Topic 3 - Introduction to managing data projects and products

This document is the handbook for **Topic 3** – Introduction to managing data projects and products – **within Module 1** – Data Fundamentals.

The purpose of this document is to guide your learning throughout this topic and help you to maximise the value you get from the materials provided by the BPP School of Technology.

Context

This handbook is for one of 4 topics for this Module.

Every topic contributes towards the ultimate learning objectives for the Module, which you will be assessed on at the end of the term.

Module Learning Outcomes

On successfully completing this module, you will be able to:

- **Recognise** fundamental data types and data source types, key Data Engineering technological standards and best practices, and relevant regulations
- **Apply** fundamental principles for fostering a data-driven culture through collaborating with diverse stakeholders in Agile and Lean teams, avoiding waste and respecting organisational processes for data quality and data project management

- **Model** standardised Big Data ecosystems and architectures for enterprise data using visual approaches and comprehend how to design rudimentary data products, and how they add value to the organisation

Module Assessment

The Level 5 Data Engineer EPA has two assessment methods, each with its own mapping of KSBs. The Assessment plan and assessment guidance documents above list the criteria and KSBs that are assessed. The criteria group the KSBs and describe what the apprentice needs to do to achieve a pass or distinction for that assessment method.

Both assessment methods need to be passed by the candidate:

(1) Project with report

The learner will complete a project and write a report of 3500 words. Project brief submitted at gateway:

- Learners will have 10 weeks to complete the project and submit the report to the EPAO
- Learners also need to prepare and give a presentation to an independent assessor on their project
- The presentation with questions will last at least 50 minutes. The independent assessor will ask at least 6 questions about the project and presentation
- The project has to have real business application and benefit. Candidates are expected to showcase the use of appropriate standards for sustainability, privacy and security, thoroughly document their data pipeline designs, explain the choice of relevant tooling and demonstrate operational awareness of deployment, access control, risks, and how other stakeholders may be impacted positively and negatively

(2) Professional discussion underpinned by a portfolio of evidence

- Learners will have a professional discussion with an independent assessor. It will last 80 minutes.
- They will be asked at least 10 questions about Data Engineering.
- The portfolio of evidence will be used to help answer the questions.

- We expect the candidates to demonstrate examples of working with data teams on data projects and data products, showcase ideas for future-proofing data, be clear on applying problem-solving skills, show regulatory awareness, and sensitivity towards data quality, data governance and areas for continuous improvement, both personal and organisational.

This topic on "Introduction to managing data projects and products" relates to the Summative Assessment in the following ways:

Project with Report: The skills and knowledge developed in this topic, such as stakeholder collaboration, Agile/Lean methodologies, and data product lifecycle management, are directly applicable to the project work and report writing required for the EPA project assessment. Learners will be able to demonstrate their ability to manage a real-world data project and document their approach.

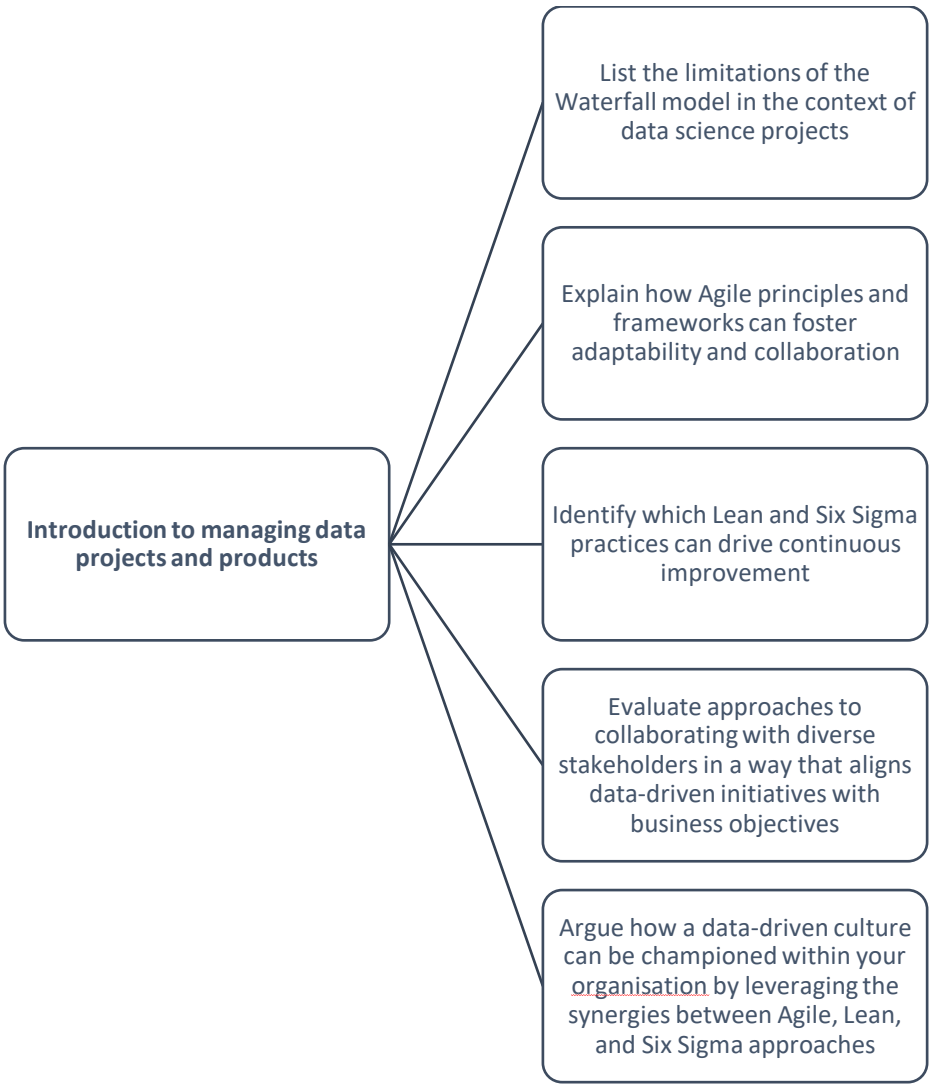
Professional Discussion: The content covered in this topic, including fostering a data-driven culture, applying problem-solving skills, and showcasing regulatory awareness, will help learners prepare for the professional discussion assessment. Learners can draw on the concepts and examples from this topic to articulate their understanding of data engineering best practices.

Portfolio of Evidence: The activities and tasks completed as part of this topic, such as the user story writing exercise and the stakeholder engagement plan, can be included in the learner's portfolio of evidence to support their responses during the professional discussion.

By mastering the skills and knowledge covered in this "Introduction to managing data projects and products" topic, learners will be well-prepared to successfully complete the Summative Assessment and demonstrate their capabilities as Level 5 Data Engineers.

Topic Learning Outcomes

As a step towards build your skills towards the final module assessment, the learning outcomes for this topic are:



Introduction

In today's data-driven business landscape, data engineers play a pivotal role in managing complex data projects and delivering valuable data products. This topic introduces you to the essential skills required for effective collaboration, project management, and data product development.

The ability to work seamlessly with cross-functional teams, leveraging Agile and Lean methodologies, is crucial for data engineers. By fostering a collaborative environment, you can ensure that data projects align with organisational goals and stakeholder requirements.

Structure

Topics for this programme follow a Prepare-Collaborate-Apply structure:

Prepare

This is the stage where you build the knowledge to underpin your learning. This might involve completing interactive e-learning packages, watching videos, or working through reading materials.

It is essential that you make the most of the learning materials provided before attending webinars, as this will allow you to test your knowledge and stretch you understanding further.

This e-learning for this topic covers a comprehensive range of topics including…to be expanded on

Collaborate

This is where you interact with our expert tutors and coaches to shape and refine your understanding through discussion, testing and carrying out more advanced practical and realistic tasks. This also helps to develop valuable team-working skills.

Apply

You now apply the knowledge you have developed to real-world tasks, including off-the-job (OTJ) and on-the-job (OJT).

Off-the-job learning tasks

This stage is all about ensuring you truly grasp and retain what you've learned. Through completion of off-the-job (OTJ) revision tasks and tests, you'll get plenty of practice applying your knowledge. Plan to dedicate 6-8 hours each week to guided study and portfolio work, with sessions typically on the same day each week.

Task 1 brief: Leveraging the power of user stories in Agile

As a Level 5 Data Engineering apprentice, you're on a journey to master the intricacies of managing data projects and products. Today's activity is a pivotal step in this journey, focusing on harnessing the agility of Agile methodologies through the art of crafting user stories.

In this exercise, you'll step into the shoes of a Product Owner, tasked with translating customer needs into actionable user stories.

Preparation

One of the most important aspects of moving to Agile is understanding “stories”. It takes practice to write good stories, and this exercise allows you this practice. As the Product Owner, you must deliver your customer’s or stakeholder’s perspective and share with the project team what is needed and why.

A user story must provide value to some user. An Agile process is driven by the completion of stories, each of which provides tangible, demonstrable value to the user/customer/stakeholder. A sprint consists of a set of conscientiously prioritised stories. Experience will show that it’s best to use a format for each story that identifies who the user is, what they need, and for what purpose (the why). Such stories are written in this format:

“As a ____, I need a ____ in order to ____”.

The **who** in a user story could be someone with a particular functional role, who holds a certain title, comes from the perspective of a persona, or embodies the needs and behaviours of a hypothetical user.

The **what** in a user story details in specific terms the need, feature, or functionality desired by the who. This is what your project team will build into the product or service.

The **why** in a user story states the value. It presents the needs of your users and customers up front and centre.

Here’s an example of a user story that clearly defines the who, what, and why: “As a jazz fan, I need a tuning knob in order to find a jazz station on the radio that I will enjoy listening to.”

Please note: Examples of a User Story and a template is provided at the end of this document

The keys to developing a valuable user story

- Product Owners must have courage to ask for what they believe their users/customers/stakeholders really want
- A story must have value to someone. It must make the product better in some way
- The story when complete will make a real-world task faster, better, easier to understand, have fewer steps, or collect better info
- The high priority stories affect the most users or procure the highest value data
- Avoid exotic/one-off stories (i.e. edge cases)
- “Clean up the bugs we introduced in the last sprint” is NOT a user story because it does not add anything to the product

Remember, according to the INVEST model! Good user stories are:

- Independent
- Negotiable
- Valuable
- Estimable
- Small and
- Testable

Your instructions for completing this activity

Grab a fellow student (or several) and use one of your current projects (or choose one from the list below). As Product Owner, you want to be able to communicate to the development team what users need. You don’t need to be a technical person to do this, you just need to know what a user wants and why.

These user stories will provide the team with starting points to discuss how they might accomplish something. Instead of saying “I need an event calendar” you might say “A user needs to be notified of upcoming events that are related to topics of interest in her user profile so that she engages with the community about things that

matter to her.” This story is more descriptive and gives the team a better understanding of the goal so they can base their solution on intended outcomes.

Believe it or not, one of the critical technologies for this exercise is either index cards (3×5 or 4×6) or Post-It notes. Part of the reason you use paper technology is so you can easily move stories around, reorganise and reprioritise them, and throw them away when done. The small size of the cards and notes ensures that you will not write too much into each story.

A story is a promise to have a conversation later between the end-user and developers. Your goal in writing stories is not to work out details, but to discover the most important goals for your project and to organise a project into discrete, testable chunks.

Potential project goals / directives that will help you practice story-writing include:

1. Re-arranging office space
2. Make a website that informs people about dietary impact on breast cancer
3. Developing a mobile app that periodically checks your calendar on your phone and informs you if the weather is likely to impact any of your plans
4. Develop a dashboard that shows patient health and insurance information
5. Publishing a how-to guide for planting a garden

Choose a project goal for the workshop from the list above. If you have an existing project or goal already in mind, feel free to use that instead.

Activities

Everyone writes stories for 15 minutes that will advance the project goal.

As new stories are written, you may discover ways to improve previously written stories. You may realise that many small, specific stories can be rolled up into a bigger story; or a big story might be split into two or three pieces.

During this time, stories can be rewritten or reworded to make each story as self-contained as possible. This means that a developer should be able to read the story, understand what a user is hoping to do, and create a feature that enables the user to

do it. Additionally, a self-contained story should be understandable when read back to the user, without a lot of explanation needed.

The stories are prioritised into an absolute order.

There can only be one #1, with the highest priority at the top. There are no ties; a specific order must be chosen. Open discussion is allowed, but in the end, you as the Product Owner have authority to set the actual priorities. Things might change as you discover new information, and the backlog can be re-ordered — but at any one time it is an absolute ranking.

Check the format of the user stories.

Remember to keep them in the correct format: “As a ____, I need a ____ in order to ____”.

Think about grouping the stories into sprints.

Now that your stories are prioritised, do you see how you might group them into sprints? The grouping is usually done by the project team, but it’s a good exercise for you to review now to get an idea of how complete your stories are and to recognise if there are gaps._____

Outcomes

- It may feel overwhelming to create user stories to describe everything you are imagining for this project. Start from where you are and remember your product backlog will continue to grow throughout the life of the project

You will get better at creating user stories over time, but this exercise should produce enough user stories that a sprint could be planned.

Task 2 brief: Agile GDPR backlog refinement

You are a Data Protection Officer (DPO) of Cosmetics International Limited based in London. Your organisation introduced a new make-up line *Shine-N-B-Fine* that can be sourced based on a variable colour palette. The initial sales of the product are lower than prior forecasts.

A meeting commissioned by your Marketing department has just concluded, where the Sales team produced a product features' analysis and a recommendation that the product be broken down into geographical variations that should be marketed differently in different regions, also suggesting that this will maximise sales revenue to better hit the forecasts.

Based on this information, vice president VP Marketing added a user story to your Jira Backlog that says the following:

Epic – Shine-N-B-Fine soft launch (100 points)

User Story (8 points)

As: VP Marketing, I want: an analytics dashboard to classify Shine-N-B-Fine user numbers geographically, so that: I can optimise marketing plan for the product

Acceptance criteria:

The solution should be self-service

- This should be accessible by Marketing and Sales teams
- Should take into account all the potential buyers that we have data about in the Enterprise Data Warehouse (EDW) + partner data through ingestion Application Programming Interface (API)
- The data points required are age range, gender, region, postcode, disposable income, is this a previous buyer of Cosmetics International ranges, skin tone (or estimate if absent)
- Should feed into Automated Sales and Distribution Support System (ASDSS)

A rumour ensued that this user story may potentially cause additional overhead. You are called in to a backlog refinement meeting to answer the following questions:

1. Will any GDPR restrictions apply?
2. What rights can the data subjects exercise? Enumerate and explain in detail.
3. Is a DPIA required? Justify why or why not.
4. What other recommendations do you have?
5. Do you include the story in this sprint?
6. Do you suggest any additional acceptance criteria?
7. Review the User Story points.

On-the-job learning tasks

This phase is where you'll put your knowledge into action and gain valuable hands-on experience in real-world scenarios. During the on-the-job (OJT) stages of your learning, you'll have the opportunity to apply the concepts you've learned in practical settings, refining your skills and enhancing your understanding.

Task 1 brief: Championing a data-driven culture through Agile-Lean-Six Sigma approaches

Drawing insights from the "Introduction to managing data projects and products" topic, you will undertake the following research exercise to develop your understanding and skills in this area.

Outcome 1: Evaluate approaches to collaborating with diverse stakeholders in a way that aligns data-driven initiatives with business objectives.

You can meet this outcome by completing the following:

- Identify the key stakeholders (e.g., business leaders, IT, data analysts, end-users) who are typically involved in data-driven initiatives in your organisation
- Analyse effective strategies and best practices for collaborating with this diverse set of stakeholders to ensure alignment between data-driven projects and your organisation's overarching goals
- Document your findings in a stakeholder engagement plan, highlighting key considerations for facilitating communication, managing expectations, and maintaining alignment throughout projects

Outcome 2: Argue how a data-driven culture can be championed within an organisation by leveraging the synergies between Agile, Lean, and Six Sigma approaches in your organisation.

You can meet this outcome by completing the following:

- Examine how the principles and methodologies of Agile, Lean, and Six Sigma can be integrated to drive cultural change and continuously improve data-driven decision-making

- Develop a proposal outlining how you would introduce and implement these integrated methodologies within your organisation to champion a data-driven culture

Address the following in your proposal:

- How can you secure buy-in from leadership and cross-functional teams?
- What specific Agile, Lean, and Six Sigma practices would you implement, and how would they complement each other?
- How can you measure the success of a data-driven culture initiative, and what key performance indicators (KPIs) would you track?

Why complete this apply activity?

This research exercise will allow you to develop your understanding of the concepts covered in the "Introduction to managing data projects and products" topic and apply them to real-world challenges faced by data professionals.

By exploring stakeholder collaboration strategies and proposing a data-driven culture initiative, you will enhance your skills in leveraging the synergies between Agile, Lean, and Six Sigma methodologies to drive organisational transformation.

Further guidance can be found here:

Link

This handbook is for one of 4 topics for this Module.

The sequence of topics in this module is carefully designed so that your knowledge and skills will develop as you progress.

The next topic is **Introduction to reliable data architectures**.