Introduction to the successful writing of project proposals

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Why do we need to write project proposals?

Why ?

- Obtain funding for research
- Obtain personal fellowship/grant
- Justify research efforts (or your work, your salary)
- Obtain funding for new infrastructure
- Get experience with tools, skills
- …..

Challenging aspect of scientific research

- Synthesize past work + current findings + new hypotheses into a research proposal for future investigations

- A research proposal combines every aspect of scientific inquiry :
  – from the creative conceptualization to the detailed design,
  – projected analysis of the data,
  – synthesis of the results, and
  – estimation of the budget.

Not all proposals are the same

- Grant applications are written for a variety of purposes and are submitted to many different types of agencies.

- Before you begin writing, consider the fit between your research goals and the targeted agency.

(a) Basic research proposals

- Or unsolicited research proposals
- Generally they must provide novel insights or methodologies for solving fundamental scientific problems.
- The investigator sets out research questions and goals.

(b) Task-oriented or program-initiated proposals

- Topic or goal of research is specified by an agency (e.g. EC Framework Program), a corporation, or a foundation.
- Usually less latitude in determining research topics than for basic research proposals.
- Proposals are evaluated on their likelihood of accomplishing the specified task. So emphasis is placed on methods, on ability to accomplish the project, credentials, the projected outputs, and time needed to complete the project.
- **These criteria are also important in basic research proposals.**

Preliminary message

- There is no secret formula for writing strong research proposals.

- Each grant application or project proposal must be tailored to the specifications of the funding agency or the committee to which it is directed.

Before you get started

1. Read instructions & scope of the call
2. Read instructions & scope of the call
3. Read instructions & scope of the call

Why is this so important?

→being efficient (your time is precious)

→partly determines success of proposal

→Some practical exercise

Before you get started

➢ Go to info sessions offered by funding agency or science foundation

➢ Attend training courses

➢ Remember : basic organization and effective communication

Before you get started

Which type of proposal?
- ✓ Only travel grant
- ✓ Individual (post-)doctoral grant
- ✓ Grant for purchase of research infrastructure
- ✓ Large-scale (multi-partner) project
- ✓ Four-year grant with personnel

Length and format of proposal?

Why is this so important?
→determines content, ambition, success

Before you get started

Important questions to save time are:

- who is evaluating my proposal?
- does my topic fit the call?
- what is expected of me?

➢ Before you begin to write, you must have a very clear idea or concept of your proposed research

➢ Bounce of your ideas with trusted senior colleague

Before you get started

1. The evaluators

- generalists or specialists

- scientists or policy makers

- national or international

- administrators panel

→ determines content, accents, wording

Before you get started

2. Match between topic and call

(a real mismatch is impossible to cover up)

→ ask senior colleague for advice

3. What is expected of you?

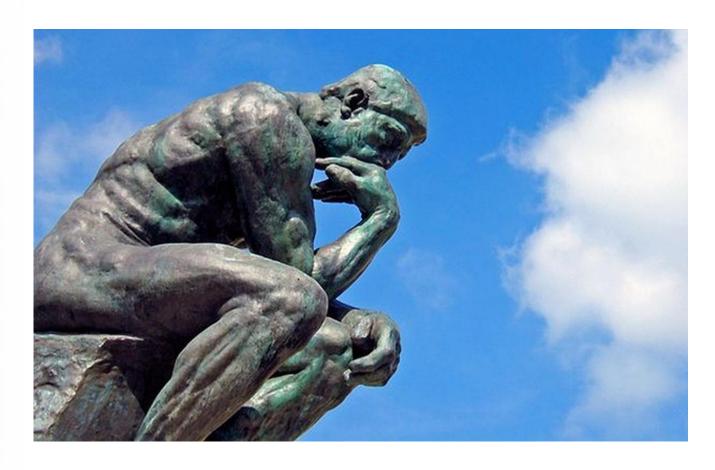how important is c.v. in the evalution, are there any 'lower limit' criteria, etc.

Before you get started

4. Make some notes of the 'project story' you intend to 'sell'. This might be a sketch or plan.

5. Consider for yourself: what do I expect?

Before you get started

Important: take your time

Content

Title: trigger the reader's interest
→ provide some detail, but not too much
→ try to highlight anything unique

- ~~Effects of drought in forests~~
- ~~Drought impacts on forest productivity in Finland, Poland, Germany, France, Slovenia and Bulgaria~~
- Drought impacts on forest productivity: a pan-European study

Content

Abstract: capture the essence

- it proves that you can distill what is the most relevant → it is an important excercise

- often this is done after writing everything else, but it can also highlight weaknesses → can lead to further improvement of proposal

- evaluators often depend on it during later interactions (e.g. oral defense)

- do not cut and paste ! Write as separate story

Content

Typical build-up (but check instructions!)

1. <u>Introduction</u> = setting the scene

- sketch the problem and what is known; be up-to-date, but know your classics

- show that you know what is (un-)known (but no literature review)

- references : how many and how recent?

- references: (i) shorten them by omitting titles; (ii) use small print or footnotes; (iii) consider using numbers in the text

Content

1. <u>Introduction</u> = setting the scene

- Work from general to more detailed
- Guide the reader where you want him/her: "studies on this topic are really needed!" Why?
- Questions Why? What? How? should be answered in the proposal

- ➢ Develop your conceptual framework and your statement of the significance of your proposal
- ➢ Lay the foundation in the introduction

Content

2. Objectives or Research hypothesis

(can be part of the introduction)

- must follow logically from (1)
- this is the core of what you want to do: what?
- can be listed as a series of hypotheses
- reader should be convinced that "these are the right things to focus on"
- hypothesis is a very strong 'objective'

Content

3. Methodology

- objectives should determine methodology, not vice versa. How?

- make sure that there are no obvious gaps and that your chain of logic is preserved

- be cautious when using controversial or untested methods

- state-of-the-art when possible (but see 1)

Content

3. Methodology

- Emphasize inter-/multidisciplinary aspects
- Make use of methodological studies to factually support your decisions
- Experimental design and methods: What will you actually do? And how?
- Reader should be convinced that "this is the right way of handling this project". Answer the How? question.

Content

3. Methodology: also risk assessment

- Do not hide weaknesses: show that you are aware and know how to deal with them
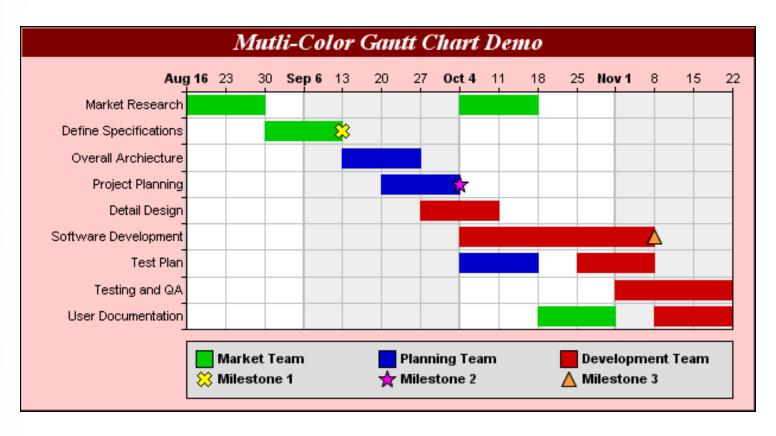- Risk: sometimes a 'plan B' is warranted

Content

4. Timeline

- take extra care if the project is evaluated during its course (you will be stuck with your timeline/milestones/deliverables). E.g. mid-term evaluation

- graphical representation (Gantt Chart) or structured clearly textually: When?

- convince readers that "the plan is ambitious but realistic" (never look to underachieve)

Content

4. Timeline = a reality check

Content

4. Timeline

Year	2016												2017		
Calendar months	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
Project months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Start-up, definition of boundaries															
Market analysis and feasibility															
Contacts with industry and energy sector															
Assessment of technological hurdles															
Development of business plan in view of end user															
Techno-economic analysis															
Definition of commercial strategy															
State-of-the-art analysis, examine FTO and patent															
Reporting and publication															

✓Think about planning !
✓Consider workpackages or tasks
✓Break-up your project in digestible parts
(with deliverables and milestones)

Content

Other categories often requested:

a. collaboration
    →sometimes compulsory, often appreciated by evaluators (but make sure it is sensible)

b. relevance for society
    →importance depends on type of application

c. risk assessment

d. transfer of knowledge/expertise
    →mutual gains are important

Content

General advice

a. Interdisciplinarity is sexy (but not the same as multidisciplinarity)

b. Results that have direct applications are often favorised

c. Stress strengths, show that you are aware of potential weaknesses

Content

General advice

d. Be ambitious, but aware or risks

e. Plan for expected and unexpected results

f. Don't overdo with details on one item/aspect. Balance emphasis and details

g. Don't use up all spaces, but leave some room for: (i) figure or table (if relevant); (ii) subtitles; (iii) some blank lines for readability. This makes it digestible for evaluators

After the first version

- put it away for a few days, then re-read and edit

- be tough on yourself – do not let problems linger and cut away 'fluff'

- have it read by a non-expert colleague

- final version needs to be clear, concrete, consistent, complete and convincing

- did you answer: Why? What? How?

Style

Language:

- no emotive language and refrain from clear personal judgements (e.g. "it is extremely important that...")

- tenses: be consistent and aware of subtle changes in message if the tense is changed (future vs. present tense)

- active or passive; I or we: be consistent

- avoid a barrage of acronyms

Style

Structure: take the reader by the hand

1. Avoid 'overcrowding' (!)
- headings
- paragraphs
- relevant tables and figures
- underlining or bolding (caution!)

→this helps to get the message across also visually (digestible)

→text boxes can do a very good job

Style

<u>Structure:</u>

2. Word/space limit is not an expectation
- cf. removing 'fluff'
- evaluators have time constraints and do not like unnecessary or duplicate texts
- shorten references for more content/word

3. Beginning and end should be especially strong → link the two if possible

Style

Finances: prepare a budget

- be sensible: no decimals or single euro's (15,400 EUR or 15.4 k€)
- financing bodies often give you less than you asked → round to higher number and always ask a bit more than you really need (but keep it realistic)
- keep the budget table simple and clear
- concentrate on efficiency (more with less)

Your personal file

- Do not downplay your own achievements – it is OK to brag a bit (others will do the same)

- Use weaknesses as opportunity (e.g. Marie Curie) → career building

- Explain why:

  - your scientific background is fitting

  - your potential is top notch

  - you are the right person for the job

  - you benefit from the project

EC related proposals

- Refer to current or recent EC directives or policy documents (Communication or Bulletin of the European Commission)

- Refer to related EC projects (current or recent past) on similar topic

- Refer to currently supported EC initiatives (projects, networks, research initiatives, ...)

- Think about relevance (socio-economic or industrial), potential applications for EC or EU

Ethics issues

1. HUMAN EMBRYOS/FOETUSES

- Does your research involve Human Embryonic Stem Cells (hESCs)?
- Does your research involve the use of human embryos?
- Does your research involve the use of human foetal tissues / cells?

2. HUMANS

- Does your research involve human participants?
- Does your research involve physical interventions on the study participants?

3. HUMAN CELLS / TISSUES

- Does your research involve human cells or tissues (other than from Human Embryos/ Foetuses, i.e. section 1)?

4. PERSONAL DATA

- Does your research involve personal data collection and/or processing?
- Does your research involve further processing of previously collected personal data (secondary use)?

5. ANIMALS

- Does your research involve animals?

Ethics issues (ctd.)

6. THIRD COUNTRIES

- In case non-EU countries are involved, do the research related activities undertaken in these countries raise potential ethics issues?
- Do you plan to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)?
- Do you plan to import any material from non-EU countries into the EU? *For data imports, please fill in also section 4. For imports concerning human cells or tissues, fill in also section 3.*
- Do you plan to export any material from the EU to non-EU countries? *For data exports, please fill in also section 4. For exports concerning human cells or tissues, fill in also section 3.*

- If your research involves low and/or lower middle income countries, are benefits-sharing measures foreseen?
- Could the situation in the country put the individuals taking part in the research at risk?

Ethics issues (ctd.)

7. ENVIRONMENT & HEALTH and SAFETY

See legal references at the end of the section
- Does your research involve the use of elements that may cause harm to the environment, to animals or plants? *For research involving animal experiments, please fill in also section 5.*
- Does your research deal with endangered fauna and/or flora and/or protected areas?
- Does your research involve the use of elements that may cause harm to humans, including research staff? *For research involving human participants, please fill in also section 2.*

8. DUAL USE
- Does your research have the potential for military applications?

9. MISUSE
- Does your research have the potential for malevolent/criminal/terrorist abuse?

10. OTHER ETHICS ISSUES
- Are there any other ethics issues that should be taken into consideration? Please specify .

Final recommendations

- avoid being too dependent on others as it brings inherent risks - being pro-active is positive (you will take care of it)

- stress the added value

- do not forget the public at large (website, press releases, events,...)

- follow instructions, but add personal touch if possible

Final recommendations

- Mentoring by senior colleagues
- Attend training courses or information sessions (by funding agency or science foundation)
- Learning by doing (not all project proposals are successful)
- The three R's: Rethink, Revise, and Resubmit

Some practical excercises

- ✓ Bring own project proposal
- ✓ Several short exercises to come