

MSc Artificial Intelligence and Data Science

Capstone Project Proposal

Project Title		
Apprentice Title	Apprentice First Name	Apprentice Last Name
Mr	Dylan	Viswambaran
Employer Name	Mentor/Line Manager Name	Mentor/Line Manager Email
Bank of England	Paul Boyle	Paul.Boyle@bankofengland.co.uk
Academic Supervisor Name		
TBC		

i You can make suitable adjustments to this template as required. The information in the blue boxes is here to help you understand what should be included in each section.

1. Project Background and Rationale

i Describe how this project came about, who is involved, the purpose of the project, and the expected benefits (value to the organisation).

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2. Project Scope

i Project scope defines the boundaries of a project. Think of the scope as an imaginary box that will enclose all the project elements/activities. It not only defines what you are doing (what goes into the project), but it sets limits for what will not be done as part of the project (what doesn't fit in the project). Scope answers questions including what will be done, what won't be done, and what the result will look like.

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Refer to the competencies you will demonstrate in this project (in section 5).

3. Aim(s) and Objectives



Describe the overall aim of your project and the supporting objectives that support the development. For example, your aim might be:

- *To develop a system that facilitates the information sharing between the marketing team and operations teams*

With the following objectives:

- *To identify the requirements of the marketing team and operations teams*
- *To identify the appropriate system development methods and techniques that can be used for the project*
- *To develop a system based on the agreed requirements and development methods*
- *To implement and evaluate the developed system*

4. Deliverable(s) and Success Criteria



Describe your project deliverables and how they can be measured and considered achieved and successful. For example, the deliverables can be:

- *Systems requirements documentation*
- *A new system that meets the user requirements*

The success criteria could be:

- *Ability to allow both internal and external users to access the application without downloading any software*
- *Ability to interface with the existing data warehouse application*
- *Ability to incorporate automated routing and notifications based on existing business rules*

5. Competencies to be Demonstrated



The tables list the core and specialist competencies to be demonstrated via the project. In the 'how will it be met?' cells, please describe how the apprentice will meet each requirement through the proposed project.

Core competencies (applicable for all specialisms)	How will it be met?
K1 How to use AI and machine learning methodologies such as data-mining, supervised/unsupervised machine learning, natural language processing, machine vision to meet business objectives	
K3 How to apply advanced statistical and mathematical methods to commercial projects	
K5 How to design and deploy effective techniques of data analysis and research to meet the needs of the business and customers	
K6 How data products can be delivered to engage the customer, organise information or solve a business problem using a range of methodologies, including iterative and incremental development and project management approaches	
K13 How to identify the compromises and trade-offs which must be made when translating theory into practice in the workplace	
K14 The business value of a data product that can deliver the solution in line with business needs, quality standards and timescales	
K23 The use of different performance and accuracy metrics for model validation in AI projects	
K26 The scientific method and its application in research and business contexts, including experiment design and hypothesis testing	
K28 How to communicate concepts and present in a manner appropriate to diverse	

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audiences, adapting communication techniques accordingly	
S2 Independently analyse test data, interpret results and evaluate the suitability of proposed solutions, considering current and future business requirements	
S3 Critically evaluate arguments, assumptions, abstract concepts and data (that may be incomplete), to make recommendations and to enable a business solution or range of solutions to be achieved	
S4 Communicate concepts and present in a manner appropriate to diverse audiences, adapting communication techniques accordingly	
S5 Manage expectations and present user research insight, proposed solutions and/or test findings to clients and stakeholders.	
S7 Work autonomously and interact effectively within wide, multidisciplinary teams	
S9 Manipulate, analyse and visualise complex datasets	
S10 Select datasets and methodologies most appropriate to the business problem	
S11 Apply aspects of advanced maths and statistics relevant to AI and data science that deliver business outcomes	
S15 Identify, develop, build and maintain the services and platforms that deliver AI and data science	
S17 Consistently implement data curation and data quality controls	
S18 Develop tools that visualise data systems and structures for monitoring and performance	
S22 Apply scientific methods in a systematic process through experimental design,	

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exploratory data analysis and hypothesis testing to facilitate business decision making	
S24 Apply research methodology and project management techniques appropriate to the organisation and products	
S25 Select and use programming languages and tools, and follow appropriate software development practices	
S27 Analyse information, frame questions and conduct discussions with subject matter experts and assess existing data to scope new AI and data science requirements	
B2 Reliable, objective and capable of independent and team working	
B6 Is comfortable and confident interacting with people from technical and non-technical backgrounds. Presents data and conclusions in a truthful and appropriate manner	

6. Conclusion



Define the expected benefits achieved from using the project, the expected challenges faced during the life cycle of the project and the expected theoretical and empirical contribution.

7. Software Application Requirements



Identify the software applications and tools to be utilised in the project, e.g. R Studio, SQL, Java, JavaScript, Python, Excel, PowerPoint, Word, Power BI, Tableau, QlikView, Qlik Sense, etc.

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Python, RStudio

8. Project Plan/Schedule



Describe what the high-level timeline/schedule will be to plan, design, develop and deploy the project. Generally, by when do you expect this project to be finished? When should the key milestones be achieved? You can consider using a Gantt Chart.

Apprentice Agreement

Name	Position/Role in the organisation	Signature (e-signature or scanned wet signature accepted. Typed signature NOT accepted)	Date
Dylan Viswambaran	Data Scientist		07/07/2023

By signing this proposal you are agreeing that you have read and will adhere to the [University's Ethical code of conduct](#).

Mentor/Line Manager Approval

Name	Position/Role in the organisation	Signature (e-signature or scanned wet signature accepted. Typed signature NOT accepted)	Date

Appendix



Include the relevant supporting information in this section. Remove this section if not required