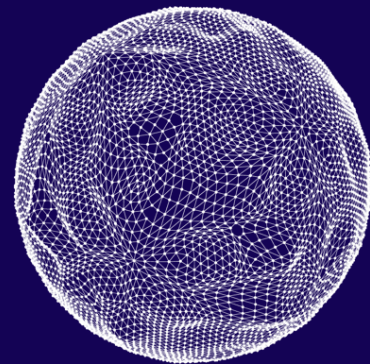




ExSACT interviews on *Intellectual Property:*

UNICORN Dx* project

* *Universal Electrochemical Nanosensors for Next-generation Diagnostics.*

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ATTRACT phase 2 project: [UNICORN Dx](#)



What is the UNICORN Dx project about?

UNICORN Diagnostics is a merger between different biosensing platforms which are all used for diagnostics. In the Netherlands, my company [Occam Dx](#) (previously *ECsens*) together with the university developed a technology for detecting single particles like viruses or bacteria. In a collaboration that was part of a different ATTRACT project, an Austrian university in Linz (**Johannes Kepler Universität Linz**), and the National Centre for Scientific Research (**CNRS**) in France and Tokyo developed a very sensitive method for sensing local molecules like enzymes and proteins. [UNICORN Dx](#) aims to combine these two modalities into a single platform because with it you could potentially measure almost anything. Additionally, this will add dimensionality to the information and make it much more useful for clinicians.

What is the role of the partners in the project?

I will start with myself. I am the coordinator on behalf of **Occam Dx**. Occam Dx is a spin-off from the University of Twente, Netherlands that was established based on the technology developed in ATTRACT Phase 1. The job of Occam Dx is to set up a value chain around the upcoming new technology so that when it is developed, we can accelerate its implementation. To achieve that, we talk to product developers, clinicians, and all kinds of stakeholders to make sure that we have a good business case, and that we have all the sources and requirements ready to get this technology to the market as soon as possible.

Then there is the **University of Twente**. Its job is to do more fundamental research in order to figure out how to combine these two technologies so the TRL of the two separate technologies is more advanced. The combination of both is currently in sort of the experimental conceptual stage, although we made some nice advancements.

The university is currently working on device integration research, such as clean room fabrication, packaging, and microfluidics, and **CNRS** and **JKU** are looking at the combination of the two sensing modalities.

Lastly, there is a partner that I have not mentioned yet, and that is **LabMicTA**, which is a microbiological centre that is responsible for the diagnostic testing of around 1,000,000 Dutch inhabitants. They are currently not very involved but will be at more advanced stages, as they will take a more active role in the implementation of the technology.

¹ ECsens has been renamed to Occam Dx. At the ATTRACT application stage, the company was named ECsens. It has since been renamed to Occam Dx.

How did you establish connections with your partners?

We had a connection with LabMicTa and the clinicians from the previous project. In Twente, the region in the east of the Netherlands where we are from, there is an active promotion to enhance the connections between academia and clinical users. We had a connection with the university because we split off from there. Within the *Marie Skłodowska-Curie* network, one of the professors from Twente University collaborated with one of the professors from Austria, and we realised that there was a good match between our ATTRACT phase 1 technologies. After that, we got in contact, and we started brainstorming about possible synergies because we were very interested in writing an ATTRACT project together.

What is your plan for intellectual property management? And which forms of intellectual property do you foresee to be created in the project?

We are working on different kinds of applications of established technologies in the product, which are not very patentable and will remain secret. Our strategy there is to only involve the truly urgently required people. Of course, our technology which is the result of **ATTRACT phase 1** is patent-protected. We applied for patents in China, India, the US, and Europe. Some of those have been granted.

We also filed for a trademark with a brand of our company. But most interestingly, the future is to a large extent yet unknown. I know that CNRS is considering applying for a patent and is in consultation with its advisors. We all agree that once something interesting comes out, we will take a look at our respective contributions and then consider an IP strategy. But currently, there is no customised plan yet because it requires more rigid data.

Who will own the intellectual property created in the project?

That depends on the respective contribution. Everybody has clear tasks. And if the IP is the result of someone's task, then they own it.

Have you made any other agreements, such as licence agreements or anything similar?

We do not have any concrete plan to do so as there is currently not any relevant IP yet to do that.

As you might know, the European Commission has set rules about state aid for research and development. One of the aspects is the relationship between research organisations and companies. It is foreseen that research services in contract research are offered at a market price. Furthermore, the intellectual property rights transfer in collaboration projects must be suitably compensated. In simple terms, this means that companies with whom you cooperate should not get unallowed discounts or free intellectual property. As a researcher at the University, are you familiar with these rules?

I am not a researcher at the university, per se; I am an entrepreneur. With my company, I acquired the IP from the university, so I am intimately familiar with this whole procedure. In my experience, both the University of Twente and all other universities, pretty strictly, actually frustratingly strictly adhere to these rules.

Does your team offer research services, so economic activity, to companies?

We have done so. When we first started, we were approached by another company who had a very technical question, so we performed some experiments to figure it out, and we were financially compensated for that.

How do you set the market price for your services and use of research equipment?

We have a facility-sharing agreement with the University of Twente, where we pay for the use of the equipment. Regarding the market price, we are a company so we calculated our expenses and had a look at what an equivalent service would cost at a different company. We had a sort of hybrid between cost-based and value-based pricing.

How do you manage intellectual property at your spin-off?

We have patent attorneys who take care of the whole application and advise us on how to deal with the examiners. Separately, we have people involved in the company, not per se on the payroll, but otherwise motivated, who advise us on our branding strategy. As part of that, we also have in Twente the services of trademark attorneys and a law company.

We have seen that you are a chief technology officer of the spin-off company Occam Dx. How have you arranged the intellectual property relations between the university and your start-up?

The process was pretty frustrating because we were the researchers doing the research and had a different perspective. We were motivated by what we felt was fair and not necessarily what the law says it should be, which was the motivation for the university. We had to convince them to appraise the intellectual property in a non-standard way. They offered the same deal to everybody, which we did not feel was fair. We explained how our situation was special and for that, we managed to negotiate a better-than-standard deal. But still, they acquired a fair share of the company in exchange for their intellectual property.

How did you set the market price licence fee for your intellectual property in the spin-off?

We do not licence.

Have you been personally involved in any other successful technology transfer besides Occam Dx?

No, not really, no.

Do you use any internal or external support in intellectual property management and technology transfer?

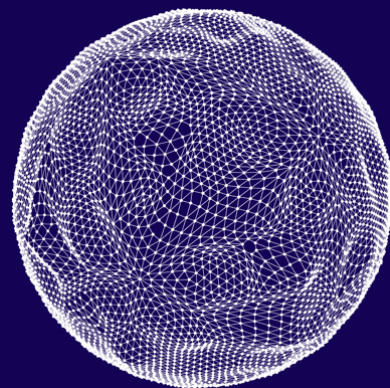
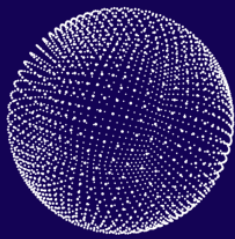
Yes, we are advised by patent attorneys, so either trademark lawyers or patent lawyers.

Are you satisfied with these external services?

Pretty good. We have been successful at everything we applied for, which is the main purpose, of course. I am not experienced enough to assess how expensive they are relatively, but they do a good job and are efficient in their communication.

What are the biggest challenges in technology transfer from research to companies, so from academia to industry, that you observe?

I think the state aid law and the universities' interpretation of it in The Netherlands. I know that it can be worse in other Member States. It is obstructive to running a profitable business. If you are a start-up, you rely on investments. And the model that the universities adhere to is so restrictive that it is very unappealing to investors. If I have a very profitable business, but I have to pay 5% of sales to a university because I got stuck in a bad deal, then the investor will just back out. That cannot be the best way to make the most out of the technology generator. I think universities and governments are shooting themselves in the foot with this law. In my opinion, it impedes the progress.



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