

# Circular Valley® – a hot spot for innovative Circular Economy Solutions

## ALUMINIUM Business Summit

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Düsseldorf, Sept. 28, 2021



2021-09-28-Circular-Valley-Aluminium Business Summit



# Why do we need Circular Valley?

The background of the slide is a photograph of a sunset. The sky is a gradient of colors, from a deep blue at the top to a bright orange and yellow near the horizon. The horizon line is dark, showing the silhouettes of trees and a small building. The overall mood is serene and contemplative.



Most of our waste comes back to us, one way or the other ...



**100.000.000.000 tons  
of emissions/waste  
annually**

On average almost 40kg per day and  
person<sup>1)</sup>

Increasing with # of consumers

Microplastic in the food chain (5 gr per  
week and person according to WWF)

1) incl. CO<sub>2</sub>, construction waste, production waste, municipal waste,...





**Consumers, politicians, business leaders, activists and the churches care about the 100bn+ tons of annual emissions**



Business leaders care about reputational risks, resource supply and EU taxonomy

Politicians see the long-term ecological and social cost and want to steer against

Churches explicitly address the pollution issue (e.g. Pope Francis in his Encyclica Laudato Si')

Consumers experience planned obsolescence and care about social and ecological threats

Activist groups address the ecological and social damage

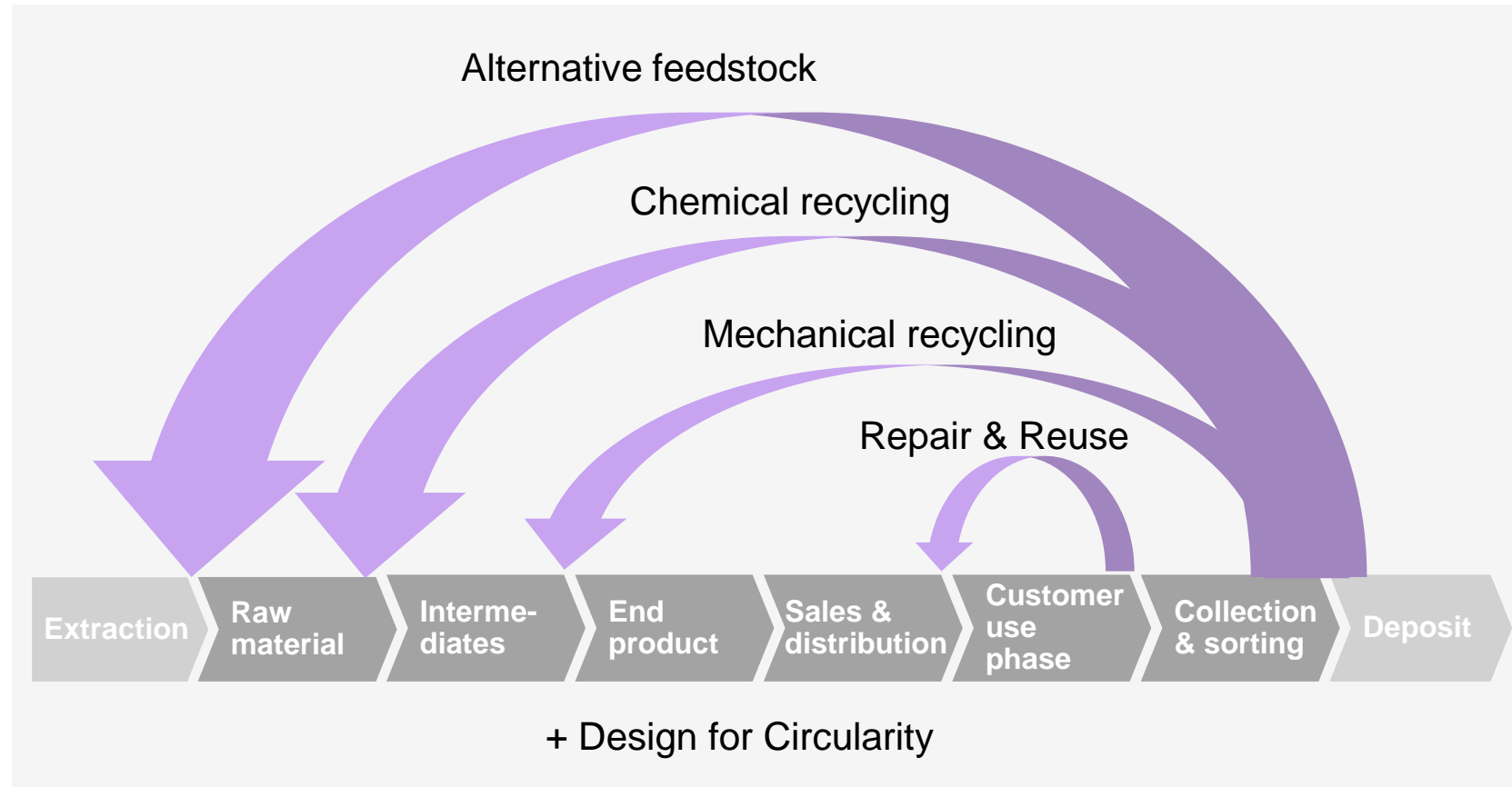


# Closing the cycles needs collaboration



# There are several cycles to be addressed

New products and new recycling processes needed





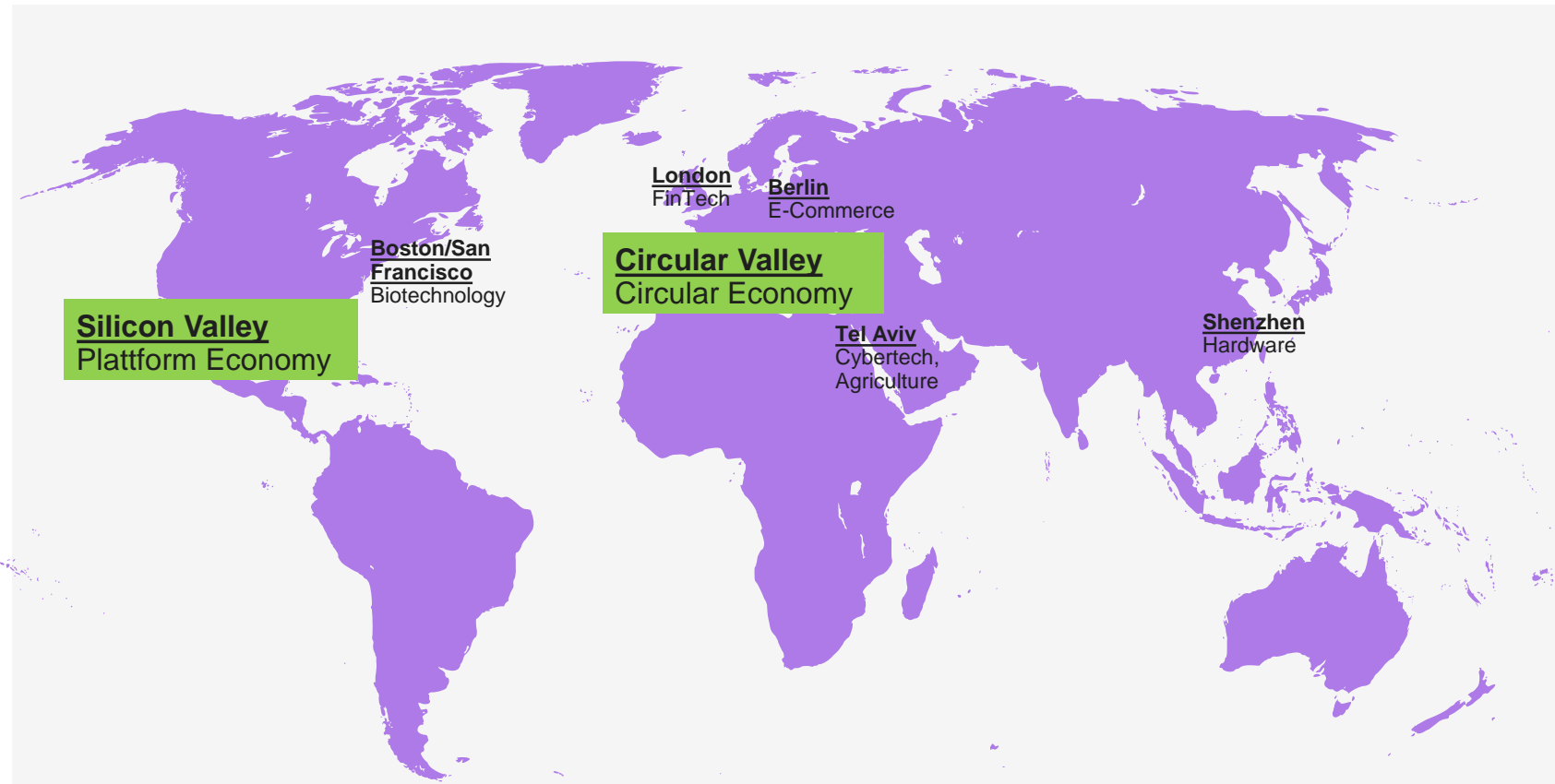
# Many cycles can still not be closed today

Composite materials pose a major challenge





# Circular Valley is for Circular Economy what Silicon Valley is for Digital

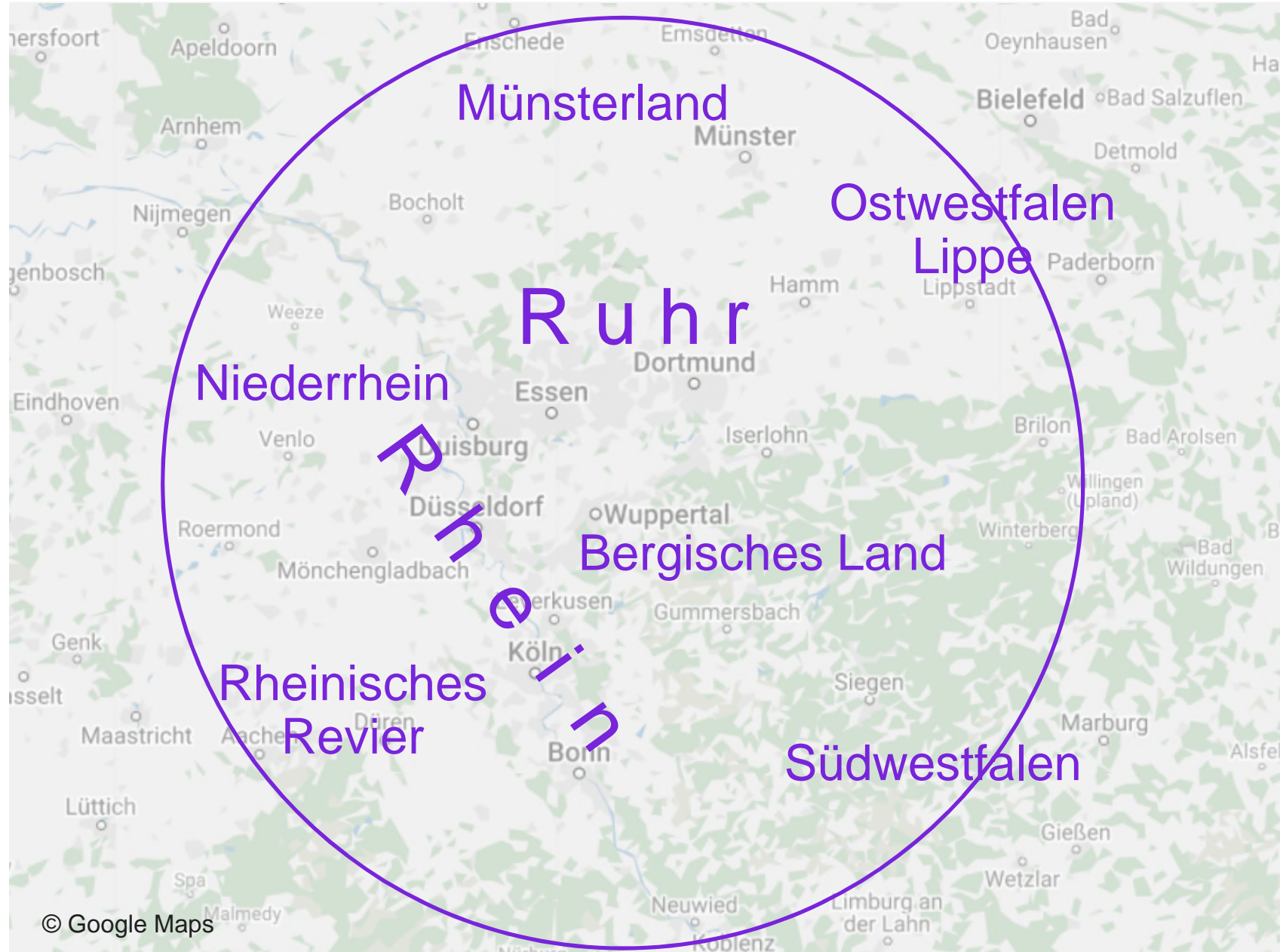


Why is the Rhine/Ruhr  
Region ideal?

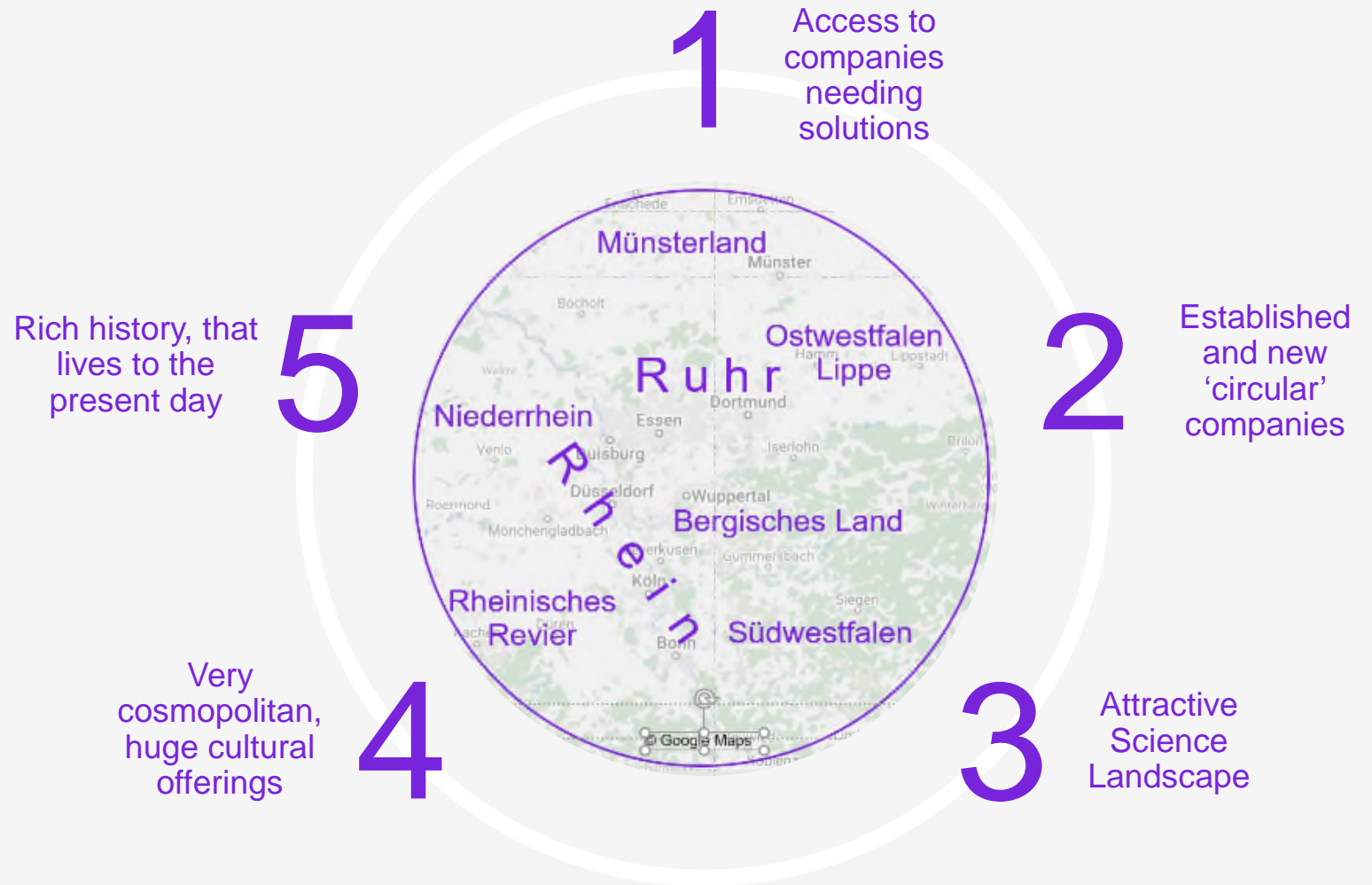




The larger  
Rhine-Ruhr  
area is  
Germany's  
biggest  
metropolitan  
area  
stretching  
from Bonn to  
Münster



# It is ideal for Circular Valley for five key reasons

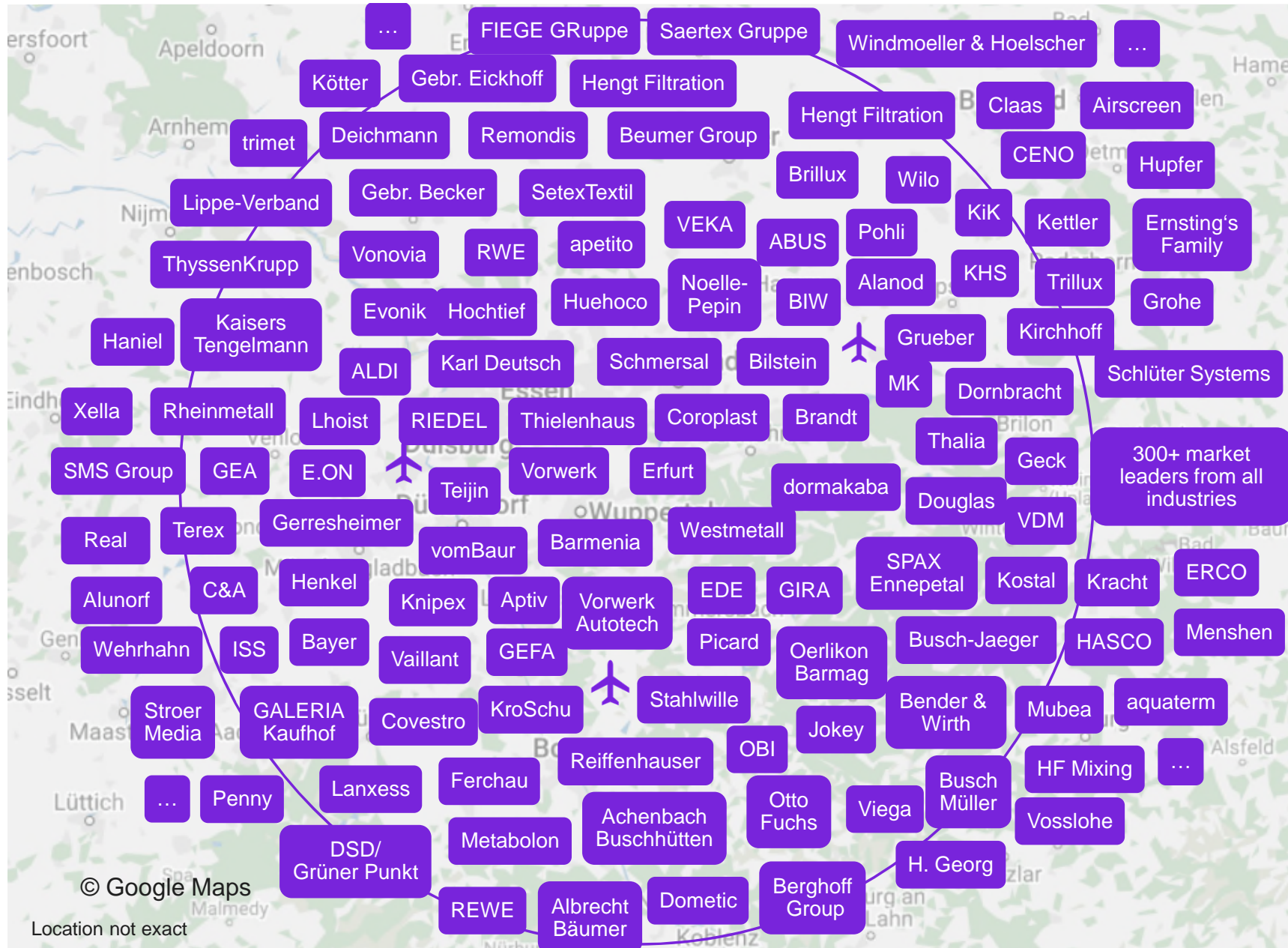




# Circular Valley connects 300+ global market leaders

Selected examples

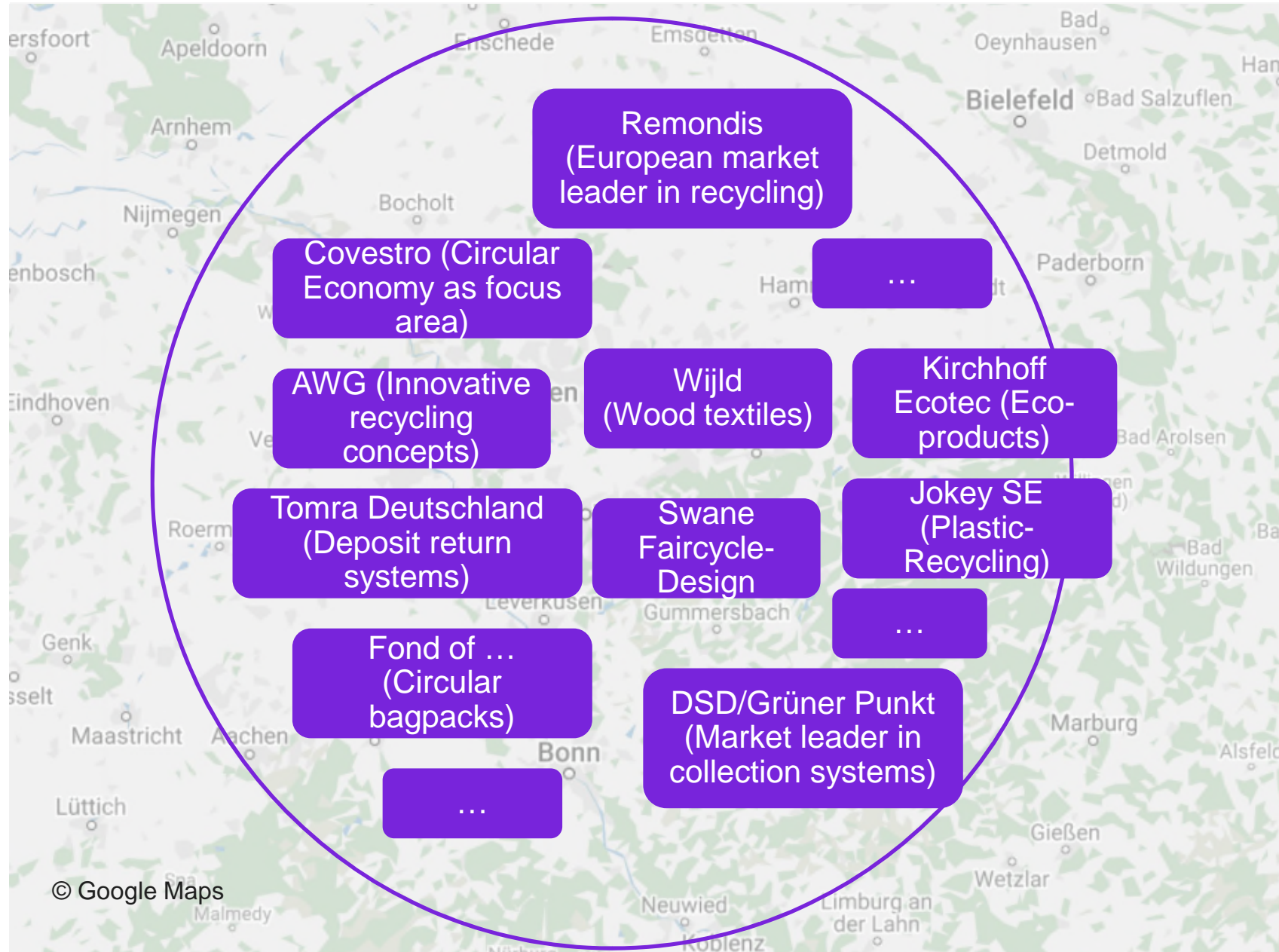
1



# Established and new companies in the region are leaders in circularity

Selected examples

2

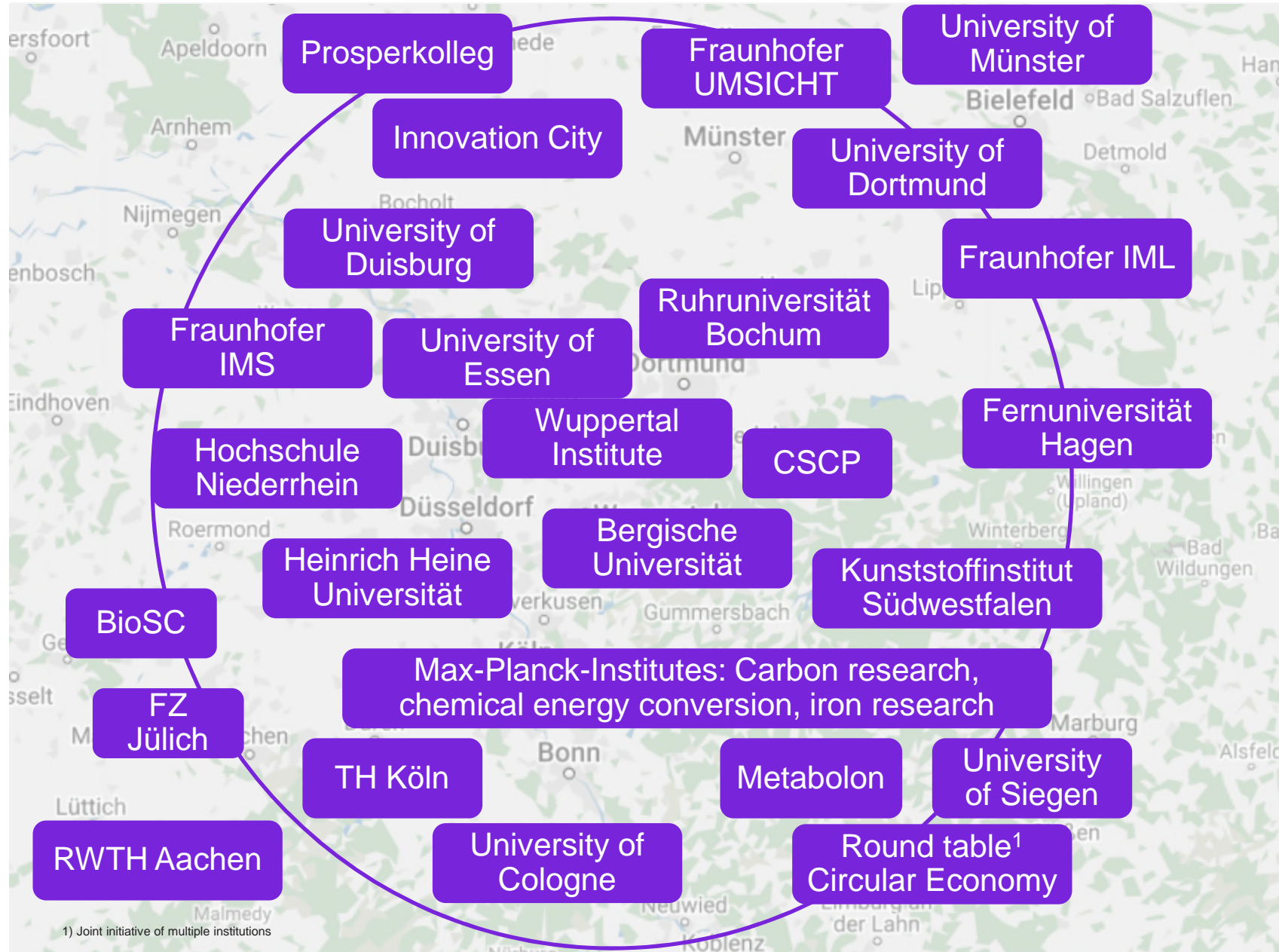




# Universities, and research institutes provide a cross-functional scientific excellence

Examples

3



# The region is attractive and welcoming for high potentials from all over the world

4

Large international communities, e.g. Düsseldorf has a large Japanese Community in Germany's only "Japantown"

Düsseldorf has been the Bridgepoint to Europe for many international companies

Three international airports connect to the world



Over 30 opera buildings, theatres and world famous concert buildings

World-reknown concerts ("Klavierfestival Ruhr")

At the same time a region of "makers"

**It has a rich history that lives to the present day – important for the topic**

The “Bergisches Land” and “Ruhrgebiet” were home to many early industries

Water and coal were the basis for the 1<sup>st</sup> and 2<sup>nd</sup> industrialization wave in the 18<sup>th</sup> and 19<sup>th</sup> century

Go back to the root and close the loop



Broad industry coverage: Metal, machinery and plant engineering, household appliances, chemicals, high performance fibers/textiles, lighting, commerce, packaging

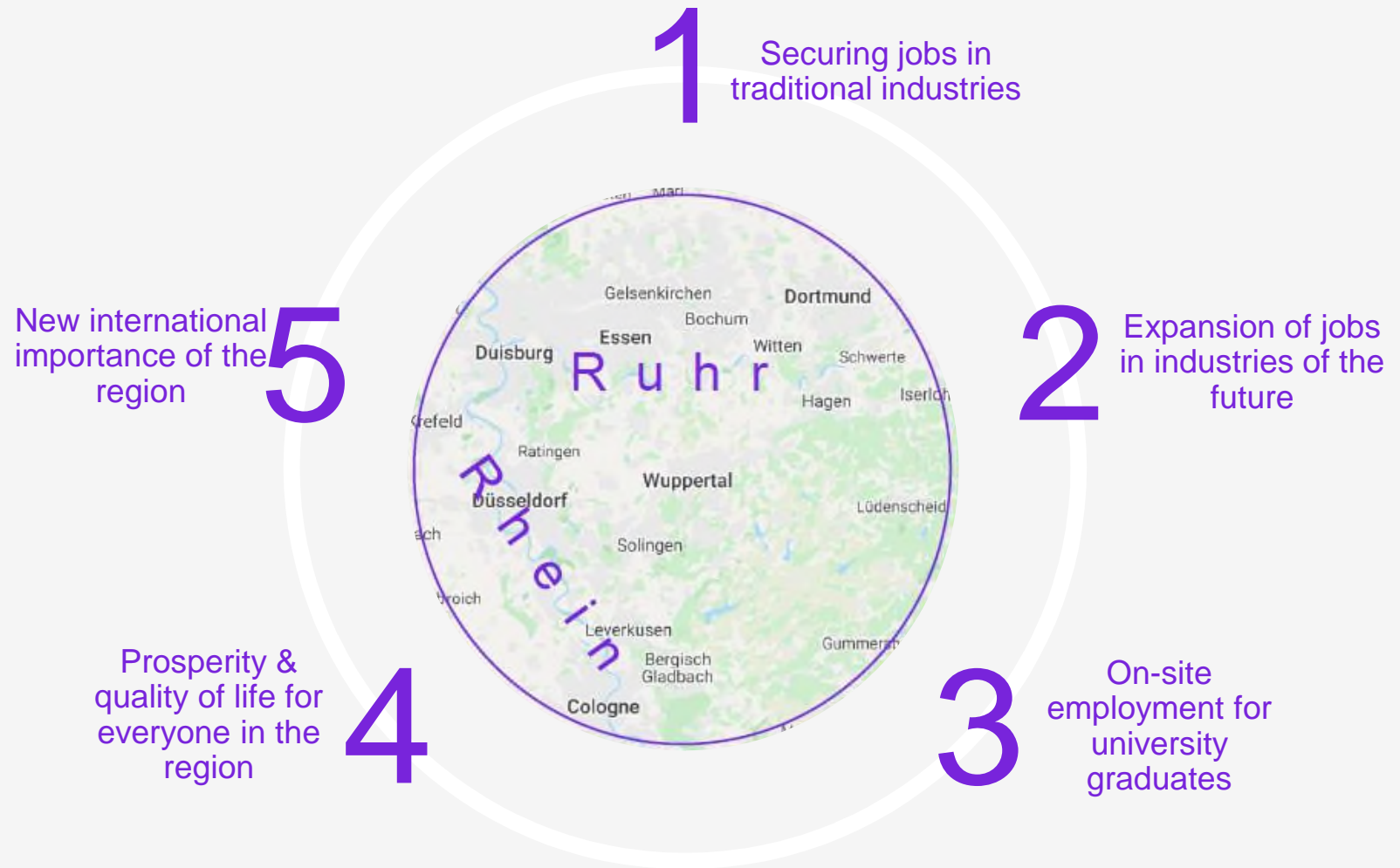
Circular Economy needs material to work with

Many investors appreciate tradition

5



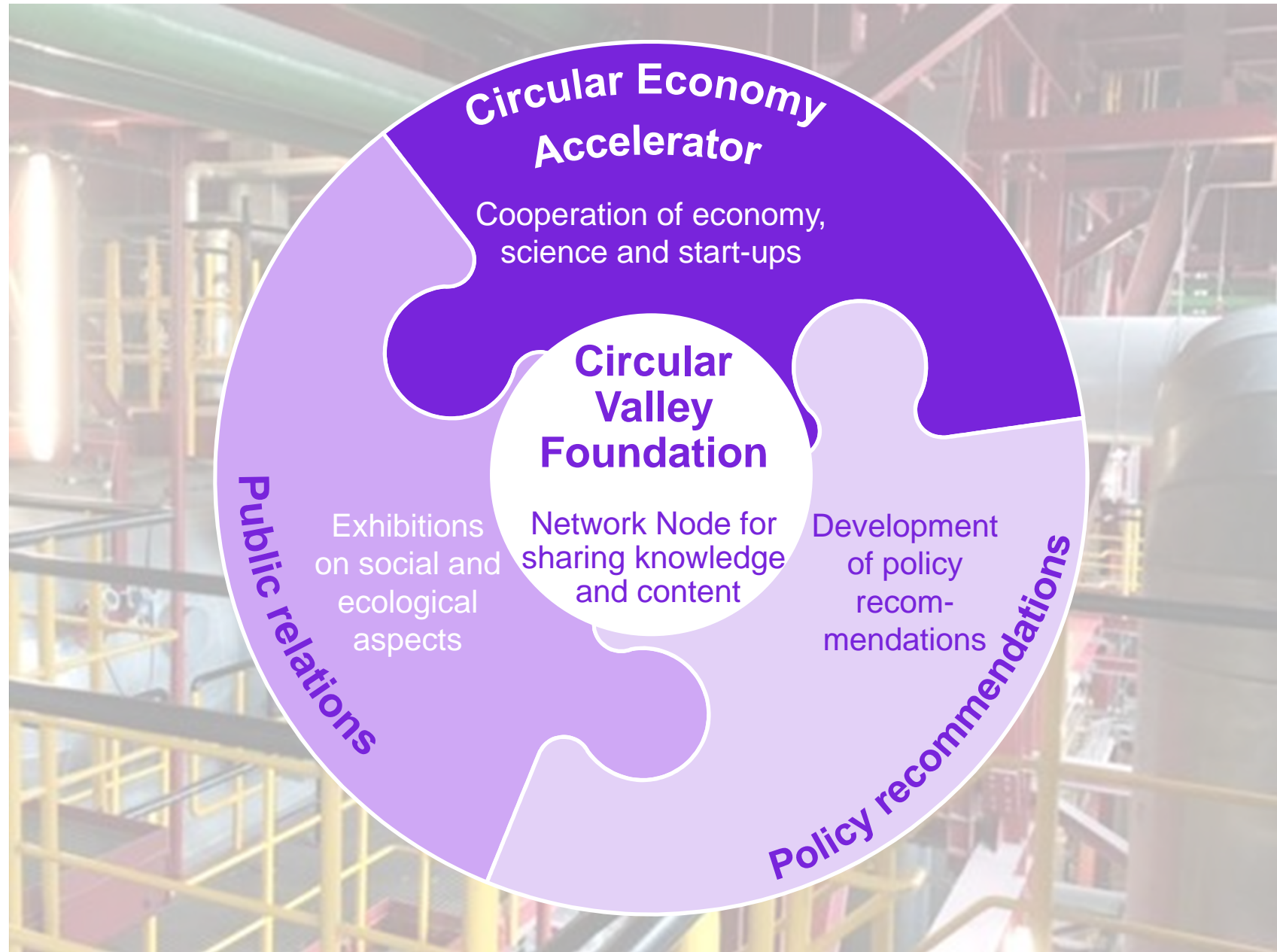
# The region can massively benefit as a Circular Valley



How did we start?



# The „Circular Valley Foundation“ organizes the key activities





# Public relations work brings the topic to the consumers

The implementation of circular solutions requires the participation of consumers - from the separation and return of "post-consumer" products to the acceptance of completely new business models

Beyond business and science, an understanding of the issues of circular value creation in the public domain is therefore important

Public relations – also through art - can reach over 10 million people in Circular Valley



# The world's first Circular Economy Accelerator turns ideas into businesses



Companies in the region and beyond come into direct contact with imaginative start-ups

New, better ideas arise from spatial proximity

Support young entrepreneurs and intrapreneurs from all over the world (PhDs, industry experts, ...)

Turn invention into innovation, put a business model behind

Scale-up the idea and take it back to the areas where it is needed





**Business and science can jointly develop recommendations for political action**

Valuable recommendations for policymakers in Berlin and Brussels can be developed from a deep understanding of the issues of circular economy through close cooperation between business and science





# We chose Wuppertal as an excellent location to start and a crystallization point



Global champions, companies with interest to expand

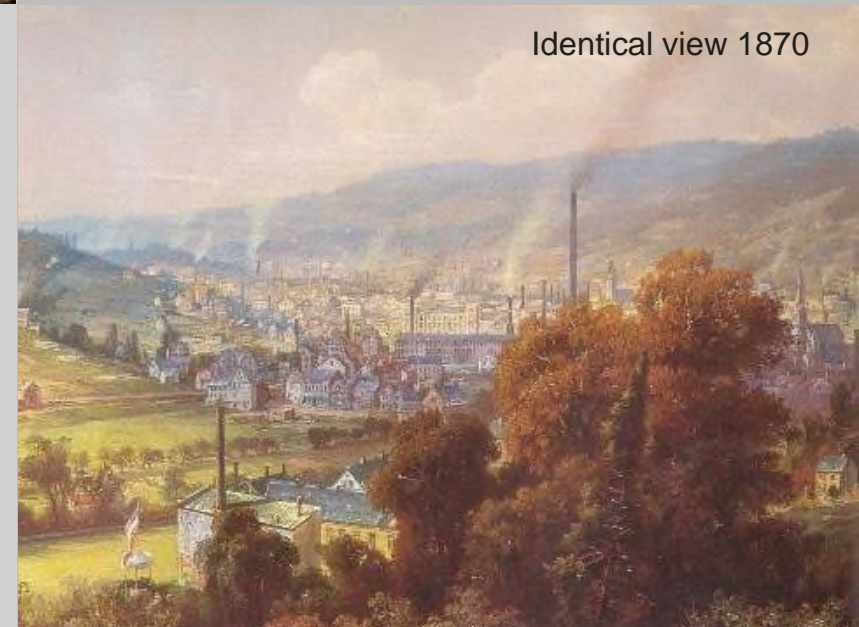
Strong local support from companies and politics

Highly relevant science communities (Wuppertal Institute, CSCP, Bergische Universität, ...)

Birthplace of industrialization, 1<sup>st</sup> mechanical braiding machine invented in 1767

Oldest large chemical player Bayer, founded in 1863

Wuppertal always combined economy with social responsibility (Frederick Engels, Elberfelder System, ...)



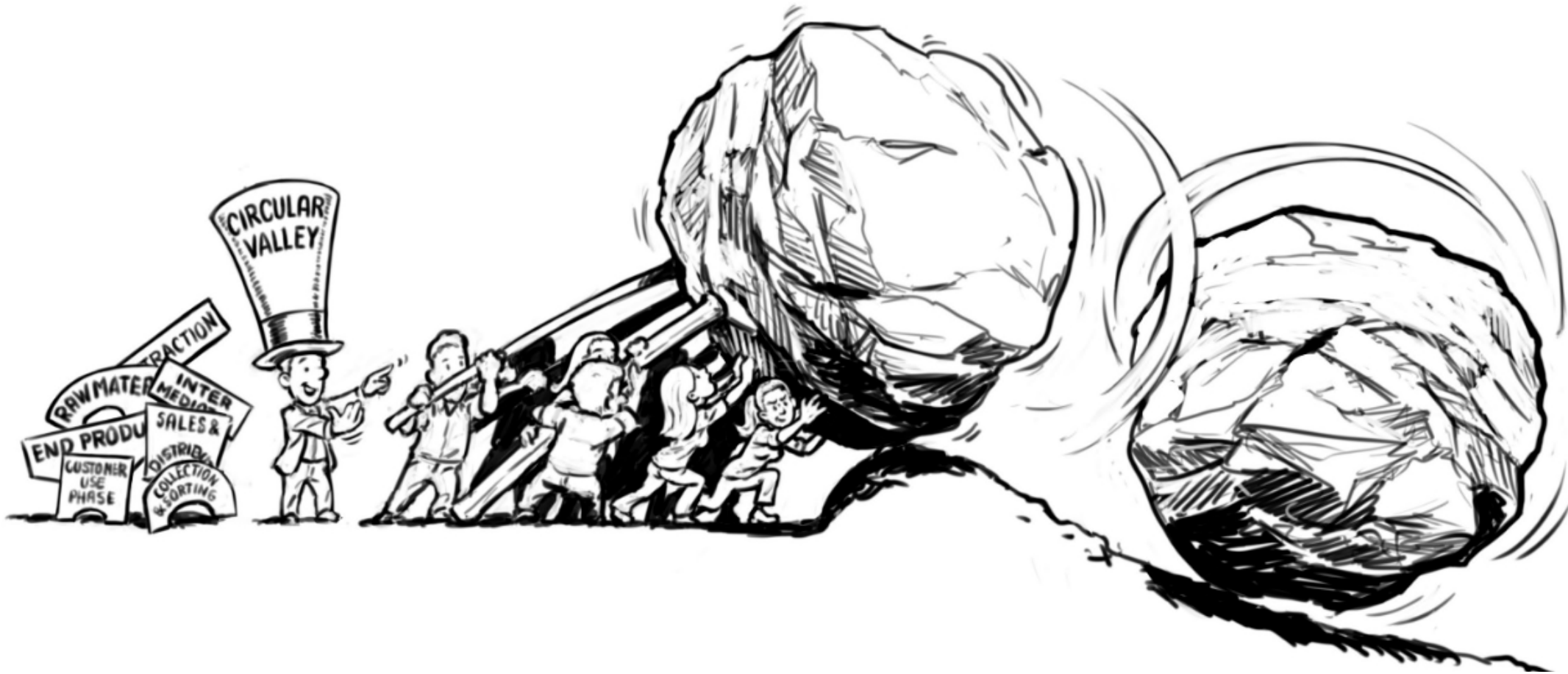
# A former gas tank serves as the center and crystallization point of Circular Valley

Circular Economy Accelerator is located nearby on Vorwerk premises





# With united strength we set the stone rolling





# Circular Valley is broadly supported by partners from all industries and all sizes

Selection of partners



# The Circular Economy Accelerator Program started with the first batch in June 2021

## About the Program

For each Circular Economy Accelerator program in Circular Valley, we look for **early-stage circular economy companies** move to Wuppertal to take part in an **intense 4-month program**.

The Circular Economy Accelerator runs programs with 15 start-ups **twice every year**.

## Focus: EU Green Deal

We are looking for start-ups with **concrete ideas/inventions** that help accomplish the **vision of eliminating waste**.

Focus is on designing out waste, production technologies, tracking & tracing, collection, separation of waste streams, waste logistics, re-use models, novel recycling technologies, novel service models and digital enabling technologies etc.

## Mentoring

Both, on-side and virtual batches will **receive dedicated mentoring** and become part of the **growing network of Circular Valley** – e.g. corporate partners, scientific partners, alumni, investors, press and more.

Founders engage with customers and partners, pitch to potential investors and press at the Demo Day, and **turn science into a real products paid for**.



# We had 15 global start-ups connecting to our partners in Circular Valley®




**Circular Valley**

**Final 15 Start-ups**

MAY 2021

**Grow the economy – protect the environment**

**b.fab GMBH**  
Cologne, Germany

**CATEGORY: BIOCONVERSION**  
CO<sub>2</sub> as a greenhouse gas leads to global warming, but at the same time is a valuable potential resource for the upcoming bioeconomy.

b.fab is specialized in CO<sub>2</sub> Bioeconomy. They utilize CO<sub>2</sub> and combine electrosynthesis with Synthetic Biology to produce proteins and chemicals.

[www.bfab.bio](http://www.bfab.bio)

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**CARBONAUTEN GMBH**  
Glangen, Germany

**CATEGORY: BIOCONVERSION**  
The reduction of climate gases and the replacement of fossil-based materials is of high importance in achieving the Paris climate goals.

carbonauten produce biocarbons from biogenic and industrial waste materials through pyrolytic carbonization.

[www.carbonauten.com](http://www.carbonauten.com)

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**OTTAN STUDIO**  
Istanbul, Turkey

**CATEGORY: BIOCONVERSION**  
Over 1.3 billion tonnes of food annually is wasted, this equates to one-third of total annual production.

Ottan is a green-tech start-up that develops and produces circular and durable bio-composite materials for designers by upcycling green waste.

[www.ottanstudio.com](http://www.ottanstudio.com)

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**WASTE TO RESOURCE UNIT**  
Bonn/Münster, Germany

**CATEGORY: BIOCONVERSION**  
The majority of food waste produced annually in Germany originates from private households, but also from restaurants and canteens. The recycling of food waste is largely limited to composting and fermentation and by that purely energetic recycling of biogas.

Waste-to-Resource that have developed a modular, fully automated sustainable process for the bioconversion of food waste with heterogeneous residues to produce high biomass and simultaneous extraction of high-quality extracts.

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**CONCULAR We make circular construction happen**  
Berlin, Germany

**CATEGORY: BUILDINGS/INFRASTRUCTURE**  
The construction sector is the largest polluter in the world. The main reason is the grey energy needed for the production of materials. Nevertheless, every day buildings are getting demolished, the materials are landfilled and new buildings with new materials are put on the same spot.

Concular wants to change that by creating real reuse of the materials. Their solutions allow them to digitize materials in existing buildings and reintroduce these materials in new buildings before the demolition is happening.

[www.concular.de](http://www.concular.de)

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**POLYCARE RESEARCH TECHNOLOGY GMBH & CO. KG**  
Suhl, Germany, UK, South Africa

**CATEGORY: BUILDINGS/INFRASTRUCTURE**  
Billions of people worldwide lack affordable and sustainable housing. At the same time, the building sector already today is producing the largest waste stream of all sectors.

Polycare produces durable and reusable building elements with less material and less energy, enabling non-professionals to construct (and de-construct) sustainable buildings therefor without heavy construction equipment.

[www.polycare.de](http://www.polycare.de)

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**PIKA DIAPERS**  
Tel-Aviv, Israel

**CATEGORY: CONSUMER GOODS/PACKAGING**  
Each child in disposable diapers creates up to 1 tonne of trash. Reusable diapers are an eco-friendly alternative, but washing them is a hassle.

Pika have developed a compact machine that cleans reusable diapers in one step, allowing parents to throw the soiled diapers in the machine without prior cleaning, and have clean diapers ready within two hours.

[www.pikadiapers.com](http://www.pikadiapers.com)

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**PLASTIC FISCHER GMBH**  
Cologne, Germany

**CATEGORY: CONSUMER GOODS/PACKAGING**  
Marine plastic pollution is a very large part stream from plastic discharged into rivers, particularly in parts of Asia.

Plastic Fischer collects plastic from rivers to prevent it from entering the oceans by using locally built and low-tech solutions.

[www.plasticfisher.com](http://www.plasticfisher.com)

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**PROSERVATION**  
Stuttgart, Germany

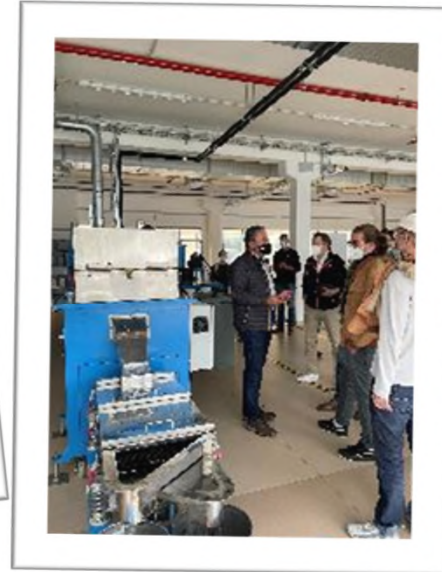
**CATEGORY: CONSUMER GOODS/PACKAGING**  
Packaging materials from Expanded Polystyrene (EPS/Styrofoam/Styroport) are a major environmental challenge as they cannot be recycled and are very emission intensive in the production process (4,3 t CO<sub>2</sub> per ton of styroport).

Proservation has developed a shock-absorbing, insulating, form-fitted cushion packaging which is based on vegetable waste from the grain industry (the husks of the grain).

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We had a first cohort of start-ups in Circular Valley® this summer







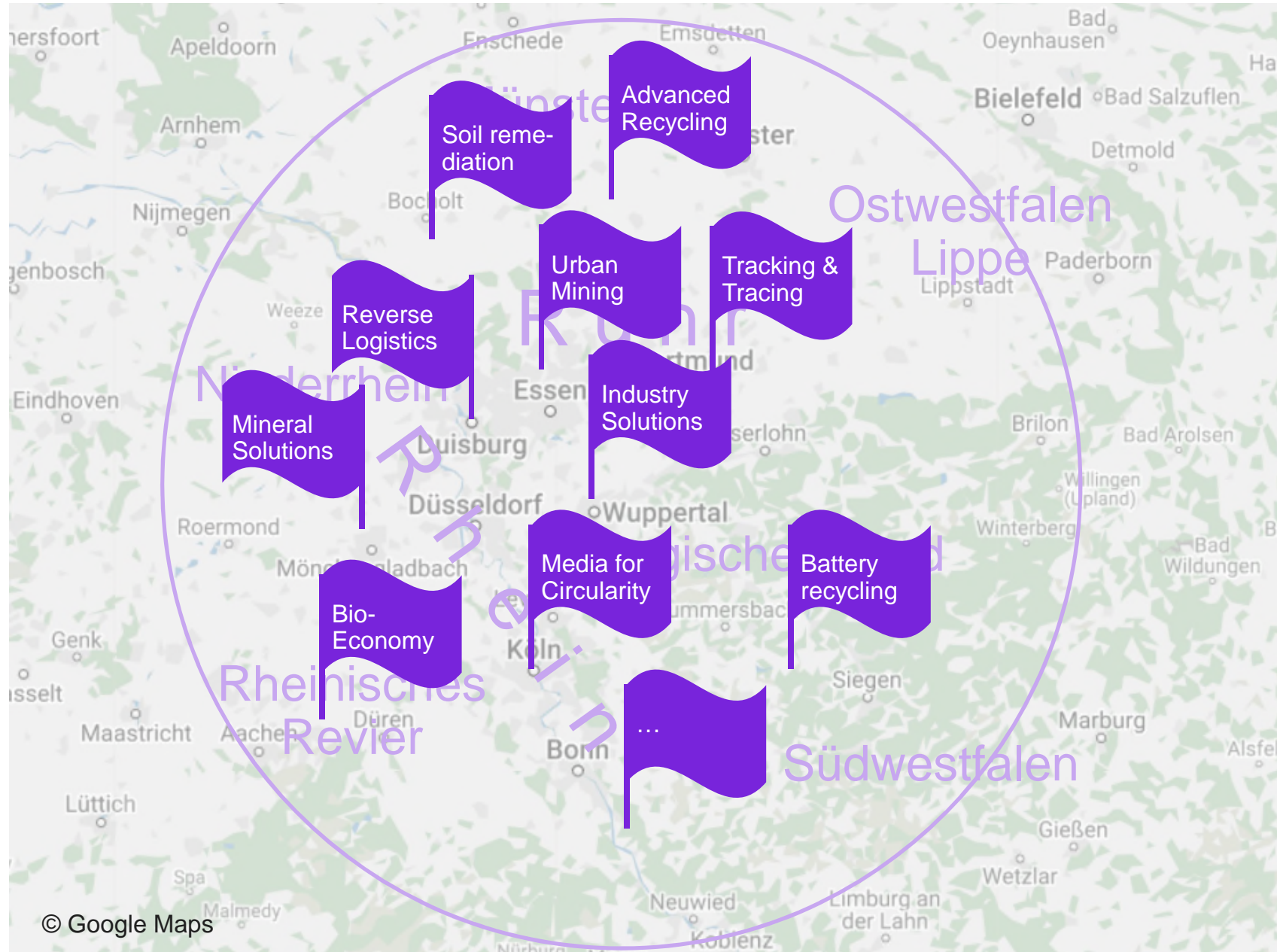


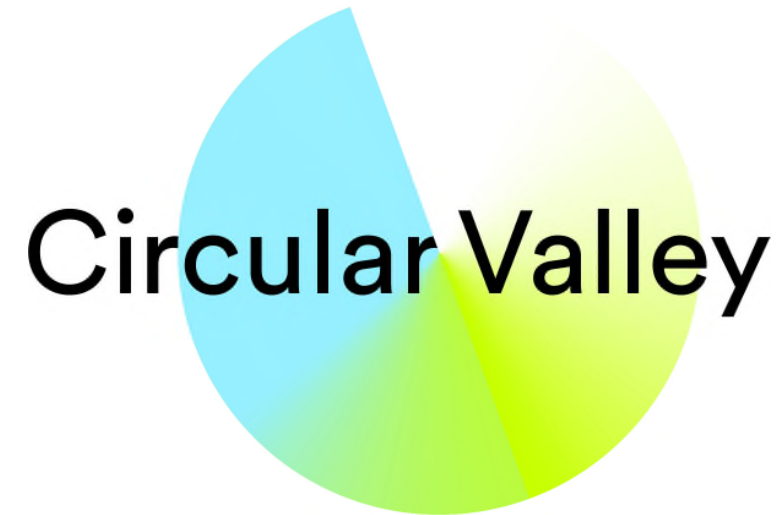
**Our demo-  
day on  
August 30th,  
2021,  
brought  
together 190  
partners with  
our start-ups**





In the longer-term multiple additional circularity topics shall be established in Circular Valley®





**THANK YOU!**  
**HAPPY TO ANSWER YOUR QUESTIONS**

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