

From CERN engineer to Company founder

A PERSONAL VIEW

Motivation of the talk

In 2003, I left CERN to co-found ELYTT Energy, an engineering Company which has been operative since then.

I have been invited by the Technology transfer group to give a talk in the hope that it, may be useful for people at CERN that are considering giving a similar step.

It is my intention to give a personal view, away from the contents of text books on entrepreneurship.

I wish to make special emphasis on the personal barriers, mostly psychological that are the main obstacle for taking this path.

Parts of the talk

There will be two differentiated parts on the talk,

- A brief summary of the story of ELYTT
- A more interesting part on some ideas and advices for any of you who may be interested in creating your own company.

My work at CERN



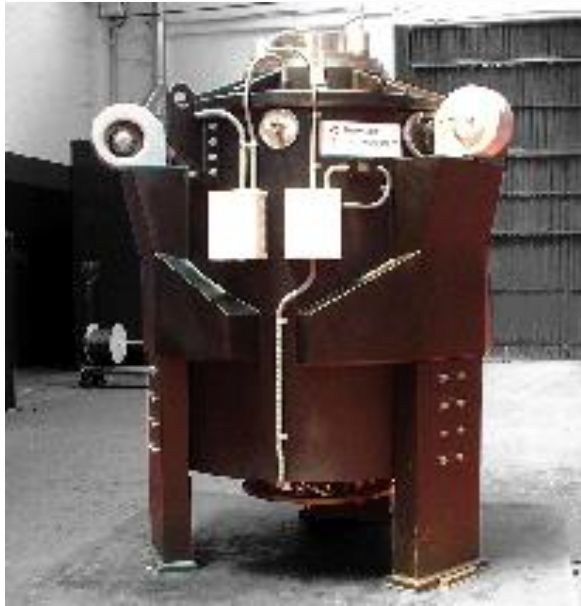
Between 1996 and 2003, I worked at CERN mostly for the quadrupoles and cold masses of the LHC insertion regions.

During 2003, I am invited to collaborate in a project for the Spanish railway, but I should leave CERN for that. I disregard the idea at the beginning, as my situation at CERN is fully satisfactory.

But, with some colleagues we finally create ELYTT to start the project.

Evolution of the Company I

The company started focused on projects for energy recovery from the regenerative braking of trains. We created a pair of the largest high speed flywheels used on railway systems.



But at a certain stage, a change in the legal system forced the electrical utilities to purchase the excess power of the railway system.

The commercial interest of the product disappeared.

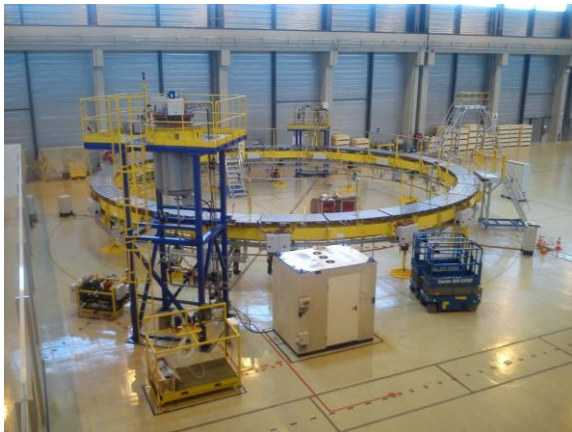
Evolution of the Company II



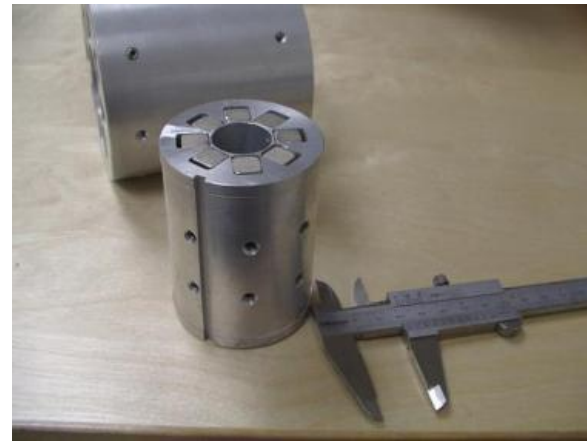
ECR proton source



ITER TF coil insulating machine



ITER PF impregnation system



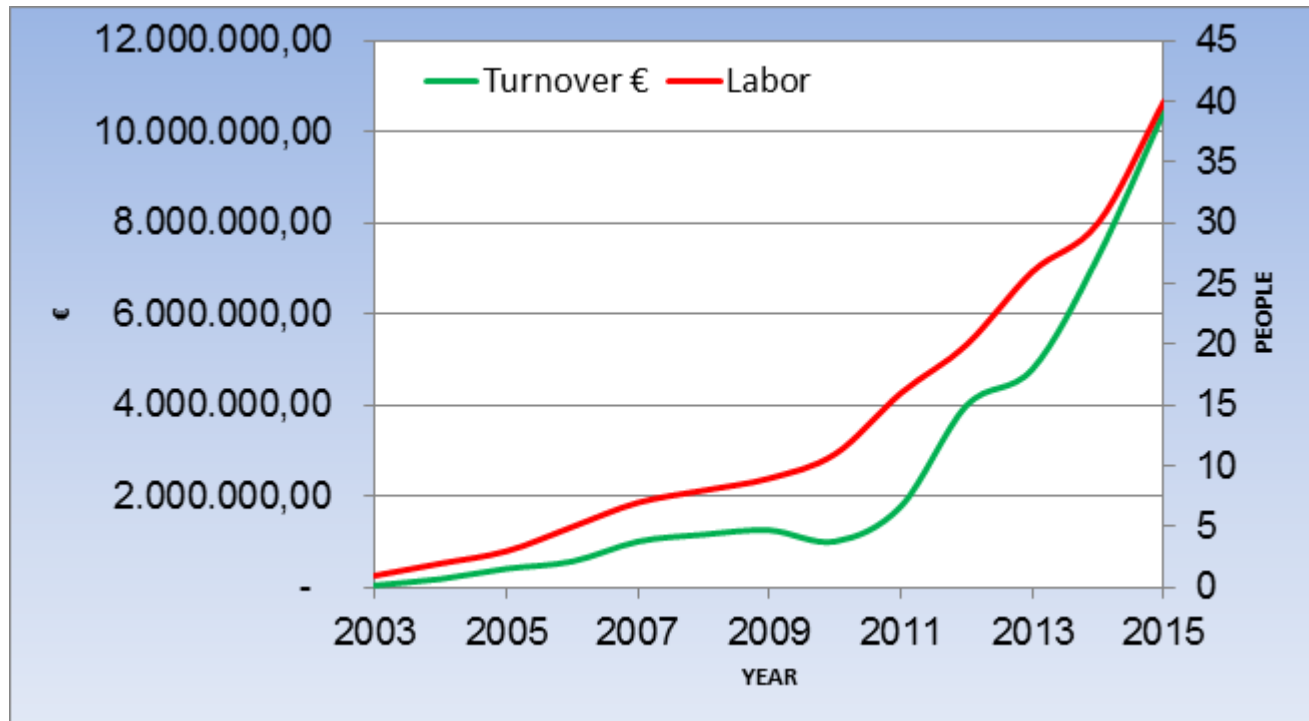
Linac4 Permanent Magnet Quadrupole

Two of the founders came from the supply of scientific components, and we managed to find an alternative way through this market.

The Spanish expenditure on science was growing significantly on the late 90s and we were helped by some institutes, mostly Ciemat and the Spanish candidature to ESS.

We re-configure as suppliers of fusion and accelerator components.

Evolution of the Company III



The evolution of the Company has been very satisfactory (nevertheless, remember that extrapolating is a forbidden operation in data analysis)

By far the worst time of the company was due to the banking crisis around 2010.

Why to create your Company. Personal reasons

You may have an idea that is too good to give it to anyone → This is the ultimate reason. If you are in this condition, there is no excuse not to own it fully and exploit it.

Your personality is of the kind that requires autonomy in you work → This is a good reason, but you still need the idea.

Or simply, you want to check if you are capable of doing it.

In my case, it was the feeling that I had to do something new as I have started working at CERN right after University.

Why to create your Company. A duty

It may sound nowadays bombastic, but creating your own company fulfils a social duty,

- Creating new jobs that would not have existed otherwise (or may be would have existed elsewhere)
- Creating new products that better satisfy social needs
- Forming the personnel with new skills that will allow them to perform better their job and increase the output and the satisfaction with the work

Of course, you can do this as well in your daily job for someone else. But you do not obtain the same feeling of, that would not have existed if you had not taken that decision.

Why not to create your own company

You will invest a lot of effort and hope and there is a high probability of failure.

Depending on the type of business, the time you may devote to your family will be significantly decreased.

Depending on the financial environment you may need to risk some assets you own (more on this later).

Success and fault are amplified by a long lever arm. No body to blame for failure, as ultimately you put that people there (fortunately bad luck and government policies are left as excuses) in exchange you will have a stronger rewards for your achievements.

The obstacles: motivation

The main obstacle will be your own doubts, I remember to have spent 6 months anguish on what to do.

Although some people in the audience will surely not agree, CERN conditions are good for industry standards with regards to work conditions, family and work life reconcile possibilities, salary and holydays.

You must sincerely consider with your self the pros and cons of this important decision and that probably your living conditions will be harder in the coming years (but not that bad, not very likely you are going to starve even with the worst possible outcome)

The preliminary work : the idea

There are two kind of ideas that may work,

You will do something radically new(the ultimate reason).

- No concurrence
- But no market yet

You can do something that already exists, but better, cheaper or with access to ,new markets.

- If is it a growing market, there may be place for newcomers.
- Easier to analyze the marketing possibilities
- Evaluate why you are going to be stronger, or at least good enough to jump the entrance barriers

The preliminary work: financing I

For large projects you will need external financing.

For smaller projects, you will need to take a decision between self financing and looking for external financing.

I include in self financing the choice of using organic growth, in which you start with a small business and you grow as your customer base increases. In our case, we started with engineering projects and move to manufacturing after several years. Most of our growth is organic.

Nevertheless, some projects must have a minimum size to start, and you may need to take external financing.

The preliminary work: financing II

With external financing there are two options,

- Give a share to a capitalist (including venture capital). It is a good option if the capitalist adds extra value apart from the money as knowledge of the market or business experience (you may be lacking of both thinks). Start ups are cheap, i.e. you will have to give a good share of the company for little money. On the other hand, the fact that you have convinced a capitalist is a good touch stone of the validity of an idea.
- Go to a bank. Most banks (at least in Spain), demand large collaterals to any money they lend to you. It is a risky idea for starting your company. On the other hand, they are good for financing concrete projects, on which you have a good certainty of success. Be very reluctant to put any asset of your personal core capital as a collateral.

Alone or not?

One of the most important decisions is to join with more people for your new business or go on your own.

In my opinion if you have no business experience and you are basically a technical person, you need to include in the core of the company someone with your complementary knowledge and experience.

I do not include in this statement tasks that are easy to subcontract, as accounting; but really to include someone with business orientation.

It is common that people that create new businesses after a first experience, have less associates than in the original one; but this is because they have been exposed already to the knowledge they lacked in the first one.

Where to settle?

A difficult question is where you should create the business.

You will have to decide between your home country and the place in EU where you may have easier circumstances for financing, proximity to market or a better supplier chain.

In the EU, although there are no legal barriers for you too settle in the best place you will have to cope with cultural and, most often, linguistic problems. It may be a problem for your family too.

On the other hand, a local supplier of global goods or services may have some space if the proximity to the customer is an advantage.

I, myself, decided to settle in my home country and install the manufacturing part not far away from my home town, so that I took the easy way.

Conclusions

- Building your own company from scratch is a challenging task, but also a rewarding one
- You may start from an original new idea, but it is not essential, you can try to do things better than others or be nearer to your customers
- You need to know the market to a certain extent. It will be difficult for new products
- Prepare for good days and bad days with more intensity than if you perform other activity
- Decide your financing scheme from the beginning, organic growth, self financing or external financing
- Find the complementary partners, ideally with well defined responsibilities
- Take your time to decide where you will settle, taking into account all the factors involved