



sustainability
circle

ec[]ncept

BMI  Lab

zühlke
empowering ideas



Roundtable: Kreislaufwirtschaft in der Praxis

20. März 2025

Ihre Gastgeber:in heute

Ursula Tischner

CEO

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ec[]ncept



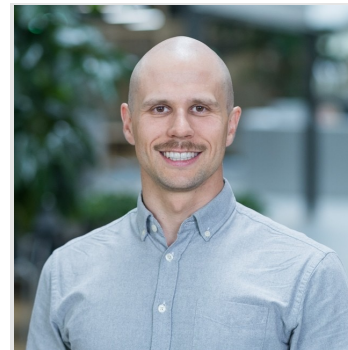
Richard Stechow

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BMI  Lab



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Consulting Manager

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ronny.hoffmann@zuehlke.com

Regeln für den Online Roundtable

- Während dem Vortrag bitte **Mikrofone und Kameras aus**.
- **Fragen** für den späteren Austausch bitte im Chat notieren.
- **Verständnisfragen** bitte direkt über Mikrofon stellen.
- **Nur die Vorträge werden aufgezeichnet**, die Diskussionen im Anschluss nicht.
- Die **Folien** erhalten Sie im Nachgang.



Eine Bitte zum Schluss: Wenn Sie früher gehen müssen, ist das kein Problem. Aber bitte das nicht noch im Chat erwähnen, sondern einfach den Call verlassen. Danke!

Upcoming circle events 2025

Impulstalks 2025, 09:00-10:00

25.02

CSRD update und Resultate der Studie

10.04

Recycling und Recyclingströme

26.08

"Carbon Footprint - Weshalb CO2 relevant, aber nicht alles ist."

14.10

Der Circular Economy Navigator - ein Leitfaden für die Entwicklung von Geschäftsmodellen für die Kreislaufwirtschaft

09.12

tbd

Roundtables 2025, 09:00-12:00



20.03

«Circular economy, Anwendungsbeispiel aus der Praxis»

20.05

Geschäftsmodelle für Circularity

June
KW 23

Physisches
Event

tbd (DACH)

July
KW 26

Physisches
Event

tbd (DACH)

Sept.

tbd

Nov.

tbd



KREISLAUFWIRTSCHAFT BEI HILTI

Sustainability Circle Roundtable: Kreislaufwirtschaft
in der Praxis
Andrés Wellmann Jelic
März 2025



THIS IS HILTI

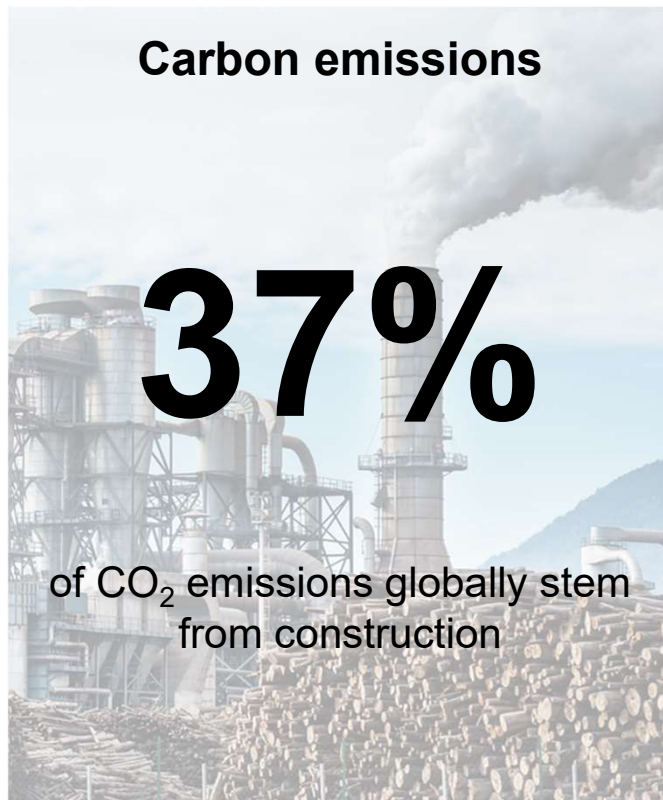
- Founded in **1941** in Schaan, Liechtenstein
- A **global leader** in system solutions for **construction** professionals
- Sales of more than **CHF 6.5 billion** (2023)
- **34,000** team members, in **120** countries
- Innovation driven: **CHF 450 million R&D** investments (2023)
- Direct customer relationships
- Owned by the Martin Hilti Family Trust
- Our Purpose is "**Making Construction Better**",
Lead 2030 is our corporate strategy



CONSTRUCTION – A GREAT INDUSTRY...

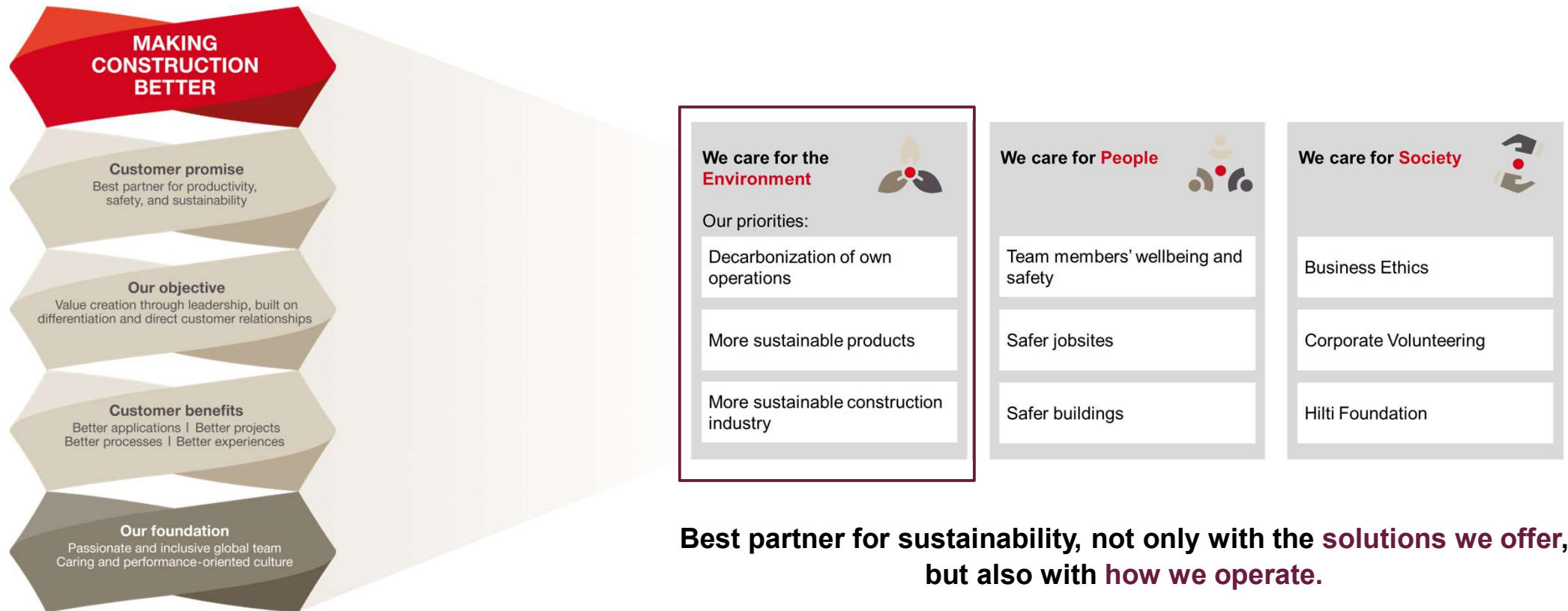


... FACING CHALLENGES, ESPECIALLY TO BECOME MORE SUSTAINABLE



Link to video: [Hilti and Sustainability in Construction](#)

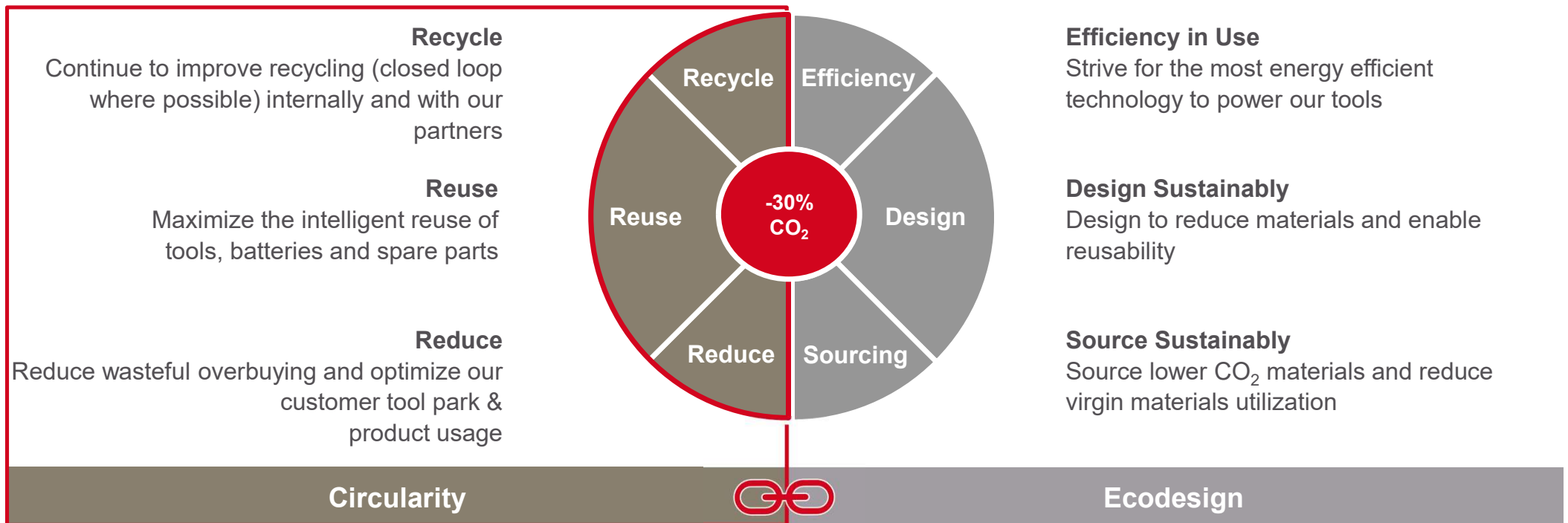
SUSTAINABILITY IS AT THE CORE OF OUR LEAD 2030 STRATEGY: MAKING CONSTRUCTION BETTER



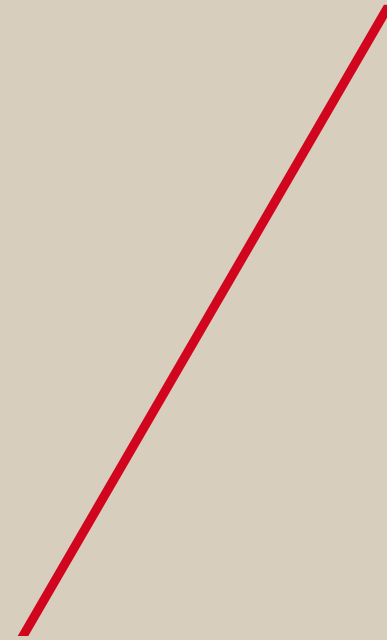
Best partner for sustainability, not only with the solutions we offer, but also with how we operate.

TO ACHIEVE THE COMMITMENT, A SBT FRAMEWORK HAS BEEN DEVELOPED, CIRCULARITY ADDRESSES 3 KEY LEVERS

We decarbonize our product offering by/with:



CIRCULARITY AT HILTI

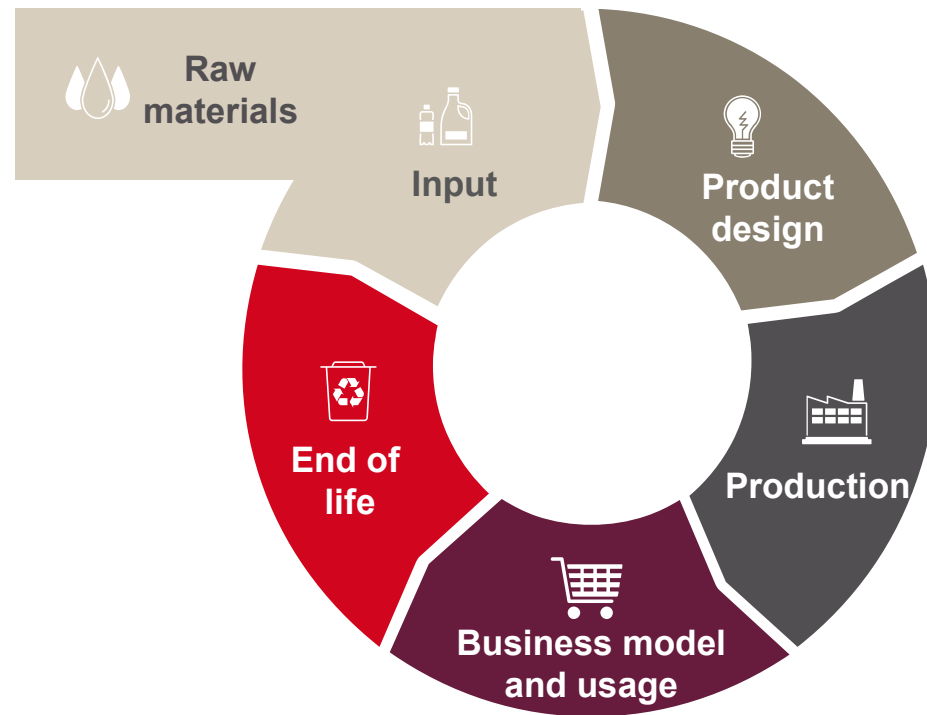


A CIRCULAR ECONOMY MOVES AWAY FROM A "TAKE-MAKE-WASTE" MODEL TO CYCLE MATERIAL FLOWS

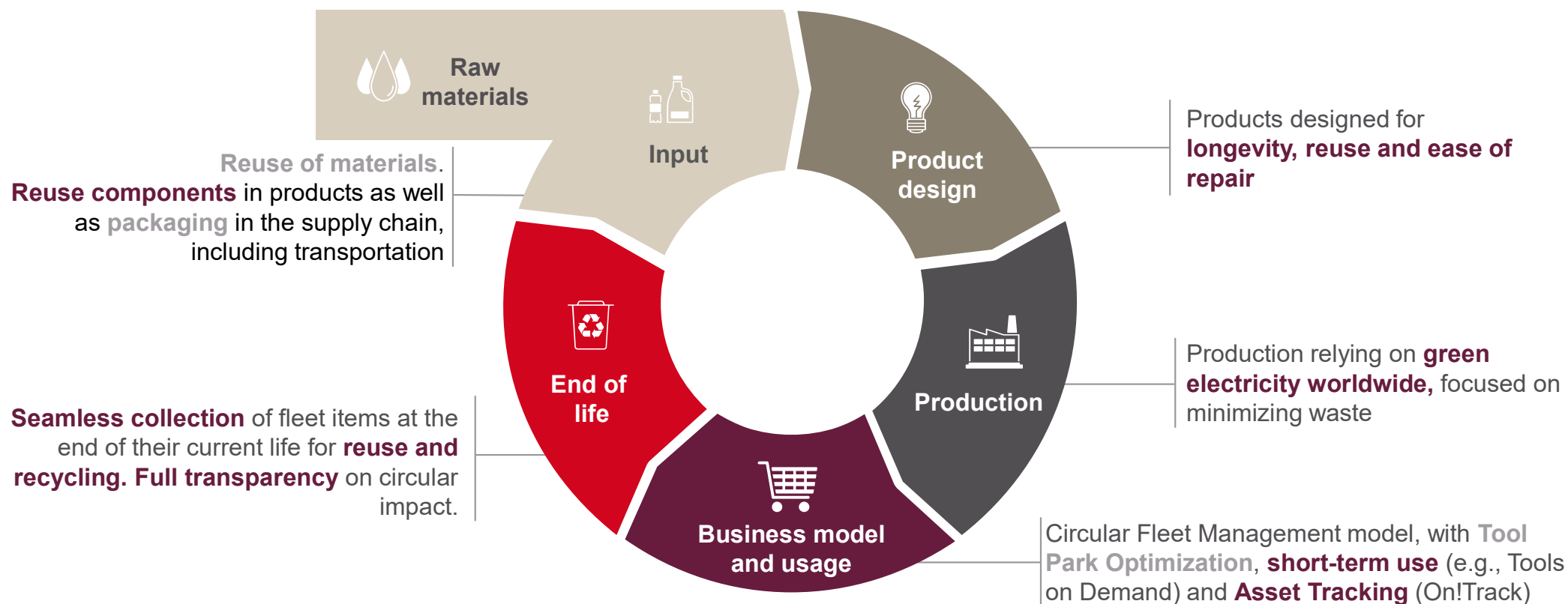
Linear Economy



Circular Economy



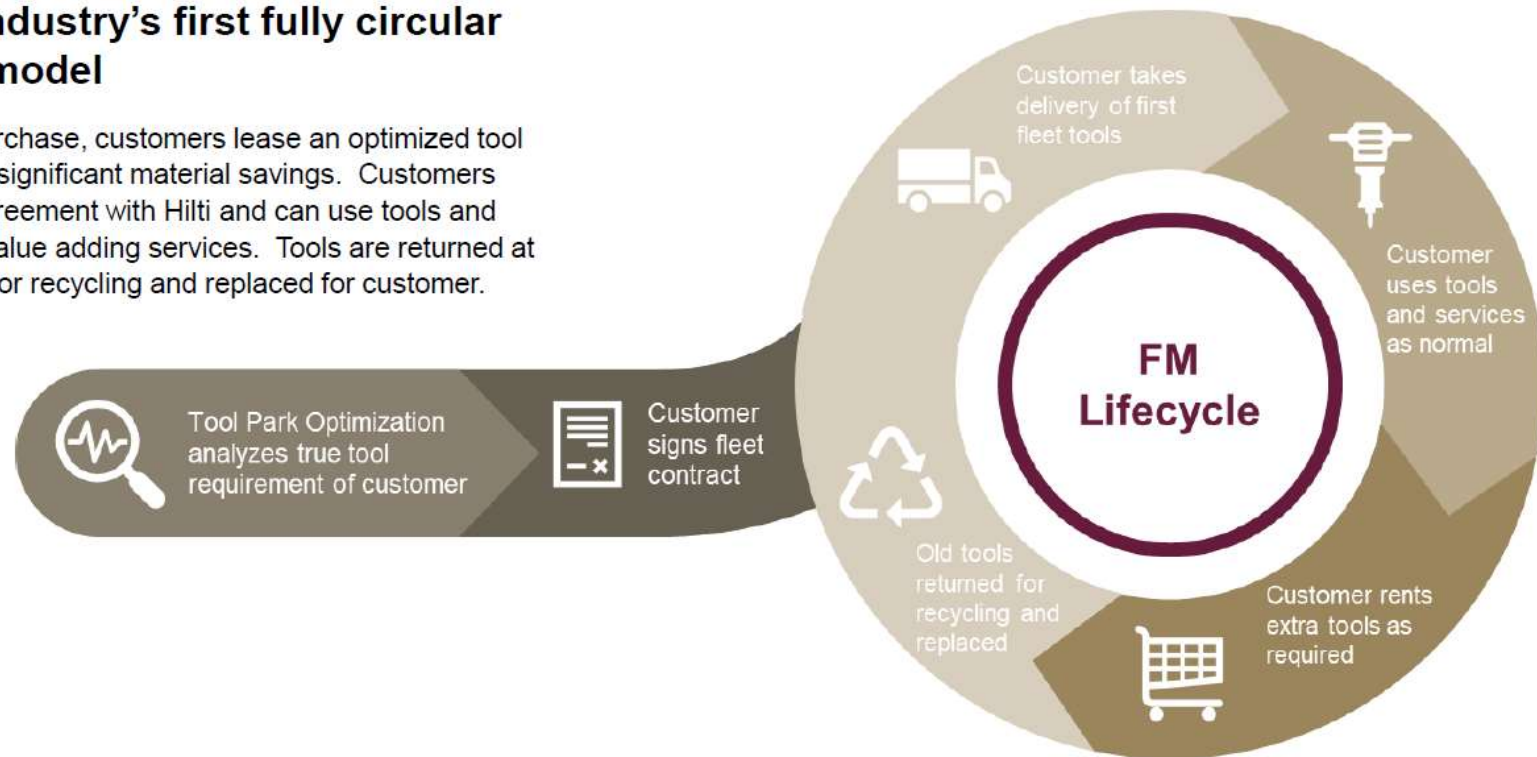
HILTI WORKS ALONG THE VALUE CHAIN TO ENABLE US AND OUR CUSTOMERS TO “DO MORE WITH LESS”



FLEET MANAGEMENT IS THE INDUSTRY'S MOST CIRCULAR SOLUTION

Fleet is the industry's first fully circular tool leasing model

In place of a tool purchase, customers lease an optimized tool park from Hilti, with significant material savings. Customers enter a 3–5-year agreement with Hilti and can use tools and benefit from Hilti's value adding services. Tools are returned at end of life for reuse or recycling and replaced for customer.



FLEET MANAGEMENT IS A UNIQUE CIRCULAR VALUE PROPOSITION, WHICH HELPS YOU TO DO MORE WITH LESS



HILTI'S CIRCULARITY PROGRAM FOCUSES ON FIVE KEY INITIATIVES

Move to Premium Tool Pool



Fleet returns are moved to our Premium Tool Pool for peak demand ToD and loan tools

Tool donations



Fleet returns are donated to charitable and educational institutions (e.g., trade schools)

Spare parts reuse



Spare parts are extracted from fleet returns and used in repairs

Warranty exchange



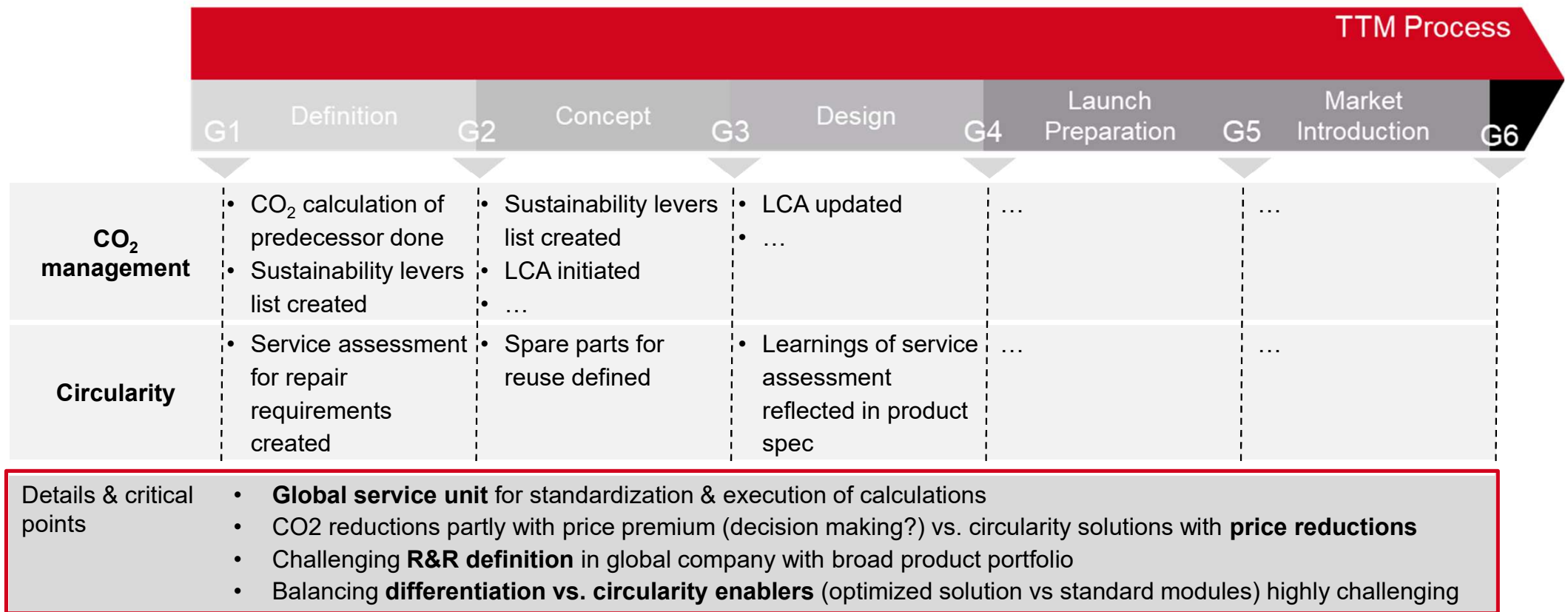
Products from fleet returns are tested and used for warranty exchanges

Re-manufacturing

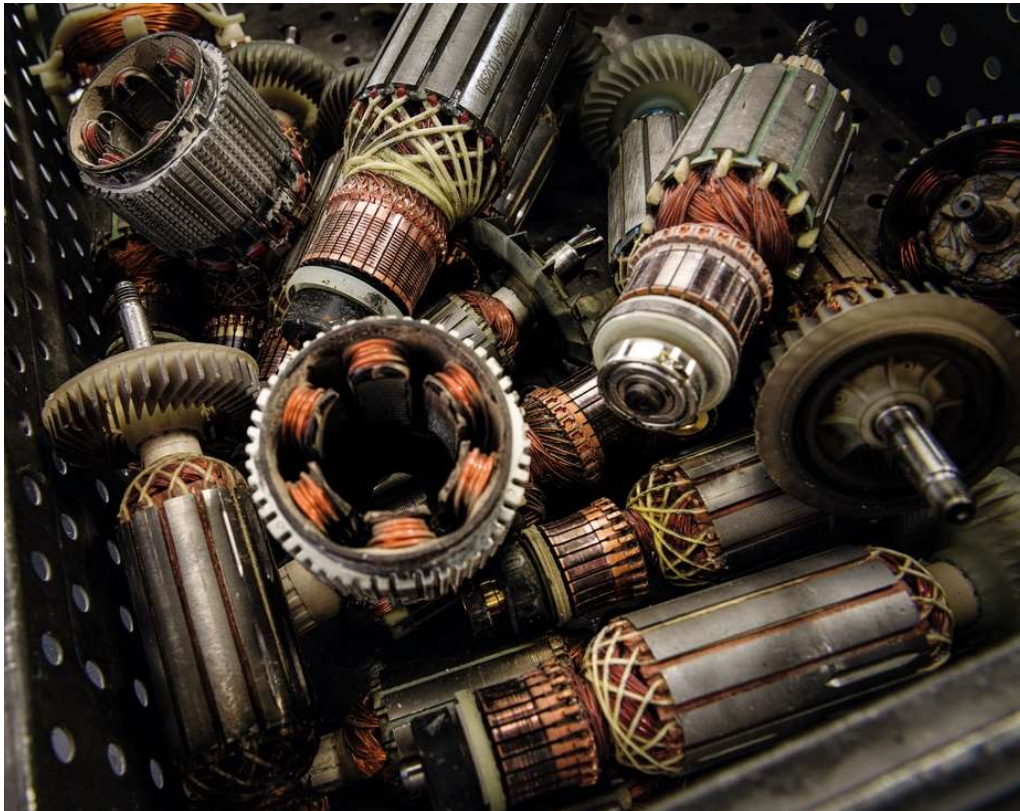


Components & modules are extracted from fleet returns & used to manufacture new tools

WE STARTED INTEGRATING SUSTAINABILITY DELIVERABLES INTO OUR DEVELOPMENT PROCESSES



EXAMPLE: 160,000 SPARE PARTS WERE REUSED IN REPAIR AS PART OF OUR GROWING CIRCULARITY INITIATIVES



Impact

- **160,000 spare parts reused** in 2023
(increase from 10,000 in 2020)
- **120 tons** of electronics, motors and rotors saved, corresponding to **~1000 tons CO₂**
- **4 MCHF savings** in cost of goods sold (CoGS)



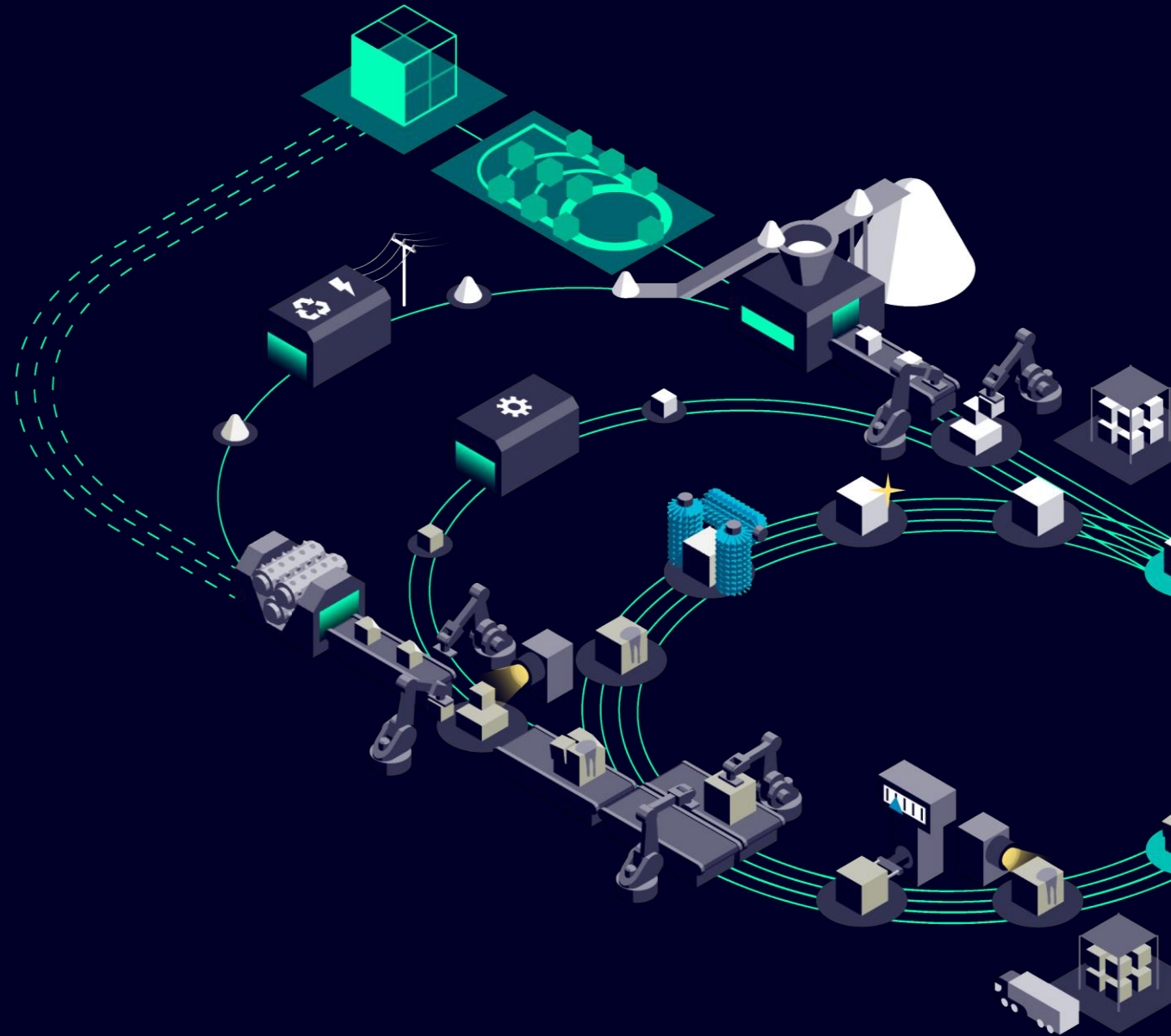
THANK YOU

Sustainability Circle Roundtable:
Kreislaufwirtschaft in der Praxis
März 2025



Circularity at Siemens

Dr. Ferdinand Revellio (FT RPD AMC)



Our purpose

We create **technology** to
transform the everyday,
for **everyone**

Businesses and Services of Siemens AG

Industrial Business

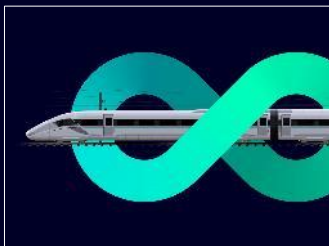
Digital Industries



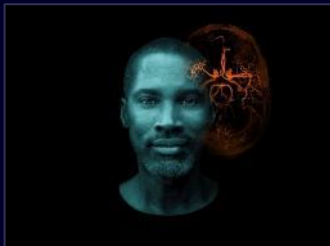
Smart Infrastructure



Mobility



Siemens Healthineers¹



Siemens Advanta



Services

Siemens Financial Services



Siemens Real Estate



Global Business Services



Foundational Technologies



¹ Publicly listed subsidiary of Siemens; Siemens' share in Siemens Healthineers is 75%

Innovation is the basis for our success

€6.3 bn

R&D expenditures¹

51,600

R&D employees²

5,250

inventions¹

2,900

patent applications¹

Cooperation

with universities, research
institutes, and start-ups

16

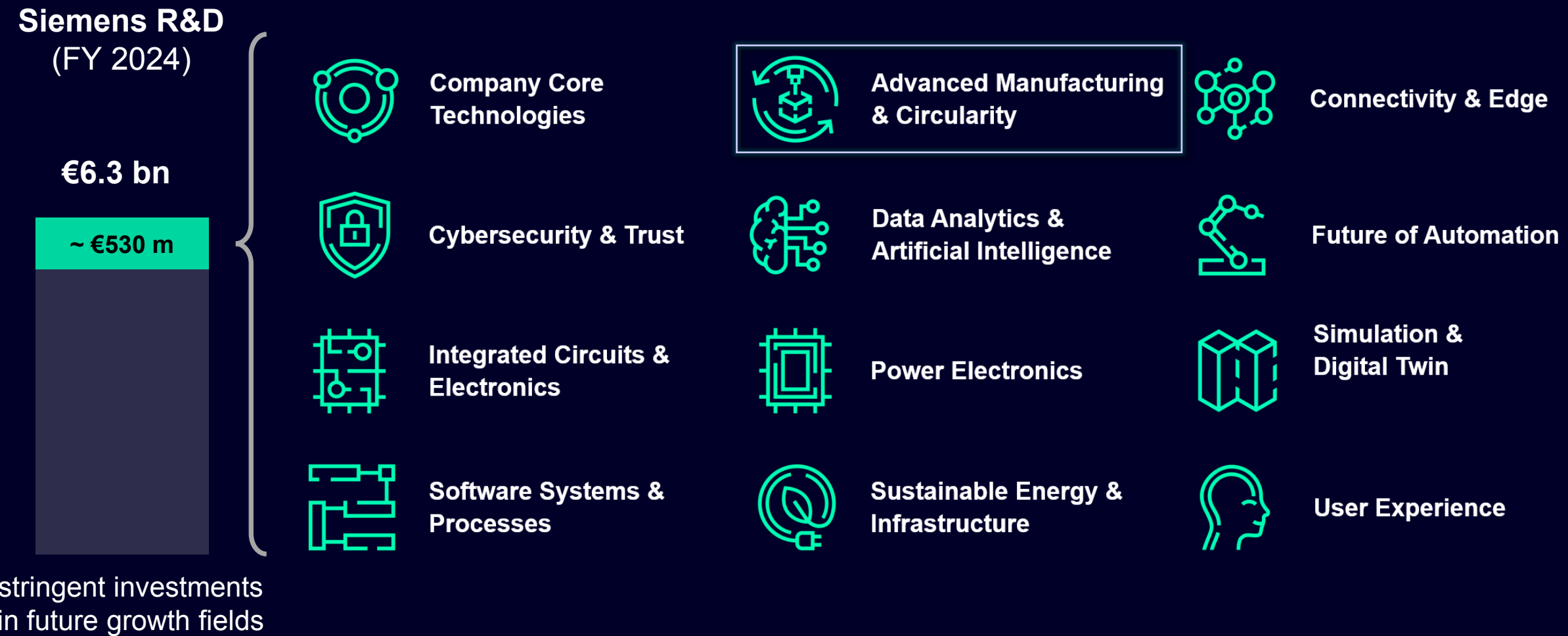
Siemens Research and Innovation
Ecosystems (Siemens RIEs)

¹ In FY 2024 | ² On average during FY 2024



Focus on eleven Company Core Technologies

Strategic R&D across all Siemens businesses



We support our customers across three impact areas

Decarbonization & energy efficiency



Accelerating towards net-zero

Reaching net-zero is the greatest challenge of our time, and entire industries have to adapt the way they operate.

Siemens is shaping this transformation. Our technology enables companies to decarbonize operations, infrastructure, and supply chains. By integrating renewable energy, enhancing energy efficiency, and decarbonizing transportation, we empower entire sectors and cities to reduce their carbon footprint.

Through digital transformation and collaboration across a growing ecosystem, we are accelerating towards net-zero.

Resource efficiency & circularity



Scaling circularity

It's time for the world economy to shift. Our consumption patterns are depleting resources, increasing waste, and harming the environment, while businesses face pressure to innovate, remain competitive, and build resilience.

Siemens is helping entire industries transition from linear to circular. We create circular products, embrace circular business, and empower circularity across sectors – decoupling growth from consumption.

By scaling circularity, we reduce the burden on the planet while creating opportunities for growth and innovation.

People centricity & societal impact



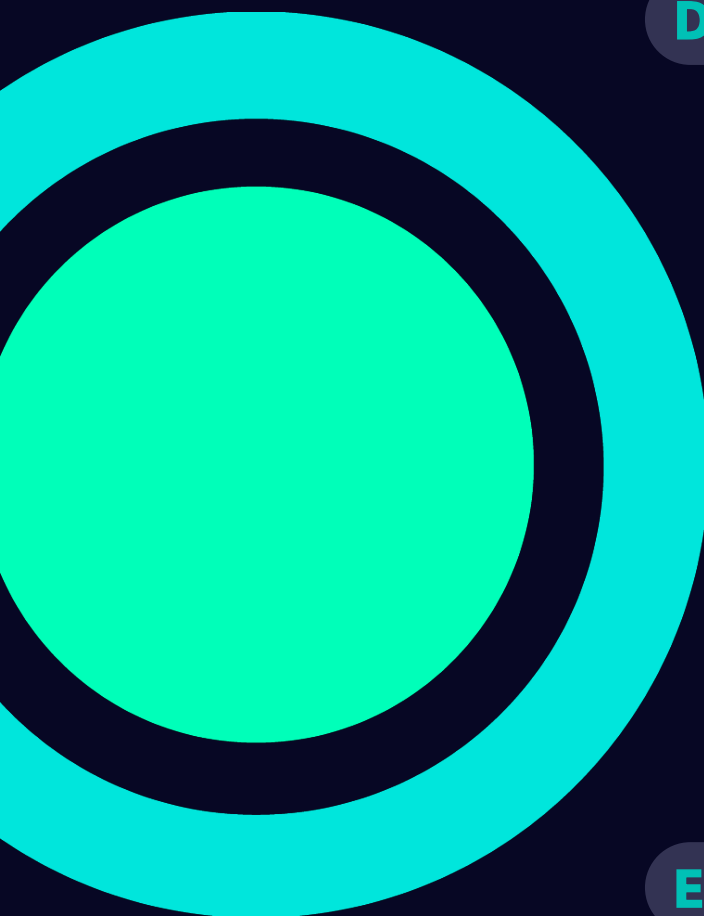
Transforming societies

Communities, cities, and entire societies are changing. Demographic shifts, urbanization, climate change, and new migration patterns are challenging us to ensure that change is for the better.

Siemens is driving the positive transformation. We make trains and infrastructure that connect communities, build renewable energy grids, enable access to clean water, and create building technologies to transform the way we work and live.

By combining the real and the digital worlds, we ensure technology creates opportunities for people everywhere.

Our **DEGREE** sustainability framework



Decarbonization

Support the 1.5°C target to fight global warming

Ethics

Foster a culture of trust, adhere to ethical standards, and handle data with care

Governance

Apply state-of-the-art systems for effective and responsible business conduct

Resource efficiency

Achieve circularity, dematerialize, and conserve biodiversity

Equity

Foster diversity, equity, inclusion, and community development to create a sense of belonging

Employability

Enable people to stay resilient and relevant in a permanently changing environment

A 360°
approach
to our core
sustainability
values

We do more with less, for our customers, society, and planet

Resource efficiency
& circularity



**Empower
customer circularity**



**Embrace
circular business**



**Create circular
products**



Our circularity approach supports our commitment to sustainability

We do more with less, for our customers, society, and planet

Resource efficiency
& circularity



Create circular products

We design for sustainable materials, optimal use, and value recovery. We optimize secondary material use and increase supply chain resilience. Our commitment to improving production efficiency helps minimizing resource consumption.

Examples

Siemens EcoTech products enhance circularity by outperforming in value recovery and circularity, optimal use, and sustainable materials

Recycled materials save resources and reduce emissions, for example, up to 70% upstream CO₂e by use of scrap, arc furnace, and green electricity for green steel production

Embrace circular business

We aim to enhance and preserve value through lifetime-extending services and the reuse of products and components. By closing the loop, we effectively recover value.

Sustainable lifecycle services enable circularity throughout the entire lifecycle of rail assets by maximizing efficiency and availability, lifetime extension and marketplaces for repair services and resale

Retrofit of switchgears extends operational lifetime by up to 15 years, decreases CO₂e emissions by up to 75%, and reduces material usage by up to 80% (compared to new installations)

Empower customer circularity

We enable the creation of circular products with our software portfolio. We provide solutions for optimized, resource-efficient customer operations and generate value through innovative business models, agreements, and partnerships.

Digital Product Passports, beginning with Battery Passports, facilitate data-driven circularity by enhancing product lifecycle transparency, supporting the reuse and recycling of materials across the entire value chain

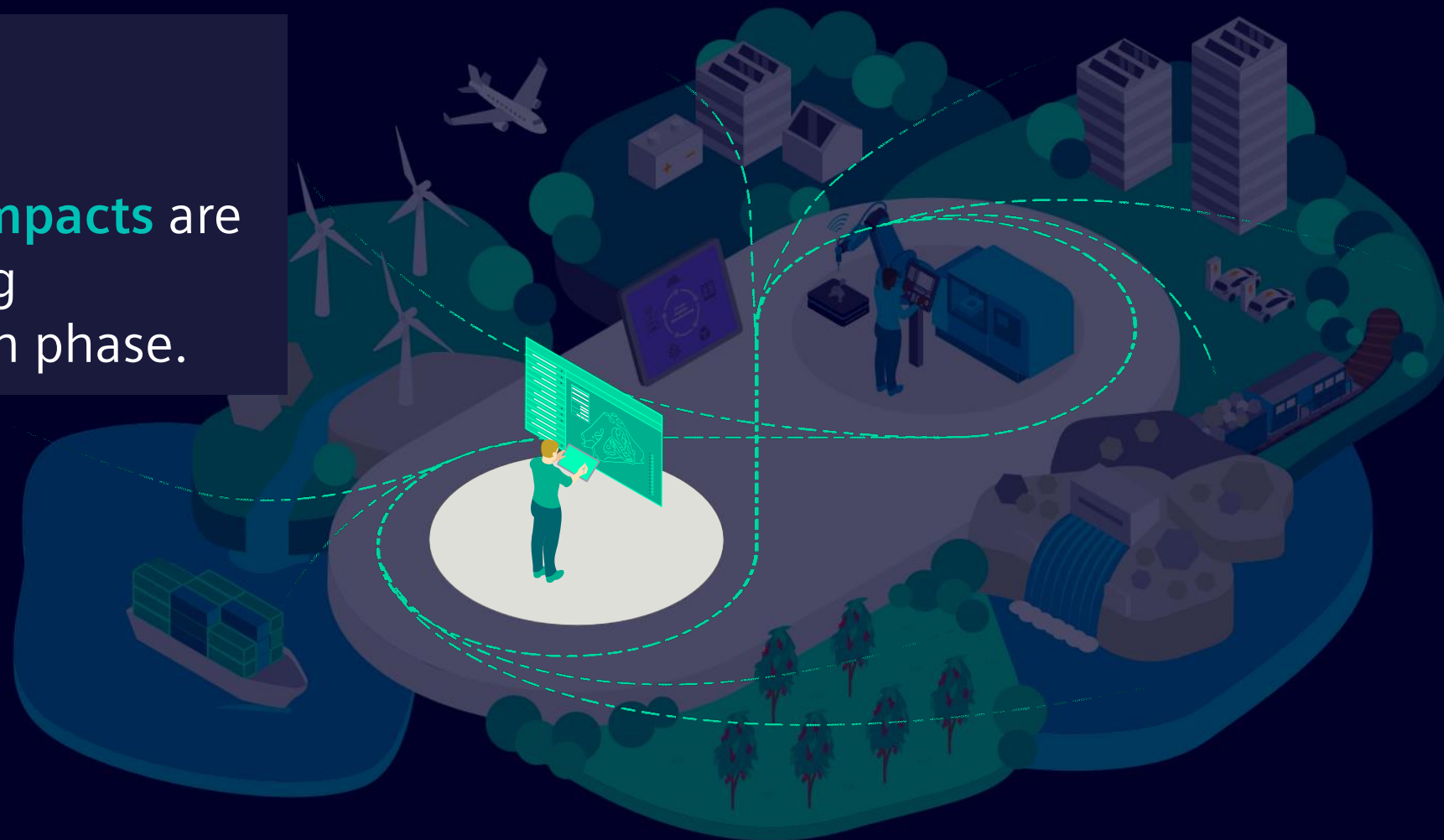
Predictive maintenance maximizes the use of existing resources, reduces waste, lowers energy use, and promotes longer product lifecycles

Robust eco-design is enabling the loop for a circular economy

Resource efficiency
& circularity



Up to **80%** of all product-related **environmental impacts** are determined during the product design phase.



Robust Eco Design

Accelerated commitment for software and service portfolio

Eco Design

DEGREE ambition #6

Key
ambitions

Robust Eco Design for 100% of relevant hardware, software, and service portfolio by 2030¹



Where
we stand

Degree of coverage of our Robust Eco Design approach on the relevant hardware, software, and service portfolio increased to 54%¹ (from 41% in FY23)²

DEGREE ambition #7

Natural resource decoupling through increased purchase of secondary materials for metals and resins¹

35% of metals used in manufacturing purchased from recycled sources¹

Robust Eco Design (RED)

- With our eco design approach we aim to support circularity and increase dematerialization
- **Expanding our effort beyond hardware portfolio to software and services**, we amplify our efforts to reduce the footprint of our offerings
- RED is the **foundation for Siemens EcoTech**, integrating eco design systematically into our product development
- Siemens EcoTech Profiles showcase the outcomes of the RED approach and highlight outperforming portfolio elements



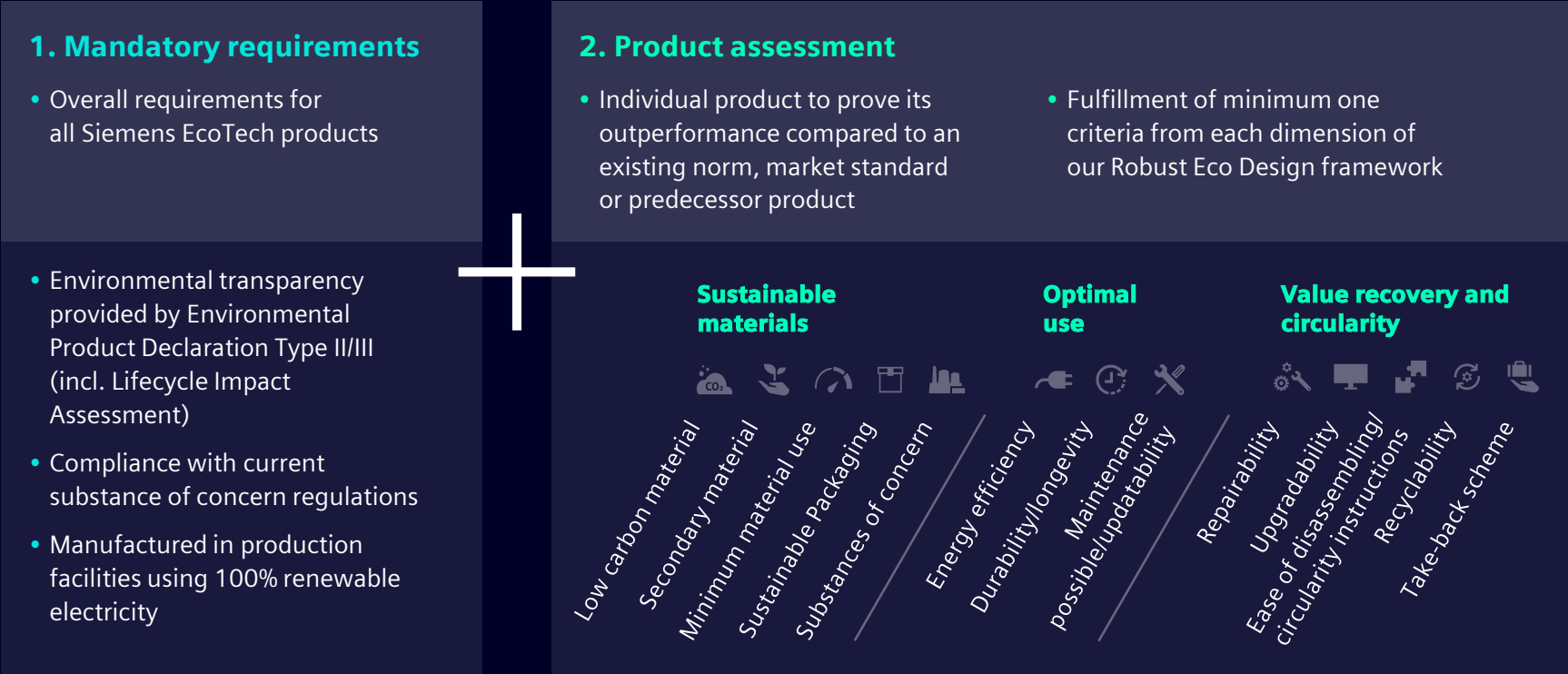
1 Siemens without SHS 2 Prior periods are presented on a comparable basis, based on an adjusted portfolio scope

Siemens EcoTech empowers our customers to make informed decisions on sustainable products

Siemens EcoTech is an environmental product performance self-declaration designed to drive the sustainable transformation of industry and infrastructure



Individual product assessments based on Siemens Robust Eco Design framework



Siemens EcoTech Profile provides maximum transparency through product-specific KPIs



SENTRON 3WA1 Air Circuit Breaker



Minimum material use

- Use of ID Link and digital documentation in order to reduce paper documentation.



Energy efficiency

- Excellent efficiency due to low temperature derating
- Acquires energy data to provide transparency for energy efficiency measures, e.g. energy management ISO 50001.



Durability / longevity

- Superb lifetime and high robustness



Repairability

- Modular concept enables easy repairability by user. Additional repair centers and wide range of spare parts are available.



Maintenance possible / Updatability

- Minimum maintenance: Executable by customers themselves on site. Wide range of accessories and spare parts.
- Future-proof product due to regular updates based on new emerging requirements and security patches.



Upgradability

- Separation of application and protective processors enables easy upgrade of new features and adapt functionality for changing demands.

Our production facilities

Our goal is clear: All Siemens production facilities and buildings worldwide are to achieve a net zero-carbon footprint by 2030. Today, all Siemens EcoTech products are manufactured in production facilities using [100% renewable electricity](#).



EPD Type II available

- According to ISO 14021 including Life Cycle Impact Assessment (LCIA). The Environmental Product Declaration (EPD) provides transparency on the environmental impact of the product throughout its life cycle (e.g. Product Carbon Footprint (PCF) data).



Compliant with substance regulations

- Protect people and environment by avoiding substances of concern.

Find more sustainability facts in the [EPD](#) and the [Siemens EcoTech Profile \(SEP\)](#).

PCF: Product Carbon Footprint EPD: Environment Product Declaration LCA: Life cycle Assessment FW: Firmware

We do more with less, for our customers, society, and planet

Resource efficiency
& circularity



**Empower
customer circularity**



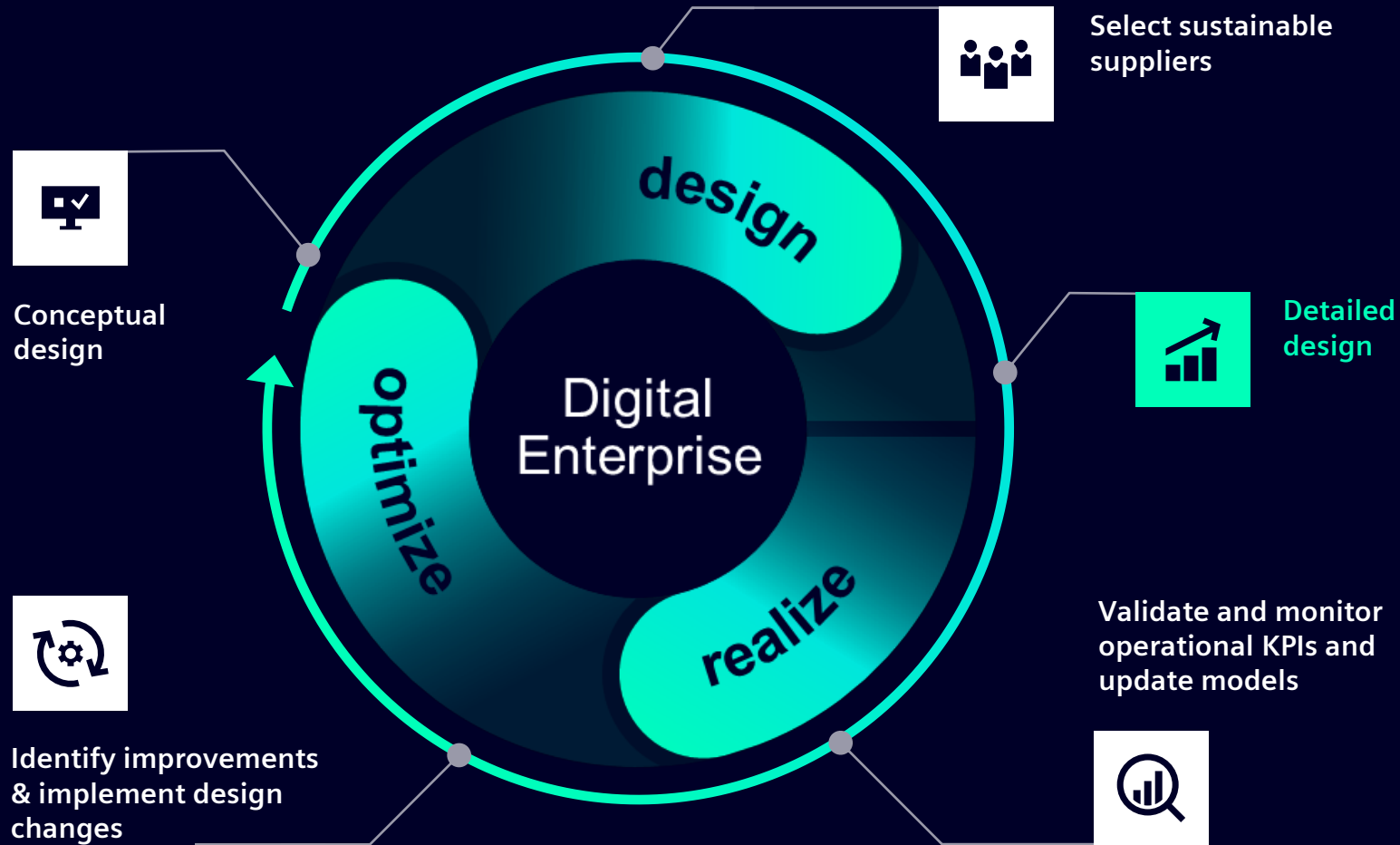
**Embrace
circular business**



**Create circular
products**



Leveraging your Digital Enterprise for sustainable design

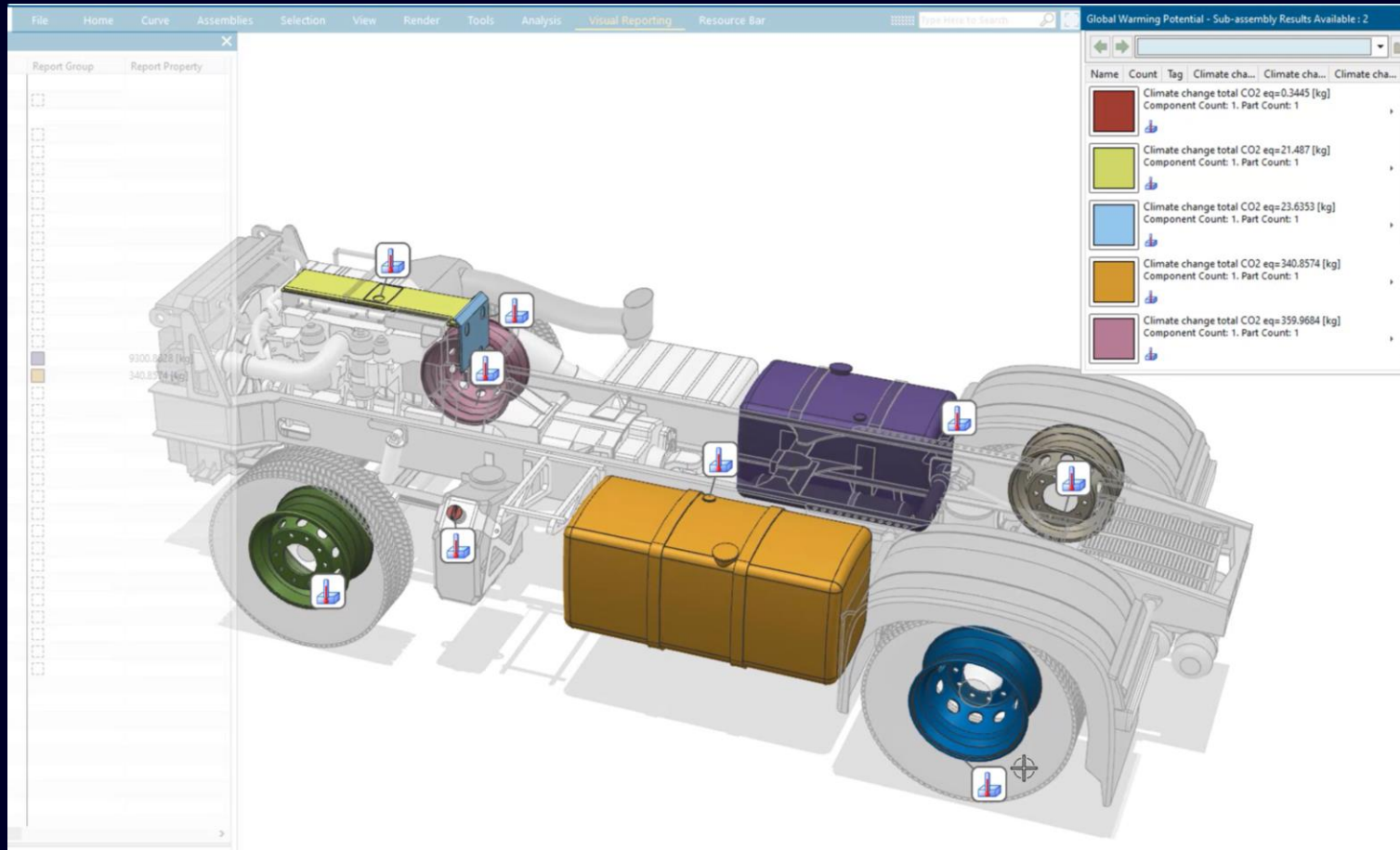


- Select the right part materials based on sustainability material properties
- Design for light-weighting, flexibility, modularity, and reliability
- Optimize sustainability performance with simulation and design exploration
- Simulate to assess lifecycle impacts from manufacturing, use, servicing & next life

More sustainable designs and fast innovation with fewer prototypes

Use case

How do I know about the environmental impact as designer?



Challenge

Understanding environmental impacts is a prerequisite for creating eco-designs to enable smarter decisions

Solution

Design-native sustainability impact analysis to evaluate the impact of design decisions based on a comprehensive set of environmental impacts including carbon footprint equivalent

- *NX Sustainability Impact Analysis*
- *Connected to Teamcenter*

How-to? Creating circular products by augmenting traditional design criteria with sustainability criteria derived from product life-cycle

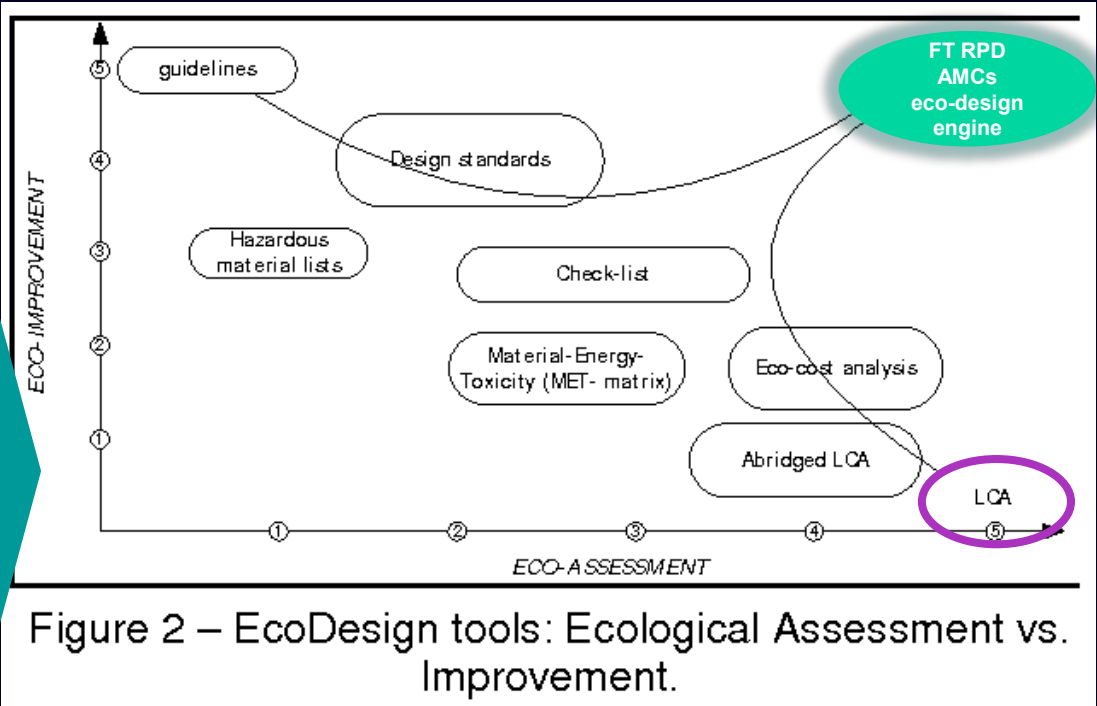
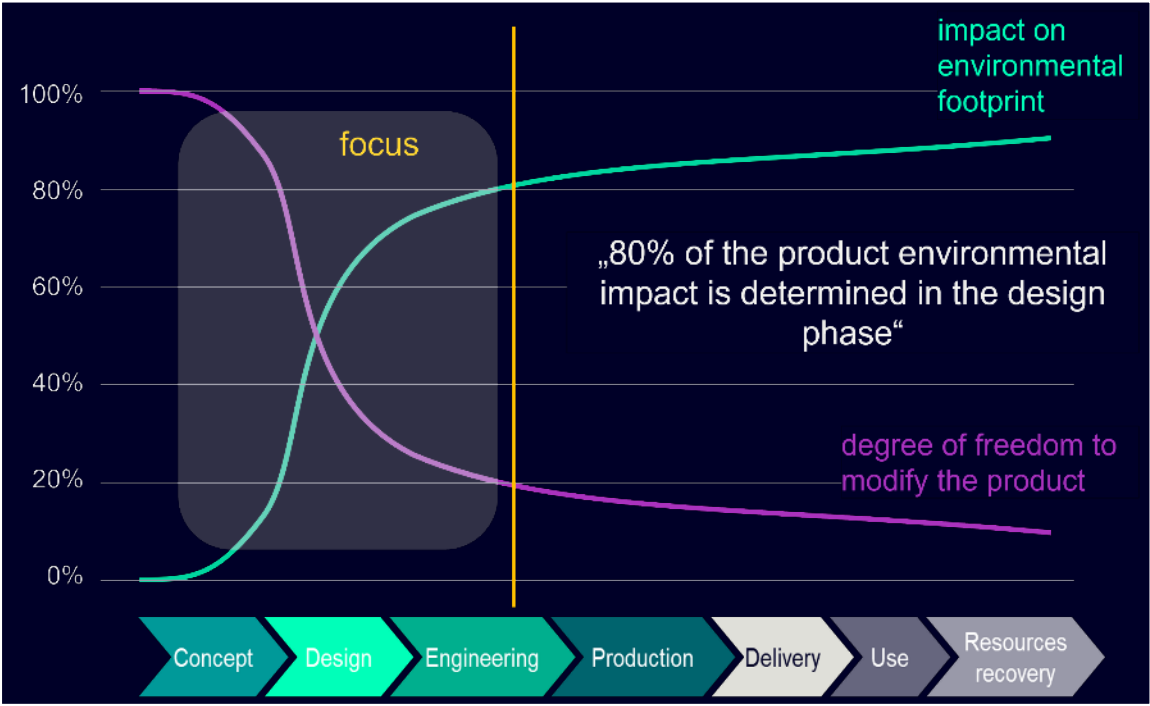
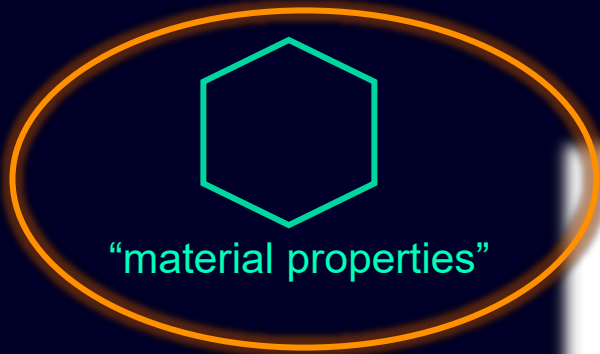


Figure 2 – EcoDesign tools: Ecological Assessment vs. Improvement.

ESPR (Eco-design for Sustainable Products Regulation) and **CRM** (critical raw material act) aim to improve product circularity, energy performance and environmental impact across a product’s entire life-cycle



Key product aspects under ESPR
Article 5 – Ecodesign requirements



https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en

https://environment.ec.europa.eu/publications/proposal-ecodesign-sustainable-products-regulation_en



Product eco-design in PLM: To drive the product portfolio transformation, product managers and design engineers need a continuous application support along the process

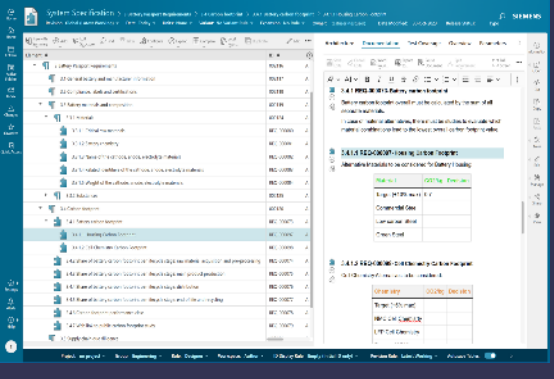
1) Add requirements form regulation or internal strategy to be followed within PLM process

2) Set eco-design targets to comply with regulation and leverage business opportunities

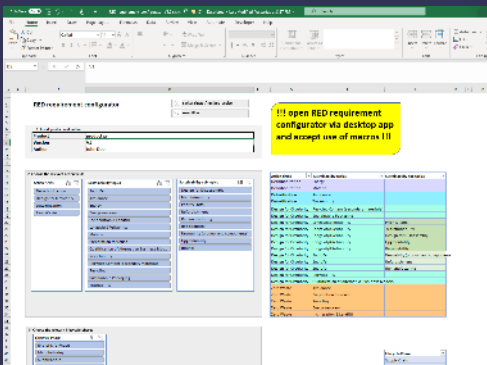
3) Enforce and monitor target achievement in product design

4) Document product circularity and footprint and generate transparency (e.g., circularity instructions, EPD)

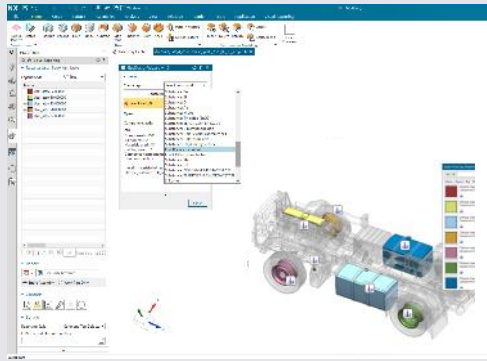
Requirement management and ingestion



Requirement specification and target setting



Product design evaluation and improvement

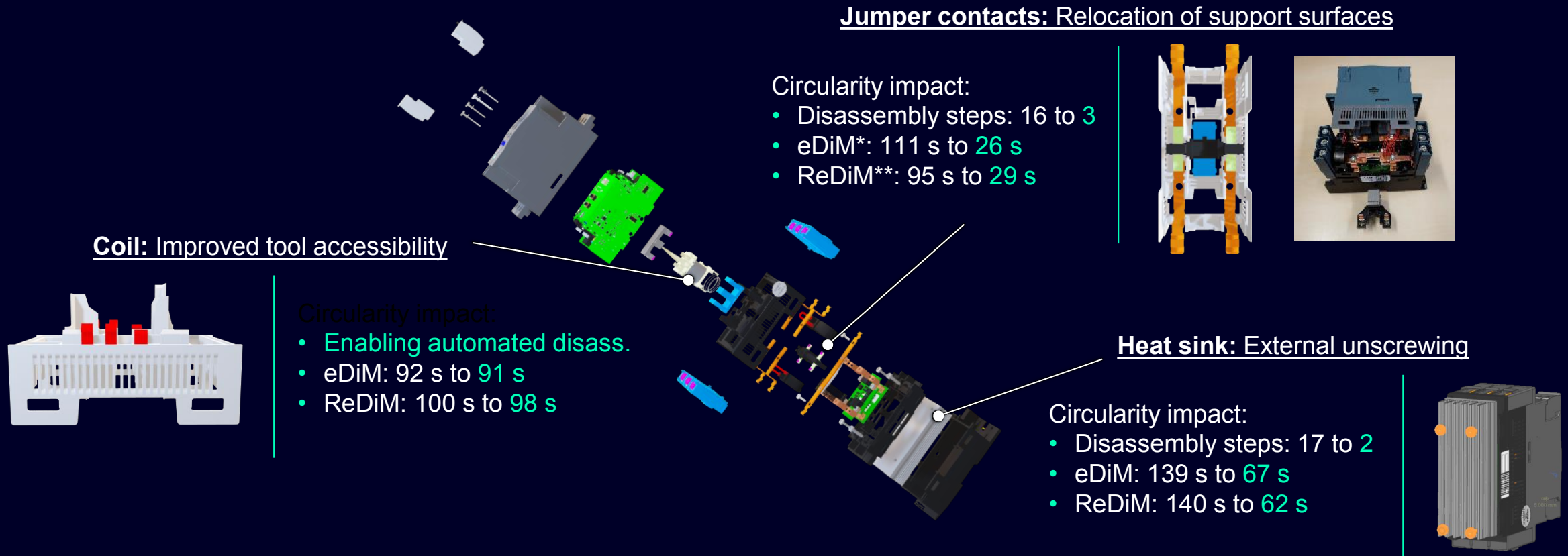


Green Digital Twin / Automated LCA



EXAMPLE

Minor design modifications lead to significant improvements in the ease of disassembly



Incorporating ease of disassembly measurements in the design phase empowers developers to evaluate, benchmark, and increase the reuse potential of components.

Contact

Dr. Ferdinand Revellio

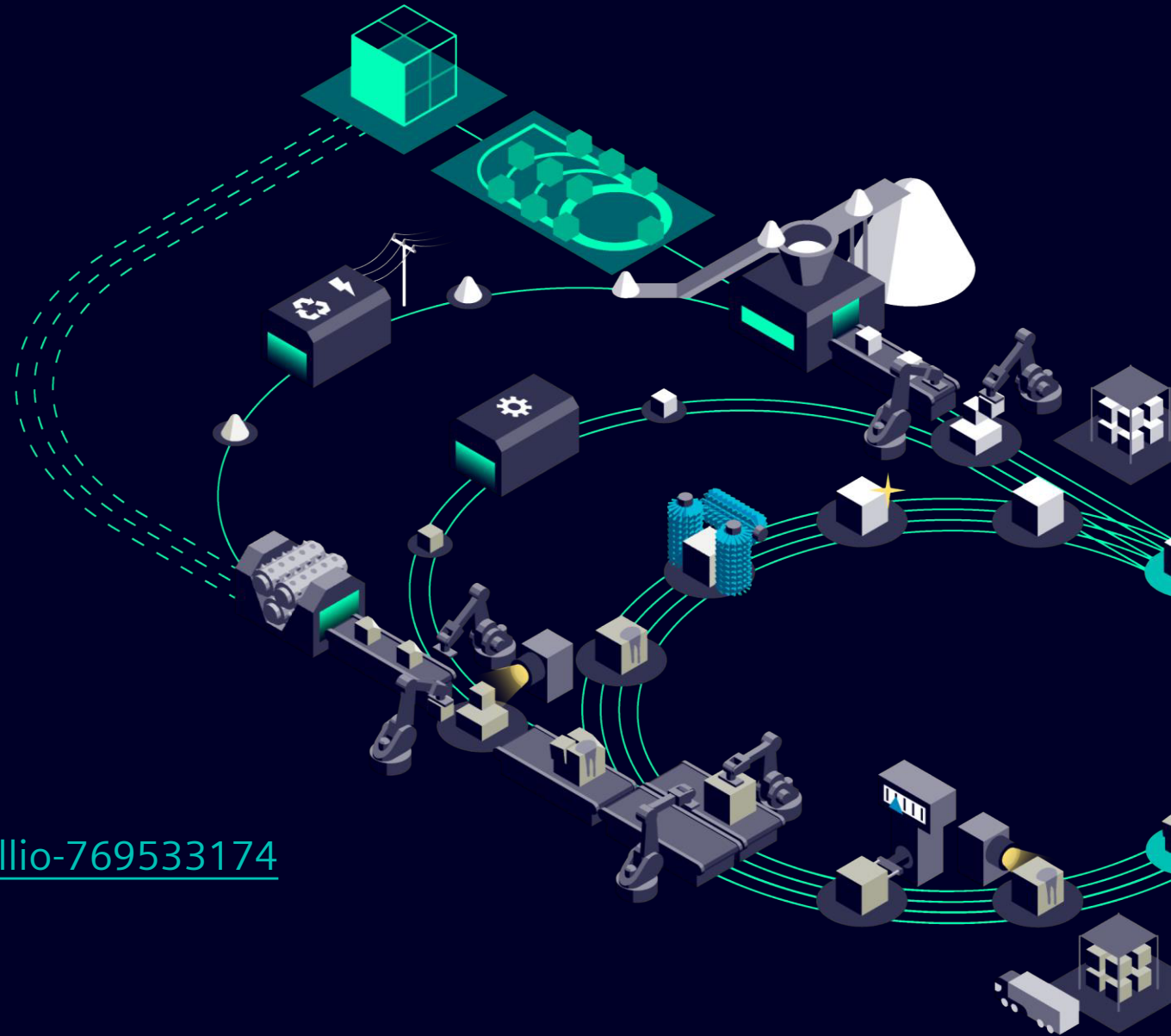
Siemens AG

Principal Key Expert Circularity

FT RPD AMC

<https://www.linkedin.com/in/dr-ferdinand-revellio-769533174>

E-mail ferdinand.revellio@siemens.com



BEYOND THE DOMINANT LOGIC

Zirkuläre Geschäftsmodelle in der Praxis



20.03.2025

BMI  Lab

Spin 
Off
University
of St.Gallen

Agenda

1. Setup
2. Einfach Starten
3. Zirkuläres Produkt vs. Service
4. Finanzen, Ökosystemdenken & Regulatorik
5. Internalisierung



Das richtige Setup sicherstellen

Aktiv werden und lernen

- Aktiv werden und lernen: Projekte als Lernerfahrung framen
- Internen Aufbau und Verteilung des Wissens planen

CE als Innovationsherausforderung

- Transformation zur CE ist eine Innovationsherausforderung
- Bewährte Methoden helfen bei der systematischen Umsetzung

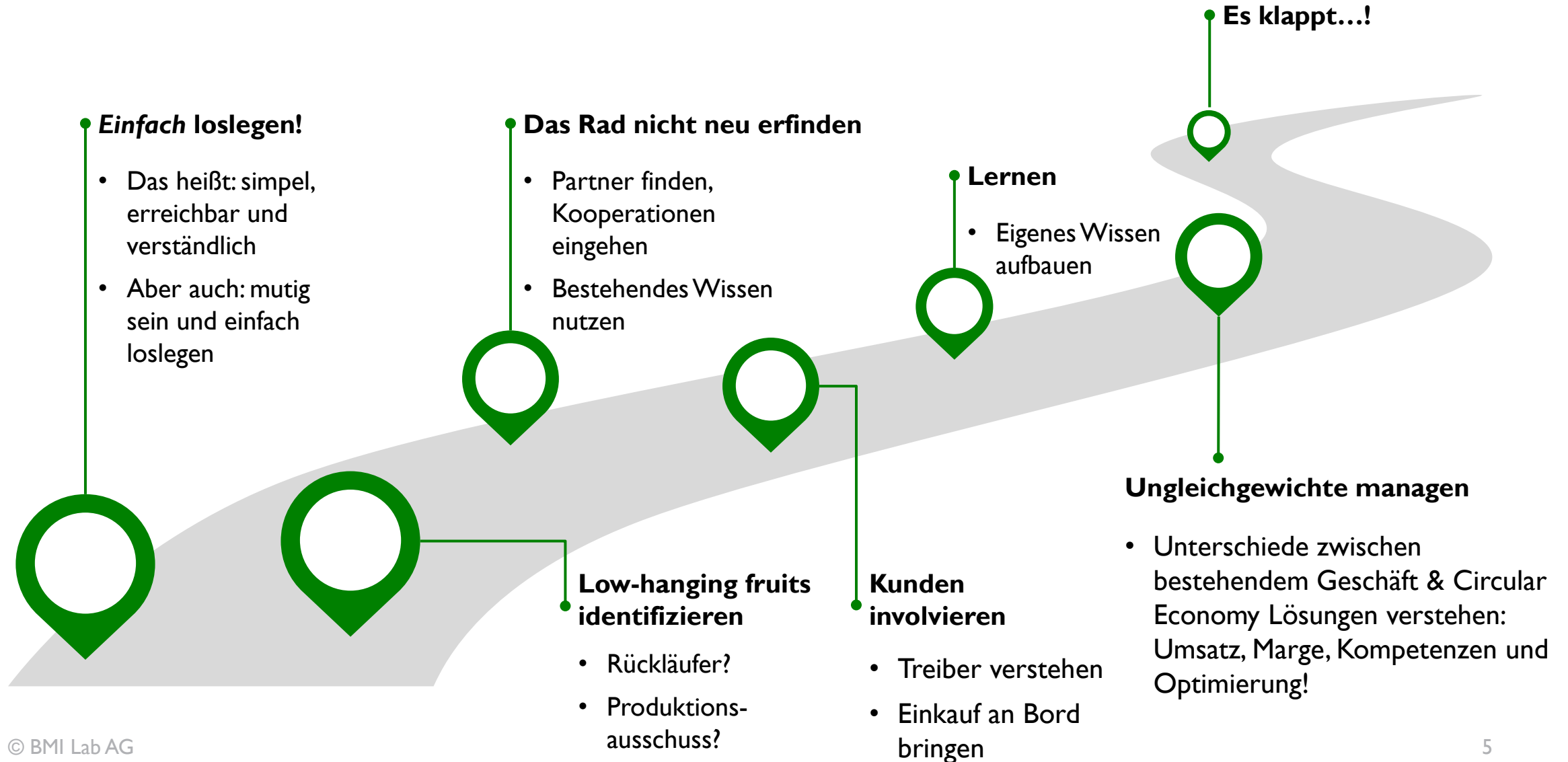
Top-Management Support & Strategie

- Zum Top-Thema auf oberster Ebene machen – sonst wird es scheitern!
- Langer Atem: wie bei großen Innovationsprojekten benötigt es mehrere Jahre, bis sich Ergebnisse zeigen

Taskforces etablieren

- Gut vernetzte, bereichsübergreifende Projektteams aufsetzen und mit Autonomie und Gestaltungsspielraum ausstatten
- Rückführung des Wissens und der Erfahrungen in die Bereiche frühzeitig sicherstellen und vorhandene Ressourcen aus diesen einbinden

Einfach starten!



Welcome

About us

CERO WASTE

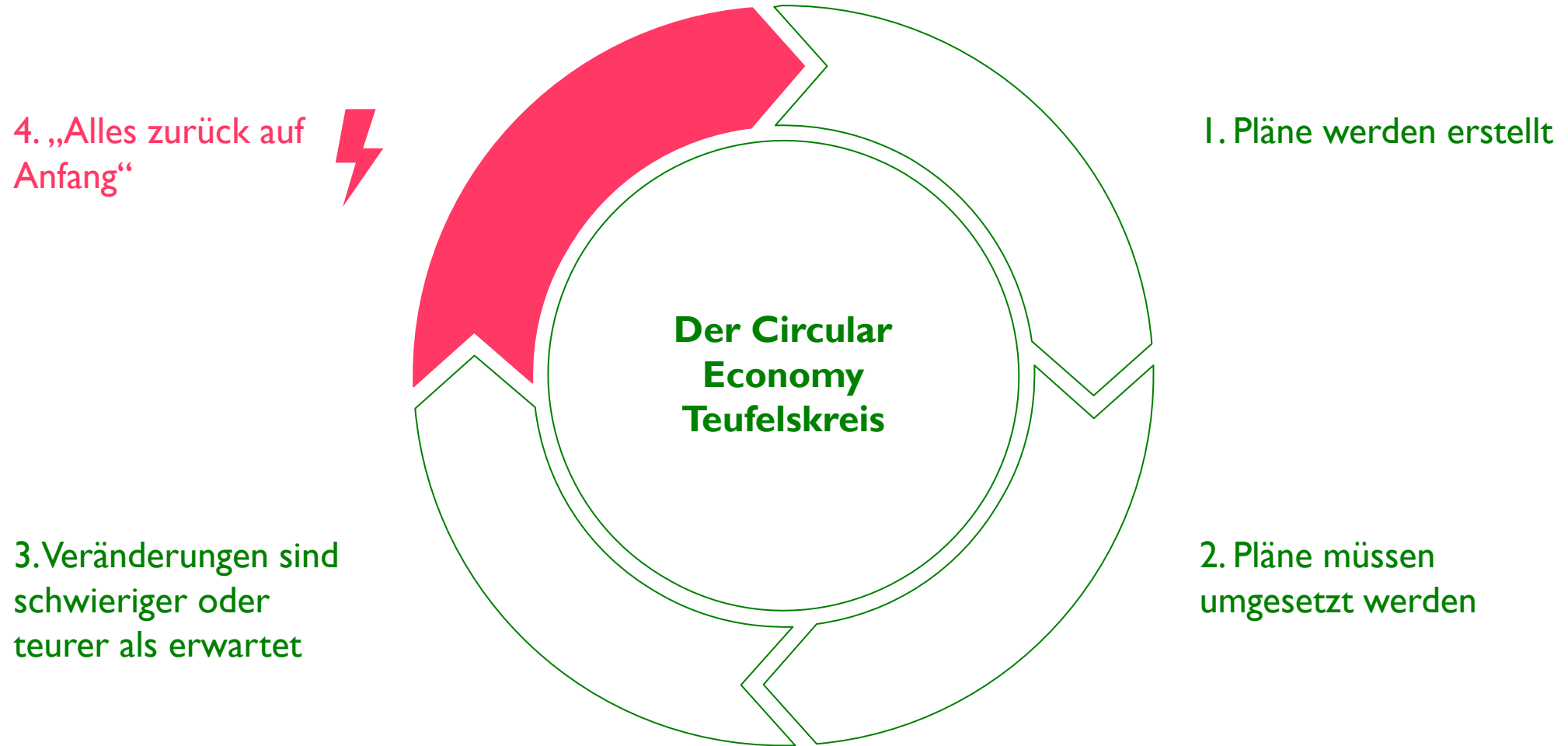
Services & Products

Download

Contact



Den Teufelskreis vermeiden



Zirkuläres Produkt

Frühzeitig das Produktdesign anpassen

Rücknahme: System, Frequenz, Sortierbarkeit & Qualität

Ansprüche an „Re“-Produkte

Notwendigkeit neuer KPIs

vs. Service

Umstellung: Service-Orientierung & Vertrieb

Richtige Ansprechpartner einbinden

As-a-Service Lösungen müssen Mehrwerte bieten

Implementierung Schritt für Schritt über Geschäftsmodell-Roadmaps

Finanzen, Ökosystemdenken & Regulatorik



1

Finanzen und neue Umsatzmodelle

- Längere Zeithorizonte, längere Kapitalbindung
- Kosten von R-Strategien & Sicherstellung von „used“ Inputmaterialien sind oft Neuland
- Lieferkettenrisiken monetär bewerten

2

Ökosystemdenken

- Offenheit zu frühzeitiger Kooperation (auch mit Kunden!)
- Kooperation entlang der gesamten Wertschöpfungskette führt zu kaskadierenden Kooperationen

3

Regulatorik

- Gemeinsam aktiv gegen hinderliche Regularien agieren
- Forschungsgelder und Subventionen nutzen

Internalisierung von Kreislaufwirtschaft

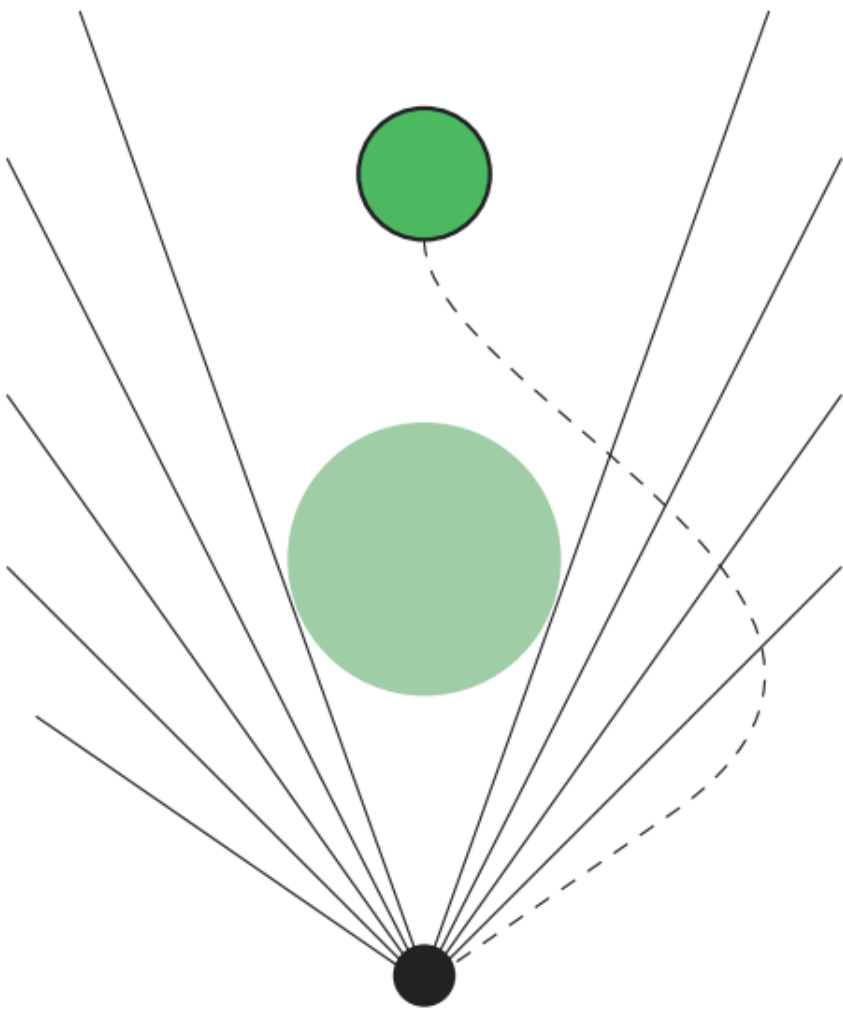


1. Projektunterstützung

2. Projektleitung

3. Evaluation Externer

4. Academy Programm



«Es gibt für jedes Problem eine Lösung. Es ist nur meist einfacher, nicht danach zu suchen.»

Elvira Lauscher

» *Das entscheidende ist nicht, es von Beginn an perfekt zu machen, sondern zu beginnen und dadurch zu lernen.*

- Wilhelm Mauß, CEO Lorenz Wasserzähler

Richard Stechow –
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Co-author of the Circular Navigator

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BMI  Lab