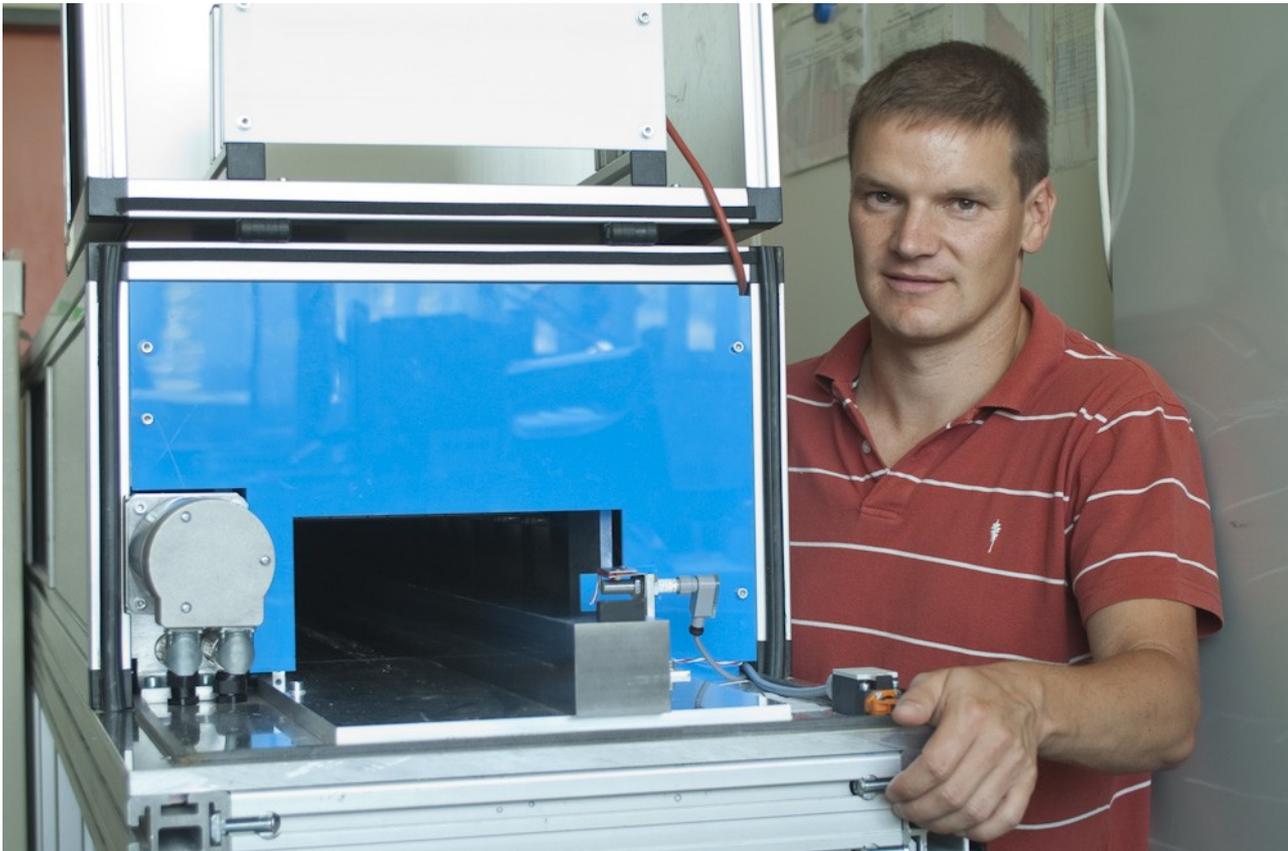


Healthcare industry BW

PEPperPRINT – peptides made with a laser printer

The foundation of a new company is always associated with deciding to do something that has uncertainty as to the outcome of the chosen activity. The Heidelberg-based company PEPperPRINT has spent many years developing its technology and is now entering the market with an unusual idea. The idea works well despite the fact that there are still some doubters. Christoph Bächtle from BIOPRO Baden-Württemberg talked with the CEO of PEPperPRINT, Dr. Volker Stadler, about the excitement involved in the establishment of PEPperPRINT.

PEPperPRINT was established in 2001, but did not launch a product or service until 2009. What did you do during the period between establishment and product launch?



Dr. Volker Stadler, CEO of PEPperPRINT and the core of the PEPperPRINT technology: a peptide printer
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2001 was characterised by a booming biotechnology sector and we had an excellent idea and a patent based on this idea. At that time, private companies were lucky enough to be in receipt of a lot of money, i.e. risk capital, for ideas. On the other hand, funding schemes were often interpreted in the sense that you have an excellent idea, but it is too close to application, and public funding is not available for applied research. For these reasons, during this period many scientists decided to turn their idea into reality by establishing a company.

However, the biotechnology bubble soon burst and risk capital was no longer available. At the same time, public funding policies changed and projects like ours became eligible once again for public financing. This enabled us to continue our project at the German Cancer Research Center (DKFZ) in Heidelberg.

So, although you had established the company, you spent many years working on your developments at the DKFZ?

Yes, exactly. Our project is mainly financed with third-party funds. In 2003, we had acquired enough money to focus on our developments, which we then worked on at the DKFZ between 2003 and 2008. We still have close links with the DKFZ. We now intend to focus on commercialising the technological developments with PEPperPRINT.

Would you recommend that people who want to set up their own company should base company establishment, including technology development, on cooperation with a partner, as you have done with the DKFZ?

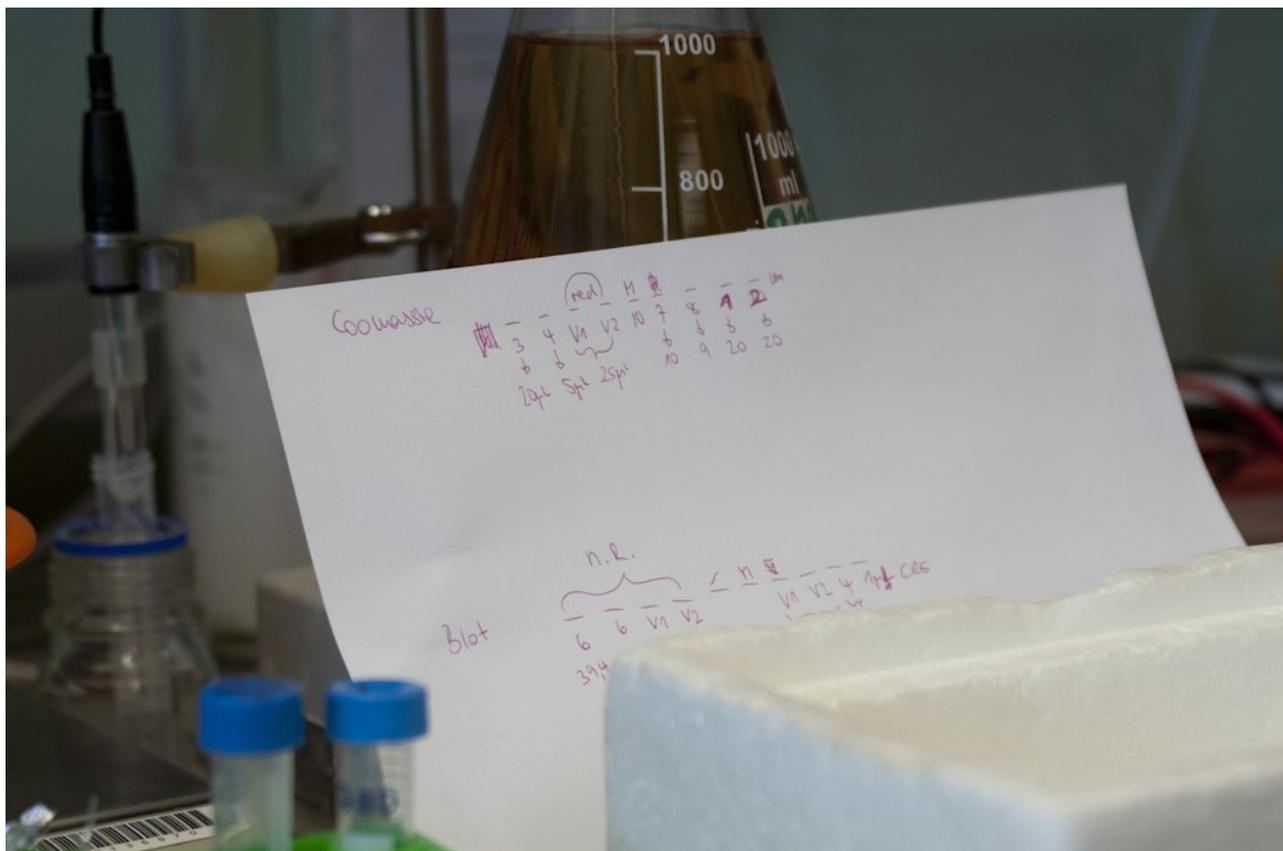
I think this is the only way to do it. Any other way is not financially viable. I cannot see how a company that intends to focus on proprietary developments would

be able to finance these processes. Although the German and state governments provide funding, newly established companies still have to match these funds with own resources, which they often do not have. I think that is best to work with partners right from the word go, either academic partners, i.e., research institutions, or big companies.

How long do start-ups usually work with academic or industrial partners? There must be a point in time when start-ups need or want to move forward on their own.

That's a difficult question to answer. For us, we got to this point in 2008 when we realised that our product was far superior to any other product on the market. That was the point at which we decided to continue our development work in our own company. However, one must be aware that it will at some stage become difficult to obtain follow-up financing for development projects that are mainly financed with third-party funds. It is impossible to apply for money twice for the same project; funding is only available for new developments or other projects. If an idea has developed well and a technology works well, it becomes increasingly difficult to finance the project with public funding, in particular when it is application-oriented.

PEPperPRINT's approach of using toner for printing amino acids and synthesising peptides on glass slides is rather unusual. And the market only pays for things that work. What made you so sure that you would be able to turn your idea into a marketable product?



Appropriate recipes were required to attach peptides on a glass slide with a laser printer
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The use of a laser printer was not my idea, it was Frank Breitling's. Frank is a biologist and was interested in how peptide chips could be improved. One Sunday afternoon, he suddenly came up with the idea of using a laser printer. I am a chemist and I was 29 years old at the time. Young enough, I thought, to do something others might think unusual or even crazy. At that time, the first proof-of-principle experiments had been carried out and they showed that the technology would work, at least in principle. However, several years of development were necessary to show that the technology really worked in practice. There were many aspects that we had to take into account and find solutions for. It was a tedious process. But now we know for sure that the technology works, even though we sometimes meet people who find it hard to believe.

You've been successful in competitions such as the Science4Life Venture Cup and you have also won the German Stifterverband science prize. What role do competitions and funding programmes of this kind play for company founders?

Funding programmes are important because they help companies to reduce the burden of risk capital. Funds from BMBF programmes, for example, can be used to match risk capital. Maybe burden is the wrong word as the risk capital provided by investors is also of great help. Nevertheless, risk capital always requires companies to provide something of corresponding value, for example in company shares or giving the investors the right to control parts of the company. This is why public funding programmes are very important. They give us greater freedom, flexibility and more money.

Competitions are excellent and also useful – for three major reasons. They are an indication of a company's state of planning. Am I on the right track or not? Competitions are a confirmation of the idea and they also highlight weaknesses. For example, although we were awarded the prize you mentioned, it came with a lot of constructive criticism that we were able to implement. In terms of funding, the prize money gave us possibilities to do things that we did not have before. For example, we will use the money to pay for a stand at Biotechnica. And last but not least, winning the competition means publicity, which of course helps as we move towards to market entry and in our search for investors.

Innovation often relates to part of an excellent idea that is already on the market. How can company founders identify which part of an idea might be successful? How did you do this?

As far as our company is concerned, we had the idea in 2001 and worked on it until we had a functioning technology in hand. And this idea is still the basis of our business concept. Although we have expanded the original idea here and there, the core idea is still part of our innovation and part of the product. We have turned a technology into a product and have been able to follow a relatively straight path.

At the time when you founded PEPperPRINT, the biotechnology sector was experiencing a real boom. However, the bubble burst and many company founders became disillusioned. Investors are still rather reluctant to spend money on biotech companies. With this in mind and in view of the influence of external conditions, is it possible to determine when the time is ripe for company foundation?



A specific type of toner was developed for the printing of peptides.
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I believe that the foundation of a company is more driven by an idea than by external conditions. Let me put it this way. At the point when we had made the decision to focus on our project, the biotechnology bubble burst. And now, the market is going through a financial crisis. I am sure the foundation of PEPperPRINT is not a good example for the optimal timing of company establishment. But the idea needs to fit into a specific time slot – from the initial idea to its implementation. I think this is more important than the external conditions.

You hope to reach break-even in 2013, 12 years after the foundation of your company. Do company founders always need to be so patient?

Investors will always think that this is far too long. On the other hand, developers will never achieve the perfection of product they are aiming for. Our product is now ready to go, and we have been in what is referred to as a start-up phase since 2009. I don't think that four years is a long time for a biotechnology company to achieve break-even. I always make sure that I point out that we started from scratch; we did not combine existing parts into something new and functional. With this in mind, I am sure the time to profitability is relatively short.

Is there anything you would like company founders to particularly watch out for? Is there anything you had to learn the hard way?

I believe that most of my mistakes are still ahead of me. Therefore, I am not sure whether I am the right person to give advice. The most important thing, I think, is to prepare a business plan. It is important to think an idea, the potential product and market, the money that can be earned and the potential costs of development through thoroughly. This is the basis of a financing plan, which is of course still associated with some uncertainties. However, I think it is important to believe firmly in one's plans.

I also believe that it is important to ask for and accept advice. I know from my own experience that many company founders, in particular those that are too technology-driven, reject advice from those who know the market well or have entrepreneurial experience. It is worth having advisers; however, it is important to find the right ones. Why not just try it and see whether it works?