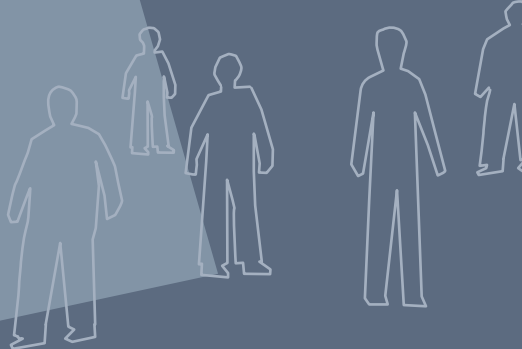


ACTIVITY 2

Grounding Collective Responsibility

Responsible Research and
Innovation in Data Science
and AI



An illustration at the top of the page shows several stylized human figures in white outlines against a light blue background. In the center, a thought bubble contains a bar chart, a pie chart, and a line graph, symbolizing data analysis or collective thinking.

Summary

This task requires a group to form several sub-teams to initially identify the tasks that fall within their remit of responsibility, using one of the available case studies as an anchoring point. However, once the sub-teams have identified their own project and task responsibilities, they will then be required to reflect on whether and how the successful delivery and completion of these tasks have upstream and/or downstream dependencies. The purpose of this task is to help participants identify practical examples of collective and distributed responsibility, while also learning more about the heuristic value of the project lifecycle model and the shared framework it provides.

Learning Objectives

- Gain an understanding of how collective responsibility is distributed across the project lifecycle.
- Increase your practical familiarity with the project lifecycle model and learn how it can support anticipatory forms of group reflection and deliberation.



Instructions

Pre-requisites

To carry out this activity, you will need the following:

- ✍ A case study selected from our repository.
- ✍ An understanding of the project lifecycle model's stages and the typical tasks that are carried out within each stage.
- ✍ This group activity is best undertaken with larger groups, because three sub-teams are needed to represent the different roles and responsibilities for each of the three over-arching stages of the project lifecycle. While this activity can be done in smaller groups or even as a solo reflective exercise, it is not recommended.

Introduction

Identifying the people and teams who are responsible for the completion of specific tasks is a fundamental part of project governance. The project lifecycle model supports initial anticipatory reflection and deliberation about how such responsibilities should be distributed across each of the over-arching stages, and when and why collective responsibility may be required.

Steps

- 1 To start you will need to identify a case study from our repository. Choose a scenario that is familiar to your team, as you will need to have some understanding of the typical design, development, and deployment activities associated with the relevant technology.
- 2 Next, split your team into three groups, one for each of the three project lifecycle stages: **project design**, **model development**, and **system deployment**.
 - ➔ In your sub-teams, go through each of the four sub-stages for your respective stage and identify a task for each sub-stage that you believe falls within your remit of responsibility (e.g. data protection impact assessment for **project planning**).
 - ➔ Once you have your four tasks, consider which of them have interdependencies with other tasks, both within your own stage, but also with the other two stages represented by the other sub-teams. These interdependencies may be upstream or downstream dependencies (e.g. **model selection** and **training** will depend on robust and transparent reporting from the **data analysis** stage).
 - ➔ Make a note of these interdependencies for each of your tasks.

3 Reconvene all of the sub-teams and share your results.

- Highlight the tasks that have been identified as having interdependencies with the other sub-teams responsibilities, and discuss whether all sub-teams agree.
- Identify whether there are any specific steps or processes that should be implemented between the teams to ensure this collective responsibility is managed effectively.
- Reflect on whether there are any imbalances between the sub-teams with respect to how the collective responsibility is distributed across the project lifecycle.

Example

Here is a partial example of the three main steps introduced above:

- 1 The team select a case study based on the development of a digital twin that will be used by a team of medical researchers to predict the effects of various pharmacological interventions on a particular disease model.
 - 2 The team splits into three groups and the sub-teams identify several tasks for their respective stages:
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PROJECT DESIGN

- **Project Planning:** Design of data management plan
- **Problem Formulation:** Patient and public involvement workshops to agree on best practices
- **Data Extraction:** Creation of data repository and pipeline based on FAIR principles
- **Data Analysis:** Bias assessment (e.g. Missing Data Bias)

MODEL DEVELOPMENT

- **Pre-processing and Feature Engineering:** Data cleaning and feature selection
- **Model Selection and Training:** Assessment of model interpretability
- **Model Testing and Validation:** Internal validation using hold-out data
- **Model Reporting:** Documentation of methodology and results of model performance testing

SYSTEM DEPLOYMENT

- **System Implementation:** Agreement on model performance metrics and thresholds for use and monitoring
- **User Training:** Training of medical researchers on how to use the digital twin
- **System Use and Monitoring:** Regular monitoring of model performance during monthly meetings
- **Model Updating and Deprovisioning:** Assessment of impact from deprovisioning system and resources for creating new model

3 From this list, the **system deployment** team identify that their task for **system implementation** has many upstream dependencies with the **project design** and **model development** sub-teams (e.g. robust bias assessment and model reporting to ensure responsible selection of model performance metrics).

4 Once the teams have reconvened, the **project design** team agree that they have a collective responsibility for ensuring the system is fit-for-purpose in the manner identified by the **system deployment** sub-team, but recognise that this was not originally identified.

5 The teams discuss what processes can be put in place to ensure the collective responsibility is managed effectively. They agree on the adoption of an iterative approach to developing a data management plan, which will be reviewed and updated as the project progresses with specific emphasis on whether the goal of creating a reliable and robust model is being met.



Goals and Objectives

The primary objective here is to gain an understanding of how responsibility is distributed across the project lifecycle, and to become more familiar with how the structure of the project lifecycle model can support anticipatory forms of group reflection and deliberation.

By the end of the activity, each sub-team should have been able to identify at least one task that has downstream or upstream dependencies. And, as a group, you should have at least one method for how to manage collective responsibility.

Tips and Guidance



Remember that the projects introduced by the case studies are hypothetical. As such, you can be quite flexible and creative with the tasks that you identify for each of the sub-teams. For example, do not worry about specific implementation details of the tasks, or whether the hypothetical project team have sufficient capacity. Rather, focus on the importance of grounding your understanding of collective responsibility within a practical example.



If you are struggling to identify tasks within your sub-teams, feel free to reconvene early and see if the rest of your group can help. Then, continue with the remaining steps as discussed.

Assets

- You should have a copy of the [project lifecycle summary sheet](#) as a reference for this activity.
- You will need a copy (printed or online) of the [project lifecycle model](#).

In-Person

If you are conducting this activity in-person, you will need something to make group notes on (e.g. flipchart, paper, sticky notes). Alternatively, you could print several copies of the project lifecycle model on large sheets of paper and then use sticky notes to place the individual tasks and interdependencies on the appropriate stages.

Online

If carrying out this activity online as group you may wish to use an online whiteboard or collaborative note-taking tool such as [Miro](#), [Mural](#), [HackMD](#), or [Google Docs](#). We recommend uploading a copy of the project lifecycle model and then using a sticky-note feature to place the individual tasks and interdependencies on the appropriate stages. There is no reason to create multiple boards for the sub-teams, but it is recommended that each sub-team focus only on their stage during step 2 of the activity.