Module 2: Commencement and Collaboration – Putting Ideas Into Practice

Introduction

This module briefly reviews the important task of choosing and setting in place collaborations, and then concentrates on the strategies and tools to help you to start your research project.

Some aspects of this module are covered more comprehensively in other modules of the program, and are included here to remind you of the importance of taking some action at the commencement of your project. Where this is the case, there will be a link to the other module; if you have covered the material in other modules there is no need to repeat it here.

This module aims to identify and illustrate approaches that can be applied to all projects regardless of discipline or scope, and will cover options for small, medium, and large projects. At the commencement of the project you will need to identify all stakeholders, review their expectations, and, if appropriate, have safeguards and agreements in place that allow you to manage these expectations. The commencement of your project will also require leadership skills to ensure that you build an effective team and manage successful collaborations.

This module comprises online learning material and a workshop.

You are expected to devote time to reading the online material and carrying out compulsory activities before attending the workshop. This module should take less than 2.5 hours to read and you may need to devote up to another 1.5 hours to carry out the compulsory activities.

The workshop is based on the assumption that you have completed the reading and have carried out the compulsory activities.

Aims

The module aims to:

- Examine what is at the heart of successful collaborations
- Identify tools and resources relevant to the commencement of research projects and to define principles of project management in the context of research projects
- Assist you to develop management plans appropriate to the research project.

Learning outcomes

After completing this module you should be able to:

- Identify what characteristics and skills you need from potential collaborators
- Identify the potential benefits and challenges of collaborations
- Understand the key elements of a plan and a budget for the research project (based on the funding available and required timelines) in order to manage risk and monitor the project
- Recruit the appropriate project team
- Identify the appropriate support units within your university that will help you commence and finalise contracts/agreements required by your research project
- Create the level of profile appropriate to the size and complexity of your project
- Finalise a procurement strategy and plan (infrastructure, materials & consumables)
- Develop a communication strategy for the benefit of all stakeholders.

Content overview

The module comprises the following topics:

The module comprises the following topics:

1. The nature of successful collaborations
2. Project commencement – key tasks
3. Management – small, medium, and large projects
4. Establishing the identity and profile of your project
5. Recruiting the project team (also covered in Module 7)
6. Implementing the project plan.

Workshop details

Details of the workshop for this module will be provided by your University.

Facilitator at your University

Acknowledgements

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Accessing the module material

Now that you have read the module introduction you can access and navigate your way through the module content via the Module 2 Organiser link in the navigation bar at the top left of this page or in the bar below.

If you wish to print this page you can generate a pdf file via this printer icon [ ]. A pdf file for each topic in this module can be generated using the printer icon to the left of each topic title on the Organiser page.

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Organiser

Topic	Subtopics	Activities	At your University
Introduction			At your University
1. Forming Successful collaborations For each topic, read the topic material via the link in this column before reading the subtopic material	1.1 Finding the right collaborator/partner	What constitutes *quid pro quo* in a collaboration?	
	1.2 Potential points of difference with collaborators		At your University 1.2.a At your University 1.2.c
2. Project commencement – key tasks For each topic, read the topic material via the link in this column before reading the subtopic material.	2.1 Finding mentors and advisers		At your University 2 At your University 2.1
	2.2 Project plan: setting project goals and research targets		
	2.3 Milestones and timelines		At your University 2.3
	2.4 Budgeting and funding		
	2.5 Ownership of intellectual property and other complex legal issues		
	2.6 Establishing successful stakeholder relationships	Identifying stakeholders and their objectives	
3. Management – small, medium and large projects	3.1 Management roles and responsibilities for small, medium, and large (optional) research projects	*Safeguarding the Murray-Darling*– Management arrangements for a medium-sized project	At your University 3 At your University 3.1
4. Establishing the identity and profile of your project	4.1 Badging and establishing a public profile	Draft a press release	At your University 4
5. Recruiting the project team	5.1 Identification of legislative and policy requirements		At your University 5 At your University 5.1
	5.2 Recruiting the right person		At your University 5.2
	5.3 Therecruitment interview		
	5.4 Orientation and induction		At your University 5.4
6. Implementing the project plan	6.1 Managing risk in your project	Complete a risk analysis of components of a project plan	At your University 6
	6.2 Procurement		At your University 6.2
	6.3 Communication, record keeping, and decision-making processes		
Module review and completion	Frequently Asked Questions		
	Checklist		
	Record of completion	Guided conversation The instructions for the guided conversation are in the Record of completion document.	At your University

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Topic 1: Forming Successful Collaborations

Finding the right collaborator/s and research partners can be both challenging and rewarding.

Finding the right collaborators who will challenge you (and be challenged by you) and with whom you know you can work in intense, pressured environments can make a research project (or even a career) much more enjoyable and productive.

Learning outcomes

After completing this topic you should be able to:

- Reflect on the elements of successful and strategic collaborations/partnerships.
- Know what can get in the way of establishing healthy collaborator and stakeholder relations.

Topic content

Read the following notes.
1.1 Finding the right collaborator/partner
1.2 Issues that can impact on research partnerships

Activities

Complete the following activity after reading the subtopics.

'Quid pro quo' in Collaboration

Take 15 minutes or so to make some brief notes on what constitutes '*quid pro quo*' (more-or-less equal exchange or substitution of goods or services) in a collaboration between the parties outlined in each of the following cases. Bring your notes to the workshop, where this will be discussed further.

- Two universities
- Government and university
- Industrial company and university
- Community group and university

Additional Reading/Activities

Engaging with this material (and the material in other sections of the module under the same heading) is optional. However, if you wish to gain a deeper understanding of the topic you may find the following material useful.

A range of resources is available from the European University Association. While these resources were developed to deal with collaborations between European industry and European publicly funded research institutes, there is a lot of general information that can be applied to collaborative research projects in Australia. Further information available from:
http://www.eua.be/Libraries/Publications_homepage_list/Responsible_Partnering_Guidelines_09.sflb.ashx

Some other resources to review are:
http://www.onlineethics.org/Resources/Bibliographies/CollaborativeResearchBib.aspx

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1.1 Finding the right collaborator/partner

If you have already established partnerships and collaborations that are working well for you there is no need to complete topic 1.1.

There are no rules for finding the right collaborator. This can vary from researcher to researcher, project to project, and may be very different at different times of your research career. Some researchers find a small group of collaborators (individuals and organisations) they work with early on in their career and that they then work with from that point on. Others prefer to build wide collaborator networks. For some researchers a "collaborator I feel I can work with" is what is most important. For them it is no good having the chance to work with the 'top' person or the lead organisations in their field if it is going to be a miserable experience.

Others look for individuals that meet the gaps in their skills and style so that together the result is likely to be stronger than if either one completed the project on their own. What is important is that you give some priority to your choice of individuals and organizations that you collaborate with.

It is also important to look outside your normal networks for collaborators. It is natural to select collaborators based on closeness of research culture. Be mindful that sometimes the best opportunities lie outside your existing network. Keep in mind when pursuing these collaborations that different organisations can have vastly different cultures and modus operandi. Invest time in understanding these cultures and don't take it for granted that collaborators will operate under the same cultural boundaries as you. You need to be clear about expectations from the beginning. It is too easy to let things go at the beginning, with the feeling that it will work out as the project progresses.

Below is a list of issues to consider in a potential collaboration. Add others to the list if you can:

- Is there a shared vision for the research?
- Is there a shared passion for the research?
- Is there respect between both parties?
- Are the working styles compatible?

Why form a collaboration:

Your motivation to undertake a collaborative project will come from the benefits afforded by the collaboration. The same is true for your collaborator(s). Benefits of collaboration may include:

- Being able to fund additional R&D activities
- Building long-term partnerships
- Enhancing research activities (e.g. by being able to access state-of-the-art equipment, by improving project management skills, or by complementing your research team with new skills and techniques developed in industry)
- Identifying research which you can do together but not independently – decide on objectives together
- Gaining status and prestige
- Identification of potential new partners for further research
- Attracting and motivating good scientists interested in entrepreneurial aspects or in new professional career opportunities
- Contributing to the better recognition by public authorities of the socio-economic relevance of publicly funded research, potentially leading to more funding
- Future exchanges of staff between the institution and the collaborator, or the hiring of new graduates from the research institution by industry.

Note: These benefits of collaborative research have been adapted from '*The Responsible Partnering'* website in a document entitled "Voluntary guidelines for universities and other research institutions to improve their links with industry across Europe"
http://www.eua.be/Libraries/Publications_homepage_list/Responsible_Partnering_Guidelines_09.sflb.ashx

Research collaborations with organisations

Finding the right organisations to partner with in your research can be challenging, especially when the partner organisation is not an academic organisation and so can have quite a different culture.

When looking for organisations to partner with it is important to try and understand the position they hold among their peers. For example, an industrial partner may be part of a representative industry forum or association. Look at their agendas, industrial and political, as these can impact on how the resulting research outcomes are viewed and could create potential conflicts of interest.

Maybe the most difficult thing to manage in any partnership is that of equality. Both parties come from different backgrounds – intellectual and financial – but in terms of the project at hand they bring equal resources to the agreement. It is worth looking at this in detail.

Below are some examples of where two partners may engage. In reality, there are any number of variations on these combinations (and the complexity increases as the number of parties grows). For simplicity, some general principles/characteristics of these types of relationships are included. This list is by no means exhaustive or definitive. Relationships and collaborations spring from a range of motivations and resource commitments (too numerous to define here).

- **Two universities**
  Characteristics: similar philosophy and culture. Pursuit of academic research and teaching, and creation of knowledge for knowledge's sake is acceptable. Collaboration does not necessarily require a commercial outcome. Potential for: joint appointments, joint infrastructure, collaborative funding bids, and joint publications.

- **Government and university**
  Characteristics: university culture is one of research (basic through to applied), investigation, and pursuit of knowledge; government culture one of public accountability and bureaucracy. The government's motivations are to procure/provide research/outcomes of benefit to government and, ultimately, to the taxpayer. University motivations are to pursue research interests, publish results, and gain funding to support research/education activities. Potential for: exchange visits, consultancy arrangements, funding from government, the credibility of academic experts is available to support government initiatives.

- **Industrial company and university**
  Characteristics: university culture outlined above; not necessarily motivated by need to show a commercial/end-user benefit of the research undertaken. Industrial company will be driven by financial imperatives, and will have a desire for commercial outcomes (and their associated revenue). They will often have a large amount of cash that they can bring to a collaboration. Potential for industry/university staff exchanges, joint funding bids, commercialisation of basic/applied research, joint IP initiatives.

- **Community group and university**
  Characteristics: university culture outlined above; community groups generally have less funding to bring to a collaboration. Potential for: ethically responsible use of research which benefits (potentially) underrepresented groups in our society, small research grants.

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1.2 Potential points of difference with collaborators

Below is a list of areas that can become points of difference in both research partnerships and collaborations. While you can never foresee all issues that will arise, it is important to discuss these issues with your potential collaborators/partners before you submit grant applications together.

A. Ownership of intellectual property and other complex legal issues

Ownership of intellectual property (IP) generated by a collaboration is a matter that should be resolved prior to the commencement of your project. In making decisions about how to manage issues of intellectual property, you will need to consider how best to achieve the objectives of the project, and ensure you meet your contractual obligations (if applicable) while adhering to your university's intellectual property policy.

It is important that you negotiate and consider collaborator/partner interests in any IP generated as part of the research project. If applicable, consideration must be given to the background IP that collaborators and other stakeholders bring to the project. Appropriate protection and guidelines for the use of project IP and background IP should be negotiated as part of agreements that are entered with the project collaborators and other stakeholders (including funding agencies).

Your decisions surrounding IP protection will derive from motivations such as whether you want to control knowledge-flow through agreements about ownership of intellectual property, or whether you want to maximise the availability of any new approaches and knowledge generated as part of the research project by being more relaxed about the use of the intellectual property created as part of your research project.

Special consideration should also be given to the intellectual property of any students involved in your research project. It is particularly important to consider any restrictions by partners on the use of project intellectual property that may limit or inhibit the ability of a student to have their thesis examined or published.

It is important to know the policies and resources available through your university which can guide you in your planning and consideration of intellectual property issues at the commencement of your project.

At your University

B Budgeting and funding

Managing your research project budget may entail funding transfers to collaborators and other stakeholders. These financial arrangements should be agreed on in principle before the project grant is submitted. It is important to meet with the relevant stakeholders and collaborators, and document it in an agreement (e.g. collaborating parties agreement, multi-institutional agreement) to ensure that all stakeholders are aware of the financial management and funding arrangements for the research project.

C Marketing and badging

Check the University's policy on branding, website, marketing, and media. Design a team template for presentations and encourage members to use this template, but ensure it is not contrary to university policy. A consistent public presence can be very effective in conveying your message, particularly to stakeholders. Agree on the formula for acknowledgements (where and who) in any of your public material and always err on the generous side in this regard – it helps avoid unnecessary conflicts.

At your University

D Communication, record keeping, and decision-making processes

Successful project management relies heavily on establishing, maintaining, and managing stakeholder relationships. These relationships must be managed with good communication strategies that minimise the possibility of things going wrong. Consideration should also be given to the options available for dispute/conflict resolution.

You will need to identify the processes for the collection, storage, and dissemination of information in the initial stages of the project. You will also need to communicate with all stakeholders and collaborators to determine which stakeholders need information, when it is required, and the format it will be delivered in. The correct, consistent, and timely flow of information is vital to the success of any project and research team.

E Ethical use of data

When the collection of data has required approval of a human ethics committee, there will likely be some restriction on how the data should be collected, stored, and archived. When seeking human ethics approval, you should include a statement

on the storage of data; this should be brought into play when planning a data management plan at the outset of the project. Make sure you understand the different requirements that may be made on your collaborators if they come from another institution.
Ensure you complete Topic 4 'Managing your Research Records' of Module 3 that covers data management in more detail.

International collaborations

These introduce a further set of challenges. The European Association of Research Managers and Administrators identified the following issues and concerns in international research collaborations.

Issues and concerns in international research collaborations

These are some of the challenges and potential areas of tension that have been initially identified in international research collaborations.

Cultural differences
In many instances, differences in culture are a root cause of significant challenges when forming international research collaborations.

Differences in ethical standards
These may stem from both cultural and economic differences. For example, standards for the protection of research participants and the proper care and use of animals must address both internationally accepted ethical concerns as well as local customs.

Responsible conduct of research
Public confidence in academic research is essential, regardless of where it is carried out. When research is perceived to be biased or influenced by financial, political, or other pressures, public confidence in research is eroded. The necessity to train and teach the broader concept of objectivity in research is also crucial.

Intellectual property
International systems of IP protection are varied, despite efforts to reach a common global approach. There are some areas too where IP protection is questioned or ignored.

Liability and insurance
Working between states in the US can be challenging on this front – difficulties with global arrangements expand exponentially.

Research integrity
This is meant in a general sense, but also in connection with data manipulation and fabrication. There is a recognized international challenge to meet in universally defining, investigating, and prosecuting cases of scientific misconduct.

Safety and security
Conducting international research in locations subject to a certain level or social and political instability or natural disasters immediately raises issues of safety and security.

Currency and other financial issues
How do they impact international research projects, particularly in the current economic circumstances when the world economic system is under severe stress?

Export controls
For the US, the transfer of American knowledge and technology overseas is a hot topic. Needless to say this issue has international implications.

Reference: http://media.rr-co.eu/docs/press/earma_link_17april_2009.pdf (pg 10-11)

Further information can be found at:
http://www.udayton.edu/law/_resources/documents/law_review/the_guirr_international_research_collaborations_project.pdf

Reflective activity:

Take 10 minutes to reflect on the following questions and make a note of your responses. You can draw on your experience of previous collaborations – or on your current perceptions of collaborations happening around you.

Why collaborate?

- What, if any, are the strategic advantages of collaborations?
- What are the personal advantages?
- What are the potential pitfalls?

What to look for in a collaborator

- List the characteristics you believe go towards the making of a successful collaboration.

How to find collaborators?

- Internally (where are the synergies within your faculty and within the university?)
- Externally (where is the potential – i.e. the funds – and where is the interest in my area of research?)
- How have you found collaborators in the past – how have you seen successful collaborations formed?
- What examples of unsuccessful collaborations can you think of – what were the causes and what should you avoid?

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Topic 2: Project commencement – key tasks

Module 1: Research Strategy and Planning introduced the concept of strategic and research planning and design. Module 2 picks up these concepts and explores how they can be applied into the commencement phase of your research. It also examines the importance of managing your collaborations as you plan and build your project.

In the commencement phase of the project you need to identify and consider all elements of your project. In order to ensure that you can meet project deliverables, you will need a project plan that outlines and identifies all the elements required to commence, manage, monitor, and complete the project. It is time to put your ideas into practice. This topic will provide guidance for the development of timelines and scheduling for a range of scenarios (from small through to large projects). As this topic draws on some project management terms and concepts, you may wish to refer to the module glossary for clarification.

Learning outcomes

After completing this module you should be able to:

- Plan a research project
- Negotiate competing interests, needs, and wants
- Determine the elements and understandings that need to underpin the project's legal agreements
- Establish and maintain healthy collaborator and stakeholder relations.

Topic content

Read the following notes.
2.1 Finding mentors and advisers
2.2 Project plan: setting project goals and research targets
2.3 Milestones and timelines
2.4 Budgeting and funding
2.5 Ownership of intellectual property and other complex legal issues
2.6 Establishing successful stakeholder relationships

At your university

If you need specific advice regarding the management of research grant funds contact the research office or your faculty/school finance officer.

Activity

Complete this activity after you have worked through the subtopic.
Take time to reflect on identifying the objectives of stakeholders. Either:

- complete 3–5 rows from the table below, outlining the wishes of those stakeholder groups (from your understanding of the core case study, Safeguarding the Murray–Darling)

Then answer the following question:

- Are there any stakeholders not listed?

or:

- Using the categories from the table below, identify 3–5 of the stakeholders in your current research project and outline the wishes of those stakeholders.

If you would like to use an e-version of the table below, please use one of the following links to download a file containing the table.
Identifying stakeholders table (Word file) Identifying stakeholders table (rtf file)

Identifying stakeholders and their objectives

Stakeholder group / project participant	Hopes, wishes, fears, and objectives	Project goal/s and research targets arising from the needs of each group	Possible areas of conflict

• *The Murray–Darling management Trust,* a mining company represented by Jim Shepherd, Executive Director	• Financial benefit • Company image as environmentally responsible		
• Community leaders			
• Federal government – particularly Ministers responsible for climate change and the environment			
• Queensland, New South Wales, and Victorian State government bodies and representatives			
• Indigenous community members			
• Newcomers to the area and the emerging company town, e.g. support industries, small business owners attracted by new opportunities, government employees			
• The university			
• Research project leaders: Professors Stupendous and Prolific			
• Individual members of the research team			
• *Knowledge Now*, an innovative network community agency			
• *Future Ed,* an educational community development agency			
• Media			

Additional Reading/Activities

Readings

Barnes, T.A., Pashby, I.R. and Gibbons, A M. Managing collaborative R&D projects: development of a practical management tool. International Journal of Project Management 24 (2006) 395–404.

Useful websites

- IP Australia http://www.ipaustralia.gov.au/ip/introduction.shtml
- Intellectual Property Research Institute of Australia (IPRIA): http://www.ipria.org/default.html
- For a quick overview of the 'copyleft' movement, see http://en.wikipedia.org/wiki/Copyleft and http://www.smh.com.au/articles/2004/05/24/1085359552567.html
- The open source community is developing some interesting models for sharing and collaboration around software. See http://www.osv.org.au for more information.
- Many collaborators share their work under Creative Commons licences. See http://creativecommons.org/ , http://en.wikipedia.org/wiki/Creative_Commons , and http://creativecommons.org.au/ for more information.

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2.1 Finding mentors and advisers

If you have not had experience in managing your own research project (including financial management of your own project), you may find it useful to identify someone who may be willing to advise or mentor you through the management of your project. These individuals may be more experienced consultants or project managers who can provide you with guidance and assistance in the commencement of your project and the management of your collaborations. Your Head of Department and/or Dean/Director may be able to assist you to identify an appropriate adviser/mentor. If you wish to learn more about research mentoring you are encouraged to read Topic 5 of the 'Settling In' module.

Most universities offer a range of support services to researchers. Some services that can be useful at the commencement of your research project include:

- Academic mentoring services (usually offered at a faculty/school level)
- Workshops and information sessions on topics such as research project management, financial management, staff recruitment, and legal and contractual requirements for accepting funding. These sessions are usually run by university research offices, finance offices, human resources, and legal offices.
- Publications including handbooks, policies, and procedures. These documents include researcher handbooks, research codes of conduct, and procedures for applying for funding, accepting funding, and managing research projects.

At your University

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2.2 Project plan: setting project goals and research targets

Please see Module 1: Research Strategy and Planning for more in-depth review of project planning and management.

"Planning is an unnatural process; it is much more fun to do something. The nicest thing about not planning is that failure comes as a complete surprise, rather than being preceded by a period of worry and depression."

This quotation, by economist and businessman Sir John Harvey-Jones, illustrates the importance of project planning. This key management competency is central to the successful delivery of your research project. Many projects, even when run by professional project managers, can run over-budget and over-time – often by more than 100%. Research projects introduce an additional set of challenges in four areas:

- Goals – while the goals of the stakeholders will overlap at times, they will not necessarily be congruent. You will need to be aware that different stakeholders may not equally value all outputs.
- Uncertainty – research is by definition unpredictable. While you may be able to assess the inputs, you cannot necessarily be confident of the outputs. Major changes in your project goals, scope, timelines, etc. are very likely – even when the resources and interests of the stakeholders do not change over the life of the project. It is essential to plan, but equally necessary to change your plan as the project progresses.
- Complexity – bringing in additional goals, disciplines, and collaborators often increases complexity exponentially.
- Management – management of the project is demanding of time and requires competencies in communication, conflict management (conflict resolution), and in relation to the conduct of research.

If you have not already done so, you will need to identify the major tasks that need to be completed, as well as any sub-tasks. As well as estimating how much time you will need to allocate for each task, you will also need to consider the dependencies between tasks/sub-projects. You will need to identify which tasks can be completed concurrently to maximise your use of time and manage your project efficiently. You will be able to identify your research targets from this process.

You may first need to re-visit your proposal and draw up a list of the expected research outcomes, and a list of the personal research goals you aim to achieve by the end of the project. When the award documents arrive, read them carefully to determine the extent to which you will be able to achieve your listed outcomes and goals. The duration and amount of funding may not be what you requested. You may need to carefully and strategically review your project plan.

- *Investigators and Partner Organisations.* The time lag between submitting an application and being awarded a grant can be lengthy – probably between 6 and 9 months, and sometimes up to 12 months. One or more of the project's named investigators may have moved institutions, relocated overseas, or left university employ and may no longer be eligible. Refer to the scheme Guidelines and Funding Agreement to find out what you need to do in such cases and address the issue through your Research Office. Six to nine months is a long time in business or industry and the fortunes of your Partner Organisation (PO) in an ARC Linkage Project venture may have changed. If the PO is no longer in a position to support you, a replacement needs to be found and approved by the ARC. Again, your Research Office will assist you with this process.
- *Intellectual Property (IP) issues.* Address IP issues from the start. You probably discussed these with your co-investigators at the time you developed your proposal. Now is the time to re-confirm your discussions and obtain the agreement of all investigators about the ownership of existing and project IP. If necessary, seek advice from your institution's legal office.
- *Publications.* At the same time that you re-confirm IP issues, draw up a publications plan and agree on the basis for determining the order of authors for each intended publication. The agreement you reach about these issues should be included in your management plan.
- *Identify and focus on key issues and results.* If you are in the happy (but rare) situation of being fully funded, you will be able to proceed with the research plan as outlined in your proposal. Unfortunately most research grants are not fully funded and you need to identify the key research issue(s) that need to be addressed. In the case of either full or reduced funding, you must focus on outcomes and direct your resources to the research problem that is most likely to result in publication(s).
- *The impact of reduced funding.* If your research project has not been fully funded you will need to re-think your approach to the research problem and re-design the project in order to concentrate on what you determine are the key issues. Think about how best to achieve your expected outcomes and your personal research goals, and how to maximise your publication opportunities. Seek advice from your mentor on the best strategy to adopt.
- *Explore other avenues of funding.* You may be able to make up any funding shortfall from other sources. Your Faculty and/or School may have discretionary funds that can be used to top-up a successful

research grant. If you are engaged in consultancy work, the consultancy fees you earn may, depending on your institution's policies, be available for you to top-up your grant. Think also about collaborating with others in your field who are funded for similar projects. Alternatively, you can consider applying to another funding agency, but bear in mind that there is always a time lag between application and award. This latter option may be useful if you can separate out a discrete project from the overall research program. Also check the Deed of Agreement to ensure that your primary funding agency will allow you to use funds from other sources.

- *Focus on achieving early results.* The average research grant is awarded for 3 years and time goes by very fast. Plan to do everything important in the first year and write up your results by the end of that year. You need to get your papers submitted as soon as possible so that they will be published within 3 years. Remember, you will be relying on results from this project to prepare your next application, and the new application needs to be submitted well before the expiry of your current grant. Experienced researchers warn that where research is concerned, it's always later than you think!
- *Student projects.* If you have sufficient funds and the research program can accommodate it, it is a good idea to build Honours and PhD student projects around the grant. Adopting this strategy will result in more publications and will form the foundation of your next grant. Note: students automatically own their IP unless it is formally assigned to the institution; seek advice from you legal office concerning student IP issues.

The following table outlines some of the objectives of a good project plan at the commencement phase of your project. These objectives apply to research projects of all sizes, and all disciplines. As well as identifying the objectives, the table provides insight into potential challenges and how to manage them.

Objective	Challenge	What happens when it is off-track	How to avoid or manage
Clear and achievable: • Research targets • Timelines • Goals	Understanding and appreciating what motivates stakeholders – i.e. the outcomes they seek.	External: Well into the project it becomes evident that the project is not on track to be a success for all stakeholders – and this may generate a crisis in the project.	Plan rather than hope – have a flexible and responsive project plan.
		Internal: For some team members the research may be a path to a PhD, for others publications in prestigious journals, while for others it may be developing long-term research links.	Understand the drivers for all team members.
	It is not uncommon for the scope of the research to widen as more issues are identified and are added to the research menu.	'Scope creep' leads to a loss of focus and misunderstanding among the project team.	Regularly refocus through progress reviews at milestones.
	Recognising the implicit goals, e.g. developing people, relationships, building intellectual assets.	Research leaders who focus only on the research results tend to underinvest in the full range of outputs of research.	Recognise the mentoring and capability asset development role of research leaders.
Taking uncertainty into account	Ensuring that all understand that research involves uncertainty and changes (possibly substantial) in timelines, methods, and objectives may be necessary. Partners and collaborators may change their priorities.	When risks are not considered and no resilience is built into the project there is a reluctance to re-orient in response to change.	Anticipate and plan for the uncertainties and risks.
	Amending plans, milestones, and budgets in response to the evolution of the project.	An aspect of the research project goes 'off-course' and may jeopardise other aspects of the project.	Update the project plan to make it real.
Joint basis for monitoring & evaluation	Ensure that the assessment and indicators of progress are those agreed by all stakeholders.	Some stakeholders may lose confidence in progress and hence in project management.	Fully discuss the most effective approach to assessing progress.
Team-building and team roles	Developing a good appreciation of the intellectual capital of the team members and potential contributors/stakeholders.	Some team members are disgruntled because the capabilities are not used and others do not receive the training they need.	Understand the dynamics of teams and invest in team management training, including in conflict resolution, decision making, and

			communication.
A strong foundation for collaboration	Collaboration becomes difficult when there are different goals, different values, and particularly when there is a lack of transparency.	Mistrust erodes good will, undermines productivity, and limits creativity.	Develop effective approaches to share information as much as possible.
Good project management	Early identification of problems and continuous evolution of the project plan.	Project management failures distract energy away from the research.	Research and management planning and realistic assessment of the time required for management.

Reflective Activity

Take 10 minutes to use the table above as a diagnostic for the current research project you are working on. See if any of these challenges apply and, if so, consider whether the recommended strategy might be useful action to take.

Module 2: Commencement and Collaboration – Putting Ideas Into Practice

2.3 Milestones and timelines

At the commencement of your research project it is valuable to identify your project milestones and timelines. These become measures of how well the project is progressing and provide signposts that allow you to assess your ability to complete the project on time and on budget. While you may choose to move some of these markers as you work through the project, you should establish them in the first place before you begin. If your research project is being funded by external funding (such as grant, consultancy, or contract research), your milestones may be influenced by the agency(ies) funding the research. When scheduling key tasks and project milestones you should:

- **Clearly mark calendar dates against goals**
  This ensures that you have a timeframe for the delivery of your research goals. It will also be necessary if your research project is funded by external funding, which is more than likely to involve reporting requirements. Research deliverables may be identified as part of your research goals. These could include things such as reports, datasets, and preliminary results. It is important to keep in mind that some external funding agencies link project payments to deliverables. These contractual conditions will be clearly identified in the research funding agreement (contract) that you enter into when you accept the funding. Make sure you read and understand your obligations under any funding agreement you commit to.

- **Prepare a reporting schedule**
  Again, it is important to tie your reporting dates to calendar dates. Your reporting schedule will be largely influenced by the stakeholders involved in your research project. If you are receiving funding from external agencies (e.g. federal or state government departments, rural research and development corporations, or other granting bodies), the reporting requirements (including frequency, format, and any potential penalties for non-compliance) will usually be specified in the funding agreement. Many funding agencies require annual progress reports, and a final report to be submitted within 6 months of completion of your project. Other stakeholders may have reporting requirements, particularly if they are contributing to the project with cash or in-kind resources.

  Reports can be required for all aspects of the research project including
  - financial reports
  - milestone reports
  - annual reports
  - progress reports
  - final reports
  - financial acquittals.

Most universities are able to manage and monitor reporting milestones with a research management database. Check with your Head of Department for information on your university's research management system, and for any faculty/school/centre and university-specific reporting conventions that may exist at your institution.

It is also worth noting students on PhD/Masters scholarships, working as part of your research project, have specific reporting requirements – to the university and sometimes to an external funding agency if the scholarship is externally funded.

At your University

- **Identify risks in meeting your milestones and timelines**
  Research projects are inherently unpredictable. As shown in the table on the previous page, there are many challenges that can affect the delivery of research outputs and milestones. You may have changes in your research team, your research may take an unexpected turn, or you may have difficulty securing the equipment or resources you need to complete your research. All of these things can make it difficult for you to stick to your original milestone targets and timeline. You should frequently review progress towards your milestones and adherence to your timelines, and assess any potential risks to these. It is important to keep all stakeholders informed of any potential delays in the delivery of milestone targets and of changes in the timeline. If necessary, you may need to seek approval from external funding agencies for the late submission of a milestone deliverable, or a revised schedule of project deliverables.

- **Communicate these decisions clearly to your research team**

Changes in milestone dates, research timelines, and research direction need to be clearly communicated to the relevant people in your research team. You should ensure that your research team is aware of any revised priorities, milestone dates, and timelines so that your research project deliverables are not compromised. You should also assess whether your collaborators and other stakeholders need to be aware of any changes in milestone dates and research timelines.

Simple timeline template

The key tasks in your project can be defined using the template shown below:
Project start date: / /
Project finish date: / /

Project task		Resources required	Expected completion date
Example: Recruit additional researcher		Example: Position description	
Stage 1			
Stage 2			
Stage 3			
Stage 4			

If you would like to use this simple timeline template, please use one of the following links to download a file containing the table.

Timeline template (Word file)
Timeline template (rtf file)

Module 2: Commencement and Collaboration – Putting Ideas Into Practice

2.4 Budgeting and funding

This topic is covered in detail in Module 5 and you are strongly encouraged to complete that module or access the on-line material. Establishing a project budget and monitoring that budget from day 1 is vital to the success of your project.

Module 5: Financial, Resource, and Risk Management

Module 2: Commencement and Collaboration – Putting Ideas Into Practice

2.5 Ownership of intellectual property and other complex legal issues

This topic is covered in detail in Modules 3 & 4 and you are strongly encouraged to complete that module or access the on-line material. The link is included here to reinforce the importance of dealing with IP issues and with sorting out issues such as data management (Topic 4, Module 3) from the beginning of your grant.

Module 3: Governance and Compliance
Module 4: Intellectual Property and Commercialisation

Module 2: Commencement and Collaboration – Putting Ideas Into Practice

2.6 Establishing successful stakeholder relationships

Stakeholder relationship management – such as establishing and maintaining research collaborations, networks, and virtual communities – is both a crucial and time-consuming practice. It is vital to the success of your project to identify and manage stakeholders' expectations, especially at the initial stages of the project to ensure its effective management.

Talk to your stakeholders – not only by email. Call them and travel to see them in order to develop a strong, respectful, ongoing relationship. Invite them to visit your university, and not only your team, but related facilities to demonstrate the research environment that your university offers. It is important to present your team as part of an integrated institution; indeed, you should work to make this more than words. For your own and your team's education invite other groups on campus to present at your regular team meetings. This should help form links and, most importantly, keep your team thinking diversely (but be aware of the potential budget implications of these visits).

Be inclusive of your team when you engage your stakeholders or collaborators. It is important that you lead, but make sure your team members each have an opportunity to develop a research relationship. This will increase the team's adaptability to problems/tasks. The good rapport you and your team develop with a stakeholder will hasten understanding if it happens that the two groups come from very different backgrounds/cultures. Take time to develop an understanding of their terms and usage. After every stakeholder meeting, gather your team and interpret the key points. The team members will contribute valuable perspectives if they have had a chance to really engage your stakeholder.

It is not uncommon for researchers to focus on the minutiae of their topic; indeed it is often the reduction of a process to its elemental steps which excite a researcher. Try to encourage your research team to think more broadly about the topic or project. An industrial partner, for example, might see an effect that plagues their product in a very different way to your research team. Lead your partner through your understanding, but recognise that their experience of the product will provide empirically important information. In other words, respect their experience; it all adds to the solution of the puzzle.

As mentioned in Topic 1 and elsewhere, the issue of IP can provide particular challenges and can impact on the release of information. Constraints aren't always commercial – there can be issues of privacy or even propriety. It is important to constantly communicate with your stakeholder to make sure they understand exactly what you would like to make public, and by what means. You may be able to propose a joint announcement, if appropriate, but it is important to be inclusive in this process. They will own the results too, and this is one way you can demonstrate to them that you consider them an equal partner. Always include your stakeholder appropriately in any research outputs (reports, publications, seminars, etc.). This could be by way of acknowledgement, by joint authorship, or by merely displaying their corporate logo.

Although the actual terms of your engagement may initially be within the framework of a contract (and project schedule), do not be limited in seeking to expand this scope. Some projects will evolve and offer more than the original agreement. The contract will have terms to cater for 'off-topic' work, but it will be something that will require careful management. It is not uncommon for these serendipitous discoveries to distract either or both parties. Establishing a good rapport will permit you to gauge your stakeholder's enthusiasm for these non-funded activities. If they are not interested then respect their project and re-focus your team. It is usual for a contract to deal with the ownership of these non-funded activities, and once sorted out you might seek to continue work using other resources. It is the great value of working outside your field that you have the chance to discover new approaches. You need to be constantly finding and filing these off-topic ideas in order to sustain the next partnership or student project. The only caution is never to lose track of your current stakeholder's needs.

Module 2: Commencement and Collaboration – Putting Ideas Into Practice

Topic 3: Management – small, medium, and large projects

Leadership and management is central to the success of research projects. Your management structures will differ according to the scope and scale of the research program. It is important to have these in place at the commencement of your project. Your clear management structures will, within the scope of your project, enable successful and mutually beneficial collaborations to occur. Management should be formalised and leadership roles should be clarified at the outset of your project. Management structures will differ according to the scope and scale of the research project. This topic will explore different management structures. You will also need to consider the composition of executive management groups, committees, and advisory bodies – the groups that may oversee the implementation of planning, monitoring, and evaluating the activities of your project and research team. Project governance is dealt with more extensively in 'Module 3: Governance and Compliance – Protecting Yourself, Your Research, and Your University', but because it is intrinsic to successful project commencement and collaboration it is also raised in this module.

Learning outcomes

After completing this module you should be able to:

- Develop a management framework including decision-making and communication policies, systems, and processes
- Negotiate competing interests, needs, and wants
- Determine the elements and understandings that need to underpin the project's legal agreements
- Establish and maintain healthy collaborator and stakeholder relations.

Topic content

Read the following notes.

- 3.1 Management roles and responsibilities for small, medium, and large research projects

The issues around project governance are dealt with more extensively in 'Module 3: Governance and Compliance – Protecting Yourself, Your Research, and Your University'.

Activity

Complete this activity after you have worked through the subtopics.

Either:

Safeguarding the Murray–Darling: Management arrangements for a medium-sized project
Using the core case study, 'Safeguarding the Murray–Darling', and using the principles of good management outlined in this topic, consider and identify a basic management structure for any one of the eight research sub-projects. Assume that the project represents a collaboration between your university, the MDBA, and the local Indigenous community. This would fit the model of 'medium-sized project' as explained in this module.

You will need to identify and describe the following roles/responsibilities: Director, Chief Operating Officer (COO), group leaders, executive, and advisory board. Spend about 15 minutes on your response to this task.

Or:

Using the information in the module that relates to the size of the project you are currently involved in, identify changes (if any) you would make to the current organisational structure of that project and identify the outcomes you would help achieve by making those changes.

At your University

Additional Reading/Activities

Most universities offer a range of support services to researchers. Some services that can be useful at the commencement of your research project include:

- Academic mentoring services (usually offered at a faculty or school level)

- Workshops and information sessions on topics such as research project management, financial management, staff recruitment, and legal and contractual requirements for accepting funding. These sessions are usually run by university research offices, finance offices, human resources, and legal offices.

Management mechanisms and funding agreements for large research projects (Centres)

Examples of the management roles and responsibilities for large research projects are outlined in the following documents:
Australian Research Council (ARC) Centres of Excellence Funding Agreement 2005 Schedule B of the agreement sets out management mechanisms required for ARC-funded Centres of Excellence (including participants, senior centre management, and advisory board)
(Note that the following link is to an rtf file.)
http://www.arc.gov.au/rtf/CE05_Funding_Agreement.rtf

Department of Industry: Cooperative Research Centres Funding Agreement:
https://www.crc.gov.au/For-CRCs/Documents/2%20-%20Round%2015%20-%20Commonwealth%20Agreement%20Unincorporated%20-%20FINAL.pdf

Module 2: Commencement and Collaboration – Putting Ideas Into Practice

3.1 Management roles and responsibilities

3.1.1 Small research projects

You would be aware that research projects are infinitely diverse, and the 'small-ness' of a project can be defined in any number of ways. The small research projects under consideration in this section could be identified as:

- projects defined by an agreement with a single entity, and/or
- projects with a small research team comprising 1–4 members (usually from the same institution), and/or
- projects with a small budget (up to $100,000 per annum for an average of 1–3 years).

Examples of such projects could be research projects funded under the Australian Research Council (ARC) Discovery Projects scheme (funding is offered from 1–5 years for $20,000–$500,000 p.a.; average grant size announced in 2007 was $342,000), or the National Health and Medical Research Council (NHMRC) Research grants scheme (average grant size announced in 2007 was $507,000). Small research projects may also refer to other grants, small consultancies, and contract research with a range of other providers.

As a research leader of a small research project you will need to consider the following core elements of good management for the effective management of your project:

- **Vision**
  At the commencement of your project you will need to articulate your vision (both in terms of research direction and project management) for your stakeholders and your research team. Stakeholders could include funding agencies, industry partners, and other research collaborators. Your research team could be limited, and may only involve a research assistant, a PhD student, a postdoc, and/or a technician.
- **Leadership**
  It is important to provide leadership, both in terms of research direction and project management, to ensure that project deliverables are met in a timely manner
- **Clarity of roles and responsibilities**
  You will need to ensure that the roles and responsibilities of the research team leader and other team members are well-defined, and that reporting lines are clear
- **Clear processes of decision-making**
- **Effective planning and evaluation.**

Module 7: Managing and Leading People in a Research Context offers a more in-depth analysis of the role of the research leader as a leader of people and their role in providing a vision to raise the performance of their staff.

The structure of management varies widely with the size of the research project and the type of research you are doing. In a small team with individual grants and very few students, the project will frequently be based on individual chief investigators (CIs) who are responsible for one grant and a few students and possibly postdocs. Since the CI is responsible for many parallel management aspects, you (as research leader) will require a diverse skill set (outlined above) to manage your project successfully.

In addition to your management of the operational aspects of the research and the project, you will find that additional supervision of the project, through a department and faculty/school/centre, is formally required. Financial aspects of your project will normally be controlled by business managers, located in university departments or at the faculty/school/centre. It is a good idea to discuss and seek advice about the management arrangements, including leadership and team roles, from a colleague you have identified as a mentor, or from your Head of Department.

3.1.2 Medium research projects (e.g. collaborative research projects)

Your involvement as a leader of a slightly larger, more managerially intensive, project can introduce complexity on a range of levels. As the number of stakeholders and collaborators necessary for you to deliver a successful research project increases, so too does the need for you to establish and communicate clear leadership and management structures.

At the commencement of your collaborative project, arrangements should be put in place to define responsibilities of CIs and collaborators (including industry partners). These arrangements will involve allocations of your project funding, establishment of a project management group, regular meetings, any process for changing funding allocations/project objectives, and dispute resolution.

There are some things you will need to consider before devising a collaborative research agreement. Your most important consideration is to establish what the collaboration is intended to achieve. This will guide your decisions around the management of your collaborative project.

When it comes to allocating roles within the project management group, you will need to take into consideration the specialisations and competencies of your collaborators. Some collaborators or industry partners may have more experience in handling business risk and liabilities, whereas research team members at the institution will tend to have deeper understanding of the research subject matter. Responsibilities and procedures should be defined according to expertise and competency.

Before the commencement of your collaborative project you should ensure the following arrangements are in place, at a bare minimum:

- Agreements on intellectual property (IP)
- The necessary sub-contracts have been negotiated and signed off by the relevant parties
- Your project plan (covering milestones, etc.) has been accepted by your collaborators.

Collaborative research agreements

Part of the management of your collaborative research project will include the execution of an appropriate collaborative agreement. This is the legal article that will define the nature and extent of the collaborative relationship. You should seek the advice of your university legal office and/or research office to ascertain the procedures for developing collaborative agreements at your institution.

For your interest, recommended inclusions for collaborative agreements follow:
1. Definitions, identification of parties, objectives, and partner selection
2. Confidential information
3. Scope
4. Resources
5. Funding and pricing
6. Management and coordination
7. Reporting
8. Publications and confidentiality
9. Access rights to background IP
10. Ownership of project IP
11. Patents and other IP
12. Licences.

Note: Points to cover in a collaborative research agreement have been adapted from *The Responsible Partnering* website
http://www.eua.be/Libraries/Publications_homepage_list/Responsible_Partnering_Guidelines_09.sflb.ashx

At your University

The following section is optional. It relates to structures for large projects. If you are a member of a large research centre then it may be useful to compare what is suggested to what you observe. Otherwise move to the next topic.

3.1.3 Large research projects (e.g. Centres)

Once again, your leadership of a larger, multifaceted project introduces management complexity in terms of project scale and scope. Large research projects, such as Centres, will probably involve a large number of stakeholders and collaborators, a large budget, and increased accountability. The essence of good management is accountability. Clear management and management structures, in addition to your leadership skills, will play a large part in the success of your research project. The establishment of management mechanisms may be required before a large project, such as a Centre, can commence. Under some funding arrangements (e.g. DIISRTE Cooperative Research Centres) there is even a requirement for the Centre to be governed and managed by a company. The management structures most relevant for large projects include executive management groups, boards, committees, and advisory bodies.

These structures oversee implementation of:

- **Planning**
  Planning is essential at the commencement of the research project, especially a large one. You will need to use your management structures to inform the development of the project plan (detailing how the project will be managed), project scope (documenting what the project will deliver), timelines and schedules (showing the timing of major project deliverables), and communications plan (identifying all stakeholders and communication channels). You will also need to work with your management structures to ensure processes are in place to manage risks, issues, and project commitments, and to decide on the key performance indicators/measures (KPIs/KPMs) that will enable you to evaluate and report on the activities of your project as time progresses.
- **Monitoring**
  Terms of reference (TORs) should be developed for all project management structures. These should clearly identify the roles and responsibilities of the management structure, both in terms of monitoring and evaluating the project. As far as project monitoring goes, these TORs may include responsibilities for providing periodic scientific, financial, and progress reports to your board, enlisting sub-committees, coordinating meetings of executive management groups, and liaising with advisory bodies (to ensure that all aspects of your project are being managed and monitored in accordance with the project plan and the relevant agreements).
- **Evaluation**
  Management structures will also play an important role in evaluating the activities and progress of your

research project. Evaluation should be made against the documented key performance indicators that were decided on at the commencement of your project. Evaluation exercises can provide evidence required for reporting to external stakeholders and funding agencies, and can support a case for future funding. Evaluation can also provide feedback to enable your university to make strategic decisions about the future direction and support of your research project or Centre.

If you are research leader of a large team, such as a research centre, a formal management structure is necessary, and should be in place at the commencement of the project. This structure could form part of the contractual requirements for the centre's funding arrangements. The funding agency could also ask to approve the appointment of incumbents to the key management functions of the centre, prior to the commencement of the centre funding.

Some of the key management roles and their associated responsibilities are summarised below:

- **Research Director or Centre Director**
  As the leader of your research project, this will probably be your role. You will be responsible for the overall conduct of the research project(s) and science strategy; you will also have a key role in reporting and directing any changes necessary to the direction of the research project. Other responsibilities may include recruitment, selection and training of staff, negotiation of agreements, compliance with reporting, and contractual requirements.
- **Chief Operations Officer (COO) or Chief Financial Officer**
  This person, responsible for the management of the Centre, will generally control accounting and financial matters. Other responsibilities may include (in consultation with the Research/Centre Director) recruitment, selection and training of staff, negotiation of agreements, compliance with reporting, and contractual requirements.
- **Group leaders or managers** who are responsible for individual teams
  These people will usually be scientific leaders of a particular research node of your larger project. They may be responsible for a small team of students, postdocs, technicians, and research assistants. These individuals will be expected to give input and participate in meetings of the scientific committee, executive group, and/or advisory board. These leaders/managers will need to be able to ensure that their team is conducting the research, and the project is being managed, in accordance with decisions made by the executive group and board. This can be a challenging task, keeping in mind that the various research nodes involved in a large project can be located at different physical locations (within Australia and overseas).
- There can also be **separate group managers**, who are academics with a strong talent for management.

Not all senior academics in the project/centre necessarily have to be group managers; they can be directors with special responsibilities for certain aspects of the research.

A clearly defined executive – comprising the research/centre director, COO, CFO, and other managers and directors – will, with regular meetings and minuted outcomes, allow efficient planning and management. This system allows each member of the centre to follow and understand the decision-making process.

An advisory board is necessary, which should contain highly respected scientists in the field from Australia and overseas as well as end users of the research, especially in cases where commercialisation can be expected. The advisory board can also contain people experienced in outreach or with special skills for making the results of the research available to society.

You should consider investigating examples of how some large centres have successfully worked with boards that are modelled on company structures. However, keep in mind that centres in fundamental science or the humanities can benefit from advisory boards that concentrate on providing academic feedback. Again regular meetings with clear objectives are necessary in guiding the strategy of the project or centre and the work of its members.

You will need to consider such issues as:

- **Role of Director/Research Director/Operating Officers**
  Having the right person in these roles is paramount to the success of your project. Your Research/Centre Director will have leadership skills, oversight of the research direction, and responsibility for compliance issues (e.g. ethical clearances and reporting) and general oversight of all aspects of the project.
- **Membership and role of advisory group and research committee**
  You should check any relevant funding and/or collaborative agreements for specifications of membership and role requirements for boards and committees governing your project.
- **Relationship with host organisation**
  You will need to consider how your large project (or centre) fits with the strategic objectives of your institution, as well as how it is managed within the institutional context (reporting lines, administration, funding mechanisms). You should seek the advice of your Dean/Director and/or Business Manager on the processes for management and administration of your project within the institutional context.
- **Relationship with partner organisations**
  As the leader of a large project, you will need to have appropriate management structures and procedures in place that clearly define the nature and terms of the relationship of your research team, project, and university with all partner organisations (including other Australian universities, industry partners, funding agencies, and overseas collaborators). The roles and responsibilities of the parties involved in these relationships are usually formalised in funding and/or collaborative agreements that define how funding will be allocated and distributed, management of the project, and the use and commercialisation of any IP.
- **Develop mechanisms to enable the centre to operate as independently as possible within the host organisation(s) structure**
  The nature of these large projects is such that, while one university will often be named as the 'lead' or 'administering' institution, the entity (e.g. research project, centre, collaboration) receiving the funding

is a collaborative and multi-institutional venture. The research project/centre has often been given funding on the basis of the potential benefits to be derived from the collaboration. This new entity (research project, centre, collaboration) must be publicly presented in order that pre-eminence is not given to individual universities, but rather that the public image and benefits of the collaborative venture are promoted. You are also able to create this image virtually by ensuring that your project/centre website presents a truly collaborative effort and is representative of all interests. It is also important for you to consider any special requirements of the funding agency for management of your project or centre, e.g. CRCs are required to operate as a company, separate from the legal entity of your university.

- **Reporting arrangements**
  As the project leader you will need to ensure compliance with the reporting requirements of funding agencies, collaborators, industry partners, and your university.
- **Centre financial and HR management**
  These tasks will most likely be the responsibility of your Chief Operating Officer or Chief Financial Officer. All processes surrounding the financial and HR management of your research project (or centre) should be undertaken in line with your university's accepted finance and HR procedures. You should discuss your university's requirement and processes with your Dean/Director, or seek the advice of your Finance and Human Resources Office.
- **Project plan (including business and strategic planning, project goals, research targets, milestones, timelines)**
  Your research plan must incorporate plans to deal with the management of the research (targets, milestones, timelines); finances; the research team; and stakeholders/ collaborators. A key aspect of this planning is to define how you will be able to identify the achievement of objectives and the provision of performance measures (e.g. KPIs, KPMs) against which project monitoring and evaluation can take place.
- **Agreements**
  You will be responsible for ensuring that the appropriate agreements are in place, both with the relevant funding agencies (e.g. the Centre Agreement), and with your collaborating organisations (e.g. the Collaborative Agreement). Examples of centre agreements can be found under the heading "Pursuing the topic further" at the bottom of the page for Topic 3, whereas an outline of Collaborative Agreement requirements are found above under heading 3.1.2 "Medium research projects". Your university research office and/or legal office can give you guidance on what is required for your particular research project.

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Topic 4: Establishing the identity and profile of your project

You should carefully consider the public profile of your research project. This is especially important at the commencement of the project, as both the researcher and the research idea are intrinsically linked; your reputation, and the credibility of your research project, need to be promoted in the most positive way. Approaches to developing your project profile will depend on the discipline, the focus of the project, and the size and scope of your project. You should consider strategies, such as measurable quality-control outputs, which will assist you to raise the profile of the project – and will ultimately enhance your reputation, and that of your research team and university.

Learning outcomes

After completing this module you should be able to:

- Determine the best way to badge your project
- Build a public profile and brand for your project
- Build a useful and concise web presence.

Topic content

Read the following notes.

- 4.1 Project badging and establishing a public profile

At your University

Activity

Complete the following exercise after you have read through the linked subtopics for either of the options below:

Take 15 minutes to think about, and draft, a series of points or issues that you could take to your local university's media office as the basis for a press release. Remember to address the information in context – that is, don't just state what's happening, but who is involved, and, if relevant, why. Consider the potential outcomes of the research, and how that affects different members of the community. Who are the intended audience of the press release? Finally, remember that the language used must be accessible both to the media and ultimately to the audience you are trying to reach. This means you need to explain complex or scientific terms in plain English, using examples and analogies where necessary.

Either:

1. Safeguarding the Murray–Darling – Outline a press release

Imagine you have been charged with control of the media and marketing for a research project within a wider case-study, '*Safeguarding the Murray–Darling'*.

Choose one of the Murray–Darling Basin areas of research outlined in the case-study document.

The research project is about to commence, and your task is to issue a suitable press release to the wider community which showcases your project, its goals, potential outcomes, and its role within a broad collaboration between the Murray–Darling Management Trust, local communities, and your university.

Or:

2. An overview of your current research – outline of a press release

Prepare a brief overview of the current research you are involved in. Imagine it will be a news item on the front page of your university's website. List the key points you would provide to your university's media unit so that they can prepare the news item.

Module 2: Commencement and Collaboration – Putting Ideas Into Practice

4.1 Project badging and establishing a public profile

Strong badging and promotion of your project to peers (as well as to government, business, and the general public) can have an impact on the success of your project – attracting collaborators, potential commercial interests, as well as sharing your research with the general public. In some fields of research this may mean that you are able to participate in the public policy debate surrounding your field. However, there are some key issues linked to the public promotion of research projects and public profiles which may limit, or influence, your strategy for publicity and promotion. These are listed here for you to consider.

1. Publication and commercialisation of research outcomes

In academic settings a 'publication' is defined as an academic poster, report, chapter in a book, DVD or multi-media, conference paper, book or journal article, or being the editor of a book. Newsletter items are generally not considered 'published' items.

At the commencement of your project it is important to identify if research outcomes (including publications) are to be placed in the *public arena* or the *commercial one*. Effective management of authorship/ownership is crucial, especially once you enter the public domain. If your outcomes are to be public, then collaborations are easily managed with joint publications. As part of your project plan you should develop a team policy to clarify how the author list is determined. This is highly dependent on the relevant culture of the discipline in question. It is common, for instance, to put the most junior contributor first and yourself, as chief investigator, last. However, first authorship is often used as a promotion or general career assessment criterion. Remember that your success as a researcher depends on the success of your team, and that a happy, well-rewarded team is generally the most productive. Funding agencies may have restrictions on when and how you publish your findings; some may put restrictions on going to the media prior to publication. Conferences are yet another way to disseminate and publish findings.

On the other hand, if a commercial outcome is anticipated, then approach jointly-owned IP with great caution. You will need to decide who contributed and agree on IP ownership and licensee rights. Often this will be spelt out in the funding agreement. Let your team understand the legal requirements too. Conflict can occur if data is released prematurely or if materials are transferred and a third party makes a useful measurement on that material. For the usual range of research activities, IP is usually not a problem so long as no commercial undertakings are engaged in. You are strongly encouraged to attend IP management workshops and in particular talk with recognised practitioners at your university.

Some other questions to consider prior to the publication and dissemination of your research findings:

- Must access to, or dissemination of, results be limited? If so, why?
- Is there a plan for providing stakeholder and end-user groups with access to the results? (Possibilities include seminars, lectures, radio/TV.)
- How will the partners be consulted when the results of the research are being published? And who will make the decisions about joint publications?
- Consider your discipline and/or university's policy/procedures on the principles of authorship, including where to publish and the order of authorship.

Considerations surrounding authorship and acknowledgements:

- Authorship should be based on making a substantial contribution to the conception and planning of an article; acquisition, analysis, and interpretation of data; or drafting the publication, revising it critically, or giving final approval of the version to be published. Each author must take responsibility for the publication. In the case of externally funded research, the person who was awarded the grant does not necessarily qualify as an author.
- Some journals have limitations on the number of authors.
- Order of authors should be a joint decision of the authors. Different disciplines have different accepted procedures.
- Where individuals have made a significant contribution, but do not meet criteria for authorship, then they may be listed as a contributor. Contributors generally have more input than those listed in the acknowledgments.
- Any funding agencies should be acknowledged in your article or report. Acknowledgments can also include those who critically reviewed the drafts but who are not authors, as well as administrative staff who contributed to significant data entry or the preparation of other support material.

2. Marketing and badging

Contact the marketing and communication staff in your area or institution for advice and assistance on badging and developing a profile, both within the institution and externally. Seek their assistance in developing a branding plan for your project – from developing a public website to publicity for research

outcomes. As always, the size of the project will determine the extent of marketing activities. A small project may justify mention within a larger departmental or school website, with preference being given to communicating outcomes or results in the public interest. A large collaborative centre will require extensive marketing activities, including logo, stationery, and an extensive stand-alone website.

Check your university's policy on branding, website, marketing, and media. Based on your university's policy, design a template for presentations and encourage team members to use it. A consistent public presence is more effective in conveying your message, particularly to stakeholders. Agree on the formula for acknowledgements (where and who) in any of your public material, and always err on the generous side in this regard – it helps avoid unnecessary conflicts.

While collaborations are usually undertaken in good faith and with the best of intentions, conflict may arise where you may not have predicted it. It is useful to develop conflict resolution skills which enable you to bypass personal differences and to open up to possibilities. A useful resource is the CRN (Conflict Resolution Network) website that offers background reading on 12 conflict resolution skills.

http://www.crnhq.org/twelveskills.html for an excellent checklist
http://www.crnhq.org/pages.php?pID=11 to assist you to work through any potential conflict in your project – whether around publication and acknowledgement or some other issue.

3. Media and communication training

Attend media or communication training provided by your university. Work with your university media office (or equivalent) to identify target audiences and potential internal and external media opportunities at various stages during your project. Draft a short press release written in common language on newsworthy aspects of your research project, acknowledging funding sources, collaborators, and stakeholder relationships (although this may not be reported or included in any story). Work with your university media office on the release strategy, and identify a point of contact so a quick reaction is possible. If it is university policy, make sure the media office handles the press release. Press releases and PR material can go horribly wrong – keep on top of it.

4. Expert registers

Register as an expert. If your area is of regular media interest or policy relevance, register with your university media office on their experts directory, and on directories such as Expert Guide (http://www.expertguide.com.au/) in order to develop a profile in your area of interest.

5. Build a web presence

The focus of your website should be primarily the team's identity, membership, and a short summary of the research project and other activities. Clearly identify the contact details. A useful website for your research project is important. Identify key meta-tags to ensure your team is found by common search engines. Remember that in a website each page has equal importance, not just the top-level page. So the pages of team members are just as important and, to be useful, should contain the same summary found on all the other's sites (contact details, short summary of work), and most importantly should link back to the website's highest level – your department, school, and university. You should also ensure that your project website:

- Adopts the corporate design/layout of your university.
- Links to stakeholders' websites, and acknowledges funding sources.
- Links to collaborators' websites.
- Gives everyone a presence, including students and general staff. This builds a sense of team and a sense of ownership.
- Publishes only those results that are already in the public arena (peer reviewed) or supplementary data to these results. Try not to use your website as the unique reference for data/results.
- Encourages team members to link from the team's website to their personal pages, rather than have this material embedded in the team site.
- Retains editorial control, sticks to a formula, and stays succinct so that the site is useful and can be easily updated.
- Is updated regularly – this should be the responsibility of one web master.

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Topic 5: Recruiting the project team

Issues of people management are dealt with more comprehensively in Module 7. Here we will concentrate on the mechanics of the recruitment and induction process.

Your research team is central to the success of the research project, and will contribute to future grant-seeking and publication outputs. At the commencement of the project, the balanced composition of your team can make your project reach speed quicker and easier – and is vital to the future credibility of your research project and the individuals in it. The material in this section will cover human resource issues involved in selecting and recruiting your research team, and will clarify the roles and expectations for all the members of your team. Codes of Conduct (as prescribed by legislation, national bodies, and by individual institutions) will be discussed in the context of research activity and researcher employment.

Learning outcomes

After completing this module you should be able to:

- Identify and recruit individuals with the expertise you require for the project's implementation
- Appreciate the need for clear role expectations and responsibilities.

Topic content

Read the following notes.

- 5.1 Identification of legislative and policy requirements
- 5.2 Recruiting the right person
- 5.3 The recruitment interview
- 5.4 Orientation and induction

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5.1 Identification of legislative and policy requirements

One of the key resources for any project is human resources. This includes both those people who are members of your research team – those employed already by the university or the stakeholder organisation – as well as any students that will be working on the project. It also includes any additional staff that might be employed to work specifically on the project: research assistants, post-docs, those with specific technical skill, project managers, and so on. If there is only you and one student, there is still the need for you to be clear about what the university's requirements of you as a leader are.

At the commencement of your project, in the early stages of planning for recruitment, it is important for you to make yourself familiar with the legislative and policy requirements surrounding the recruitment and employment of staff. Your recruitment planning must conform to any relevant legislative restrictions, as well as complying with university policy requirements.

Some examples of legislation relevant to recruitment and employment include:

- Equity and diversity
  Universities accept that, as employers, they have a responsibility to eliminate any source of direct or indirect discrimination on the basis of any factors not related to work. Universities have a continuing obligation under legislation to develop and implement affirmative action initiatives. Assumptions made about an applicant's suitability, which are based on stereotyped views, may involve unfair discrimination and may be unlawful. Legislation to be mindful of in selecting people for appointment include:
  - The Racial Discrimination Act 1975
  - The Racial Hatred Act 1995
  - The Sex Discrimination Act 1984
  - The Discrimination Act 1991
  - The Disability Discrimination Act 1992
  - Equal Opportunity for Women in the Workplace Act 1999.
- Freedom of Information and Confidentiality
  The university is subject to legislation that may give persons the right to obtain access to documents, including referee reports, held by the university.
  - Freedom of Information Act 1991
- OHS (Occupational Health and Safety)
  In most universities it is the responsibility of a supervisor to ensure a safe and healthy workplace, that documented safe work procedures are provided, and are understood and observed by the staff they supervise, and that any incidents, exposures, hazards, or OHS concerns within their jurisdiction are reported. The following Commonwealth Acts pertain to OHS.
  - Commonwealth Occupational Health and Safety Act 1991
  - Safety, Rehabilitation and Compensation Act 1988
  - Australian Radiation Protection and Nuclear Safety Act and Regulations
  - Nuclear Non-proliferation (Safeguards) Act 1987
  - Gene Technology Act and Regulations
  - Quarantine Act 1908.

Universities have policies in place to ensure that they comply with legislation, and provide equitable, safe working conditions for their staff. Some examples of such policies include:

- Education and research
- Occupational health, safety, and welfare
- Equity and diversity
- Equal opportunity
- Sexual, racial, and disability harassment
- Copyright
- Freedom of information
- Intellectual property
- Smoking on campus
- Staffing issues
- Environment policy
- Student-related policies & procedures.

University employment terms, conditions, and salaries are identified for individuals in the 'letter of offer of employment' and the university's Enterprise Agreement.

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5.2 Recruiting the right person

You will either be recruiting staff because you have none and you have funds to cover that recruitment, or because the roles or activities you need done cannot be covered by your current team members. To make these staffing decisions you will need to take into account:

- what tasks you need done
- skill sets that go together
- appropriate levels of responsibility
- time allocations to tasks
- 'usual' job descriptions of various kinds
- the research proposal
- the personnel requested (and funded) in the original research proposal/application.

In order to employ the right person you will need to generate a clear understanding of the specific role and skills required. You will need to consider and determine the appropriate type of position you need to recruit for: e.g., casual, short-term contract, long-term contract, secondment, etc. There are pros and cons in each of these types of positions, as well as legal and/or university requirements about types of positions that can be used. Casual or short-term positions often encourage those employed within them to not be committed to the project, and they can leave at short notice. A longer term contract, or a secondment, might improve the commitment of the person to the project.

The position will then need to be advertised. This can happen differently in different universities.

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If you need to manage the recruitment then you will need to develop both a position specification and selection criteria in order to comply with university recruitment policy/procedures. Writing the position specification will enable you, and your research team, to ensure that they have thought through the requirements of the position. Selection criteria should encompass not only the academic skills and experience required but also any important interpersonal characteristics on which recruitment decisions can be made. Some examples of selection criteria from the three broad areas of qualifications, experience, and attributes follows:

- Selection criteria – e.g. for qualifications:
  A PhD in cell or molecular biology
  A background in cellular immunology and/or virology
- Selection criteria – e.g. for experience:
  A history of safe laboratory practice, preferably in the context of virology
  Experience with flow cytometry
  Achievement in research and scholarship
  Active in, and with a long-term commitment to, fieldwork.
- Selection criteria – e.g. for attributes:
  Excellent written and oral communication skills
  Demonstrated ability to work under limited direction
  Proven ability to work as a member of a team
  Ability to communicate with staff at all levels of the organisation
  Capacity to interact with technical staff
  Good time management and organisational skills and willingness to take responsibility.

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5.3 The recruitment interview

Recruitment to the position will then be required. This includes word of mouth, internal advertisement, external advertisement, various advertisement locations, and search processes. Examples of internal advertising strategies include: internal networks, noticeboards, and your university jobs website. Examples of external advertising strategies include: local, national and international newspapers, trade magazines, journals, recruitment websites such as Seek, word of mouth through collaborators at other institutions (nationally and internationally). There should be a match between the recruitment strategy used and staffing need. An international search for a part-time research assistant would be a waste of time and funds. Giving a difficult technical position to a friend because they need a job means that the best skills might not be acquired.

After responses to the recruitment round have been shortlisted, a selection is required. An interview gives the selection committee the opportunity to:

- meet and get to know the applicants,
- gain an improved understanding of their qualifications and background,
- hear their approach to addressing particular issues,
- gain a sense of how effectively they would integrate into the working environment,
- provide applicants with information about the university and the work area,
- ensure that applicants understand the tasks and responsibilities of the position.

In interviewing (either face to face or by video conference or phone) it is important to ask behavioural questions, such as:

- "Tell me about a journal article that you have recently read on the topic of xxx, and what you found important about it."
- "Tell me about your most-recent publication and the processes you went through to do the research and bring that paper to fruition."
- "Give an example of when you worked in a team and what you found the most rewarding thing was in doing that."
- Questions that relate directly to the selection criteria.

Interview questions should be open questions (as opposed to questions requiring a yes/no response), eliciting a good, detailed response from your interviewee. You will need to be aware of the appropriate procedures required for interviewing candidates at your university, and ensure that equitable processes are followed (e.g. ensure that all interviewees are asked the same questions). Some examples of possible interview questions include:

Questions to ascertain interest in, and suitability for, the job:

- Why did you apply for this particular position?
- Why would you like to work for this organisation?
- What do you expect from your first graduate job?
- Under what conditions do you work best?
- What do you expect to be doing in 3 to 5 years time?
- Why should we hire you?
- Do you have any questions you would like to ask us?

Questions to ascertain personal skills/attributes:

- Tell us about yourself.
- What are your greatest strengths? What are your weaknesses?
- Tell me about some responsibilities that you have taken on recently.
- Tell us about an achievement of which you are particularly proud.
- Tell us more about the supervisory responsibilities that you had in your part-time job.
- Sum yourself up in 5 short phrases or 5 adjectives.
- Give an example of when you have been able to participate and contribute in a team environment.
- Give an example of how you have recently used your initiative.

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5.4 Orientation and induction

Issues of management of people are dealt with more comprehensively in Module 7. This topic will concentrate just on getting your team oriented.

Once you have recruited your staff, you will need to conduct a range of activities to ensure the smooth commencement and conduct of your research project. These may seem time-consuming – but time invested with your staff at this stage will be repaid down the track as the project runs smoothly. These activities include:

- **Engaging and introducing staff – orientation and induction process**
  There are many approaches that can be taken to introducing new staff to your research team, department, faculty/school/centre, and university. These include using a written induction manual, using a face-to-face tour and discussion of the working situation, allocating a 'buddy' or a 'mentor' to a new staff member, or encouraging the new staff to 'shadow' you (or another team member) for a period of a day or so to see what is involved in the research project.

  Even if you are recruiting just one student or postdoc, it is important that you ensure you orient and induct them well. Don't assume that if the person has studied or worked at your university they will be familiar with all the conditions of working there.

- **Clarification of expectations**
  All members of your research team require clarity in their understanding of what to expect while working on your research project. Expectations surrounding career path, opportunities for professional development and training, and performance should be the subject of regular discussions with your staff. It is important that team members consider their broader career path, and how your project fits within it. Universities routinely have organisational divisions that provide information to assist with career path discussions. These include Human Resources (HR) and Academic Development Units (ADUs).

- **Performance management and monitoring**
  Further to the discussion that takes place with your staff in terms of clarifying expectations (above), you should also regularly discuss performance and provide constructive feedback. These discussions should take place from the commencement of the project and should include regular performance review during any staff probationary periods.

  For more information on performance management see *Module 7 Leading and Managing People in the Research Context*.

You also need to consider the particular needs of postdocs and students as you orient them to your team and project.

Postdoctoral researchers. The postdocs you employ on your project are junior researchers who, usually, do not have sufficient track record to apply for their own grants. The way in which you involve them should contribute to their overall research training, and you (or another senior researcher) should assume the role of mentor, providing them with advice and support. Make sure they contribute to publications so they can enhance their track record. As part of their training, you should consider giving them a specified level of project and financial responsibility, which will be written into your management plan. Not only will this help you, but it will provide them with practical experience.

Students. All students receiving a stipend from a research grant will be required to comply with university procedures relating to admission, candidature, enrolment, and thesis preparation and submission.

- ***Recruitment*****.** Payment of the student stipend cannot commence until all agreements/contracts are fully executed. In the case of ARC Linkage/Project grants, commencement can sometimes be as long as a year after the grant was awarded. While this is an extreme case, frequently there are delays to the start of a project and students cannot wait around indefinitely. A student should not resign from any paid position he or she may hold until contracts are signed and you can advise a definite start date. If you have other funds available to employ the student until the grant commences, by all means do so, but as grant funds cannot be applied retrospectively you will not be able to recoup any funds expended prior to the commencement date.
- ***Supervision and training*****.** Your proposal will have identified the training that will be provided to students involved in the project and will have nominated the supervisors. It is important that suitably qualified supervisors are available to guide and advise the students for the duration of the grant/degree. If the original supervisors are no longer available, you must find replacements. Your management plan should include regular progress meetings and student involvement in team meetings.
- ***Student agreements*****.** You need to remember that a student is not an employee of the university and therefore is not bound by the obligations taken on by the university under the contract in the same way

that employees are. Therefore if you need to bind the student, which will usually be the case where there are intellectual property and confidentiality obligations, there needs to be some additional arrangement between the university and the student. The form of this additional arrangement will vary from institution to institution. Some institutions make it a condition of enrolment, while others require a separate legal agreement to be entered into on a case-by-case basis with each student. (The information in this paragraph is based on *Contracts Issues for Non Lawyers* by Kerrin Anderson and Tania Kearsley, Francis Abourizk Lightowlers, Commercial & Technology Lawyers, 300 Adelaide St, Brisbane, for an Australian Tertiary Education Managers (ATEM) training program; please contact the authors if you want a copy.)

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Reflective activity

Take 10 minutes to reflect on your own induction and orientation to your current position. List what was useful, what would have made your start in this current role easier, and what would have helped you become productive in the role more quickly.

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Topic 6: Implementing the project plan

You have been able to articulate your vision and, as the leader, you now have to make this a reality. As the project leader you have adjusted, amended, and re-scoped the project plan, timelines, deliverables, etc. in accordance with the funded amount and contractual requirements. Consequently you have identified key tasks, secured the team, and outlined the management strategies and governance mechanisms required to complete the project. Your team will now be looking to you for guidance through the next important step, the 'how?'. As you implement the project plan:

- You will need to identify and plan for any areas that could pose a risk to the successful completion of your project
- Commencement of your project will also require you to have appropriate infrastructure and resources
- You will also need an appropriate communication strategy, and mechanisms to ensure accountability is in place.

Learning outcomes

After completing this module you should be able to:

- Finalise a procurement strategy and plan (infrastructure, materials, and consumables)
- Develop a risk management plan
- Develop a communication strategy.

Topic content

Read the following notes.

- 6.1 Managing risk in your project
- 6.2 Procurement
- 6.3 Communication, record keeping, and decision-making processes

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6.1 Managing risk in your project

This topic is covered in detail in Module 5 and you are strongly encouraged to complete that module or access the on-line material. A link is included here to reinforce the importance of creating a risk management plan from the beginning of your grant.

Module 5: Financial, Resource, and Risk Management

Module 2: Commencement and Collaboration – Putting Ideas Into Practice

6.2 Procurement

At the commencement of your project you will need to consider the infrastructure, materials, and equipment you will need to successfully deliver on the project. An important first consideration is the procurement of any infrastructure and resources that are needed to initiate, manage, and execute the project. You should identify all the procurement inputs, tools, and techniques in order to deliver the outputs that will lead to the completion of the project.

There are many options available to obtain the plant, equipment, and materials required to conduct your research project successfully. The process you undertake to secure the required equipment and materials will depend on the internal policies and processes of your institution, the funding rules/agreements by which your project is bound, and the amount of risk you are willing to take to secure the equipment/materials. Decisions surrounding the purchase of equipment and materials should aim for the best outcome for every dollar spent. For expensive items of equipment or infrastructure you should also consider options other than purchasing, such as hiring or time-share arrangements.

Procurement of the necessary infrastructure, resources, and equipment can be fraughtful. While careful budgeting and planning will ensure some control of the process, there is always the possibility that things will not go according to plan. The following short example, based on the experience of a university project manager, outlines some of the real problems that can arise in the procurement process and describes the solutions which overcame these particular impediments. The following quote illustrates the importance of entering into any procurement arrangement with *all* the necessary information and appropriate detail.

Project manager:
"...We have had occasion when a purchase order has been raised to the wrong vendor, of a similar name. This usually comes from an end-user raising a requisition with insufficient information. The purchasing section has then processed to who they thought was the correct vendor. This has had a few different outcomes. These range from the vendor simply advising us of the error to one occasion when we actually ended up sourcing the products cheaper from the incorrect vendor. The message from this, of course, is to ensure that *all* the relevant information is on the requisition. To this end, we have instituted an online requisition system to minimise the possibility of this occurring. From the end-user viewpoint, always ensure that the original documentation is clear and correct, and check the documentation that comes back to ensure that everything is in order. Too much information is better than the bare minimum. The above also applies for orders raised in the wrong currency or the wrong amount. Other than simple human error, the main contributing factor is usually somebody not putting sufficient information on the source documentation."

Capital equipment

Good research depends on the right choice of equipment. A well-drafted equipment specification not only sets the quality and performance standards for the equipment, but also provides the greatest scope for maximising value for money.

Prior to making the decision to purchase equipment, it is a good idea to identify and review the major costs and components of the equipment purchase to see what might be modified or omitted. Consideration should also be given to purchasing good second-hand equipment. Before purchasing equipment consider:

- What are its basic functions?
- Are they all necessary?
- Can they be simplified?
- Can they be performed in some other way?
- Are performance requirements too stringent?
- Can standard methods and off-the-shelf equipment be used?
- Can operations be combined?
- Can the use of the equipment be shared with other research groups?
- Where can waste be reduced?
- What is the environmental impact, including costs of waste disposal?
- What are the staff cost implications in terms of numbers, expertise, etc?.

If you have made the decision to purchase a piece of equipment, the following issues should be investigated, as they will help you through the procurement process at your university:

- Know when and how to use the management structure of the institution.
- Know when and how to use the university approvals process (e.g. requesting waivers of tender processes).
- Know the policies of your institution.

- Know who is responsible for purchasing and policy decisions surrounding equipment at your institution.
- Know where/when to ask for approval and assistance.
- Assess any specialist training and precautions required.
- Factor in any foreign currency fluctuations (affecting fieldwork costs and ordering equipment from overseas) that might impinge on your equipment costs.

The following table illustrates the advantages and risks associated with some equipment procurement processes.

Process	Advantages	Risks/impediments
Global tendering process	Institutional process	Can be slow and bureaucratic
Second-hand equipment/plant	Price, speed	Possible compromise on quality; faults; not cutting-edge; difficult to get parts/repair; no warranties/guarantees

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Materials, consumables, and other resources

You should discuss your materials/consumables needs with your business manager, head of department, or mentor. The types of materials and consumables you require will be highly dependent on the research field and discipline in which you are operating. This can include specialist chemicals and reagents, biological materials, phenomics, data sets, etc. The list is as long and diverse as the research undertaken at your university. Your business manager will be able to advise you of any preferred suppliers or existing procurement contracts which may affect your purchasing decisions.
Some issues for you to consider surrounding the purchase of materials:

- Volume required/frequency of purchases (quantity discounts).
- Will you order yourself, or are there university procedures that require you to order through facilities and services, or your local area?
- Do you (your team) require any specialist training?
- Are there any special precautions that must be taken with these materials? (check with your OHS representative at your university).

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6.3 Communication, record keeping, and decision-making processes

Successful project management relies heavily on establishing, maintaining, and managing stakeholder relationships (as discussed in Topic 1). These relationships must be managed with good communication strategies that minimise the possibility of things going wrong. Consideration should also be given to the options available for dispute/conflict resolution.

In the initial stages of the project you will need to identify processes for the collection, storage, and dissemination of information. You will also need to communicate with all stakeholders and collaborators to determine which stakeholders need information, when it is required, and the format it will be delivered in. The correct, consistent, and timely flow of information is vital to the success of any project and research team.

The communication strategy and plan should be developed based on stakeholder expectations and relationships – at both operational and strategic levels. The plan should include type, level, objective, and frequency of the communication, who should communicate and to whom (including email CCs), and timelines. The plan that you develop at the commencement of your project should be reviewed and updated regularly, allowing the information to be kept current for any new collaborators/stakeholders.

The following table provides an example of a simple communication plan. The first row has been completed to give an idea of what sort of communication events may be required by particular stakeholders/collaborators.

Stakeholder	Communication objective	Type of communication	Frequency	Level of communication	Individual(s) responsible
Funding agencies	Demonstrate project progress for continued funding	Progress Report	Annually	Scheme/Project Manager	Research Leader
Research Managers/Administrators					
Ministerial					
Assessors and Reviewers					
Auditors					
Collaborators – Industry (business development, legal, academic)					
Collaborators – Academic (inside institution, outside of institution)					
Internal administration – host institution and other institution – Executive					
Internal administration – host institution and other institution – Administration					
Internal administration – host institution and other institution – Legal office					
Internal administration – host institution and other institution – HR					
Internal administration – host institution and other institution – Finance					
Internal administration – host institution and other institution – Marketing					
Project staff and students					
Australian community – Taxpayer					

If you would like your own copy of this table, you can download it via one of the following links:
Communication plan (Word file)
Communication plan (rtf file)

Reflective activity

Take 10 minutes to reflect on your current research project in terms of stakeholder communication. Identify any groups that you feel are not getting the level or frequency of communication they need.

Reflect on your own communication skills. Which group of stakeholders in your current project is the group you find most difficult to communicate with? What additional skills might help you deal with those stakeholders?

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Frequently asked questions

1. What different types of funding sources are out there? What do they expect in return for their support?

Funding from research may come from:

- dedicated funding agencies such as the ARC or NHMRC
- within your university
- research collaborators (more likely to be in-kind rather than monetary funding)
- outside organisations, such as industry partners, government agencies, non-profit organisations, or community groups.

The obligations toward the funding body may be explicitly stated in a funding agreement or may be assumed. Obligations are likely to include:

- regular reporting of research progress
- accurate accounting of the use of all provided funds
- acknowledgement of the support in all communication material (publications, websites, media releases).

Other requirements that may be necessary, depending on the nature of the funding body, may include:

- reciprocal in-kind support
- support of promotional activities.

Examine official documentation closely to determine what obligations you may be accepting alongside the funding. Speak to a mentor or other experienced researcher to determine what commitments to funding agencies are usually acceptable, what commitments are assumed, and what is provided out of courtesy.

2. I'd like to start a collaboration with a research team from another university. How can I make this collaboration official?

- When pursuing a collaboration, look for collaborators who can provide something – such as expertise or equipment – and to whom your research group can provide something in return. Spend time discussing the collaboration with the potential collaborators, try to understand their research culture, and what each party would expect from the other.
- Application for a joint grant will cement a collaboration and commit the relationship to the research target. Discuss the collaboration with your research office or legal office if there are any details (such as IP) that need to be ironed out prior to commencement.

3. I've designed a budget for my research project. How can I ensure that everyone sticks to the budget?

This depends on the governance structure of the project, which in turn depends upon the size of the project.

In a small project, such as one incorporating a chief investigator (CI) and a small number of staff, all expenditure should be submitted to the CI for approval. In controlling the budget, the CI can seek assistance from their department/centre financial staff, or their university finance office.

In a medium-sized project, such as a cross-institutional collaboration, the total funding provided should be distributed among the collaborators as per agreement. The CI of a single group in the collaboration must then approve all spending within their allotted budget.

In a large project, such as a centre, a chief operations officer or financial officer should be appointed to oversee all budgeting. This person should be trained or experienced in financial management and as such should be able to guide others in the centre in responsible use of funds.

4. What are the differences between goals, research targets, milestones, and deliverables?

Goals are a property of individuals or stakeholder groups in the project, and reach beyond the research project. Examples of individual goals may be publications, career advancement, working in a team, or simply enjoying work and having fun. Goals of a stakeholder group, such as a research centre, may include growth, attracting more graduate or undergraduate students, or increasing their profile in the community.

Research targets are components of the research that must be completed, as set out in a grant document. In most instances, research targets directly relate to the answering of 'research questions'.

Milestones are events or outcomes that indicate progress against a timeline. They may be related to individual research targets, groups of research targets, or other outcomes.

Deliverables are substantial, useable outcomes of the research. For example:

- products
- prototypes
- data sets or databases
- publications.

5. Why do I have to prepare so many plans – a budget, a financial plan, research plan, staff development plan, communication plan? I just want to do some research!

If time is spent at the outset of a project in planning the project and positioning for greatest efficiency, then you may happily return to the laboratory (or elsewhere) to do what you do best! Research is fundamentally unpredictable, and by having a flexible plan, the project will adjust to unpredictable events and will continue on its course despite the effect of uncontrollable factors.

It tends to be that when planning is at a minimum, less research gets done as more time is spent restructuring and organising in the absence of any clear plan.

6. How do postgraduate students differ from other staff with respect to intellectual property (IP)?

Under Australian Law, the IP generated by an employee is considered to be the property of the employer.

However, postgraduate students are considered to be the owner of any IP that they generate. This may result in some confusion if the student is simultaneously employed in the same area of research. When collaborators are involved, there may be formal agreements in place to decide the ultimate ownership of any IP. University policies typically dictate the sharing of any profits arising from the commercialisation of IP.

Note that this is a complex legal issue, and as such should be approached and agreed upon by all parties before the IP and potential commercialisation is produced. Commercialisation offices in universities should be able to assist with this process.

7. How can I predict what intellectual property (IP) will come out of the project? How will I know if the knowledge can be commercialised?

Any knowledge that is created through running the project – including research outcomes, data, publications, products, techniques, or expertise – is project IP, which is different to background IP (IP brought to the project by individuals or collaborators). Often the IP produced will tie in with the research targets, although research can throw up unexpected results, so be prepared for unexpected IP.

If IP has potential commercial value – that is, it is new, has value, and could be applied in a manner that people would pay for – then it may represent a commercial opportunity. You should then contact your university's commercialisation office. Further information on IP and commercialisation is available in ‘Module 4: Intellectual Property and Commercialisation’.

8. What is the 'public profile' of my research project?

The 'public' is difficult to define exactly, but in terms of your research project, you can consider the public as anyone not directly, or even indirectly, involved in the project, the field or fields of research, or the relevant institutions. Put more simply, it's everyone who has nothing to do with the project and has only lay knowledge of the relevant subject.

Your project's public profile is everything that this group – the public – think or feel or understand about your project. Unfortunately, that may or may not be strongly aligned to the truth regarding the project. The public profile is built up by many things in the public eye, including:

- media surrounding the project and similar projects
- preconceived ideas regarding your topic of research, or research in general
- information released by the project to enhance its public profile, such as:
    - press releases
    - articles in the popular press
    - public or media appearances by key figures
    - a website.

Looking at these points, it is clear to see that it is best to release information and control public perception where possible, rather than to leave it to fickle media and public preconceptions.

9. Does my project need a website? What should I consider when setting up a website?

A website can be a valuable addition to a project, creating a public profile and giving funding organisations, collaborators, and staff members some recognition. However, it must be understood that the information on a website is publically available, so what is posted on the website must be carefully monitored to avoid releasing sensitive information or any restricted IP. The website should adopt a consistent look and feel, often within a standard university template, and be updated regularly.

Approach your university's media office (or similar local service) to learn more about the benefits and dangers of a website, and for assistance in building a website that best serves your purposes.

10. When appointing staff, do I need to go through the advertising process? Can't I just appoint my recently-graduated PhD student?

- Appointment of staff without advertising can be done, provided it can be justified and certain conditions are met. These conditions vary from university to university, so the first step would be to contact your local Human Resources department.
- Typical justification for appointment without advertising would be:
    - extending the term of currently-employed staff
    - appointing an individual who has been named in a grant application document
    - employment to meet pressing short-term needs
    - employment by invitation (typically only for senior level staff)
    - casual appointments.

11. What is a communication plan and why do I need one?

Communication involves the transfer of knowledge within the project and also outside the project. When we consider that knowledge, or IP, can be both valuable and volatile, it is clear that careful management of this resource is essential.

A communication plan manages the flow of communication much in the way a budget controls where money goes. A communication plan outlines:

- **who** you communicate to (different stakeholders)
- **who** in your organisation does the communicating
- **what** is communicated (and what is NOT communicated)
- **how** it is communicated (telephone call, written report, email, notice on web page)
- **when** it is communicated (regularly, annually, on milestone completion, on completion, or when something goes wrong?)
- and **why** it is communicated.

A communication plan may also outline the layout or format of different documents or websites. This can help to form a united image of all communication from the group.