

“Collaboration with industry is becoming increasingly important. ECN has learned that well.”

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# High potential hot collaboration

## Bronswerk & ECN

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**“Bronswerk designs and builds heat transfer devices. The company has been around for 75 years and works for international customers, such as Shell, Esso, BASF and many other chemical companies. We manufacture heat exchangers and cooling systems. In doing so, we help our customers achieve goals such as sustainability, which means manufacturing products in the most energy-efficient manner possible.”**

### The problem

“Many industrial processes generate residual heat. The temperature of this heat is too low for it to be reused in the process. Heat pumps raise the temperature of this residual heat. Industry demands high temperatures of around 160°C but traditional heat pumps can't reach this.”

### The solution

“We started collaborating with ECN to develop the technology for an acoustic heat pump. ECN created a physical model on the basis of sound waves and a flow model. They have already demonstrated that it works at laboratory scale. We needed this specialist knowledge and ECN's concept to continue developing the heat pump at factory scale. ECN is the only organisation with this knowledge in the Netherlands.”

### The impact

“With the innovative heat pump concept that we developed, the industry should be able to make enormous energy savings. Not only will it lead to cost savings, but it will also enable us to take steps towards a more sustainable industry in the Netherlands. If we can manufacture the heat pump on a large scale in the

long term, Bronswerk will have a unique position in the market. In addition to the economic advantage, we may be able to hire new employees. If we sell 100 heat pumps per year, I estimate that we will be able to expand our company from 150 to 170 employees. In addition, our sheet metalwork and electrical engineering suppliers will also benefit from the commercial success. Good things still to come!”

## The collaboration

“Whilst we have not yet started manufacturing on a large scale, we are already seeing a positive effect. The collaboration with ECN on this project is increasing the level of expertise of our engineers. So even if the heat pump does

not become a commercial success, I am glad that we worked on it. In the past ECN used to come up with innovations that the market had no immediate use for. That has changed. Nowadays their innovations are useful and applicable to industry.

Moreover, ECN now understands that the business model for innovations is important. Collaboration with industry is becoming increasingly important. ECN has learned that well. In addition to conducting basic research, they work with various businesses to increase the impact of innovations. In the other heat pump concepts for industrial application for example, ECN will collaborate with us, IBK and Smurfit Kappa.”

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