

# CRADLE TO CRADLE ALS INNOVATIONSCHANCE FÜR DIE DRUCK- UND VERPACKUNGSINDUSTRIE?



Prof. Dr. Michael Braungart



dmpi Jahrestagung 2021

Fellbach

08.10.2021

# SCHWABENLANDTOWER, FELLBACH 2018





# GROSSGLOCKNE (2021)





# DER SPIEGEL, 20.02.2021 / INTERVIEW FLUTER, 2021



**fluter.**

Thema – Plastik

## „Müll ist eine menschliche Erfindung“

Was, wenn Waschmaschinen oder Autos so gestaltet wären, dass man sie ohne Probleme wieder auseinandernehmen könnte? Gespräch über eine Vision

*Interview: Julia Lauter und Fotos: Robin Tutenges*





## nextlevel

by Voith Paper — N° 04

p. 16

Transforming tissue  
with a global focus

p. 28

What are the  
future paths of paper?

p. 36

One-stop solution for  
all paper grades

The future is paper

A new philosophy

Out  
of the  
Box

The circular economy is currently on trend. The basic concept of circularity, however, has been around for some time. Professor Dr. Michael Braungart, the founder and scientific director of EPEA, an environmental research and consulting institute in Hamburg, Germany, co-founded the out-of-the-box Cradle-to-Cradle® philosophy back in the 1990s. Today, he works with businesses and governments to find Cradle-to-Cradle solutions. Here, he outlines the forward-thinking concept.

What's behind the Cradle-to-Cradle concept?

Cradle-to-Cradle is inspired by nature. In nature, everything has a starting point, and is designed to be a nutrient for something else. We call it Cradle-to-Cradle because no valuable raw materials are ever lost. It stands for innovation, quality and good design, and describes the safe and potentially infinite cyclical use of materials. It is about designing products more intelligently, using materials more effectively, so that both business and nature can thrive and grow.

What does this mean in practice?

Products need to be designed so that they can be carefully disassembled to become nutrients for new products through biodegradation or recycling. Anything that wears out or degrades during use needs to go back to the biosphere. Basically, waste equals food. Everything that does not wear out or degrade belongs in the technosphere and can be used again. Our approach is not about minimizing our ecological footprint, but to maximize its effectiveness.

Why do you focus on effectiveness, rather than efficiency?

Nature is not efficient. It is effective. We need to emulate nature in its beauty, functionality and effectiveness. You first have to ask what is the right thing, rather than optimizing the wrong thing. People trying to use plastic instead of recycled plastic materials is such an example. Making things less bad is simply not good enough. It needs to be beneficial. When you make wrong things perfect, you just make them perfectly wrong.

What is the right thing?

We have developed materials that, at the end of their life cycle, can be composted in municipal gardens – instead of being burned as hazardous waste. And Cradle-to-Cradle certifies that they are

“Making things less bad is simply not good enough. It needs to be beneficial.”

Professor Dr. Michael Braungart

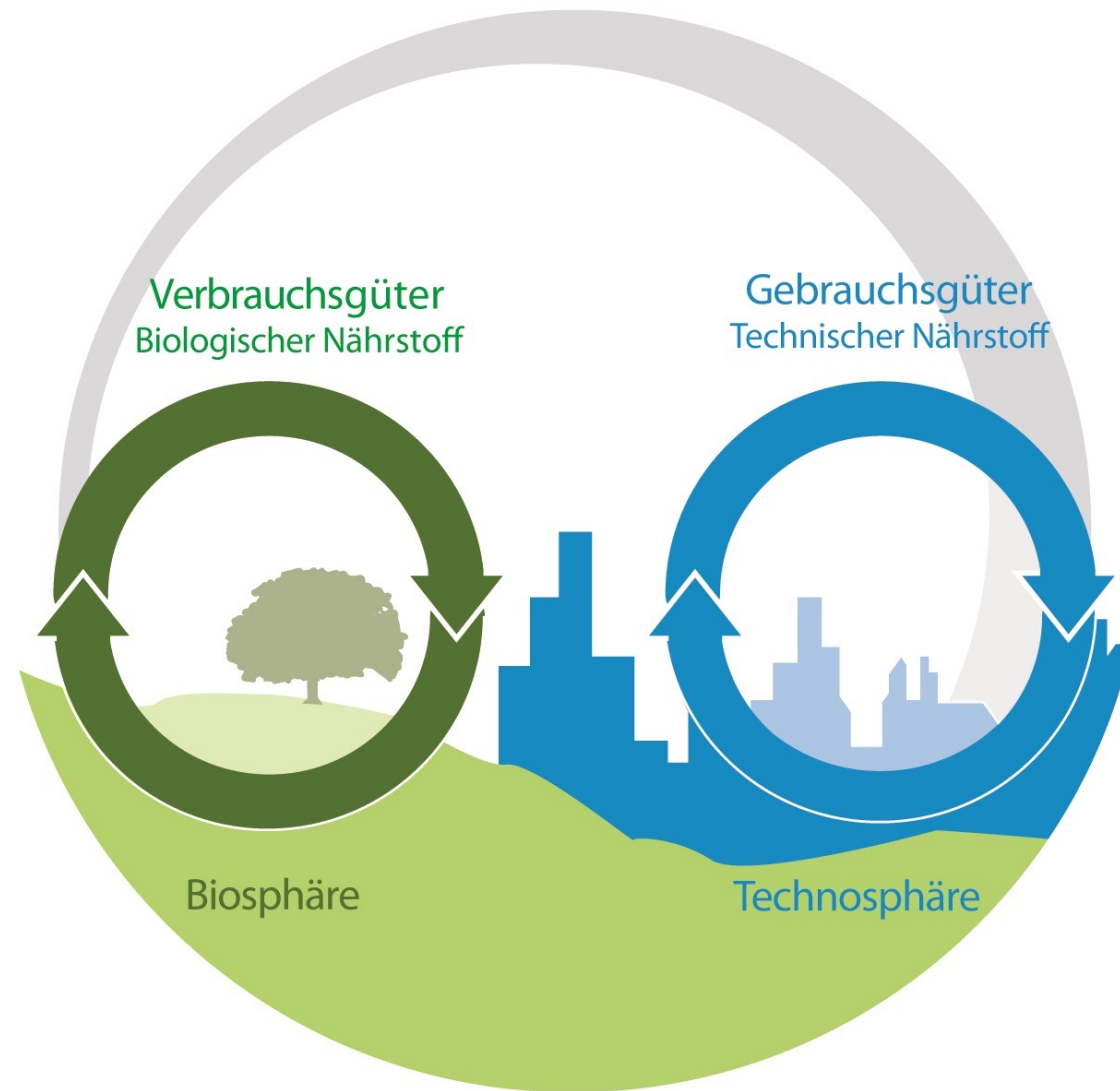
only free of contaminants, but which can also remove fine dust from the air.

What could the paper industry improve?

Paper per se is a beautiful material. But still here we have the chance to optimize it. For example, my book “Remaking the Way We Make Things,” that I wrote with the US architect William McDonough in 2002, was printed on paper that is perfectly compostable. We can do it. You can only have safe and economical paper recycling with healthy printing.

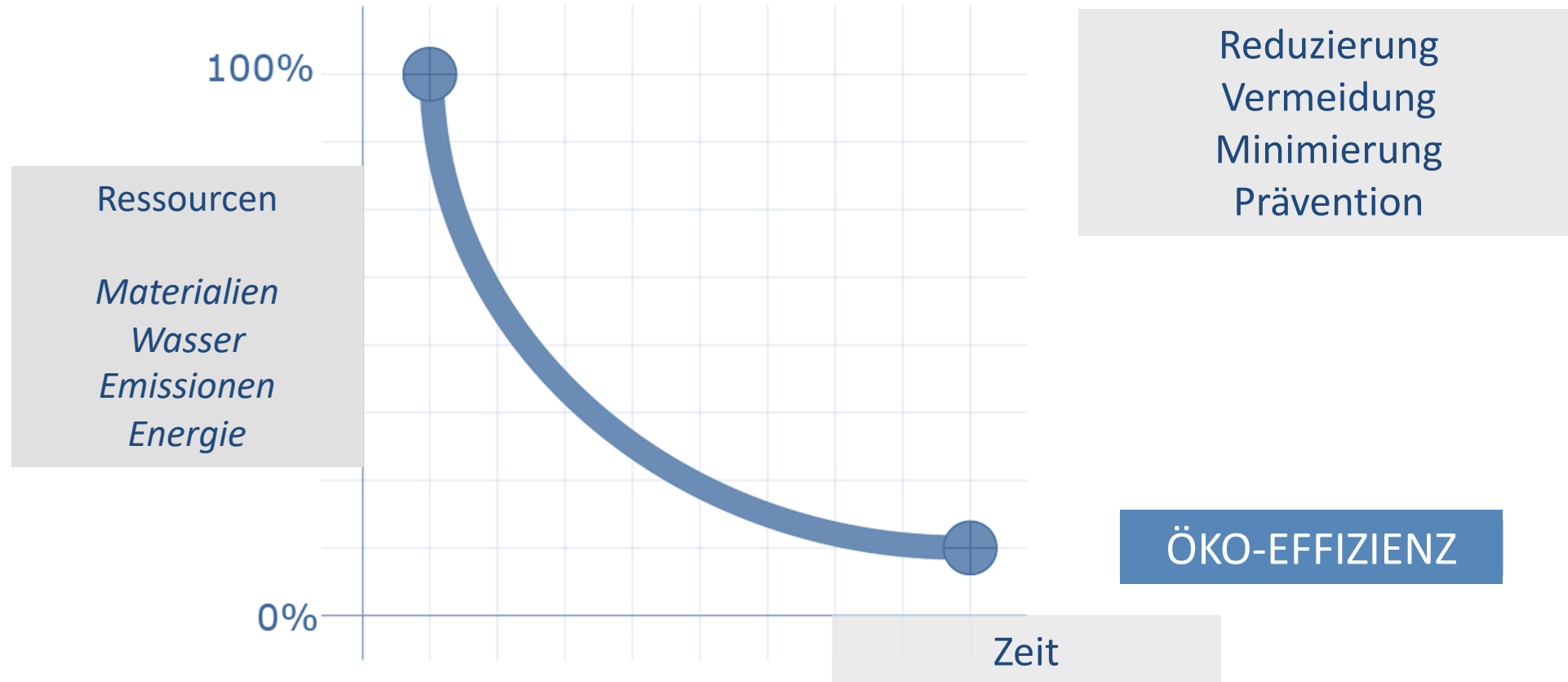
A final word of inspiration?

Cradle-to-Cradle combines European problem-solving with the American attitude of getting things done. We need both. We also need to understand the Asian way of seeing humans as a part of nature. Instead of just trying to understand what a circular economy or Cradle-to-Cradle approach can do, you need a personal innovation opportunity. Don't make it an ethical thing. It's only an innovation thing. Make it a quality thing. That's it.

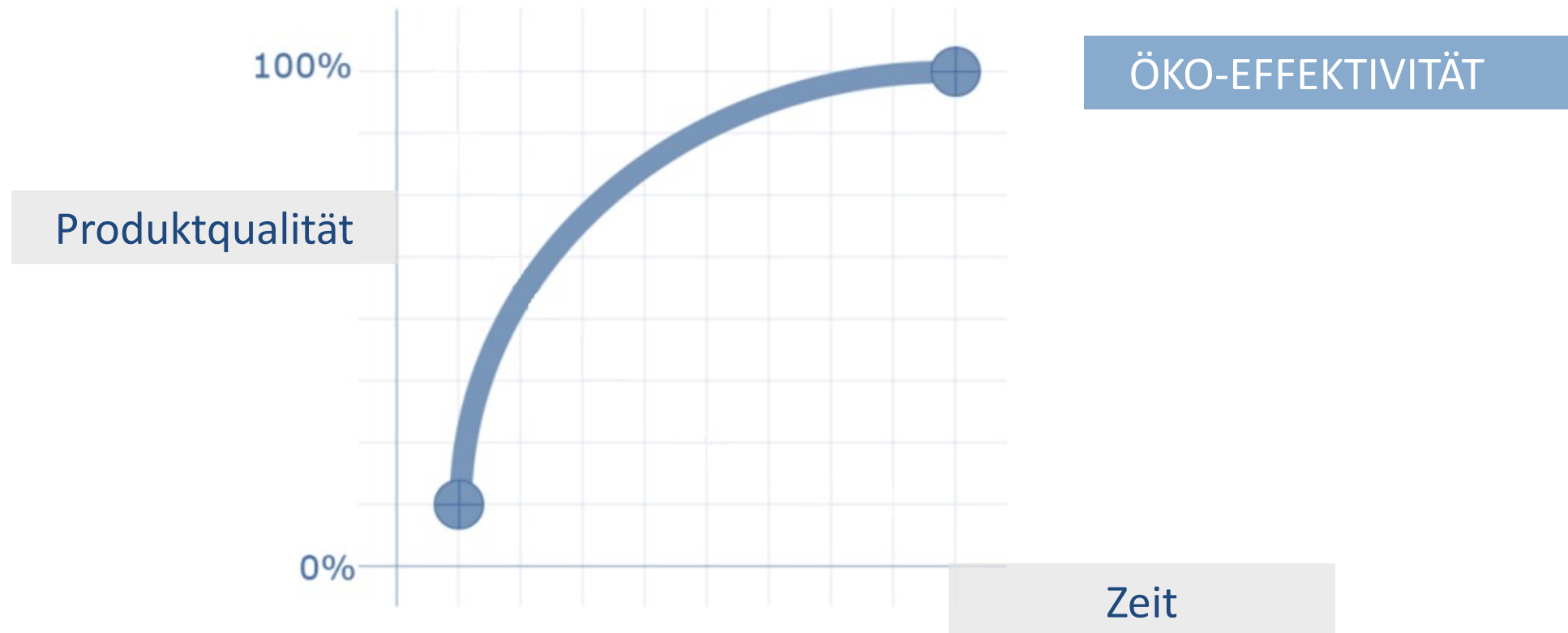




# NACHHALTIGKEIT - DEN KUNDEN ZUM FEIND MACHEN?



# VON DER WIEGE ZUR WIEGE: ZIEL IST UMFASSENDE QUALITÄT & NÜTZLICHKEIT





# CRADLE TO CRADLE-PARADIGMA



**Nährstoffe sind  
Nährstoffe**

**Nutzung  
erneuerbarer  
Energien**

**Aktive  
Unterstützung  
von Vielfalt**

# ÖKO-EFFEKTIVITÄT & ÖKO-EFFIZIENZ

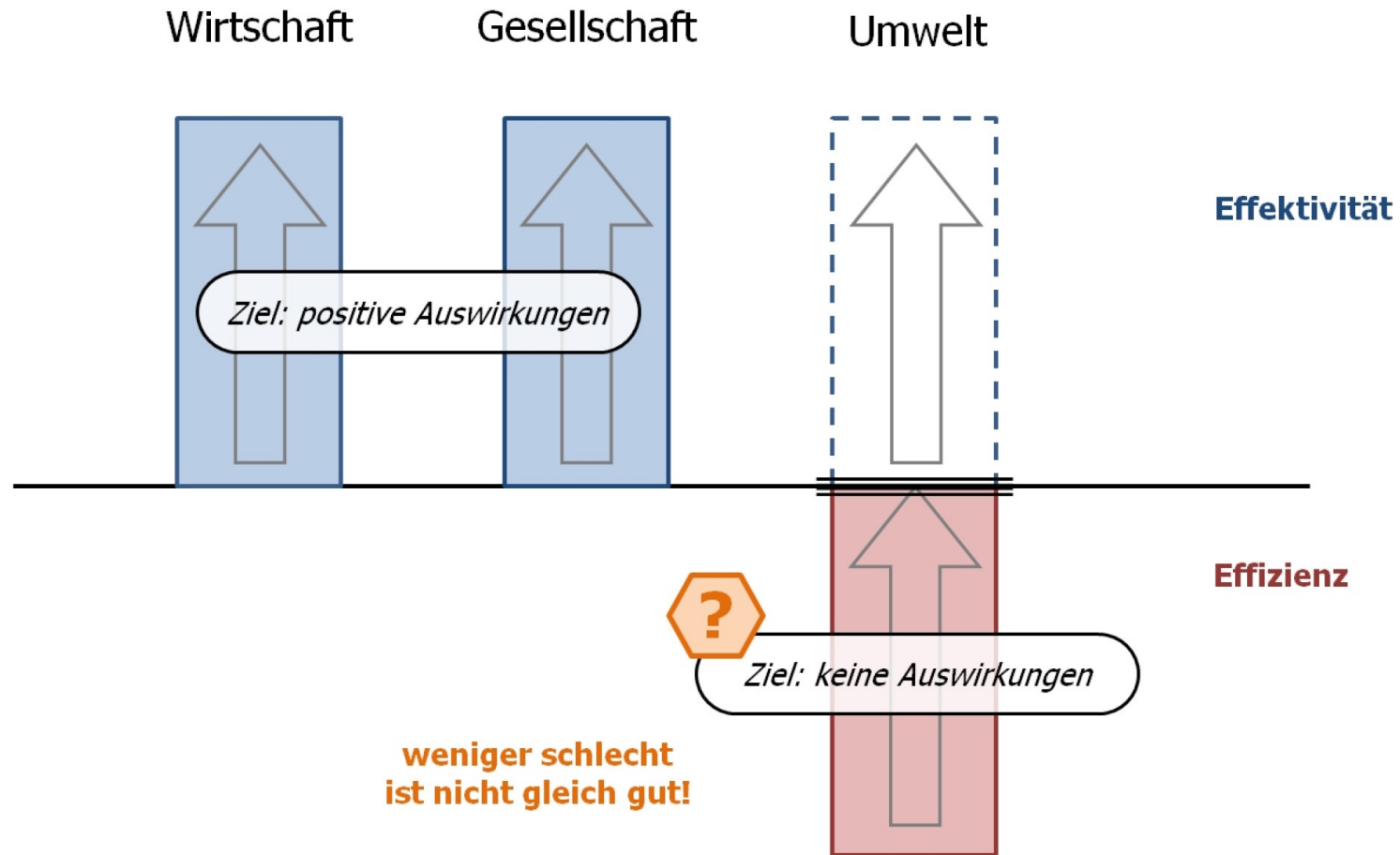




# EPEA



# TRIPLE TOP LINE



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## 6 R-STRATEGIE

REDUCE, REUSE, RECYCLE?

**RETHINK!**  
**REINVENT!**  
**REDESIGN!**



Design als entscheidender Faktor!  
→ Intelligentes Design statt  
Verwaltung von Müll / „Upcycling“

# FEINSTAUB





# FUSSGÄNGERÜBERWE





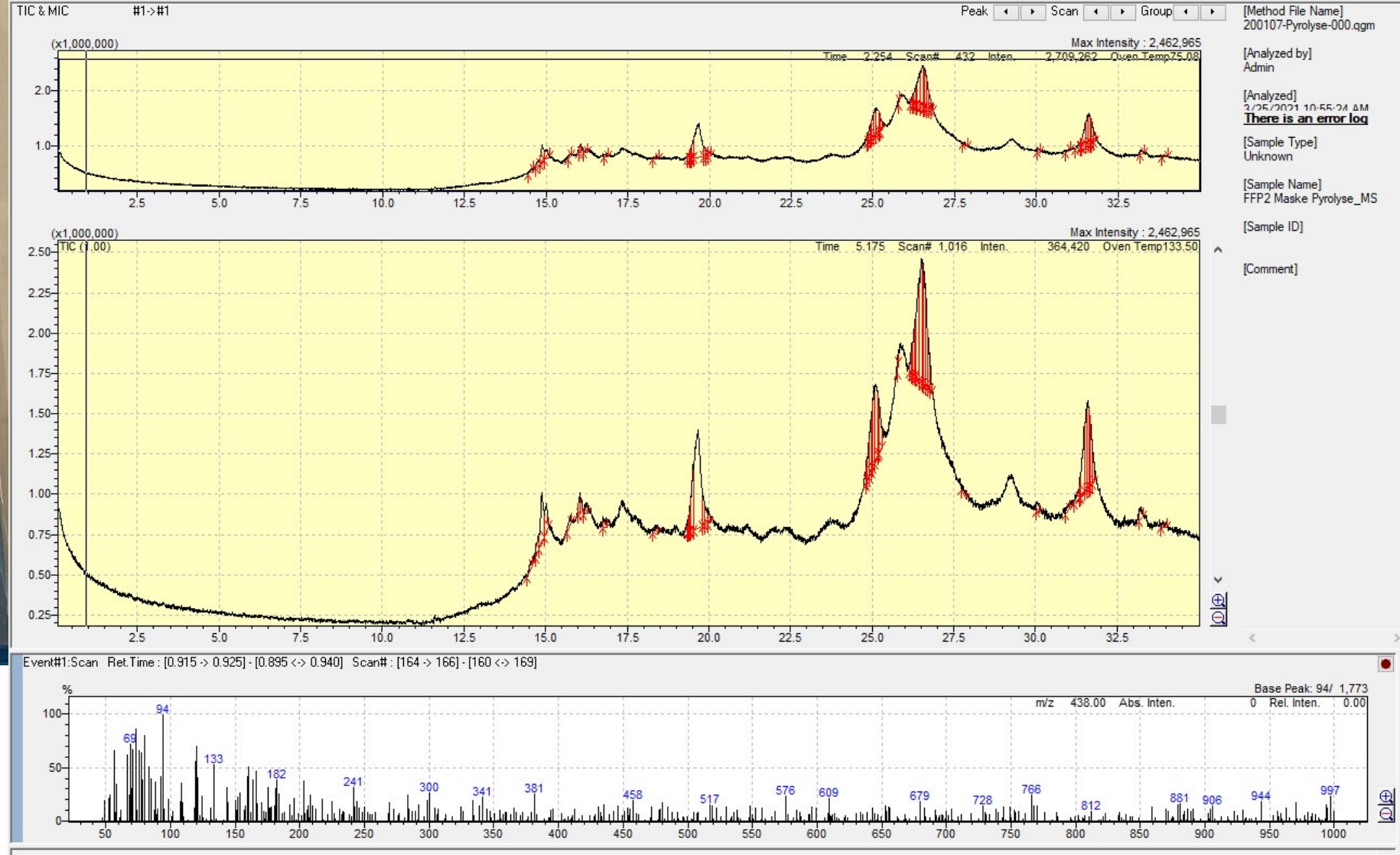
# MICROPLASTICS FOR FUTURE?

## (FRIDAYS FOR FUTURE, HAMBURG)

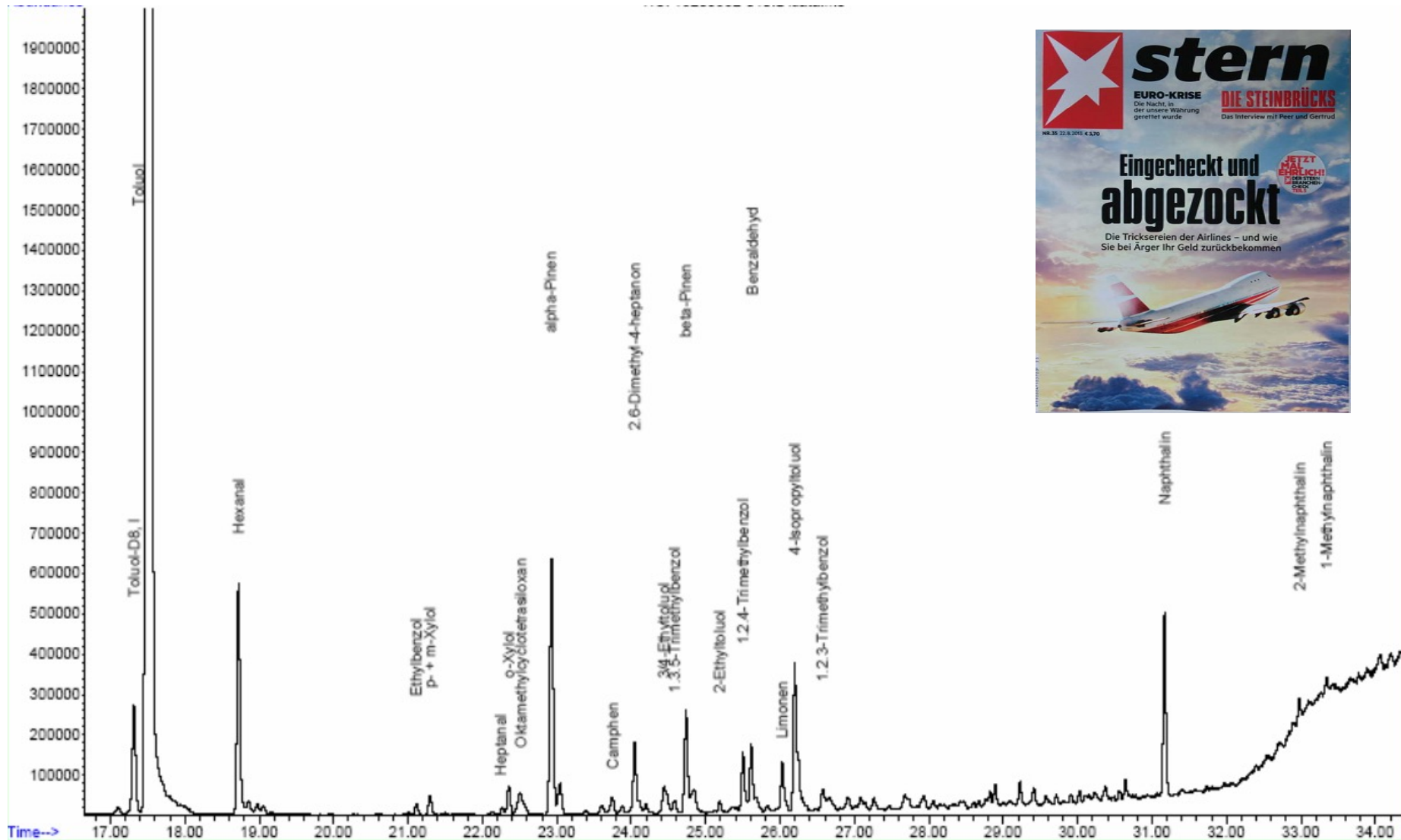




# AUSGASUNG – FFP2-MASKE



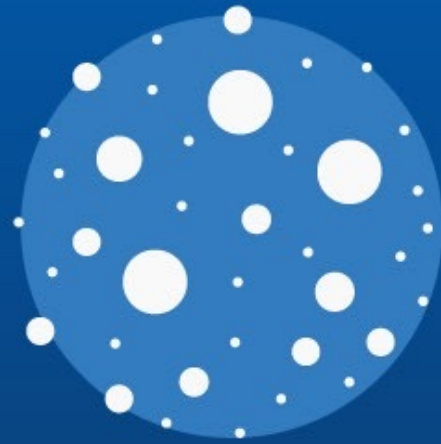
# AUSGASUNG - MAGAZIN



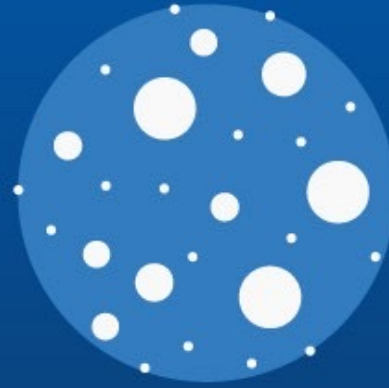


# Where Do the Oceans' Microplastics Come From?

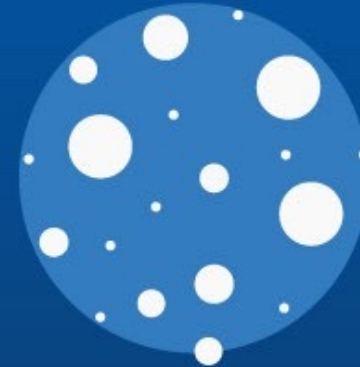
Distribution of sources of microplastics in the world's oceans



Synthetic textiles  
35.0%



Car tires  
28.0%



City dust  
24.0%



Road markings  
7.0%



Marine coatings  
3.7%



Personal care products  
2.0%



Plastic pellets  
0.3%



@StatistaCharts

Source: International Union for Conservation of Nature

statista



# „KREISLAUFWIRTSCHAFT“





# PLASTIKPROBLEM = PAPIERPROBLEM





# SCHADSTOFFE – TOILETTPAPIER

14.03.2016



In Toilettenpapier nachgewiesen	In mg/kg
Organisches Chlor	367
Organisches Fluor	73
Zink	29
Titan	9
Kupfer	13
Chrom	1,8
Blei	1,8
Nickel	1,2
Antimon	<1,0

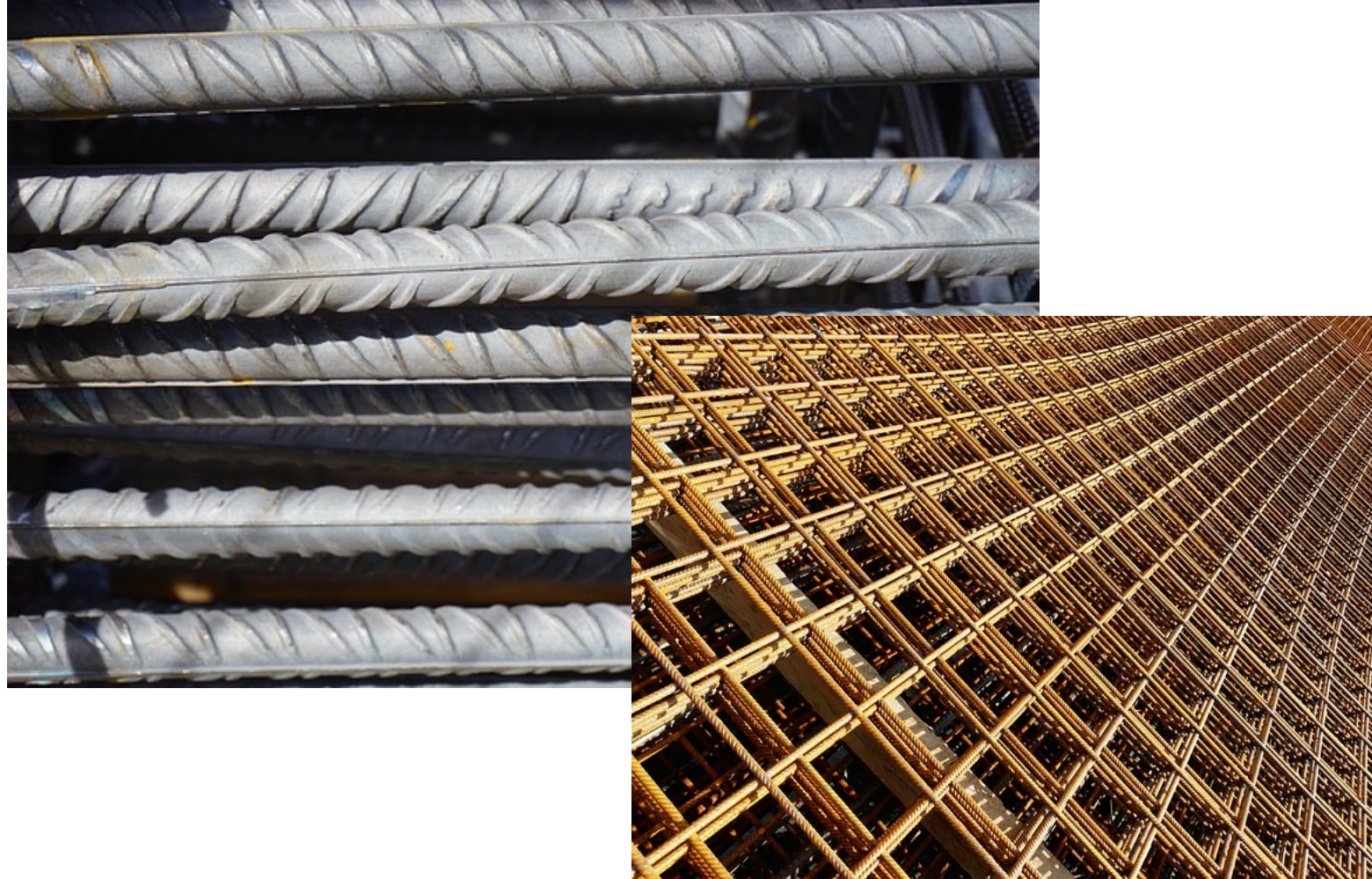
# PRIMITIVES RECYCLING



Ein Auto enthält mindestens 40 verschiedene Legierungen



# PRIMITIVES RECYCLING



# BMW – CRADLE TO CRADLE

JAHRESKONFERENZ. MEDIEN-TAG 2021.





# UNSERE ZUKUNFT? (BANGLADESCH)



# UNSERE ZUKUNFT? (BANGLADESCH)





# EFFIZIENZ-DENKEN



How do you get more  
out of the same resources?

Accenture helps leading companies increase performance without increasing costs. By optimising supply chains to enhance productivity. By using predictive analytics that drive growth through insights. By applying outsourcing not only as a way to save money but also as a way to make it. Talk to us and find out all the ways our capabilities can help you make the most of yours.

• Consulting • Technology • Outsourcing

**accenture**  
High performance. Delivered.

# IST DAS BESTE, NICHT ZU EXISTIEREN? (SKY NEWS, 10.07.2021)

## Population Matters charity give Harry and Meghan award for limiting family to two children

The couple will receive £500 to donate to charity for making the "enlightened decision" to only have two children.

🕒 Saturday 10 July 2021 06:38, UK

Duchess Of Sussex

Meghan Markle

Prince Harry



Harry and Meghan are pictured with their first child Archie on a tour of Africa



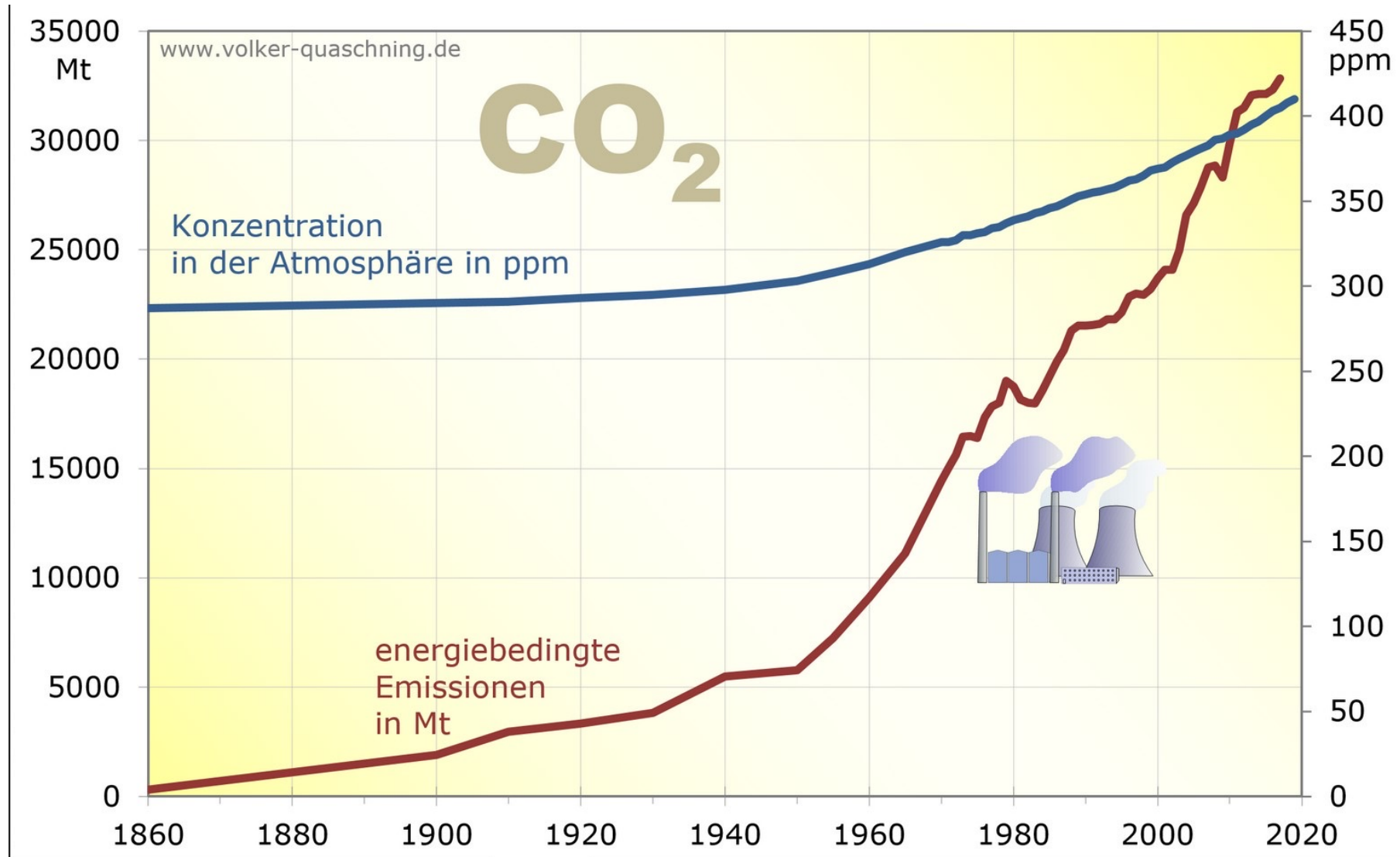
# KEINE PANIK!



“Our house is on fire [...] I don’t want you to be hopeful. I want you to panic.”

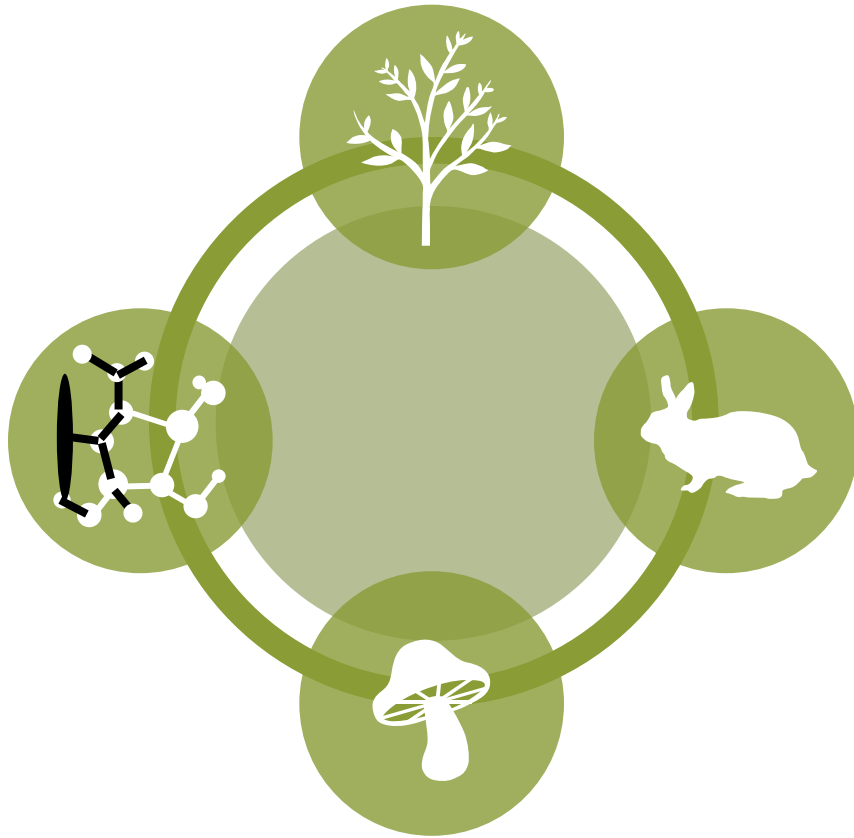
*Greta Thunberg (Weltwirtschaftsforum, Januar 2019)*

# CO<sub>2</sub>-GEHALT IN DER ATMOSPHÄRE

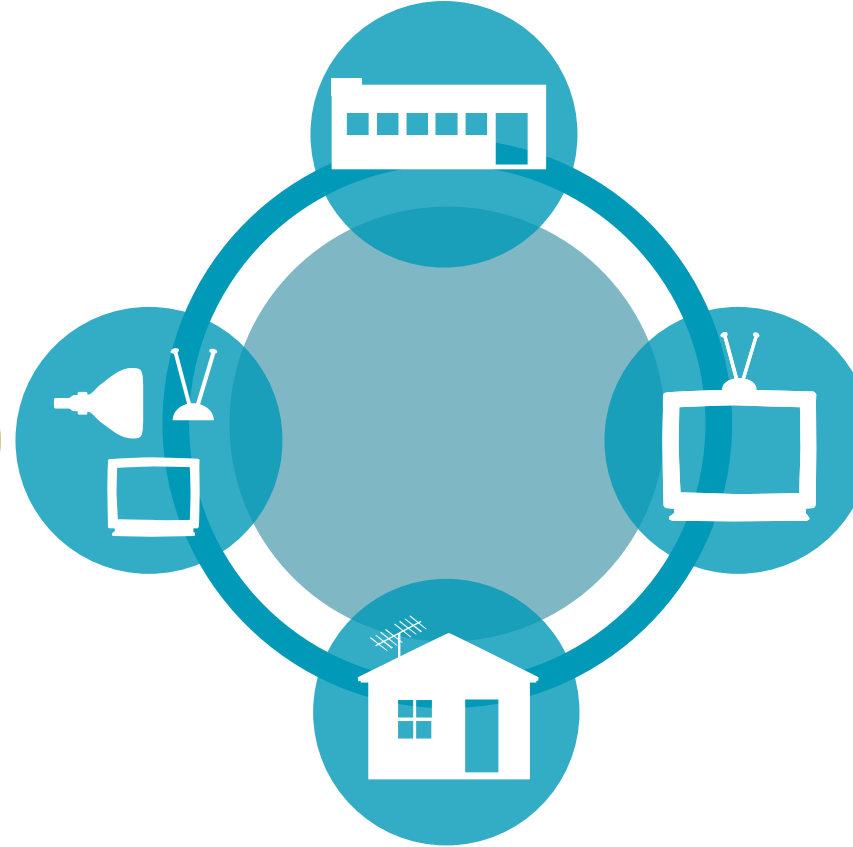




# PRODUKTBEISPIELE



**Biosphäre**



**Technosphäre**

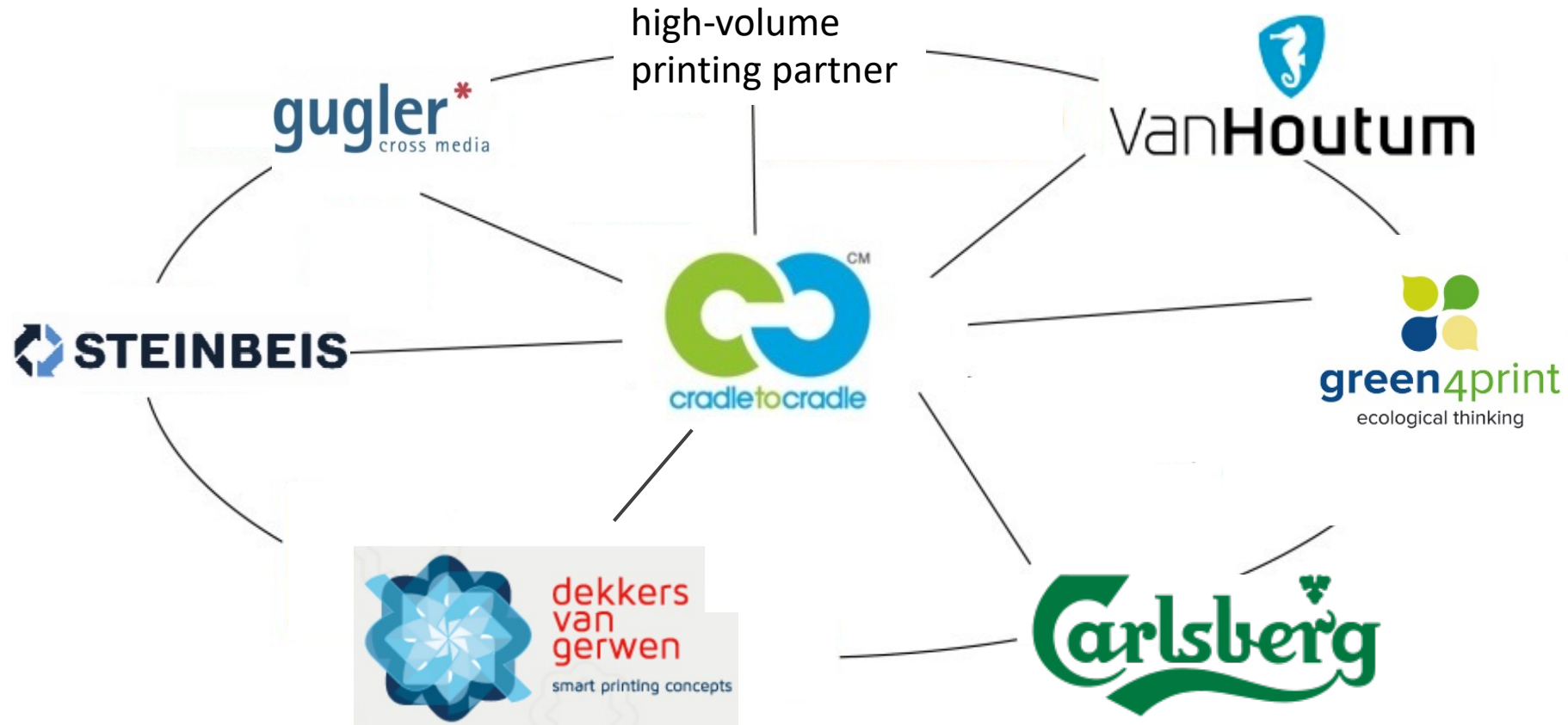
# PAPIER







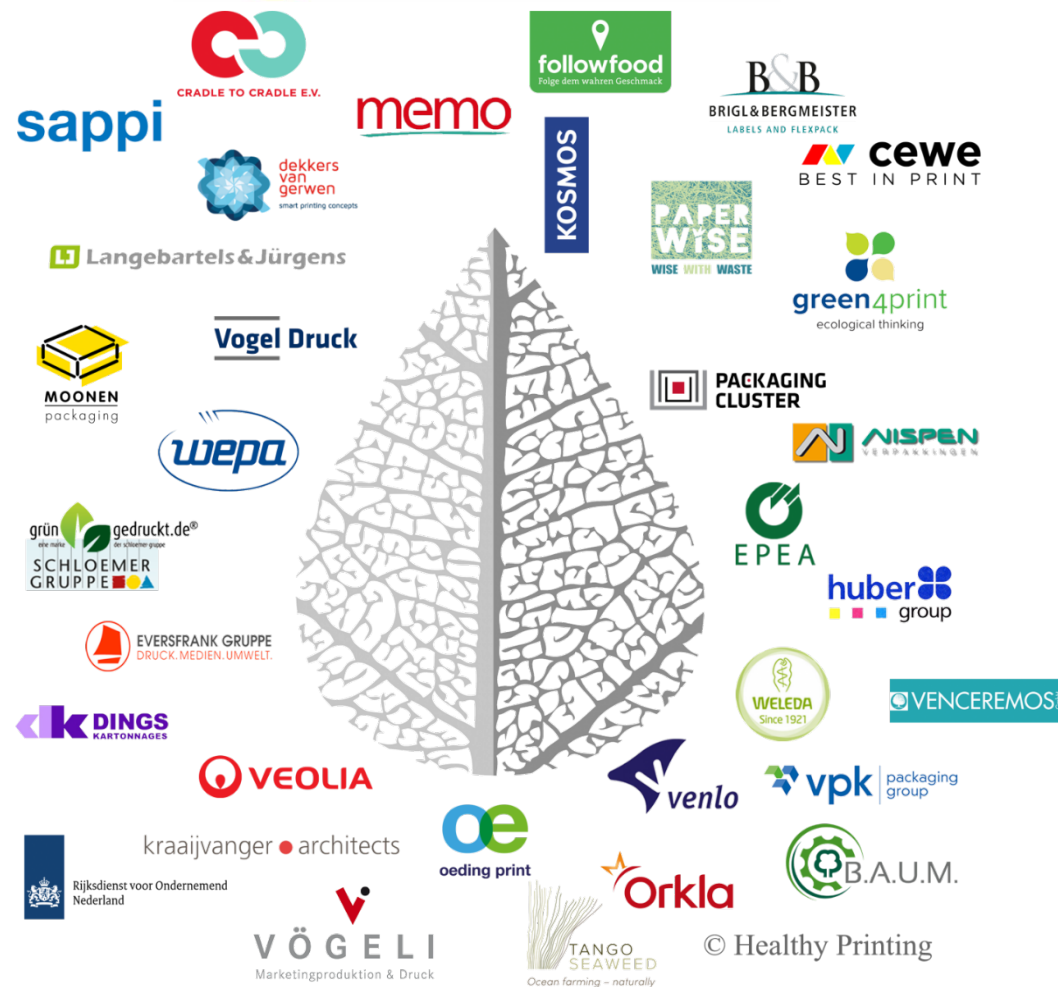
# PAPIER UND DRUCK







# Healthy printing!



Eine EPEA-Initiative – unterstützt von der DOEN-Stiftung



# C2C-VERPACKUNGEN

Dopper Original

DOPPER



## Description

The Dopper Original is a reusable water bottle, designed to be durable and easy to clean.



Cradle to Cradle Certified  
**SILVER**

750 ML PAINT CAN - ARDAGH GROUP  
**Ardagh Group**

Certification Standard Version 2.1.1





# ZUHAUSE & BÜRO



Cradle to Cradle Certified  
SILVER

ADD CIP 15 - ECO-POINT INTERNATIONAL B.V.  
Eco-Point International B.V.

Certification Standard Version 2.1.1



Cradle to Cradle Certified GOLD

GREEN CARE PROFESSIONAL CLEANING & CARE  
RANGE

tana-Chemie GmbH and Werner & Mertz Group

Certification Standard Version 3.0



tana  
PROFESSIONAL  
schafft den Unterschied

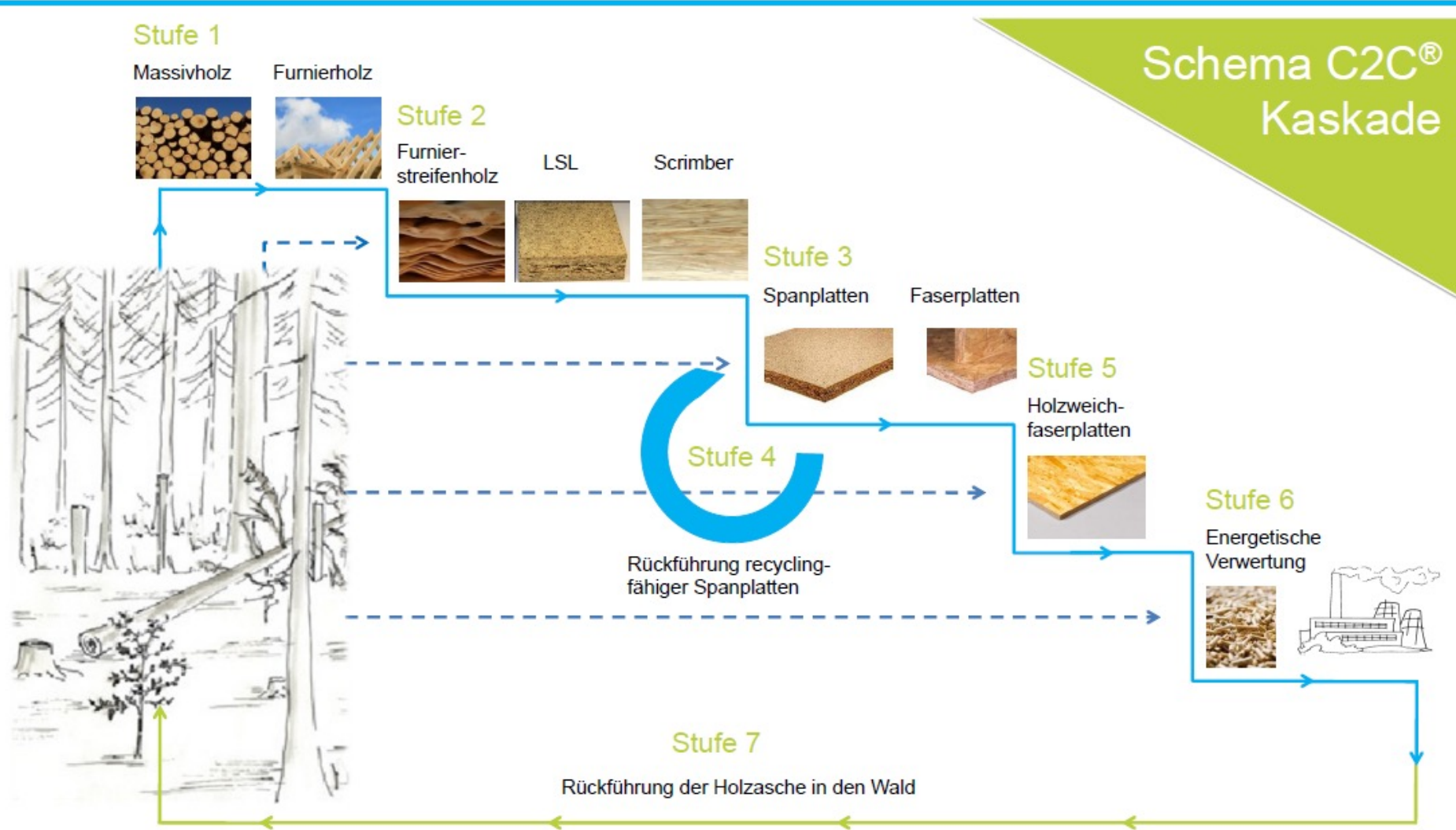
ECOVER



replenish™



# HOLZKASKADE





# C2C LAB, BERLIN (ERÖFFNUNG: 09/2019)



## C2C LAB

Innovation. Education. Inspiration.

The C2C LAB in Berlin is the world's first comprehensive inventory refurbishment according to Cradle to Cradle criteria and makes it a tangible and practical experience as an educational centre, NGO office and living laboratory. As a quality and innovation driver in Berlin the Cradle to Cradle association sets new standards for healthy and recyclable innovations with a positive footprint. The C2C LAB brings C2C Changemaker together and expedites the transition to a C2C future. It offers workshops, lectures, panel discussions etc. for all age groups and all levels of knowledge.



CRADLE TO CRADLE E.V.



<https://c2c-lab.org/c2c-laboratory/>

# C2C & DIGITALISIERUNG

## Digitalisierung ↔ C2C

0 Definierte Zusammensetzung der Materialien

1 Bestimmung Produkt Bio-/Technosphäre

2 Definierte Nutzungszeit Technosphäre

**Keine Digitalisierung ohne C2C!**

**Kein C2C ohne Digitalisierung!**



# WASCHMASCHINEN ALS SERVICE (DIE ZEIT, 08.04.2020)

Ursula von der Leyen

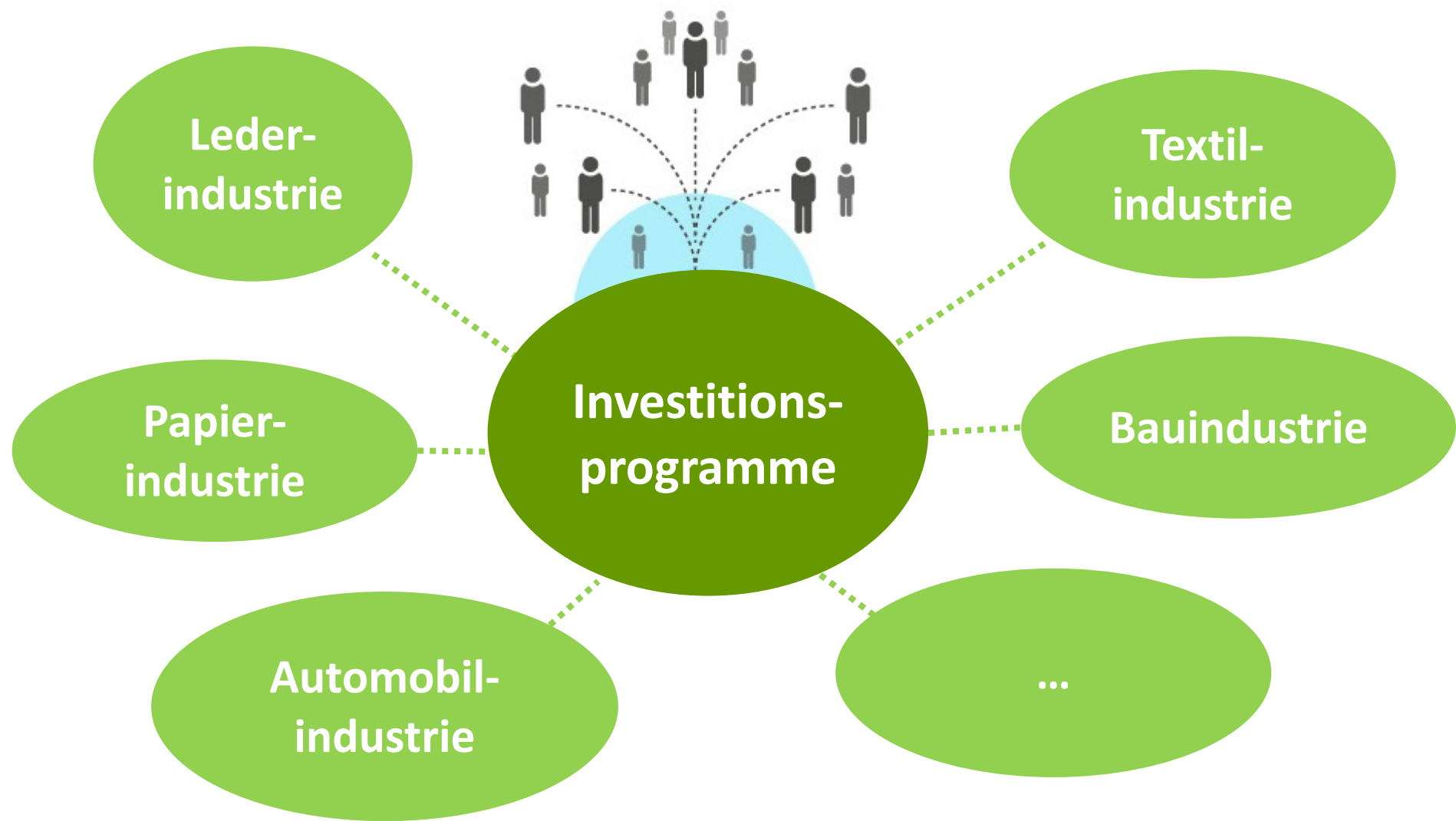
## "Es führt kein Weg zurück"

Seite 3/3: "Weg vom Kaufen, hin zur Dienstleistung"



ZEIT  ONLINE

**Von der Leyen:** Der Kurs bleibt. Der Green Deal ist die neue europäische Wachstumsstrategie. Unser bisheriges Wachstumsmodell beruhte auf Raubbau an der Natur und auf Externalisierung der Kosten bis hin zu den globalen Müllhalden. Was uns aber autarker machen würde, wäre mehr Kreislaufwirtschaft, bei der zwar der Natur einmalig etwas entnommen wird, das dann aber möglichst recycelt oder repariert werden kann. Der zweite Paradigmenwechsel heißt: weg vom Kaufen, hin zur Dienstleistung. Solange eine Waschmaschine gekauft wird, gibt es ein Interesse daran, dass sie nach einer Weile kaputtgeht und billig entsorgt wird. Wenn sie aber vom Hersteller über eine Art Dienstleistung zur Verfügung gestellt wird, hat er selbst das größte Interesse daran, dass die Waschmaschine möglichst lange hält.





# STRAUBENHARDT ALS C2C-GEMEINDE



Der Gemeinderat hält trotz steigender Kosten mehrheitlich an der bestehenden Planung der Wache fest. Foto: Wulf Architekten

Region

Kommentare (0) Drucken



26.07.2018

Auf dem Weg zur Modellgemeinde: Straubenhardt will mit Cradle to Cradle für nachhaltige Bauten sorgen





# A Building...

...THAT CLEANS THE AIR JUST...

...THAT CREATES A HEALTHY CLIMATE JUST ...

...THAT CHANGES COLOURS WITH THE SEASONS JUST ...

...THAT CELEBRATES HEALTHY ABUNDANCE AND BEAUTY JUST ...

...THAT CAPTURES LIGHT & CO2 TO MANUFACTURE RENEWABLE MATERIALS JUST...

...THAT USES MATERIALS LOCALLY IN A GLOBALLY BENEFICIAL WAY JUST...

...THAT RESISTS FIRES, STORMS, FLOODS, DROUGHTS, AND EARTHQUAKES JUST...

...THAT PROVIDES MATERIALS FOR CIRCULAR SYSTEMS JUST...

...THAT EXCHANGES INFORMATION WITH ITS ENVIRONMENT JUST...

...THAT OFFERS SHADE TO PROTECT SPECIES FROM THE SUN JUST...

...THAT SYNTHESISES COMPLEX SUBSTANCES JUST...

...THAT IS A HABITAT FOR HUNDREDS OF SPECIES JUST...

...THAT OPERATES WITH RENEWABLE ENERGY JUST...

...THAT GENERATES SOIL AND NUTRIENTS JUST...

...THAT SUPPORTS DIVERSE WAYS OF LIFE JUST...

...THAT PROMOTES AND CELEBRATES BIODIVERSITY JUST...

...THAT CREATES SYMBIOTIC COMMUNITIES JUST...

...THAT FEEDS ANIMALS AND PLANTS JUST...

...THAT IS SAFE FOR THE BIOSPHERE JUST...

...THAT MAKES OXYGEN JUST...

...THAT GROWS OVER TIME JUST ...

...THAT PURIFIES WATER JUST ...

...THAT MAKES GERMANS, TREE HUGGERS AND OTHER EMOTIONAL PEOPLE SING JUST...

...THAT ADAPTS OVER TIME, IS SELF-RENEWING, RESTORATIVE AND SELF-REPLICATING JUST...

# ...like a Tree.





A photograph of a sandy beach with waves in the background. In the foreground, a series of footprints leads from the bottom left towards the top right. Some of the footprints are filled with small bouquets of colorful flowers, including purple, yellow, and white daisies. In the upper right corner, the lower legs and feet of two people are visible, standing on the sand. The text "Eine Cradle to Cradle-Wirtschaft..." is overlaid in blue on the lower left side of the image.

Eine Cradle to Cradle-  
Wirtschaft...