

For more resource efficiency in North Rhine-Westphalia



CIRCULAR ECONOMY

*Interview EFA Managing Director Dr Peter Jahns in conversation – **Circular Economy**: What opportunities are there for manufacturing companies? – **Workshop series CIRCO** Added value through circular design – **The European Green Deal** Requirements and opportunities*

EFFIZIENZ-AGENTUR NRW CONSERVING RESOURCES. STRENGTHENING THE ECONOMY.

Who is the Effizienz-Agentur NRW (EFA)?

The agency was founded over 20 years ago on the initiative of the NRW Ministry of the Environment and works on its behalf to give industry and the skilled trades in North Rhine-Westphalia impetus for resource-efficient management and to support them in its implementation.

With its resource efficiency consulting services, the agency supports manufacturing companies in NRW in making their products and processes even more efficient and thereby reducing costs and environmental pollution. The consulting projects are carried out by freely selectable external consultants with the EFA coaching the consulting process. Once the relevant requirements have been met, 50 percent of the

external consulting costs are subsidised by the state of North Rhine-Westphalia. The EFA's services are free of charge for the company.

In addition, the EFA's financing consulting service offers companies support in financing necessary research and development projects or investments and assists in the implementation of measures. The EFA's financing experts provide advice on federal and state funding programmes and support you in selecting the right programme.

On average, the Effizienz-Agentur NRW carries out 250 resource efficiency and financing consulting projects per year.

The main goal is to realise identified potential. Just how successful this can

be is illustrated by the many best-practice examples – from plant construction to laundries – which interested parties can find in the EFA online database at www.ressourceneffizienz.de.

The EFA provides information on current developments in the field at some 200 events, training courses and workshops every year. It also initiates and supports a number of consultant networks.

It also supports companies, universities, research institutions and associations in cooperative joint projects to tackle new topics and challenges.

A staff of over 30 in Duisburg and eight regional offices work to ensure that companies in NRW benefit from the advantages of resource-efficient management.

Legal disclaimer

Published by

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Oktober Kommunikationsdesign GmbH
Willy-Brandt-Platz 5–7 | 44787 Bochum
www.oktober.de



Commissioned by the

Ministry of the Environment,
Nature and Transport
of the State of North Rhine-Westphalia



Rohstoffe
Transporte
Produktion

g CO₂e
68
Pro Produkt



Printed on RecyStar Polar,
100 % recycled paper,
awarded with the Blue Angel.

CIRCULAR ECONOMY

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INTERVIEW WITH DR PETER JAHNS

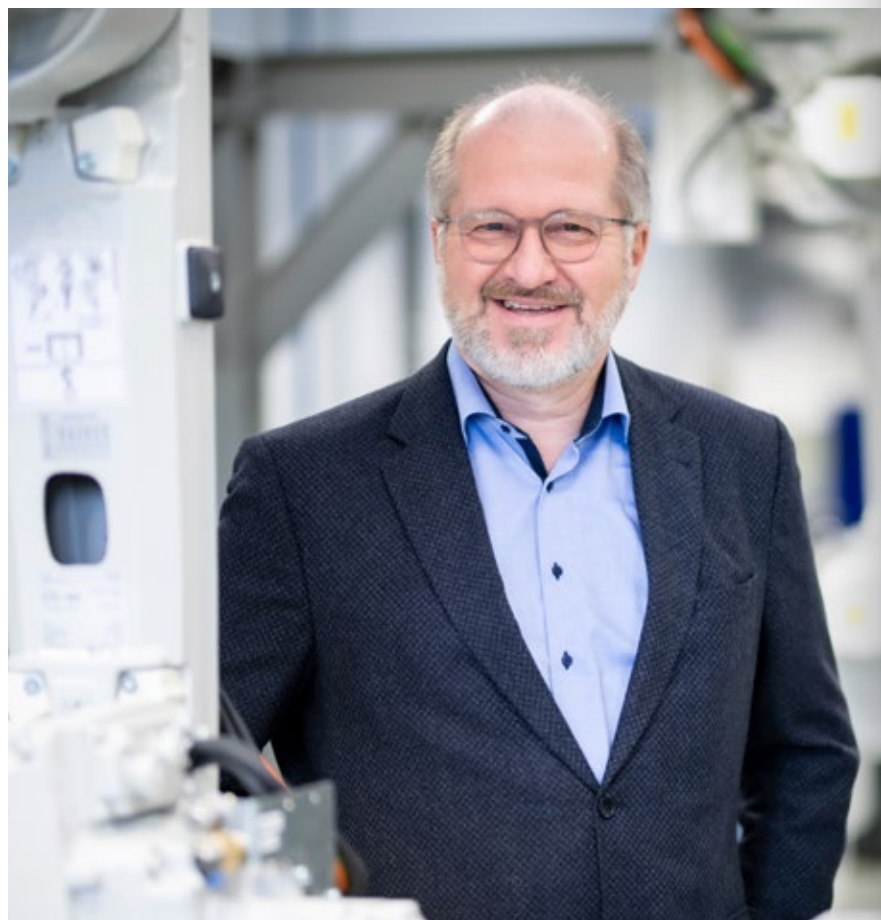
The EFAplus editorial team spoke with EFA Managing Director Dr Peter Jahns about challenges, framework conditions and opportunities on the way to a circular economy (CE): What is the view of politics? How can we create the conditions for this transformation? How can companies be supported and what risks and opportunities lie in this approach?

At the end of 2020, the EU Commission adopted the “European Green Deal”, which aims to make Europe the first climate-neutral continent in 2050. 50 percent of the targeted CO₂ savings are to be achieved by transforming our linear economy into a circular economy. Is this goal realistic?

The target is ambitious – even more so for Germany with its goal of climate neutrality by 2045. Yet with the concerted efforts of all stakeholders, it can be achieved. The Green Deal was formulated in close consultation with all participating EU states, and all of them now feel a sense of responsibility in this area. This also applies to geopolitical changes, which pose another challenge, but can be solved with the same approaches. Climate neutrality, i.e. moving away from global carbon management towards regional cycles of economic goods and renewable energies, is a central building block for sustainable living and economic activity. The challenges are clear: from climate change to the loss of biodiversity and resource scarcity. Countermeasures must be taken. The circular economy is a decisive approach: by closing value chains while protecting the environment, by reusing technical raw materials again and again, by shaping our consumption patterns in a sustainable way and thus creating new markets for circular approaches – this is how we will shape the future.

Is the circular economy a manageable approach for manufacturing companies?

Our current economic model is very linear: break things down, make something new, use it, throw it away: this is still the standard for the most part – cheap and easy. The recycling economy developed since the 1980s has undeniably improved many things, yet it merely collects our waste and feeds it back into production wherever possible – an approach that could be further



strengthened by resource efficiency. However, a true recycling economy in the sense of a circular economy means more: it starts with the product, which is designed in such a way that it lends itself to several of the eleven “R-strategies” of the circular economy. Ideally, products should be durable, reusable, repair-friendly and easily and completely recyclable at the end of their life cycle. Yet it’s not just a question of recycling the used products or waste, but also of which products or services can satisfy consumer needs in a resource-efficient way? Ultimately, this will also result in new business models that are more gentle on the climate and the environment than the concepts we have been familiar with up to now.

*EFA Managing Director
Dr Peter Jahns*

Photo: Effizienz-Agentur NRW

What importance does environmental policy have for CE?

Our economy and our way of life and consumption must become more resource-efficient. If we as a society position ourselves sustainably with our national economy, we will shape the future and future markets – for this, the circular economy offers an approach and framework. This idea is also gaining more and more followers in NRW: countless Stakeholders from science, business, municipalities and civil society are joining in. The NRW Ministry for the Environment is supporting company participation with practical consulting services provided by the EFA, for example. It is also promoting a wide range of networking activities and research projects and is designing fund-

ing programmes for all stakeholders in the market to facilitate the transition to a circular economy. However, an environmental orientation can only be achieved by market means if ecological products and sustainable consumption can be made competitive both in the manufacturing industry and for us as customers. Resource conservation alone will not be rewarded in this system. The alternative would be for us as a society to agree to accept an increased financial burden now, with a view to preserving the natural world for future generations within the narrow window of time remaining to curb climate change. We can see from the successes achieved thus far in our projects with companies that much of this transformation can be achieved through resource efficiency approaches in production and products. What we need to do now is take the further steps towards a circular economy and close the material cycles. The Effizienz-Agentur NRW shows companies how to participate in the circular economy. But to get it up and running in our society, we need the participation of everyone involved.

“The circular economy is a strategic umbrella – a kind of social contract: How should we consume so that we can live up to our responsibility to future generations to create a liveable environment?”



DID YOU KNOW?



1,100,000,000,000
TONNES

is the weight of all living things on earth. In 2020, this amount was exceeded for the first time by everything that humans have artificially created, such as buildings, machines or packaging.

Source: Global human-made mass exceeds all living biomass, Nature 588, 2020.

92 **GIGATONNES**

are added to this man-made mass every year.

Source: Circular Material Use Rate, Eurostat, 2021

44 **KILOGRAMS**

of raw materials are consumed by every German per day.

Source: Die Nutzung natürlicher Ressourcen, Bericht für Deutschland 2016, UBA

91.4 **PER CENT**

of the resources added to the global economy are lost forever.

Source: The Circularity Gap Report 2020

12.3

PER CENT

This is the proportion of raw materials that could be designated as circular in Germany in 2019 (circular material use rate).

Source: Circular Material Use Rate, Eurostat, 2021

30

PER CENT

This is the proportion of raw materials that our neighbouring country, the Netherlands, was already recycling in 2019.

Source: Circular Material Use Rate, Eurostat, 2021

22.4

PER CENT

of greenhouse gas emissions in NRW are generated by industry.

Source: Treibhausgas-Emissionsinventar Nordrhein-Westfalen 2019/2020, LANUV

39

PER CENT

of greenhouse gas emissions can be saved through a circular economy.

Source: The Circularity Gap Report 2021

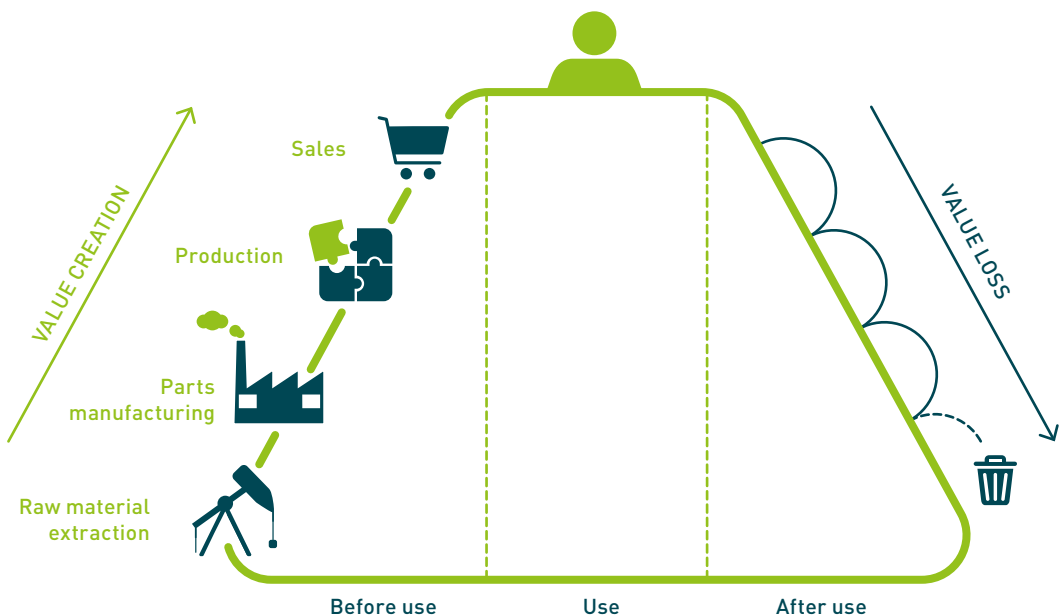
CE – WHAT OPPORTUNITIES ARE THERE FOR MANUFACTURING COMPANIES?

What is a circular economy? What advantages does the approach offer SMEs? What solutions does it bring in times of scarce resources and increased awareness of sustainability and a recycling economy? The most important data, facts and arguments on a topic with great potential for a sustainable future.

Manufacturing companies have developed sophisticated methods to design, produce, sell and use goods. In the process, added value is gradually built up with each step from the extraction of raw materials to production and use. However, after a user or consumer has used the product, this added value is quickly destroyed. Pro-

duction, use, disposal – this is the path that most consumer goods travel in our society, and at a rapid pace. Disposal has been refined in recent decades through an ambitious separation of product groups, but this has not been able to solve the basic problem: there are still too few residual materials being processed into new products.

The “Value Hill” in a linear economic model: after production – where the value of a product is built up – and use, the value of the product is rapidly lost.



“When a product is ready to start its downhill journey, it is done as slowly as possible so that its useful resources can still be of service to other systems as illustrated in the Value Hill below.”

Source: Whitepaper “Master Circular Business with the Value Hill”

*The situation:
quantity over quality ...*

We are far from a true cycle in the sense of recycling valuable raw materials. Many products are made of a variety of materials. Separation of components is costly, and raw material prices do not reflect the true value – the expense of separation is simply not worth it. Some product areas are so fast-moving that they are named for it: fast fashion, for example. Over the past 20 years, the number of items of clothing bought per person in Germany has doubled. The time of use is getting shorter and shorter, the quality of the goods has been sacrificed to the fast pace of life. According to the Deutsche Kleiderstiftung (German Clothing Foundation), around 82 per cent of discarded garments end up in the incinerator after a short period of use: a tremendous waste of resources. The cost of producing and disposing of these and other everyday goods is high. The costs for society, the environment and nature are even higher.

... and wastage over recycling.

This is also true for many other products. Globally, only about 9 per cent of all consumer goods are currently reused. Around 91 per cent of all resources produced to make goods are lost forever. Durable goods are used like disposable goods. After a short period of use, they are discarded forever – a gigantic destruction of finite resources. It doesn't have to be this way. Take the Netherlands, for example, where 30 per cent of the resources used are already being recycled. Germany,

on the other hand, with a rate of 12.3 per cent, is far behind its possibilities and only just above the global average.

There are many unused opportunities that we can seize and a number of practical approaches to becoming active. We can learn from the experiences of neighbouring countries, set positive courses and drive major developments. Demand, interest, insight and openness to the issue have increased over the past several years. So has the need to take action.

The concept of circular economy

The circular economy is an economic concept: the goal is for various stakeholders to recycle products, components and materials with the aim of decoupling economic growth from resource consumption. The term was coined by the Ellen MacArthur Foundation, which distinguishes between resource flows in the biosphere and technosphere. This means that the consumer products circulating in the biosphere are produced from renewable raw materials that do not cause any environmental damage when introduced into the environment. In the technosphere, consumer products are obtained from synthetic or mineral substances that are kept in a closed cycle. In reality, however, we can only separate these two resource cycles to a limited extent. The decisive point is to maintain the value of these resources

for as long as possible, as the “Value Hill” diagram below illustrates. At the end of the use phase, the value of raw materials must be preserved as long as possible through reuse and recycling.

Three developments are necessary for closed-loop recycling: narrow, slow, close.

These can be applied to the well-known R-strategies, which identify approaches to resource efficiency and closed-loop recycling.



NARROW
use less material and energy

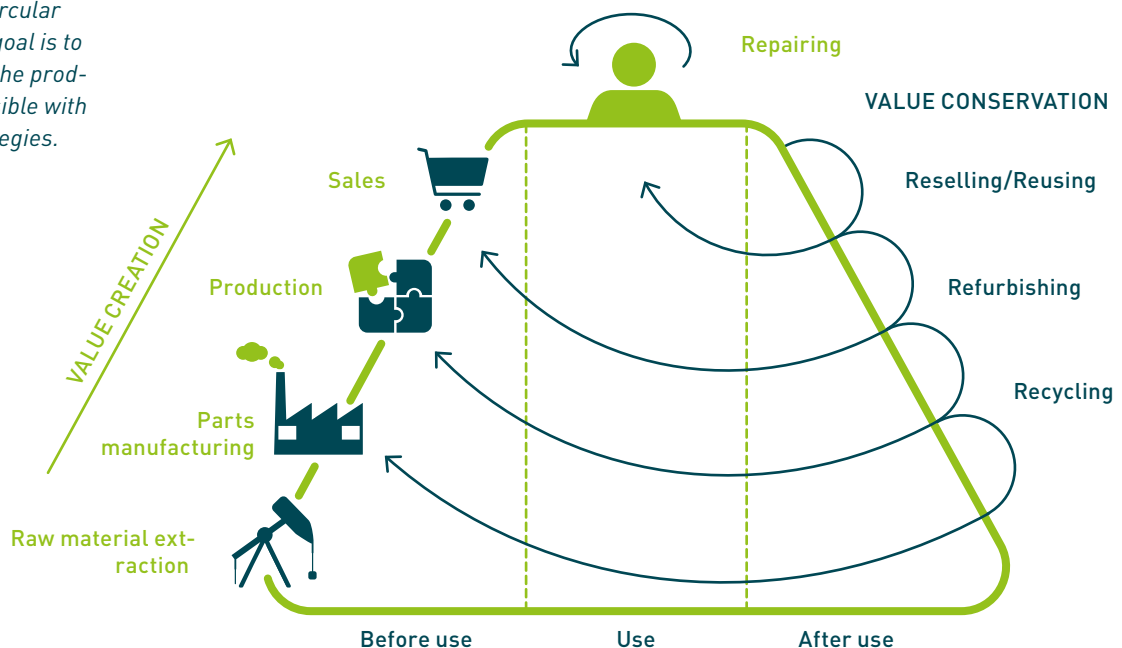


SLOW
use products and components longer



CLOSE
reuse material

The “Value Hill” in a circular economic model: the goal is to maintain the value of the product for as long as possible with the help of the R-strategies.



The following diagram illustrates the concept of “close”, “slow” and “narrow” on the basis of the “11R-strategies”

		R-STRATEGIES	DESCRIPTION
NARROW	Save products/materials	R0 – Refuse	Make products/materials redundant
		R1 – Rethink	Intensify product use, e.g. through sharing offers
		R2 – Reduce	Reduce material use (e.g. minimise resource use, material efficiency in production)
SLOW	Increase the service life of products/components	R3 – Resell/Reuse	Product can be reused by a new user. The product fulfils the same use as before.
		R4 – Repair	Repair defective products to restore the same use
		R5 – Refurbish	Repair an old product by minor repairs, cleaning, updates (e.g. aeroplanes, trains, retrofitting). The product is not disassembled into its individual parts.
		R6 – Remanufacture	Insert parts from an old product into a new product with the same function. The product is disassembled into its individual parts and reassembled. It is “like new”.
		R7 – Repurpose	Insert parts from an old product into a new product with a different function
CLOSE	Reuse materials	R8 – Recycle Materials	Recycle materials of equal or inferior quality
		R9 – Recover (Energy)	Recycle materials thermally
		R10 – Remine	Recover materials/ resources from landfill

What distinguishes a circular economy from a recycling economy?

The breakdown of the three measures “Narrow”, “Slow” and “Close” makes it clear that the term “circular economy” (coined by the EU) differs significantly from the current concept of a waste-oriented “recycling economy” used in Germany: whereas the classic recycling economy essentially focuses on waste processing, material and thermal recovery and recycling (“close”) – thus pursuing the question: “What do we do with our waste?” -, resource conservation (in the dimensions of the “narrow” and “slow”) is the core element of a circular economy and precedes waste recycling. – The underlying question here is: “How do we avoid waste?”

How can companies get involved in the topic of the circular economy?

As part of a value chain, companies can set the course for a circular economy. This is also being called for more and more – by customers, politicians and consumers. The first step is resource efficiency. Material and energy efficiency have both ecological and economic effects, as do products that can be used for a long time and those that can be repaired and dismantled.

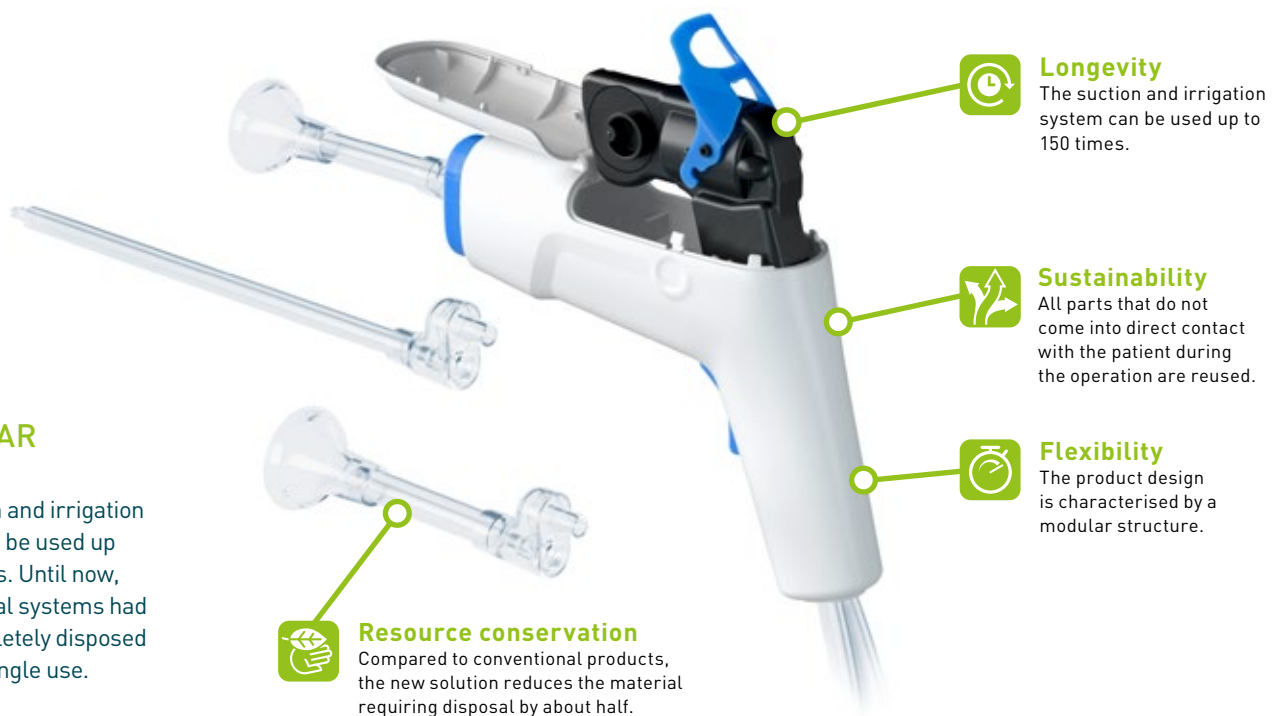
If companies focus on this from the very beginning, from production to new business models, economic growth can be achieved without high material consumption. The following pages will provide you with examples of this.



UTK SOLUTION GMBH

NEW RINSING SYSTEM SAVES RESOURCES

The BlueLavage suction and irrigation system from UTK Solution GmbH in Lüdenscheid, North Rhine-Westphalia, can be used up to 150 times during operations. Conventional systems, on the other hand, had to be disposed of after a single use. The targeted ecodesign method reduces residual materials and saves raw materials.



MODULAR DESIGN

The suction and irrigation system can be used up to 150 times. Until now, conventional systems had to be completely disposed of after a single use.



Resource conservation

Compared to conventional products, the new solution reduces the material requiring disposal by about half.



Longevity

The suction and irrigation system can be used up to 150 times.



Sustainability

All parts that do not come into direct contact with the patient during the operation are reused.



Flexibility

The product design is characterised by a modular structure.

Problem solver for medical technology customers

UTK Solution is a manufacturer of plastic medical products and has been on the market for over 25 years. The specialists solve problems for customers in medical technology and have established themselves as an innovative manufacturer. Suction and irrigation systems used during operations have become the company's speciality in recent years. Particular care is required

with this product. Only hygienically perfect instruments and materials can be used to ensure that pathogens and germs are not transmitted. For this reason, medical professionals have so far generally worked with irrigation systems that are completely disposed of immediately after use. The integrated batteries also end up in the rubbish after the operation.

Short use – Major impact

Medical diligence during operations is understandable, and device disposal is the safest way to go. Still, the devices only take a few minutes to use, while it takes generations to dispose of or store the resulting mountain of waste. Moreover, the resources used – plastics and rare earths – are irretrievably lost. And the problem is not a niche problem. On the contrary: it is one of great magnitude in the hospital sector.

Every year, around 620,000 operations are performed in Germany in which suction and irrigation systems are used. 70 per cent of these are battery-operated devices manufactured, not very ecologically, as disposable products.

Smart solution with the support of the Effizienz-Agentur NRW

The situation and the tasks involved also posed a challenge for the specialists at UTK. The solution: the employees of the medium-sized company combined new sustainable solution approaches with the company's sound experience in medical technology. The Effizienz-Agentur NRW supported the development with resource efficiency consulting.

The BlueLavage system is not only more environmentally friendly than the previous solution, but also more cost-effective. Moreover, it shows that sustainability and medical standards of care are compatible. "All parts that do not come into direct contact with the patient during the operation are reused. This means that most of the electrical and plastic parts of the devices can be used again", explains Fritz Köllenbach, Head of Sales at UTK Solution GmbH. This is a big step forward compared to the conventional solution. Only the product parts that had contact with the immediate operating en-

vironment and the patient are disposed of. At the same time, this ensures that no dangerous germs are transferred. The suction and irrigation system can be used about 150 times. Compared to other companies' products, the new solution reduces the material requiring disposal by about half.

Resource conservation with a broad impact

To put it in figures: nationwide, around 434,000 units are used each year. With the conventional approach, this means disposing of about 334,000 kilogrammes of plastic, 2.6 million batteries and 434,000 motors. With the alternative product BlueLavage, on the other hand, the outcome is much more environmentally friendly: in this case, about 170,000 kilogrammes of plastic are recycled, and only 388 kilogrammes of electronic waste require disposal.

Analyses have shown that medical professionals are often reluctant to embrace innovations. "With good reason", says Köllenbach, "for them, the well-being of the patient comes first,

so they are reluctant to change tried-and-tested work processes, equipment and systems. Yet if the advantages are obvious, good solutions are readily accepted." The new product convinces with its simple application and sustainable disposal. The goal of UTK Solution GmbH is to set itself apart from other suppliers with the BlueLavage product. The chances of achieving a unique selling point are good. The product is unique, environmentally friendly and there is a great demand. In Europe, 1.2 million people undergo knee and hip operations every year, which are both operations that require the system. Potential applications in other operations are also conceivable.

"We've proven with our BlueLavage that environmental protection is possible in all areas. If you question existing solutions, you can make major improvements even in single-use products", says Managing Director Olaf Thiessies.



UTK Managing Director Olaf Thiessies (left) and Head of Sales Fritz Köllenbach

Photo: Effizienz-Agentur NRW

CE IN HANDTOOL MANUFACTURING

DOMINIK LIMBACH, MAURERFREUND GMBH

Steeped in tradition, maurerfreund GmbH from Wuppertal in North Rhine-Westphalia has 21 employees and manufactures tools such as high-quality trowels for the crafts sector. The company took advantage of the EFA's consulting services, among other things, as part of an ecodesign project to develop a resource-efficient trowel. EFAplus spoke with Managing Director Dominik Limbach about past and future projects as well as the opportunities and challenges of the circular economy.



Mr Limbach, how did you get involved in ecodesign?

This was prompted by the experiences of our partner company P.F. Freund, which manufactures tools for the roofing sector, such as pressure rollers. At that time, a three-digit number of handle variants were still available for these tools with a correspondingly complex demand on production, logistics and storage capacities and, moreover, on a wide variety of suppliers. We wanted to reduce this number of variants to reduce this complexity and thus also costs. Just by reducing the number of variants, we were able to significantly reduce resource consumption.

So you now have the expertise in-house and can tackle these kinds of projects for other products?

Of course, these projects enabled us to build up a certain expertise in the field of ecodesign, but we still needed support from experts for specific questions on further product developments, as every product adap-

tation requires individual solutions. In an ecodesign project with the EFA, we recently optimised a trowel with the aim of reducing the assembly work and improving the production technology. Adapting the design of the product not only enabled us to reduce costs, but also to use significantly less material for manufacturing.

“The circular economy offers real opportunities for sustainable and future-proof business.”

Dominik Limbach, Managing Director maurerfreund GmbH

Photo: Private





Significantly less use of materials at maurerfreund thanks to ecodesign

Photo: maurerfreund GmbH

Was there internal resistance to this as well?

To be honest, it's not that easy to implement this idea within the company, especially in sales. Customers talk about having a positive attitude toward innovative products, but thinking and acting don't always match up. On top of that, tools have been produced extremely cheaply in Asia since the 1990s, putting pressure on manufacturers in Germany to cut costs because customers only want to buy cheaply, and sometimes they simply have to. The tide is slowly turning now that the advantages of the new product and the extended service offerings are being communicated, but this is an intensive communicative process.

What opportunities do you think a circular economy presents? Is the term appropriate at all in your opinion?

Yes, absolutely. The term is apt and it's also easy to understand. With a suitable campaign, it can also be made more widely known. For me as an entrepreneur, the term describes efficient management in the best sense of the word. This includes not only product design and production, but also things like the development of business models and a strong trade that can ultimately take back the products and pass them on to us.

Can you name a concrete approach?

We're currently working on making it possible for our customers to return the trowel to us for any repairs that may be needed, which is only made possible by the modular design. This service, the quality of the product and the conservation of resources thus enable us to create a unique selling point for ourselves. Among other things, we already have a hammer with repair service in our programme and get about ten per cent of the hammers back for repair. For us, this is an opportunity to generate additional sales through extended services and to strengthen customer loyalty. At the same time, we're countering the danger of being perceived only as a contract service provider that is ultimately interchangeable.

Where do you see the biggest challenges on the way to a circular economy?

The current state of the economy, which is basically linear, is clearly a challenge. Let me illustrate this with an example from the craft sector. There are paint rollers for professionals that last for ten years if treated and cleaned properly, but the cleaning process takes about 15 minutes. Previously, companies usually haven't factored in these 15 minutes or they considered the time to be more costly than using a new roller every time, which ends up in the waste after use. In the same way, the trowels also largely end up "in the concrete", as we say. As long as this is the case, little will change fundamentally.

How can these challenges best be met?

Not only do we need to appreciate the value of raw materials and products, we also need a framework that makes a change in thinking economically sensible. I think that climate change and the high consumption of raw materials are currently factors that are accelerating such a path, as the many political activities and requirements currently being implemented show. From my own experience, I also don't want to conceal the fact that the promotion of the ecodesign project, for example, has delivered us important support. Targeted funding can provide valuable help in advancing the circular economy. I'm convinced that the circular economy offers real opportunities for a sustainable and future-oriented economy.

What will the future development of the circular economy mean for maurerfreund?

Of course, we will always work on solutions for producing both economically and in a way that conserves resources. In addition, we're currently developing and testing the recycling and reuse of worn cutting tools made of high-alloy tool steels with companies and universities from the region as part of a research project of the German Federal Ministry of Education and Research. The aim of the project is to keep these raw materials in the cycle for as long as possible and to obtain economic benefits for both the project partners and for us. The biggest challenge in this context is to develop a method of recycling the worn cutting materials and then to use them in the manufacturing process of tools, for example. Furthermore, the materials must be selected in such a way that they meet the high demands of our customers. We're tackling these questions in a structured way in the project.

RESOURCE-EFFICIENT PRODUCT DESIGN WITH CIRCULAR DESIGN

Circular design is the basis and precondition for a functioning circular economy. The design determines how resource-efficient a product is along its entire life cycle. Important factors of the circular economy such as reparability, reprocessing or parts reuse are determined here.

The new role of designers

Circular design means thinking and shaping resource efficiency and design together. Design is no longer just an expression of a product's form, but is comprehensively considered from the outset to achieve the most efficient and highest-quality product possible. Designers must also be prepared for this in their training. That is why the Effizienz-Agentur NRW is in close contact with the universities.

New business models for a CE through circular design

Anyone who wants to develop innovative business models successfully needs to think outside the box. Circular design opens up new possibilities for companies – whether it's developing service offers and return systems or opening up new business areas. In this way, products, components and materials can be kept longer in the cycle of use along the lines of a circular economy. In addition to the new or further

development of products or product groups, circular design can be of great importance as a source of innovation for the strategic orientation of companies. By taking into account resource efficiency aspects along the life cycle of a product, resource-efficient business models can be developed, particularly in the area of the use phase.



*“If you want to
successfully develop
innovative business
models, you need to
think outside the box.”*

*Lisa Venhues, Project Manager
Circular Design Effizienz-Agentur NRW*

Photo: Effizienz-Agentur NRW

ECO RETAIL — SALES DISPLAYS WITH A SAVINGS GUARANTEE

Everyone's seen them: when shopping in retail stores, we see display systems present promotional merchandise and support brand exposure to shoppers. In the future, consumers may encounter product displays that can be used several times. These are produced by the Bonn-based company ECO RETAIL GmbH with nine employees in combinable and standardised systems.



There was one problem that left the environmentally and climate-conscious company founder Hajo Geugelin no peace: how to prevent the approximately 30 million displays produced by various manufacturers in use on the German market alone from being destroyed after about three weeks of use and ending up as waste paper, as has been the case up to now?

Together with the circular design experts of the Effizienz-Agentur NRW, the Bonn display specialists set out to find a smart design solution. The goal was to significantly reduce costs and the use of resources for customers in the retail trade through modular reusable concepts. Together with partners from the retail and service sectors, the aim is to set up a nationwide display system.

At this point it already became clear how important functioning networks are: the initial contact came about through the European network "Consumer Insight Action Panel", which is led, among others, by the Wuppertal think tank CSCP. Expert discussions in the network refined the reusable approaches so that the project, which is funded by the state of North Rhine-Westphalia, could be launched at the end of August 2020. With the support of the EFA and an external industrial design agency, the foundations of the product design in the areas of design, materiality and functionality

were laid within four months through joint workshops.

The new smart displays from ECO RETAIL GmbH reduce disposable material and CO₂ emissions and bring enormous savings potential for retailers.

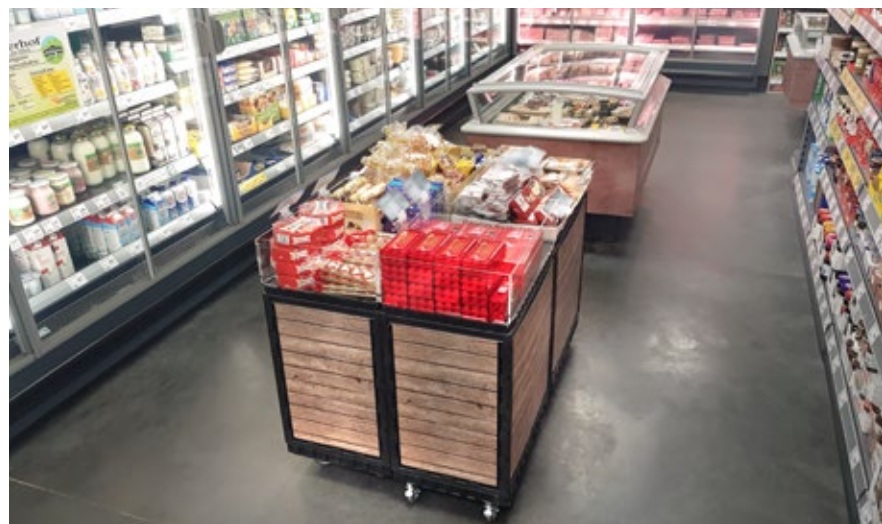
An important feature of the smart display is that the basic structure is completely recyclable, as the display is made exclusively of polypropylene (PP). Sidewalls made of thin printed cardboard are used for targeted communication with customers. Not only is the material used almost completely recyclable, but the use of previously used disposable materials such as cardboard, paper and composites can be reduced to a minimum. This resource-efficient approach greatly re-

duces CO₂ emissions during production and transport. With a produced annual quantity of 25,000 smart displays, this means an annual saving of 2,500 tonnes of cardboard as well as approx. 3,300 tonnes of CO₂ equivalents.

At the same time, the further development of the display means an innovative step towards economic efficiency and sustainability for all participants in the supply chain. In addition to the savings in production, the use of this resource-efficient reusable system leads to a cost reduction of up to 74 per cent per utilisation cycle in retail. In addition to economic benefits, the new solution also provides significant long-term ecological potential through waste avoidance and reduction of CO₂ emissions.

Sustainable display systems significantly increase utilisation cycles.

Photo: ECO RETAIL GmbH



CIRCO WORKSHOP SERIES

ADDED VALUE THROUGH CIRCULAR DESIGN

Turning in circles for the future: CIRCO is a workshop offer developed in the Netherlands that supports manufacturing companies in the development and design of concrete circular business model and design strategies based on individual company examples. The method has already been used successfully by over 1,000 companies.

Since April 2021, the Effizienz-Agentur NRW has been offering the workshop series in North Rhine-Westphalia in cooperation with the Dutch project team CIRCO. In the sessions, knowledge is imparted and applied to the participants' own products and discussed with them. The result: an individual action plan for operational implementation and satisfied companies with promising ideas.

In 2015, CIRCO began developing the workshop concept on behalf of the Dutch Ministry of Infrastructure and Water Management, based on the TU Delft studies “Products That Last” and

“Products That Flow”. Since then, more than 1,000 companies and 500 industrial designers have participated. Due to the great demand, 13 international CIRCO hubs have been established in the past years – the German hub is now docked at the Effizienz-Agentur NRW.

Based on the principles of design thinking, the CIRCO workshop series consists of the three phases Initiate, Ideate and Implement. The individual workshop modules always include the elements of knowledge transfer, an exercise based on an in-house example and an interactive component between the participants.

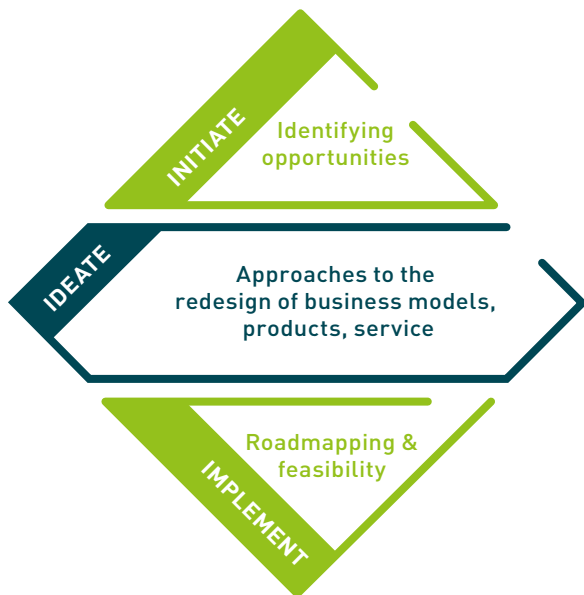


Stefan Alscher,
Project Manager
Circular Economy
Effizienz-Agentur NRW

Photo: Prosperkolleg

Andre Leonhardt,
Head of Quality and Environmental
Management at Parador GmbH

Photo: Parador GmbH



Initiate

After a status quo analysis, circular business opportunities are identified based on the existing linear way of working. This phase starts with a personal one-hour kick-off meeting where the trainers and the methodology are introduced to the participants.

Ideate

The most promising circular business opportunity is developed with the help of a suitable business model, product (re)design and/or additional services based on the circular business model and design strategies.

Implement

In this phase, a timeline, action plan and pitch presentation are developed. All results are documented in a business model canvas.

Expert knowledge on the provider side is an obvious component: The transfer of knowledge is mediated by experienced trainers. To apply the imparted know-how directly to the company's in-house example, participants complete "homework" between the individual workshop phases.

It's important that two people per company take part in the workshop. It's also essential for the exchange of ideas that between eight and ten companies take part in the entire workshop.

"The CIRCO method is characterised by a combination of information transfer by the trainers, independent work with the help of online materials and design tools, and exchange in the group", explains Stefan Alscher, resource efficiency consultant at the Effizienz-Agentur NRW.

THE PROSPERKOLLEG PROJECT

Since 2019, the Prosperkolleg project in Bottrop, funded by the NRW Ministry of Economic Affairs, has been tasked with researching the transformation to circular value creation in the Northern Ruhr region and initiating implementations. The University of Applied Sciences Ruhr West and WiN Emscher-Lippe GmbH have joined forces with the City of Bottrop, Effizienz-Agentur NRW and Prosperkolleg e.V. to initiate product developments and innovative business models in line with the circular economy together with companies in the region.

Transformation research – that is Prosperkolleg's mission.

The research approach seeks to show concretely how the idea of using materials for a long time and recycling materials can change thinking and action in the value chains. On the basis of well-founded analyses, Prosperkolleg is developing concepts of change and testing them in SMEs from industry, trade and commerce.

Effizienz-Agentur NRW

The Effizienz-Agentur NRW contributes its expertise gained from many years of consulting work with manufacturing companies from industry and the skilled trades as well as its many contacts. In cooperation with its other partners, this creates a productive collaboration that is so important for the transformation of industry and trade in the direction of a climate- and resource-friendly economy – all the way to the circular economy.

Circular Economy Hotspot

One important expression of the work of Prosperkolleg is the organisation of the programme of the 6th edition of the Circular Economy Hotspot, the seminal and international event format, in the Innovation City Bottrop in September 2022. Organised by Prosperkolleg and the City of Bottrop on behalf of the NRW Ministry of Economic Affairs, a multifaceted programme on the topic of circular value creation will be offered over the course of three days. The topics of recycling economy, resource conservation and increased efficiency will be highlighted and made accessible to visitors in the form of excursions, workshops and panel discussions.



Zirkuläre Wertschöpfung. Denken. Handeln.

THE EUROPEAN GREEN DEAL REQUIREMENTS AND OPPORTUNITIES

Guest contribution by Dr Christian Engel, Head of the Department “Climate, Renewable Energies, Environmental Economics, Sustainable Development and Consumer Protection” representing the State of North Rhine-Westphalia to the European Union

The “European Green Deal” – what is it and what does the circular economy have to do with it? The Green Deal is nothing less than the roadmap to the goal adopted by the EU in 2019 of becoming the first climate-neutral continent by 2050. By 2050, no more net greenhouse gas emissions will be emitted into the air and resource consumption will be significantly and sustainably decoupled from economic growth. “Europe’s man on the moon moment” – the often-used paraphrase shows how much importance is attributed to the deal.

The aforementioned goals will require tremendous effort with effects on all areas of society, particularly on the manufacturing economy. Extraordinary challenges await the industrial SME sector, which is a hall-

mark of the industrial state of North Rhine-Westphalia.

The Green Deal will have major impacts on companies, especially on resource- and energy-intensive businesses. The strategy of the circular economy is a central component of the solution: this alone is expected to eliminate 50 per cent of greenhouse gas emissions.

Requirements and opportunities for companies.

As described in the previous chapters, the challenges also offer great opportunities for those companies that address the issue of resource efficiency as a key component of a circular economy at an early stage, whether it’s in production, product design or the

development of new business models. The EU is also thinking in terms of economic efficiency and competitiveness in line with environmental and climate goals. Furthermore, it wants to support the transformation with an ambitious financing plan and significant investments. It expects the circular economy to generate economic growth of 0.5 per cent and around 700,000 new jobs by 2030.

Yet this can only be achieved with clear framework conditions. There are already many initiatives that have or will have a direct and indirect impact on manufacturing companies.

For example, a “right to repair” has been in effect since the beginning of March 2021: refrigerators, dishwashers, washing machines, televisions and other products must meet stricter requirements for reparability. In future, manufacturers will have to keep spare parts in stock for a certain period of time and design the products concerned in such a way that components can be dismantled with conventional tools without causing damage. Repair information must also be provided. The aim of the new regulations within the framework of the European eco design Directive is to ensure that products have a longer service life. We can expect that such regulations will be successively extended to other product groups.

The EU’s goal is for Europe to be climate-neutral by 2050.

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With the Sustainable Products Initiative, which is intended to amend the eco design Directive and extend it to other product groups as part of the Green Deal and the New Circular Economy Action Plan, Product-as-a-Service business models are currently being discussed at the European level. These are intended to help ensure that products are designed and offered in a more circular way by keeping the products in the possession of the manufacturer and making them available to companies or consumers for use. This means that the manufacturer has an interest in the longevity of its products on the one hand and is responsible for their disposal on the other, and is thus interested in the best possible recovery of the raw materials used.

Electronic product passport

The mandatory introduction of a digital product passport is currently being discussed at the European level. This is intended to make information on the manufacturing conditions of a product, durability, composition, reuse, repair, possibilities of dismantling and disposal at the end of its life electronically available to all stakeholders along the value chain.

This means that corresponding information obligations could also be introduced, for example, for manufacturers of sensor technology, batteries and accumulators, pumps, solar and wind technology, energy-efficient lighting systems or for hydrogen and electric vehicles and their respective suppliers. This would mean a profound change in business models, for which companies must prepare early on. On the one hand, there is the question of how to deal with sensitive and competition-relevant data; on the other hand, there are great opportunities for product recycling, an area in which North Rhine-Westphalian companies could become pioneers.

Single-use plastic and recycle content

The “Single-Use Plastics Directive”, adopted in Brussels in May 2019, was required to be implemented by member states by July 3, 2021, at which point the ban on marketing some plastic items (such as straws, plastic tableware, plastic plates) also came into force. The amendment to the German Packaging Act, approved by the Bundesrat on May 28, 2021, implements elements of this directive and the EU Waste Framework Directive, which had already been amended in 2018. Among other things, the amendment provides for an obligation to offer reusable alternatives for food offered for direct consumption and for beverages sold “to go”.



“The challenges also offer great opportunities for companies that address the issue of resource efficiency as a key component of a circular economy at an early stage.”

Helping to shape the future

It also provides for an extension of the single-use deposit to almost all plastic bottles and to all aluminium cans from 2022, as well as a mandatory minimum recycle content of 25 per cent for PET beverage bottles from 2025 and for all single-use plastic beverage bottles from 2030 (and a minimum recycle content of 30 per cent). But this is only the beginning: in the coming years, Brussels will set further targets for single-use plastic articles as well as for minimum recycle content, especially in the area of packaging.

As all these political initiatives show, companies need to prepare for an accelerated transition to a more sustainable way of doing business. Those who take up these challenges at an early stage can gain competitive advantages. This path is flanked by support services such as funding programmes and consulting services. The experience of the Effizienz-Agentur NRW, which has been working with these instruments for over 20 years, shows that companies are offered real added value.

Dr. Christian Engel, Head of the Department “Climate, Renewable Energies, Environmental Economics, Sustainable Development and Consumer Protection” representing the State of North Rhine-Westphalia to the European Union

Photo: Dr. Christian Engel

