ARC Discovery Proposals
(with emphasis on Research Environment)

Arnan Mitchell
Professor, Microplatforms Group
School of Electrical and Computer Engineering
RMIT University
To begin with ...

• Before deciding to apply for a Discovery grant
  – Think about how you fit into the national research community
    (who are you collaborators/competitors ... who will assess your grants?)
  – How well is RMIT (or other Host) recognised in your area?
    (Is there anything you can do about this recognition?)

• After deciding to apply, but before you start writing
  – Think about your track record (Attend session on Thursday 2\textsuperscript{nd} Feb)
  – Think about the fundamental project ( ... )
  – Think about your team (part research environment)

• When you start writing
  – Adhere strongly to the selection criteria
    (\textit{only} common point of reference for highly \textbf{diverse} pool of reviewers)
Selection Criteria

a. Investigator(s) 40%
   – research opportunity and performance evidence (ROPE); and
   – capacity to undertake the proposed research. (related to environment)

b. Project Quality and Innovation 25% (most difficult part)
   – Does the research address a significant problem?
   – Is the conceptual/theoretical framework innovative and original?
   – Will the aims, concepts, methods and results advance knowledge?

c. Feasibility and Benefit 20% (related to environment)
   – Do the Project’s design, participants and requested budget create confidence in the timely and successful completion of the Project?
   – Will the completed Project produce innovative economic, environmental, social and/or cultural benefit to the Australian and international community?

• d.
   – Is there an existing, or developing, supportive and high quality
Assessment Criteria

d. Research Environment 15%
   – Is there an existing, or developing, supportive and high quality research environment for this Project?
   – Are the necessary facilities to complete the Project available?
   – Are there adequate strategies to encourage dissemination, commercialisation, if appropriate; and promotion of research outcomes?

• Will come back to detailed analysis of research environment shortly ...
Step 1: Assess your track record

• Put yourself in the examiner’s shoes
  – About 20 proposals to rank
  – Readers will spend about 1 hour on your proposal
    (so need to grab their attention and make important points easy to see)

• Will probably employ a triage process to sort into 3 categories
  – Uncompeletive, Outstanding, Borderline

• First cut will be made on basis of track record
  (come to 2nd Feb workshop to learn about this)

• Track record is uncompetitive: proposal is uncompetitive
  (examiner will review project carefully, but mostly to provide feedback)

• Track record is outstanding: I am already expecting a good proposal
  (examiner will review project carefully, but mostly looking for critical flaws)

• Track record is OK: project description is crucial
  (this is likely to be the case for your 1st ARC win)
Plan Your Project Carefully: Look for ‘Resonance’

• A Discovery project proposal is meant to outline how the (modest!) ARC funding will enable a sequence of opportunities for discovery.

• Avoid the ‘technical marvel’ ...
  – Justification should be new knowledge (not making things faster or better)
  – Industry relevance should be general (if specific this is an ARC Linkage)
  – Don’t rely on technical developments (link to ARC LIEF for these)
  – Discoveries should be possible on Day #1 (have preliminary work!)

• Ask the question: What is the ‘Nature’ paper here? (convince examiner you will write a Nature paper)
Assessment Criteria: Research Environment

d. Research Environment 15%
   – Is there an existing, or developing, supportive and high quality research environment for this Project?
   – Are the necessary facilities to complete the Project available?
   – Are there adequate strategies to encourage dissemination, commercialisation, if appropriate; and promotion of research outcomes?

• RMIT is working to create and publicise research strengths (as clear evidence of research environment ... work in progress)

• Think about research environment at early stages of project development
  – Why is RMIT the best place in Australia to conduct this research?
    – What unique facilities/capabilities do we have (evidence: e.g. LIEFs)
    – What unique research teams do we have (evidence: ARC Centres, High profile pubs, Existing collaborations)

• Staying in current environment? Need strong performance in that environment (ARC is investing in your future ... show them the business case)
Pick your team carefully

• Match Track Records
  – Total track record should be ‘Outstanding’
    (if one track record is weak, this needs to be carefully justified)
  – Match established people with promising ECRs
    (emphasise ‘mentorship’ in role of personnel) (Mentorship = environment)
  – Show that the team is ‘real’ – preliminary publications
    (publish with the team prior to assessment) (proof environment works)
  – ‘Collaborators’ will not help you with track record

• The right team (and environment) to do the project
  – Make sure each aspect is covered by a CI, PI or collaborator
    (Concepts, Theory, Fabrication, Experiment, Application)
  – Don’t append people without justification of a role in the project!
    (everyone should have a clear ‘resonant’ role – particularly PIs)

• The team itself should be a novel ‘matching’
  – Justify the ARC funds by saying new team will be formed
    (that won’t exist without the funding)
Now start writing: Think about Selection Criteria

• Examiners will have a score card (this is the same as the selection criteria)
• Make sure that you address each and every point in the selection criteria (make this really, really clear)
• Divide your application into proportionate sections (try to have required headings at the top of pages + sub-sections = criteria)
  – Page 1: Intro, Aims (bullet points)
  – Page 2: Background
  – Page 3: Research Project: Innovation
  – Page 4: Research Project: Significance
  – Page 5-6: Research Project: Approach and Methodology
  – Page 7: Research Project: Feasibility and Benefit
  – Page 8: Research Environment
  – Page 9: Role of Personnel
  – Page 10: References
• Examiner will read through once and then dip to assess each criteria (make it easy for them not to miss points)
Answer questions in the instructions, selection criteria

- Start each section with 1 paragraph overview followed by bullet point answers to each of these questions then expand in prose (make it easy for the examiner to get all the points)

### 4.3 Selection Criteria

Proposals will be assessed and ranked using the following selection criteria:

- **Investigator(s)** 40%
  - research opportunity and performance evidence (ROPE); and
  - capacity to undertake the proposed research.

- **Project Quality and Innovation** 25%
  - Does the research address a significant problem?
  - Is the conceptual/theoretical framework innovative and original?
  - Will the aims, concepts, methods and results advance knowledge?

- **Feasibility and Benefit** 20%
  - Do the Project’s design, participants and requested budget create confidence in the timely and successful completion of the Project?
  - Will the completed Project produce innovative economic, environmental, social and/or cultural benefit to the Australian and international community?

- **Research Environment** 15%
  - Is there an existing, or developing, supportive and high quality research environment for this Project?
  - Are the necessary facilities to complete the Project available?
  - Are there adequate strategies to encourage dissemination, commercialisation, if appropriate; and promotion of research outcomes?

---

**Part C - Project Description**

- Please upload a Project Description as detailed below in no more than 10 A4 pages and in the required format.

The uploaded Project Description must not exceed 10A4 pages. In the uploaded PDF you must use the headings below, and in this order. Applicants need to ensure that information provided under these headings addresses the Selection Criteria as detailed in the Funding Rules.

- PROJECT TITLE
- AIMS AND BACKGROUND
- RESEARCH PROJECT
- RESEARCH ENVIRONMENT
- ROLE OF PERSONNEL
- REFERENCES

---

http://www.arc.gov.au/pdf/DP13_Instructions_To_Applicants.pdf (page 15)
Write strategically:
Sell the Significance and Particularly Innovation

• 40% Track Record (Thursday 2\textsuperscript{nd} Feb)
  (largely a matter of fact – but need to sell those facts and project forward)

• 25% Project Quality and Innovation
  – 10% (?) Significance = hot topic \textit{(evidence from recent literature)}
  – 10% (?) innovation \textit{(most subjective ... sell in all sections)}
  – 5% (?) Advance Knowledge = will become new hot topic

• 20% Feasibility and Benefit
  – 10% (?) Is project doable? \textit{(project plan, budget, team + environment)}
  – 10% (?) Impact? \textit{(National, Industrial Benefit ... Pretty easy)}

• 15% Environment
  – 5% (?) Existing environment \textit{(Environment: eg. People/Mentors/Team)}
  – 5% (?) Facilities \textit{(Facilities, eg. awarded LIEF grants)}
  – 5% (?) Dissemination, commercialisation, promotion?
    \textit{(Track record of high profile papers, commercial outcomes, media)}
Significance and Innovation
(After track record this is the clincher for most projects)

• Innovation First ...
  – What is new? (in bullet points, up the top)
  – Why does this project create opportunities for discovery
  – Based on what is ‘known’ how will you be launched into the unknown?
    (use evidence from literature to define what is known currently)
  – Can use a picture with hypothetical illustrations of the new things you hope to discover

• ... then significance
  – Why is this project important (in general)?
  – Why is this project important for Australia?
  – Why is it important for the CI team to do this research?
    (will you know what to do when you are launched into the unknown?)
  – How is this project going to lead to a high profile (Nature) publication
    (includes area being a hot topic and team being seasoned enough)
  – Why is it important that this project is funded now – urgency!
    (recent high profile papers by competitors good evidence for this)
Use other sections to highlight Innovation & Significance

- You can emphasise significance and innovation throughout (do a pass through to see where you can add emphasis on this point)
  - Aims and Background: Aims (Innovation)
  - Aims and Background: Background (Significance)
  - Research Project: Project Methodology/Plan (Innovation)
  - Research Project: Feasability and Benefit (Significance)

- Don’t worry too much about repeating yourself (making the same point from multiple perspectives is fine)

- Role of Personnel is also really important
  - You **do** get track record points for whether the team is suitable to do the project – you can emphasise this here (collaborators can help here)
  - Also highlight innovation of combination of CIs, PIs and collaborators
  - Can pull in collaborators who are not CIs or PIs as ‘Research Environment (Important to show these linkages as part of unique, strong environment)
Part A and F are important also

- Know who your examiners will be
  - Pick the appropriate FOR codes
    (pick based on which panel member you want to assess your grant!)
  - FOR codes determine which panel assesses your grant
    - Engineering, Mathematics and Information (EMI)
      (selling science to engineers is easy ...)
    - Physics, Chemistry and Earth Sciences (PCE)
      (... selling engineering to scientists is much, much harder!)

- Title and 100 word Summary (A2) is very, very important
  - Will determine which examiners you get (to some degree)
  - Will provide first impression
    (if it sounds visionary, then this will be the mood for the whole proposal)

- Carefully craft your Part F track record statements
  (and provide bullet point answers to questions)