How to write a successful European scientific proposal using Science-Fiction techniques
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1. INTRODUCTION

First of all, a word of advice: this is a “semi-serious” presentation… I wanted to talk about something that belongs to all my activities, as an Ex Cerfacs member, as an Airbus research engineer dealing with European Commission Framework Programmes and, of course, as a science-fiction writer and editor - and I realised that I use regularly some of my SF oriented techniques in my Airbus activities.

When I first had to write European proposal – it was in Cerfacs, in the early days of Algorithmic team, when we were frantically looking for money and contract to hire new researchers… It didn’t change that much? Well, then, I hope my talk will be useful to some of you.

There are three literary notions that are central to Science-Fiction writing that I find very useful when I have to write a scientific proposal to be submitted for funding – the European Commission being one of the main targets for such proposals. These notions are:

1. Suspension of disbelief
2. Sense of wonder
3. Characters you’d love to hate (or hate to love)

Strange at it seems, these three notions can be key to a successful European proposal. Let’s see why and how.

These three notions can be key to a successful European proposal

2. SUSPENSION OF DISBELIEF

2.1. DEFINITION

Suspension of disbelief can be defined as:

“The temporary acceptance as believable of events or characters that would ordinarily be seen as incredible”. This is usually to allow an audience to appreciate works of literature or drama that are exploring unusual ideas even if they are fantastic, impossible, or contradictory.

This term was coined by Samuel Taylor Coleridge in 1817, long before the official birth of Science-Fiction, but it has been widely used in SF context. It refers to the ability a person has when engaging with a constructed object – film, a play, a novel, and of course a technical proposal – to repress their knowledge that it is a “mental construct” and respond to it as though it is real. Or could be…

Which is, of course, exactly what one expects when one is submitting a technical research proposal for funding. They don’t know what one doesn’t know

2.2. HOW DO WE CREATE IT?

How do we create this “suspension of disbelief”? Several techniques used in SF could be applicable here:

1. Splitting: The whole idea behind your proposal is of course “at risk”. Neither obvious or easy – it wouldn’t be research – nor 100% guaranteed to success. To convince your audience that you have a reasonable chance to deliver what you’re promising, a SF writer would recommend splitting your research process into manageable chunks, each with an acceptable risk. Don’t concentrate all risks and difficulties in the same workpackage, don’t plant a mountain in your own garden. Build a succession of acceptable steps (or milestones), each with its own difficulties and adapted solutions, and plan your trek to the top accordingly. Your proposal won’t look impossible, just long and arduous.
2. Picture yourself there: let’s suppose that you’re facing a particularly high cliff, dangerous and almost impossible to climb. A SF writer would quite often start by describing the wonderful view you would have from the top – and imagine how much easier the climbing path would look from there. Then, while the hero is suffering from all kinds of pain midway to the top, he would take comfort in the idea of the view waiting from him at the end of his journey. And the reader would believe in his capacity to find enough strength and stamina to reach his objective. More importantly, he would support the idea and secretly hope that the hero will succeed.

   In a scientific proposal, describing the view from the top is something almost forgotten. Try it, believe me. It gives confidence to your evaluators, and even to your workers.
3. Use decoys: if something is really “almost impossible”, try to find an even more difficult, complicated, unreachable, goal. Describe it at large and present your project as an alternate, more acceptable solution – perhaps going partway to the goal. If you’re planning to terraform a planet plan for Jupiter and settle for Mars… It makes sense.

3. SENSE OF WONDER

3.1. DEFINITION

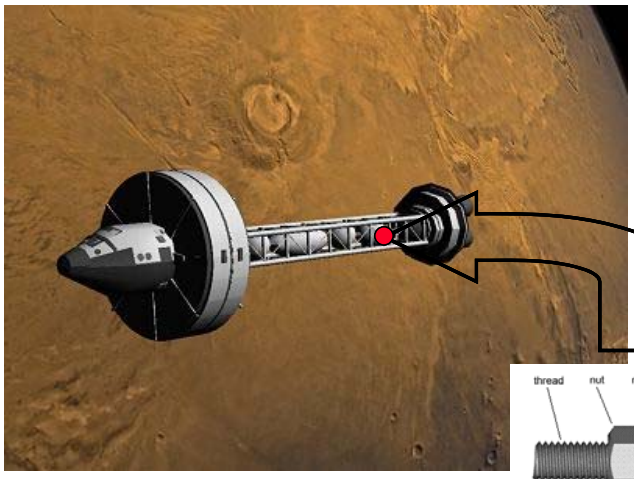
The term is self-explanatory, even for a scientist – the widening of the mind's horizons is something we all experienced in our life. However, it is essential to remember that this very sense of wonder appears when one is able to translate from abstract to concrete and to add emotions to something purely theoretical. It has something to do with “faith” and amazement, which again are two feelings you would like your evaluators to get while reading your proposal…

There is nothing as boring as a technical proposal, except maybe a scientific article… I’m registered in the European experts database and I participated to several evaluation weeks of proposals in various domains. This is a well-paid job but we deserve every euro of it, believe me. It’s by far the most annoying and frustrating experience I’ve had. I very seldom felt that “sense of wonder” while reading a proposal but I can guarantee that when it happened, the proposal was accepted!

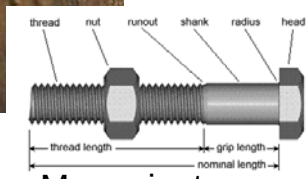
3.2. SENSE OF WONDER – THE SF WAY

How does one add emotions to a mental construct? How do we help the reader – a scientific evaluator, for example – to be emotionally engaged with our scientific proposal? Let’s be frank about it. If the reader is a true expert in your domain, there’s not much you can do about it (except add his name in the list of major references but that’s pure luck). However, most of the evaluators are not true experts on your specific domain but in another one, close enough to yours. So it is possible to add a bit of glamour to your proposal.

1. Start with the big picture: Your project is just one little step in a long journey… Your contribution only concerns a small part of a big ensemble… You’re not that important in the whole process… Well, this is not how you will sell your proposal! Every link of the chain is essential, and yours is even crucial.



Your contribution is essential… So start with the big picture!



My project…

Describe what is globally at stake. Even if you're working on a sub-system of a sub-system, start with the whole engine. Show pictures; describe what is expected on a large scale… You're writing a dedicated subroutine for an entire library? Explain first what is the purpose of the library and, only after that, show why your subroutine is playing a key role.

2. Add a logo, a motto, or a splendid metaphor… You all now about computer viruses? About human resilience? You know that you can "just do it"? Well, these are successful examples of sales tricks that will help you sell your proposal. If you can associate it with a logo, with a short and punchy sentence, you'll help to create that sense of wonder. It is not a matter of "style over substance" but a way to associate your research with something that can be easily remembered.

   The "splendid metaphor" is also a very useful thing if you can find one – be creative. It has its drawback – you might spend the rest of your life explaining it to various audiences – but if it illustrates properly your research and makes it "understandable" for the educated layman, it will be incredibly useful.

3. Use special effects (like in this presentation)

4. Exaggerate… Your proposal will change the world we live in. (No? Start again…) OK, you might eventually contribute to change a little the local environment you're living in… That's not too bad. Don't forget to mention it, explain it, insist on it – no, it's not true exaggeration, but just an honest feeling of importance. You must look convinced, otherwise you won't be convincing.

4. CHARACTERS YOU'D LOVE TO HATE…

There are no characters in a scientific proposal, of course. Well, sort of… There are results; even products sometimes, and there are effects on people. If your proposal doesn't have any effect on people, you're doomed. To be funded, you have to convince the evaluator that he will live in a better, more exciting, world in the end thanks to your research work. Which means that he has to be emotionally involved *somewhere*… I remember a colleague who explained how his electronic circuit model worked by playing the role of an electron!

An alternate solution is to explain that your proposal will give birth to a new breed of… subroutines, publications, experiments, deliverables, whatever. These are perfectly legitimate characters, if you're a scientist. For us, an operating system is the equivalent of a mate – we usually spend more time with our computer than with our spouse. And we talk a lot more to it, too.

4.1. A FEW LITERARY TRICKS

Characters can be good or bad, evil or cute. It is the same with scientific results. You're not supposed to become emotionally involved with your algorithms, or to develop a special feeling for the content of

your Petri dish. However, you're human – and so is your evaluator. You have pet projects, preferred microscopes or theories you hate. When you're writing a proposal, a little emotion doesn't hurt.

Besides, products or artefacts – useful or dangerous – can usually be created from your research. They are acceptable replacements to characters. After all, 6PO or D2R2 are characters, aren't they?

1. A good result has an emotional side: If you're explaining at large the wonders of your theory and get the answer "so what?" you've failed. The abstract beauty of a result is usually not sufficient to get funding. It has to become "real" to attract money.

   Adding emotion in a technical proposal is a terribly difficult task, essentially because a scientist naturally refrains from showing his emotional side. However, if you interview one about his pet project, you'll hear emotion. Just capture a few sentences, a paragraph or two, a bit of enthusiasm, and write that down in your proposal. It'll help.

2. If it's difficult, you'll be a hero: Someone has to do the work. It is not simple; it requires talent, creativity, intelligence, concentration and hard work. Don't forget to identify what could turn bad – and show that you are prepared. Besides, you're not new at it, you already achieved a project or two, I'm sure. So you're the cool, mature, fully experienced, kind of hero every writer would love to write about? So do it yourself. Add a bit about yourself.

3. Side effects can become wonderful sidekicks: Let's pretend you're trying to sell the idea of a computer programme and language that would facilitate the creation of "pages" on the internet, with text or graphic content. An interesting side effect is that, a few years later, pictures were responsible of 90% of the traffic (now it's videos) and nobody had foreseen at that time that most of the pictures (and many videos) would show naked people!

   So the idea you're selling has potential side effects. Be creative and imagine some. Good side effects are a plus, of course, and you can list them without being accused of exaggeration (they are "potential" effects, neither you nor your proposal are responsible if they fail to happen). But identifying potentially bad side effects might be even better – it often means that the people are heavily using your idea (usually in a weird way but again you're not responsible for that). And everyone loves a villain! Those are the "characters you love to hate" and they help your proposal to break out of the pack and be remembered.

Finally, remember that a proposal is also a work of art. A bit of humour, a couple of witty sentences, a quotation that help seeing things from a different perspective, can help. I am currently in charge of a small project called "Verification, validation and accreditation". This project has started to implement a process that will help the certification authorities to believe that our simulation tools are of good quality, accurate, and well adapted to what they are simulating. Of course, everyone knows that it is already the case, so why bother? Why do we need to fund a project like this?

I've found the perfect answer in the form of a quote from Yogi Berra, who was a famous American Baseball player and team manager. He once said:

"In theory there is no difference between theory and practice. In practice there is."

This sentence probably helped our proposal to be accepted. I hope you'll find your own inspiration in a science-fiction book, somewhere!