

Tips for Writing Personal Grants Proposals in ICT

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(for further suggestions and corrections send an e-mail to the authors)

What is in this Slide Set?

- Why this slide set?
- Getting Ready. *How to prepare for writing a proposal?*
- Evaluation Context. *What are evaluators looking for?*
- Structuring. *A recipe for a (successful) proposal.*
- Writing Process. *The mindset for the writing process.*
- Organizing Feedback. *Alone you go fast, together you go farther.*
- Scoping. *How to aim and frame the proposal?*
- Tactical Elements. *A checklist to make a better proposal.*
- Knowledge Utilization. *For ICT proposals an opportunity, if done well.*
- Rebuttal. *One of the few things a panel reads completely.*
- Panel Interview. *How to perform optimally in front of the panel.*
- Common Pitfalls. *So easy to make. So easy to avoid.*
- Final Wise Words. *Thoughts that are useful beyond proposals.*
- So...What about the Panels? *What can we learn from ICT-panel members?*

Why this Slide Set?

Reason #1 for getting rejected is the insufficient focus on scientific challenges in ICT.

- To be successful, learn from the best.
 - This slide set brings together the experience of tens of successful ICT scientists.
- ICT proposals suffer from a number of typical deficiencies.
 - It is easy to avoid these pitfalls if they have been pointed out.
- The learning curve is steep.
 - Following tips and tricks that have worked for others helps to avoid wasting time and to focus on the content that really matters to get the proposal accepted.
- ICT research in the Netherlands is of high quality (see QANU Research Assessments).
 - We rarely see ‘okay-ish’ proposals; over 50% of the reviews score A+.
Therefore, the devil is in the details.
 - A sloppily written proposal on a good idea will not make it.

Getting Ready

Start early so that you can allow yourself time to trash earlier versions and start all over again.

- Work on your CV. The proposal should be credible from your past achievements. And show that you are on the right track.
- Read tips and tricks available on the web.
 - <https://theprofessorisin.com/2011/07/05/dr-karens-foolproof-grant-template/>
 - <http://andreas-zeller.blogspot.nl/2013/02/twelve-tips-on-how-to-prepare-erc-grant.html>
- Get training from professionals in your organization, such as the ‘technology transfer’ or ‘valorization’ office.
- Get your hands on a least five successful and failed proposals and reviews.
- Start early with pitching and refining your idea without writing any text, following the narrative structure under ‘Structuring’.
- Know the evaluation process, and composition of panels.

Evaluation Context - I

Evaluators look for three things: what are you going to do, why you, and why now?

- Curriculum vitae is important in personal grants. Sometimes first round evaluation is based on short proposal and full CV only.
- What evaluators look for in your CV ('why you'):
 - Authorship on papers. First author (Veni), last author (Vidi, Vici). Point out if 'Hardy&Littlewood rule of ordering authors alphabetically' is used.
 - Scientific independence. Publish without supervisor; build your own group.
 - Papers in A and A+ journals and conferences. Point out what A/A+ journals and conferences are in your field (e.g., list acceptance rates).
 - Evidence for international recognition of your research by peers.
 - Substantial international experience, e.g. long research visits, collaborative papers.
 - Acquired larger projects (for Vidi, Vici grants) and noteworthy prizes.
 - Key notes, invited contributions (papers), best paper awards, patents (TTW proposal).
 - Media items, especially if they can be connected to the valorization section.
 - Select and do not include light-weight material (hobbies, family life, papers in low quality conferences) unless explicitly relevant for the proposal.

Evaluation Context - II

Write what you believe, not what you think the reviewers will want to hear.

- Core issue for ICT proposals: focus on scientific challenges that can compete with mathematics and big sciences.
 - The core should stay away from engineering advanced solutions.
 - Engineering and programming might be means in evaluation studies and valorization, but an ICT proposal is not an implementation project.
 - Emphasize that you diverge from the trend, from what others have done, and that you can do this only by researching theoretical foundations of the newly proposed concept or approach.
 - Show that you are proud of and confident about what you propose.
- Reason #1 for getting rejected is the insufficient focus on scientific challenges in ICT ('**what are you going to do**').
- Personal grant project should be able to stand on its own feet. Do not (explicitly) make it part of a larger initiative.

Evaluation Context - III

Strike a good balance between non-trivial, tractable results and extremely risky ambitions.

- A proposal that is not timely or urgent has no reason to be funded. Make sure you argue why your proposal should be funded now. And that you will have to do the research even if not funded.
- Be prepared to answer the following questions, either in the proposal or later on in the interview (**‘why now’**).
 - If this is so important, why haven't others addressed this already?
 - Who is your competition?
 - Or if others have tried to address this and failed, what makes you think you can succeed (tip: evidence from earlier results, first proof-of-concept)?
 - Hasn't Google, Facebook, Amazon, ... already solved this problem?
 - Why isn't company X, hospital Y, or ministry Z willing to fund this research if it is so important (tip: foundational research)?
 - Why not another funding mechanism, like open competition, top sector programs, European programs, direct company funding?

Curriculum Vitae

Don't boast, but be proud of what you achieved.

- Summarize the highlights so that committee members do not have to search for it.
- Make sure you give a full picture of all job-related aspects of yourself.
- Avoid too many details.
 - Make sure you know what it is that the evaluators should remember.
 - Great if they remember one thing; fantastic if two; more is a fantasy.
- Explain gaps in working experience / periods.
 - Maternity leaves are relevant.
- Reserve sufficient time to put a good CV together.
- Collect a couple sample CVs to learn from.
- Ask feedback on your CV.

Structuring

Start early and work within well-defined structure. Credit to <https://theprofessorisin.com/2011/07/05/dr-karens-foolproof-grant-template/>

ICT topic of wide interest, understandable and convincingly argued for experts and non-experts

Any referee and cie member should get this and be excited.

Brief ref to literature I

Brief ref to literature II

Brief ref to literature III

However, scholars have **not addressed adequately** XXX, because XXX.

Gap in knowledge, **opportunity** for deviating from trend. (1) Urgency, the gap needs to be filled; (2) I will and can fill the gap (because) ...

Project's **research challenge**, and research questions. I am applying to XXX to support my research on XXX

Specifics of your project, mostly aiming at specialists (background, context, novel insights, foundational research needed, impact).

Convince specialist with deep knowledge that plan is innovative and realistic in scope and ambition.

Literature review. (thorough, accurate, up-to-date, show that you know what you are talking about).

Methodology. How are you going to do the research (theory, algorithm development, implementation (!), evaluation, data collection, ...)

Approach. What are the specific activities you (of PhDs, postdocs) are going to undertake. Show that you have a concrete plan.

Timeline. Who is doing what and when. Show that you have thought about order and dependencies. A plan is not reality.

Budget. Realistic, in balance with project ambitions. If co-funding from third parties, explain usefulness of third party.

Knowledge utilization, showing impact beyond ICT sciences. Never leave empty for ICT research.

Anyone should get this.

Domains. Discuss in which domains research will have impact and why.

Partners. Which partners in mentioned domains are involved in project. How (exchange, data, co-funding). How is knowledge absorbed?

- Every reader should be able to understand what you are after. And agree that the problem is relevant. Possibly changing people's life. Here you lose or hook audience.
- Informative figures can help a lot.
- Do not drown readers in technical detail and jargon.
- 'However' sentence is the kicker, the crux of the proposal.
- Tell your story convincingly and with confidence.
- Make the objectives as concrete as possible.
- Focus, focus, focus. Choose, choose, choose.
- Focus on progress in ICT-science. Emphasize "why now" (tip: new data, techniques, ... available).
- 'Methodology' and 'Approach' are typically weak in ICT proposals. A good idea is not good enough. Show that you know how to tackle the problem. E.g., in year 1, what subproblem are you addressing and how?
- Evaluators expect utilization/valorization/technology transfer from ICT proposals. Take this very serious.
- Only empty if you can make a super strong case for not putting any utilization.

Writing Process

Trash initial versions of your proposal, keep only the feedback that you received.

- Start early. A good proposal is the result of serious thinking.
- Start with a pitch version of the entire structure of the proposal.
- Be prepared to write multiple version of the proposal.
 - Once done with one version, get feedback, and start over.
 - Start with the template, but be prepared to change the structure if needed.
 - Be prepared to change the scope and even the core of the proposal.
 - Make the story consistent and rounded. No loose end.
 - Write the proposal with reviewers in the field of submission in mind.
- Ask colleagues for feedback on (a) the story line; (b) the weak spots in your argumentation; (c) proof-reading.
 - Frank feedback may be painful, and cause more work. Better now than later.
 - Explain your colleagues how you incorporated their feedback.
- Allocate enough time to write the proposal, but not too much.

Organizing Feedback - I

It is fundamental to have different external evaluators that give their opinion about the proposal at different stages.

- Let many, different and external people read a draft.
 - If you get contradictory advices on X, then typically something is wrong with X but readers cannot put their finger on it. Revise X, perhaps differently than advised.
- Get feedback as soon as possible.
 - Feedback just before deadline is useless.
 - Start with a rough idea (follow the narrative structure under ‘Structuring’) and pitch it to colleagues.
- Do as many rounds as possible.
 - Who do you want to read the proposal, and what do you expect from them.
 - Plan towards the time schedule of the readers of your drafts.
- Use experienced seniors and possibly a coach.
 - They will spot weak points and provide tough questions.
 - Ask non-experts to focus on the summary and introduction. Do they ‘get it’?
- Inform your readers what you have done with their comments.

Organizing Feedback - II

Take feedback serious, and do not defend yourself to the bitter end.

- Mock-up interviews are essential.
- Audience should be composed of
 - ICT researchers; they will teach you how to pitch for a broad ICT panel.
 - Scientists from big sciences; they will teach you how to pitch for a general scientific audience.
 - Laymen ('the proverbial grandma'); they will teach you to pitch in an accessible and understandable way.
- Record yourself, during presentation and questioning, and review your performance together with some colleagues.

Scoping

The research objective is not what you want to build, but what you want to know and why this is new.

- The proposal addresses a relevant & novel topic (in ICT sciences).
- Big sciences study the physical world. Modern ICT scientists study the behavior of software, data, systems that form an overlay over today's physical world. Exploit this framing.
- Be specific about the results of the project.
 - No one will understand abstract ('hand-waving') results.
 - If it is a theory or framework, what will it look like?
 - Reviewers are not keen on 'generalizations' and 'unified theories'.
- Be prepared to take risk. But
 - describe the fall back or alternative. How will you re-plan the project?
 - taking risks does not mean ridiculously unbelievable.
 - explain that risks are manageable (by you!) based on (your) previous research, initial results, and expertise. Draw similarities if possible.

Tactical Elements - I

Common pitfalls are 'hand waving' results, and underestimating the importance of a convincing 'Approach' (= 'How') section.

- Use illustrative figures and examples to explain the topic, problem, solution you want to work on, and possible alternatives.
- Make the proposal solid and as quantifiable as possible.
 - Use (initial or back-of-the-envelope) figures, diagrams, numbers to substantiate claims and results that you are after (X% improvement, faster, smaller, ...).
 - Realize that the competition is very good at this.
 - Tell a realistic story that you believe and excites the reviewers and evaluation panel. You are explaining your ambition, and not signing a contract.
- The 'Approach' section is typically weak in ICT proposals. Say how you are going to tackle the problem.
 - Distinguish between the (abstract) scientific objectives and the (concrete) tasks described in the 'Approach'.
 - Avoid putting 'reading literature', 'understanding', and 'making a plan' in the 'Approach' section. You should have done this before submitting!

Tactical Elements - II

Objectives are not your 'love babies'. Focus, choose, and keep only those that contribute to a coherent story.

- Ask yourself if your objectives have real relevance, such as
 - unblocking new scientific directions, deviating from the trend.
 - potential uptake by other researchers or in societal/economic domains.
- In a well-rounded proposal, objectives, approach, utilization, and CV are connected dots, reinforcing its credibility. For instance
 - earlier collaborations (CV) are now instrumental in addressing the proposal's objectives → you are the ideal candidate to carry out the proposal.
 - partners → provide data, equipment or infrastructure as part of the approach.
 - your earlier work (CV) → already set you on the path of addressing the ICT topic and objectives that the proposal addresses.
- Submit the proposal under one field/category (not multiple!).
 - Even if the proposal is multidisciplinary.
 - Pick the discipline in which reviewers and evaluators know your name.

Knowledge Utilization - I

Accept you will never be an expert, but familiarize yourself with the lingo and present yourself as someone that knows the field.

- Many foreign reviewers have no idea what the Dutch mean by ‘knowledge utilization’ or ‘valorization’. Explain in your plan the concrete activities and use the more commonly accepted term ‘technology transfer’.
- Do not leave the valorization section empty. Especially in ICT, a convincing valorization section kicks the proposal up in ranking.
- For TTW proposals, industrial experience (former job, exchange) shows awareness of the importance of knowledge utilization.
- Think out-of-the-box, and talk to ‘strangers’.
 - Get inspiration by talking to others about the impact of your proposal.
 - Talk to ‘business developers’ and specialists in valorization.
 - They will always ask you unexpected questions.

Knowledge Utilization - II

Nobody gets excited about proposals in niche areas or aiming for delta-improvements.

- Think at two levels.
 - Generic. In which economic, societal, or other scientific domains will the results have impact and why? Show that you are knowledgeable, invest time.
 - Specific. Who do you target specifically in this project. The best technology transfer involves committed partners in the project that
 - have capacity to absorb the project results. Plan for concrete steps.
 - are involved in the 'Approach', by providing man-power, resources, data etc. Connect these dots.
- Provide (implicit) proof of previous valorization success by listing student (B.Sc., M.Sc.) company projects and staff exchange.
- Avoid empty or unrealistic stories ('I will build this theory, then work with a company, and then put a product on the market').
- Do not fill the utilization section with empty words. Say what you have to say, no more.
- Focus not only on potential, show a few concrete steps.

Rebuttal

Never quit after a mediocre review. Do not underestimate the power of the rebuttal.

- Remember, evaluators process stacks of proposals. They are time-limited. Thus they look for the key points in the proposal summary, reviews and rebuttal.
- Evaluation panels may disagree with reviewer's comments based on your rebuttal.
- Keep the rebuttal short.
- Formulate positively and be gentle but factual towards the reviews.
- Focus on the key comments, often given in the form of a summary at the end of the review.
- Avoid long quotes of reviewers comments.
- Do not put comments of one reviewer against another.

Panel Interview - I

Look at the opponent, listen carefully to the question, do not interrupt, and then answer concisely.

- Do not underestimate the panel members.
 - Look up photos + expertise areas of panel members, so you know the background of the person who is asking you the question.
- Do not be in defensive mood, be confident on your proposal.
- Be respectful, enthusiastic, and keep cool. Enjoy the interview!
- Do not assume opponents are attacking you. Questioning is to get more information. Give that to them as objectively as possible.
- The last word is for the opponent, unless you are given last words.
- Do not put arguments of one opponent against another.
- Answer concisely and to-the-point. If the opponent wishes to know more (the question behind the question), (s)he will ask.
- Stop answering if the opponent interrupts. Apparently (s)he wishes to know something that you are not (yet) giving.
- Do not extrapolate the panel's mood on the fate of your proposal.

Panel Interview - II

Rule #1: stay within time when presenting.

- Keep your presentation simple but not shallow. Have a part that shows you are on top of the details (and they do not understand).
- Make the panel curious, they are scientists. Manage to get a 'puzzle' element into your presentation that triggers them.
- Be ready to answer detailed questions. Someone in the panel may have detailed knowledge and ask sharp questions.
- Shape your presentation such that it will trigger curiosity.
- Anticipate as many questions as possible. Practice answers, especially the hard ones. Prepare a few key backup slides.
- Have additional concrete cases and examples ready for use.
- Always answer the question. Better to deliver a speculative beautiful answer convincingly than fumbling while not giving an answer.

Panel Interview - III

Giving a pitch on the proposal is easy. The real art is in delivering beautiful answers to opponents.

- Do a mock interview.
- Practice delivering answers to the questions you can anticipate. This is more important than delivering the short presentation.
- It is not enough to know the answer; try delivering them in ten different flavors. With enthusiasm and passion.
- Ask feedback during the mock interview on three things that typically go wrong with ICT researchers.
 - Getting stuck in repeating arguments on motivation and context → Provide information on how you will do the research, with concrete activities, cases, and examples.
 - Use of abbreviations and jargon → make interview maximally accessible.
 - Use of the word ‘model’, ‘framework’, ‘theories’ → immediately give one or two understandable examples.

Common Pitfalls - I

Evaluation panels do not consist of experts on your proposal. They often trust their guts more than the opinion of experts.

- Starting too late so that you do not have time to make major revisions to the proposal.
- Being too technical in the first part of the proposal so that non-specialists have no idea what you are planning.
- Forgetting to state the obvious.
- Not citing all relevant research on the proposed topic.
- Thinking that the idea will sell itself. Everything, not just the idea, has to be outstanding: writing, style (short sentences, simple words), grammar, layout, font, diagrams. It is easy to get help on those aspects of your proposal.
- Naïve understanding of the valorization/application domain.
- Implicit lack of confidence, by including disclaimers such as the words 'might' and 'can' rather than 'will'.

Common Pitfalls - II

Stick to objective facts and claims. But you are allowed to speculate on the best possible outcomes.

- Being rude towards related work. Especially in ICT we tend to be hypercritical of each other's work. When distinguishing your own planned works, be gentle towards cited other people's work.
- Submitting a proposal on a topic in which you cannot demonstrate reputation (have at least two very relevant publications that show you are on the right track solving the problem).
- Self-applause and overselling (wording like 'exponential', 'massive impact') annoy evaluators. Stick to objective facts and claims.
- Riding the hype, promising unrealistic results and impact.
- Writing the proposal as a research paper. In a proposal you are allowed to speculate on the best possible outcome, and you should.

Common Pitfalls - III

Asking feedback too late is useless for yourself and frustrating for the readers of the late draft.

- Steer away from two multidisciplinary pitfalls.
 - ‘X is great, Y is great, I am combining X and Y which is even greater’. Combining things is not enough without a convincing rationale.
 - ‘I am using X for problem Y’. This happens a lot in ICT, using some ICT solution for some specific domain problem. The pitfall is
 - for ICT ‘X’ is not innovative enough and should be funded by domain ‘Y’,
 - for the domain ‘Y’ it is a straightforward application of ‘X’ and not innovative for domain ‘Y’.
- Delaying asking for feedback, because you ‘first want to get the whole proposal done’. Ask feedback as soon and often as possible, starting with the pitch of the core idea.
- Motivation and context will sell the project. Wrong! Balance 50% ‘what’ (motivation and context) with 50% ‘how’ (approach, planning).

Final Wise Words - I

Master your time. Be disciplined. 'Too busy' is drowning the ability to choose.

- Believe in your proposal.
- Never apply 'just to see what happens'. Look forward to do the research. Even if it is not funded (this time).
- Aim high yet also show that you have a clear path and achievable objective.
- Read the signs, and act on it. Most energy is lost on useless things.
- Get your hand on at least five recent successful and failed proposals and the reviews. Make an effort to understand the success and failure factors.

Final Wise Words - II

At crossroads pick one road full-heartedly. Believe in your choice and let it show. The other road will return to you later.

- Sort out your priorities. Choose, focus, select, cut, cut, cut. If you cannot choose, wait. If waiting does not help, stop. When going for it, go for it.
- Trust your intuition, but feed it with reality.
 - Take the initiative to do things differently.
 - Take initiatives which you feel to be uncomfortable.
- Never stop learning from others, both successful and failed proposals.

So ... What about the Panels? - I

A lesson for panel members is that they should be proud of the high quality of the ICT proposals that make it to the interviews.

- In 2010, IPN organized an evaluation of interview panels using anonymous questionnaires.
- The lessons learned are of interest to future personal grant proponents and panel members.
- We summarize those comments that complement the previous slides.
- Reviewers and panel members in ICT are often more critical than in other sciences.
 - Possibly because of the delicate balance between fundamental and applied aspects of the research.
 - Theoretical proposals seem to score better with panel members from big sciences.
 - Field of ICT is very heterogeneous, sometimes leading to lack of respect, even among ICT members in panels.

So ... What about the Panels? - II

Proponents and panel members should embrace the richness of the large and heterogeneous field of ICT.

- The fundamental nature of the proposal is often underexposed.
 - Societal relevance is sometimes overexposed.
 - Terms like ‘implement’, ‘tool’, ‘practical use’ do not go well with panel members from big sciences.
- The approach and evaluation (‘how’) are often insufficiently concrete.
- In at least 50% of the proposals, a good idea was written up poorly.
- The CV of ICT researchers often do not get enough attention.
 - As a consequence it seems as if ICT researchers are weaker than others.
 - The spread in quality of journals and conferences in ICT is very large
 - ➔ point out the top conferences and journals.
 - ➔ be aware that reviewers & panel members in disciplines such medicine and life sciences, do not take conference papers serious.