BUILDING THE FUTURE TOGETHER

TValley is an innovation cluster for engineers to get in touch and work collaboratively on challenging projects in the field of robotics, AI, and mechatronics. The community, consisting of companies, research groups and educational institutions, enables meaningful knowledge transfer in specific domains. This aims to identify, develop, and implement new, industry-driven innovations. We spoke with Steven van Roon and Mark Voortman about TValley, Voortman Steel Group as a partner of TValley and the future and added value of collaborations between companies within the east of the Netherlands.

Steven van Roon, who has been working at TValley for two years as a programme manager, identified the challenge of taking knowledge transfer about mechatronics within the industry in the Twente region to the next level. "In 2017, TValley was officially established. The main driver of this was the Research Group Mechatronics of Saxion University of Applied Sciences. The aim was to structurally organise the cooperation between industry and the knowledge institution Saxion. This connection between those will always be there, and at the same time, we also see the need to extend our perspective to other knowledge areas. We want to take the next step and become the technology development platform around mechatronics, robotics and AI in the east of the Netherlands. This means we will innovate more, draw up roadmaps based on the needs of the industry and bridge the gaps we come across. Whereas in the past, the emphasis was mainly on mechatronics, Industry 4.0 broadens the range of important themes in education and business. Think of the usage data, and in a broader sense of robotics, Artificial Intelligence, Advanced Perception and systems engineering."

The changing market

Mark Voortman is CEO of Voortman Steel Group B.V. and chairman of the board of TValley. He tells us about the background of the successful family business: "My father started with small-scale maintenance of machines in the region. When the textile industry in Twente disappeared in the 60s, the construction sector began to flourish. From this sector arose the demand to supply steel structures." For ten years, Voortman focused on mechanical engineering and steel construction on a small scale. The company split into two separate enterprises: one focused on steel construction, Voortman Steel Construction, and one focused on mechanical engineering, now known as Voortman Steel Machinery.

"When I took over my father's mechanical engineering branch in the mid-90s, the company consisted of 17 or 18 people. More than 80% of what we made was custom-made. We made machines for concrete, wood, and steel industries. All nice projects, but the revenues were less exciting. For the sister company, the steel construction branch, we developed a machine ourselves at some point. That was the first product that we had realised ourselves. The demand for this machine increased more and more, so we produced a second, a third, and a fourth one. This has been the tipping point to no longer focus on speciality construction but on in-house produced

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products. Since then, we have added a product and an (export) country to our portfolio every year. So, one could say that Voortman has grown in response to the market's needs."

Digitisation and automation in mechanical engineering

"Nowadays, digitization is one of the most important themes in the engineering process of the machines," he continues. "Where we previously did not use any modules, now all products can be modulated based on functionality. We have also developed a software tool, a configure-to-order system, that makes it possible to assemble the machine to meet the customer's unique requirements. The output of this configure-to-order system is then sent as a single source throughout the factory and this way, we have a fully automated production control."

The question of whether Voortman should develop further in automation is answered with a smile. "Digitisation, in the broadest sense of the word, is only starting just yet. And it starts going faster and faster and is therefore becoming increasingly complex." "We have now had the 'easy' automation," Steven adds. "What is possible at this stage - and what is now needed for Artificial Intelligence in Industry 4.0 - or even higher - is just getting started." A good example of this can be given by means of robot welding machines. Mark: "At Voortman, we make

robot welding systems. We used to go from point A to B and if the material wasn't straight, the weld wasn't good. We couldn't fix this. Now we can. Using vision technology, we determine how a weld should be laid. Nowadays, it entails much more than simply going from A to B. But where do you get that knowledge if you don't have it in-house? This can only be done by sharing knowledge with other parties, learning from others, and developing the technology."

The added value of TValley

TValley enables this knowledge sharing. Various parties from the industry come together at TValley to exchange knowledge with each other at an engineering level. This way, there is an interaction between different groups and knowledge levels, without sharing company-specific information. Currently, the TValley network consists of 14 members, of which 10 businesses, two research groups and the two supporting organisations: Novel-T and Oost NL. In addition to Mark Voortman, the current board consists of Peter van Dam (Saxion University of Applied Sciences) and Jaap Beernink (Novel-T). With this mix, a leap forward is made. Steven: "There is quite some ambition, and there are plenty of opportunities. It is important to ensure that each involved business has a role in realising this ambition and benefits from the results. Our ambition is to be the technology development platform in mechatronics, robotics and

AI in the east of the Netherlands. This is very broad, but through a good network, we can help each other to take the next step." Mark adds: "People need to know what TValley is and what we do. People need to go to TValley to solve problems and develop the technology. We are sharing knowledge with both educational institutes and other companies. Give and take, that benefits everyone".

Within the cluster, sharing knowledge for innovation is the core theme. "The added value of TValley lies in the innovation and the application of (new) technology in companies. What challenges do the companies have, and what are the common components we bring together in the Tech Roadmaps? Clustered, to jointly realise a development project within TValley," says Mark.

A look at the future

TValley has the ambition to achieve significant growth within 10 years. Steven: "We not only want to grow for the masses but also because with growth, you can demonstrate you have added value. To tackle various topics, make research groups grow, guide other knowledge institutions and the fact that companies can actually apply our innovations." Mark concludes: "It should be clear: if you're struggling with something difficult, you should go to TValley." ■