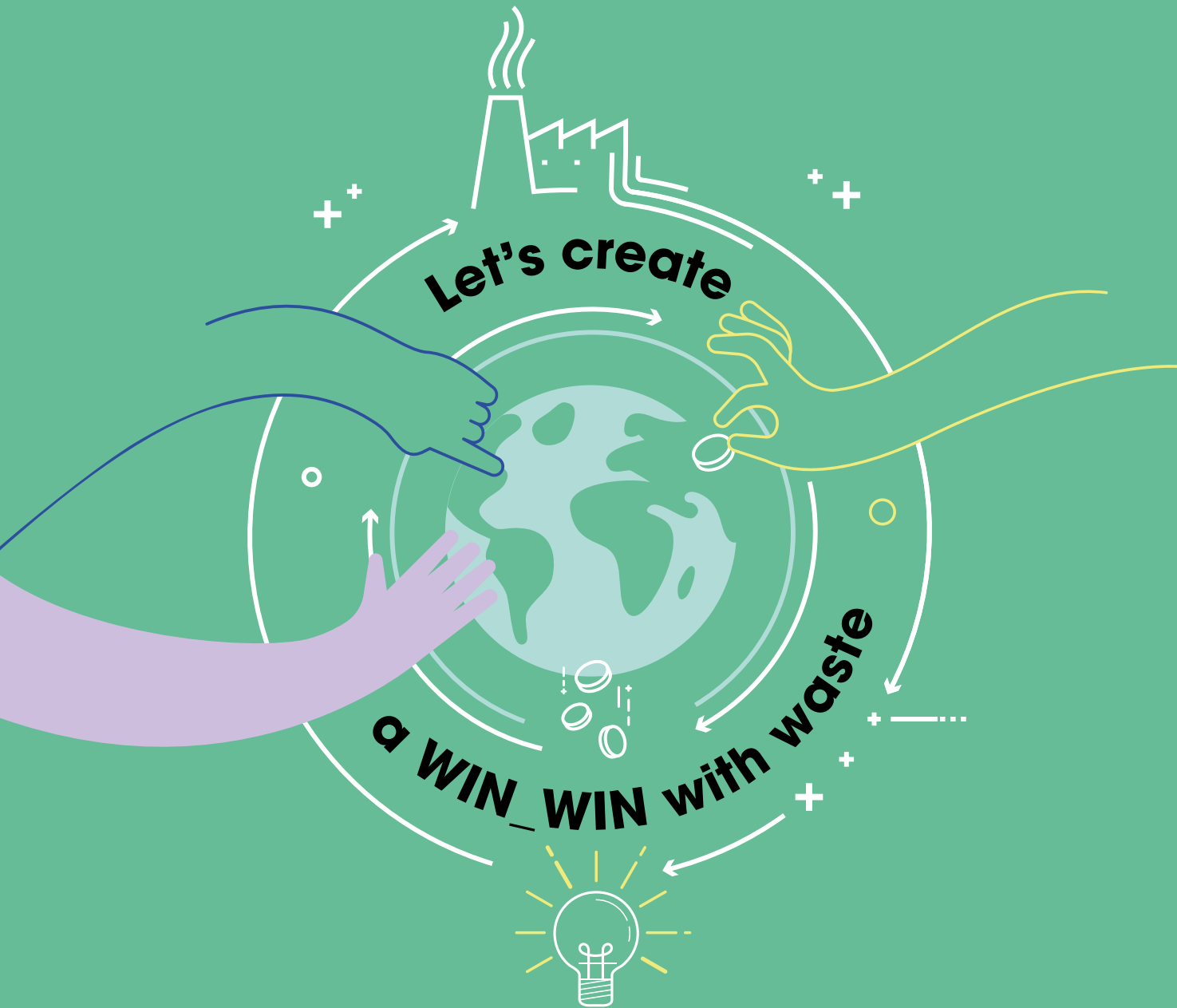


# FROM WASTE TO PROFIT

## Best Practices



**Interreg**  
Euregio Maas-Rijn  
Europees Fonds voor Regionale Ontwikkeling



EUROPESE UNIE



**04** A Successful Project with Impact  
**Preface partners**

**06** Let's create a  
WIN\_WIN with waste

#### CHAPTER 1: MATCHMAKING

**12** Importance of Circular Economy  
and benefits of Industrial Symbiosis  
**Interview with Mara Haverkort  
& Alexandra Vandevyvere**

**16** Frontrunner journeys:  
**Who are the leaders in the field of  
waste management and recycling?**

**20** Gillrath matches with Limburg  
Mineral Crushing Plant to  
recycle stone waste  
**Interview with Marcus  
Gillrath & Marc Neitzke**

**"It is important to think from regional connections and  
recognize the economic potential of what we still too  
often label as 'waste.'"**

**Reinhold Rünker**, Ministry of Economics North Rhine-Westphalia

#### CHAPTER 2: AUDITS

**24** Understanding your waste  
streams through an audit

**26** Measurement is knowledge:  
Quantify your waste  
**Interview with Christoph  
Aretz & Sukhwinder Ghotra**

**28** Case Group Nivelles Part I:  
"You don't always think  
about the amount of  
waste you produce"  
**Interview with  
Natasja De Bruyker**

**30** "A good waste policy is  
primarily a dynamic process"  
**Interview with  
Jean-Pierre Reyniers  
& Marcel Van de Velde**

#### CHAPTER 3: OPTIMIZATION PROJECTS

**38** Getting started with your  
waste optimization project

**40** Case Group Nivelles Part II:  
"Products become even  
more qualitative, and we  
even offer new items"  
**Interview with  
Natasja De Bruyker**

**42** Completed Optimization  
Projects: Germany,  
Netherlands & Belgium

**52** "The road to circularity doesn't  
have to be taken alone"  
**Interview with Sara Gilissen  
& Tom Janssen**

#### CHAPTER 4: CONCLUSION

**58** From Waste to Profit  
in numbers

**60** "Generating profit from  
waste remains the future"  
**Interview with  
Jean-Pierre Reyniers  
& Marcel Van de Velde**

**62** "Ecodesign extends beyond  
the choice of presumed  
ecological materials"  
**Interview with Karine Van  
Doorselaer & Saija Maliila**

**66** Contact information Partners  
From Waste to Profit

**"If you want to be  
part of the future  
as a region, you  
have no choice but  
to ensure that your  
companies are also  
strongly committed to  
innovation. And From  
Waste 2 Profit plays a  
crucial role in that."**

**Johann J.L. Leten**,  
C.E.O. Voka Limburg  
Chamber of Commerce  
and Industry

From Waste 2 Profit, it's a wrap

# A successful project with impact you continue to feel

**From Waste 2 Profit: an inspiring Interreg project on which we worked together as partners to strengthen waste management at companies in the Meuse-Rhine region. Our goal? This was clear: promote sustainability and circularity among small and medium-sized enterprises. What you're looking at now is an anthology of what we managed to achieve. An anthology we're proud of, and which we were able to deliver thanks to these partners:**

## Effizienz-Agentur NRW

EFA, established on the initiative of the North Rhine-Westphalia (NRW) Environment Ministry, aims to promote industry and crafts in North Rhine-Westphalia for a resource-efficient economy. They support manufacturing companies with expert advice on resource efficiency, helping them optimise their processes and reduce costs and environmental impact. They do this by helping with funding, implementation of sustainable resource use measures and through events and courses around current developments.

## LIOF

LIOF is the regional development agency for Dutch Limburg. They support innovative entrepreneurs with advice, networking opportunities and funding, whether you are a start-up, scale-up or SME with innovative ideas, business plans or funding questions. They can also help (foreign) entrepreneurs looking to set up a business in Limburg.

**“Valorisation of waste streams in companies is not only socially important, but also a financial necessity. Research shows that a 10% waste reduction in manufacturing companies leads to 2% lower costs. There are still many opportunities especially in the plastics industry and construction.”**

**Tom Vandepuut**, Commissioner for Economy and chairman POM Limburg.

Together with entrepreneurs and partners, they are working towards a smarter, more sustainable and healthier Limburg by focusing on the energy transition, circularity, health and digitisation.

## POM Limburg

As an economic accelerator, POM Limburg is committed to making Belgian Limburg more digital, low-carbon and scalable. They connect companies, employees, local governments, knowledge institutions and civil society to work together on innovative projects in eight core sectors. With a focus on digitalisation and sustainability, POM Limburg acts as the province's economic director, championing new business parks, innovative campuses and spatial master plans. They do so at the behest of the provincial government.

## Voka - Kamer van Koophandel Limburg

As part of Voka, the biggest Flemish network of enterprises, Voka Limburg - Chamber of Commerce and Industry works closely with Limburg entrepreneurs and represents their interests at the highest level. Their goal: to create an optimal framework for successful entrepreneurship and growth, bringing about healthy and shared growth for the whole of Limburg.

## Zenit GmbH

Consultancy firm Zenit GmbH mainly supports small and medium-sized enterprises in the field of innovation and internationalisation, but start-ups and large companies can also turn to them. They work on behalf of the EU,

the Federal Government and the German state of North Rhine-Westphalia. Zenit is a hub for the Enterprise Europe Network in NRW, promoting networking and cooperation between companies across national borders. They offer various services in innovation, finance and internationalisation, with sustainability and circular economy always at the centre.

**“From Waste 2 Profit is important because it makes us more circular, smarter, and ultimately healthier.”**

**Bert de Wit**, Manager of Business Development, LIOF

We can look back on the impact we created with From Waste 2 Profit with great pride. Thank you to all partners, companies and individuals who contributed to the success of this project. Together, we have shown that sustainability and economic growth can go hand in hand, and that tackling waste management is a first step towards a better world for all of us.

**We hope this brochure will inspire and motivate you to (continue to) play an active role yourself in our journey towards a more sustainable future!**



**Let's create  
a WIN\_WIN  
with waste!**

**Sixteen tonnes per person. This is the weight of raw materials used annually in Europe. Ten tonnes of this goes into structural items: such as infrastructure, housing, durable goods and six tonnes leaves the economy as waste. In our current economic system, the volume of waste is only increasing and resources are being depleted. Time for some action. Enter: From Waste 2 Profit. Over the past three years, this Interreg project has encouraged SMEs to engage in waste management.**

### **What is From Waste 2 Profit?**

From Waste 2 Profit is an Interreg Euregion Meuse-Rhine project supported by the following partners: Effizienz Agentur NRW, LIOF, POM Limburg, Voka Limburg - Chamber of Commerce and Industry and Zenit.

### **Why circularity?**

For SMEs, circularity often appears to be cumbersome and expensive. Yet the opposite is true: waste is often a big expense. For instance, on average 53% of the operating costs of manufacturing companies consist of new raw materials costs. At the same time, 17% of purchased raw materials is lost as waste. This is a loss of resources, but also has a financial impact on the company. Losing less in terms of raw materials and thus producing less waste is more cost effective for companies. On the one hand, you'll make cost savings because you have to process less waste. And by using raw materials more efficiently, you'll use less. For example: research shows that you can save 2% on your production costs by reducing the loss of raw materials by 10%. On the other hand, it also generates



^ Scan the QR code and watch our animated video.

new revenue, because a residual waste stream for one company may well be a raw material for another. Add to that a better environmental report and you'll soon get your money's worth and more.



### So what does this mean in concrete terms?

To take those first steps towards circularity, From Waste 2 Profit focused on several pillars.

First up was financial support for SMEs. For example, if you wanted to gain insight into your company's waste streams, there was the waste audit voucher. How much waste does your business produce? And what kind of waste is involved? What happens to that waste? For example, the auditor helped you spot opportunities to reduce residual waste flows or reuse materials.

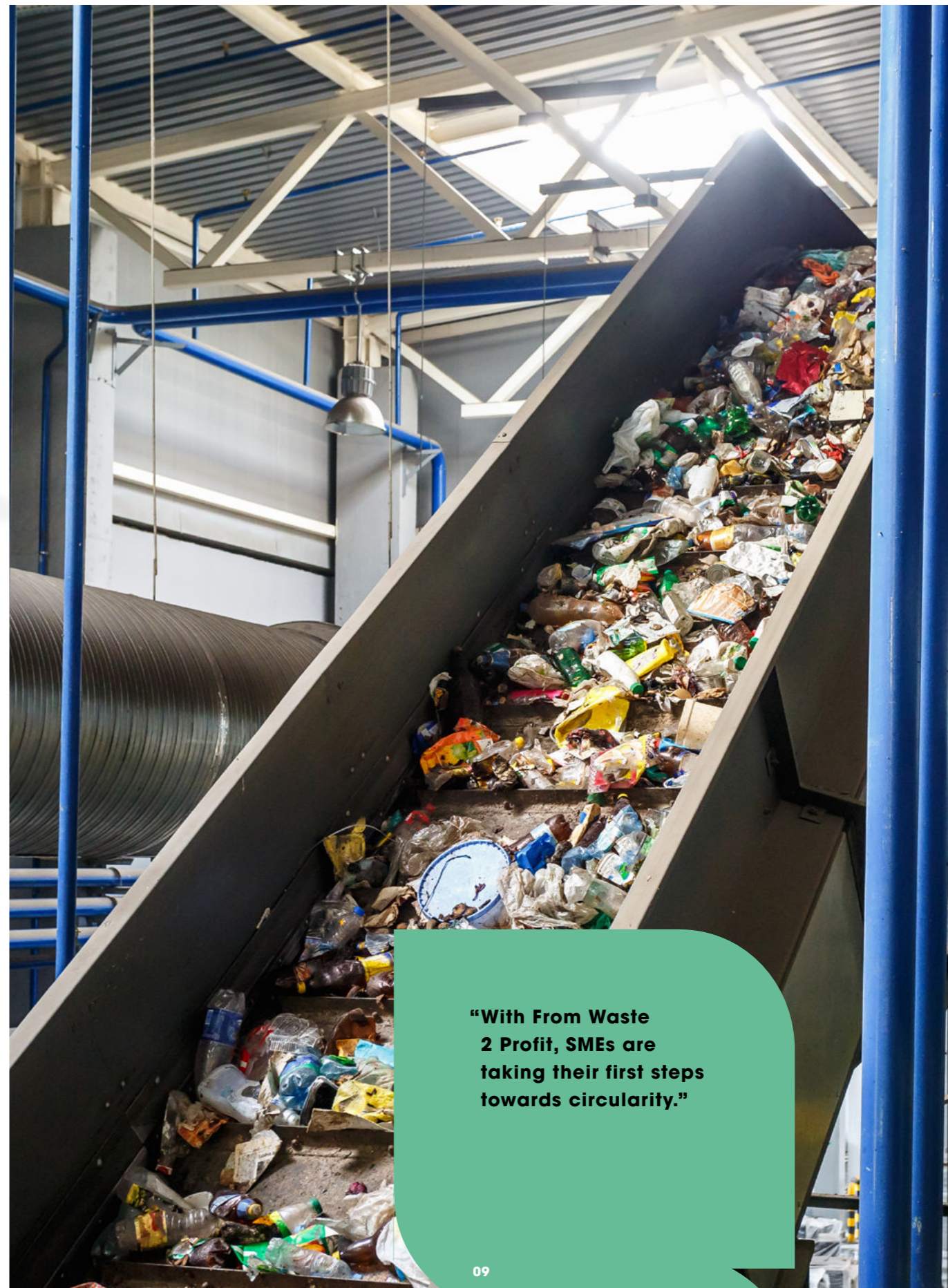
waste, reuse materials or save energy? Then you could apply for a grant for that too.

Besides financial support, the project emphasised knowledge sharing and matchmaking. This included three inspiration days where frontrunners in circular economy shared their stories and inspired SMEs. There was also a matchmaking tool so that suppliers and buyers of so-called by-products and recycled products could find each other.

### A second life via Wonderful.stream

Reducing waste streams is not always possible. Therefore, Wonderful.Stream, another project of Interreg Euregio Meuse-Rhine put the focus on valorising waste streams. The aim: to turn existing waste streams into prototypes of new, innovative products.

This magazine focuses on the processes, results and take-aways of From Waste 2 Profit.



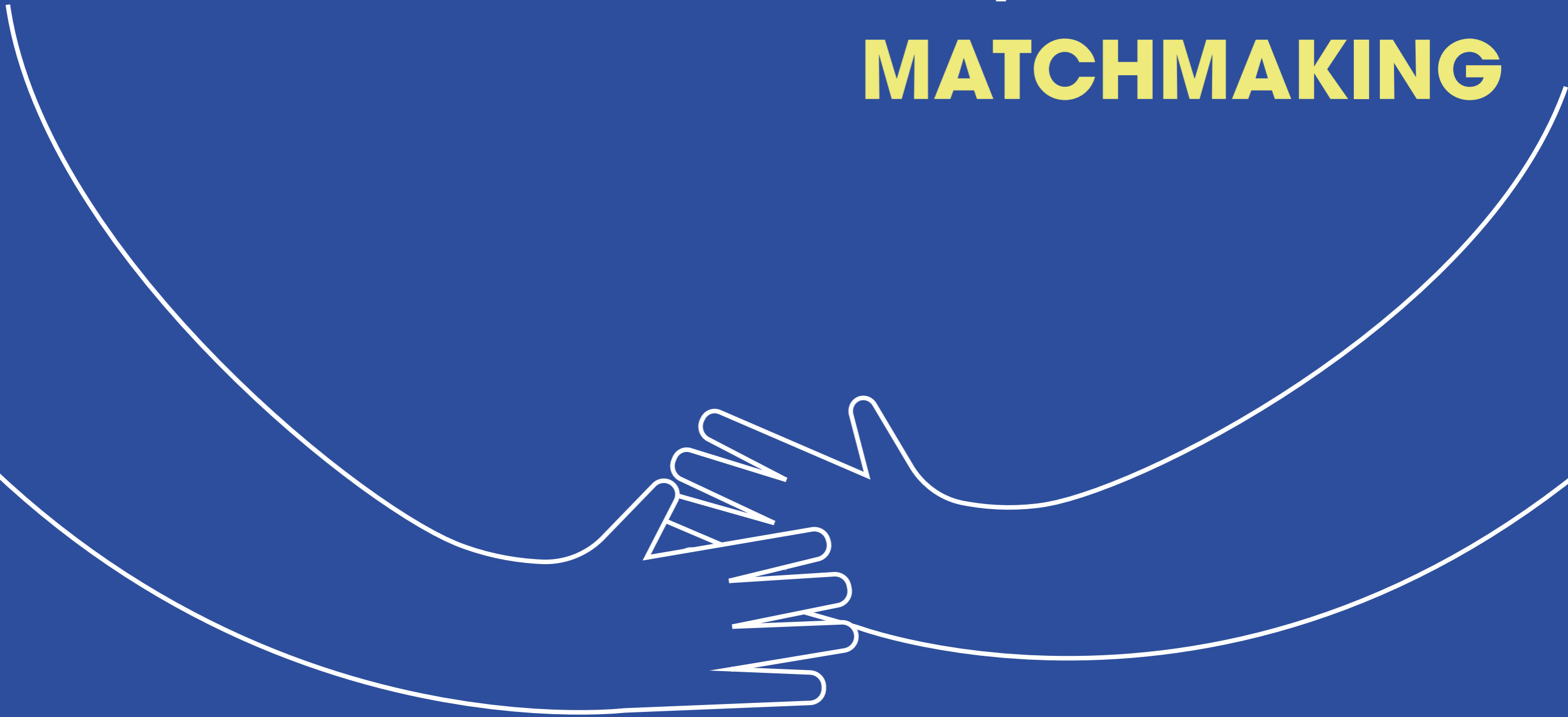
**“With From Waste 2 Profit, SMEs are taking their first steps towards circularity.”**

**“Every year, six tonnes of raw materials leave our economy as waste.”**

A second financial intervention consisted of a grant for a waste optimisation project. As a company, did you have a concrete project in mind to reduce your

# Chapter 1

# MATCHMAKING



# The importance of circular economy and the benefits of industrial symbiosis

**The aim of a circular economy is to close cycles: one company's waste product is turned into a raw material for another. Countless benefits, but easier said than done. After all, how can what is waste for one company be useful to another? Flanders Circular and the Acceleration House explain.**

Both Flanders Circular and the Dutch Acceleration House aim for a circular economy in 2050. This involves products being reused again and again. After all, is that not possible? Then they will be recycled to the highest possible quality. Companies play an important role here: they have to find ways to use raw materials in the best way possible and to avoid incineration and landfill. Do companies have questions about this? If so, Acceleration House helps them with practical information, tailor-made assistance and guidance for chain collaborations. In turn, Flanders Circular promotes the circular economy through various strategies and actions. They stimulate experiments, advise policy makers, translate business models into practical tools ...

**“That which no longer has value for one company can be valuable for another.”**



^ Mara Haverkort



^ Alexandra Vandevyvere

## A win-win with waste

Unfortunately, it is not possible to prevent waste completely. The alternative? Industrial symbiosis: exchanging residual stream between companies. That which no longer has value for one company can be valuable for another. Perhaps your wooden floors will be turned into new tables!

To reach a trade agreement, however, suppliers and buyers of residual streams need to know how to find each other. Offering, and searching for, residual streams can be a time-consuming process. Therefore, transparency in the chain is hugely important. When all parties have access to relevant information, everyone better understands what happens when and where. This allows companies to develop the right strategies to make the chain sustainable and to develop new applications for available residual streams.

For example, to map the quality and properties of companies' residual streams, you have the digital materials passport. This passport contains a lot of information on the type of material, quantities, method of assembly and location of objects. At Flanders Circular, they see it as a valuable tool to promote circular practices and facilitate the exchange of residual streams between companies. In the construction sector, for example, they are working with partners on a digital passport of buildings, which records the composition of building materials. Accordingly, Acceleration House finds it indispensable in the circular transition.

### Proactively create value

It is essential that companies take a proactive stance and actively collaborate with other organisations to promote the exchange of residual streams. By jointly engaging in a circular economy, companies can not only reduce their waste, but also create value from what was previously considered waste. According to Flanders Circular, the following steps are important: identify and characterise residual streams, find suitable partners, research regulations, digitise your processes, and regularly evaluate & optimise.

The Dutch Acceleration House is currently mapping initiatives that are developing new applications based on your waste streams. This allows you to stay focused on your own business processes.

**“By jointly engaging in a circular economy, companies can not only reduce their waste, but also create value from what was previously considered waste.”**



## 5 benefits of industrial symbiosis

### 01. Waste reduction

Exchanging waste streams leads to more efficient use of resources and waste reduction, reducing the environmental impact.

### 02. Cost savings

By using residual streams instead of buying traditional raw materials, companies have a lot costs savings.

### 03. Innovation and new business models

Companies are looking for solutions that enable materials to be (re)used more efficiently. New business models are emerging that rely on product-service combinations.

### 04. Promoting Synergies

Cooperation between companies creates synergies, with one company compensating for the weaknesses of another and vice versa.

### 05. Sustainability

Reusing waste streams reduces pressure on natural resources. This contributes to a more sustainable way of producing.



# Frontrunner journeys



**What works better than inspiring each other? That was the approach of our three frontrunner journeys in Belgium, the Netherlands and Germany respectively. SMEs (small or medium-sized enterprises) were invited to companies that are frontrunners in areas such as waste management and recycling. For those who could not be there, do not worry: we are happy to look back again at these inspiring days.**



## On the programme

- Visiting ZF Wind Power
- Keynote by Vincent De Smedt of Edmire on circular design & waste valorisation
- Visiting Maltha Glasrecycling

## The frontrunners

### ZF Wind Power

ZF Wind Power develops and manufactures high-tech gearboxes and complete drive lines for wind turbines. They are world leaders in their sector, thus helping to build a sustainable energy transition. They are not only leaders in the field of energy, but also have progressive waste management.

### Maltha Glasrecycling

Maltha Glasrecycling is a leading recycling company of flat glass waste and a fine example of the circular economy. They supply clean glass cullet as a high-quality raw material for the glass and glass wool industries.

## Their best practices

- 01** Optimisations in your waste management can be perfectly worked into your existing production environment. That applies to both large and small companies.
- 02** Valorising waste can be done in several ways. It is a matter of combining creativity and pragmatism in a solution to suit your company, your product and your processes.
- 03** Reducing waste starts at the very beginning of your production process. Circular design is not a buzzword, it's the future.





# Germany

## On the programme

- Presentation on From Waste 2 Profit at museum Energeticon
- Visiting Gillrath Ziegel- und Klinkerwerke GmbH & Co. KG
- Keynote by Martin Duffer on the sustainable products of his company Duffer GmbH
- Visiting Korr GmbH
- Optional guided visit to Energeticon

## De frontrunners

### Gillrath

Gillrath has been producing ceramic face bricks for more than a hundred years. They have the last ring furnace in North Rhine-Westphalia and can thus offer a successful niche product. Sustainability and environmental protection are central to everything they do. They are currently hard at work on their way to full climate neutrality.

### Duffer

Duffer is a woodworking and carpentry company that aims to bridge the gap between tradition and the future with modern production methods. Founded in 2022, the company's focus includes installation of standardised prefabricated building components, assembly work, timber and building protection, floor laying and wood carving.

### Korr

For three generations, carpentry workshop Korr has been making the link between traditional craftsmanship and aesthetic design. Creativity, care and attention to detail form the basis of all the work they carry out. They specialised in office and business interiors, medical centres, interior design for homes and special constructions.

## Their best practices

- 01** Companies that want to be ready for the future cannot help but be concerned with sustainability.
- 02** Innovating and deploying advanced materials also helps the most traditional sectors generate less waste.
- 03** Innovation is often a booster for creativity. It allows you to think differently and tackle certain challenges or processes in a new way. Think out-of-the-box and see what you can achieve.
- 04** Smart design of your products allows you to use scarce resources sparingly. To do this, dare to scrutinise and rethink your entire production process.

# Netherlands

## On the programme

- Presentation on supporting From Waste 2 Profit at Brightlands Chemelot Campus
- Inspiration session by Think Paper
- Guided tour at CHILL (Chemelot Innovation & Learning Labs)
- Visiting Healix

## The frontrunners

### Brightlands Chemelot Campus

Brightlands Chemelot Campus is one of the four campuses of the Brightlands ecosystem in the Dutch province of Limburg, focused on green energy and smart materials. You will find a vibrant community committed to a more sustainable world. It is the ideal breeding ground for materials science and innovation.

### Think Paper

Think Paper produces designer lamps made of cardboard based on circular designs. The company created a unique portfolio of exclusive products and customised objects for both corporate and private markets, nationally and internationally.

### CHILL

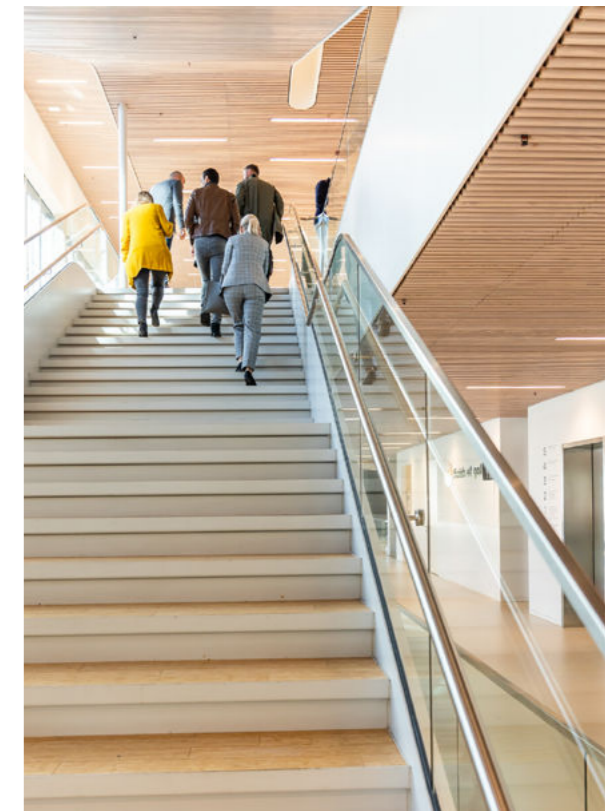
CHILL, Chemelot Innovation and Learning Labs, offers laboratory and scale-up facilities to companies that want to innovate and work around new materials and circular business models. There they can collaborate with students and knowledge institutions.

### Healix

Healix transforms used ropes and nets from fishing and agriculture into pure circular polymers, usable for the global production supply chain. They do this with their proprietary purification technology. By keeping plastic in the economy, they keep it out of our seas and nature.

## Their best practices

- 01** Setting up a circular production process is not simple. Be prepared for challenges but know that in the end, you will only gain from this.
- 02** Collaborating with other companies, students and knowledge institutions can only take you forward. Don't stay on your island but hit the testing and production stage together.
- 03** The simplest solution is often the best. A simple design, with little material waste will take you a long way.





← Marcus Gillrath

# Gillrath matches with Limburg Mineral Crusher to recycle stone waste

**German brick manufacturer Gillrath jumped onto the sustainability train years ago. A ride that not only enabled them to save energy, water and waste, but also put them in touch with the Limburg Mineral Crusher, which supports them in their sustainability story. From Waste 2 Profit also played its part in this success story.**

**Marcus Gillrath:** "I am at the helm of our fourth-generation family business, together with my brother and father. We produce bricks, stone strips, and other products made of ceramics and have projects running all over the world. Not only new buildings but also renovations and conversions of older facades."

"We have long been working on making our production process more sustainable, and for several years have been working with Effizienz Agentur NRW, a German efficiency agency that helps companies reduce their energy consumption and use raw materials more efficiently. In ten years, for instance, we reduced our waste from some 300,000 bricks to less than 150,000."

"It is also through that efficiency agency that we came into contact with From Waste 2 Profit, for an understandable way for us to continue our sustainability story. If you want to apply for subsidies in Germany, you need external help to bring it to a successful conclusion, it's that complicated. That was not the case with From Waste 2 Profit, something we liked right from the start (*laughs*)."

"Our first project with From Waste 2 Profit was an optimisation of our water consumption. To produce stone strips, we first used a sawing machine that required a lot of water. We already had a water treatment plant, but it could be even more efficient."

With the help of From Waste 2 Profit, we bought a new machine, saving on our water consumption and also using less energy. Another extra win: we now produce more stone strips in the same time.

**"We ourselves are a 100% circular company that ensures production waste can be reused as raw material."**

## Brick waste as raw material for new products

"Besides the optimisation project, we also used the matchmaking platform offered by From Waste 2 Profit. Through it we strengthened our cooperation with the Limburg Mineral Crushing Plant. Previously, we delivered the waste from our production - mostly broken bricks - to them after which they pulverised it and delivered it back to us. We reuse that in our production, allowing us to reduce the required amount of clay per brick."

**Marc from Limburg Mineral Crusher:** "Since they want to use as little clay as possible at Gillrath, we now don't just work with our own bricks. A demolition firm delivers demolition waste from old houses and factories to us, from which we try to make high-quality products. They reuse that at Gillrath in their production. That way, less valuable raw materials have to be excavated."

"We ourselves are a 100% circular company that ensures production waste can be reused as raw material."

That way, companies have less production waste, a lower cost price and can produce faster. There really is a win-win here: both for the companies and for nature."

**Marcus Gillrath:** "We are still in the start-up phase for this project, where we have an undergraduate student in-house who is writing his thesis on this project. He is investigating how much of each raw material we should best add to our bricks to continue to guarantee the best quality. It is an exciting project which we want to roll out further."

"I think it's great to see how a matchmaking platform like From Waste 2 Profit brings together companies from different industries especially when you see the kind of opportunities that creates."

"At Gillrath, we are convinced that it pays to scrutinise your consumption of raw materials and energy and make them more sustainable. Companies often think at the beginning: becoming more sustainable is going to cost me money. However, if you look at what you will save in the end, I can only recommend doing it anyway. In the end, not only your company but also the world reaps the benefits."

**Marc from Limburg Mineral Crusher:** "Gillrath really sets a good example in this respect. They are so innovative and have already invested so much in sustainability. Many other companies can learn something from that. Besides the benefits for Gillrath itself, nature is also a big winner here. As circular companies, we help lay the foundations for future generations. We can demonstrate that, as a company, you can make a profit without our environment having to suffer."

# Chapter 2

# AUD/TS



# Understanding your waste streams thanks to an audit



**One of the options offered by From Waste 2 Profit was an audit of your waste streams. Because everything starts with gaining insight. What waste are you producing? What volumes are involved? And: what can you do with it? Companies that registered received a €2,500 voucher for a waste audit worth €5,000.**

## **From analysis ...**

Several auditors were brought in to get an overview of the waste generation of the participating companies. They started with a waste scan: a physical tour of the company to answer a series of questions. How is waste generated in the company? What is the composition of the waste? And how does it get to decentralised waste bins? Who collects the waste and how is it processed? But analysis also happened at the policy level. Did the companies already implement rules on waste sorting? Production, packaging, water consumption and air pollution were also taken into account. In short: the whole process was mapped out.

## **To recommendations ...**

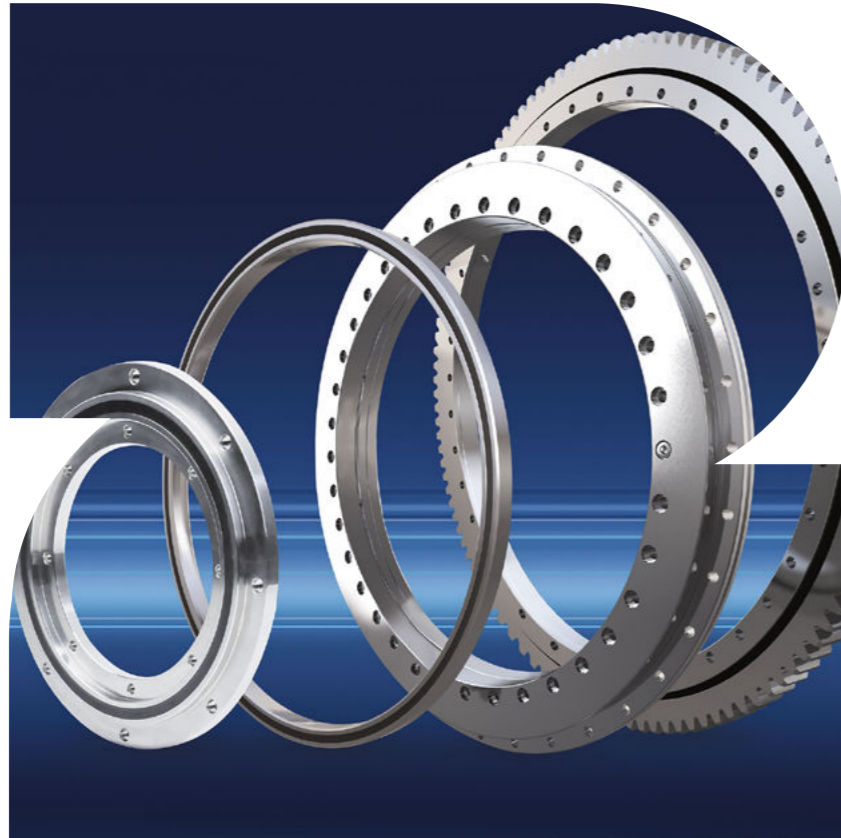
After the tour, the auditors prepared a report. This sort of report includes a section on legislation: concrete examples where policy does not quite meet statutes in force. But in addition, concrete opportunities for reducing residual waste flows, reusing materials or even CO2 savings. Concrete solutions that companies could work on themselves.

Think, for example, about technical matters such as compressing plastic film so that it takes up less space and more can be transported, or proposals for sorting material even better so that new raw materials can be separated.

## **And result!**

The actions that result from such an audit could have an effect on companies by reducing energy costs, making machines more efficient, saving water, ... Not only did this have a positive effect for the company, the environment also benefited. Win-win!





# Measuring is knowing: quantify your waste

How much waste does your business produce? And how can you reduce this? These are the questions that waste audits answered. Manufacturer of precision bearings and linear technology Rodriguez GmbH had an audit carried out by Rödl & Partner GmbH. Because measuring is knowing. We heard from Christoph Aretz, Finance Director of Rodriguez GmbH and Sukhwinder Ghotra, Senior Associate at Rödl & Partner GmbH.

## Fresh look at waste streams

**Christoph:** "Thanks to From Waste 2 Profit, we learnt at the end of 2022 that we could commission a waste audit to get a better picture of our waste streams. Sometimes it's simply a different way of looking or thinking that can provide the solution. Things you don't expect turn out to have an impact on the environment after all. By addressing them and implementing them in our strategy and operation, we not only create motivation among our own staff but also appreciation among our customers."

**"Companies often know they have waste, but have no idea how much and how big its impact is."**

## Learning through digitising

**Sukhwinder:** "Environment and sustainability are becoming increasingly important issues. And companies are also expected to do their bit to improve the climate and use resources more sparingly. Through a waste audit, they gain a better understanding of how much waste they produce, how they can reduce it and, consequently, how they can also reduce their impact on the environment. Just like Rodriguez GmbH"

"An important first step is digitisation. As companies digitise their processes and workflows and implement a software or planning system, they can better quantify and track their waste streams. This is a simple intervention, but it makes a big difference. Digitisation is a good start, but subsequent actions are different for each company. Then we need to look specifically at the machines and the production process."

**Christoph:** "We also took that first step of digitisation. Analysis showed that metal waste was one of our biggest challenges. To address this, we studied our production process in more detail and looked at how we could optimise

it. This can be done, on the one hand, by taking into account the waste impact when we invest in new machines, and on the other hand, by further fine-tuning our software solutions to allow for optimised planning and construction, to reduce waste in the production process or enable the reuse of materials."

## New focus

**Sukhwinder:** Transparency remains the biggest stumbling block for companies. Companies often know they have waste, but have no idea how much and how big its impact is. The methodology to determine quantities is lacking. Consequently, they cannot reduce that impact. With Rodriguez, things ran a little differently. They were well prepared and had the necessary figures. All they needed was a little external push to go all the way."

**Christoph:** "Indeed, and thanks to Rödl & Partner GmbH, we can now not only quantify our waste streams, but also tackle them effectively. Because if you know what you're throwing away, you also know its impact on the environment. And from there you can start to reduce your waste. Step by step."

**"Because if you know what you're throwing away, you also know its impact on the environment."**



^ Christoph Aretz



^ Sukhwinder Ghotra

# Case Group Nivelles Part 1

“ Interview  
Natasja from Group Nivelles

Family firm Group Nivelles in Gingelom is a manufacturer and distributor of bathrooms: from furniture to showers, washbasins, wall panels and drains. They engaged From Waste 2 Profit, had an audit carried out and went after it for a waste optimisation project. Operational manager Natasja takes us through their journey.

## Surprised by audit report

“We knew we produced a lot of waste in our industry, but we had never taken the time to map it out and find out exactly how much it was costing us. Through an information session at Voka Limburg - Chamber of Commerce and industry where POM Limburg was also present, we found out that you could have an audit of your company done in order to map your waste. That’s how we ended up at From Waste 2 Profit.”



“Group Nivelles is a family business and we’re keen to do our bit for a better future”

^ Natasja De Bruyker



Operational Manager Natasja:

“Because you’re busy with the day-to-day running of a business, you don’t always think about the amount of waste you produce”

“When we received the audit report, we were really shocked. Of the 500,000 kilos of raw materials we consumed, we effectively disposed of 176,000 kilos. Not only was that a lot of waste flowing out, but there were handling costs on top. So a big chunk of money was lost. Then you realise you have a problem. Especially since Group Nivelles is a family business and we’re keen to do our bit for a better future.”

## Solid surface proved biggest cost and pollution

“We produce our own solid surface, a composite material from which we make sinks, showers and panels. The report showed that this was where our biggest cost lay and what caused the most pollution. The audit allowed us to address this concretely and make targeted adjustments through the subsequent waste optimisation project.”

## Small changes with big impact

“Besides adjusting the production process of our solid surface, we made a few other optimisations at Group Nivelles. For example, we no longer have cans of soft drinks available at the company.



^ Watch our video via the QR code.

Instead, we now provide free water and employees receive a water bottle as a gift. This is not only good for the environment, but also for a healthier life. Furthermore, we keep our other waste materials such as cardboard, Styrofoam and metal to a minimum and sort even more thoroughly than before.”

“The audit report also revealed that our water consumption is extremely high. Our CNC (computer-controlled machine) - which also runs at night - consumes 12 litres of tap water per minute. By talking to our supplier, we discovered that we could switch this machine to rainwater. We installed additional cisterns so that the CNC can operate mostly using rainwater. This is how we’re slowly but surely taking Group Nivelles into the future.”

# “A good waste policy is above all a dynamic process”

Today, a lot of companies are less inclined to provide resources or ask for help to optimise their waste management. Experts Jean-Pierre Reyniers and Marcel Van de Velde, Senior Consultants at Vlaanderen (SCV), conducted waste audits for From Waste 2 Profit at various SMEs (small or medium-sized enterprises) and share their tips to put companies on the road to a more sustainable waste policy.

A lot of companies are still unaware of the cost of their industrial waste. **Jean-Pierre:** “Especially while it can still be passed on to the consumer. It is not yet well known that waste, if it is properly separated and purified at source, can be a new raw material for the company itself or for others.”



^ Jean-Pierre Reyniers

**Marcel:** “Companies often do not realise that there is also a revenue model in this. Furthermore, working on a targeted waste policy is not only a first step towards more sustainability, it more importantly gives companies a competitive edge.”

“Too often, the cost of disposing of waste is the main concern. It creates the perception that separating waste at source only increases labour costs. It is often only when comments are made by the collector or under external pressure, from customers or enforcement agencies for example, that you as a company are unconsciously encouraged to deal with waste streams and the raw materials they contain in a better and more sustainable way.”

“A lot of companies are still unaware of the cost of their industrial waste.”



^ Marcel Van de Velde

## Tip

At least annually, calculate the cost of your operating waste relative to the annual consumption of the main raw material using the following formula:

- + 50% of it for the various manufacturing costs (production cost per kg or tonne of finished
- + cost for the collection and processing of your commercial waste

According to a study by OVAM (Public Waste Agency in Flanders), more than 20% of raw materials end up in the waste bin at an average Flemish manufacturing company. **Jean-Pierre:** “Yes, that could also apply to your company. If you don’t know what that could mean for you, it’s important to find out for yourself or get support in this, for example through a waste audit by an expert.”

### Start taking inventory

An important first step is to map out your waste streams. What different waste streams do you generate per year? How clean are they? Are they sufficiently separated at source and by whom are they collected? Know that well-separated waste streams cost less and can be more easily valorised.

Conduct a more detailed investigation or punctual study of the parts in your production

process where your most important waste is created, to gain insight into any bottlenecks.

**Marcel:** “We conducted a waste audit for Group Nivelles, a bathroom manufacturer that casts shower trays and washbasins, among other things, where we scrutinised every step of the production process. This made it clear that a lot of material was being lost in casting, which led to further automation and optimisation of the casting process. The result: a significant reduction in material loss.”

A lot of sub-optimum waste streams can be traced back to three major causes:

- Waste due to poor process control. Consider quality control, feedback or employee skill and motivation.
- Waste created when changing or starting a process.
- Waste inherent in the process or design of a product, such as cutting a round disc from a square plate.

### Take action

Do you have a good overview of the different waste streams? Then it is a matter of drawing up an adequate action plan. Formulate several future improvement actions for the identified waste streams.

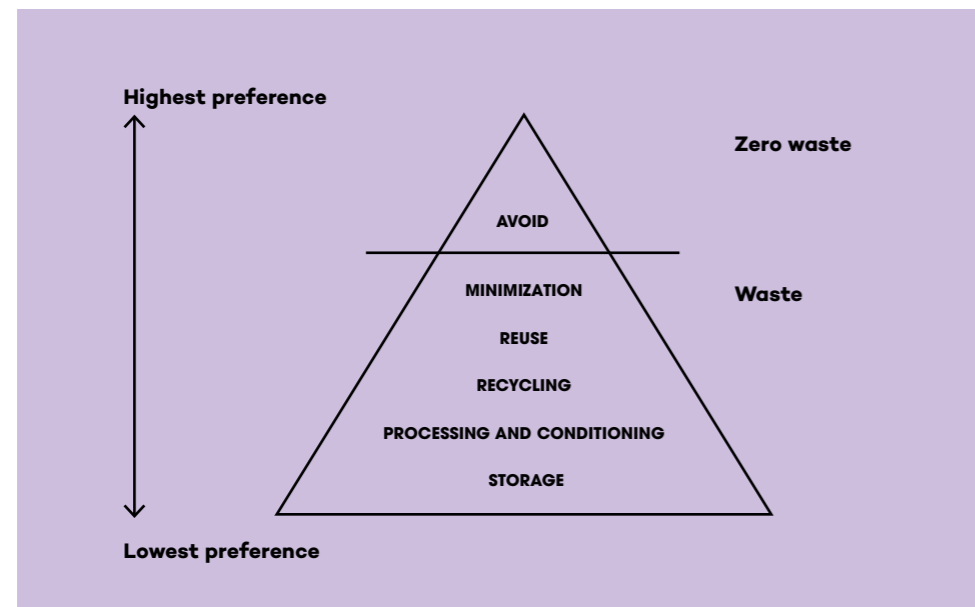


### Tip

Use Lansink's ladder to evaluate your different waste streams. Definitely try to avoid incineration or landfill. For each stream, ask why it is created. See what is needed to treat a stream properly, dispose of it or move it up the ladder.

Within existing processes, you can mainly consider reuse - e.g. by adding back already used raw materials - or minimising use by optimising production processes.

**Jean Pierre:** "Group Nivelles produced a lot of dust when sanding its products. By capturing that dust and incorporating it back into the casting process in certain percentages, it can serve as a substitute for fresh raw material."



### Tip

For the waste streams identified, engage with different waste collectors and processors and see how to dispose of streams more efficiently. Engage local collectors to keep the transport price lower.



### Tip

Partner with other companies in relation to your waste streams. Knowledge institutions can also help or provide more insight into the composition and potential of more complex waste streams.

A new waste policy can always lead to resistance from employees. It is therefore important to motivate them and to raise their awareness. Tell them why you think it is important to handle materials more carefully. Tell them what it will cost, what you will do and how you will monitor it. Engage them and ask what suggestions they have to realise the plan.

### Tip

You can also create change with simple interventions. For example, provide waste bins with a colour for each waste streams.

### Follow on

Once you get there, you can definitely say that you are aware and competent in terms of your waste policy. Even if you continue to produce waste inherent to production processes or methods, you will keep it under control. By monitoring all streams, you and your employees are aware of the situation and can prevent excesses. Ask your employees for regular feedback and publish measurement results in the workplace as well. In this way, you encourage them to join in the effort to create a more sustainable future-proof company.

A good waste policy remains a dynamic process that is supported by all your employees and is evaluated and adjusted at regular intervals. Keep formulating objectives for your most important waste streams and devise improvement plans. This way, your waste policy is not an extra expense but rather a long-term investment that supports the survival of your company. At the same time, it meets the expectations of all stakeholders and our society.

## Chapter 3

# OPTIMIZATION PROJECTS





# Want to get started with your waste management?



**Companies that already had a good understanding of their waste streams and how to tackle them could also turn to From Waste 2 Profit. Not for an audit, but for subsidies for their waste optimisation project. This is really an added bonus as for SMEs as a lack of capacity and (financial) resources can hinder the first steps towards circularity.**

## First steps towards circularity

To support SMEs on their path towards circularity, From Waste 2 Profit awarded subsidies for concrete waste optimisation projects. A subsidy of 50% of the total project cost, which could reach a maximum of EUR 40,000. With success: as many as 44 SMEs (14 Belgian, nine Dutch and 31 German) registered. A total budget of €1,595,437.34. This financial help opened doors for businesses that might otherwise remain closed and had an effect not only on participants, but also on the environment. Moreover, in many cases they were the first steps on a circular journey that is now continuing.

## Various goals and projects

What exactly could such a waste optimisation project entail? The options were diverse, but always involved technology- or management-related solutions.

And every time, the project had one of the following goals:

- 01 Use raw materials more efficiently, produce the same number of products with fewer resources, for example.
- 02 Reduce waste streams by, for example, making new products from residual waste.
- 03 Reduce energy consumption.
- 04 Transform waste streams into new raw materials for the company or other businesses.

## The importance of a strong network

Thanks to the waste optimisation projects, waste management has become an item on the agenda of many SMEs. A step in the right direction! Although it also made it clear that there is still a long way to go. Especially when it comes to promoting innovations, circular start-ups and restructuring in companies with a more linear business model. The cross-border cooperation between the various partners also highlighted the importance of a strong network. From partners to technical advisers ... the more you can surround yourself with the right parties, the better.

# Case Group Nivelles Part II

“ Interview  
Natasja from Group Nivelles

After Group Nivelles commissioned an audit, they followed the recommendations in the report and started a waste optimisation project. Operational Manager Natasja is happy to share the impressive results.

## Waste optimisation project 1: preventive maintenance

“We immediately started working on the recommendations made in the audit report. We knew we could and should take immediate action. So we applied for the From Waste 2 Profit waste optimisation project grant. This resulted in a management system for our solid surface moulds.”

“Creating a framework: a mould provides the design of the product. Your mould determines the size and shape of your basin, shower or panel. Previously, moulds were sent for maintenance at a late stage, causing breakages and damage to both the product and the moulds. As a result, we often had to remake products, our so-called redos. Now we identify each mould with a unique barcode. Once the mould is on the belt to be cast, our machine immediately knows which programme and dimensions are required. Before this, this was done manually which sometimes resulted in a wrong programme being used. Now - depending on the mould - the machine indicates after a number of castings when it needs maintenance.”



^ Natasja De Bruyker

“From Waste 2 Profit was a very accessible project that gave SMEs the opportunity to take everything into their own hands”



Operational Manager Natasja:

“Not only do we save on waste and costs, the quality of our has improved and we can even offer new items.”



## Waste optimisation project 2: casting process optimised

“Besides preventive maintenance, we also optimised the casting process. In the past, the filling robot used to step aside each time between moulds. Because the machine has to run continuously, the filling robot kept pouring. As a result, a lot of solid surface ended up in a bucket next to the belt. And of course, we had to throw it all away. From now on, we skip the bucket step and we’ve optimised the casting machine so that it works directly from mould to mould.”

## Impressive results

“We noticed positive results immediately after the optimisation project. From January to mid-June, for instance, we had 136 redos. Our employees spent as many as 61 hours on this. That works out to an average of 24 products per month that we produced twice. But from mid-June to mid-July, we were down to 4 redos! That is a very sharp drop.”

“The second part of our project also brought savings. About 700 grams of solid surface was normally lost in the bucket after each mould. Every day, we fill about 88 moulds. So, we save a huge amount of material which we can now use to make additional products.”

“We not only save on waste and costs, but also on time. In fact, we can make additional products in the same time as before. We’ll be able to protect our customers from the permanent increase in raw material prices, it also gives us room to develop and offer new products. Working is now also a lot more pleasant for our employees. A lot of frustration has been eliminated, resulting in less stress in the workplace.”

“At Group Nivelles, we’re extremely happy to have participated in the From Waste 2 Profit project. We were mainly concerned with the day-to-day running of the business and didn’t spend much time thinking about how much waste we were producing. Because the project was so accessible, we could take control and follow it up ourselves as an SME. We didn’t need to bring in external party to manage everything or follow up the file. This has really opened our eyes!”

# Completed optimisation projects



## Duffer GmbH

Designs and builds furniture with engineered wood. They developed a system that applies generative design and evolutionary algorithms. They use leftover wood from other processing companies for their furniture, giving it a new life cycle.



## Korr GmbH

Joinery with cloud-based software that optimises patterns and reduces waste by using an intelligent panel saw. This allows the user to obtain different and better cutting patterns.



## ITFT GmbH

ITFT designs and manufactures customised conveyor belts, allowing you to schedule production cycles. Implementing a Product Data Management system ensures quality improvements in finished products and minimises errors at source. At the same time, it reduces waste, CO2 emissions and energy consumption.



## RaumObjekt Hammermeister

A joinery with a new, intelligent panel saw that clearly defines and stores leftover pieces in the storage system. The leftover pieces are automatically integrated into new orders, ensuring that the leftover pieces are recycled within the company as fully as possible. This minimises the number of rejects.



## Mommer Metall- und Kunststofftechnik GmbH

This project recycles nozzles in the injection moulding process. It optimises existing processes and saves waste by introducing an injection moulding machine with a modern operating system and additional peripheral equipment. After separation and shredding, the ground material is fed directly back into the production cycle.



## Pappen Olef

This packaging producer installed new wastewater treatment equipment to optimise the use of wastewater, fresh water and chemicals. It operates automatically, reducing manual handling of hazardous substances. Fewer inputs are needed, reducing intensive processing for disposal.



## DIRKRA Sondermaschinenbau GmbH & Co. KG

Developer and manufacturer of industrial machinery. Dirkra installed a state-of-the-art cooling system, saving them water, energy, grinding concentrate and coolant.



### Gillrath Ziegel- & Klinkerwerk GmbH & Co. KG

This brick producer purchased a new, more efficient large slab saw to save on material and water (from 63 to 10 litres per minute). There are also plans to expand their water treatment plant, further reducing daily water use to 1440 litres (which is now 9600 litres).



### Claßen Innenausbau

A joinery with a new panel saw that performs multiple cutting techniques in one operation. It also combines multiple orders into one collective order, minimising waste and residual surface area. In addition, the software labels the residual pieces so that they are managed correctly.



### Textilreinigung und Wäscherei Offerman

A laundrette that purchased a new dry cleaner through the project. This dry cleaner reuses water - which was used as a coolant - for the laundry extractors. This leads not only to water savings, but also to savings on additives.



### Dohlen Isoliertechnik GmbH & Co. KG

This insulation manufacturer completely rebuilt the metal cutting machine with a more fuel-efficient motor and the latest-generation of control technology. Result: new possibilities in terms of speed, quality and nesting. With further developments in the software, this results in savings of around 10%.



### Schreinerei Dirksen & Voth GmbH

This joinery introduced a software-assisted panel saw to optimise their working methods. Result: individual orders are combined into one large collective order. Some furniture parts that are commonly found in the standard configuration are also produced automatically to minimise waste and remnant areas.



### Rodriguez GmbH

A manufacturer of precision bearings, they switched over to a new ERP system. The new system enables full transparency in production, automates resource planning and eliminates human errors. The information stored in the ERP system is used to optimise the production process and minimise the rejection rate.



### Cylib

Offers an end-to-end process to convert used battery materials into marketable commodities.



### Kerz GmbH

A joinery with a new, intelligent panel saw that optimises cutting patterns and the management of residual material. This leads to savings on electricity and material. Waste management is automated and individual orders can be combined.



### Lauscher KG Die Schreinerei

This joinery improved their old production process by installing a new panel saw with an extensive software package. As a result, individual orders are combined into one large collective order. Certain furniture parts, which are often standard, are also produced automatically to minimise waste and remnant areas.



### Schreinerei Hellenthal

The major advantage of this joinery's the new belt edge machine is that crack-free and splinter-free cut surfaces are produced directly, instead of in two steps. This results in material savings.



### Becker & Team Elektrotechnik

An electrical engineering firm digitising work processes to create more transparency in the company, enabling accurate stock recording and easy access to information via tablets. This eliminates the need for paper orders and enables real-time stock monitoring.



### Schreinerei Daniel Lipp

A joinery that optimised their processes with a software-assisted panel saw. This provides a significant benefit by bundling several individual orders into one large combined order. It maximises a panel's use of material and minimises waste. The system schedules and combines cutting orders, ensuring efficient and continuous production.



### Servicepark René Stegeman

A carwash garage that reduces its water atomisation and consumption during the cleaning process, thanks to new nozzles with unique geometry and lower flow rate. In addition, an osmosis plant was implemented that improves water quality and reduces cleaning agents.



### VACiS

Innovative start-up producing a medical application to reproduce arteries in the human body. By eliminating the use of tri-chlorinated solvent during the manufacturing process, they not only save lives but also take care of the planet.



### Afvalwatertechniek NB milieu BV

Afvalwatertechniek NB milieu is committed to the sustainable conservation of water as a resource. They offer a wide range of water treatment and recycling systems. During their project, they developed a new system to purify the contaminated water released when washing plastic waste and then recover it back into the washing process. This reduces the use of fresh water by 70% during the washing process.



### Co-med holding

A general practitioner organization that shifted from disposable materials and equipment to sustainability and waste reduction through the use of sterilization and reusable tools



### EGGXPERT bv

Develops and produces raw materials for 3D printing based on eggshells as a sustainable alternative to primary plastic printing materials.





### Stiphout Plastics

Stiphout Plastics recycles plastics. After recycling, a residual fraction containing a mix of materials remains in addition to the usable recycled. By purchasing a press, that residual fraction can be dry-pressed, allowing that residual fraction to be further recycled. This is done in another company, Tusti.

Watch in this video how Stiphout Plastics and Tusti collaborate to reduce waste.



### Tusti

Developed a technique to remove metal particles from the dried residual fraction of Stiphout Plastics. This allows the plastic to be further recycled and reused in new products.



### Quinlyte Material Technology

Developer of films and technical fibres. Launched SmartAgain®: a specially developed circular alloy that combines the best properties of various fabrics to make it suitable for industrial use and 3D printers.



### TWC Bos

TWC Bos developed a fully 100% compostable drinking bottle. This is to ensure that the places where many plastic bottles end up in nature can be replaced by this eco-friendlier alternative. More than that, the bottle even contains nutrients for soil and sea!



### Tenco DDM

Tenco DDM prints parts in 3D and used to clean them with an aggressive agent. In the revamped process, these substances have been replaced by an eco-friendly variant with a cleaning capacity 6-8 times higher than before.

### TSC BV

Takes care of high grass verges and makes high-quality fibres with insulating properties from roadside clippings, which can be used in building materials.



### BV Reacct

Recovers as many still usable cells from bicycle batteries as possible and reuses them as rechargeable batteries in road signs.



### The One Project

Print 3D products. The purchase of a shredding plant will allow them to grind products for reuse in their 3D printing process.



### Group Nivelles

Bathroom manufacturer. The moulds used during the production process are now monitored through a management system and sent for timely maintenance. In addition, the filling machine is better adjusted and there is no longer any loss of material between filling two moulds.



### HDM

Developer, manufacturer and wholesaler of floor, wall and ceiling panels. HDM developed a sustainable circular panel for indoor and outdoor use. They set up a test lab to optimise the amount of recycled material in the panel.



### HR Coating BV

Installed an automated coating plant that collects and purifies excess powder. This makes it a lot more energy-efficient. The powder is reused in the coating process.



### HR Vliegengeramen en deuren BV

A fly window and door manufacturer that developed a customised automated sawing line that minimises aluminium cutting losses in the production process.

## N-tropie

### N-Tropie bv

A producer of soil substrates that reduces CO<sub>2</sub> and brick waste by crushing and screening brick rubble. This is used as an eco-friendly alternative to lava rock.



### RDL

A supplier of bentonite-containing water used in horizontal underground drilling. The company processes the wastewater so that it can be reused in the drilling process, in agriculture or to clean the yard.



### Zweko Optics

A company that applies coatings to plastics and reduces waste with an industrial air conditioning system in its entire coating line. In the coating process, ambient temperature and humidity have a major influence. By installing an industrial climate chamber, these parameters are kept stable which reduces the number of rejected boards and therefore reduces waste.



### Out of Use

A one-stop shop for electronic waste. They extend service life, destroy or recycle devices. They also collect used solar panels. In this project, they set up a testing facility to test the quality of used solar panels. Reusable panels are certified and reintroduced to the market.



^ Sara Gilissen



^ Tom Janssen

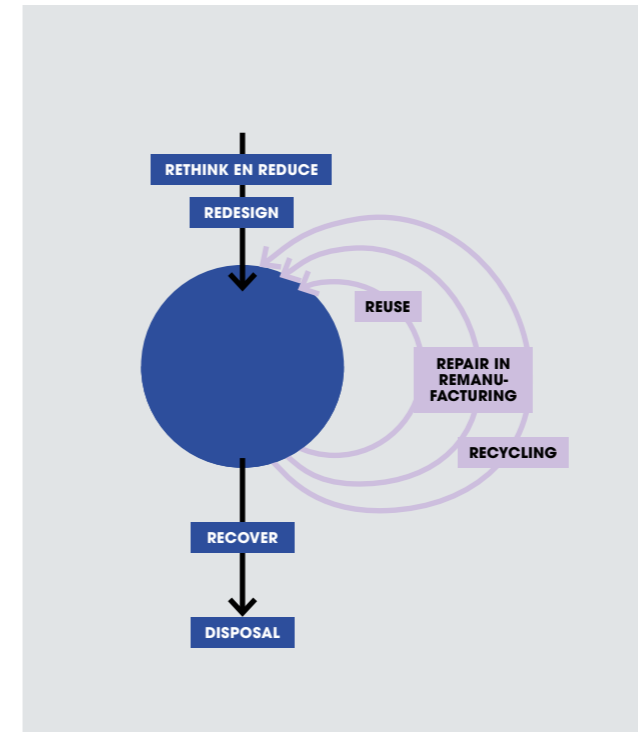
# You don't have to set out on the road to circularity on your own

## How knowledge institutions and partners can speed up your sustainability journey

**Optimisations come in many shapes and sizes, and aren't limited to buying a machine that reduces your waste or water wastage. A big win lies in a multidisciplinary approach involving optimisation at every stage of a product process: from product design to waste reduction and valorisation. Knowledge institution UCLL explains.**

When we talk about a circular economy, recycling is perhaps the most well-known, but in fact only one of the possibilities. Experts talk about several R strategies that aim to preserve the value of products and raw materials for as long as possible: Rethink & Reduce, Redesign, Reuse, Repair & Remanufacturing, Recycling and Recover.

But as a business, how do you get started? Many companies benefit from being supported by experts, such as the centres of expertise we established within UCLL.



### Centres of expertise Sustainable Resources & Smart Organisations

Researchers at the Sustainable Technology (Sustainable Resources) expertise centre specialise in the valorisation of waste and by-product streams through hands-on research. They collaborate with companies through research projects, services and after-school programs.

Another UCLL centre of expertise, Smart Organisations, supports companies on sustainability reporting, circular business models, impact measurement and sustainable transitions in the company. Together, the centres form a strong tandem for companies looking to commit to sustainability and a circular economy.

Our goal? To make companies aware of opportunities, to spur them to action and then work together to find solutions that fit their needs. Because every company, big or small, can make an impact by being aware of its waste management and implementing R strategies. And we're keen to support them on this journey.

**“Everyone knows that waste reduction and valorisation are important. But the agenda is always full of more urgent matters. With Wonderful.stream, we show what actions companies can already take now to make this often abstract problem urgent and concrete. And so effectively achieve something.”**



### Multi-disciplinary approach at Wanderful.stream

A great project in this context is the Interreg project Wanderful.stream, in which UCLL was involved as the project leader. The project supports and inspires SMEs in the Meuse-Rhine region to valorise their waste and by-product streams. Researchers and experts engage with companies in the project in bootcamps, master classes, innovation tracks and networking moments. Multidisciplinary approach comes up trumps!

The strength of that multidisciplinary approach at Wanderful.stream lies in the experts who, with their expertise in both design, technology, and business, get to work on companies' issues. They often bring a new perspective into a company, helping SMEs to better understand complex issues around sustainability and circularity.

Collaborating with a knowledge institution such as a college or university can be of great value here.

SMEs often don't have the time and expertise in-house to work on sustainability and circularity. Collaboration helps to free up time, step up the pace and move the challenges around circularity higher up the agenda.

For the valorisation of residual waste streams, for example, we look at the value of the waste. Could it be upgraded internally or externally? Where necessary, we can bring the right partners together and help ensure that waste can be used as a secondary raw material in another company or for another product.

We help look for short-, medium- and long-term optimisations to achieve broader and more innovative solutions. By looking at and designing processes, materials and products differently, we can work to prevent and reduce residual waste streams.

Moral of the story: putting heads together, sharing expertise, encouraging each other and working together to develop concrete and inventive tailor-made solutions is the way to go towards a circular economy.

### Waste prevention and valorisation at Vanhove timber yard

Limburg timber merchant Vanhove supplies wooden formwork used in the production of precast concrete walls. The company has an annual residual waste stream of some 6,000m<sup>3</sup> of construction timber which they find difficult to reuse due to the residues of concrete, staples and nails present. Through Wanderful.stream, they explored how to valorise this residual waste stream, which they are now doing by cleaning the wood and reusing it for patio chairs, among other things. On the other hand, they developed an upstream solution to avoid residual waste streams by creating a new snap-off wooden profile, without staples, for the formwork. A solution potentially relevant to the entire concrete industry.

Vanhove is currently looking at whether they will commercialise this profile themselves or enter into a partnership. The aim is to bring their customers - and by extension the rest of the industry - into their circular story.

## Chapter 4

# CONCLUSION

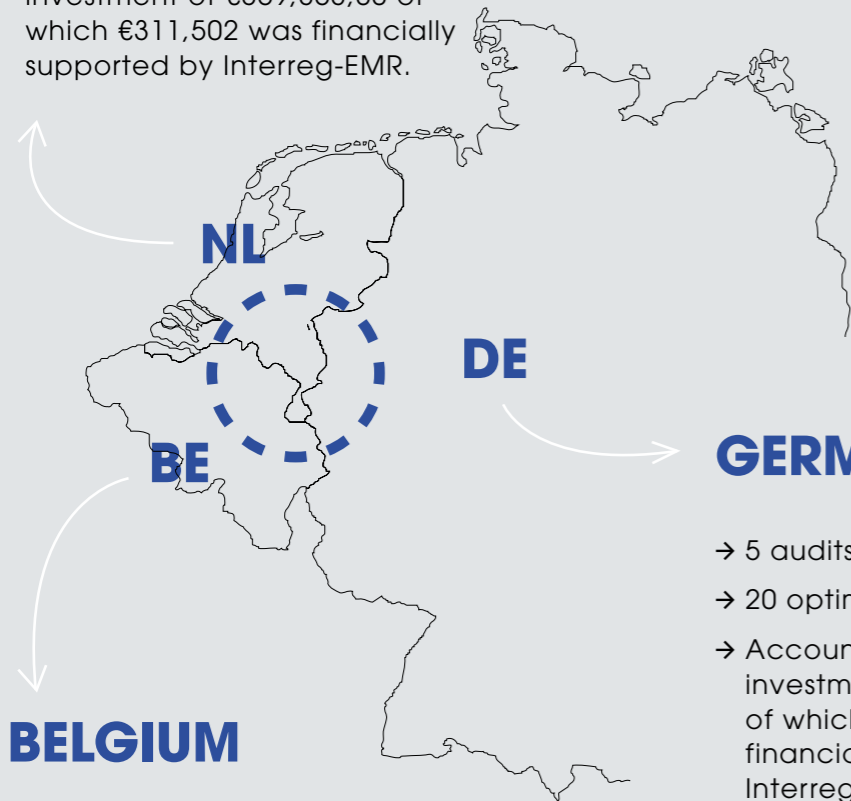


From Waste 2 Profit ran from **01/07/2023**  
to **31/12/2023**.



## NETHERLANDS

- 1 audit
- 8 optimisation projects
- Accounting for a total investment of €869,363,00 of which €311,502 was financially supported by Interreg-EMR.



## BELGIUM

- 8 audits
- 12 optimisation projects
- Accounting for a total investment of €1,951,587.31 of which €445,227.87 was financially supported by Interreg-EMR.

## GERMANY

- 5 audits
- 20 optimisation projects
- Accounting for a total investment of €2,048,644.50 of which €692,714 was financially supported by Interreg-EMR.

**40**

optimisation projects,  
accounting for a  
total investment of  
**€ 4.869.594,81**  
in the EMR region, of which  
**€ 1.449.443,87**  
was financially supported  
by Interreg-EMR

**14**

completed audits resulted  
in 42 specific measures for  
improving waste management

Accounted for an  
estimated annual reduction  
of on average



**7.348.107,5**  
kg of waste



**224.047**  
kWh of energy



**8.669.627,33**  
kg CO<sub>2</sub>



**183.684**  
m<sup>3</sup> of water

**73 people**  
participated in the  
frontrunner journeys

**76 synergies**  
with other organisations  
and partners

- 38 cases redirected to specialised parties for further knowledge building
- 38 cases redirected to alternative methods of financing

**Participating  
companies**  
came mainly from these sectors:  
wood, recycling and technology

# “Generating profit from waste is and will remain the future”

**16 tonnes per person. That is the amount of raw materials used in Europe every year. Ten tonnes of that goes into structural items such as infrastructure, housing and durable goods. Six tonnes leave the economy as waste. With the Interreg project From Waste 2 Profit, we wanted to change this and engage with companies to help them reduce waste and use precious raw materials sparingly. As From Waste 2 Profit comes to an end, what do we remember, and what do we hope companies will take away? An overview**

## **To measure is to know**

Everything starts with good preparation. Map out your waste streams, only then can you concretely see which areas you can improve and where the biggest savings potential lies.

The From Waste 2 Profit project showed that a lot of companies had no knowledge of their waste streams. Alternatively, they thought they knew their waste streams but ultimately that turned out not to be the case. These new insights were an important breeding ground to take concrete actions.

## **Make your project concrete**

Everything mapped out? Then draw up concrete improvement projects. When doing so, don't take on too much right away but work with smaller, concrete milestones. This way, you won't run into a mountain of work, but keep the path easier for yourself and everyone in your company.

A key factor here for success: involve your employees in your processes. They often have a good understanding of the operational side of your business and can give you relevant insights. By involving them, you also create a greater willingness to adjust afterwards.

“Think about the beginning of your production process too. The earlier you intervene in the product chain, the more impact you have.”

## **Collaborate with all links in your product chain**

Everyone has their own expertise. You can't be an expert in everything yourself, and fortunately you don't need to be. Work together both internally and externally to achieve your goals and, where necessary, get support from experts such as consultants or knowledge institutions.

Do you have waste streams that you can't use yourself as a company? See if you might be able to exchange them with other companies.

## **View products not just at end-of-pipe**

Reducing waste does not only happen at the end of your production process, quite the contrary. Think about the beginning of your production process too. The earlier you intervene in the product chain, the more impact you have. Did you know that 80% of the environmental impact

of a product is determined during the design process? Eco-design is the future here.

## **Optimising waste streams = winning on all fronts**

Those who are more conscious of their waste will be able to reduce their costs, by having to process less waste. They will potentially increase its revenue, by converting a waste stream into something valuable such as a by-product or new raw material. They will save on waste management with external partners. They will also work to improve their environmental performance, which will only become more important in today's market and future legislation.

## **Stay tuned for more**

Our story doesn't quite end here. Our matchmaking platform, on which companies can exchange waste, will remain for quite some time.

In addition, we're still brimming with ideas and concepts for future projects with the same goal: reducing waste. To be continued!

**Go to our matchmaking platform:**



# “Ecodesign is not limited to the choice of supposedly ecological materials”

**Goodbye linear, hello circular? Numerous experts are convinced: to reduce the pressure on our available resources and the degradation of our environment, we need more than ever to make the switch from a linear to a circular economy. One of the ways to do so is to integrate eco-design principles into the design process. Experts Karine Van Doorselaer and Saija Malila explain.**

“Our world is under increasing pressure, amongst other causes from resource depletion and the degradation of our ecosystem. We have to respond to this.”

**Saija:** “Ecodesign refers to innovative design solutions that consider the full life cycle of a product or service: from raw material extraction, production, distribution and use to its recycling, reparability or disposal as waste. In doing so, minimising pollutants during the production period is as important as optimising a product’s lifespan.”

**Saija:** “ Our world is under increasing pressure, amongst other causes from resource depletion and the degradation of our ecosystem. We have to respond to this. With increasing demand for climate-neutral and circular innovations from governments and legislation, the pressure on companies and our society as a whole is increasing. Think, for instance, of the European Green Deal that almost obliges companies to include the principles of a circular economy in their business operations.”

**Karine:** “For instance, the European Commission has also created the ‘Corporate Sustainability Reporting Directive (CSRD)’. It is a new directive that aims, among other things, to ensure that the financial world moves further towards sustainable investments. By already working on this as a company, you are making a head start on your competition. Banks, investors, ... are going to give more and more weight to sustainability when they assess investment projects.”

## Enter ecodesign

**Karine:** “In the transition to a circular economy, there is an important role for the product designer. The principles of the

circular economy are supported by the various eco-design rules of thumb, such as ‘Design for reuse’, ‘Design for repair’.”

“Using ecodesign rules of thumb, the design team can define viable short- and long-term opportunities to increase the value of products and reduce environmental impact for each stage of the life cycle. For example, ‘design for disassembly’ rules of thumb are considered to support various principles of the circular economy.”

“In doing so, the designer also considers the possibilities of various technological evolutions (e.g. digitalisation) and provides support for the development of new business models such as ‘Product as a service’.”

“The designer also always strives to find a compromise between the environmental impact of a product on the one hand and all the other requirements of a product on the other. Think technical, user-friendly and economic requirements. Ecodesign is a co-pilot in the design process.”

“I’ve been teaching ecodesign since 1995, encouraging companies to integrate the ecological aspects of products into the design process. Now, 30 years later, that I notice a huge interest from the corporate world. The challenges facing our society are raising awareness that things need to change in industry. European regulations and increasing concerns from consumers are incentives to incorporate sustainability & circularity as drivers.”

“Where a switch to ecodesign requires effort, it is good for companies to realise that implementing the ecodesign rules of thumb also brings economic gains, e.g. through efficient use of materials, reduction/valorisation of industrial waste.”





### Who is Karine Van Doorselaer?

Karine Van Doorselaer teaches materials science and ecodesign in the Product Development programme at the University of Antwerp. She is also author of the book Ecodesign.



### Who is Saija Malila?

Saija Malila is project manager at Design Forum Finland, a non-profit organisation that supports Finnish SMEs in growth, internationalisation and competitiveness. Currently, they focus mainly on sustainable and circular design.

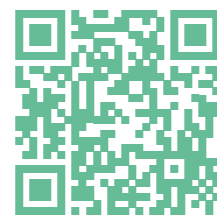
## EcoDesign Circle

**Saija:** "Since 2016, an international team of design centres, governments, research institutions and designers have been working together within the Interreg Baltic Sea Region project called EcoDesign Circle. The aim is to strengthen awareness around and practical approaches to ecodesign and circular economy throughout the Baltic Sea Region. In the first three years, partners from Germany, Estonia, Finland, Lithuania, Poland and Sweden organised exhibitions and workshops, offered consultancy and education programmes and set up networks."

"During that period, we engaged 26 selected companies from Estonia, Finland, Lithuania and Sweden to test out the newly developed business development tools namely, EcoDesign Audit and EcoDesign Sprint. Between 2019 and 2021, eight partners (including a new partner from Russia) further adapted and promoted the tools and workshop formats used in the first phase."

"One of the main learnings from all the sessions and training sessions that were held was that there is a great need to exchange real-life experiences and discuss work with each other. The EcoDesign Sprint training programme showed that the concepts developed were not necessarily always the most important outcome, but rather the fact that people with different functions in a company started working together towards a common goal."

All tools and approaches developed are available online. Scan the QR code to download them:



## 8 eco-design tips for businesses

- 01. Evaluate your current products based on existing ecodesign checklists.** Do not focus only on your carbon footprint or on the results of (expensive) LCA studies. The results are very rough estimates and do not consider technological evolutions and circular opportunities.
- 02. Don't just look at the waste mountain at the end of your production process, but factor in the full life cycle of the product.** Indeed, a large part of a product's environmental impact is determined during the design phase. In-depth consideration of lifecycle systems thinking.
- 03. For your own product range, see how you can integrate circular business models** such as 'Product as a service'.
- 04. Keep a finger on the pulse about digital opportunities and evolutions,** such as the introduction of product passports.
- 05. Chain cooperation is essential.** Ecodesign considers all steps of the life cycle. The designer will gain the necessary knowledge by collaborating with stakeholders along the entire value chain.
- 06. Beware of creating perceptions and greenwashing.** Cardboard as a substitute material for single-use plastics is not always good-news.
- 07. Material and energy efficiency** are often relatively easy to tackle and can let you save significantly. It can be a rewarding starting point.
- 08. Start with a pilot project** to gather initial experiences. Based on this, build routines and work towards more strategic actions.

## Our contact details

### Voka Chamber of Commerce Limburg

Gouverneur Roppesingel 51, 3500 Hasselt, Belgium  
+32 11 56 02 00 - info.kvklimburg@voka.be

### POM Limburg (Provincial Development Company Limburg)

Corda Campus, gebouw 6B, Kempische Steenweg 303 bus 101, 3500 Hasselt, Belgium  
+32 11 30 01 00 - info@pomlimburg.be

### NV LIOF

Wim Duisenbergplantsoen 27, 6221 SE Maastricht, Netherlands  
+31 43 328 0280 - info@liof.nl

### Effizienz-Agentur NRW

Dr.-Hammacher-Strasse 49, 47119 Duisburg, Germany  
+49 203 3787930 - efa@efanrw.de

### Zentrum für Innovation und Technik in NRW

Bismarckstraße 28, 45470 Mülheim an der Ruhr, Germany  
+49 208 30004-0 - info@zenit.de



In collaboration with



With the support of



provincie limburg



Ministerie van Economische Zaken en Klimaat

Associated partners



The INTERREG VA program for the Meuse-Rhine Euregio (EMR) is part of the European Cohesion Policy and financed by the European Regional Development Fund (ERDF). The total budget for the W2P project is €5.17 million, of which €2.6 million comes from the INTERREG programme. The Province of Limburg (BE) and the Flemish government supported this project by co-financing VOKA and POM Limburg (for a total amount of 394,000 euros). The Province of Limburg (NL) and the Dutch Ministry of Economic Affairs also support this project through their co-financing.



**Interreg**  
Euregio Maas-Rijn  
Europees Fonds voor Regionale Ontwikkeling

