How do you eat an elephant?
Why Project Management?

“the knack for all research students regardless of discipline is to pinpoint what is required and model your work accordingly”  
(Burnham, 1994:33)

• Thesis whisperer
• Grad Hacker
Session objectives

• Work through a process for planning projects

• Understand how to relate these to your research project
  – Reflect as we go along
  – Discuss after this session

• Apply these to conference planning
• Apply these to fellowship or funding applications
What is ‘Project’

- Has a clear and specific objective
- Is someone’s responsibility
- Is any sort of planned undertaking which is finite and bounded
Project constraints/risks

- Most projects operate under constraints
- What are the constraints on your project?
Possible constraints

- Time
- Clarity of scope
- Access to literature / resources
- Access to supervisor
- Funding
- ‘Publishable quality’
Scope of your project

- What are you trying to achieve in your project?
- Are you clear on the limits of your investigations?
- How will you know when the project is complete?
Beneficiaries

• Who will benefit from your work?
• Who do you want to influence?
• What impact do you want your work to have?
Project Management Tools

- Mind Map
- Drill Down
- Gantt Charts
- Risk Analysis
Mind Map

- Useful at the earliest stage of a project
- Set out all possibilities and issues
- Helps give structure to project
- Makes linkages more evident
Thesis Writing

Originality

- Context
- Value
- Contribution

Main areas to write about

Which section to start with

- Mind mapping
- Typical structures
- SMART objectives
- Academic culture
- Definitions of PhD
- Tuning into thesis writing
- The big ideas

What you need to get started

- Getting started

Motivation and momentum

- Advice from supervisor
- Advice from postdocs

The viva

- Examiner's perspective
- Three typical questions prompted by the thesis
- Postdocs' perspectives

Concerns and fears

Regulations

- Heriot-Watt
- Edinburgh
- St Andrews
• Use single words or simple phrases - print?
• Use colour to separate different ideas
• Use symbols and images
• Using cross-linkages

http://www.mindtools.com/pages/article/newISS_01.htm

• In the centre of the page, write a phrase which summarises your research idea

• Now allow your ideas to flow..
Why am I doing research?

Why is this project happening?

How is it happening? (methodology)

Who will benefit?

Challenges

for me

project

for me

project

the future

risks

impact
Drill down

• A technique to identify all tasks associated with a project
• Start on the LHS with the project objective
• Identify obvious tasks
• Break these down into smallest parts
• List questions or points to clarify
And now to you

- A novel way to fund your PhDs!
- It will require careful planning
- Together we can drill down through the problem to identify the key tasks and questions...
The Heist

Thieves in Brazil have stolen up to $65m (27m NZD) after tunnelling into a bank in what police say could be the country's biggest bank heist.

The thieves dug a 200m (656ft) tunnel into the bank from a nearby house in the northern city of Fortaleza.

Neighbours said between six and 10 men worked at the house, rented in the name of a company making artificial turf.

The theft happened over the weekend, but was not discovered until Monday morning because the bank was closed.

Neighbours reported seeing vanloads of material being removed each day.

"It's something you see in the movies... They dug a tunnel that goes underneath two [city] blocks. They've been digging for three months," investigator Francisco Queiroga told the Reuters news agency.

The Banco Central said the robbers opened five containers with 50 real ($22) bills.

The value of the stolen bank notes has not been determined. However, police sources said the heist may have yielded as much as 150m reals, which would make it the biggest bank robbery in Brazil's history.
Research what is in vault

Get a job in bank

Involve a bank insider

Use press and financial knowledge

Buy house nearby

Set up business to hide soil removal

Dig tunnel

Get plans of building

How will money be laundered?

Get away

Where do we lie low?

Will the cash be identifiable?

Where will we buy construction equipment?

Has anyone done this before?

Rob Bank and get away
Something closer to home

- You are required to plan and organise a conference
- Drill down the different tasks which must be achieved for a successful event
Projects and Risks

- Identify sources of risk
- Assess likelihood of risk
- Assess magnitude of risk
- Develop response/ mitigation
Risk associated with Bank Heist were…

- Get caught digging tunnel
- Tunnel collapses
- Route blocked by pipes / rock
- Getting grassed on, dobbed in
- Vault empty / disappointing
- Forensic evidence left

All potentially and rightfully resulting in arrest and jail
Sources of Risk in a PhD

- Discover that someone has already done it!
- Data management issue: Laptop with records is stolen, pen drive through the wash…
- Unable to get hold of a key source
- Supervisor leaves
- Supervisory issues
- External pressures
- Internal pressures
- Loss of motivation…
Risk analysis

EPIC / USER STORY RISK ANALYSIS FOR TESTING

EXPLORATORY TESTING
SCENARIO TESTING
UNIT TESTING
(HAPPY PATH)

ERROR GUESSING

EXPLORATORY TESTING
AUTOMATED SCENARIO TESTING
UNIT TESTING
(100% LINE COVERAGE)

EXPLORATORY TESTING
UNIT TESTING
(HAPPY PATH)

IMPACT

LIKELIHOOD
Risk analysis of PhD

• To identify potential risks
  – Review regularly and recognise slippage
  – Talk to supervisor/s, other PhD candidates

• Next map these against potential impact and likelihood

• Finally, eliminate, minimise or develop contingency plans
Gantt chart development

• Use list of tasks to start Gantt Chart
• Identify relationships between tasks
• Estimate **time** for each task
  – include: project management, detailed planning, liaison with experts, meetings, information gathering
• Ask for feedback on your plan

https://www.smartsheet.com/blog/gantt-chart-excel01
| Activity                                      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| Register                                      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Literature review                            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Deadline for literature review               |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Prepare and rehearse presentation            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Presentation to School/Department            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Documented meeting with supervisors         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Plan first research unit                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Present outline of first research unit       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| First research unit                          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Review and analyse research results          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Survey of literature                         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Courses/conferences                          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Learning about methodology                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Holiday                                      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Second research unit planning                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Second research unit                         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Drafting transfer report                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Finalise transfer report                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Deadline for transfer report                 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Transfer viva                                 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Visit from leading professor                 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                                             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
Gantt Chart

• lay out the tasks that need to be completed
• show when these tasks should be carried out
• assist the allocation of resources
• help you to work out the critical path for a project where you must complete it by a particular date
Identify issues early – solve early

- Report the implications of delays
- Discuss changes in plans
- Direct resources
- Respond early
- Be flexible
- Involve your supervisor(s) and others
Final thoughts

• Project management is a set of tools not a straightjacket!
• It should be dynamic, but have regular, fixed reviews of progress
• It can help with communication and to check on common understanding
  – Between you and your supervisor / funders / colleagues
• It can be difficult to apply these ideas at the very start of your PhD, but you should be able to identify scope, constraints, risks, time structure fairly soon…

Vitae – Project Management Tools for Researchers