Podcast Episode #5 - The tough journey of building a biotech company, with Federico Bürsgens, GNA Biosolutions, Germany

RAW TRANSCRIPT OF INTERVIEW

Balint: I am glad to bring you Dr. Federico Bürsgens, Managing Director for Finances, Hardware and Software at GNA Biosolutions in Munich, Germany. Welcome Federico to this episode.

Federico: Thank you very much for having me!

Balint: Is it actually right, the way I pronounce your name, Bürsgens?

Federico: That is perfect!

Balint: Ok! Even tough, we met some time ago in Munich, I never called you by Mr. Bürsgens, so this is why I think it is better to make sure I pronounce it the right way.

Federico: You can call me Federico, so that is fine!

Balint: Can you tell us about your company, such as when it was founded, products as well as your motivations for co-founding it?

Federico: Sure. Our company GNA Biosolutions was founded as a spin-off company from University of Munich and it goes back to the PhD work of my co-founder, Joachim, who was studying during his PhD nanoparticles and he used lasers to excite these nanoparticles and more or less as a by-product of that research, he found out that he can use the same technology for ultrafast DNA melting analysis. When he realised that there may be the commercial potential for this technology the university first filed a patent and soon after that he approached me and asked me I was doing the PhD at the same chair as he did and he said „well, do you have plans what to do after the PhD?" and I had all my life dreamt of becoming an entrepreneur at some point, so I said sure, let's try to do something. We wrote a business plan, we participated in some local business planning competitions and we were awarded few minor prices and in the course of that work we also got to know Lars, our third co-founder. He was actually teaching business planning class at the university. It was in a sense not so much one big decision to found a company but it was more like a sequence of small decisions, to participate in this business planning seminar, to file a patent and to say let's try to apply for a grant. Fortunately there were grants by the federal government that realised that there are so many interesting results in basic research but the gap for commercialisation is too big and they need to close this gap by providing young scientist with the money to take innovative results to, let's say, very very early technology and that is what we did. We applied for this fund, we were awarded the fund and we could set up our independent research group at the university in order to get some more maturity for this technology. During the same time we perfected the

commercialisation model and our business plan. We talked to investors, we talked to many coaches, industrial experts and tried to incorporate all these feedback into our strategy. After two years the funding was running out and the question was whether we would dare to run with our technology and to try to really build a company or whether we should stay in academy and in the ivory tower of science. So we were very convinced of our technology and we said let's try it and we actually started the incorporation. At first it was really quite tough, we had no external funding, we were not quite starting but it was hard time even if you come from academy. We kept our optimistic mood and we found an investor and at that time, he is an entrepreneur himself, a business man from Munich and he was so convinced of the three of us as a team, of the technology and of our vision that he was willing to give us the seed investment to grow, to hire our first personnel, to promote our patent portfolio which was rapidly expanding at that time. That were the main steps that took us to found the company in a nutshell.

Balint: Thank you for describing this complete picture. This started in 2010, right?
Federico: Right! But that was the incorporation of the company. It goes even back further in time.

Balint: Yes, to Joachim's PhD thesis and also the two years of work that you worked on while you had the funding from the federal government.

Federico: True.

Balint: This technology, this DNA analysis and detection, this is your business and this is used for analysing pathogens, basically everything which can cause some disease, a virus, a bacteria or a fungus, right?

Federico: Absolutely.

Balint: And this product you have on the market that you brought out, the first product, how is it different from competitors? What is your uniqueness, your unique value proposition?

Federico: We were also thinking what we could do with this technology. There are many applications for DNA analysis. You can use it for forensic, you can use it in food safety applications or in crop science, and you can use it in basic research. There are million different applications but our technology allows to do DNA based test much faster than before. We are factor 4-10 faster than existing technologies for DNA detection. Of course the question is, where can you leverage with this capability the needs of your customers? One very important field of application is in infectious diseases. As you pointed out there are micro-organisms, bacteria, viruses that can cause many severe illnesses. In some cases it is very crucial for an efficient treatment to identify what causes the disease. Typical example is, someone goes to a hospital and one with some symptoms and if you find the DNA, so you take a sample, and search in the sample for specific DNA sequences that are typical for a pathogen so the most prominent for example is certainly HIV testing. If you find in the

blood of a patient the DNA of an HIV virus then you know that this person is infected. That's the idea of using DNA-based testing in molecular diagnostics, that is what this field is called. We developed technologies for faster molecular diagnostics and we have refined our technology so far that we will start selling it next year. We are not on the market with our own system yet, we provide services, we have an OEM business, but we are not selling the instruments so far.

Balint: Ok, I see. You are coming out soon next year. I saw it that you had a series B-founding of about 6 million EUR and this was intended for the market-launch of the first product. As far as I could see, your intended customers were university hospitals. This was led by Robert Bosch Venture Capital.

Federico: That is true, yes, which is interesting by itself that an automotive supplier invests in new technologies.

Balint: How did that happen?

Federico: We talked to a lot of investors and fortunately Robert Bosch has always been a very visionary company. They are certainly looking for new technologies that may become interesting in the future. And I think they appreciate our disruptive approach that is very different from existing technologies. As you said, we are going to sell our instruments to hospitals, but we are also open for laboratories that do routine-testing, we are also commercialising our technology in our OEM business where we supply parts or licenses to OEM customers that incorporate these technologies into their own products.

Balint: I saw that you had these rounds of funding. The last one was the third round of funding, right? How difficult was it all the time to get the funding and were there differences in terms of applying for the funding? You mentioned that at the beginning you had the grant, then you had the seed funding by the private investor and then you had these VC-backing, maybe even for the second or for the third round. Is that right?

Federico: It is in fact very different. If you talk to a business angel or a family office as for our first financing round, these are people that decide very independently. They do not have boards that control their actions. It is more, I think, decision based on their gut-feeling whereas if you talk to venture capitalist of course it is a very standardised process with extended due diligence where lot of experts look at your technology. The communication is very different. At the end it is always the same principle, sometimes I am asked by people that are less acquainted with building up a company, how are your sponsors doing and I always say, they are not sponsors, they are investors, they want to make money with their investment. It is not philanthropy that leads them to provide the fund. It is always, from the perspective of the founder, a difficult negotiation and also a difficult decision because you give away shares, you obtain money, that is great, but also obtain expertise and support by these investors. but you have to give away a part of your baby.

Balint: Yes, I guess at the beginning because you had the fund, the grant from the federal government, you had less dilution or maybe no dilution at all, so you did not have to give up equity, just later, right?

Federico: It was non-dilutive fund but of course the question is how much you are diluted as a founder, depends certainly on the quality of your technology or of your innovation but also on its maturity. I think we have a great technology, we got a great technology from the university but it was not quite mature at that point. Basically we had to invest considerable amount of private funding to get the technology to a level that allowed it to be commercialised. That also explains why it takes long, along with the fact of course that for a medical device or application for bio-medical field which is a heavily regulated market, you have to take a lot of hurdles.

Balint: How did you test the technology so that you can show the right maturity for getting further funding? Did you test it with targeted customers like showing them what it can do or did you have a mock-up before or a video of it?

Federico: Well we invited the investors to visit us and then we provided live demo, we showed the performance in our lab when they were visiting. They also sent experts to evaluate the technology and of course we also have instruments at sites others than of our own company. We have for some time now a very nice EU project for ultrafast Ebola test. This is a European consortium that we are leading and we work very closely together with the high safety laboratory in Rome where they work on Ebola viruses and we have instruments there and experts from this national laboratory in Rome also work with our instruments.

Balint: So basically you do discuss with the customers regarding their requirements and during the development they test partially your technology, right? So this is how you validate the business value of the idea, the technological aspect that it can work, it can do its job and also you look at the value chain of the specific business, application, how it can bring a value to that value chain regarding speed. This is why you said at the beginning I guess, that you were looking for different applications where it could have the speed with a huge impact.

Federico: Yes, of course. Typically when you start a company you present your story to the investors and you say, look here is a problem and we came up with the solution. And the truth is that if you come out of academia, it is in many cases the other way around: you have a technology and you look for the best question that matches the answer, right? Of course we had to talk to many many investors and experts to come to this business model. I think if you go to startup events, you have many people who provide their opinion, their unsolicited advice what you should do. If people constantly tell you, this may be an interesting market then the likelihood is quite high that it is a good market. I think really by talking to industrial experts, by talking to big companies, we have almost daily exchange with high profile, multinational companies in our field and you get some feedback whether they endorse the strategy that we define or whether they have doubts.

Balint: The story that comes into my mind is the story of the laser: it was a solution looking for a problem. Yours is also, it is not a laser source, but it is also a tool, an equipment which uses light, actually a laser to excite these nanoparticles which are in liquid, suspended.

Federico: Speaking of analogies, we use very frequently another analogy, like the shift towards electromobility. I think we have a superior technology, like electromobility has many advantages, and of course you have to overcome some hurdles in order to make it to a product that will be accepted by the market, even tough it is a better and superior technology. That was one of the analogies that we used over the past years and now we have reached the point where we can really take advantage of the benefit of our technology because it has reached its maturity and we can commercialise it now.

Balint: Regarding the funding, still talking about that, how does the funding situation look like for hardware companies in Germany, more specifically in Munich which is the major hub for high-tech companies?

Federico: I think that in the seed phase it may be important to have local investors. The bigger the company gets, of course you increasingly start searching internationally for funding. We have investors from Switzerland, we were also talking to investors from the US. So I would not say that it is so much the local investor community which is relevant to the funding situation. In Germany traditionally the funding is not as vast as in US. The amount of money that is invested in startup companies is only a fraction of what happens in California alone. I think it has to do a lot with mentality in Germany. So it is difficult to obtain funding and it does not only apply to us. We are very fortunate with a very strong consortium of investors, with very good investors. But talking talking to other startup companies, they are all struggling for investors. Many of them try to move to other countries so it is difficult, but I think for hardware the situation is certainly better than for purely biochemical startup or for IT-based startup, where the private sector is failing to a certain degree, the government tries to support the companies. So there are lot of public funding opportunities not only by grants but also by equity, there are very interesting programs by different states but also by the federal government. All in all I think it is a reasonable environment but it is certainly something that should improve in Germany. In France and in Switzerland and in other countries they have started to support VC by more convenient taxation on the benefits of an exit and that is something where Germany is definitely lacking behind.

Balint: Ok, very good. Thanks for sharing this information regarding the funding. It is very valuable, I think by you listeners it was appreciated. Federico, what major challenges did you encounter during the founding and how did you overcome them? I know it is hard to pick one, it might be that you ran into lot of challenges which is of course normal for a startup.

Federico: Yes, sure. I agree. There were certainly many many challenges. I would like to pick one particular one and that is when you build a team with which you want

to found a company you need to define how you distribute responsibilities and shares etc. I think one thing that really made us successful is that my co-founders and I, we always found some good agreements and we found a way to balance our interests and to keep all in the loop, keep everyone very motivated even in difficult phases. We have led this company, the three of us, for 5 or 6 years now, as a triumvirate. It is kind of unusual and some US investors always suspected, this is some kind of European socialism but it has worked very well. If you lead a company by three people you always can take a vote, you are always able to decide and it avoids extreme decisions because there is always some averaging effect. It is also something that matches our personalities very well. Interestingly my two co-founders and I, we all have two siblings and maybe it is just a constellation that turned out to be productive for us.

Balint: So it is 3 X 3?

Federico: Yes.

Balint: Three, number three for founding, I think it is ideal because also regarding voting an odd number is better than an even number. So this is also ideal in this respect. And what kind of other challenge did you see during the founding, because it looks like this is a lucky situation in your case, a very lucky situation? Did you see some other major hurdle, maybe even regarding manufacturing or building up the know-how, hiring people?

Federico: I would say that by far the biggest hurdle has always been the financing situation and before we found this private investor it was a difficult time. We really had very little funding, we did not get any salary at that point from the company so it was about half a year or ¾ of a year, which looking back is not that long, but you do not know how long that would take so it was an uncertainty and some stress that really has brought us even closer together.

Balint: Yes, it is amazing to hear it that you survived in these tough conditions financially. You were kind of drying out but you managed to get to a point when you could survive. Regarding the staff that you have now, what I saw, which is a major change recently, is that in July you hired a new CEO. What was the rationale behind this move and at which point did you decide that you need hire somebody externally?

Federico: The idea of hiring Frank who started in April in our company was to bring some industry expertise and industry experience into our management. Three of us are very very motivated but we just came straight out of academia. Frank has impressive track record in the industry, he has built up a major business for QIAGEN, which is a major player in Germany. He knows most decision-makers in the industry, he knows how typically these kind of contracts in OEM business are made and of course it is also a knowledge that one can learn but we decided, we do not want to invest time to learn this but we want to get it right just from the beginning. So we decided Frank would be a good match for our team and actually it has brought some

change to the culture how we lead this company but it has been a very good decision.

Balint: I like it that you saw it and you acknowledged your strengths and weaknesses to the advantage of the company and you saw that there is a gap and you could fill this gap in with external support. I think it is admirable.

Federico: Yes, so in the end we want this company to be successful and it really gives you comfort in some negotiations if there is someone at your side of the table who has done it many times and really knows how this is played. So he is certainly a good asset for GNA.

Balint: Yes. It is wonderful. It is well done. As for the manufacturing I think this is always an interesting topic. Did you run into some issues and do you manufacture in Germany to ensure the high quality? Or do you have some manufacturing outside of the country, and you bring it in and you do assembly or how do you do it then?

Federico: So our company is targeting the biomedical market which is heavily regulated and these regulations put a real burden on what the manufacturer has to do in terms of documentations, the traceability of the entire process. As this is not our general core expertise, we have outsourced this task. The idea is maybe similar to the decision to hire the CEO. We want to focus on what we can do best and we do not want to spend to much time on learning these things the hard way. There are people that know how to do that, we are great for laser PCR and for exciting nanoparticles with laser but how to produce, package, ship and document an instrument and also essays, there are people who do that for a living so we have calculated and considered doing it ourselves but I think it is not worthwhile.

Balint: Actually the way you do it is good, is very good, especially at the beginning so that you minimise your risks in terms of making mistakes and later if you see that it would make your business more efficient and you would have more margin you could bring in the business, I mean those areas of the business, and you could do even in the end a full vertical integration if you see that you have to.

Federico: Yes, especially at this early stage we have to keep track with the growth that we have in the R&D field but we are happy to sort this kind of tasks out to people who know exactly what they are doing. We are working with a German manufacturer in fact and they have also economies of scale that we do not have so I think it is in an early phase convenient to do.

Balint: Yes, excellent. Federico, let me move on now to the so called ultrafast round of questions to the interview. So I will ask you four questions and it would be great if you could answer these short, relatively short. First question is: if you could time travel like in the Back to the Future movie, to the time when you were in your twenties, what notes would you take back from now so that you can give it to yourself?

Federico: I would say start your company early. Do not wait too long. I always thought, first get your studies done then do your PhD, this increases your expertise and I would rethink this today and I would say start your company early. When you are young you have more time essentially to build up a company before you are committed by family obligations, you are also more creative, there are lot of good reasons to start a company early. I would hope that I would become an entrepreneur when I was twenty.

Balint: Second question: if you have to name one book which one had the biggest impact on your career?

Federico: There were certainly many but one book I really adore is Daniel Kahneman: Thinking, fast and slow. It gives so much insight about how decisions are made, I keep citing from that book and I re-read it every year and every time I come across a new insight that I had missed before.

Balint: To be honest, I have not read it yet but I know he is a Nobel Prize winner and his book is a good read, maybe one of his best books. The fourth question: in your work if you had to pick one or two critical cultural difficulties which ones you wished you knew before and how did you resolve those issues? You said you worked mostly in Germany but you said that you had also investors or at least you inquired with investors who are in the US or in other countries.

Federico: Right! Well I have learned that I am a scientist from my background and I tend to use scientific arguments when I want to convenience someone. But I have learned that talking to investors and many people who decide about funds are not scientists necessarily. It is very convenient to translate your argument into money. Usually if I am asked, can we do this or that with our instrument, I would say well we would need to change the laser and do this and that. Now I just say, yes sure it costs EUR 50 000.

Balint: So basically this is a company or the work culture aspect of how to do business. Ok. So let us wrap it up, this interview. What would be the best way for the listeners so that they can reach you, b y email or by social media?

Frederico: Email is the best: frederico@gna-bio.com

Balint: I will put this into the note section of this interview so you listeners can find it easily. Thanks a lot Federico!