

12. November 2025

# Circular Economy and the European Start-up Landscape

Leonhard Teichert



# Today's session: What to expect

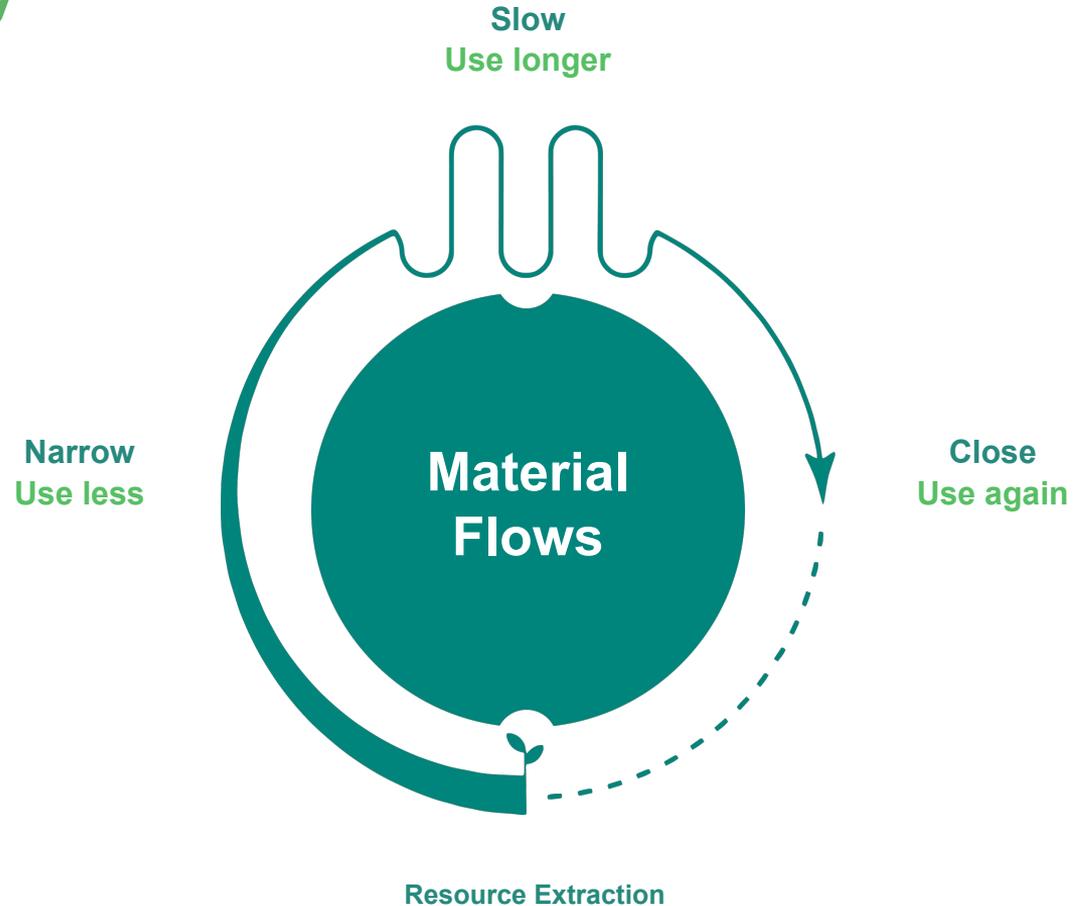
- **The “why”** of circular economy and how the narrative has changed
- **Foundations** of circularity and basic principles (including business models)
- **Start-up trends** in the circular economy world / which Start-up to found tomorrow



# What is a circular economy?



In a **circular economy** materials are kept in loops by narrowing, slowing and closing material flows.



**Why should you  
think about circular  
economy?**



**Take**



**Make**



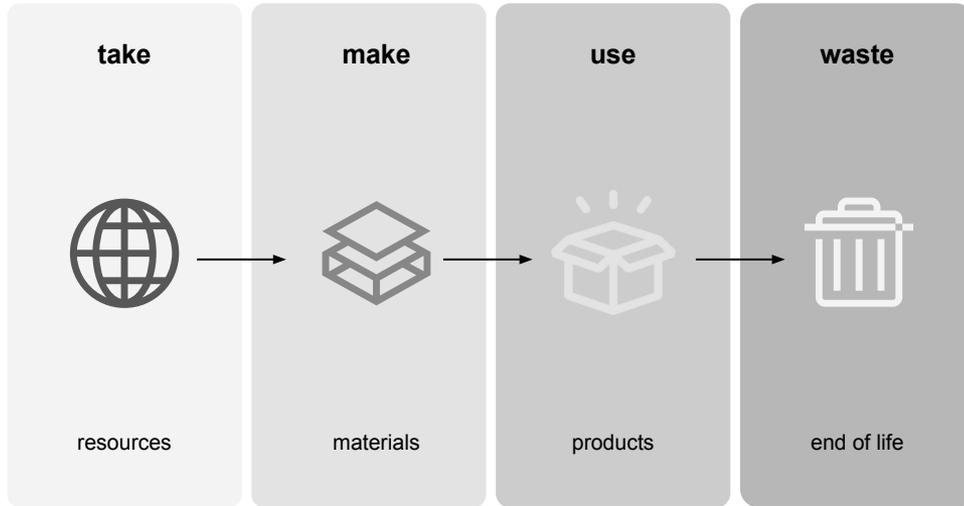
**Use**



**Waste**



# The way we run our economy brings the planet to its limits: We take, make, use and then waste resources.



**55%**

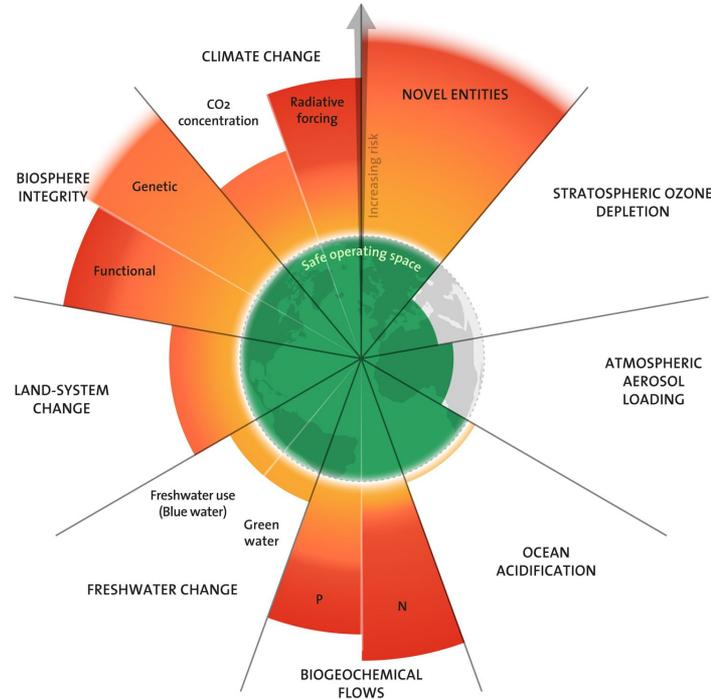
of greenhouse gas emissions caused by resource extraction

**90%**

of biodiversity loss caused by resource extraction



# Resource depletion reaches the limits of what the planet can take at high speed. Circularity can be a way out.



Sources: [Stockholm Resilience Centre \(2023\)](#); [International Resource Panel - Resource Outlook \(2019\)](#); [United Nations \(2017\)](#); [Potsdam Institute for Climate Impact Research](#); [World Food Program](#); [European Commission \(2021\)](#)



**Take**



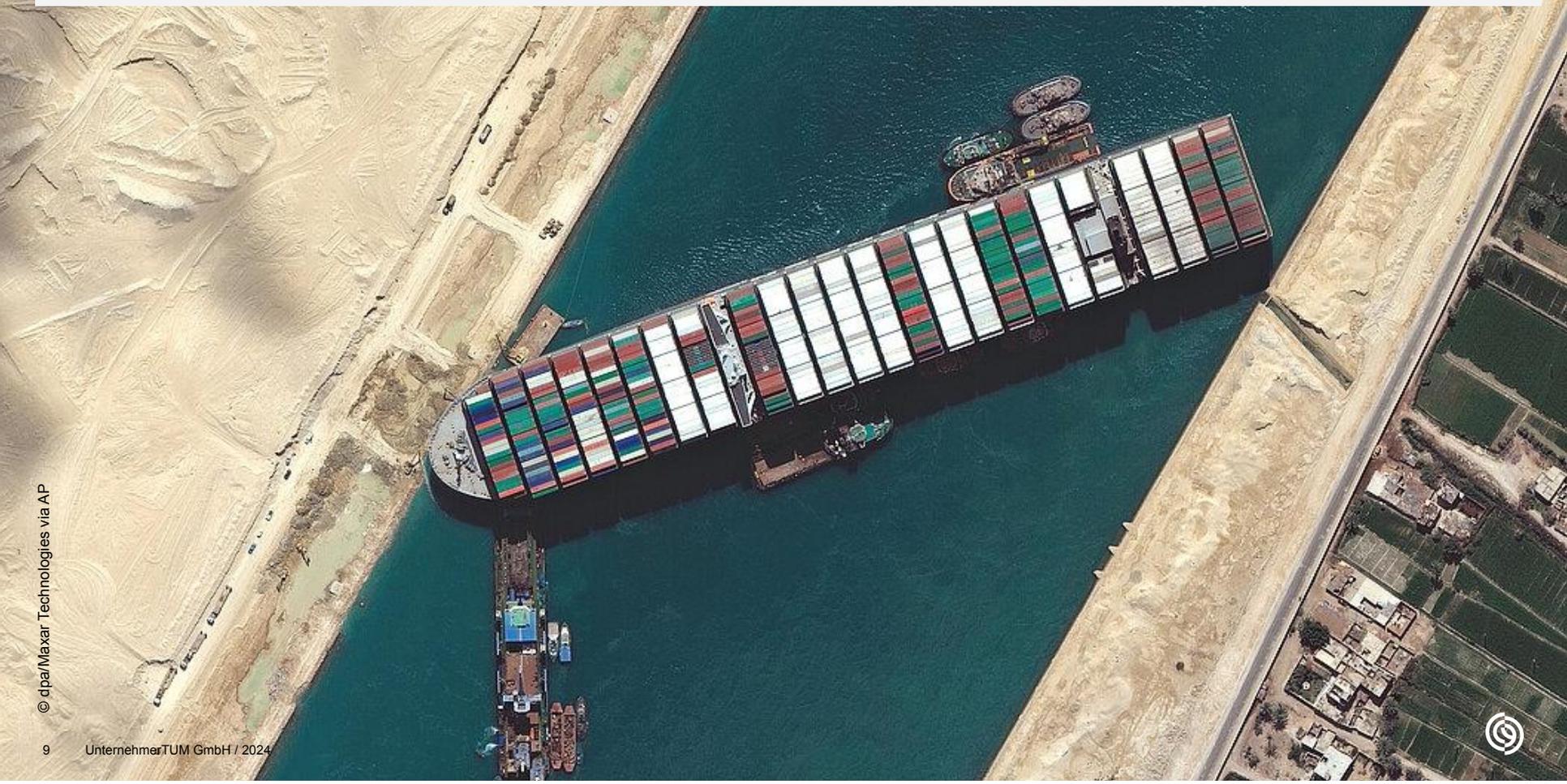
**Make**



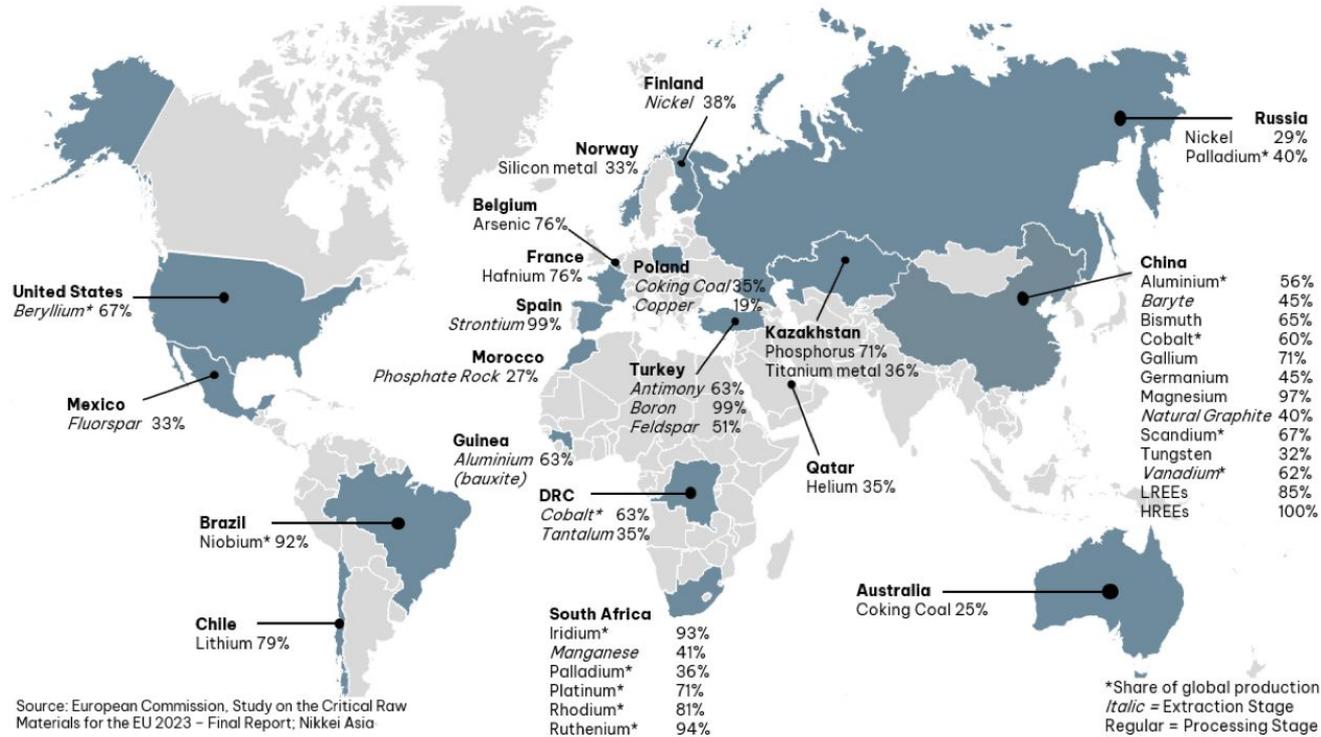
**Use**



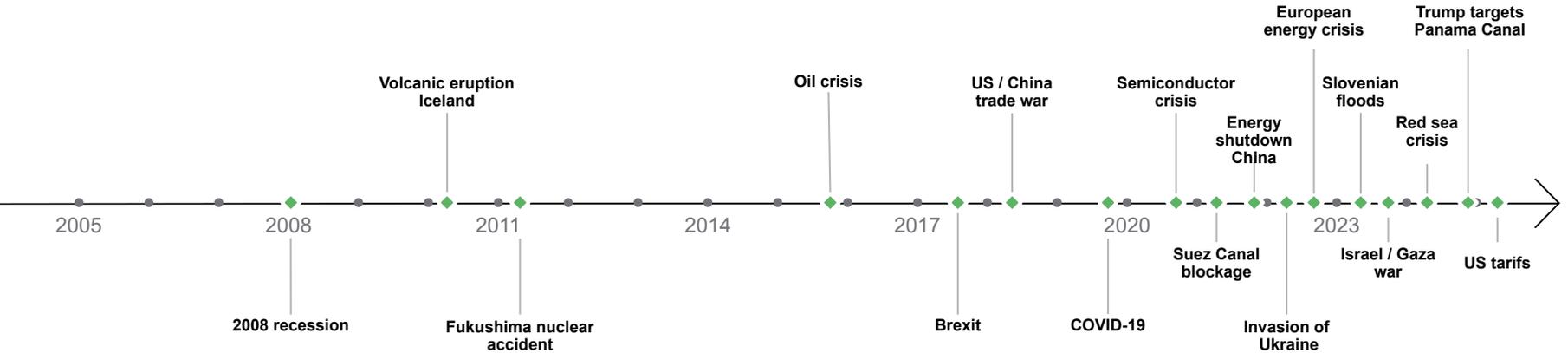
**Waste**



# Europe depends on critical raw-material imports from all over the world



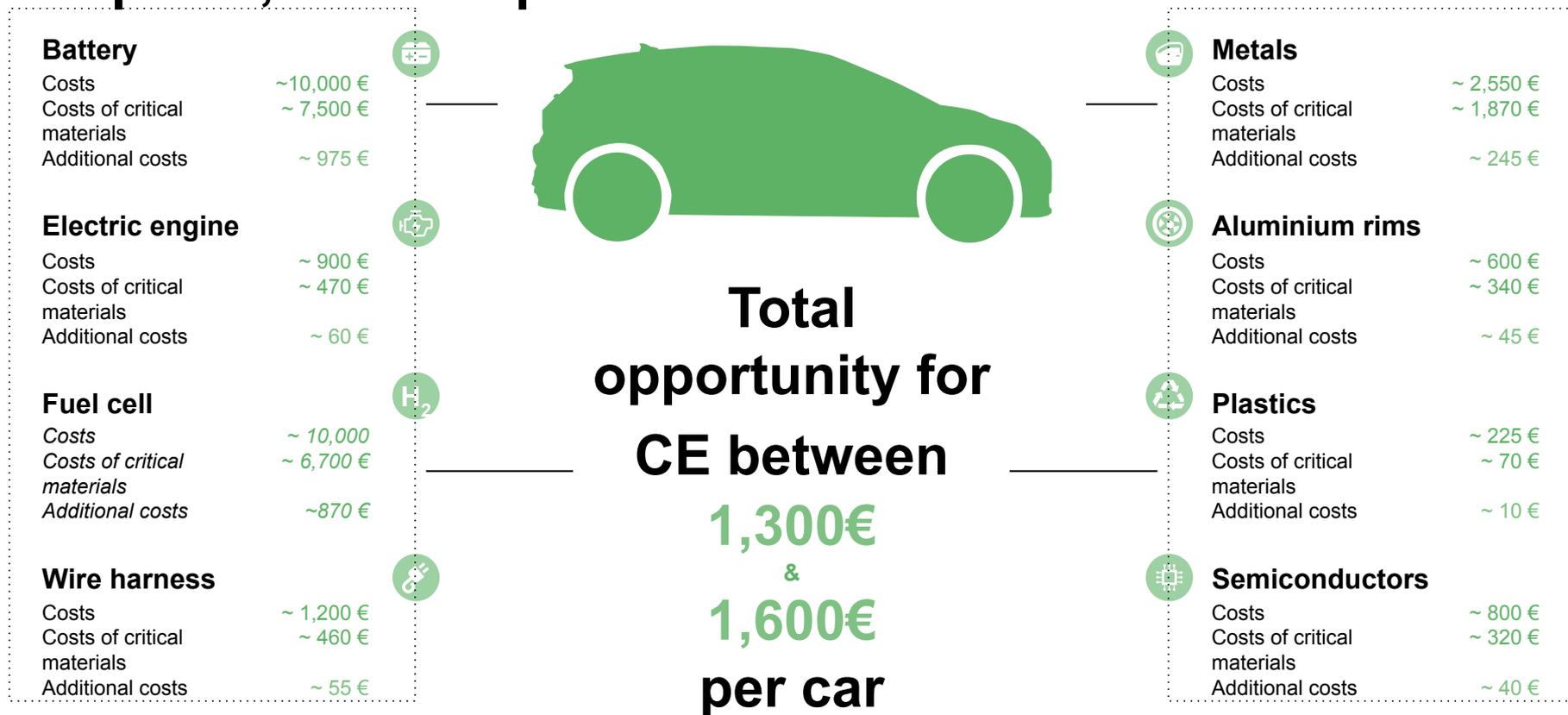
# Circular economy is no longer (just) a sustainability game – It's a resilience game



**Every 1.4 years a geopolitical crises with severe international economic implications occurs.**



# Example case study | Total material risk can be calculated to up to 1,600 EUR per vehicle



<sup>1</sup> Indicative for the event of a US – China conflict  
Source: Porsche Consulting

**Take**



**Make**



**Use**



**Waste**



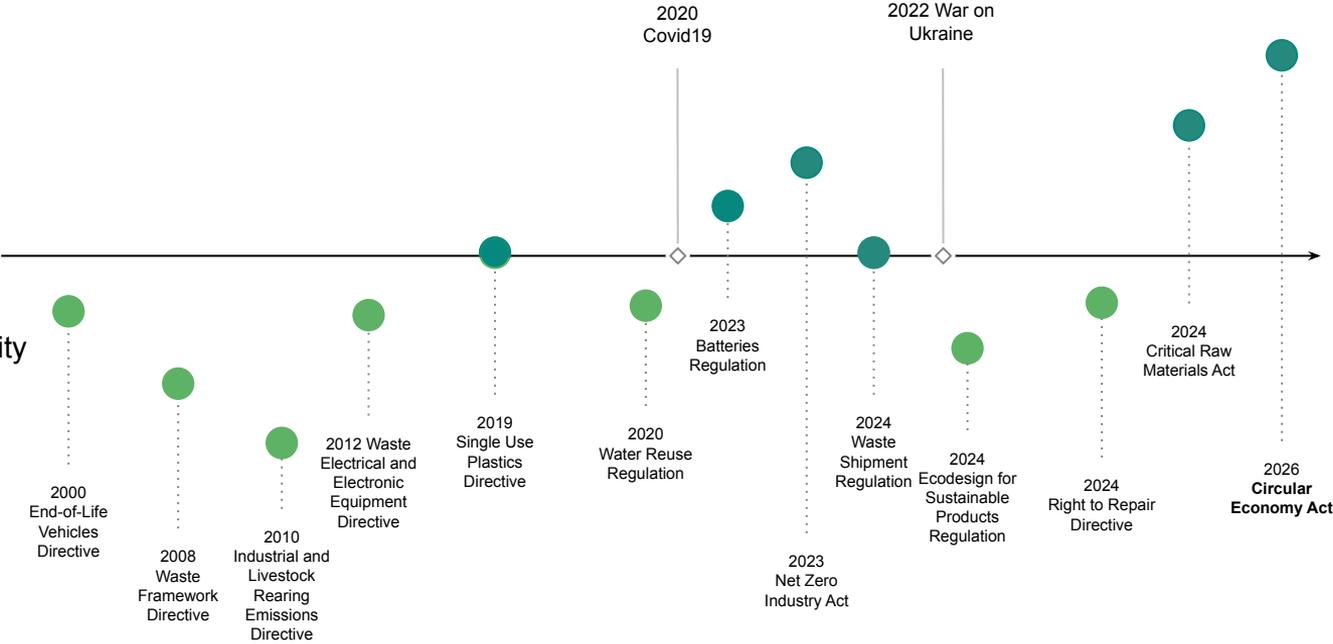
# Legislative focus shifts from sustainability to resilience



*"[...] we need a paradigm shift on **circular economy**."*  
Ursula von der Leyen, President of the European Commission, 2025

→|||← Focus on Resilience

🌱 Focus on Sustainability



# Implementing a circular economy can address sustainability and business challenges

## Do you see the business side?

„A circular economy describes an economic system that replaces the ‚end-of-life‘ concept with reducing, alternatively reusing, recycling, and recovering materials in production/distribution and consumption processes (...).”

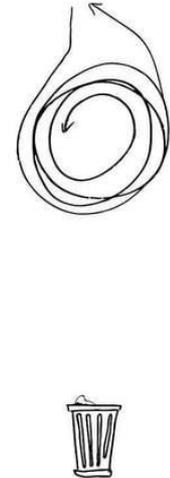
LINEAR ECONOMY



RECYCLING ECONOMY



CIRCULAR ECONOMY



The future fitness of companies depends on their ability to decouple value creation from resource depletion.



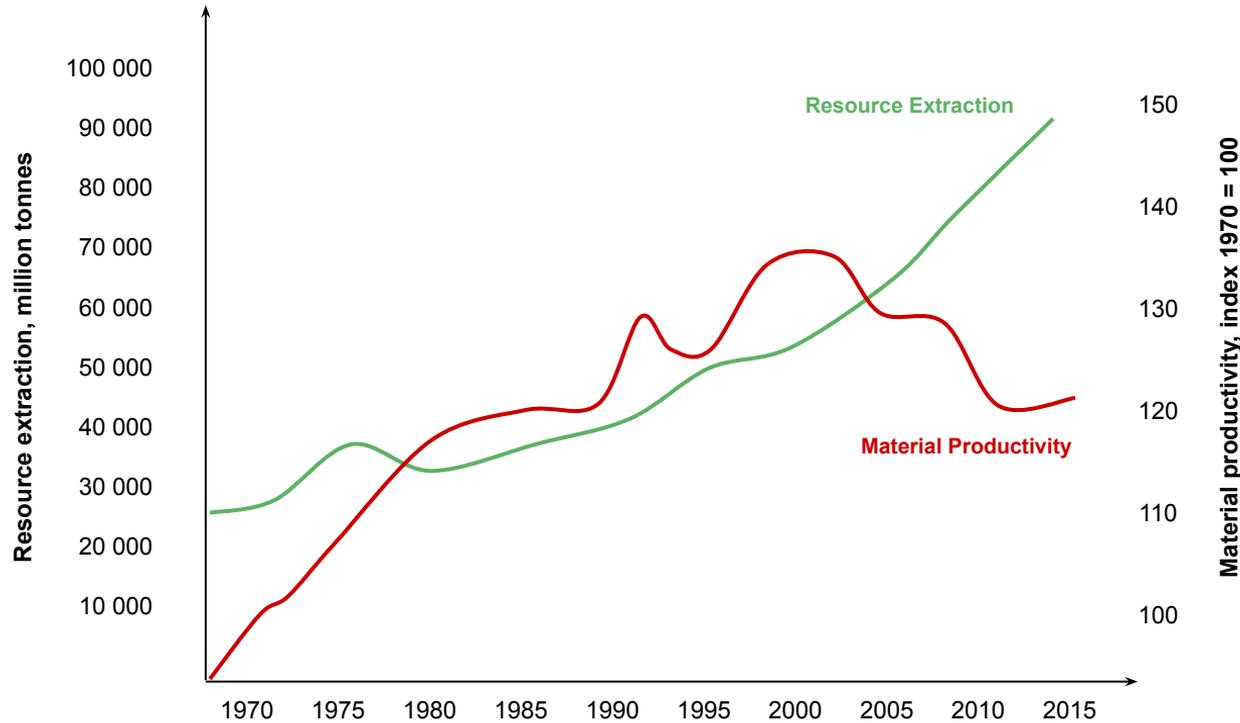
# Circular Economy is the growth opportunity of our time. It combines resilience, sustainability, and profitability.



**What is a circular economy anyway?**



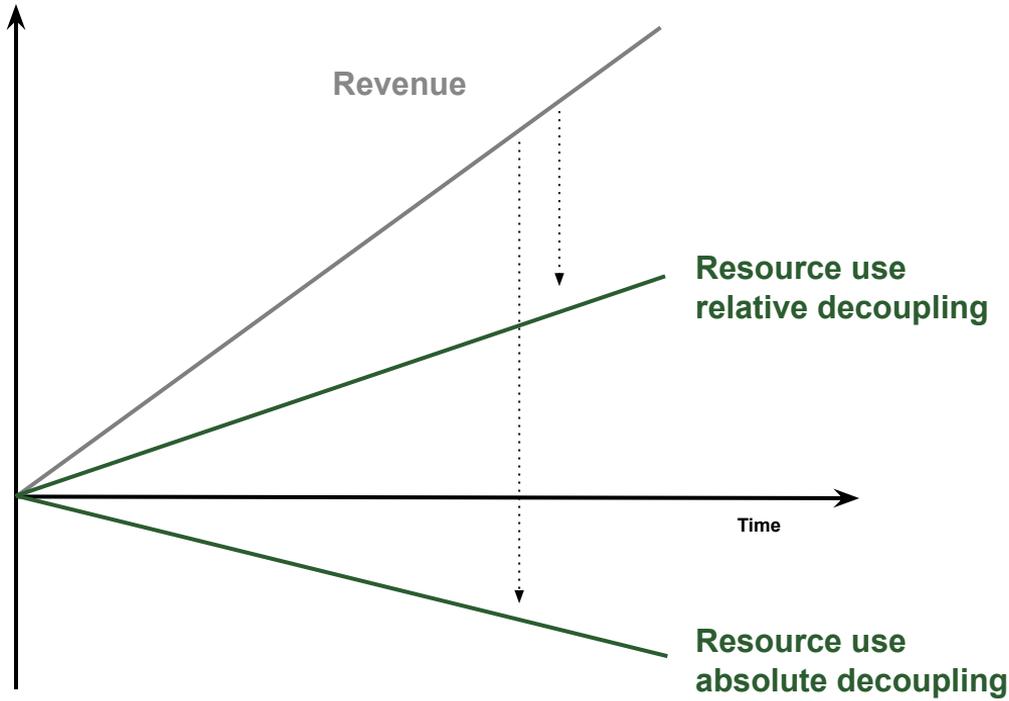
# The root cause: Our current economic growth is highly wasteful, inefficient and fuelled by resource extraction



We tend to believe that  
we are becoming  
increasingly efficient.  
The opposite is true:  
We keep increasing  
material consumption  
while becoming  
increasingly wasteful



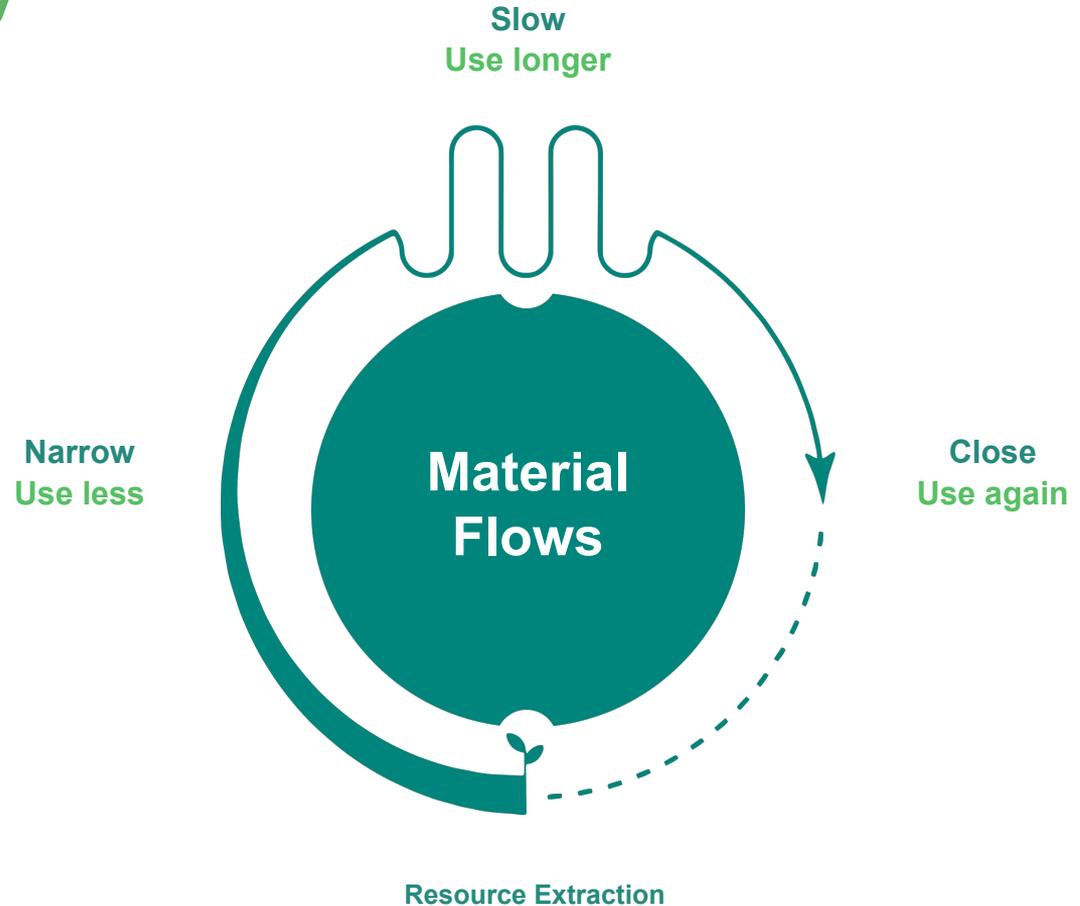
# The overarching goal of a circular economy is to decouple value creation from resource depletion



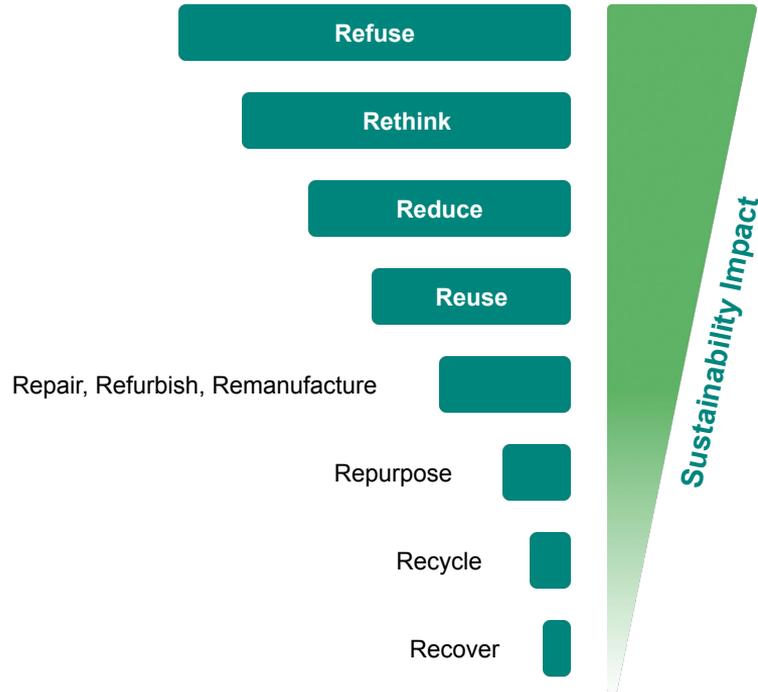
**True circular  
economy players  
create value  
independently from  
resource extraction**



In a **circular economy** materials are kept in loops by narrowing, slowing and closing material flows.



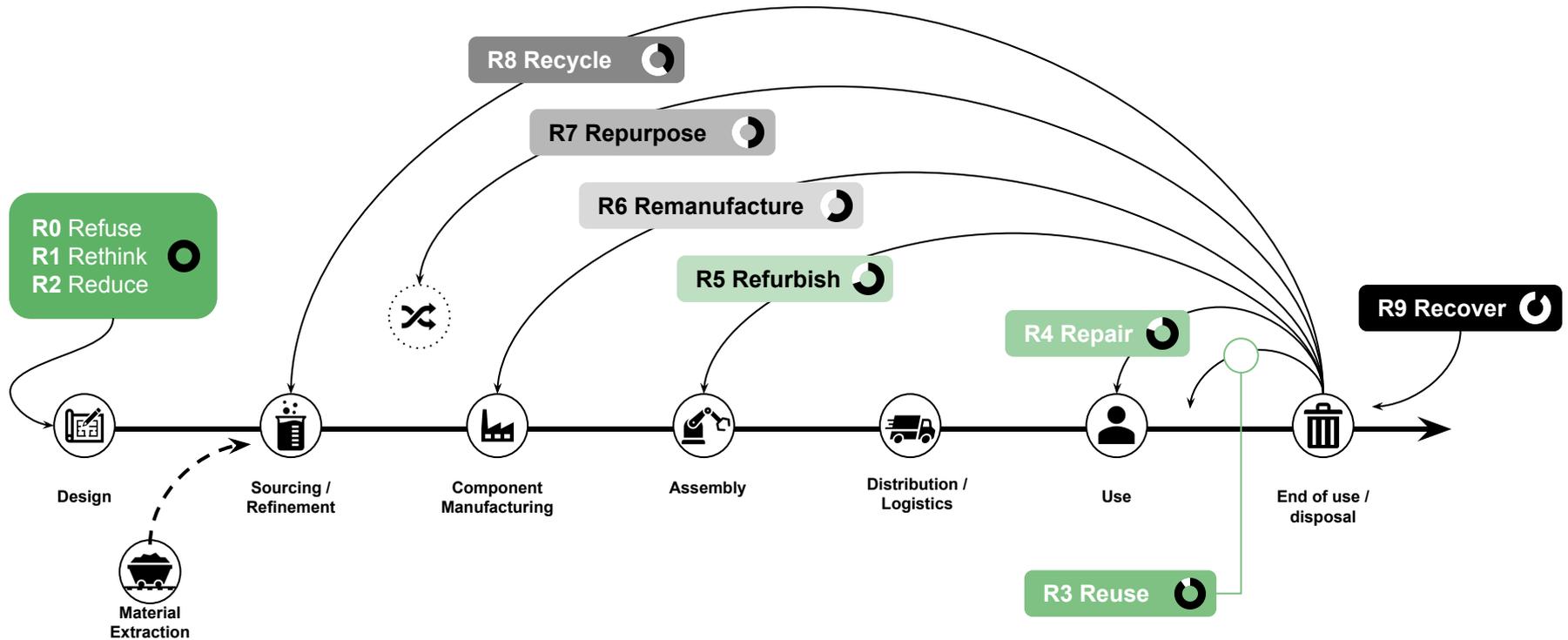
# There are eight strategies to make products and services less resource-intensive. They follow a strict hierarchy.



There are multiple strategies to make products, value chains, and services more circular. But some have a **greater sustainability impact**.



# These 10 circular strategies apply to different steps in the value chain of your product



Source: Based on WEF (2021) - Paving the Way: EU Policy Action for Automotive Circularity

UnternehmerTUM GmbH / 2024



Degree of value retention /  
waste avoided

# Renown companies already employ proven and profitable circular business models

## CIRCULAR ECONOMY CORPORATE LANDSCAPE

### Resource Recovery:

Capturing the value of materials and energy from products after they've been used, through recovery and recycling



### Product life time extension:

Strategies to prolong the lifespan of a product at its highest value, e.g. by upgrades, repair, reconditioning, or resale on secondary market



Design & Material sourcing



Production



Distribution



Usage



Disposal



Collection & Recycling



### Circularity Enablers:

Products, technologies or services that enable and support companies or individuals to adopt circular practices



### Circular Inputs:

Supply and use of renewable, recycled, or highly recyclable materials in production to minimize waste and pollution



### Product-as-a-Service:

Commercialization of a product's usage and function rather than its possession, ensuring performance, maintenance and reverse logistics

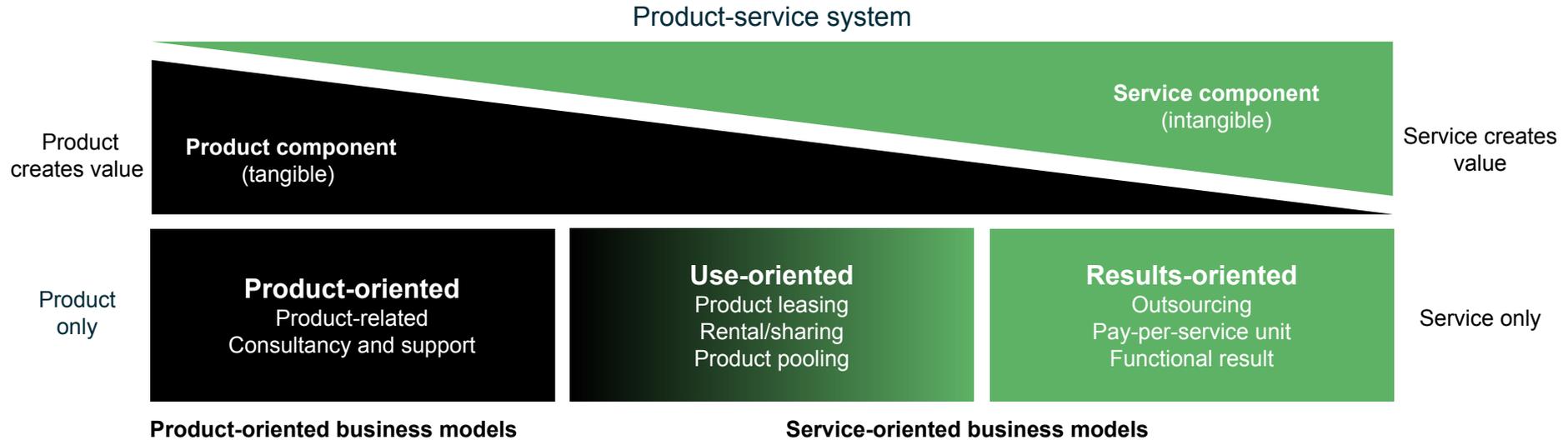


### Sharing platforms:

Maximized utility rates of products and assets through collaborative usage and shared access, often through digital technology



# Circular business models can either focus on a product itself, its usage, or delivering results



**It's about a circular  
ECONOMY!**



# Circular Economy is not only a macroeconomic issue, but highly relevant for any company's success



“After all, the current development of raw material prices shows the impact that an industry dependent on limited resources must take into account.”

**Oliver Zipse**  
CEO, BMW Group



“It's time to collectively shift towards circular economy”

**Thomas Saueressig**  
Member of the Executive Board, SAP SE



“The Tengelmann Group is convinced that the circular economy is the key to a sustainable future”

**Christian Haub**  
CEO, Tengelmann Group



# Introduction

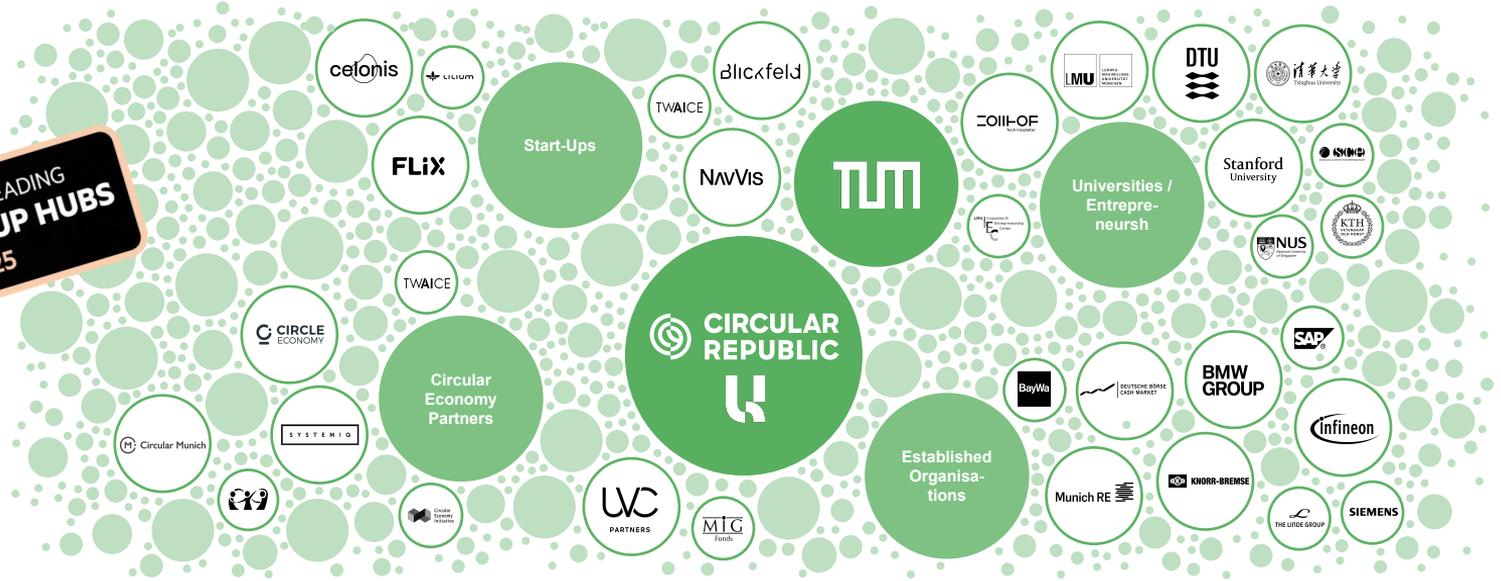
# CIRCULAR REPUBLIC



# We leverage the UnternehmerTUM ecosystem to translate circular economy theory into good practice

**UNTERNEHMER  
TUM**

Honoured to be 1<sup>st</sup>



## Zahlen für 2024

**> 17.000**

Participants in entrepreneurship & technology education

**> 553** active

corporate partners for promoting innovation and business growth

**> 1.100** Start-ups

supported in their development and acceleration

**> 120** new scalable

start-ups

**2** Billion US Dollars in

venture capital and start-up funding



# CIRCULAR REPUBLIC: Europe's innovation and collaboration platform for the circular economy



**Industry alliance rooted in Europe's No 1 innovation hub**

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**Hands-on, cross-company project orchestration**



**Transforming organizations from within**



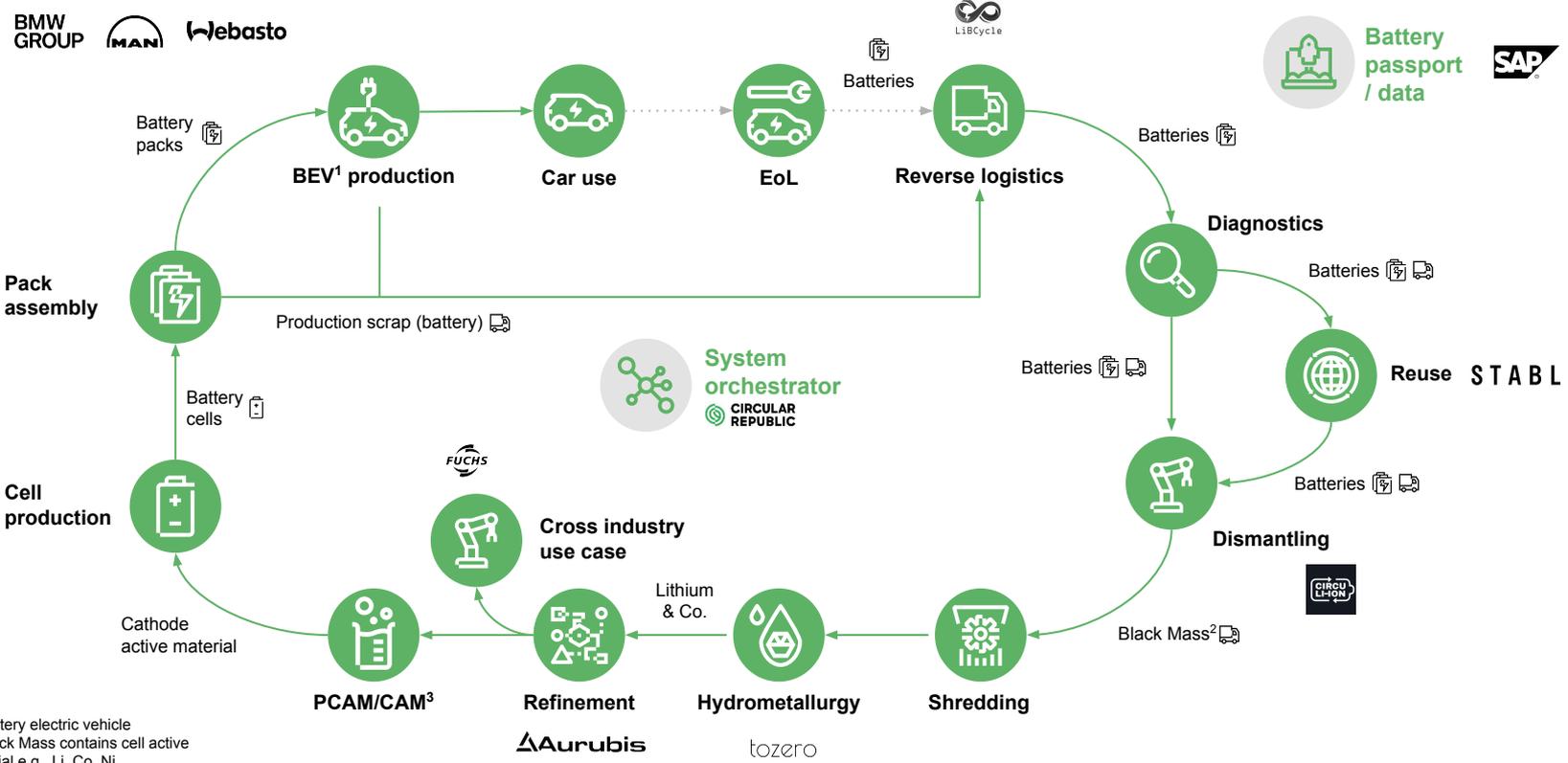
**Strong voice in industry, politics, and media**



# Start-ups as critical drivers of the transformation



# Closing the lithium loop for EV batteries



1) Battery electric vehicle  
 2) Black Mass contains cell active material e.g., Li, Co, Ni  
 3) (precursor) cathode active material



# The power of partnership: How enterprises and startups complement each other to reach an accelerated outcome



## ENTERPRISES

### Challenges

- Greater decision barriers
- Linear economy practices
- Talent attraction

### Opportunities

- Market tenure
- Financial and non-financial resources



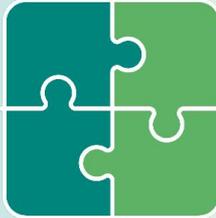
## START-UPS

### Opportunities

- Agile, fast, innovative
- CE experts
- Attractive talent incentivization

### Challenges

- New in the market
- Limited resources



### Benefits for enterprises

- Accelerated transformation and adaptation
- Sustainability and CE facilitation

### Benefits for startups

- Market validation and expansion
- Faster growth and scaling

### Benefits for co-investors

- Customer need signaling
- Strategic advice & industry network
- Opportunity for follow-on investment



**ACCELERATED  
TRANSITION  
TOWARDS  
CIRCULAR  
ECONOMY**

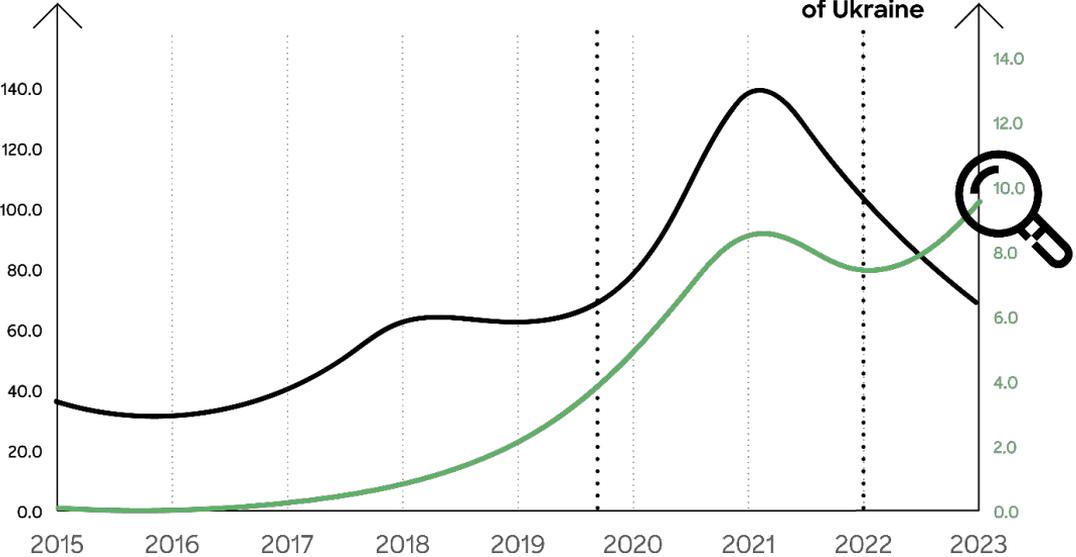


# European Circular Economy Start-up Landscape



# Breaking the trend: Circular Economy funding in Europe keeps growing – in spite of crises, or because of them?

**FUNDING**  
(bill. USD)



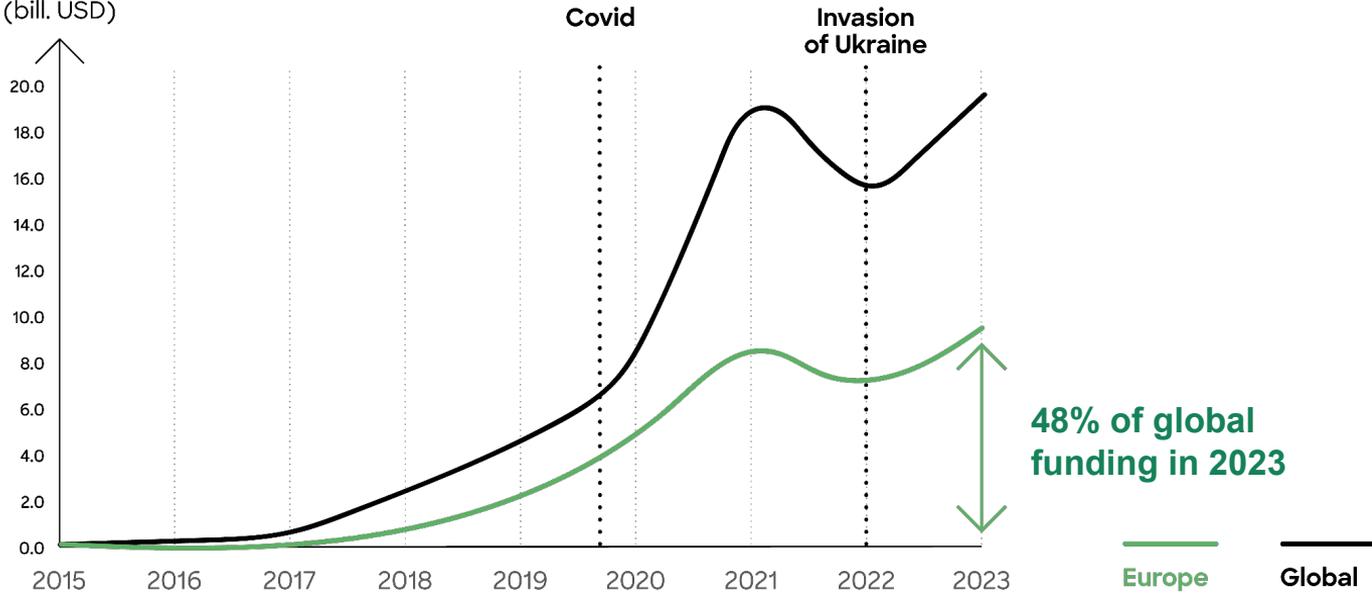
**CE-Funding is at an all time high.**

European CE Start-up Funding  
Overall European Start-up Funding

**Data Source:** CE data: Net Zero Insights (as of Feb 24, 2025); non-CE data: Tracxn (as of Apr 3, 2025).  
- start-ups founded between 2015 – 2023  
- Annual funding totals for Circular Economy (CE) and non-CE start-ups in Europe. Includes equity, debt, grants, and other financing.

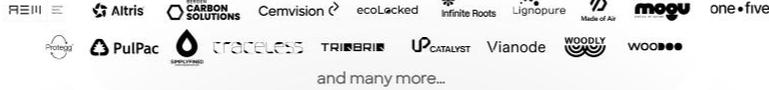
# Europe as global CE powerhouse: European investments in circularity at ~50% of global CE start-up funding

## FUNDING (bill. USD)



# Highlights from the European Circular Economy Start-up Landscape





and many more...

Supply and use of renewable, recycled, or highly recyclable materials in production to minimize waste and pollution.

Reach out to get full content: [circularrepublic@unternehmertum.de](mailto:circularrepublic@unternehmertum.de)

**Resource Recovery**

Capturing the value of materials and energy from products after they've been used, through recovery and recycling.



and many more...

**Circular Inputs**



**Sharing Services**

Maximized utility rates of products and assets through collaborative usage and shared access, often through digital technology.



and many more...

**Circular Enablers**



and many more...

**Product Lifetime Extension**

Strategies to prolong the lifespan of a product at its highest value, e.g. by upgrades, repair, reconditioning, or resale on a secondary market.



and many more...

**Product-as-a-Service**

Commercialization of a product's usage and function rather than its possession, ensuring performance, maintenance and reverse logistics.

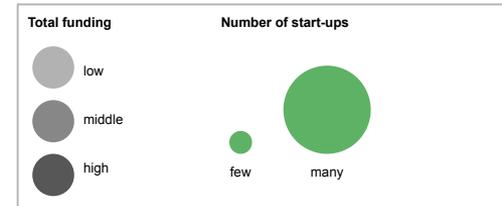
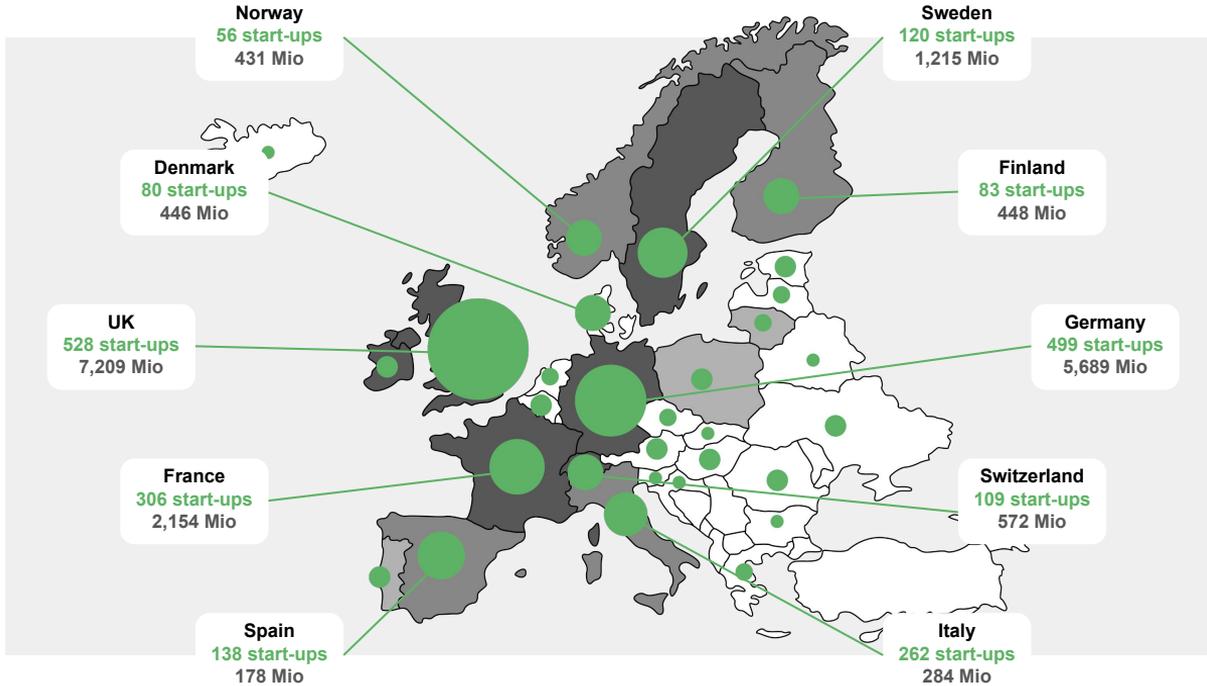


and many more...

Powered by

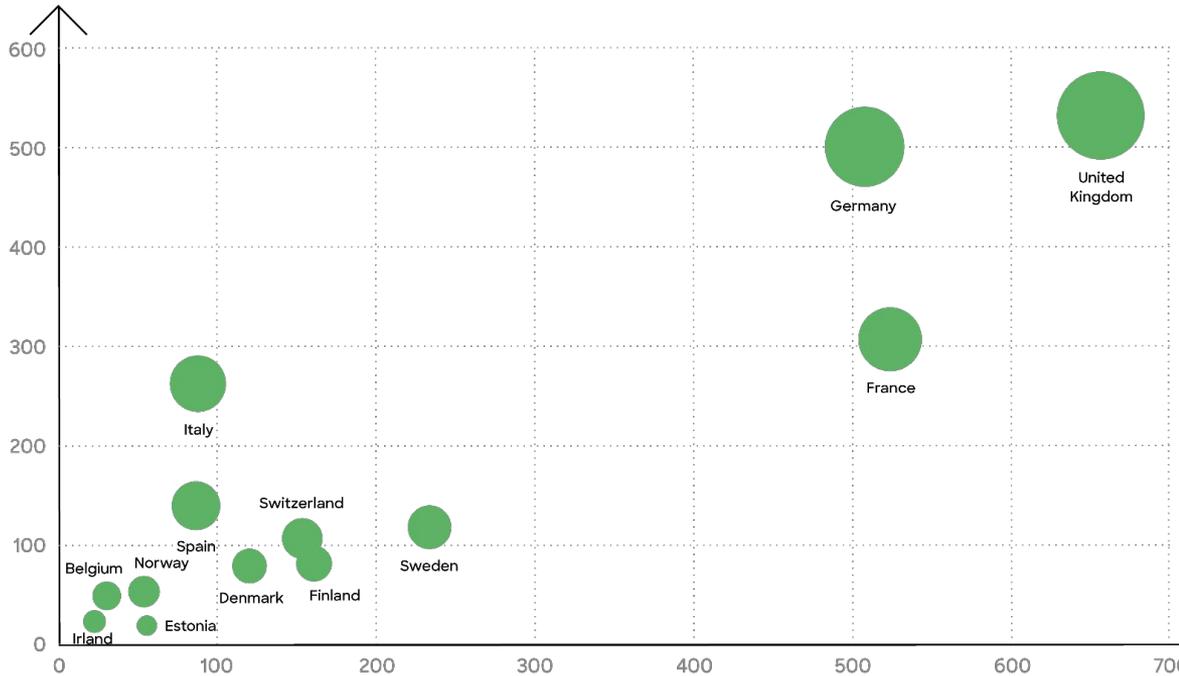


# More than 2500: Circular economy start-ups are thriving all across Europe



# Circular economy power houses in Europe: UK, Germany and France lead the field

Total no. of start-ups  
per country

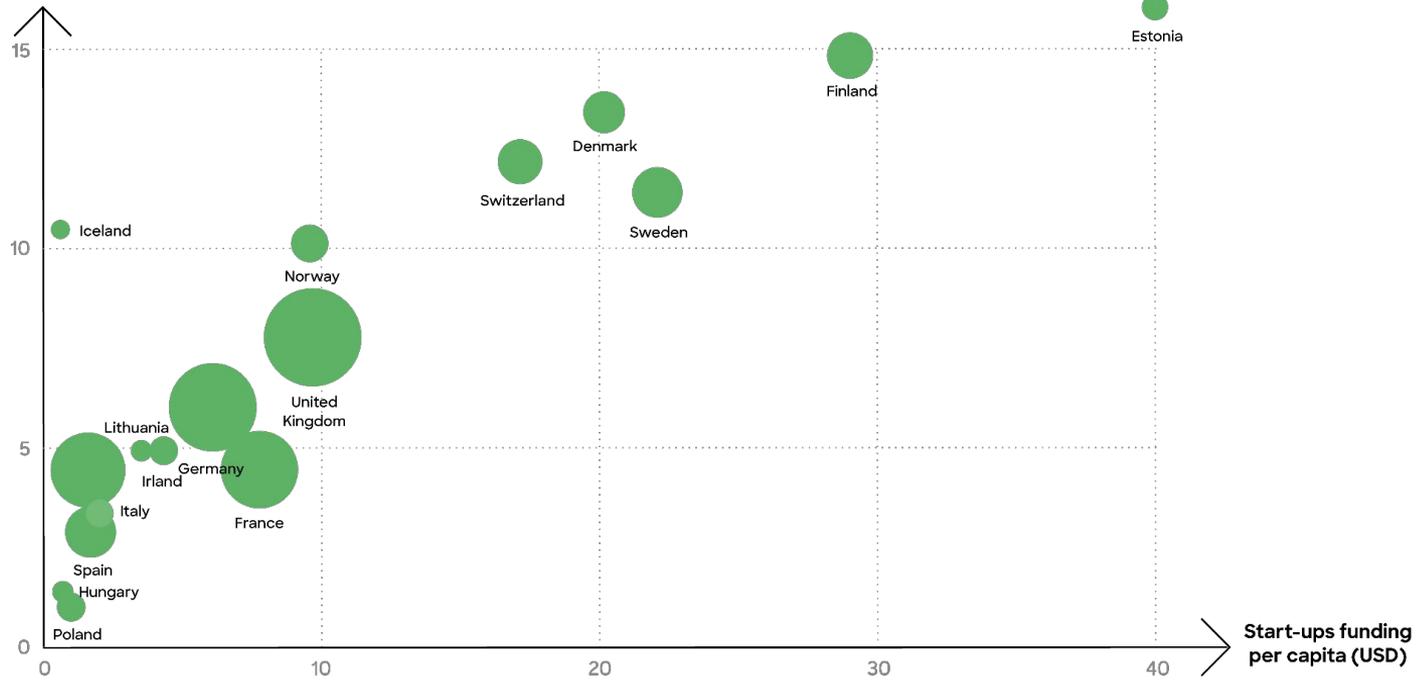


Start-ups accumulated  
total funding per  
country (mill. USD)



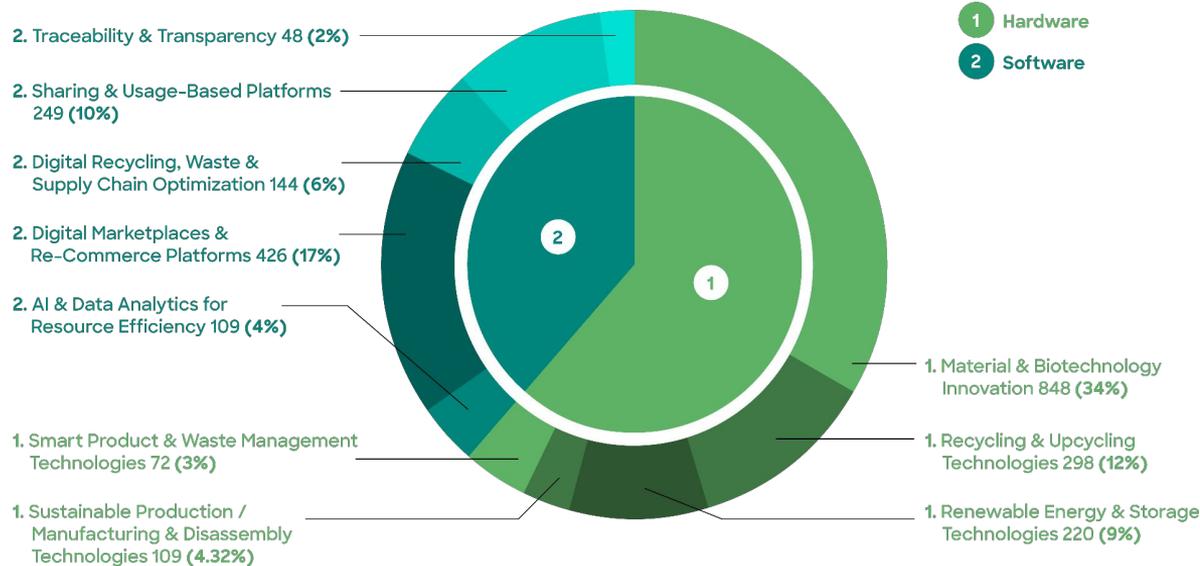
# Beyond the powerhouses: Nordic & baltic countries rise as the hidden stars of circularity

Total no. of start-ups per  
1,000,000 inhabitants



# Germany takes the lead in AI for circular economy – Yet the real potential is still untapped

## NO. OF START-UPS PER TECHNOLOGY



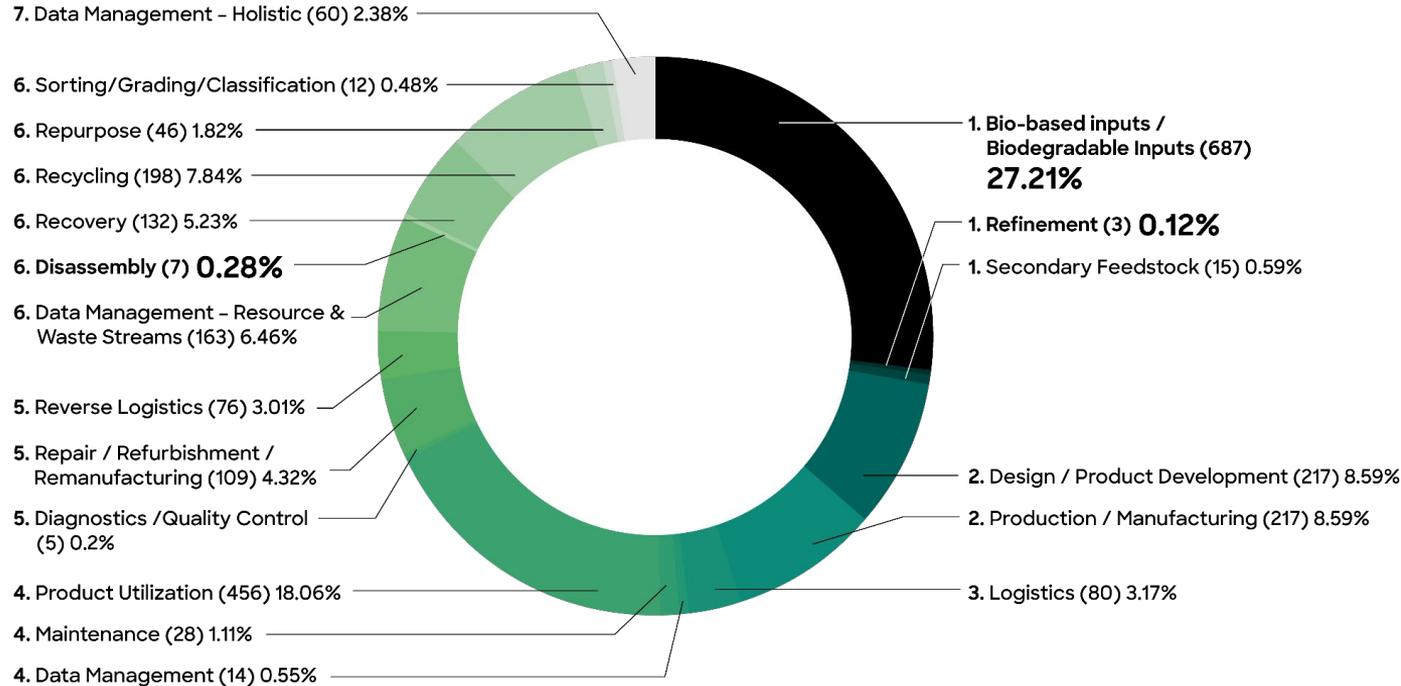
**31% of all European AI start-ups in the CE are located in Germany**

**Only 4% of all European circular start-ups are driven by AI**

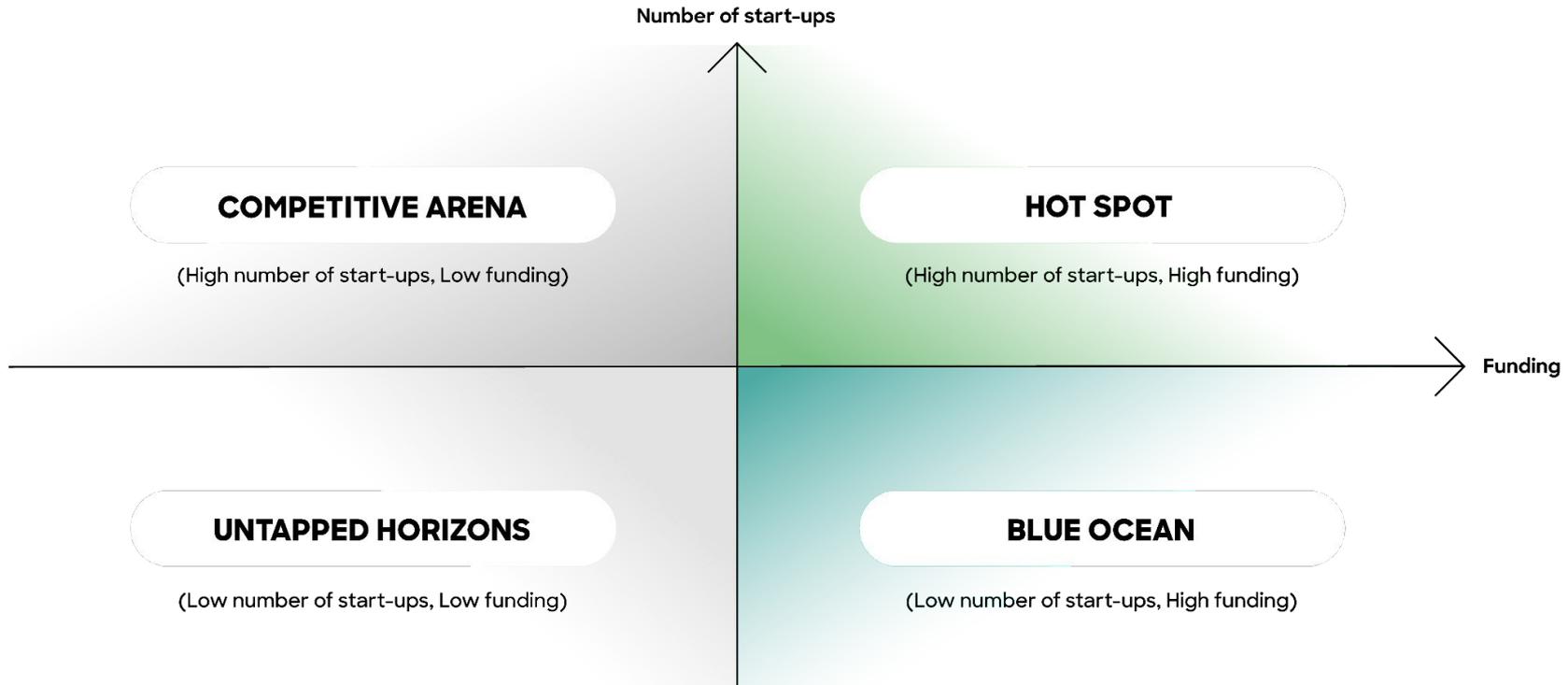


# Looking at the value chain: There is a strong focus on bio-based inputs while crucial steps to close material loops are left out

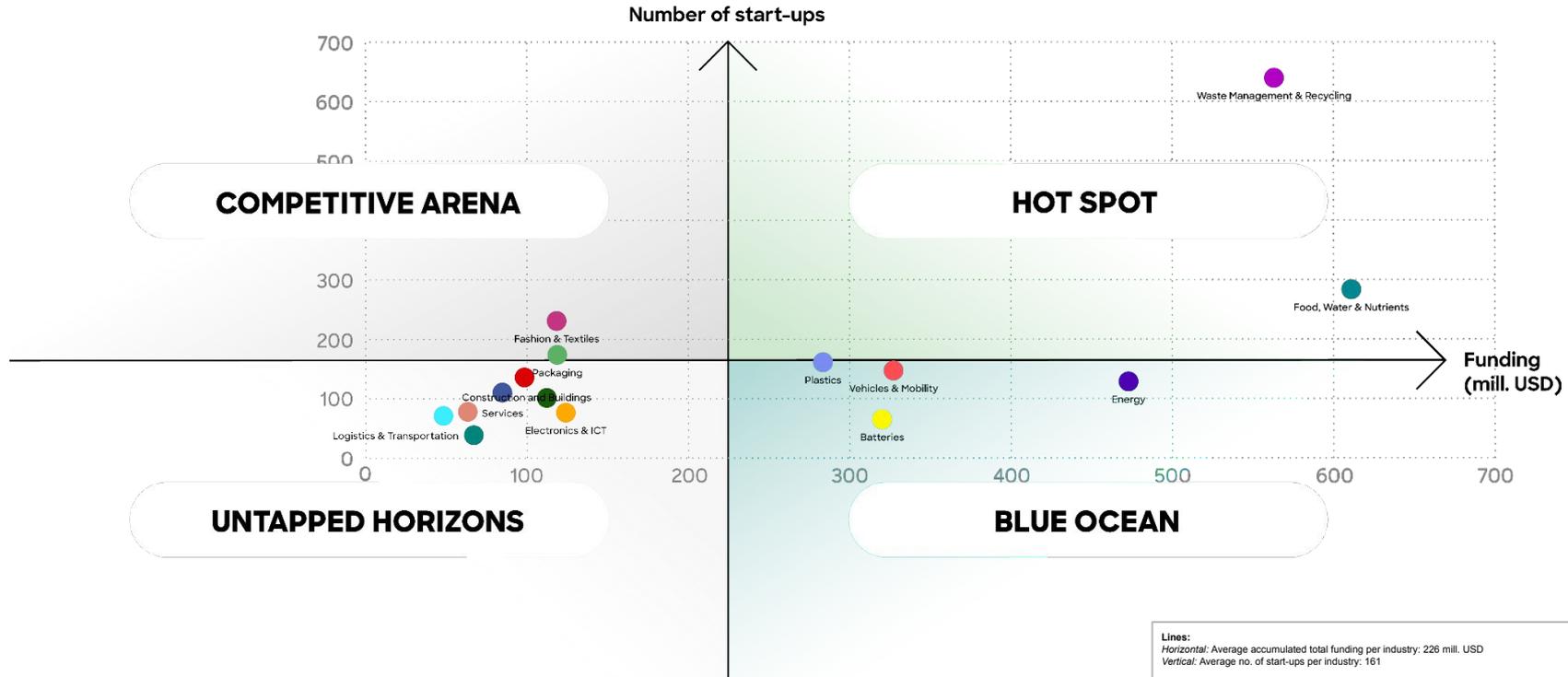
## NO. OF START-UPS ALONG THE VALUE CHAIN



# Looking at funding and number start-ups per industry, we were able to understand where start-ups are thriving



# Industry analysis: Critical raw material start-ups face little competition and attract serious capital



**What start-up would  
you found?**

