



CASE

Contributing to and **co-innovating** for a better world

Until recently, orange peels were regarded as waste and incinerated. This changed when chemistry student Sytze van Stempvoort met Lindy Hensen and Bas van Wieringen in 2016, who would become his partners. They were immediately inspired by his idea to start recycling orange peels. They managed to raise money to build a plant, which soon turned out to be far too small. A new round of investments followed, and Europe's largest peel processing plant opened its doors in Den Bosch in 2021. Every day, it processes an olympic swimming pool's volume of orange peels into high-quality base material for the food industry. ICT Group took care of the plant's automation.

Contrary to what you might expect, orange peels can yield high-quality products. In its first plant, PeelPioneers produced orange oil and candied orange peel. These products are used in food products such as beer, muffins, soft drinks, and chocolates, but also in non-food products such as cleaning products and cosmetics. The current plant is also able to produce a high-quality dietary fibre that adds texture and firmness to meat substitutes,

bakery products, sauces, etc. Meanwhile, the lab is working hard to come up with new applications, says Van Stempvoort. "We recycle 100 percent of our peels, but part of our products are still low-quality, such as animal feed. Our R&D aims to increase the quality of the base materials that we make out of orange peels."



Partner for total plant automation

Waar Lindy Hensen de R&D leidt en Bas van While Lindy Hensen leads the R&D and Bas van Wieringen is the commercial brain behind PeelPioneers, Sytze van Stempvoort is responsible for the technology of the company that now employs forty people. He says: “Our previous plant was built by one partner. Everything was in the hands of one party. That was ideal when we were a start-up, as we had little experience with building and running a plant at the time. However, now that we are in the scale-up phase, we are mainly focussing on the future. We want to engage partners who can help us to keep moving forward in the long run. That is why, this time, we are choosing a best-of-breed approach: we are looking for specialists in different areas. ICT Group has become our partner for the total plant automation.”

Great ‘willingness’

PeelPioneers found ICT Group through others. “We already made our shortlist and interviewed several parties when the project leader said that a relative of his, who worked for ICT Group, was very enthusiastic about his employer. So ICT was added to the shortlist.”

Of course, PeelPioneers assessed the different parties' knowledge, working methods, and prices.



But what made ICT Group really stand out, was its ‘willingness’, says Van Stempvoort. “They really wanted to land this project. Not only because we were a good fit, considering other projects they were working on with start-ups and scale-ups focusing on sustainability, but also, and even more so, because they like making the world a better place themselves. Moreover, they understand very well that a scale-up is different from a company that has been in business for years, and that this may require some more thinking along than the contract stipulates. That is exactly what they did during the construction of this plant.”

Constructive thinking

He admits that PeelPioneers thought too lightly of the project management when building the plant. “We simply have no experience with such a large project, and did not know what it takes to properly manage so many partners. Choices you make in one sub-project have consequences for the other. We underestimated how complex that was going to be. Sometimes, we could not move forward in one area because a decision still had to be made somewhere else. ICT Group proved itself very flexible in this regard. They understood why things were going the way they were, and shared their constructive ideas.”

Assistance in writing the PDS

One of the sub-topics that required extra attention was the Process Design Specification (PDS). And although ICT Group's software engineer did not know much about chemical processes, he did think along about how to design a chemical plant process so that it can be automated. “His advice was invaluable”, says Van Stempvoort. “We have plans to build a second plant in Spain. When the time comes, we will definitely ask ICT Group to shed their light on the PDS in an earlier stage.”

Although such a flexible attitude characterises the people who work on the project, Van Stempvoort is glad to see that it is also part of ICTGroup's company culture. “I have to say that the ICT project leader is a real ‘champion’: very passionate and willing to go the extra mile. It is a good thing that we



are training more people at ICT Group to manage our environment and think along about innovation. That way it is more widely supported.”

Increasing OEE

One of the issues that ICT also sheds its light on, is how to use process data to increase the Overall Equipment Effectiveness (OEE) later on. “We will have to build up some more history for that, as it is ultimately about discovering patterns and abnormalities in those patterns”, says Van Stempvoort.

Another issue is increasing the automation maturity. The plant is currently made up of two parts: an open part with a relatively low degree of automation, and a closed part with a higher degree of automation. Right now, the automation mainly consists of PLC/ SCADA, but ICT Group foresees connections to MES and ERP in the future. Van Stempvoort: “We do not work with MES and ERP yet, but we cannot escape it forever. It is good to know that, when the time comes, we have a partner who knows how to make your orders roll automatically into the plant from ERP. A partner who understands what dashboards are useful to control the production even better, and knows what is needed to fully digitalize the traceability in the entire chain. We will definitely tackle that sort of issues together in the future.”

Part of the ecosystem

In this respect, PeelPioneers can draw inspiration from other clients of ICT Group in the recycling industry who are going through a similar process. Van Stempvoort is aware of the value of being part of an ecosystem of innovative companies that do things that have never been done before. All parties in such an ecosystem may be inventing their own wheels, but they can exchange certain parts with each other, such as the spokes or the rim construction. “We want to get up to speed. Our unique expertise is embedded in our R&D process. We work with partners who help us to bring innovations from the lab to the plant. If we want to accelerate the preservation of our world, we will have to cooperate in ecosystems and help each other out with innovation. ICT Group has understood that perfectly and supports us excellently.”

Want to know more about this case?



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