

Project Planning and Risk Management

Lecture 4

Aims:

- To introduce techniques and approaches to project planning and risk management.

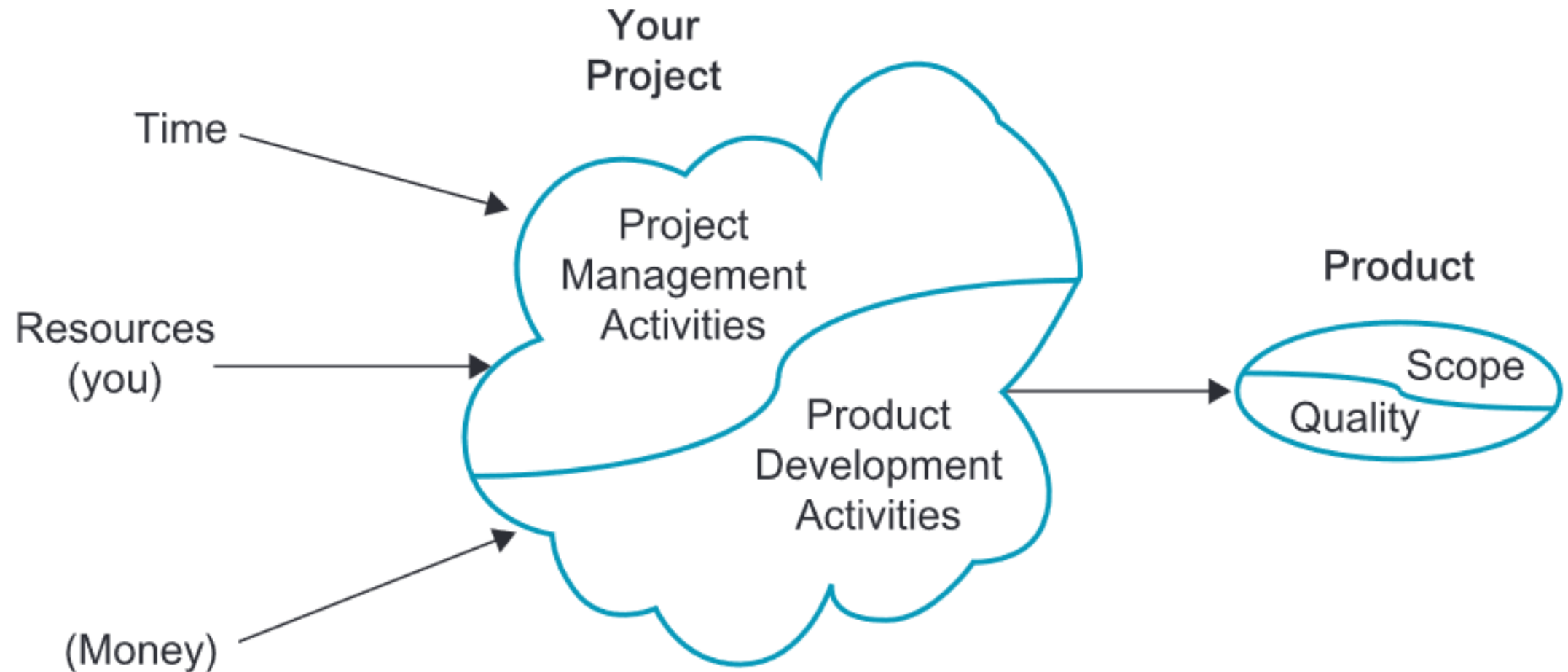
Learning objectives:

- Understand the five elements of projects that need to be managed.
- Describe the typical stages of an academic project from a project management perspective.
- Define a project in terms of aims and objectives.
- Discuss the activities performed during the initial planning stage of a project.
- Understand the use of project management techniques for project planning.
- Manage risk in your project effectively using a defined risk management process.
- This chapter is relevant for both undergraduate and postgraduate projects.

Introduction

- actual work, Idea, project plan, direction, lose sight
- some techniques you can use to plan how you will tackle your project
 - manage your time more effectively
 - decide on priorities for your project at different stages
 - give you clear direction and motivation
- risk management
 - will enable you to identify, manage and control any potential risks to your project

Project process



The project itself consists of two main activities:

1. project management activities
2. product development activities

Project management activities:

- planning how you will undertake your project
- controlling your project as it is progressing
- checking your progress
- meeting milestones
- monitoring deliverables
- managing risk

Product development activities

- developing a program
- writing reports
- Literature searching
- meeting clients
- quantitative research
- qualitative research
- seeing your supervisor

The final stage of the project process

- Outcome: a report of some kind, a thesis or dissertation, a presentation, perhaps a fully documented computer program and an associated user guide and demonstration, a new model or algorithm, a literature survey, a case study, etc.
- two aspects to this 'product'
 - certain scope (what it covers, what it does – i.e., what it achieves)
 - certain level of quality (how well it does it)

The project's stages

- Definition
- Planning
- Initiation
- Control
- closure

Project definition

- The purpose of project definition is to clearly specify what it is you hope to achieve with your project
- Your project definition must identify the aims and objectives of your intended work

Defining your aims

- Your project should be defined at two levels.
- At the top level you define your project's aim or goal.
- At the next level you define your project's objectives.

Aim examples

- to evaluate the effectiveness of requirements, capture techniques in small software development companies in India;
- to develop and evaluate a user interface for statistical software packages;
- to design a methodology for graphical user interface (GUI) development of technical courseware material;
- to investigate and produce an evaluation of fourth generation languages for database development.

Example:

- Project's aim:
 - Develop and evaluate an ANN to predict stock market indices.
- Project's objectives:
 1. Complete a literature survey of existing stock market prediction techniques.
 2. Develop a suitable ANN model.
 3. Identify and collect suitable data for analyses and evaluation.
 4. Evaluate the model using appropriate statistical techniques.
 5. Complete final report.

SMART objectives

- Specific
- Measurable
- Appropriate
- Realistic
- Time-related

Exercise:

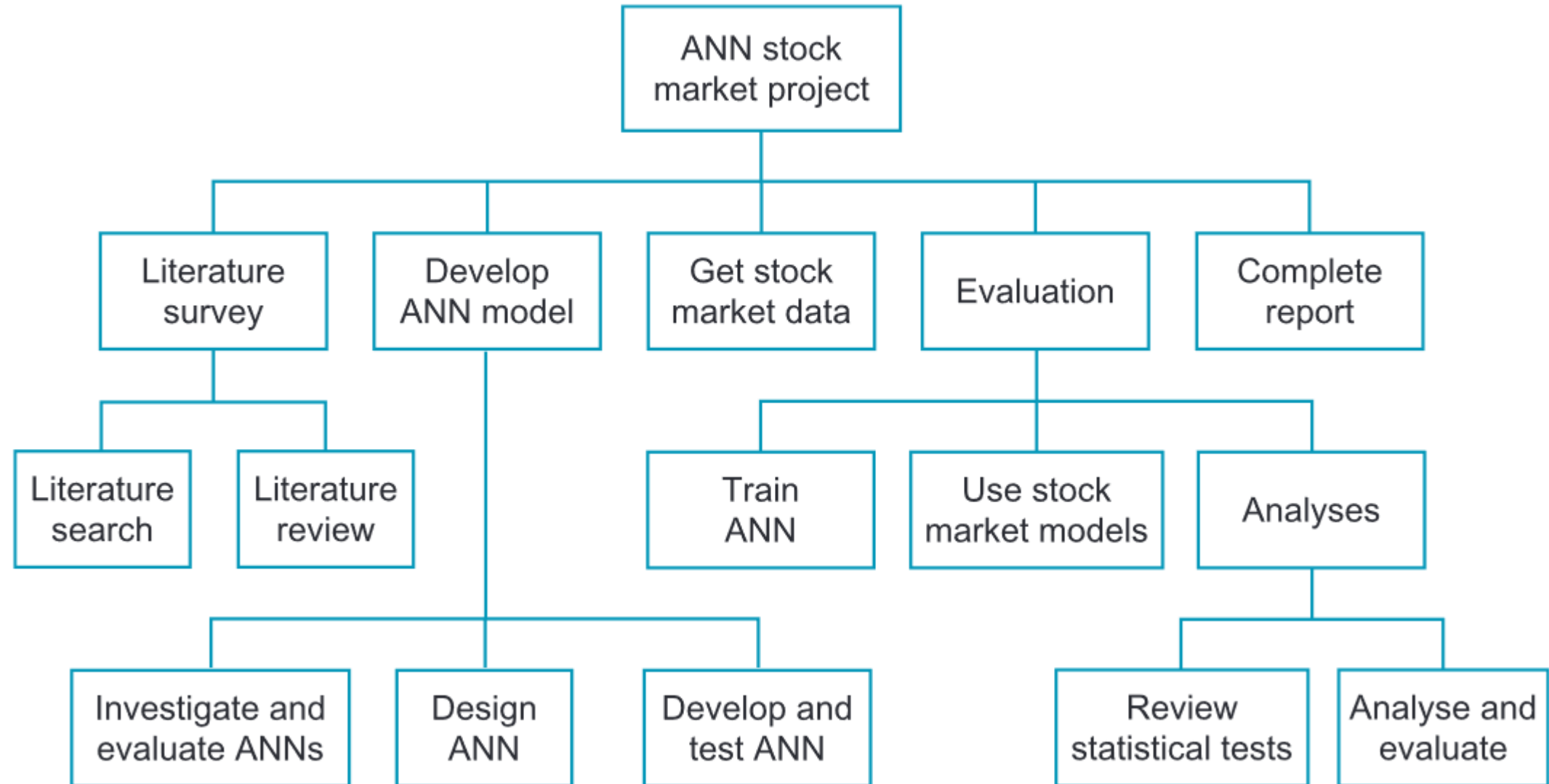
- **Re-write** “Complete a literature survey of existing stock market prediction techniques” objective according to the SMART technique.

- Is this specific?
- Is it measurable?
- Is it appropriate?
 - Is it realistic?
- Is it time-related?

Project planning

1. Work breakdown
2. Time estimates
3. Milestone identification
4. Activity sequencing
5. Scheduling
6. Re-planning.

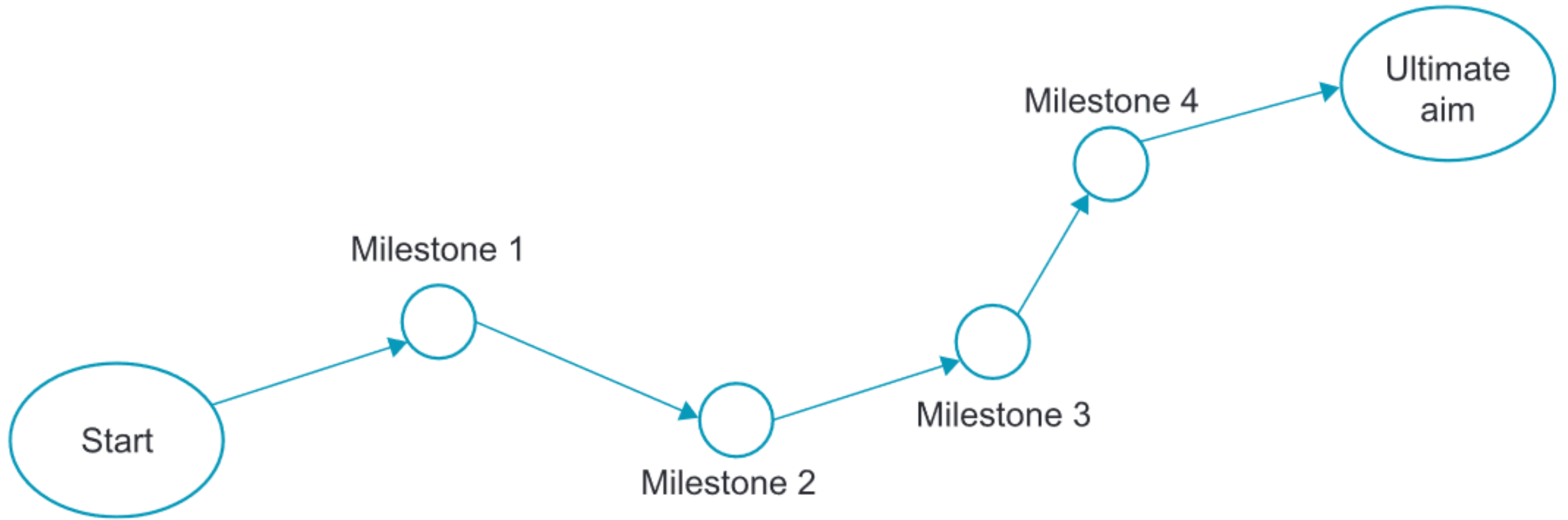
Work breakdown



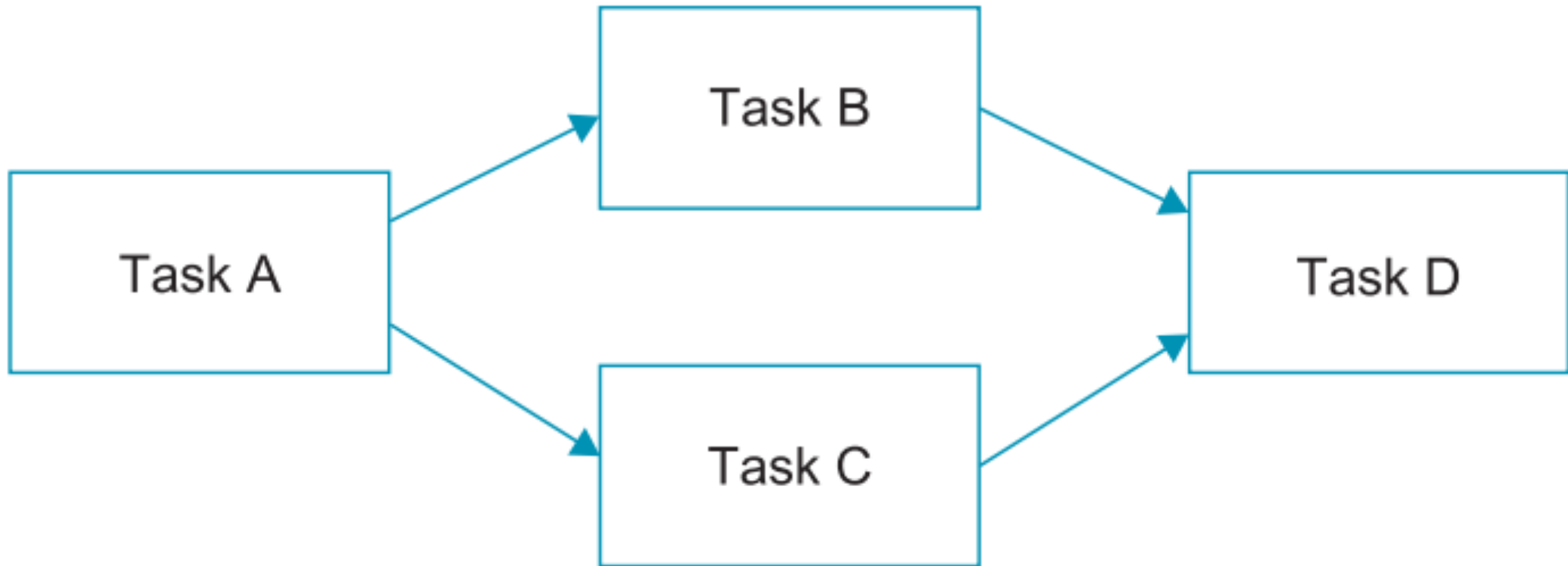
Time estimates

Activity	Estimated duration
Literature search	8 weeks
Literature review	4 weeks
Investigate and evaluate ANNs	4 weeks
Design ANN	4 weeks
Develop and test ANN	2 weeks
Get stock market data	1 week
Train ANN	1 week
Use stock market models	2 weeks
Review statistical tests	2 weeks
Analyse and evaluate	4 weeks
Complete report	8 weeks
Total effort	40 weeks (approximately 10 months)

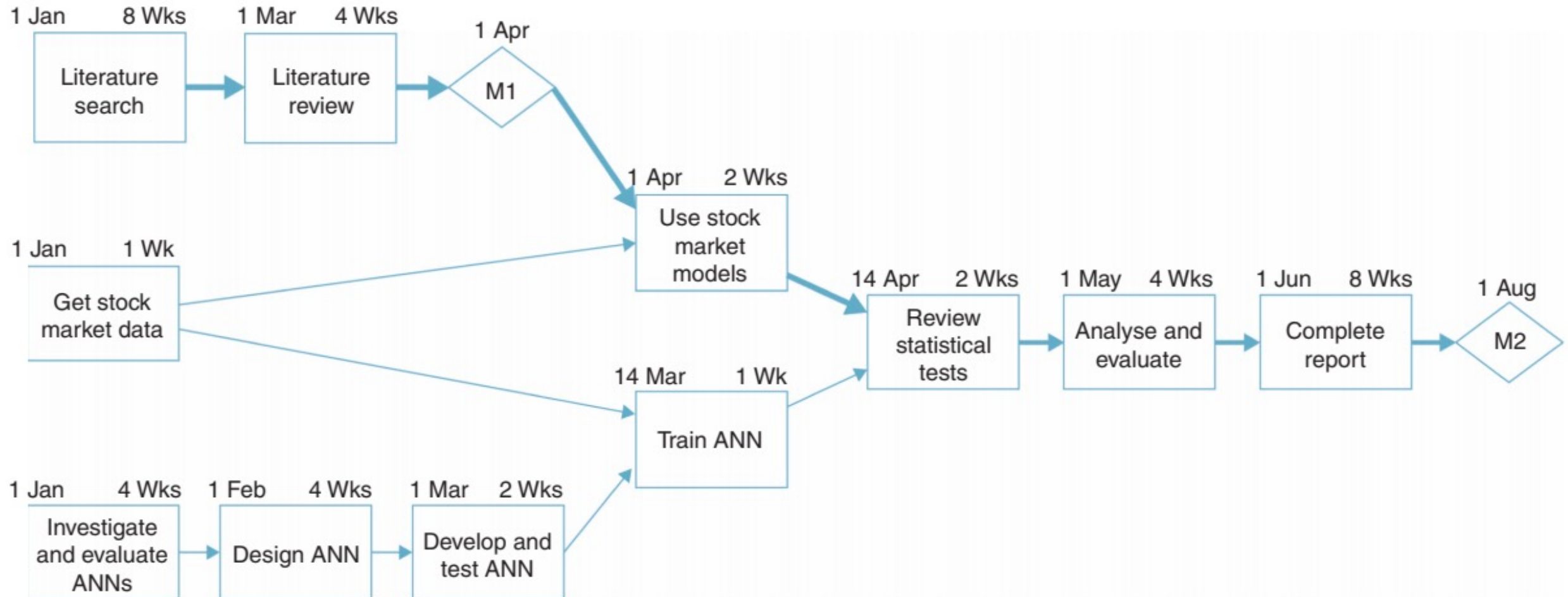
Milestones



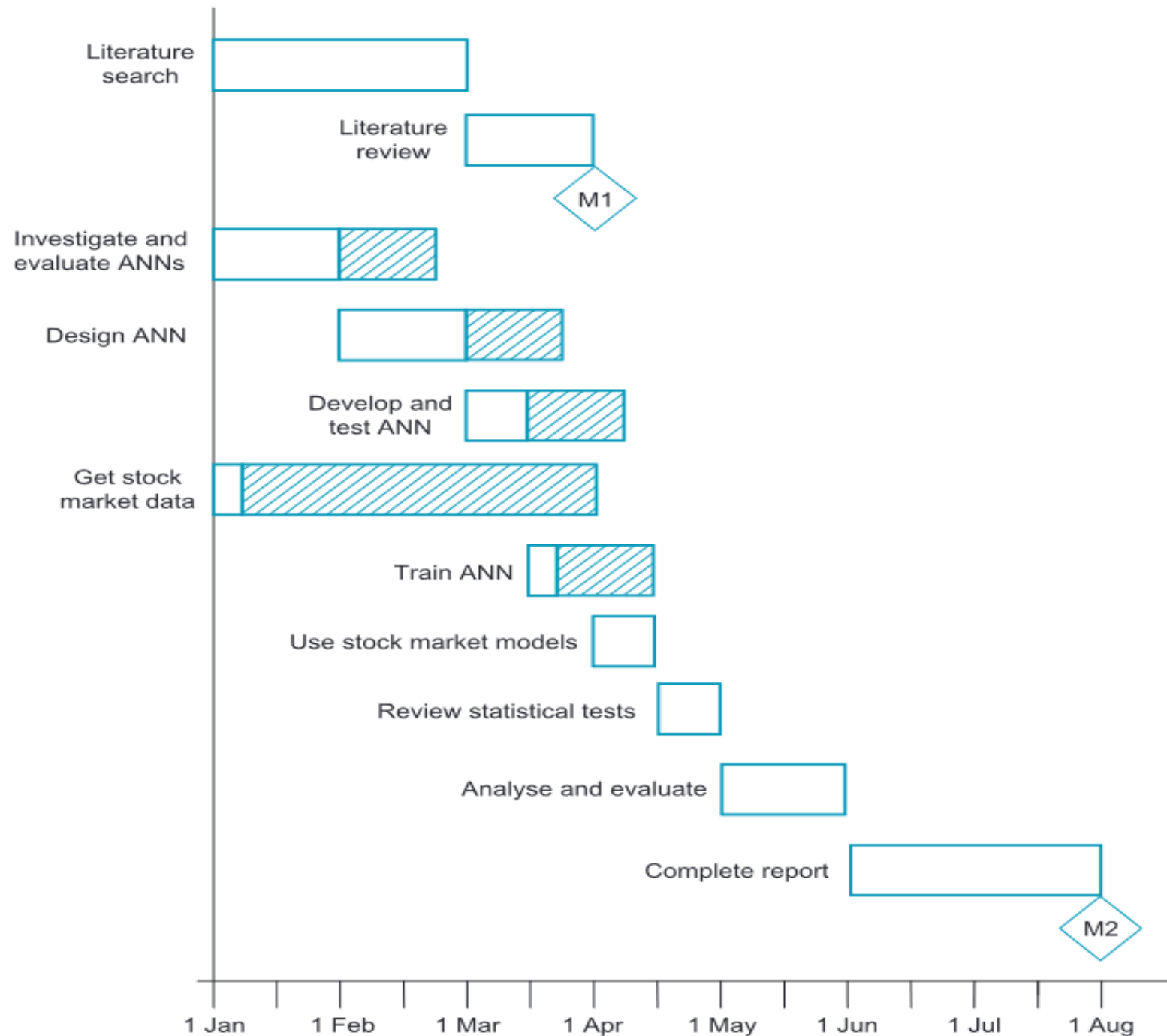
Activity sequencing



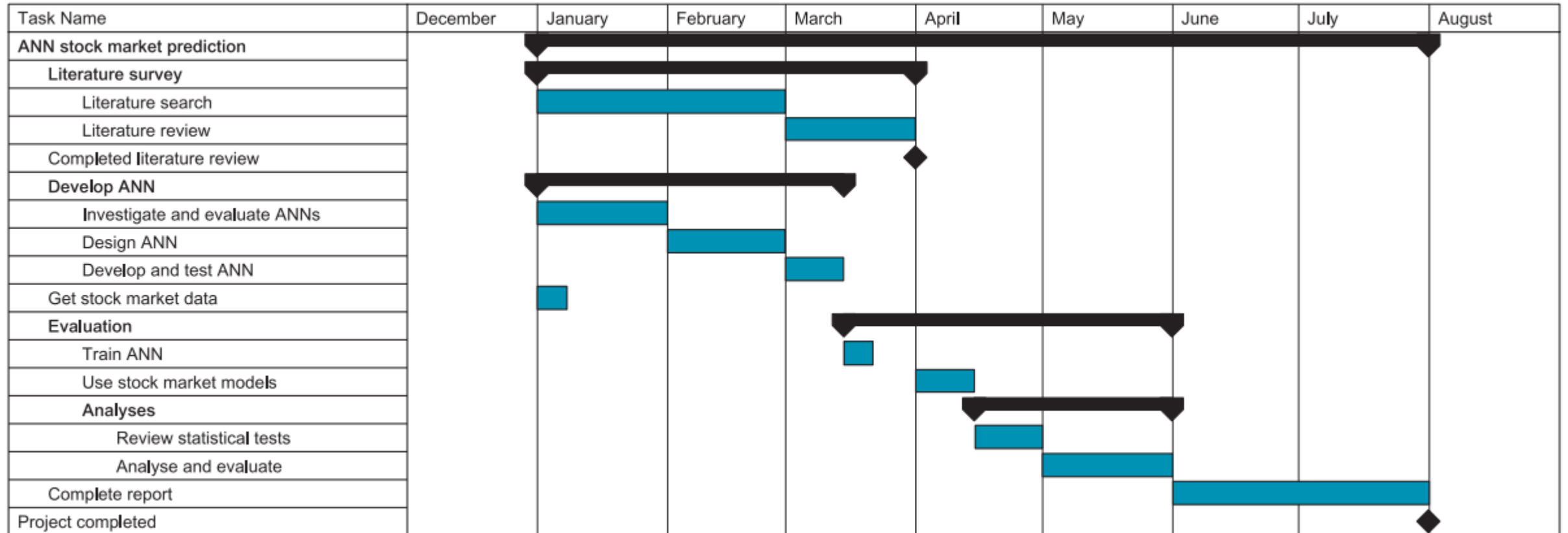
Activity Sequencing example



Scheduling



Replanning



Risk Management

- Identify risks
- Assess impact of risks
- Alleviate critical risks
- Control risks

Identify risks

- Technical
- Non-technical

Assess the impact of risks

- Risk impact = likelihood * consequence

Risk likelihood	Score
Low	1
Medium	2
High	3

Risk consequence	Score
Very Low	1
Low	2
Medium	3
High	4
Very High	5

Example:

- Turner (1993: 242) provides an interesting illustration of how the risk impact equation works in practice. If we consider the likelihood of a **severe earthquake** (say, greater than Force 7 on the Richter scale) occurring in the British Isles, we will probably conclude that the chances of this occurring are small. We then consider the consequences of this risk on two different kinds of building – a car park and a nuclear power station. In the case of a car park the consequences of a severe earthquake are quite small – a few cars may get damaged and (unfortunately) a small number of people may be injured or killed if it collapsed. As the consequences of the risk are relatively low (unless it is your car that gets crushed!) and the likelihood is low, the overall impact of this risk is also deemed to be low. Thus, in the British Isles, car parks are not constructed to be ‘earthquake-proof’. In the case of the nuclear power station however, the consequences of a major earthquake could be catastrophic – hundreds of thousands of people could be killed. In this case, while the likelihood of the earthquake is the same as for the car park, the consequences are much higher – leading to an overall risk impact that is deemed very high. Thus, nuclear power stations within the British Isles are constructed to withstand such events.

Alleviate critical risks

Example:

- Pym and Wideman (1987) provide a neat analogy that contrasts these approaches. Take the situation in which someone is about to be shot at. They can avoid this risk by moving quickly to somewhere safe (**avoidance**). They can deflect this risk by putting something (a shield) or someone between themselves and the assassin (**deflection**). Or, they can assume they are going to be hit by some bullets and ring the ambulance service in advance (**contingency**). You may like to think which of these approaches to dealing with this risk *you* prefer!

Controlling risks

Summary