which humans and AI can collaborate to deliver a service. Although AI can be used to streamline processes and remove some repetitive or laborious tasks from humans, it simply cannot replace a human brain. Human emotion, empathy, communication, and rational decision making (based on changing or new circumstances) are all currently beyond the capabilities of AI technology. Explore the point that AI depends on human input – it only works with what we humans provide.

As the workforce and AI evolves, consider the need to embrace change.

4. Assessing the business environment (20%) (K1/2/3)

Candidates will be able to:

4.1 Apply external analysis tools for analysing position.

Indicative content

- a. PESTLE
- b. Porters 5 forces
- c. Competitor analysis
- d. Stakeholder mapping (Power Interest Matrix)

Guidance

Introduce the need to understand your position as a business, in relation to competitors and other external forces which may influence your business activities. Using the tools mentioned, discuss internal and external factors and the business need to exert control, react, or respond to.

Candidates will be able to:

4.2 Identify enabling factors for AI.

Indicative content

- a. Internet
- b. Network
- c. IT
- d. Training
- e. Data infrastructure

Guidance

Explore the tools and resources required to implement a successful AI solution. As well as the physical equipment required, be sure to explore the less visible elements, such as, reliable data. And do not neglect the human side – expertise, training, experience, knowledge, organisational buy-in etc.

4. Assessing the business environment (20%) (K1/2/3)

Candidates will be able to:

4.3 Apply internal analysis tools for analysing current position.

Indicative content

- a. SWOT
- b. Balanced Score Card
- c. GAP analysis
- d. Capability assessment
- e. NASA Technology Readiness Levels

Guidance

Introduce the need to understand the actual performance of the organisation, against the established objectives – what is the current reality of the organisation's capabilities and what is required to progress? In doing so, one can identify (and address) any existing strengths or underperformance, and/or to redefine objectives if required. Also, opportunities (for change, progress, new ways of working, aligning with competitors) are also identified through these methods.

5. The art of the possible (20%) (K1/2)

Candidates will be able to:

5.1 Explain methods to propose new ideas and concepts to the decision makers in an organisation.

Indicative content

- a. Funding – if required
- b. Business Case
- c. Business Sponsor
- d. AI champions
- e. Timescales

Guidance

When considering an AI project – as with any new project or way of working – there is a need to create and present a business case. Candidates should be aware of the key information that they can expect to gather/prepare to present to the relevant parties. This can be linked back to the different business structures, and their different processes and ways of working.

Candidates will be able to:

5.2 Identify components of a creative thinking environment.

Indicative content

- a. Fail fast
- b. Safety culture
- c. Early adopters
- d. Change management

Guidance

Introduce the concept of a creating thinking environment – an environment in which innovation is encouraged and ideas are openly explored. Explore the agile approach to this way of working – ideas are floated, tried, tested, and adapted quickly (fail fast). Link back to previous discussions (LO 2.1,2.2) and consider how this approach may be more successful or may be more apparent in some organisations than others.

Syllabus

5. The art of the possible (20%) (K1/2)

Candidates will be able to:

5.3 Describe what is meant by user centred design.

Indicative content

- a. Ethics
- b. Human centric
- c. Inclusivity

Guidance

Consider the term “user centred design” – the focus throughout design being primarily on the experience of the end user. For example, inclusivity can be driven through user centric design, as factors such as disabilities or language (differences?) can be considered as part of the original design, rather than a later adaptation or the exclusion of any particular group of users.

Candidates will be able to:

5.4 Explain the value of iterative and incremental design.

Indicative content

- a. Learning from experience
- b. Prototyping
- c. Continuous improvement
- d. Minimal viable product
- e. Agile development

Guidance

Linking back to earlier discussions, explore the need for different approaches to design/development. An iterative (agile) approach may provide the opportunity to learn and adapt quickly, but arguments exist for the lack of depth involved in this approach. Explain the need to establish an MVP – what is the minimum that is considered acceptable/functions as required, which can then be built upon.

Examination Format

This award is assessed through completion of an invigilated online exam which candidates will only be able to access at the date and time they are registered to attend.

Type	18 Multiple Choice questions, 1 Scenario Based Question
Duration	30 minutes
Supervised	Yes
Open Book	No (no materials can be taken into the examination room)
Passmark	13/20 (65%)
Delivery	Digital format only.

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.

Question Weighting

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

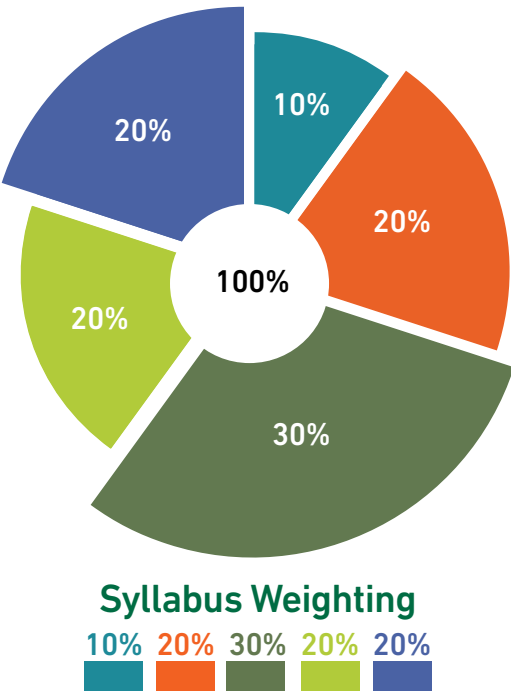
1. Guidance on the proportion of content allocated to each topic area of an accredited course.
2. Guidance on the proportion of questions in the exam.

Syllabus Area

- 1.** Evolution of AI
- 2.** Shape and structure of organisations
- 3.** The role of AI in an organisation
- 4.** Assessing the business requirements
- 5.** The art of the possible

Question type

- Multiple Choice **10%**
- Multiple Choice **20%**
- Scenario Based Multiple Choice **30%**
- Multiple Choice **20%**
- Multiple Choice **20%**



Recommended Reading

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

Title:	Cognitive Edge: Making Sense of Complexity
Author:	David Snowden
Publisher:	Butterworth-Heinemann Ltd
Publication Date:	November 2005
ISBN:	978-0750666428

Using BCS Books

Accredited Training Organisations may include excerpts from BCS books in the course materials. If you wish to use excerpts from the books you will need a license from BCS. To request a license, please contact the Head of Publishing at BCS outlining the material you wish to copy and the use to which it will be put.



CONTACT

For any queries relating to this document or the delivery of this award, please contact;

T: 01793 417445

E: bcssales@bcs.uk

If you have any queries relating to the online assessments, please contact;
Service Delivery - eprofessional@bcs.uk

For further information please contact:

BCS

The Chartered Institute for IT
3 Newbridge Square
Swindon
SN1 1BY

T +44 (0)1793 417 445

www.bcs.org

© 2020 Reserved. BCS, The Chartered Institute for IT

All rights reserved. No part of this material protected by this copyright may be reproduced or utilised in any form, or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system without prior authorisation and credit to BCS, The Chartered Institute for IT.

Although BCS, The Chartered Institute for IT has used reasonable endeavours in compiling the document it does not guarantee nor shall it be responsible for reliance upon the contents of the document and shall not be liable for any false, inaccurate or incomplete information. Any reliance placed upon the contents by the reader is at the reader's sole risk and BCS, The Chartered Institute for IT shall not be liable for any consequences of such reliance.

