How to prepare a research grant application

... or a letter of intent, apply for a job...

T. Hassan, CIEMAT



European Research Council

Established by the European Commission



Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas





I WON'T TEACH YOU HOW TO WRITE A GOOD PROPOSAL

BUT I WILL GIVE YOU "A VERY PARTICULAR SET OF SKILLS" THAT WILL INCREASE THE CHANCES OF SUCCESS

DISCLAIMER

I WON'T TEACH YOU HOW TO WRITE A GOOD PROPOSAL



DISCLAIMER 2

- 1) These guidelines worked for me, but of course may not work for everyone.
- Applying for a grant is inherently random. If the reviewer simply does not like your topic (or does not like you, or your boss) he will be biased.
- 3) If you disagree with anything presented here, let me know!

Initial survey – Who applied for a grant?

- Who applied for a grant over the last 2 years?
 - PhD grants
 - Mobility grants
 - Postdoc grants
 - \circ EU funds

Initial survey – Who applied for a grant?

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 - PhD grants
 - Mobility grants
 - Postdoc grants
 - \circ EU funds
- Who applied for a grant over the last 2 years, already having an ongoing contract?

- Getting grants is key for your future:
 - Competitiveness: proof you are better than others (ranking)
 - Independence: you demonstrate you can bring money

(important for tenure track positions!)

- The more grants you gain, the easier to get more (important for tenure track positions!)
- Stability: long-term (5y) contracts are rare, while multiple ~4-5y grants exist in most countries. Many are designed as the national tenure track process

No paper (alone) will assure you a future in science. Multiple grants will ensure you a future in science

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 - While searching for/doing a PhD?
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 - $\circ~$ As an experienced postdoc?
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 - As an experienced postdoc?
 - Definitely. Some grants will ensure you permanent positions.
 - As a senior scientist/professor?
 - Of course! Getting funding is your job. (Also your salary may improve!)

. Who do you think gets the best grants?

- The best scientists?
- The ones that have more nature papers?
- The ones that know more python?









- . Who do you think gets the best grants?
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- . No. The ones that:
 - Apply for **more** grants
 - Apply **better**
 - Devote time and effort to apply





Stop the "fun" lab work/scripting and write!!

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Excuses

• Fight procrastination!

"My CV is not good enough..." -> Let the selection committee decide

"But I already have a contract..." -> Your employer will be happy, and your CV will improve

"Let me finish this paper first..." -> except few cases, there will always be another paper



Ok, so... Which grants do I have available?

- To which grants you can apply strongly depends on your situation:
 - Years since your phd?
 - Where are you based? There grants in your country!
 - Are you available to live abroad?
 - Many grants require a change of country (e.g. <u>Marie Curie Postdoctoral Fellowship</u>, but also national grants, may be the easiest way to become permanent!)

Impossible to cover all cases in one talk... But ask chatGPT!

Which grants?

Hey chatty, could you use your ominous superpowers to tell me which scientific grants are available for me? I'm a scientist working in Germany. Have 3 years of experience since the end of my phd. I would not mind moving to Spain or staying in Germany. Do your MAGIC!

💳 Germany-based opportunities

1. DFG – Individual Grants & Early-Career Programs

- Emmy Noether Programme Lead your own junior research group (up to 6 years). Eligible up to ~4 years post-PhD. forchargdoendering uni bagnedichde 115
- Heisenberg Programme For those ready for professorship; advances your independent research. dtgde -3
- Research Grants / Scientific Networks / Fellowships Flexible support for projects, networks, or stay abroad (e.g., Walter Benjamin Programme, Research Fellowships). ddgdd 44

2. Alexander von Humboldt Foundation

Humboldt Research Fellowship – Fully funded 6–24 month stays in Germany (three application rounds per year).
 envilopeda.org +15

3. Max Planck, Helmholtz, Fraunhofer, Leibniz institutes

Early-career group leader tracks like Max Planck Group Leader, Helmholtz Investigator, Fraunhofer
 Attract, Leibniz Junior Groups. researchingemany.org <2

4. ERC Starting Grant

 Up to €1.5 M (sometimes €2.5 M) for up to 5 years. For researchers with 2–7 years post-PhD. Must be hosted in Germany or other EU country. frontungsforedress gas/bayreath.de +2

5. Other targeted programs

芝 Spain-based opportunities

1. ATRA-E Programme (AEI)

 "Attract Established Talent" — aimed at researchers abroad to join Spanish institutions. Last call: Apr 24–Jun 9, 2025. asigobas +11

2. Juan de la Cierva Postdoctoral Fellowship

Prestigious 2–3 year contract for outstanding postdocs in Spain. reddit.com +4

3. MSCA Postdoctoral Fellowships (Marie Skłodowska-Curie Actions)

 European Postdoc Fellowships: 1–2 years in EU (Spain, Germany). Deadline ~September 2025 (e.g., UCM-host timeline). [mscaucmes +]

4. Ikerbasque Research Fellowships (Basque Country)

• 5-year positions for 3–10 year postdocs with international CV. Up to ~25 roles annually. enwikipedia.org

🧭 Mobility & Strategy Insights

- DFG research fellowships (e.g., Walter Benjamin, Research Fellowships) support stays abroad and eventual reintegration in Germany. drade
- Mobility is central in EU programs—you're expected to change country to gain independence and networks. (reddt.com +1)

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Woman-focused professorship funding, climate or green hydrogen fellowships, Georg Forster awards,
 Philipp Schwartz for at-risk scholars, etc. research-gemany.org +6

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Answers will not be perfect, and there may be some good grants missing... But it is a good start. Always ask experienced local members from the country/group you like for advice.

Writing a grant proposal - Where do I start?

"Ok, Tarek, stop, you convinced me... And found a grant... Now what?"

- Most grant proposals have a similar structure:
 - List of legal documents with all the grant information (very boring and unnecessarily long text)
 - Q&As for scientists
 - (Not always) Deadline for application
- You will need to provide:
 - $\circ~$ A CV, on a given format
 - A document describing your scientific project, on a given format (Work plan, budget, data management plan, etc...)

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Vou will pood to provide:

Simply by reading in detail all the grant information, you will have an **obvious advantage** over other (lazier) participants

(Work plan, budget, data management plan, etc...)

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Guidelines of a scientific grant

- Things we usually check:
 - Can I apply?
 - How much, and what do they fund?
 - How do I apply? Which are the templates?

Guidelines of a scientific grant

- Things we usually check:
 - Can I apply?
 - How much, and what do they fund?
 - How do I apply? Which are the templates?
- Things people may have missed:
 - Which will be, exactly, the **review process**?
 - How will my grant application (proposal, CV...) **be graded**?
 - Who will act as reviewer? (scientific profile of the reviewer)

Knowing what is important for a grant needs to define how you write your grant application!!

Keys of a successful grant

- Most scientific proposals have common parts:
 - State of the art
 - Scientific objectives of your project
 - Work and contingency plans
- ... and a CV (many different formats):
 - Now a big chunk of free text as summary of your CV is becoming the norm

The most important point for a successful grant is: thinking about the reviewer

Keys of a successful grant - Reviewers!



[Sad music is playing...]

- Being a reviewer is hard:
 - You need to evaluate and
 compare many different grants
 - You generally do not have much time for each proposal
 - Understanding the relevance of a scientific proposal is hard even for experienced scientists
 - You need to fill many "boxes" (internationalization, leadership, impact...)

Keys of a successful grant - Reviewers!

- A happy reviewer, is a good reviewer
 - If you make his life easier,
 you will be better graded
 - If you know which is the scientific background of reviewers (e.g. EU's panels of experts) you can write your proposal with their background in mind
 - Organize your text having what he needs to grade in mind!



Example: MSCA guidelines

		3. Quality and efficiency of the implementation	
1. Excellence The following aspects will be taken into account, to the extent that the proposed work correspo	ands to the	The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:	
 description in the work programme: [OPTION for MSCA Doctoral networks, Postdoctoral fellowships and Staff exchanges pertinence of the project's research and innovation objectives (and the extent to w ambitious, and go beyond the state of the art). Soundness of the proposed methodology (including interdisciplinary approaches, conside gender dimension and other diversity aspects if relevant for the research project, and the appropriateness of open science practices).] [OPTION for MSCA Doctoral networks Quality and credibility of the training program 	s: Quality and thich they are deration of the he quality and	 [OPTION for all MSCA except Special needs allowances: Quality and effectiveness of the work plan, assessment of risks and appropriateness of the effort assigned to work packages.] [OPTION for MSCA Doctoral networks and Staff exchanges: Quality, capacity and role of each participant, including hosting arrangements and extent to which the consortium as a whole brings together the necessary expertise.] 	
 transferable skills, inter/multidisciplinary, inter-sectoral and gender as well as other divers Quality of the supervision (including mandatory joint supervision for industrial and j projects). <i>J</i> [OPTION for MSCA Postdoctoral fellowships; Quality of the supervision, training and o transfer of knowledge between the researcher and the host. Quality and appropriateness of the researcher's professional experience, competences a [OPTION for MSCA Staff exchanges: Quality of the proposed interaction between the organisations in light of the research and innovation objectives. <i>J</i> [OPTION for MSCA COFUND: Quality and novelty of the selection / recruitment pr researchers (transparency, composition and organisation of selection committees, evall equal opportunities, the gender dimension and other diversity aspects) and quality and of the appointment conditions, including competitiveness of the salary for the standards countries. Quality and novelty of the research options offered by the programme in terms interdisciplinarity, inter-sectoral and gender as well as other diversity aspects). Quality, novelty and pertinence of the research training programme (including trans inter/multidisciplinary, inter-sectoral and gender as well as other diversity aspects). Quality, novelty and pertinence of the supervision, career guidance and career arrangements. <i>J</i> 	 The following aspects will be taken into account, to description in the work programme: [OPTION for MSCA Doctoral networks Collevel and to strengthening European innova a) meaningful contribution of the norm the implementation mode and rest b) developing sustainable elements Credibility of the measures to enhance the contribution to their skills development. J [OPTION for MSCA Postdoctoral fellowsh perspectives and employability of the resea [OPTION for MSCA Staff exchanges: Devit transfer of knowledge between participating innovation potential at the European and gli Credibility of the measures to enhance the their skills development. J [OPTION for MSCA COFUND: Strength regional, national or international level, in organisations with the principles set out by innovation. Credibility of the proposed measures to researchers and contribution to their skills development. J [OPTION for all MSCA except Special net maximise expected outcomes and impact including communication activities. J [OPTION for MSCA Doctoral networks, Pois and importance of the project's contribution 	b o the extent that the proposed work corresponds to the contribution to structuring doctoral training at the European ation capacity, including the potential for: b on-academic sector to the doctoral training, as appropriate to search field b of doctoral programmes. <i>j</i> b e career perspectives and employability of researchers and hips: Credibility of the measures to enhance the career perspectives of staff members and contribution to improving research and lobal level. b e career perspectives of staff members and contribution to having the practices of participating the EU for human resources good practices at institutional, in particular through aligning the practices of participating the EU for human resources development in research and on enhance the career perspectives and employability of research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the EU for human resources development in research and participating the practices of participating the participating the practices of participating t	

Example: MSCA guidelines

3. Quality and efficiency of the implementation



Example: MSCA guidelines

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3. Quality and efficiency of the implementation

The follow Remember: your objective **is not** to have the best proposal. Your objective is to get the highest grade possible.

And that will only be possible if the reviewer easily understands your project, and **understands** its excellence and potential impact

Extremely common: "I did not get the grant because the reviewer did not understand my proposal!"

- maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan



work plan

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Scientific proposal

- There is a million formats to grant proposals... but most of them will have a **CV** and a **Scientific proposal** document
- Scientific proposals, very broadly, can be divided into:
 - State of the art: description of the field
 - Scientific Proposal: your project
 - Objectives: specific objectives
 - Impact: potential impact if objectives are achieved
 - Implementation: how you plan to achieve your objectives
 - Work plan: Gantt chart, work packages, etc...
 - Contingency plans: what to do if anything goes wrong

State of the art

• What is the main objective of the **State of the art** section?

State of the art

• What is the main objective of the **State of the art** section?

Making sure the reviewer understands the scientific relevance of your project

- A grant proposal **is not a paper**. You don't need to be as formal, as precise or as objective.
- Specially here, it is very important to have a sense of **who will be evaluating the proposal**. If the target panel has extremely diverse reviewers, you need to introduce the topic very generally, while if reviewers are astrophysicists (e.g. ERC/MSCA panels) then you can focus way more on the field

State of the art

- Key features of a good state of the art:
 - Important claims need good references (ideally with citations!)
 -> shows relevance of the field itself
 - Go sequentially from very general knowledge, to more specific
 -> easier for the reviewer to follow!
 - Include your papers: convince him you are a relevant figure of the field you are describing (don't wait until CV to sell yourself)
 reviewer will see you as a good candidate early on

From time to time, summarize the main points of sections with text in boxes, and use bold to highlight the parts you want reviewers to focus on

Scientific proposal

- In the state of the art (or in this section) you introduce the challenges that currently limit scientific breakthroughs in your field.
- You then describe how you are going to overcome those challenges, with novel methodologies (objectives).

CAREFUL: not focussing on the challenges is very common!

- If you don't, reviewer will think instantly "Sure, then why no one did this already? It cannot be this easy!"
- This section is also an excellent time to **sell yourself**: ensure early on the reviewer understands you are the **ideal candidate** to solve these challenges!

Scientific proposal - Impact

• How much should you "exaggerate"/"oversell"?

Scientific proposal - Impact

• How much should you "exaggerate"/"oversell"?

As much as the reviewer enjoys. As soon as he feels you are exaggerating, it may become detrimental

- You should give the **proper relevance to your project**, and showing excitement will be perceived positively.
- If you don't believe in the science you are doing, who will?
 The reviewer will definitely not believe more in your project than you.

It's fine to be excited about your own project!

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Scientific proposal - Impact

• Typical example:

"This proposal will provide unprecedented constraints to the parameter space of Dark Matter ..."

VS

"This proposal is a quest to unveil the invisible: this project dares to detect dark matter, the elusive glue holding the universe together!" (chatGPT)

Implementation

- This part is hard for those without prior experience: ask your (current, past, future) bosses!
- Dramatically depends on what is going to be funded: could be simply organizing your work and objectives over a couple of years, or perhaps define the schedule of a 5-year project with a 5+ FTE/year team
- Universal guidelines are hard, but let me try...
Implementation

- General guidelines for a good "Implementation" section
 - Separate important tasks into working groups
 - Think about what "needs to be done", and create WGs around those
 - Easier to define working groups when each focus on very specific objectives/milestones
 - Sell the "help" you may receive from other members of your group, but never give the impression they are more needed than you
 - Never forget about bureaucratic/contracting overheads
 - Don't be way too optimistic (timescales, number of papers, etc...). Reviewers have good experience with that.
 - Always add a Gantt chart

Implementation - Contingency plans

• A minimal amount of contingency plans is advised for almost all proposals:

	Risk description	Probability	Impact	Contingency plan
1	Not including contingency plans in your proposal	High	High	No contingency, you are screwed
2	Add a risk that the reviewer already thought while reading your proposal	High	Low	Show that you already thought about a good solution, which will impress the reviewer
3	This is a place in which you can get technical. E.g. specific problems of your planned implementation, transients you search for not happening			

- Again, it is not trivial to do a perfect CV. My suggestions are:
 - Follow the guidelines. Reviewer will be confused if you don't
 - Free summary text, crucial:
 - Give proper relevance to your achievements:
 - Being humble in your CV is counterproductive. Reviewer will think you are exaggerating **in any case**
 - Highlight with bold those sections that are most relevant for the grading (internationalization, impact, etc...)
 - Link as much as possible your achievements to your proposal. Your whole career should reflect that you became the ideal candidate for this grant



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 - Follow the guidelines. Reviewer will be confused if you don't

Let others read your CV!

We usually tend to undersell ourselves, while others than know us will very obviously see where we should be more aggressive.

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- Several grants/contracts require a review of a written document and **a presentation**
- A presentation to get money/a contract is not a scientific presentation you would give in a conference

It's a sales pitch

 We are not used to sell stuff, and therefore we are terrible at it! Understanding these are dramatically different "formats" is the key for success

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- I strongly recommend this structure for the pitch
 - OP: I have a pen, you don't
 - PS: You could pay 10€ for my pen!
 - SP: You have many grant proposals to write, which will make you extremely successful. All you are missing is a pen!
 - S: I have this pen, and you are lucky! I sell it!
 - P: Here it is, see? It's an amazing pen!
 - B: Wireless, no batteries, reduces global warming...
 - C: Sure... There are other pens...
 - XP: ...but this pen got 3 Nobel prizes already...
 - C2A: ...and now you can have it and have the same luck!
 - F: This pen will change your life (and I'll be 10€ richer)



• All members of the panel have a say on who is selected

All members of the panel should be able to follow your presentation and understand its scientific value

- If only experts understand the topic, you will fail
- Only people that like your proposal will "fight" for you



- This presentation format is very different from how we usually present our work
 - It takes time to get used to it
 - Is better suited for short presentations
- It is not only about convincing them your science is sound, you also want to excite them, make them like it, specially more than your competitors

- How to answer questions:
 - Many people may be in the audience. If they have a question in their mind and don't have the time to ask, they will be annoyed
 - Answers should be ~30 seconds, and be understood by everyone in the audience
 - Careful with specific/technical questions: you may convince the experts, but the non experts may feel uninterested about things they don't understand
 - Minimize as much as possible technicism, and when you use them, explain broadly what it means to the audience
 - Don't be boring. Show how excited you are about your science!

Final set of recommendations

- Scientific proposal:
 - The more you discuss with people about your proposal, the better ideas that may come up to sell it better
 - Share your proposal with as many people as you feel comfortable.
 - Sometimes people get direct benefit if you get the grant.
 You are not bothering them! They want to help you.
 - Sometimes people far from your expertise have a profile closer to reviewers (not super experts of your topic)
- Presentation
 - Practice makes perfect. Do mock up interviews with your colleagues!

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Conclusions

• Maybe the most important point to get across:

Applying for grants is key for your future. Make sure you devote time to do it, and you do it right

- Your proposal needs to send these messages to the reviewer:
 It is scientifically sound, and an interesting project
 - Have the potential to produce exciting results!
 - You are the best candidate to achieve the goals you propose

I propose exercises... Go through them. They could be good for you!

Exercises - 1/2

- 1) Search for grants that you could apply for right now, or at the next stage of your career
 - a) Is there any good grant suitable for you?
 - b) Is there any way in which you could organize your calendar to apply for it?
 (finish a paper by date X, so you can apply for grant Y)
 - c) Check the documents needed to apply for the grant. Check the template. Is it that much?
- 2) CV: Write a 1-page summary of your CV. Let someone else read it, and think about their feedback

Exercises - 2/2

- 3) Presentation:
 - Find one of your short presentations (meetings, conferences)
 - Re-organize it (at least the skeleton) to a structure similar to the one I propose
 - Do you feel any difference?

