Research The yellow pages for R&D agreements in the technology transfer process

Writing Part I
ERC call 2026

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1. Proposed changes call 2026, Part I

In call 2026 the proposal submission forms (i.e. the 'template') have been dramatically changed, in favour of simplifying the information that needs to be provided for review. In the past, a 5-page Extended Synopsis ("B1a") containing "all relevant information" for review in Step 1 was required as a forward projection to the 14-page full scientific proposal ("B2"), which was reviewed in Step 2.

Now, the new template requests a Scientific Proposal composed of a Part I of five-pages state of the art and objectives (no longer including an outline of the research design) , followed by a Part II of only 7 pages focused on the methodology. These two parts no longer have any overlap in the writing nor in their evaluation.

Based on the instructions of the previous calls as well as the new notification as launched by the ERC for call 2026 we can make a reasonable guess as to what the writing instructions and evaluation questions for Part I of the Scientific Proposal will be, see below:

Information for Applicants – expected instructions for call 2026 (to be verified after publication on July 9th 2025)

Specify the proposal objectives in the context of the state of the art in the research field. It should be clear how and why the proposed work is important for the field, and what impact it will have if successful, such as how it may open new horizons or opportunities for science, technology or scholarship. Specify any particularly challenging or unconventional aspects of the proposal, including multi- or inter-disciplinary aspects.

Expected evaluation criteria, based on initial release by the ERC (to be verified after publication on July 9th 2025):

Scientific excellence: Groundbreaking nature, Ambition and Feasibility

Groundbreaking nature and potential impact of the research

- To what extent does the proposed research address important scientific challenges?
- To what extent are the objectives ambitious and beyond the state of the art (e.g. novel concepts and approaches or development across disciplines)?

Template

The full scientific proposal consists of three parts:

- Part I State of the art and objectives (5 pages)
- Part II Methodology (7 pages)
- Resources *and PI commitment* (2 pages)

Yellow Research recommendation:

Write Part I and Part II as an integral document and only later to separate it into the 5-page Part I and the 7-page Part II.

Be aware:

In Step 1 of the review only several panel members evaluate Part I.

In Step 2, the panel reviewers are joined by 2 to 5 in-depth, independent, experts who will assess both Part I and Part II. This means, explicitly, that Part I will be read by panel reviewers in step 1, and then also by in-depth experts in step 2.

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2. Ambition

The ERC work programme set outs what kind of projects the ERC is providing funding for: "*1) proposals of multi- or interdisciplinary nature crossing the boundaries of disciplines, 2) pioneering research addressing new and emerging fields and/or 3) proposals introducing unconventional/innovative approach and scientific inventions*" opening up new research opportunities and horizons. Therefore, reviewers must select proposals that fulfil (partially) these objectives. In other words, good research that lacks the ambitious dimension is assumed not to lead to new research opportunities and will therefore not be funded. But the reviewers are free to translate the wording used in the work programme to relevant jargon in the research field of the proposed research.

Since 2015, the ERC conducts an ex-post annual review of the quality of the outcomes of the ERC-funded projects[1]. This ex-post evaluation was kick started with The Comparative scientometric assessment of 2015[2][3]. This was a combined quantitative and qualitative assessment and provided the core terminology for the follow up quantitative ex-post annual review surveys. The 2016 and subsequent annual review surveys required an assessment on the quality of the output in terms of A – breakthrough; B - Major scientific advance; C. Incremental scientific contribution and D - D. No appreciable scientific contribution of research.

Scientific breakthrough was pre-defined as a revolutionary work that led to deep changes in existing paradigms or new methods opening a new stream of research.

All ex-ante review panels (the panels responsible for selecting the proposals for funding) are provided with the feedback of the ex-post surveys and therefore made aware if they select ex-ante the right type of proposals; proposals that have the potential to generate potential breakthrough(s). It is through the ex-post assessments that the term breakthrough was introduced by all panels as an important dimension of assessing ambitious proposals.

Qualitative Outcomes of the first ex-post evaluation teasing out what could potentially be qualified as a breakthrough
The type of content is...: Addressing a gap in existing knowledge; Advancing a new theory; Synthesising existing knowledge; Methodological development or technical innovation; Presenting new data or making new datasets available;
The main finding...: Is a discovery of an entirely novel phenomenon; Challenges existing understanding or represents a paradigm shift; Is a disputed finding; Is a promising early stage idea that calls for further development; Makes previous contributions obsolete
The research is novel/ innovative in that it…: Creates and applies entirely new concepts that did not exist before; Applies existing concepts which have never been used in this specific field/context before; Creates and applies new combinations of related scientific principles; Creates and applies new combinations of previously unrelated scientific principles
The research approach is interdisciplinary in that it…: Brings together concepts from different but related fields; Brings together concepts from previously unrelated fields; Produces findings that could lead to progress in fields other than its own; Builds on findings from a field other than its own

1. See *The ERC pioneering years Scientific assessment of completed ERC projects FP7 review (2015-2022)*
2. Peer-review evaluation of highly ranked publications from scientometric assessment (D8) page 29
3. In the ex-post review approximately 40% of all completed projects were part of the review process mimicking the original panel with four independent distinguished scientists and scholars for each panel.

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Qualitative Outcomes of the first ex-post evaluation teasing out what could potentially be qualified as a breakthrough
The research has a potential impact beyond generating knowledge, by…: Informing the direction of future research; Informing policy; Contributing to product/process development Producing economic benefits to society; Producing benefits in the relevant sector (e.g. healthcare, engineering); Producing wider social or cultural impacts
Looking beyond the article's scientific content, the…: Author is well-known; Institution has a strong reputation; Journal has a high profile; Journal is open access Article has a large number of authors; Research involved wide collaboration; Dissemination of the study's findings has been extensive; Study has been promoted by a high profile individual or organisation; Content is particularly topical or in the public eye; Title is attention-grabbing; Use of graphics/charts/statistics is particularly effective;

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3. Writing Part I of the Scientific Proposal

Introduction

Below we will discuss in more detail all the aspects that should be discussed in Part I of the Scientific Proposal. You need to discuss the scientific challenges and their importance, your novel concept/approach/hypothesis, preliminary evidence, the specific objectives, aims or questions including how you are proposing to approach their investigation, as well as the potential feasibility. This all needs to be contextualized in light of the State of the Art.

3.1 The scientific challenge

In assessing a proposal, each reviewer takes into account traditions and customs of the field they represent. In many research fields 'important challenge' is translated to a 'big research question' or even several important research questions. Instead of a question, "the overall objective/goal aim" can also be good ways to express the challenge that is driving the project. The reviewers will assess if it is an "important challenge(s)". As a reviewer in the field of chemistry described it: "*Big Research Questions lead to Big answers where small questions lead to the small answers, in which we are not interested in for an ERC grant"*.

We use the Turabian[4] Style of formulating the Big Research Question with a small twist by changing the critical "*So What*" question to: "What is it that will open up new research horizons":

- Conceptual or theoretical questions should allow reviewers to find answers to assess "So What is it that we must Understand that will open new direction in research".
- Applied questions should allow reviewers to find answers to assess "So What is it that we must Know before we can Do and what is then that will make a breakthrough in our field". The reviewers are looking for new scientific ways of working that enable commercial and social innovation.

A Practical Big Research Question is to be avoided because it addresses only "*What we Should Do*" and therefore does not lead to any Big Answers that will open new research horizons. A practical question can be part of a series of questions delineating the big question but cannot function as the Big Question in an ERC proposal.

Therefore, what is the Big Research Question that you will address? Emphasize your answer to the "So What is *it* that we Must Understand" for conceptual knowledge or research question or the "So What is it that we Must Know before we Can Do" for more applied knowledge or research question[5]. Re-iterate until the answer to your Big Question is the breakthrough for your field (see paragraph below for further clarification).

Importance of the challenge

The reviewers will assess if the challenge addressed in the proposal is important in the sense that it will generate a breakthrough or breakthroughs that goes beyond the frontiers of a single research field. The ambition section and in particular the table as presented above can be a source for inspiration on how to inspire the reviewer regarding the potential breakthrough of the proposal. Clarify in Part I why the breakthrough outcome will allow opening new directions, perspectives or perhaps even open a new field of science. Equally important are breakthroughs that may potentially generate commercial or societal innovations. If the big question is more applied in nature, then the breakthrough needs to

4. A Manual for writers of research papers, theses and dissertations, Kate L. Turabian, eighth edition

5 A Manual for writers of research papers, theses and dissertations, Kate L. Turabian, eighth edition.

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be discussed also as to how this may be important for social or commercial innovation. Overall, it should be made clear why what you are proposing is ambitious for the field where you are submitting your proposal to.

The ground-breaking or important dimension is best explained in conjunction with the specific objectives, see further down

Be aware that the reviewers will assess if it is possible to achieve the breakthrough in the scope of the five-year duration. If not, because the question is too big to address in five years, the reviewers will reject the proposal as to being overly ambitious. Sometimes it is helpful to present a vision as to what new research directions you foresee if the project is successful and how your proposal is situated in opening this vision.

3.2 Novel concept (idea, hypothesis, lens, framework, model…)

Asking the right question is a step in the right direction, but without a **novel concept**, reviewers will have trouble understanding why you are able to address, to investigate, this important question. Therefore, what is the new insight that you have obtained that allows you to unpack the scientific challenge. What is novel about the concept in the light of the state of the art; Novel can also be replaced by unconventional (bringing in principles, concepts from other research area fields into your fields).

This layer of argumentation is what we in the training call the connecting “tissue” or the crowbar that connects between, on the one hand, the challenge and, on the other hand, the rationale for the objectives.

The assumption of the reviewers is that addressing the Big Research Question, the challenge, requires a novel concept which may include novel developments across disciplines. There is no fixed understanding across scientific disciplines as to what is meant by novel concept. Consider for example: idea, conceptual / theoretical framework, hypothesis, model, lens, prism etc.

Therefore, be specific as to what the novel concept is in your project. Please see the evaluation criteria in this guide, and the training slides for the conceptual discussion on novel concept and how we distinguish this from approach. For the reviewers to understand what is novel the relevant state of the art needs to be explained. The novel concept (and approach) will help to specify what is unique (novel, new, innovative) in your proposal and therefore help you to distinguish between what others are doing and what is different in what you try to do.

Research framework: Quite often reviewers find the question so complex that they require that the underlying framework for investigation is elucidated to be ensured that there is a structured approach to the investigation that allows drawing robust conclusions. We see such comments across domains from theoretical physics, computer sciences, life sciences and social sciences. In such cases the reviewers expect that the framework provides the rationale for the objectives of the ERC proposal. The framework is then the crowbar or the connecting tissue which provides coherence between the challenge and the objectives. In turn it provides the structure for the research design, the methodology, to be discussed in Part II of the Scientific Proposal. The framework serves ultimately to enhance the validity and reliability of the findings, sometimes itcan be seen as the analytical apparatus for the investigation; e.g. in the life sciences why will understanding of the objectives provide correlation or causal mechanistic insight. Or in social sciences why will the outcomes be robust.

When the research framework is conceptual in nature it provides the framing of concepts, and/or theories which then creates bridges between disciplines.

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Whatever the nature of the research framework[6] (conceptual, theoretical, analytical), it provides a systematic approach to defining research questions and the gathering of data, analysing findings, and interpreting results. Research frameworks are essential tools for ensuring that research is coherent, logical, and aligned with its objectives. They serve as "blueprints" that help researchers organize their studies and make informed decisions throughout the research process.

E.G. (not limited to)

- **Conceptual Frameworks**: it provides the framing of concepts, and/or theories which then creates bridges between disciplines; it outlines key concepts relevant to the study..
- **Theoretical Frameworks**: Rooted in established theories, these frameworks provide a broader context for the research; provide the variables/constructs to be tested.
- **Methodological or Analytical Frameworks**: These focus on specific methods or tools for data collection and analysis. For example, a graphic design student might use a qualitative framework like thematic analysis to study user feedback on website interfaces.

***Hypothesis driven research*:** ERC projects *can* be hypothesis driven (but do not have to be). When hypothesis driven research is the norm in the field, reviewers will expect to see clearly defined hypotheses. The reviewers will use the hypothesis (or hypotheses) to assess how testable your experiments, case studies, fieldwork etc. are in relation to the impact that you want to generate; therefore, how important is your hypothesis in finding the answers to the Big Research Question or Major Challenge.

Not all hypothesis driven research is about testable hypotheses. There are fields, for example in the humanities, where a *guiding* hypothesis is used rather than a testable hypothesis. The guiding hypothesis provides focus to the research question and investigation but not to be directly tested. In hypothesis-driven research, the hypothesis provides the rationale for the objectives, and each objective has a function in testing/understanding the hypothesis and each objective may therefore have specific sub-hypotheses that will guide the work. The hypothesis aims to identify the cause of any correlation leading to novel insights and understanding. Overall, hypotheses (guiding or testable) will then structure the research design or workplan which is discussed in Part II of the Scientific Proposal, the Methodology.

Testable hypotheses are formulated based on insight obtained. Make sure that you have included your own preliminary data so that the reviewers can assess if the data back up the hypothesis/es. You can include the preliminary evidence in direct relation to the hypotheses/is – or also include a reference to the figure that is presented elsewhere.

To clarify, it is an urban myth that an ERC project must be hypothesis driven. There are many (successful) projects where it does not work to formulate the investigation as hypothesis driven, and in fact many fields where hypothesis-driven research is not the norm. Therefore, if you introduce a hypothesis, make sure it is clear what is the nature and function of the hypothesis in your investigation.

Model describe the units, conditions, and outcomes that define the research in terms

Lens/Prism could be another way of explaining what it is that allows you to investigate the challenge and just as the concept, framework and hypothesis provide the rationale for the objectives.

6. https://libguides.berlin-international.de/books/faqs-Vpr/page/what-is-a-research-framework

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3.3 Preliminary evidence

Importance: A novel concept needs preliminary evidence to demonstrate that it is robust; that is grounded in scientific evidence. Therefore, that the concept can serve as the grounding for the objectives. In the research design section, Part II, it can be important as well to demonstrate feasibility of novel methods, techniques or tools. Without such underpinning evidence the reviewers will not be able to assess to what extent the proposed research is potentially feasible or the proposed methodology appropriate in the light of the goals.

What is it: Preliminary evidence can be a pilot project or a measurement demonstrating that the parameter can be measured/identified. Please note that the more disruptive the concept is, the more accepted the evidence should be. When the preliminary evidence is controversial in nature then the evidence should have been accepted by your peers in a peer reviewed publication or conference proceeding (in most cases published or accepted for publication).

Where to include: Keep in mind that only Part I is evaluated in step 1. This means that you need to provide the reviewers with convincing details, evidence in Part I, Preliminary data udnerpinning the methodological strategy can then wait for presentation in Part II.

What if you don't have preliminary evidence: not all fields work on the basis of preliminary evidence. Think for example in Universe Sciences; it is impossible to generate preliminary evidence if you need to launch a satellite first to obtain your evidence. In such cases focus on what you have done in the past that allow you to now ask this question.

The exact place to insert your preliminary evidence - beginning or end of Part I - doesn't matter. What matters is that it is presented in a clear and understandable way for the generalists panel reviewer in step 1 and with the appropriate level of detail for the in-depth expert reviewer in step 2.

3.4 Specific Objectives, Aims or Questions

The objectives form the next separate layer of argumentation to be discussed in the proposal. Although the specific objectives specify the Big Research Question and when appropriate an overall aim, it is the concept (framework, hypothesis, model, lens etc) that provides the connective tissue between the challenge and the objectives.

Objectives break up the Big Research Question into smaller more focussed segments/problems/dimensions that need to be understood. Depending on the scientific discipline this could of course also be done through a set of specific questions, aims or through a combination of questions and objectives or even vice versa. The scientific field and the specific proposal will determine what the best way is to break up the project in smaller segments. In many research fields research questions are used to break up the big question. The terminology to be used can verify from objectives to aims, goals or – if applicable- research questions. Use the terminology that is most meaningful to you and to your peer evaluators. Each research question in turn can be broken down in research objectives and or specific research questions.

Please note that the objectives should lead to new understanding or knowledge, therefore be careful by using the objectives to describe your activities. Objectives to: collect data, analyse the data and draw conclusions need to specify what the new understanding is that this will work will yield. Of course, taken together it should be clear for the reviewers as how achieving the objectives/research questions will allow you to achieve the overall aim.

Why ambitious?

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In the light of the ERC evaluation criteria the word ambitious focuses the reviewers on how:

- The objectives are important for answering the big research question(s) or important challenge(s);
- How the proposal goes beyond the state-of-the-art;
  How each objective in itself will allow for ground-breaking contributions, contributions that will significantly advance the field and when combining the groundbreaking contributions will lead to the big picture outcome; the breakthrough.

Dynamic feedback loops between objectives

Clarify for the reviewers the dynamic feedback loops between your objectives. As to how understanding of one objective strengthens the understanding in other objectives and therefore ultimately can be synthesized to the big picture / breakthrough understanding. When objectives are presented linear in time, meaning that the objectives follow each other up in time, it may raise concerns with the reviewers if this is wise for an ambitious project. The reviewers' concern is twofold: problems occuring in an early stage or in the last stage (if objectives are linear then they create stages in the conduct of the work). When the reviewers identify potential problems related to an early-stage objectives the reviewers will wonder why they should fund this research that has a great risk of never achieving the ambitious goals of the project if the problem occurs in the early stage. When the reviewers identify risks in the last objective of the linearly presented objectives, then the reviewers may find that the project is an all or nothing game. Either you achieve the big picture or you do not because there is no way to loop back to other objectives to see if there is a possibility to circumvent the risk. Since, the objectives will have to be achieved through your WPs, the potential risk of linear objectives may therefore be directly transported to the methodology discussed in Part II.

Linear objectives

Sometimes linear objectives are unavoidable. We see this from time to time in time-sensitive research topics for example seasonal dependencies; growth years of crops; development of children that is followed longitudinally. In such cases it is so self-evident that there is linearity in the objectives presented in Part I and in the structure of the research design later to be presented in part II.

3.4.1 State-of-the-art – not a self-standing paragraph

The task of the reviewers is to assess if the objectives are ambitious, not if the state-of-the-art provided is a complete overview of the state-of-the-art of the field. The task for the reviewer is to analyse how ambitious the proposed research is in the light of the state-of-the-art and what makes your project unconventional in view of what other groups are doing. This means that careful consideration is needed to describe what the state-of-the-art is that forms the current frontier in research. Depending on the research area, state-of-the-art older than 10 years should be justified, why does this represent the current frontier. But in more theoretical fields or pure mathematics where open questions are addressed the state of the art can be 40 years old or older. Let alone in fields of the humanities.

The state of the art fulfils any or all the following points:

- Shows why your project is ambitious in comparison to what others have done up to today
- Provides a good insight in the key issues,
- Demonstrates PI's awareness of the theoretical, conceptual, methodological and substantive problems in the field;
- Clarifies key concepts, issues, terms and meanings used in the project;
- Raises issues, shows where there are gaps in the research field, how to move the field forwards, and in general justifies the need for the research;

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- Shows the PI's own critical judgment on prior research or theoretical matters in the field

In the assessment on the state of the art the reviewers will also want to see self-references to own work when possible. The reviewers want to understand how you, as PI, are part of the current frontier of the scientific field. The balance of how much you present own work will depend quite a lot on how dominant you are in the field. In case you are very dominant, then tune down your self-references in favour of those of the competition and explain how vibrant the research is at the moment as an outcome of your initial publications, demonstrating your potential to lead the field in the "right" direction.

Several other points to keep in mind:

- Present the state-of-the-art that is relevant and do not limit your self to your country or part of the world;
- Specify your field, this limits the state-of-the-art you need to present;
- Include self-references, taking into account what we wrote above;
- Be aware of what other groups in the world are doing and why your project idea or approach is more promising and therefore make sure to have good references to other groups operating in the niche where you situated your self;
- When you propose applied research in technical fields, the state of the art may include references to patent searches.

The reviewers do not have a separate evaluation question for reviewing the state of the art. It is part of several evaluation questions: "*ambitious objectives going beyond the state of the art*", "*novel concept and approach*" and "*bridging between and across disciplines*". Therefore, do not waste space on a self-standing paragraph on the state of the art but integrate the discussion on the state of the art there where relevant to understand novelty or level of ambition.

3.5 Novel Approach

Here we distinguish the approach as to be discussed in Part I from the methodology which is discussed in Part II of the Scientific Proposal. With approach, the nature of the investigation is being clarified. For example, research can be exploratory in nature; seeking to generate ideas, insights, and knowledge about a phenomenon. Or the research can be descriptive in nature, seeking to describe a particular aspect of a phenomenon or population without necessarily formulating a hypothesis. Qualitative / quantitative / computational, fundamental, experimental, empirical etc. Ultimately, the type of research approach depends on the concept or the research framework that guides the investigation.

What you then need to consider is what is the crucial information related to the approach that needs to be discussed already in Part I to allow you to articulate how your objectives will go beyond the state of the art.

In other words, in Part I the discussion needs to be 'precise' enough for the reviewers to form a concrete idea as to why you can address the objectives and ultimately the challenge. Therefore, clarify how you will approach the investigation of these objectives; what is the nature of the investigation; what crucial sources/datasets/databases/contexts do you have access to and will leverage for the investigation of the objectives - the detail on *how* this will be carried out will then be articulated in Part II.

3.6 Concluding the argument of Part I

Close Part I with a clear articulation as to what the breakthrough of the project will be and why this opens new perspectives, directions for future research or even a new subfield. Be inspired by what we wrote on the Ambition above.

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4. Part I –Excite the reviewers: Intrigue, Convince, Inspire

4.1 How to excite the reviewers

Above we have outlined the aspects that are expected to be discussed in Part I of the Scientific Proposal. Now you need to understand *how* you need to use those aspects to excite the reviewers. You want them to invite you to the interview so they can read your Part II, where you discuss the methodology as to *how* you will do this exciting and ambitious work. We argue that you want to *intrigue, convince* and *inspire* the reviewers at Step 1. Below is how we propose that could work.

4.1.1 Intrigue

The following topics should be discussed in Part I. Please note that Part I and Part II are interdependent - so writing them in tandem, so as not to lose the logical layering of the argumentation is lost, can be helpful.

- **Ambition**: ERC panels are selecting proposals that will generate scientific, scholarly or engineering impact for your discipline. |Therefore, what is the Big Research Question that you will address? Emphasize your answer to the “So What is it that we Must Understand” for conceptual knowledge or research question or the “So What is it that we Must Know before we Can Do” for more applied knowledge or research question[7]. Re-iterate based on the [So What] to further evaluate the information to the bullets below. When you have decided what the breakthrough versus groundbreaking contributions will be, check if this fits the interests of the panel (would they be interested in funding this research). To better understand what a panel funds, check the abstracts of funded projects at the website of the ERC[8].

- **Importance**: why will your proposal open up new perspectives for the field; new research directions or perhaps even open a new (sub)discipline or generate important societal or commercial innovations.

- **Ground-breaking contributions and Ambition**: Consider the cascade effect of things; any weak points in the big research question will trickle down to your objectives and to the technical details of the outline of the scientific approach. If the impact of your proposal is mostly for your research area only, then reviewers may consider the project to be groundbreaking but lacking potential impact. For the panel the breakthrough is the ambitious dimension and this needs to be potentially feasible but if not your project will always yield groundbreaking (very significant or significant) contributions that would advance the field.

- Asking the right question is a step in the right direction, but without a **novel *concept***, reviewers will have trouble understanding why you are able to answer this important question. What is the novel project concept (idea) that is underlying the proposal as a whole? Therefore, it functions as a crowbar in opening the challenge and on the other hand it provides the rationale for the objectives. How will these objectives be executed through a novel or even innovative approach? What is novel about the concept in the light of the state of the art; What is novel in the proposed approach in the light of the state of the art? Novel can also be replaced by unconventional.

- The reviewers of step 1 have a good overview of the field but are required as a generalist of the keyword that they represent. Therefore, explain carefully what is

7 A Manual for writers of research papers, theses and dissertations, Kate L. Turabian, eighth edition.

8. https://erc.europa.eu/projects-figures/erc-funded-projects

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innovative or unconventional and why. The presentation of **preliminary evidence** is tremendously important to assist the reviewers in assessing whether 1) your project is novel, innovative, original, unconventional, groundbreaking, challenging and 2) has the potential to open up a new direction leading to major impact on your research field and adjacent research fields. Of course, make clear that this is NOT ongoing or incremental research.

- Clarify and capture in words -and perhaps in a **visualisation- How the novel concept**, approach or development underpins the Overarching Aim or Big Research Question; the proposal is focused on the Overarching Aim or Research Question, but what is unique about your concept and/or approach?

- **Be ambitious in your scientific goals, but also realistic**. Ambitious in relation to your own track-record, not simply the next step. Realistic, the proposal must be grounded on your experience and track-record.

4.1.2 Convince

- **Present your preliminary evidence** that demonstrates that you are potentially able to address the question; present your evidence that your concept, approach or the novel development across disciplines is potentially effective in answering this question. The preliminary results should demonstrate that the core concept of your proposal is potentially feasible. If your core concept is not feasible the whole project falls apart if you fail. If you expect better data after submission, make sure to include these for your interview session.

- **Approach:** The critical question to ask in Part I is what information the reviewers need to be convinced that it is possible to address the Big Research Question and objectives and to create the proposed breakthrough. BUT do not include the methodology therefore the work packages, this belongs exclusively to Part II of the Scientific Proposal where the methodology is discussed.

    - **Provide the high-level rationales** for choices made regarding input, methods, parameters etc. The panel wants to know why you have made specific choices;

    - Provide information about access to data. Panels do not know whether specific data is available to you, even if this is common knowledge in your field;

    - Collaborators or rather Experts: See our notes on this in section Part II. In general panels find the funding for an ERC grant to be sufficient to recruit the right level of expertise to your project. Therefore, only include collaborators when essential for successful conduct of the project. Avoid creating a collaborative grant, the ERC grant is an individual grant funding a team of your own choice, implying that experts can be replaced but not you.

- **References:** Make sure to include the key references to the state of the art. Include some self-references to demonstrate that you are an important contributor to the state of the art related to the proposed research. Be aware that in step 2 of the review, in depth external reviewers are also scrutinizing Part 1.

- **Why you**: Reassure the panel that the challenge is ambitious for you but not overambitious. Therefore, include in your references to the Part I also some self-references. In combination with your preliminary evidence, it will provide the reviewers with confidence in the potential feasibility of a highly ambitious project. A more in-depth discussion of your experience and background can be provided in the CV and track-record (include narratives where appropriate). Explain what your groundbreaking publications have been and what are your key qualifications (see PI chapters in this guide for more information).

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4.1.3 Inspire

Ambition: the ambition of the proposal should be clear. Also, this comes with complexities. Use your preliminary evidence as well as your track-record to argue why the proposed research is potentially feasible. It should be clear by the end of Part I that even if the ambitious level cannot be achieved that the proposal will always offer "*value for money"* in the sense that groundbreaking contributions are clearly always going to be delivered. In other words, inspire the reviewers about the potential for scientific/scholarly/engineering advancement of the frontiers of the field and convince them that its potentially feasible to achieve this.

4.2 When preparing your proposal:

- Make sure to understand the evaluation criteria and their scientific hierarchy – see the chapter "Evaluation".
- It takes time to write an ERC proposal. ERC proposals are, due to the in-depth scientific evaluation, complex projects to write. In general, it takes a year to work towards submission. This includes, among others issues, having preliminary evidence that underpins the potential feasibility of the concept and the approach, and sometimes having already a key publication demonstrating that potential novel aspects have been accepted by your peers.
- Map out the structure of the proposal as to how to populate the 5 page and 7 page documents, following the logic of the evaluation criteria (see chapter Evaluation). Consider a timeline for the writing process: include time for preliminary evidence gathering, discussions with peers, internal coaching trajectories etc;
- Carefully consider which research area (the primary keyword you have selected – see section 'Evaluation Procedure, Selecting the right Panel and Keywords') is most foundationally impacted by your potential breakthrough/significant contribution to the state-of-the-art. And, how this will provide new perspectives, directions for research or even may form a new (sub) field for research.

In the next Chapters we address Part I and Part II separately.

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Annex A. SH example of the importance of a research framework

Since the first comments on the lack of a framework in the evaluation rounds of calls 2016/2017, this comment has seriously increased across the different domains (from theoretical physics, computer sciences, across a diverse range of Life Science reviewers and the social sciences).

It started with two types of criticisms coming from different SH reviewers which run along the following lines[9]: The first related to "*The theoretical part of the proposal lacks stronger conceptualisation. Its guiding research question is not explicitly outlined.*" The second set of critics related to "*The scientific part of this proposal is structurally complex and its parts are loosely connected*".

The above criticisms point to a lack of detail in the conceptual framework or acknowledgement of existing theories and concepts. We see today that many proposals will benefit from articulating their conceptual framework better. Of course, when the research design is based or building on grounded theory the concept is more important than the framework..

There are many different understandings of what a conceptual or theoretical framework exactly means and what a methodological and analytical framework entails. In particular if look across different domains of science and within a domain across different fields. Therefore any clarification that you can give about your understanding on how you use these frameworks will help the reviewers in their assessment.

Below we have used http://www.sagepub.com/sites/default/files/upm-binaries/47687_ch_5_&_6.pdf to summarize the critical issues of a conceptual framework in the light of the social sciences and this could provide insight as to what is meant by this in different domains. We have taken the explanation from the sagepub website and contextualized this in the light of writing an ERC proposal.

A conceptual framework gives meaning to the relationship between variables by illustrating that theories have the potential to provide insight and understanding regarding research topics; it is the vehicle that makes sense of the data. A conceptual framework functions a "lens" or "scaffold" for the entire project, consisting in most cases of theories, knowledge concepts, notes and ideas. To see the conceptual framework as a lens helps to view the research problem or the big question in a theoretical setting and will most likely help to define the methodological process for the data collection (e.g. quantitative versus qualitative approaches). When seen as the scaffold, the conceptual framework could then be the scaffold within which strategies for the research design can be determined and data collection undertaken. In the ERC project the conceptual framework could be a heading within or before discussing the specific objectives of questions. The discussion on the strategies for the research design can either be directly connected to the specific objective or form a sub-section. For this guide we have opted to place to discuss the methodological aspects of the conceptual framework in the next paragraph Part 2 Methodology.

In an ERC project a well-defined conceptual framework contributes toward thinking more acutely about the proposed research:

- It frames and grounds the entire study in view of existing theories and concepts;
- It helps define the research problem and purpose;
- As well as selection of appropriate bodies of literature for review;
- It serves as a filter for developing appropriate research questions;
- And it acts as a guide for data collection, and analysis and interpretation of findings;

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- It provides coherence to the research act through providing traceable connections between theoretical perspectives, research strategy and design, fieldwork, and the conceptual significance of the findings and/or evidence;
- It bridges between paradigms that explain the research issue and the actual practice of investigating that issue.

Therefore, such framework fulfils two distinct roles:
First, it provides a theoretical clarification of what researchers intend to investigate, and enables readers to be clear about what the research seeks to achieve and how that will be achieved.
Second, the conceptual framework could form the theoretical and methodological bases for development of the study and analysis of the findings. It functions as lens or scaffold (see above), this leads to complexity in the data gathering as well as in the analysis of these data or their analytical framework.

In part 2 Methodology, the work package may not be a fitting construct to capture all these different aspects. Therefore, some of these aspects may need to be discussed under their own specific heading. For example, the case studies as a separate section including justification but the activities for the collection of the data as part of a work package. Such work package activities may comprise for quantitative research for example precise measurements using structured and validated data collection instruments and for qualitative research activities as field notes, interviews, open-ended questions etc. In an ERC proposal there are endless ways in which these dimensions can be structured.

When the focus becomes more multi-facetted the complexity of the research design increases for example when the types of data are quite different or comprise more variations across time, countries, language issues, agents etc.

Multiple sets of data only reflect one dimension of the list above. The other dimensions make the design even more complex. For example when embedding *a mixed method multi layered approach, combining for example grounded theory approaches with in depth qualitative analysis. If this complexity is extended by adding quantitative analysis; (*retrospective cases with incomplete data across a long time span or real time cases and further empirical cases) than such complexity needs to be structured along clear headings.

The above in italics described complexity, is a complexity of dimensions. The reviewers add to this complexity their need to understand how these dimensions interlock in order to address the key research question: *"The scientific part of this proposal is structurally complex and its parts are loosely connected".* Why are all these activities required to address the Big Research Question? Why not focus the proposed research? It may help to try to capture these dimensions graphically. Drawing such interlinkage between different dimensions requires a thorough understanding of what is proposed and why and will help in structuring the scientific story of the research design in to logical clusters and specific tasks. Quite often the difficulty in graphically presenting the design is that the transversal dimensions are not clear. The transversal dimensions function as the lens for each team member, independent of the WP s/he is working on. It is the set of the transversal lines of enquiry that will allow a collective central focus on key intermediate goals as well as the breakthrough and justify proposed research. Pinpointing what the transversal dimension is, will take some careful consideration. Is the case study the transversal dimension or is it lines of enquiries, the conceptual framework or simply questions that function as the transversal dimension. There is no rule to determine in general what the transversal dimension is other than that the transversal dimension has the function of interlocking the different methodological parts towards elucidating the big research question.

Slightly rephrased by us, a reviewer in call 2016 SH3[10] formulated it like this: The methodological part of the study should offer insight into the complex view of research

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phases and analyses to be applied in those. The mere identification of different methods to be applied and the identification of research phases must be accompanied on how (with what questions, with what types of collected data) the potential projections will be extracted (from the sources/cases).

In other words, make clear how potential projections will be operationalized (through which research approaches?). Additionally, make clear how the identified various research methods and analysis techniques (for example, the reconstruction interviews) will be applied and what specific questions they will answer and what specific knowledge they will produce. Make sure that in the application is discussed the scale and the scope of data to be potentially collected and how and why this important in relation to the research questions.

Key issues to consider:

- If a conceptual framework or theoretical framework is appropriate, how does this influence the research design?
- What analytical methods or framework will be used for analysing the data?
- Is it an idea to include a separate paragraph with regard to the data collection?
- Is the synthesis properly described not only as the ultimate goal but also in terms of detailed tasks/activities?

Method of Analysis / Analytical framework

The conceptual framework can be the lens to analyse the collected data. Each WP requires a discussion as to how the collected data will be analysed. If there is no conceptual framework in place than methods of analysis need to be discussed. At any rate it is important to discuss the rationale for the analytical frame or method used.

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