

# Ovizio

## Most disruptive innovator

Ovizio Imaging Systems NV – a spin-off company of the Université Libre de Bruxelles (ULB) – was founded in December 2009 by Philip Mathuis (CEO) and Serge Jooris (CTO). The company designs, develops and markets 4-D quantitative imaging systems and sensors based on patented Digital Holographic Microscopy with a primary focus on Diagnostics, Life Science Research, Biotechnology and Bioprocessing. We spoke with Philip Mathuis about the technology and its applications.



**Ovizio won the Deloitte Benelux Most Disruptive Innovator 2012 Award. ‘Disruptive innovation’ – which makes a very high-end technology accessible for much wider application and use – is a crowning achievement for innovators, isn’t it?**

**Philip Mathuis:** We are delighted and proud to have won that award! It spotlights the technology’s potential. The award jury confirmed that the application of our platform in Point of Care Diagnostics for the detection of cancer can be regarded as a real breakthrough.

**How does the Ovizio technology works?**

Ovizio’s technology platform unifies real-time quantitative imaging with speed and a label-free, non-invasive approach. The company’s advanced devices generate high-quality holographic images that are ideal for studying dynamic phenomena – breaking the barriers between the traditional speed of flow cytometry and the resolution of classical microscopy. In simple terms, we offer a new microscopy technology that, in addition to providing images, can also measure and provide data that we can transform into actions. So, it’s a new quantitative and data-based imaging technology that can help scientists simplify and automate their work.

**The 20/80 rule of thumb**  
**How was Ovizio founded?**

I was doing strategy consulting for start-ups – and at one of my clients I met Serge Jooris, and we hit it off and decided we should do something together. So, we brainstormed what we could offer – and we imagined developing a system in which you could add a small module to your phone-cam which would turn your phone into a 3-D image capturing device.

Ten years previously, Serge had been an assistant at the ULB to Prof. Frank Dubois, a scientist specialised in holography. We met with Prof. Dubois and he put us on a 3D/4D microscopic technology project at the university. Serge and I were fascinated by the technology – over about a year and a half, we industrialised the technology and did market surveys and decided to launch our company with the two of us and Prof. Dubois and his colleague Dr. Catherine Yourassowsky.

Now, three years later, we have made very rapid progress. I’m a believer in the 20/80 rule: so we’ve made sure that all of our efforts have been focused on the 20% of what needs to be done in order to achieve 80% of our goals. Thanks to that principle, we sold 7 devices in the first year, while our objective had been to sell one.



Philip Mathuis & Serge Jooris

### **It sounds so smooth – but did your start-up experience difficulties as well?**

Of course, there are always obstacles to a business venture. What we do is try to treat an obstacle as a kind of friend – to help propel us forward. You must understand that neither Serge nor I come from this industry. You might well think that’s a disadvantage, but we quickly saw it as an advantage. Because, over time, an industry becomes standardised – everyone is taught to follow the same rules. We were from the outside, so our minds were open to the possibilities of the evolving technology: we could take it to the food industry (to detect the presence of bacteria), to the water purification industry, to diagnostics, .... Then, the trick is to choose one particular direction and try to excel in that niche.

### **The holographic fingerprint And you decided to apply your technology to medical diagnostics**

That’s right. The technology basically measures – to nanometric precision – the degree to which an object (a cell, in this case, but it could also be a particle or a bacterium) slows down light in comparison to a reference beam. Based on that difference, we can compute what we call the object’s holographic fingerprint. And based on that fingerprint, we can distinguish between different types of cells, determine whether the cell is living or dead, or whether it’s a cancer cell or a healthy cell. Today, that has to be done by adding coloured dye to the cell, but our technology is non-invasive. So, we have a label-free technology that can compute a fingerprint of a living object, and based on that fingerprint we can see if there is something wrong with the object.

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“We always try to treat an obstacle as a kind of friend – to help propel us forward.”

Philip Mathuis, CEO, Ovizio

We’ve also applied the technology to the pharmaceutical industry, where they produce vaccines in big tanks called bio-reactors. They need a certain number and viability of cells to harvest the vaccine. To do this today, they have to open the sterile

environment, take out a sample, then run the sample through complicated off-site machines (centrifugation, adding stains, etc.) – which takes a relatively long time and introduces all sorts of variables.

Our approach was to investigate the problems they were encountering in this process and how our technology could help. We decided to build an instrument that counts cells and determines their viability within the bio-reactor itself – which bypasses certain hurdles and greatly simplifies the process for the pharmaceuticals. Plus, they can interact much more closely with the product to determine the optimal harvest time. Our solution helps them streamline their operations, increase the productivity of their facilities, and reduce the risk of lost cultures.

Our strategy now is to apply our technologies to the various market segments that we’ve targeted, to optimise a process and ease the lives of the practitioners in that field. We won the Most Disruptive Innovator Award for applying our technology to cervical cytology, which determines the risk of cancer by analysing a cervical smear. With our equipment, this can even be done at the point of care – so the patient receives a result within minutes instead of having to wait several weeks. We’ve also been able to greatly reduce the cost and the size of our equipment, so that one day it could be accessible to the individual gynaecologist.

### **Did you experience added value by winning the Fast50 award?**

Yes! Two weeks after we received the Most Disruptive Innovator Award, we went on a road show in the US – we visited three big players to give presentations, and they all knew we had won the award. It opens doors, adds to your reputation – we use it in our e-mail signature. And I mention it in our talks with potential investors – it immediately creates a special impression.

### **What are your goals for Ovizio?**

We can state them very simply: we want to create a profitable, sustainable company, overcome obstacles every day, and apply our technology platform to as many market segments as possible. The technology can really speed up processes – and right now, with our focus on diagnostics, it can really make a difference in early-stage cancer detection.