Methodological letter

I have an idea and need financing. How to prepare a competitive research project☆

Tengo una idea y necesito financiación. Cómo elaborar un proyecto de investigación competitivo

Luis Grande

Servicio de Cirugía, Hospital del Mar, Departamento de Cirugía, Universitat Autònoma de Barcelona, Barcelona, Spain

In a branch of science as empirical as surgery, adhering to scientific method is non-negotiable. For an *idea* to become a concept and, in turn, scientific knowledge, it is almost always necessary to plan and implement a systematic process of collecting and analyzing information, known as a *research project*. For it to become a reality, we generally need *funding*, which is granted on a competitive basis. To this end, it is necessary to dazzle the entity providing funding, for which we must develop a project proposal.

For editorial reasons, this methodological letter cannot cover all the details of a research project proposal. If the reader wishes more detailed information, more extensive articles have been published.[1–5] The structure of project proposals promoted by the Spanish Health Research Fund (*Fondo de Investigación en Salud*, or FIS) has been followed because it is the most popular research grant fund in our country, and because most public and private agencies tend to follow its guidelines. In addition, 2 perspectives have been introduced: that of the researcher, and that of the evaluator. The evaluators rate the intrinsic quality of the project but also point out the inconsistencies that question its viability. In this context, each section of the research grant application is a small trap that can ruin the whole application, much like a restaurant tasting menu.

The welcome cocktail

Before switching on the computer, switch on your brain. Read the application requirements carefully and see if you meet them

all. Then, do not start filling up pages without rhyme or reason; it is necessary to be clear about why, how, for what and for whom the research project is being done. Confirm the validity of your idea and discuss the merits of the project with other people. This is not a waste of time, and it will enrich the project.

The menu

Once this phase is over, it is time to complete the grant application. After the institutional information, the first section defines the project title, abstract and data collection plan. Logic suggests initiating the proposal with this section, but my recommendation is to leave it for last. This is your cover letter, and you must seduce the evaluating team from the get-go. Develop a descriptive, provocative title that highlights the value of your project. If you use acronyms, they should attract and inspire. Build a structured summary with a good plot line that clearly state the benefits that your project would provide and why it is worth betting on you. If you write these sections when you have finished the rest of the proposal, it is very likely that you can do it in a few minutes, highlighting the most relevant aspects and adjusting them to the space limitations the agency allows. In the data collection plan, do not forget formal aspects, such as the approval of the ethics committee or animal research advisory committee, informed consent, data usage, data protection regulations, or the registration of your study in international databases, for example.

The first dish

The second section entails the justification, hypothesis, objectives, methods and work plan. It is time clearly declare your intentions, the significance of what you want to investigate, your capacity to do so, and the benefits you expect to obtain. There is a tendency to jam the space full of information, but a proper summary is a good way to demonstrate that your concept is clearly defined. Start the explanation with a couple of short sentences that clearly state the importance of the topic, point out the gaps in the knowledge that you intend to research, and continue with a new paragraph that demonstrates that you have enough background to tackle the research topic. All this should be accredited with a series of bibliographic citations. The most frequently made mistakes are constructing a hollow justification and introducing references that have little or nothing to do with the objectives of the project.

Although you have already outlined it in the last sentence of the introduction, in the following section describe the working hypothesis and the objectives to be achieved. Be clear, concise and specific. The most common mistake is to pose vague, unspecific, or even divergent questions or objectives that should be studied in different projects. Be careful — you need to clear this hurdle with ease.

Second dish

The third block is the methods section. Now you should use all the space provided to go into detail. A good idea is to organize this section according to the stated objectives, mentioning the equipment and materials available and those that are still required. Explicitly state what study design you have chosen, what subjects you want to analyze, how you will include (or exclude) them, what volume you will need, what variables you will use and, if necessary, define them in detail — how you will measure them, how you will manage the data obtained, and how you will validate them so that the results are credible, robust, reliable and generalizable. Make an individualized work plan and build a timeline. In the chosen example of this block, mention the limitations and difficulties that could occur during the development of the project, and the way to resolve them should also be mentioned. The most common errors in this block are opting for an inappropriate study design to answer the research question, not calculating the necessary sample size to achieve it (or doing so from inconsistent data), or not defining the characteristics of the subjects to be included, the variables to be analyzed, the method of measurement and how the results will be validated. Any one of these flaws will leave your project proposal in bad shape.

Desserts

Following the proposed pattern comes a fourth block with 3 sections dedicated to the experience of the group, its participation in stable research structures, the convergence of the proposed research with the lines of the *Instituto de Salud Carlos III* (usually following the lines of the foundation or financing entity) and the available material. Not much to say here: complete this section as honestly as possible.

The bill

We have reached the fifth block: the budget. Request everything you need, but justify it. If you ask for staff, state your need and use a salary chart consistent with the category of the necessary staff members. Do not forget that in this section you must include the expenses involved in the oral or written presentation of the results. Do not make a 'rough' calculation.

Finally, almost all project proposal formats allow for additional information to be included in an addendum. This is a good place to add previous research data, tables, graphs, supporting letters, etc.

Coffee

Up to this point, the formal aspects of the report have been addressed, but there are 2 crucial aspects that often call into question the viability of many projects: the experience of the principal investigator, and the composition of the research team. It is unlikely that a researcher with little or no participation in research projects and limited scientific experience could conduct a project of a certain magnitude. Furthermore, most research projects today tend to have a multidisciplinary approach. In this context, the composition of the team is expected to embody such a multidisciplinary approach.

The after-dinner drink

Two final recommendations should be made. The first is that an experienced person not directly involved in the project should review the proposal. This review process will surely improve your application and detect many of the errors mentioned, including syntax and spelling errors. The second recommendation is to anticipate the calls for research grant applications. The process described requires time, and rushed work inevitably reveals a lack of attention to detail.

Funding

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