

The four key propositions are:

- 1 The *importance* proposition: this proposal asks an important question.
- 2 The *success* proposition: this project is likely to answer the question.
- 3 The *value* proposition: the likely gain from this project is worth the resources requested.
- 4 The *competence* proposition: the applicant and team are competent to carry out the project as described.

Everything you include in the final draft of your application must support one of your key propositions and you must support each proposition with a range of objective evidence.

In addition, there may be secondary propositions that relate to individual funding agency criteria or the nature of your research. For example, secondary to the competence proposition, you may also need to convince decision makers that your institution will provide an appropriate research environment. Alternatively, as part of the success proposition, the way you disseminate results to non-academic audiences may be crucial.

The clarity of the evidence you provide is also crucial because the decision makers are not specialists in your area and generally have little prior knowledge or natural enthusiasm for your work. The task of critical referees and busy grants' committee members is to find evidence for and against the key propositions.

In summary, here are three things you must do in order to justify your four propositions effectively:

- 1 Produce the right information and evidence.
- 2 Help busy readers find the information they need.
- 3 Help readers understand and remember the information you present.

The rest of this chapter helps you do this.

### The right information and evidence

The application template limits the amount of information you can include about your project, especially as font size and margin width are usually prescribed by the funding agency. Consequently, you will always have to make choices about what information to include or exclude.

The *Produce Your Evidence* Tool at the end of this chapter shows you how to generate arguments and evidence to support your four key propositions and any additional agency-specific requirements. Meanwhile, the *Arguments and Evidence* Tool provides a step-by-step approach that takes you from reading the evaluation criteria through to testing your application document before submission.

Producing the right information and evidence can be particularly problematic in relation to the 'this project is the solution' section of your case for support. You know that the referees and grants' committee members are not especially expert in your field. However, the precise nature of their ignorance can only be loosely predicted. This is one of the reasons that luck plays a part in whether your application wins funding.

In these circumstances, your best option is to:

- Describe the proposed research activity in such detail that a colleague could replicate the project using your application document alone (see Test 6 in Chapter 11)
- Identify the aspects of your proposed project most likely to attract criticism from related fields and provide evidence that defends against them (see Test 9 in Chapter 11)

As 'this project is the solution' is where you explain in detail what you will do with the grant, this is the most important section of your application for the serious detail-readers. Aim to devote at least half of your case for support to this section.

### Finding important information

In the context of research grant applications, it is dangerous to assume that busy referees and grants' committee members will read every word of your application.

In truth, busy speed-readers may skip certain sections of your application document completely. If you want them to remember your main argument and supporting evidence you will need to position key messages carefully and repeat them. Appendix 2 provides an overview and analysis of the function and content of typical application templates. The next chapter also offers advice on how to position key messages as prominently as possible.

If you produce a high-quality application, you can expect that:

- Referees will read every sentence and pay special attention to the programme of research.
- Designated grants' committee members will read in full the referee reports, the summary and the budget. They will also speed-read the case for support.
- The wider grants' committee membership will read your summary, glance at the budget and flick through the rest of the document.

This means that certain parts of your application document are more likely to be read than others. The project summary and budget total sit firmly at the top of the hierarchy.

In addition, speed-readers are more likely to read the first sentence of a section or paragraph than the last. Consequently, important messages must always



come first. This gives readers their best chance of reading and remembering your key arguments and evidence.

#### EXAMPLE 27

### 'SPEED-READABLE' PARAGRAPHS

The *Theatre and Performance Visiting Fellowship* proposal caters for the speed-reader in a paragraph that justifies the choice of fellow. The first sentence provides the key message:

Schechner is a leading scholar in theatre and performance studies, which he, along with others, founded, and for which he is recognised globally. He has published widely with his books translated into 14 languages. Schechner is editor-in-chief of *The Drama Review*, the world's leading performance studies journal. He is the recipient of numerous awards, including Lifetime Achievement from Performance Studies international, Lifetime Career Achievement from the American Theatre in Higher Education association; he holds two honorary doctorates (Hong Kong and Romania). The "Richard Schechner Center" at the Shanghai Theatre Academy is named in his honour. He has taught, lectured, and directed in every continent except Antarctica. His academic renown is coupled with a long track record in theatre-making as a director/devisor. He has appeared in the UK at conferences speaking on specialist subjects but this will be the first time he has presented his 'broad spectrum' approach in a systematic and sustained way in the UK. It will also be the first time Schechner has created a piece of work here. His presence will attract a huge amount of interest, not just at Kent but across the UK and Europe, where he has recently been an Erasmus Mundus Fellow. *Theatre and Performance Visiting Fellowship*

You make your paragraphs work better if you remember the difference between the 'convincing' and the 'defensive' elements of your arguments. In summary:

Good convincing arguments help referees and grants' committee members support your application. This category of argument must be actively remembered.

Defensive arguments help referees (in particular) forget their criticisms. This category of argument can be forgotten once it has done its job.

Defensive arguments are directed at referees who read everything and can be less prominently positioned. There is one exception. If your project is high risk or has unusual features, then defensive arguments may also apply to grants' committee members and should be given more prominence.

The following examples look at two cases in which applicants need to use defensive arguments very prominently.

#### EXAMPLE 28

### THE PROMINENT DEFENCE

This five-year multi-experiment application takes the unusual approach of taking a defensive approach in the opening lines of the 'Research Design and Methods' section. The applicant addresses the absence of certain methodological details and the necessity for flexibility in the overall design over the life of the project:

In the following sections, we will describe the experiments we propose to conduct in continuing our research on spoken language. We ask that readers extend a certain amount of trust in two respects: (1) The descriptions of the experiments do not include details such as the number of trials or number of subjects; we believe that we can be trusted to implement designs with appropriate choices for such parameters. (2) The described experiments represent our best current plans. As the work proceeds over the next several years, we expect to modify the designs and add new experiments, as new results improve our understanding. Our prior work suggests that the product that emerges will be enhanced by such a process of development. *Spoken Word Project*

In the next example, the applicant defends using animals in medical research. As this is such an emotive and controversial issue, the applicant does so in the most prominent position in the application, which is the project summary.

The use of animals in medical research is a highly sensitive topic and in many cases the public perception is that this should not be allowed. Replacement strategies have been suggested such as culturing tumours outside of the body and then testing anticancer treatments. However, as scientists we know it is currently more appropriate to use animals as drugs that might combat cancer in people could behave very differently when tested in culture. Where animals are used we have a moral and legal obligation to minimise pain and suffering. *Research Animal Project*

In summary, if defensive information is an essential part of your argument, you need to position it where it is most likely to be seen by busy speed-readers.

### Understandable, memorable information

Whatever the quality and accessibility of the evidence, you will not convince referees and grants' committee members to support your project if your application document is a slow, difficult read. Fundable research grant applications must be memorable and easy to read if they are to stand out against the competition.

In order to make your key arguments and evidence memorable, you must appreciate that the amount of information your readers will retain is limited.



It is better to provide grants' committee members with a few headline messages than a series of convoluted arguments.

One of the most famous papers in Psychology<sup>29</sup> (Miller 1956) points out that we can remember a list of around seven pieces of information without needing to make notes. This means that if you want a referee or committee member to remember the content of a research grant application, you should have no more than seven key messages.

As discussed, there are four key propositions common to any fundable research grant application. However, reducing your entire research programme to this many pieces of information is not a viable option.

Luckily, Miller's famous paper offers a way of extending the limit on the number of items that can be held in the working memory. 'Chunking' is the process of grouping a set of related items together under individual headings. Each heading can be remembered as a single item and the contents 'unpacked' afterwards.

For example, if you have generated four pieces of evidence that show why your methodological approach is likely to be effective, group them together. Bullet points or a numbered list will help present them as a memorable 'chunk' with a shared introductory sentence. This approach is easier to remember than four discursive paragraphs that present each piece of related evidence in isolation.

Evaluating research grant applications is actually rather stressful, especially for the designated committee member. Consequently, we can expect the capacity of the working memory to be reduced in this situation. So the list should have fewer than seven items.

The following examples show how two successful applicants achieved this in practice.

#### EXAMPLE 29

### CHUNKING

The *Web Authoring Project* uses 'chunking' techniques to break down the overall project into five specific objectives, which are presented as a series of bullet points:

Our scientific aim is to find principles by which natural and formal languages can be bridged, so obtaining the accessibility of natural language without losing the precision of ontologies and other metadata. Part of this task is to identify

<sup>29</sup>Miller, George A. (1956) 'The magical number seven, plus or minus two: some limits on our capacity for processing information'. *Psychological Review* 63 (2): 81-97.

limitations on such a mapping – for instance, it may be that ontologies as well as natural languages must accept certain constraints. From an engineering perspective, we seek practical methods through which a subject-matter expert can view and edit ontologies and other metadata on the Semantic Web, tested in applications of realistic complexity.

To meet these aims, we have the following objectives:

- To understand current authoring practice for ontologies and other metadata represented in OWL/RDF. This will provide requirements for a Semantic Web authoring tool.
- To find principles based on these authoring requirements for bridging between natural language and formal ontologies (and other metadata).
- To provide a format for encoding linguistic resources that supports the mapping of linguistic patterns to ontologies.
- To produce a tool allowing users to extend the mapping of language to ontology without need of expertise in linguistics.
- To produce (by combining the above) a tool for authoring ontologies and other metadata by direct manipulation of generated texts, for real-world applications in e-Science, biomedicine, and travel. *Web Authoring Project*

The Digital Media Fellowship takes 'chunking' a step further. The three sub-questions are each broken down into a further two or three parts. If these ten questions were presented without any 'chunking', they would be very difficult to read and understand.

- Q. 1: What does it mean to claim that technology participates or has agency in the creation of moving images?
- In what ways does technology transform the actions of human users of technological interfaces?
  - How can science and technology studies add to our understanding of hybrid agency in the creation of moving images?
  - How can we avoid being overly deterministic with regard to technology?
- Q. 2: Can a technological interface generate an audio-visual language?
- Can images have a language derived from the limits and possibilities of a software package?
  - Does this language influence what an image-maker can or cannot achieve?
- Q. 3: Does the language of an interface inform us about how our view of the world is evolving?
- Does the language of an interface give us insight into how we manage information about the world?
  - If an interface privileges an impression of smoothness and ease of movement, does that deny the complexity of the world? *Digital Media Fellowship*



## Conclusion

This chapter emphasises the importance of providing the arguments and evidence that non-specialist decision makers need in order to support your application. It also explains how to present this information in the way that will best help referees and grants' committee members to read, understand and remember it.

The following two Tools help you generate appropriate evidence and provide a step-by-step approach to producing the arguments and evidence you need to meet the evaluation criteria.

### TOOL 13

## PRODUCE YOUR EVIDENCE

This Tool suggests categories of evidence to support each of the key propositions. It gives you short sections of text that will form the building blocks of your case for support. Consequently, this Tool is a good way to focus your application on the needs of its readers and ensure that you create a convincing overall argument.

### The *importance* proposition: this proposal asks an important question

In relation to your overall research question:

- Name the academic and/or user communities that will find your answers useful, and demonstrate this with reference to academic literature or policy documents. For example, show that one of the things 'we need to know' is a crucial missing link in an important theoretical argument, or that it meets a social, health or economic need.
- Prove that the questions have not been asked before (provide citations from relevant fields) OR
- Demonstrate that recent important work leads naturally to the question you want to answer (e.g. pilot data, evidence from other fields or from related questions).
- Demonstrate the potential benefits to end users, however theoretical your project.

### The *success* proposition: this project is likely to answer the question

By following the advice in the previous chapter, you should now have three to five sub-questions or things we 'need to know' and a set of matching activity components that 'will tell us' the answer. In relation to each set of sub-question and matching project component:

- Cite research that shows how your chosen methods are appropriate, e.g.
  - They have been used to answer similar questions successfully.
  - Your method is more effective than possible alternatives.
  - If your chosen methods are new, unusual or high risk, provide an argument in favour of your choice with citations.
- Describe each component of the investigation so completely and clearly that a colleague could replicate the project from the application document alone (e.g. describe each experiment, give number and duration of interviews and explain what they will discover, describe the selection of participants, explain the purpose and duration of archive visits). This will help referees and committee members understand how your project is capable of answering the questions.
- Explain what resources (including staff) will be used to carry out each activity.
- Explain exactly how you will analyse data or deal with the information you gather in order to answer your questions successfully.
- Provide a timetable of the project that shows how each phase, component and piece of activity fits together.

### The *value* proposition: the likely gain from this project is worth the resources requested

- Mention each requested resource within your description of the relevant part of your Plan of Investigation.
- Explain why each item is priced at the level requested (e.g. standard institutional rates, as a result of a competitive tender, estimate based on which criteria).
- Explain why you need specific quantities of resource (e.g. proportion of investigator time, number of paid participants, duration and frequency of project travel, number of PhD students).

### The *competence* proposition: the applicant and team are competent to carry out the project as described

- Include references that show how the team has already answered related questions or used similar methods to answer different questions.
- List any involvement in funded research projects.
- List other project management, experience or training if you are an early career researcher and this is your first grant.
- Ensure that the research teams' publications demonstrate an ability to use all the research methods necessary for the project.

Two possible additional propositions, concerned with project outputs and research environment, are listed below.



### Additional proposition: project outputs will be relevant to non-academic beneficiaries

- Provide a list of anticipated publications with evidence that you are likely to achieve them (e.g. previous track record, publishing contracts).
- Demonstrate why each piece of dissemination is likely to be effective in communicating with the target audience.
- If your project includes non-academic outputs such as websites, exhibitions or user events, provide a detailed description of each with concrete information on likely costs, number of participants, duration, location etc., that show each is achievable.
- Show that each team member has a range of tasks suitable to their seniority and time allocated to the project.

### Additional proposition: the institution is likely to support the research team appropriately

- List any non-standard resources that the host institution and any partners will provide (e.g. laboratories, research equipment, research time, statistical advice, training, research governance services, computing equipment, access to participants, etc.).
- Calculate any financial or 'in kind' commitments made by the host institution (e.g. staff time, match funding, equipment). The more you can include the better. Note that resources purchased by other research grants still 'belong' to the institution and that you can include them in your calculations for future applications.
- If appropriate, detail any mentoring arrangements or steering groups provided from within the institution.

This process will leave you with a quantity of raw evidence that you can then order and link to create a compelling argument. Use the funding agency guidance and Appendix 2 to decide which piece of information fits into which section of the application template.

## TOOL 14

### ARGUMENTS AND EVIDENCE: THE 10 STEP PROCESS

This Tool helps you develop the arguments and evidence that will form the building blocks of your research grant application. If you follow these steps, you are unlikely to become so overwhelmed by the technical challenges of grant-writing that you fail to make your application convincing to referees and non-specialist grants' committee members:

- 1 Read the agency guidance for both applicants and assessors.
- 2 Produce an initial project design and structure using the advice in Chapter 7.
- 3 Collate evidence to support each proposition using Tool 13 (*Produce Your Evidence*).
- 4 Identify potential weaknesses or areas for misunderstanding.
- 5 Collate defensive evidence to refute each of them.
- 6 Use Appendix 2 to ensure that the four important messages and key propositions are allocated to the appropriate sections of the application document.
- 7 Ensure consistency across sections of your case for support by breaking down your project into three to five sub-questions or things 'we need to know' plus matching components of research activity.
- 8 As you write, use the 'chunking' technique to group related items under the same heading and structure your text in the most memorable way.
- 9 Use applicant and assessor guidance to check that no evidence is missing.
- 10 Test your draft application (see Chapter 11).