Vincent Poher – Founder, Avalun, France

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Vincent Poher, founder of Avalun, explains the key technology behind the establishment of the company as well as their forthcoming expansion strategy. He also outlines the main challenges start-ups can encounter in France and the current government's attempts to inspire a new wave of French entrepreneurialism in life sciences.

Can you start by explaining how you came to create Avalun?

The journey started back in 2011 when I was still working at the CEA-Leti [France's public research institute for electronics and information technologies] of Grenoble as a project manager, but with the ambition of one day starting my own company. At that time, the CEA-Leti was developing a lens-less imaging technology that allowed for the creation of mobile mini-laboratories. The idea fascinated me, so I looked into the market potential for different types of mobile lab products and identified an unmet need for a portable and connected device that would permit healthcare professionals to conduct biological tests in a timely fashion. This could then be utilised to ensure a more personalized approach for patients, to improve care pathways thorough accelerated treatment, and to help coordinate healthcare professionals in a seamless manner.

In June 2013, we won the National Business Plan competition, called the OSEO contest and now rebranded as I-Lab, and subsequently in December decided to create Avalun as a spin-off entity from CEA-Leti. We won another R&D program at the end of 2014 and signed our first partnership

with a large company in December 2014 to develop new tests. We started fundraising in 2015 and entered clinical trials with our final product, the LabPad®, in 2016. The results helped us earn one of the biggest awards in France that then allowed us to enter into mass-production through automatic line manufacturing. We commenced the sales at the end of 2017 and now, our products are distributed in more than ten countries. Germany actually constitutes one of our top markets thanks to a strong local distribution partner.

Our development pace was actually pretty good for a medical devices company considering the different technical and industrial challenges we faced. Indeed, our whole journey from the original concept idea to the first product sales lasted around only six years and our product encompasses many different scientific fields such as optics, image and signal processes, mechanics, microfluidics, biology, etc. Turning the idea into a product that has its own market potential was complicated as we are still a rather small company of 21 employees. Nevertheless, we have managed to succeed primarily by hiring the right talents.

What is the key technology that you have developed?

Our product is composed of a reader, the LabPad® (www.mylabpad.com), that leverages on the lens-less imaging technology, and a high precision single-use microfluidic chip, the Tsmart®. Our technology is protected by 15 patent families. The device has been designed to be very easy to use and requires only a small drop of capillary blood at the patient finger. Our first biological test is called INR, or blood coagulation time, that allows monitoring coagulation levels of more than 30 million patients in the world, and one million in France, who take VKA anticoagulation drugs. Our product has been CE marked in 2016 and 2017 for this measurement and we are now working on cardiac markers to help cardiovascular diseases patients as well. We see that the portable and connected mini-laboratory that we have established as Avalun’s vision is gaining momentum in the In Vitro Diagnostic (IVD) scene.

All of our Tsmart® microcuvettes are manufactured in-house, but 99 percent of our sales relate to exports. For a long time, people considered that the R&D could be conducted in France and the production performed abroad, but this idea is now outdated, and it is a good thing for the industry. In my opinion, you cannot separate R&D from the production as manufacturing is the heart of having an efficient industry and lots of innovations arise when struggling with establishing a proper production line. Therefore, we have based all our production in France and all our collaborators share this mindset, which helps create interesting opportunities on the French market.

Why this choice of locating your headquarters in Grenoble and what do you value about the ecosystem here?

I will be very straightforward in my reply: we simply could not have started Avalun in France without being in Grenoble. There a plethora of reasons, but the prime one is people.

Grenoble has an amazing scientific culture, relying on world-class universities and research centres, like CEA that is also welcoming in a certain number of manufacturers and start-up companies which are capable of following stringent manufacturing processes and understand production machines. Furthermore, there is a strong industrial culture here in every field. It is no coincidence that STMicroelectronics, Soitec, and many of the biggest smartphone players all have R&D labs and production facilities here in Grenoble. It is no coincidence either that many IVD companies are also located in this region (bioMérieux, Becton Dickinson, Roche Diagnostics, as well as multitude high-tech SMEs), which allows us to recruit some of the best specialists for our company, both for R&D and manufacturing. We are clearly taking advantage of these assets to establish our operations and scale-up our production.

Avalun is a very diverse company as we are gathering physicists, biochemists, manufacturing people and businessmen and who all believe in our grand vision and are effectively working together as a team. Indeed, the main reason for our establishment in Grenoble is that we have all the talents needed in this region to produce our technology and prosper.

What strategy have you put in place to overcome challenges in the French market?

Beyond the technology itself, Avalun is dedicated to improving patients' pathways. The French healthcare market is quite conservative as it is built on three monopolies: the doctor's monopoly, putting the doctor as the only stakeholder who can diagnose patients, the pharmacy's monopoly who is the only one to deliver medicines, and the biologist's monopoly, the only one able to handle biological test results. Therefore, Point-Of-Care (POC) have never been very strong in France as they appear to 'steal' business from biology labs and are also described as inefficient in giving high-quality results.

However, we had the chance to meet with very innovative French biologists, who were wondering how to apply POC to the French market in a comprehensive manner to smoothen the patient pathway, then we decided to work with them and not against them. Our approach is to connect our

LabPad® device directly from the point-of-care to the laboratory information system thanks to a specialized smartphone app so that the POC can help them expand their business outside of their facilities while bringing amazing values to patients like faster care, more security, comfort,… All the stakeholders were very positive about the idea and the first pilot project was conducted in 2017 in Lyon together with a private biology lab and three nursing homes. At the end of the project, nobody wanted to come back to their old system and we used that example to showcase how we could improve the ecosystem on both sides and help bring innovation in France.

Avalun is currently working with the French health authorities and all the stakeholders that are interested in our vision in order to unlock payment for our improved patient pathway.

What expansion strategies have you adopted considering the importance of exports for the company?

The pilot projects run in France served as the best example for foreign markets. We first targeted countries where the CE marking was enough to market a product, which means European countries, and especially Italy, the UK and Germany, North African markets and South Africa. We also looked at the different patient' pathways in each specific market. For example, Italian drugstores are conducting the tests, so pharmacists will be our main clients in Italy while Germany's doctors are the ones performing the tests, which makes them more our target market there. It implies that Avalun needs to find the right strategic partners for each market to ensure the best results and regulatory compliance. We are also looking for strategic partners across Asia and the USA who can help us with the registration and commercialization in each market.

How do you differentiate yourself from existing competition, and what makes you unique?

On the technological side, we can do coagulation, biochemistry and biomarkers on the same device just by changing the single-use microcuvette. We also notice that a portable and connected mini lab is a grand vision that is getting momentum in the IVD industry. But beyond this and as I mentioned earlier, at Avalun, what drives us goes beyond technology. Our grand vision relates to the patient pathway; how does a technology translate into a device that allows improvement of patient pathways? How can it benefit the patient in the right way? Our goal is to make POC easy and efficient for the patient.

A few words to conclude?

We have the products, we have the patented technology, we have the production line to produce our tests, we have first partnerships that allow us to speed up our developments, and we are looking for more partners.

For many years, people in France thought that ‘the brain could be in France’ and ‘the manufacturing could be overseas’. Those times are over, and it is fantastic to see that they are! We cannot separate production from R&D. Industry is the heart of having a very efficient economy, and at Avalun, we found those exact people who share that same mindset.

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