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Editorial

FROM LINEAR TO CIRCULAR: A CALL TO REDESIGN THE OFFICE OF TOMORROW

A hundred years ago, the Bauhaus movement reshaped how we designed and produced furniture, buildings, and spaces. It emerged in a moment of crisis and change — and it transformed not just aesthetics, but the entire system behind them. Today, we are at a similar turning point. Our resources are finite, our climate is warming, and our ways of working are evolving faster than ever. Once again, designers, architects, producers, and office managers stand at the frontier of change.

Now, the call is clear:

we must all turn to the circular economy.

Every year, **more than 10 million tonnes of office furniture** are thrown away across Europe — most of it landfilled or incinerated. With every desk, chair, and cabinet we discard, we lose valuable materials, embedded energy, and design value. And yet, we continue to buy new pieces made mostly from virgin materials, repeating the same linear cycle: take, make, waste.

We waste resources. We waste money. We waste opportunities for better design.

At the same time, the way we work is changing profoundly. Cities, administrations, and companies are redesigning their workplaces to adapt to new forms of collaboration and flexibility. These changes come with large procurement budgets and major renewal processes. This is a once-in-a-generation opportunity to shift an entire market — to replace the outdated logic of disposability with the creativity of circular design.

WHY WE MUST ACT

Circularity is not just a sustainability trend. It is a **system change** — a new economic model where materials stay in use, waste is designed out, and value circulates. Instead of throwing away resources, we **repair, reuse, refurbish, and remanufacture**. Instead of relying on new raw materials, we turn to **regenerative and recycled materials**. Instead of short-lived products, we create furniture that can adapt, evolve, and live many lives — again and again.

For cities and regions, this shift is not only ecological but also economic. Public buyers can save money by extending the life of existing furniture, by tendering for refurbished and reusable products, and by stimulating local circular businesses. Every euro spent wisely can reduce waste, create jobs, and keep value in the region.

For designers and producers, circularity opens new creative possibilities. It is the next step in design innovation — designing for disassembly, for reconfiguration, for new materials and new business models.

Circular furniture is not a compromise. It is **beautiful, functional, and scalable** — made in Europe, for Europe.

THE CIRCULAR ECONOMY OFFICE VISION

The Circular Economy Office (CEO) project was created to support and accelerate this transition. Together with partners across the North Sea Region, we have one shared ambition:

To mainstream circular economy in the entire European office furniture sector.

The CEO Manifesto you are holding is that roadmap — and an invitation.

It showcases real-world examples, pilot projects, and voices from industry, design, and policy. It is not a technical report but a **coffee table book for transformation** — designed to inspire, inform, and motivate.

Across Europe, our seven pilot projects have demonstrated what circular economy looks like in practice:

- Proof that **circular design** works — when products are conceived for longevity and reuse from the start.
- Proof that **workplace transformation** can integrate reused and refurbished furniture into flexible, modern office environments.
- Proof that **materials and CO₂ can be saved** through repair, reuse, and remanufacturing.
- Proof that **new business models** based on sharing, leasing, and take-back can be economically viable.

These pilots are the foundation of the four core stories told in this Manifesto:

**the Design Story,
the Workplace Story,
the Climate Story
and the Economic Story.**

Each story is introduced by voices from outside our project — architects, researchers, and business leaders who share how circularity is reshaping the way we live and work.



Members from the CEO consortium on the roof top of the New Work Harbour during the first partnermeeting in Hamburg.

THE CIRCULAR TURN – WHAT IT MEANS

Circular economy can sound abstract, but at its heart it is simple. It is about **keeping products and materials in circulation.**

- Instead of designing objects for one short life, we design them for many.
- Instead of hiding their materials under glue or staples, we design them so parts can be separated, repaired and reused.
- Instead of extracting more resources, we use what we already have.

In a circular economy, **waste becomes design failure** — something we intentionally design out.

Circularity is not “nerdy” or marginal anymore — it is becoming the **new normal of economic innovation.** Industry associations, chambers of commerce, and EU policies increasingly align with this transformation: from the **European Green Deal** to the **Circular Economy Action Plan** and the **Sustainable Products Regulation.** The momentum is here. The question is how fast we move.

R3 — Reuse

Climate benefit: highest carbon savings per product

R4 — Repair

Climate benefit: small interventions prevent high-emission replacements

R5 — Refurbish

Climate benefit: extend life by refreshing, not replacing

R6 — Remanufacture

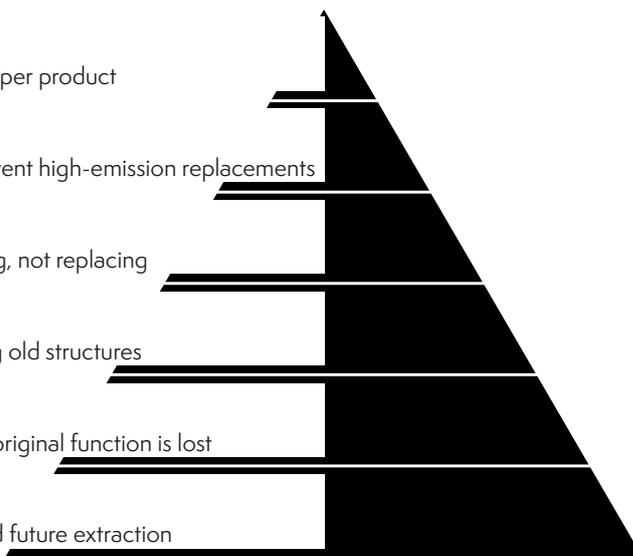
Climate benefit: new performance using old structures

R7 — Repurpose

Climate benefit: extend life even when original function is lost

R8 — Recycle

Climate benefit: recover materials, avoid future extraction



Ranking of the R-strategies by climate impact — the higher the strategy sits on the ladder, the more carbon emissions it prevents.

ENABLERS OF CHANGE

For this shift to succeed, three enablers are crucial:

policy, procurement, and people.

Regulations set the frame, but procurement drives the market. Cities and public bodies are among the largest buyers of office furniture — they can make the circular choice and set new standards.

And people — the designers, facility managers, buyers, and refurbishers — bring circularity to life through their skills and creativity.

To support them, the CEO project has developed a suite of **practical tools** for everyone along the value chain. Our **Guidelines for the Circular Transformation of Office Interiors** translate lessons from our pilot projects into clear, hands-on advice for companies, public institutions, and workspace planners.

They cover four essential dimensions of change — Legal Frameworks, Circular Design, Business Models, and Materials — and help organisations design office environments that are both future-proof and resource-efficient.

Building on this knowledge, we have also developed **policy recommendations for the European Union** to remove barriers and create the regulatory conditions needed to scale circular practices across Europe.

The transition to a circular economy will also demand new **skills and capacities**. Understanding materials, managing take-back systems, assessing lifecycle impacts, and working with refurbished products at scale all require new expertise and cooperation. But this transformation will also **create new jobs and value chains** — from repair workshops to remanufacturing hubs — revitalising local economies and craft traditions.

START. SCALE UP. MAINSTREAM.

Through the Circular Economy Office project, we learned that the journey towards circularity is not the same for everyone.

Some are just beginning to explore the concept — **Starters**, ready to take the first step.

Others are already testing, piloting, and scaling — **Transformers**, looking to go further.

And a growing number are working to make circularity their standard way of doing business — **Mainstreamers**, leading the sector forward.

To help each of these groups, we developed the **Circular Maturity Indicator (CMI)** — a tool that allows organisations to assess where they stand and identify the most relevant next steps.

The CMI connects directly to the ten recommendations presented at the end of this Manifesto:

- Ten for cities and regions,
- Ten for companies and producers, each divided into “starting” and “scaling” journeys.

THE NEXT CENTURY OF DESIGN

Circularity is more than a technical solution — it is **a cultural and creative evolution**.

It reconnects design with responsibility and innovation with care. It reminds us that good design never ends; it continues to live, adapt, and inspire.

The *Circular Economy Office Manifesto* is our contribution to this movement. It celebrates the people and ideas leading the way. It shows what’s already possible and what must still be done. It invites you — whether you are a designer, a producer, a policymaker, or a city official — to join us on this journey.

Because just like a century ago, change begins in the places where we work and create together.

This is where the next transformation starts.

Let’s start. Let’s scale up. Let’s mainstream circularity.

The next century of design begins now — circular, regenerative, and human.

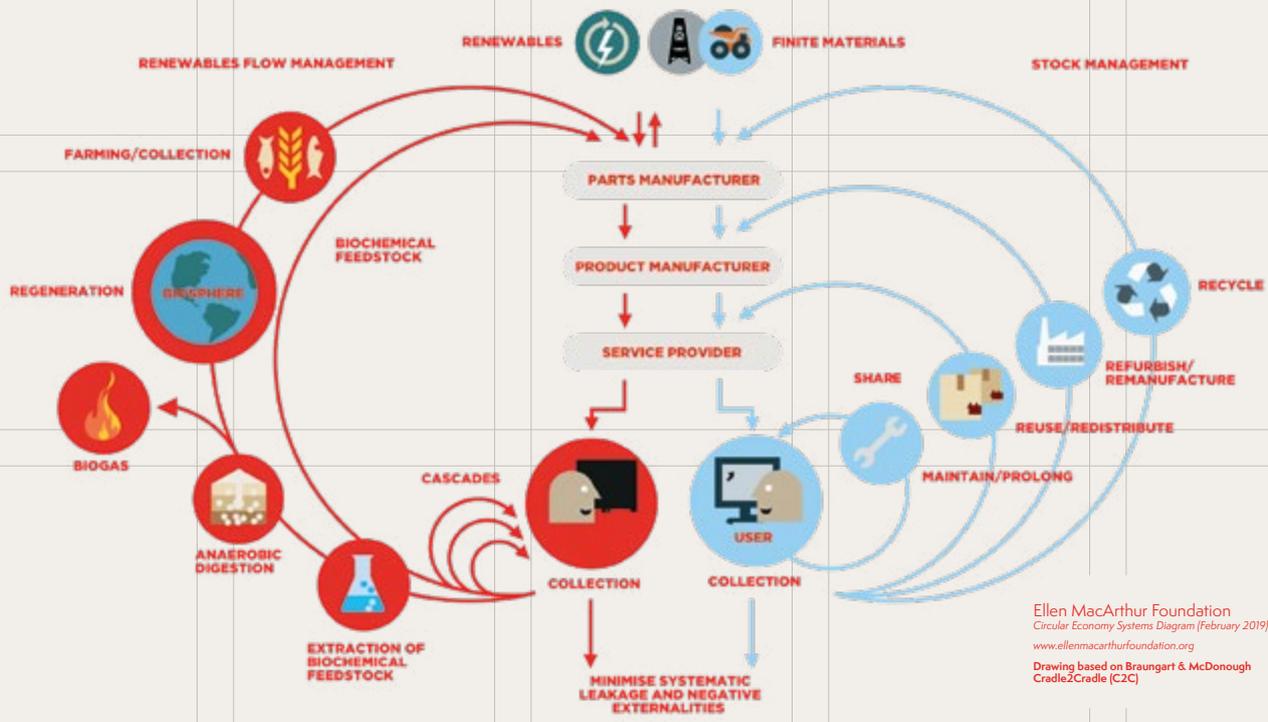


A handwritten signature in black ink that reads "Britta Peters".

Britta Peters
Project Lead, Circular
Economy Office (CEO)

WHAT IS THE CIRCULAR ECONOMY?

based on the Butterfly Diagram by the Ellen MacArthur Foundation



Most of today's economy still follows a **linear model**: we take resources, make products, use them, and throw them away. This "take–make–waste" system has powered industrial growth for decades — but it depends on finite materials and generates enormous waste and emissions.

The **circular economy** offers a different logic: instead of losing value after one life, products, components, and materials **circulate** in continuous loops — just like energy and nutrients in nature.

In the **Butterfly Diagram**, the left wing represents the **biological cycle**:

organic materials such as wood, cotton, or food residues are returned to the biosphere through **composting, regeneration, or cascading** use. In this loop, materials safely re-enter natural systems and build new value — soil health, biodiversity, or renewable feedstock.

The right wing shows the **technical cycle** — the one most relevant to products like office furniture. Here, value is preserved through strategies often called the **R-strategies**:

Reuse: using a product again for the same purpose.

Repair and Refurbish: restoring function and appearance.

Remanufacture: rebuilding a product with reused parts.

Repurpose: giving it a new function.

Recycle: recovering materials when the previous options are no longer possible.

Each inner loop — reuse or repair — keeps more value and requires less energy than the outer loops like recycling. The goal is to **design out waste and pollution, keep products and materials in use, and regenerate natural systems**.

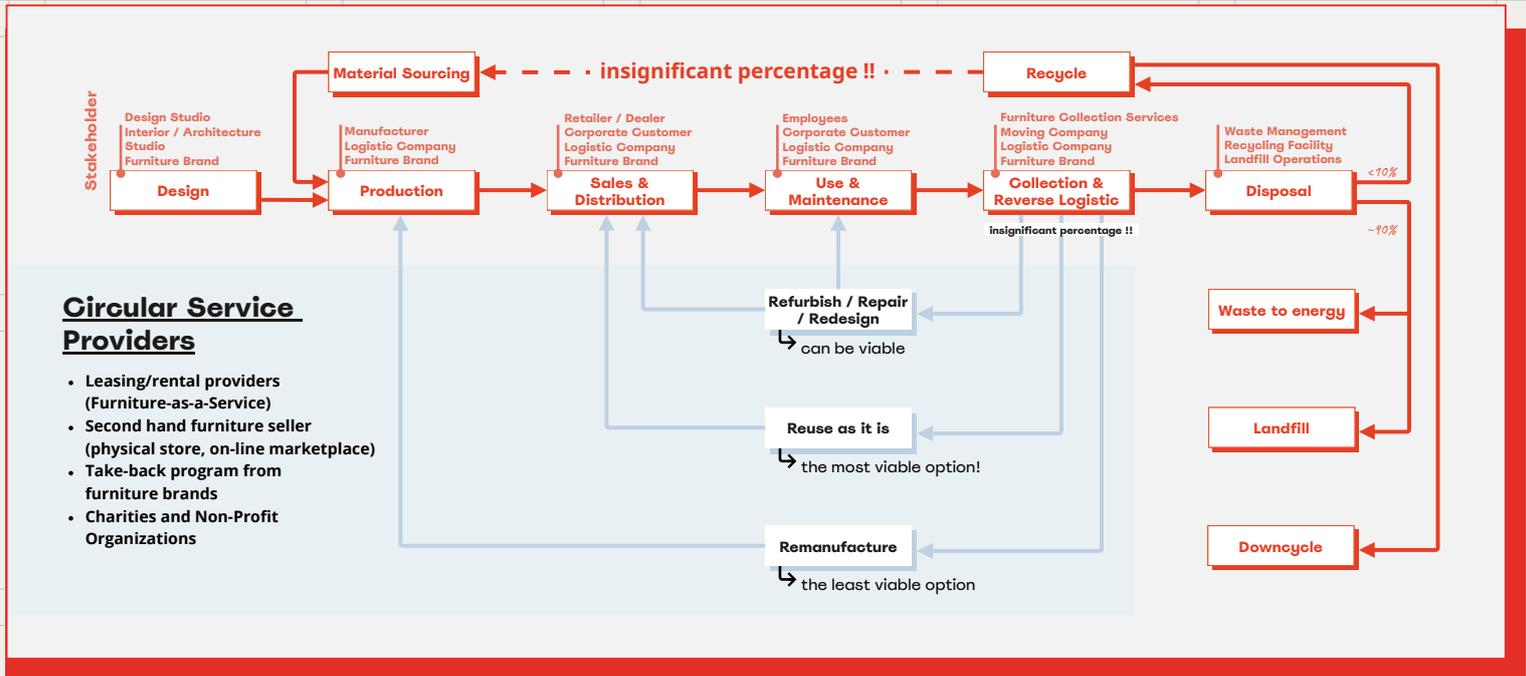
For the furniture sector, this means designing pieces that can be **disassembled, repaired, and adapted**, using **renewable or recycled materials**, and developing business models that enable return, refurbishment, or resale. Circularity isn't only about materials — it's about rethinking how we create, use, and value things.

The Butterfly reminds us that waste is not inevitable; it is a **design decision**.

When we design for circularity, value doesn't end — it simply takes flight again.

THE OFFICE FURNITURE ECOSYSTEM

by project partner INDEED Innovation



The **Office Furniture Ecosystem Map** represents the journey of office furniture through its lifecycle – from design to its end of life. It traces the activities of the various stakeholders involved at each stage, such as **manufacturers, designers, distributors, businesses, and recycling facilities**. Importantly, the map highlights circular strategies that can be implemented to extend the furniture's lifecycle.

This approach to systems mapping serves as a **strategic tool beyond a visual representation**. It provides a universal view of the office furniture sector, revealing the complex interactions and dependencies between different players. By visualizing these connections, the map **empowers stakeholders to identify value chain barriers and challenges**, leverage circular opportunities, foster stakeholder collaboration, and scale circularity across the industry.

The lifecycle begins with **design**, where aesthetics, functionality, and longevity are considered. This includes designing furniture for efficient assembly, disassembly, easy use, proper maintenance, and ultimately, recycling or responsible disposal.

During **production and material sourcing**, manufacturers bring the designer's vision to life, sourcing materials according to specifications. Sustainable material choices and responsible sourcing practices are crucial in this stage.

Once production is complete, furniture reaches its destination through various **sales and distribution channels**, with logistics companies playing a key role in timely delivery.

DESIGN

This initial phase sets the foundation for the entire journey. Designers consider aesthetics, functionality, and most importantly, longevity. This includes designing furniture for efficient assembly, disassembly, easy use, proper maintenance, and ultimately, recycling or responsible disposal at the end of its life.

PRODUCTION & MATERIAL SOURCING

During this phase, manufacturers bring the designer's vision to life. They source materials according to the specifications, which can include buying pre-made components, fabricating parts, and assembling the final product. Sustainable material choices and responsible sourcing practices are crucial in this stage.

SALES & DISTRIBUTION

Once production is complete, furniture reaches its destination through various sales channels. Collaboration between sales, marketing, and retail partners ensures smooth distribution. Logistics companies then play a key role in timely delivery to the final users, typically businesses.

USE & MAINTENANCE

This is where the furniture meets its purpose. Businesses and their employees utilize the furniture in their workspaces. Here, facility managers and maintenance staff take on the responsibility of proper upkeep to ensure the furniture lasts for a longer life cycle.

COLLECTION & REVERSE LOGISTICS

When furniture reaches its end-of-life or needs replacement, collection services come into play. These services, offered by the original manufacturer, a third-party company, or specialized agencies, ensure proper collection and transportation.

DISPOSAL

This final stage focuses on responsible disposal. Furniture that cannot be reused or refurbished undergoes recycling processes. Waste management companies and landfill operators play a vital role in ensuring environmentally responsible disposal that complies with regulations.

In the **use and maintenance** phase, businesses and employees utilize the furniture in their workspaces, while facility managers take responsibility for proper upkeep to ensure longer lifecycles.

When furniture reaches **end-of-life**, collection services and reverse logistics ensure proper transportation. Finally, the disposal stage focuses on responsible recycling and waste management.

By understanding and optimizing each stage of this ecosystem, stakeholders can work together to establish closed-loop systems where office furniture is designed to last, reused, refurbished, or recycled, minimizing environmental impact and maximizing economic value.

The ecosystem map serves as a foundation for industry-wide collaboration and the implementation of innovative circular solutions.

THONET – THE ORIGINAL CIRCLE OF DESIGN

When we talk about circular economy today, it often sounds like a revolution. In truth, it is also a return — to principles of care, repair, and craftsmanship that have always been part of good design. Few stories show this better than Thonet, one of Europe’s oldest and most iconic furniture makers.

Founded in 1819 by Michael Thonet in Boppard on the Rhine, the company changed the course of industrial design. In the mid-1800s, Thonet perfected the technique of bentwood, shaping solid beech under steam into light, elegant, and remarkably strong forms. This was not only an aesthetic breakthrough — it was a system innovation. It used less material, simplified production, and made every piece easy to assemble, disassemble, and repair.

The legendary No 14 chair, launched in 1859, embodied these principles long before terms like design for disassembly or material efficiency were invented. Each chair consisted of just a few bent beech elements, joined with screws and bolts. Thirty-six disassembled chairs could be shipped in a single cubic metre — a brilliant example of efficient logistics and loop thinking. If a part broke, it could be replaced; if fashions changed, it still fit in the next café or home. Thonet had unconsciously created what we now call a circular product system.



THONET

After two centuries, the company still produces in Frankenberg (Eder) in Hesse, Germany, using European beechwood from nearby forests. Many chairs from the 19th and 20th centuries are still in daily use — testimony to product life extension through design, quality, and repair. Customers can even send their old chairs back to Thonet to have them refurbished and re-finished, closing the use phase loop.

Thonet’s approach naturally covers several R-strategies from the system map:

R2 – Repair and Refurbish:

damaged parts are restored, not discarded.

R3 – Reuse:

furniture changes owners and continues its life.

R4 – Remanufacture:

parts are replaced, surfaces renewed.

R7 – Recycle:

when no longer repairable, the solid beech can re-enter the material cycle.

All of this happens without marketing slogans. For Thonet, it’s simply how things are done. Circularity is part of their DNA — a quiet, continuous practice rather than a new business model.

This story reminds us that circular economy is not something entirely new or difficult. Our grandparents repaired their kitchen appliances, passed furniture on to their children, and bought well-made things that lasted. Circularity is, in many ways, a return to common sense — to valuing what already exists and designing so it can endure.

Thonet proves that when design is good, the loop never ends. A chair can live for centuries — crossing generations, spaces, and uses — without ever becoming waste. What was once born from necessity and craftsmanship can now guide an entire sector towards renewal.

Circularity is not only the future of design — it is also its origin.

DESIGN STORY

Design is where every circular journey starts. Before a chair is produced, before a desk is assembled, long before a tender is written or a workspace planned — design determines how materials flow, how long products last, and whether they will ever be repaired, reused, or recycled. In this chapter, we explore how designers and manufacturers are rethinking form, function, and materials to eliminate waste at the source.

Circular design is not a constraint; it is a creative opportunity. Renewable materials such as hemp and flax, modular systems that adapt to changing needs, products built for disassembly and repair — these are not visions of the future but realities available today. The stories and examples in this chapter show how the furniture sector is already transforming, and how every design decision shapes the environmental footprint of tomorrow.

Design is the beginning of the circle. When we get it right here, everything that follows becomes easier, lighter, and more beautiful.



wood
steel
leather
fabrics
hemp
mushrooms
foam



Jasper Morrison

THE MATERIALS WE CHOOSE DECIDE THE WORLD WE LEAVE BEHIND.

As most of us are aware the furniture industry involves combining different materials. How those materials are selected and combined dictates how, if at all, they can be uncombined. Compared with Fashion or disposable food packaging the furniture industry is a model of good behaviour, with the better made products lasting several lifetimes and a general aversion to combining harmful materials. There are exceptions like polyurethane foam and PVC which still get specified but there's an awareness that this is not a good thing and they should be avoided whenever possible. Replacements for foam are beginning to appear on the market, and most designers would avoid PVC. Other plastics used for chairs like Polypropylene can, after a reasonably long life, be recycled.

With this background, and most designers understanding that longevity in product design is an essential goal, there is a general awareness that achieving longevity in a design means not only making a product strong enough and well enough to last but also ensuring that a design has visual longevity and won't design itself out of fashion in a couple of years. Manufacturing partners of ours in the office furniture field are actively working to improve circularity of materials and avoid glues and inseparably combining materials.

There's more effort needed but cause for optimism.



Jasper Morrison is one of the most influential industrial designers of our time, known for a design philosophy that **values simplicity, clarity, and usefulness** — qualities that naturally align with the ambitions of a circular economy.

As new materials and production methods emerge through recycling technologies and research into renewable resources, Morrison's work continues to evolve while remaining rooted in the belief that good design should last. These developments reinforce his long-standing conviction that materials must be chosen with care, assembled intelligently, and kept as "uncomplicated" as possible so that products can live long, repairable, and ultimately recoverable lives.

Morrison's notion of the "**Super Normal**" — design that quietly improves everyday life — has become newly relevant in a period where circularity aims to become the new normal. Achieving this shift requires **rethinking industry norms: reducing material variety, avoiding inseparable assemblies, designing for repair and reuse, and resisting the urge to follow short-lived trends.**

In this sense, the principles of good design do not oppose circularity; they strengthen it. When objects are simple, honest, and visually enduring, they remain meaningful for longer and avoid becoming premature waste.

SUPER

NORMAL

JM-HERMES-2020 CHAIR

The JM-Hermes-2020 chair is a refined example of Jasper Morrison's Super Normal approach, demonstrating how quiet design can achieve exceptional longevity. Evolving from his earlier 'La Tourette' chair, Morrison intentionally avoided reinventing the object and instead focused on subtle, intelligent improvements — a hallmark of his philosophy. The gently curved backrest carved from a single piece of wood, the precise proportions, and the understated leather seat pads express craftsmanship without ornamentation. Everything is reduced to what is essential: comfort, clarity, and material honesty. The result is a chair that feels immediately familiar yet distinctly elevated — the kind of object that slips naturally into everyday life while being built to last. Its restraint is what makes it powerful: a timeless form rooted in quality, resisting trends and supporting circularity through durability and thoughtful construction.



WHAT IF NOTHING WE DESIGNED EVER BECAME WASTE?

Circular design begins with the radical idea that every object we create should remain valuable. Today, office furniture is often replaced long before it fails. Workstyles evolve, aesthetics shift, and “outdated” pieces are pushed aside—not because they are broken, but because replacing them feels simpler, cheaper, and familiar. For too long, the industry has relied on disposability as an invisible design principle.

But this mindset no longer fits the future we need. If we want an office sector truly aligned with the realities of New Work—flexible, modular, reconfigurable—then our design culture must evolve just as boldly.

THE WORD WASTE DOES NOT EXIST IN THE DICTIONARY OF CIRCULARITY.

If waste doesn’t exist, then every material is a resource, every product a cycle, every component a carrier of value. Designers become more than creators of new forms: they become orchestrators of long-term usefulness.

Circular design challenges us to design furniture that adapts to shifting needs while staying in circulation far beyond its first use phase. It asks us to rethink how we build, refurbish, transport, and store. When products can be disassembled without damage, when modules can be repaired or remanufactured, when furniture can be transported as flatpack to reduce volume and cost—designers begin to remove the very barriers that have held circularity back: logistics, transport, storage, cost of refurbishment.

Walter Stahels principle: inertia

“Do not repair what is not broken, do not remanufacture something that can be repaired, do not recycle a product that can be remanufactured. Replace only the smallest possible part to maintain value.”

Walter Stahel captures this shift in his inertia principle. Inertia, integrity, and lifetime form the backbone of circular design:

- **Inertia** keeps products in their original form for as long as possible.
- **Integrity** preserves identity, material quality, and function across cycles.
- **Lifetime** asks how long we can keep products and components circulating before they return to raw material status.

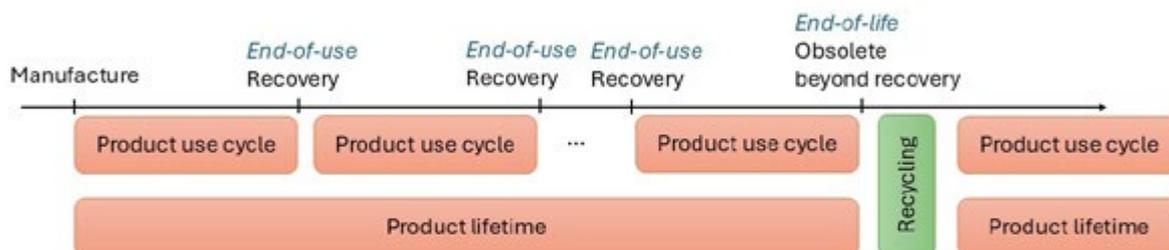
These concepts are not constraints. They are invitations.

An invitation to design furniture that evolves rather than expires. To treat every hinge, joint, and surface as an opportunity to preserve value rather than lose it. To rethink “new” as something long-lasting—not short-lived.

Circular design is not about limiting creativity. It is about expanding it. It is a creative rebellion against disposability and a commitment to designing with intention, intelligence, and longevity.

Now, the office furniture industry stands at a turning point. Designers have the power to make circularity the new creative frontier.

Imagine a world where nothing you design ever becomes waste. Then design for that world.



The concept of product lifetime in the circular economy (adapted from: Marcel C. den Hollander, Conny A. Bakker and Erik Jan Hultink (2017). Product Design in a Circular Economy - Development of a Typology of Key Concepts and Terms. Journal of Industrial Ecology.)

DESIGN PRINCIPLES

Strategic
Material
Selection

Flexibility

Durability

Dissassembly

Traceability

Storage

Timeless &
Attractive

1. DESIGN FOR PHYSICAL DURABILITY

A product with high durability will maintain its performance over an extended period and experience a slower rate of degradation compared to similar products. With high-quality materials and connections, the design for physical durability promotes robust and durable products, significantly extending the use of the products (by sharing, maintaining, reusing, redistributing), and guarantying less repair needed.



The FENIX laminates are made of several layers of paper impregnated in a thermosetting resin and pressed through heat and pressure to obtain a homogeneous non-porous product. The outer surface is treated with next generation acrylic resin which is hardened and fixed through an electron beam curing process, making a surface highly durable.

2. TIMELESS AND ATTRACTIVE DESIGN

A timeless and attractive design fosters a strong product-consumer relationship, which in turn extends the product's lifespan as the user is more inclined to maintain and repair it. If, for any reason, this product-consumer relationship is lost, a well-designed and enduring product will remain desirable in the reuse market, retaining its value and attractiveness. Some iconic products are the best example of this principle.



Eames Plastic Chair©, Vitra. Designed in 1948 for the "Low-cost furniture" contest of the Museum of Modern Art, this chair is still a legendary product.

3. STRATEGIC MATERIAL SELECTION

A material's ecological value is determined by how it is integrated into the product. Material choices promote and incentivize circularity across all loops. Which materials today will still be viable for recovery in the future? How can waste be minimized in product design, and which circular materials are currently available?

The best way to incentivize these loops is to reuse the recovered products, components or materials (reused or recycled but also recyclable) into the manufacturing of furniture.

Designers should prioritize selecting materials and finishes that contain minimal chemicals and substances of concern, and ideally avoid those that could be restricted in the future. The optimization of the quantity of materials is good to: reduce waste; promotes a better, easier and cheaper separation of the materials of the product, which is highly needed for recycling.



Chair Gravène© by the French furniture manufacturer Maximum wich is specialized in the sourcing of circular materials - production waste or post-consumer components - to design office furniture.

4. DESIGN FOR FLEXIBILITY.

In a dynamic work environment, furniture can support new work trends by adapting to the changing needs of users or accommodating multiple users. The concept of "design for flexibility" encompasses several interconnected elements: standardization, upgrading, modularity, and multi-functionality. A modular product structure and a high degree of component standardization increase the ease of maintenance, reparability, refurbishing, remanufacturing and provide a smooth replacement of components. It makes as well upgrades easier to facilitate, which will positively influence the lifetime of the product. Multi-functional products are fulfilling several needs and thus are used more intensely during their lifetime.



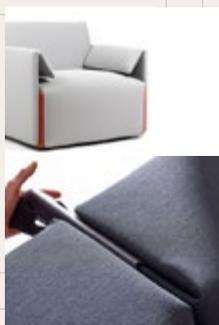
The ABLE chair by Blå Station is constructed in an easily separable structure, where the components can be changed, updated or renewed.



The XIO 2.0 by NowyStyl is a meeting table with foldable table top. The battery-powered adjustable legs makes the table independent from cords and sockets for more mobility in the work space. The table top can become a whiteboard for using in conference rooms.

5. DESIGN FOR DISASSEMBLY AND REASSEMBLY.

The process of breaking down a piece of furniture from its complete form into individual components enables a range of adaptations that support the circular economy and extend the product's lifespan. Design for disassembly involves working with materials and connections in a way that allows for the easy separation of components and materials, facilitating reuse and offering benefits that extend beyond recycling. Disassembling the product easily and in a reversible way is beneficial for the repair, refurbish and remanufacture by the user, the manufacturer or a third-party.



COSTUME is a modular seat from Magis, where individual components can be easily dismantled and replaced. Thanks to the elastic loops hooked into the base, the sofa can be undressed when needed for washing or replacing the cover. Even the thin polyurethane foam insert can be taken out and cleaned. The disassemblable system makes the components recyclable, and in addition, the polyethylene structure is made of recycled material.

6. DESIGN FOR STORAGE AND TRANSPORT.

The manner in which a product is stored and transported can significantly impact the establishment of circular loops, making reverse logistics and the storage of returned products crucial elements. Optimizing the transportation of the product, along with its packaging, also results in cost savings for both manufacturers and distributors. Optimal sizing will reduce the need of additional packaging, which should be reduced as much as possible. Reusable and recyclable packaging solutions exist and have to be used.

CASE: The delivery of furniture for public environment is managed by Kinnarps itself, that controls all stages of the supply chain. For the packaging, Kinnarps uses blankets and reusable cardboard that are taken back and reused several times.

7. DESIGN FOR IDENTIFICATION AND TRACEABILITY.

A product such as office furniture retains more of its value when data related to the product is accessible to all stakeholders in the value chain. A smooth exchange of instruction and documentation of the product among the actors of the value chain is one of the keys to enable and engage those actors to close loops. The availability of information are needed for all loops of the circular economy. For that, the new EU Eco-design for Sustainable Products Regulation (ESPR) will mandate the use of a Digital Product Passport (DPP) for certain product groups, including furniture, sold within the European market.



Van Hoescke, manufacturer of drawer systems for kitchen and offices, has launched a web app where the customer can connect thanks to the QR code on the product. The app proposes after-sales services, like the reorder for restocking, the reporting of damage or the purchase for replacement of damaged parts.

PROTOTYPING FOR NEW WORK 3.0

The Flemish CEO pilot starts from the New Work 3.0 principle by **prototyping modular and multi-functional furniture, according to eco-design principles** using either reused materials/furniture or sourcing new sustainable materials. This approach aims to review the principle of **"the function of the room decides the furniture"**. By considering what an empty room can be used for, we designed multi-functional furniture for a more flexible use of space.

The prototypes developed by **ONBETAALBAAR** can be used in the game of empty space versus full space in polyvalent rooms. They provide flex desks, locker spaces, meeting room tables that can become different smaller tables, stools that become benches and a multifunctional counter. With this furniture one room can easily be used for meetings, public readings, network lunches, after

works, informal moments between colleagues, ... With a quick change the room transforms in function and space, needing only very few storage space.

In Flanders, we want to redirect the mindset towards the multi-functionality of furniture instead of needing different furniture for different purposes.

Next to prototyping multi-functional furniture, we are also enhancing collaboration in the Flemish circular office furniture value chain by organising stakeholder events and exploring the idea of a partnership between existing providers of circular office furniture. One of the aims of this partnership is to offer a joint catalogue of circular office furniture to future office customers.



Y Not, an installation of circular possibilities designed by ONBETAALBAAR, expert in circular materials.

ONBETAALBAAR - translated in English as PRICELESS - is an interior design company that designs, makes and installs interiors with a circular mindset. In our LABO and workspace, we think about circular solutions and experiment with reused and recycled materials. When we heard about the CEO project, we were interested in partnering up to prototype for the quickly changing office furniture sector. Due to the transition to New Work, new needs and challenges pop up and our designers and craftsmen want to contribute their contribution to a more "working office".



PROTOTYPE #1

Movable multifunctional counter with option to have a kitchenette



PROTOTYPE #2

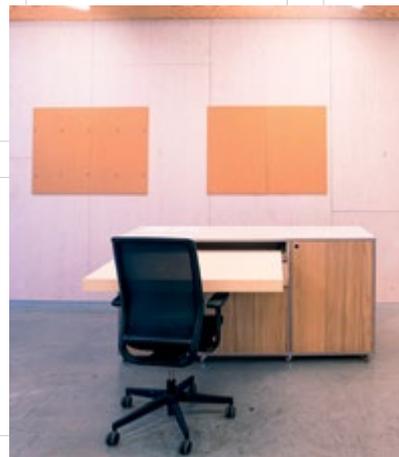
Stools that transform into a bench with backrest





PROTOTYPE #4

Movable desk for 1 person that transforms into a cupboard, or movable cupboard that transforms into a desk for 1 person.



PROTOTYPE #5

Movable desk for 2 people that transforms into a cupboard, or movable cupboard that transforms into a desk for 2 people.



Circular Materials

#1 GREENGRIDZ

... is a circular core material without finishing for producing super-strong lightweight furniture and interiors. Triboo is committed to taking back the panels at the end of their useful life so they can be reused in the production of new products such as table tops. "Every work or meeting place that is furnished with a #greengridz desk or table top can make a substantial contribution to reducing the use of materials, CO₂ and waste. The savings on a 1600 x 800 x 24 mm desk is 18 kg of material and 60 % of CO₂ compared to a desk made of chipboard. The material of one solid desktop can be used to make three lightweight #greengridz desktops." www.triboo.eu

#2 FIBRALUX

... MR NAF High-density MDF is a panel with excellent moisture resistance and flame retardancy (MDF.H FR according to EN 622-5) featuring a hard, smooth, and delicately sanded surface. Fibrilux MR FR NAF is characterized by extremely low formaldehyde emissions (no added formaldehyde-based resins, E1 class). It can be used for non-structural wall applications in humid environments. The panel meets the requirements set by the California Air Resource Board (CARB - phase 2) and EPA (TSCA - Title VI). Fibrilux MR FR NAF is composed of 89 % renewable materials and is made from 100 % reclaimed wood. Unilin is the world's first manufacturer to recycle MDF and use the recycled fibers to produce new MDF panels. www.unilinpanels.com

#3 KVADRAT

... Really Textile Tabletop™ and Kvadrat Really Textile Board are a table top and board made from recycled textiles (70 % textile waste, 30 % waste binder). Durable and aesthetic, Textile Tabletop™ meets the highest standards for resisting scratches, heat and liquids. Kvadrat Really Textile Tabletop™ achieves an estimated 30 % reduction in CO₂-equivalent emissions compared to a conventional tabletop, accounting for the entire lifecycle from material extraction to a finished tabletop ready for mounting. The impact per m² accounts for 9,4 kg CO₂. The impact of Kvadrat Textile Board per m² accounts for 6,66 kg CO₂. Both products are classified as low-emission materials, aligning seamlessly with current building standards. www.kvadrat.dk/en/kvadrat-really

#4 OBJECT CARPET

Thanks to the intelligent use of material properties, the DUO carpet product family now enables maximum design freedom with minimal use of resources: high-quality polyamide and polyester, bonded by an innovative HOTMELT adhesive made of 100 % polyester, are the only components of this carpet innovation. After use, the two components can be easily separated from each other by applying heat and returned to the recycling loop. Thanks to innovative CLICK/UNCLICK technology, the two components can be separated completely. This lays the foundation for a circular product cycle: Designed for an endless life, DUO sets new standards in the carpet industry. www.object-carpet.com

#5 VEPA

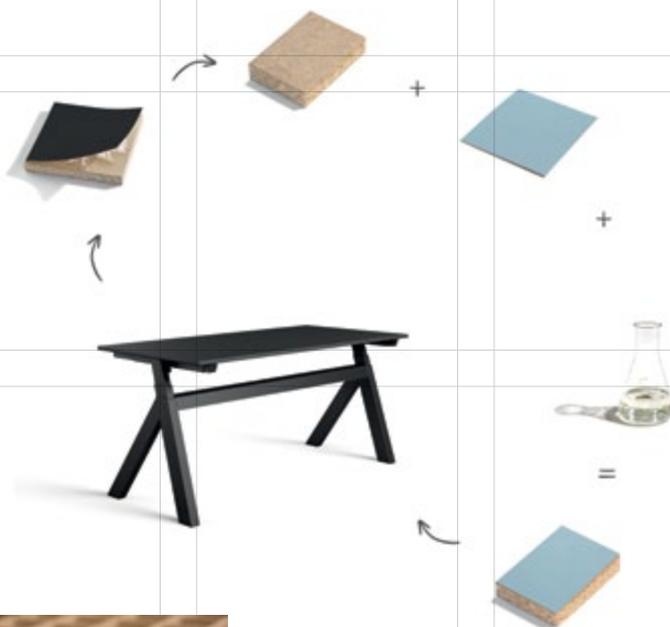
... introduced in their collection the 'click-unclick' desktop Circuboard. The unique composition of the binding agent allows us to separate the top layer of a desk or table top from the core material after its first life. Then, after they reheat the binding agent on the core, they can apply a new top layer. This means that the top is completely in line with their 'design to use again' philosophy. To guarantee that all tops are actually returned, they are fitted with a tag with QR code. This makes it easy to see how and where the top can be handed in for reuse. www.vepa.nl

#6 SIMALFA

... is a pioneer in the adhesive industry with recyclable, sustainable innovations, driven by a commitment to ongoing development. These solutions tangibly reduce the Product Carbon Footprint (PCF) without necessitating new investments or changes to existing production lines. Today, SIMALFA®'s innovations encompass a range from residue-free debonding adhesives and monomaterial-based formulations to chlorine-free (CR-free) adhesives, as well as the next generation 100 % PP-based hotmelts and PES and bio-based hotmelts. These products drive the transition towards a circular economy by supporting true upcycling, where the value of recycled materials is preserved - or even enhanced - without compromising their bonding abilities. These innovative solutions can further optimise recycling of flexible polyurethane foam, no matter whether mechanical or chemical recycling methods are used. www.simalfa.ch

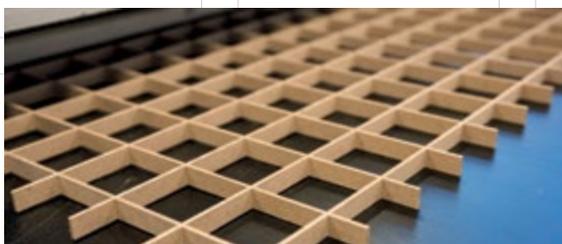
#4

DUO carpets from Object Carpet can easily be separated and returned to the recycling loop.



#1

Greengridz – savings on material and 60 % of CO2 compared to a desk made of chipboard.

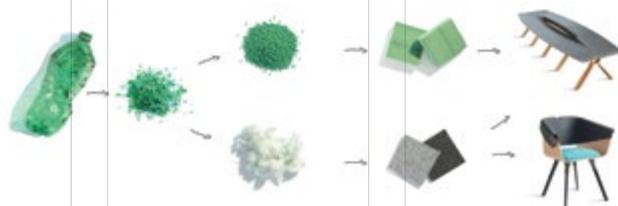


#5

Vepas boards are designed to be used again and again. They also developed a range of renewable materials as seen below.

#6

Simalfa uses residue-free debonding adhesives and monomaterialbased formulations to chlorine-free adhesives.



#3

Kvadrat thinks textiles in many ways. Be it table top boards or acoustic tiles.



#2

Fibr lux MDF board. Made of 89% renewable materials.



Design for Change

A DESK SYSTEM BUILT FOR CIRCULAR WORKPLACES.

Circular design is not only about durability — it is about creating furniture that can evolve with changing work cultures. The **TALO.YOU** table system illustrates this principle with a clear idea: a workstation is no longer a fixed object, but a set of components that can be rearranged, adapted and kept in use over many years.

The system works as a **modular kit**. Frames, legs, tabletops and accessories can be combined into individual desks, team benches or meeting settings, and reconfigured whenever needs shift. Connections are designed for quick assembly and disassembly, allowing spaces to transform without replacing the furniture itself.

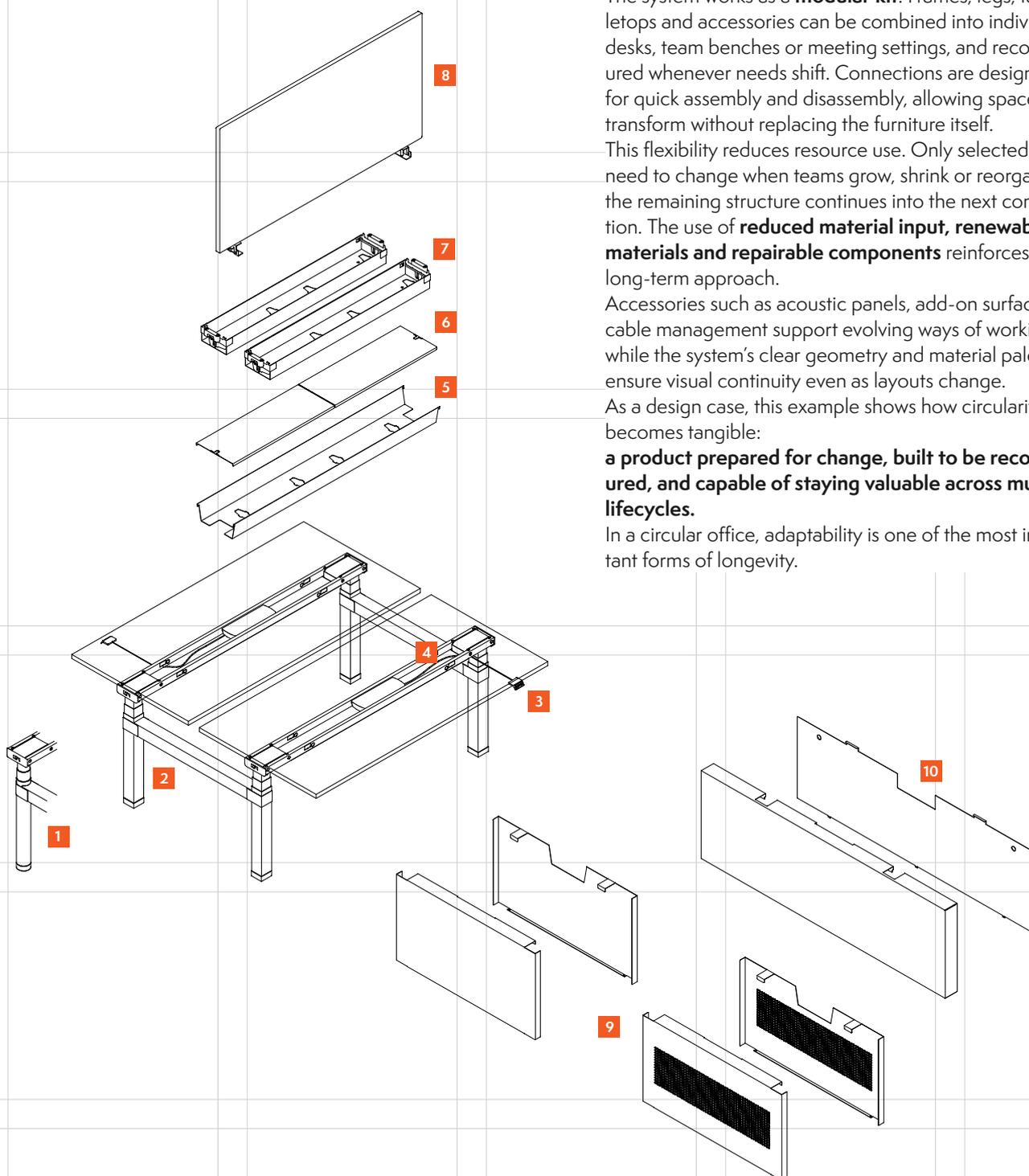
This flexibility reduces resource use. Only selected parts need to change when teams grow, shrink or reorganise; the remaining structure continues into the next configuration. The use of **reduced material input, renewable raw materials and repairable components** reinforces this long-term approach.

Accessories such as acoustic panels, add-on surfaces and cable management support evolving ways of working, while the system's clear geometry and material palette ensure visual continuity even as layouts change.

As a design case, this example shows how circularity becomes tangible:

a product prepared for change, built to be reconfigured, and capable of staying valuable across multiple lifecycles.

In a circular office, adaptability is one of the most important forms of longevity.

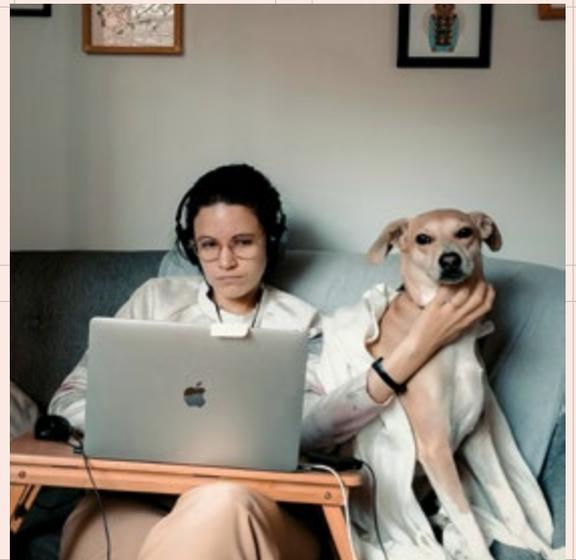


WORK PLACE STORY

Workplaces are changing at a remarkable pace. Hybrid work, flexible layouts, and evolving organisational needs mean that offices must adapt more quickly and more often than ever before. This shift creates both a challenge and an opportunity: how can we furnish these spaces in a way that is future-proof, sustainable, and inspiring?

This chapter examines the workplace as a living system — a place where people, furniture, materials, and flows interact. Circularity aligns naturally with this evolution. Reuse, adaptability, and modularity allow work environments to evolve without waste; shared spaces benefit from durable and repairable products; and new design approaches allow interiors to be refreshed without starting from scratch.

Circular workplaces are not only environmentally sound — they are more flexible, more engaging, and more human. They show how sustainability can be woven into everyday life, shaping how we collaborate, create, and work.



remote hybrid cowo

WORK-

SPACE-

SENSEABLE

BILITY

ABOUT FUTURE BEHAVIOUR

Carlo Ratti is an architect, engineer and one of the leading voices in the debate on cities and technology. He directs the **MIT Senseable City Lab**, where he explores how data and digital systems can shape more responsive, sustainable environments.

As founding partner of CRA-Carlo Ratti Associati, he has designed award-winning buildings and installations that blur the boundaries between the physical and digital worlds. **A true systems thinker, Ratti bridges disciplines to imagine futures where spaces learn, adapt, and support circular behaviour.** His work spans continents, but much of his thinking is rooted in Europe's tradition of design, public policy and innovation.



Carlo Ratti

1. From your perspective, what can the office furniture industry learn from how cities are becoming 'senseable'? How could digital feedback loops and behavioural sensing help accelerate circular practices in work environments?

Cities that are becoming "senseable" show how real-time feedback reveals how people move and interact. Offices can work the same way.

When you closely observe how a space is used, the workplace starts to respond. You keep what works, adjust what doesn't, and shape spaces that evolve with their users. That insight becomes the basis for circular decisions.

2. How can workplace design actively encourage behaviour change – for example, toward reusing, sharing or maintaining office furniture instead of replacing it? Do you see spatial interventions as a driver of circular behaviour?

Behaviour change happens at different speeds.

In the short term, kinetic design can help a space adapt in real time. Tables that can reconfigure themselves, such as Vitra's motor driven Tyde 2 or our Tangram table for Mondadori, make it easier for teams to adapt their work-space.

In the mid-term, things can be reconfigured. At Palazzo Mondadori, CRA-Carlo Ratti Associati and Maestro Technology reconfigured more than 1,300 USM Haller units. We added things like wood, greenery and modular elements to open the building up and create small agoras for everyday collaboration.

In the long-term, materials can be recycled. When something really needs to be replaced, it should not go to waste. Companies like Saviola, who collaborated with us at this year's Venice Biennale, already turn old furniture into new chipboard. It is a simple way to close the loop.

3. As cities experiment with digital twins, participatory sensing, and real-time data layers – could the same logic be applied to workspaces? What would an "intelligent office system" look like from your perspective?

Yes! A few years ago at Fondazione Agnelli in Turin we showed that lighting and air conditioning can respond to real patterns of use... almost like a personalized environmental bubble. But this can go further. Imagine a workplace that notices how people collaborate and adjusts itself.

4. What systemic design principles should architects, furniture designers and public procurers adopt to make circularity the default – not the exception? Which design levers are most powerful?

I would say start with systems that can be taken apart and reassembled, such as the USM Haller units reconfigured at Palazzo Mondadori. Disassembly and reassembly allow spaces to evolve without unnecessary waste.

5. You work globally but have strong ties to Europe through research and partnerships. What makes Europe a promising (or challenging) environment for scaling circular innovation in workplace design and the built environment?

Innovation develops in different ways around the world. The USA and China may lead in digital and AI technologies. Europe has a long tradition of reuse, which creates favourable conditions for circular approaches. This helps when adapting existing spaces to new needs, a growing priority as populations age and the climate shifts.

6. If you had to design a public tender process that truly supports circularity – what is the one principle you would embed from the start?

I would keep it simple. If you produce something, you are responsible for its end of life. At the Biennale Architettura 2025 we tested this idea by asking participants to consider the full life of their projects in our circularity manifesto. You can imagine it as a single RFP that covers both installation today and dismantling many years from now. Thinking this way forces every element to have a future use, which helps maximise value recovery and reuse once the first life of a project is over.

Utrecht 3.0

NEW WAYS OF WORKING, DRIVEN BY EMPLOYEES

City of Utrecht is reshaping the way its 5,000+ employees work. Under the Working 3.0 programme, the city developed a forward-looking vision for hybrid work: combining digital flexibility with workplaces that support collaboration, concentration, and connection. The Utrecht pilot explored what this shift means in practice — and what it means for circularity.

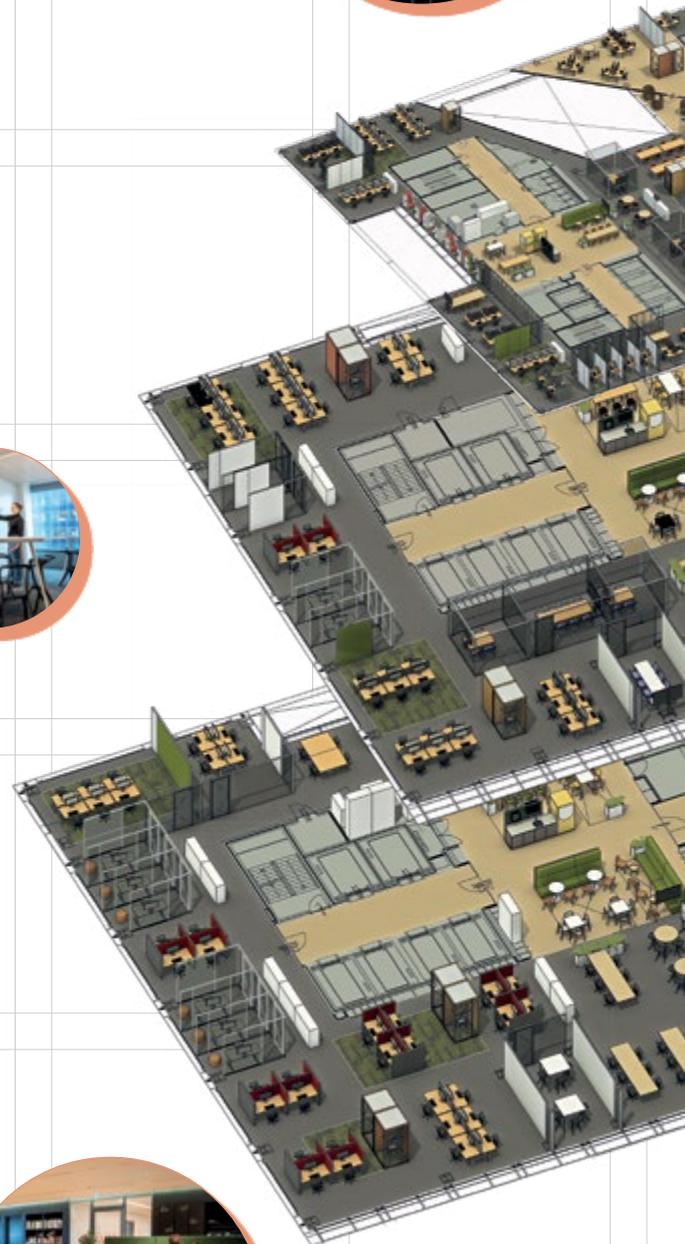
At the heart of the pilot was a simple question: **How can we redesign workplaces for new workstyles while re-using as much furniture as possible?** To find the answer, Utrecht took an unusually thorough approach: it conducted a comprehensive workstyle research survey across the whole organisation — twice — to understand how people actually work, when they come to the office, how they collaborate, and what kinds of spaces they need.

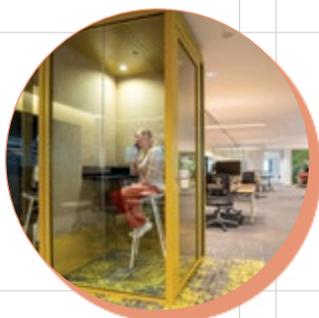
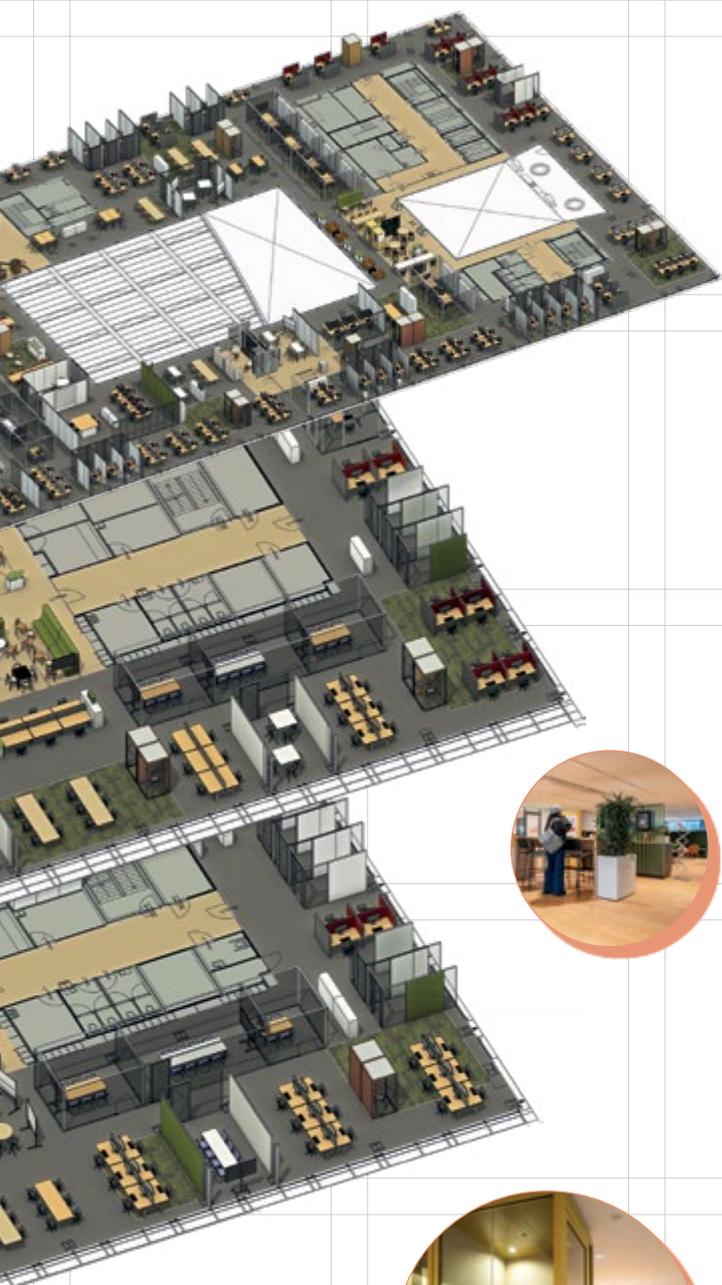
The results were translated into three pilot floors: one large floor of 3,000 m² and two smaller ones of around 1,200 m². Each floor became a living prototype where workplace concepts, circular furniture strategies, and human behaviour were tested side by side.

One of Utrecht's core insights was that data and design are only the beginning — **people make the real difference.** The workstyle research gave clear signals: employees needed fewer desks and more spaces for meetings, hybrid collaboration, and focused calls. But implementing this shift was not always easy. Teams moving from fixed desks to shared spaces had to renegotiate habits, expectations, and norms.

On the smaller pilot floors, this transition went relatively smoothly. Fewer teams shared the space, which made collaboration and agreements easier. But on the large 3,000 m² floor, reality proved more complex. Some teams struggled with sharing; others found it difficult to adapt to having fewer desks. **The city learned that workplace change requires guidance and social learning,** not just a new layout. A structured "guidance journey" was created to help teams understand the new concept — but even with this support, some friction remained.

Yet this friction was also a valuable teacher. It revealed that cultural change is as important as spatial change. New ways of working do not happen automatically; they need time, communication, and shared agreements. As Utrecht noted, "The human aspect of change is more complicated





“THE HUMAN ASPECT OF CHANGE IS MORE COMPLICATED THAN THE DESIGN PROCESS ITSELF.”

than the design process itself.”

Circularity played an integral role throughout the pilot, but in a pragmatic way. Utrecht committed to reuse first: drawing existing furniture directly into the new floor plans, refurbishing what could be saved, cutting larger tabletops into smaller ones, reupholstering sofas and chairs, and acquiring second-hand pieces where possible. When second-hand items were hard to find — because “everyone is fishing in the same pond” — Utrecht developed a new process with its vendor to secure reused items earlier in the project, even if storage space had to be arranged.

The pilot shows the strength of linking workplace innovation with circularity. Hybrid work reduces the need for static desks and increases the demand for flexible, shared spaces — exactly the type of environment where reused and refurbished furniture can thrive. By aligning organisational change with sustainable choices, **Utrecht demonstrated that the future of work and the future of circularity can reinforce each other.**

The pilot’s biggest lesson is that **circular workplaces are not only built — they are learned.** When employees understand the new concept, when departments talk openly about how they use rooms, when teams share rather than claim, the space becomes more than a floorplan: it becomes a dynamic, evolving environment where circularity is part of everyday practice.

Utrecht’s Working 3.0 pilot is a reminder that circular workplaces are not just about furniture. They are about behaviour, culture, and people — and about creating work environments that adapt to changing needs while keeping materials in use.

CLOSING THE LOOP FOR WORKPLACE FURNITURE

The City of Malmö is reshaping how it manages furniture across its workplaces. Instead of treating each office as an isolated project, the city is building a circular system that keeps furniture circulating through reuse, refurbishment, and thoughtful purchasing.

Over the past years, Malmö has moved from very limited reuse to **a model where 23% of all office furniture purchases in 2024 were reused** – and the figure becomes even higher when internal reuse is included. This shift has made large projects possible: new municipal spaces, including entire libraries, can now be furnished with **up to 70% reused furniture** without compromising functionality or aesthetics.

The city’s ambition is to have all components of a closed loop in place:

- internal reuse flows,
- framework contracts for reused furniture,
- Framework agreements for newly produced furniture with circular ambition, and
- a circular disposal route so furniture leaving the organisation continues its life elsewhere.

The next step is to make this system even stronger by standardising furniture ranges—making reuse easier across departments—and by appointing an internal reuse manager to coordinate the loop city-wide.

Malmö’s goal within the CEO project is clear: reach 40% reused furniture across the organisation.

The city’s journey shows that circular workplaces are not only about individual pieces of furniture, but about the systems that allow them to move, stay in use, and find new purpose.



A CIRCULAR INTERIOR THAT FEELS LIKE HOME

Kulturhyllan, Malmö’s new cultural space for young people, brings together a library, a creative lab, and the initiative “Work in Progress” — all under one roof. It is a place designed to invite curiosity, participation, and community.

From the beginning, Malmö set a clear ambition: **the space should not only inspire people, it should also embody the city’s environmental goals.** That meant furnishing it with reused items wherever possible.

The result is remarkable. In the library area alone, **65–75% of all furnishings are reused** — 94 pieces distributed across 670 square metres. Visitors sit on refurbished sofas, browse shelves next to reupholstered chairs, and work at tables that have already lived one life elsewhere. The only new items are the library shelves, simply because reused ones are almost impossible to source — libraries tend to reuse their own.

Kulturhyllan shows what a reused interior can look like: colourful, coherent, functional, and warm. **The space does not feel second-hand — it feels alive.** And that is no coincidence. Achieving this required a design process that embraced reuse from the very first sketch. Instead of starting with a standard catalogue, the cultural department collaborated closely with a supplier to curate pieces that matched the architectural vision, colour palette, and functional needs. The work was more hands-on than ordering new, but it opened the door to creative combinations and unexpected materials that enriched the space.

Behind the scenes, reuse also influenced the practical workflow. Furniture had to be sourced, refurbished, and delivered at different times, which meant temporary storage and staged installations — a different rhythm than traditional fit-outs. But even this became part of the learning: a reminder that **circular interiors follow their own timeline, shaped by availability, craft, and care.**

What mattered most was the outcome. **Kulturhyllan saved 40% in costs and 10 tonnes of CO₂,** but equally important is how the space is perceived. In surveys conducted through the CEO project, visitors and staff reported no difference in quality, function, or aesthetics between reused and new furniture. In fact, many appreciated the individuality and character that reused pieces brought to the interior.

For Malmö, the key insight is simple: creating a circular interior requires us to rethink how we work with furniture. Instead of ordering a fixed list of new items, architects and

clients must design with flexibility, openness, and imagination — but the results are worth it. Kulturhyllan proves that reused furniture can create spaces that feel just as welcoming, coherent, and modern as those furnished entirely with new products.

As Patrik Linné from the cultural department put it:

“Being able to give new life to furniture that might otherwise have been thrown away saves both money and our environment. After all, when has a piece of furniture really passed its best-before date?”

Kulturhyllan embodies what the workplace story is all about: spaces that are sustainable, social, and beautifully designed — and that show how circularity can become part of everyday life.



Sofie Arebom (standing)
Procurement Officer at the
Centralized Procurement Unit

Johanna Tunlid (sitting)
Circular Coordinator at the
Centralized Procurement Unit

Emma Börjesson (above)
Project manager at Environment
Department

Yllw, formerly known as Soeco, is one of Scandinavia’s most advanced examples of circular office-furniture practice in action. Based in Sweden, the company has built an integrated model that shows how reuse can operate at scale—without compromising aesthetics, functionality, or the expectations of modern



workplaces. At the heart of Yllw’s approach is a simple idea: the most sustainable piece of furniture is the one that already exists. Their teams manage the full lifecycle of workplace interiors—from needs assessment and space planning to delivery, refurbishment, and long-term maintenance. Through the Yllw Factory, they repair, reupholster, customise, and upgrade furniture sourced from offices that are moving, downsizing, or redesigning their spaces. Every item that enters the factory is treated as a valuable resource worth preserving.

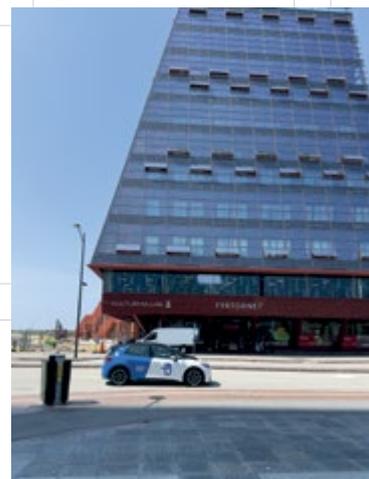
What sets Yllw apart is its combination of design intelligence and operational precision.



not an add-on, but the operating system itself. Their work makes one thing clear: with the right infrastructure and mindset, circular office environments are not only possible—they are already here.

Customers can purchase refurbished pieces, rent flexible office setups, or use Yllw’s buy-back model when reorganising their spaces. The result is a system that reduces waste, saves carbon, and lowers costs—while keeping high-quality furniture in circulation for many lives.

For the European office-furniture sector, Yllw demonstrates a future in which circularity is



Pévèle Carembault

TURNING AN INDUSTRIAL HERITAGE INTO A CIRCULAR WORKPLACE

When the Pévèle Carembault Community of Municipalities acquired the former **Agfa industrial site** in Pont-à-Marcq, they inherited not just a building, but a vast deposit of existing furniture. More than **1,000 pieces of office furniture** remained on site — a physical archive of the site’s former life as a production centre for analogue photography.

Instead of clearing everything out and starting from scratch, Pévèle Carembault made a different choice: they placed circularity at the heart of their future headquarters and asked a simple but transformative question:

How much of this can we keep, reuse or renew?

The answer began with a meticulous, hands-on inventory. Over two months, two staff members **photographed, measured and assessed 1,800 items**, evaluating their condition and potential for reuse. Old did not mean unusable: many pieces were in excellent structural shape and required little more than cleaning to be returned to service. Others were suitable for transformation or upcycling, and some would become material for prototypes. This inventory became the foundation for the entire project — a precise understanding of the resources already available.

To refine their approach, Pévèle Carembault conducted **exploratory missions**. These were practical test phases where furniture was trialled for repair, upcycling or disassembly to understand feasibility and costs. The missions produced technical sheets, transformation scenarios and concrete data that later informed procurement and design decisions. This pragmatic testing helped avoid surprises and supported confident, creative decision-making.

The procurement strategy that followed did not dictate aesthetics or solutions — it invited innovation. Lots were structured to prioritise reuse and upcycling, allow for demonstrator pieces, and make space for local companies to contribute. Environmental quality, transformation techniques, waste management, ergonomics and visual coherence were all part of the evaluation. The result was not just a circular procurement process, but a design framework aligned with the real material landscape of the site.



The outcome is both ambitious and pragmatic. Pévèle Carembault achieved:

- 1,300 pieces of furniture reused or transformed
- 130 workstations and 21 meeting rooms equipped
- 100% circular furnishing (reuse, upcycling, eco-design)
- No additional costs compared to a traditional fit-out

Crucially, the circularity of the furnishings is **visible at the scale of the entire working environment**. Lower-cost reused items made it possible to invest in high-quality transformed or eco-designed pieces where needed. The combination gives the new headquarters a coherent identity: comfortable, functional and aesthetically elevated — all while deeply reducing environmental impact.

This project demonstrates that circularity is not a constraint but a design philosophy. By beginning with what already existed in the former Agfa site, Pévèle Carembault created a headquarters that is both modern and rooted in place. It shows that with the right approach — a thorough inventory, exploratory missions and local collaboration — even complex workplace transformations can be delivered entirely through circular means.

Pévèle Carembault’s new headquarters is a clear signal to other local authorities: **reusing what you already have can unlock both beauty and sustainability — without exceeding your budget.**



The outcome of the project

In the end, the results lived up to our ambitions.



Type of furniture	Re-used	Upcycled	Second-hand	Eco-designed
Cabinets	58 %	28 %	14 %	–
Offices	19 %	46 %	2 %	33 %
Chairs	86 %	–	14 %	–
Tables	30 %	–	37 %	33%

Lot	Description	Objectif
1	New or second-hand furniture	Add to the existing stock.
2	Transformation of standard furniture	Upcycling the most promising parts.
3	Demonstrator furniture (prototype)	Testing innovations.
4	Recycled wood furniture	Making the most of local materials.
5	New eco-designed furniture	Guarantee quality if necessary.

Hamburg

A SPACE FOR CIRCULAR TRANSFORMATION

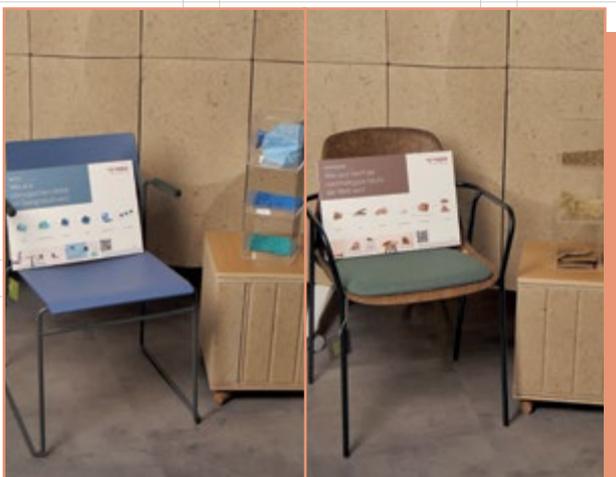
In the heart of Hamburg, a former department store became a living laboratory for both the creative and the circular economy.

Within this open space, the CEO team created a workplace in constant transformation — rearranged, reimagined and redesigned several times over the course of one year. It wasn't a showroom for finished products, but a space to experience circularity in action: **a place to learn, experiment and collaborate.**

The Hamburg pilot was a demonstration space for transformation — where materials, ideas, and people met. Visitors could explore reused and refurbished furniture, sit on pieces designed for repair and recycling and discover materials that turned waste into value. Among them were acoustic panels made from low-grade sheep wool, **chairs produced from hemp waste of the cosmetics industry**, and lounge furniture made from remnants of diaper and mask production.

A striking chair from steril medical waste, a desk chair whose surface was treated with microbes that metabolize plastic abrasion, and carpet tiles that store more CO₂ than emitted in their production illustrated how far the market has already come. All of these were real, market-ready products — proof that circular innovation is no longer a niche experiment.

Together they demonstrated a whole system of R-strategies — Reuse, Repair, Refurbish, Repurpose, Recycle, and Regenerate — translated into tangible form.



What made the space truly special was its ability to bring together people who normally never meet.

Public procurers talked with designers, refurbishers, and logistics experts. Discussions happened not in meeting rooms, but around furniture — at eye level. Initial reservations, especially among government employees, quickly dissolved once they saw the aesthetic and functional quality of circular design.

"It was when we touched the furniture and talked with the people who made it that we really understood," one visitor reflected.

The space also became a platform for learning and collaboration.

University students from innovation management, circular economy, and carpentry faculties worked on real-world challenges. **Citizens, school children, and municipal staff** joined tours and workshops. Round tables brought together those just starting their circular journey and those already scaling it up.



The multipurpose Pop-Up Circular Hub in the Jupiter Building was giving space for meetings, conferences and exhibitions.

Each transformation of the workspace became a learning experience in itself — a reminder that circularity is both practical and cultural.

By working in this environment day after day, even the CEO team felt the shift: the space inspired creativity, openness, and new connections.

The Hamburg pilot proved that a physical space can drive systemic change. It built knowledge, confidence, and appreciation for aesthetics — showing that circular offices can be smart, elegant, and economically sound.

When people meet around furniture that tells stories of reuse, repair, refurbishment, repurpose, recycling, and regeneration, circularity stops being theory. It becomes something you can sit on.



What began as a grey, forgotten office filled with discarded furniture gradually became the beating heart of the CEO pilot phase. These images capture the team of HiiCCE — the project’s lead partner — as they worked, experimented, and shaped a space that itself became a living demonstration of the circular transition.

The transformation is visible — but its real impact lies in the mindset shift. By treating the space as a prototype, HiiCCE showed what is possible when circular thinking becomes the default rather than the exception.

This is what progress looks like: not polished perfection, but committed, hands-on iteration. The room keeps evolving. And with it, so does the future of office furniture in Europe.

CONTRIBUTING COMPANIES

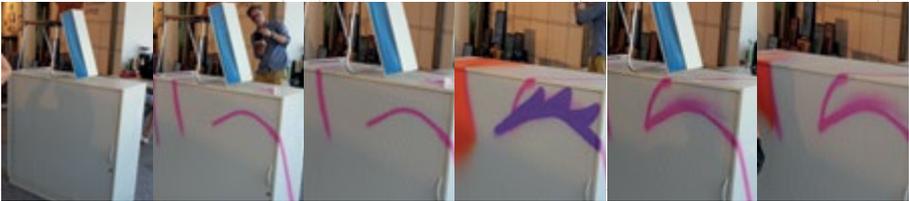
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acker&thomsen  **Green Office**



From grey to great.
 See the transformation process on the next page



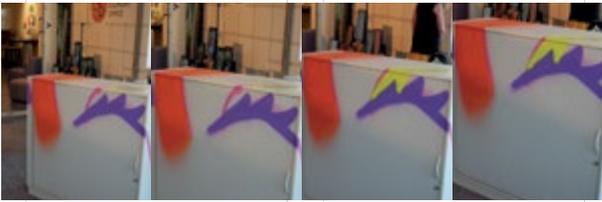
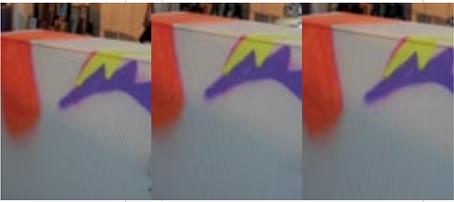
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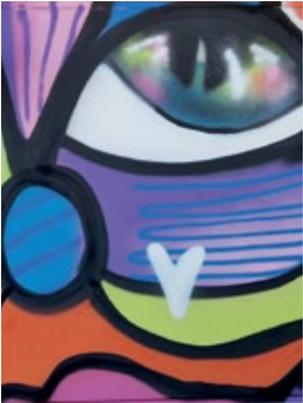
ART



TRANS



FOR



Bona Berlin turned an old grey filing cabinet into a vibrant piece of art at Hamburg's PopUp Circular Hub — proving how creativity can unlock new value in discarded office furniture. Her transformation shows how circular thinking and contemporary art can reshape the future of workplaces.

[instagram.com/bona_berlin](https://www.instagram.com/bona_berlin)



MATION

R
9

CLIMATE STORY

The climate story of office furniture is often invisible: embedded in raw materials, hidden in supply chains, and dispersed across manufacturing processes. But the emissions are real and significant. Every new piece of furniture requires resources that must be extracted, refined, shaped, and transported — each step leaving a carbon footprint.

Circular strategies flip this logic. By rethinking materials, extending the life of what we already have, and keeping products in continuous use, we can avoid a substantial portion of these emissions. Circularity slows the flow of materials, reduces demand for virgin resources, and keeps carbon locked into products instead of releasing it into the atmosphere.

This chapter introduces the R-strategies — a simple but powerful framework that shows how different approaches to circularity influence climate impact. It offers a way of understanding the choices we have and the difference they make, from preventing waste at the design stage to closing loops at the end of life.

Circularity is not only an economic or design story — it is one of the fastest and most practical climate strategies we have.



CO₂

DPP

Michael Braungart & Nora Sophie Griefahn

DIALOGUE ON CRADLE TO CRADLE, THE CHALLENGES OF TRANSFORMATION, AND WHY NOW IS PRECISELY THE TIME NOT TO LOSE HOPE.

Our planet continues to be exploited, polluted, and poisoned at an alarming pace. Political will to change this has remained faint for years; instead, enormous investments are being channelled into military build-up. The window of opportunity is narrowing. Michael Braungart, Nora Griefahn — what gives you hope that the comprehensive solution promised by Cradle to Cradle for the past three decades could still take hold now?

Griefahn: We should ask ourselves what the alternative is. Falling into fatalism, believing everything is already lost? Yes, far too little is happening and far too slowly. But Cradle to Cradle is gaining recognition across politics, business, and civil society. Still, when circular economy is discussed, central questions are often ignored — such as the role of agriculture or, fundamentally, which materials should even be circulating. Harmful substances remain harmful, no matter how long they stay in the cycle. And we need to ask how we get from “less bad” to “more good.” The current situation does not always provide tailwinds. That is why it is so important for me to keep going and to keep reminding people why we do this. Positive visions inspire and give hope; negative ones paralyse.

Braungart: Right now, the economy still tries to optimise the existing system in the name of efficiency — and in doing so, makes the wrong things perfectly wrong. Cradle



Michael Braungart developed the Cradle to Cradle concept in the 1990s together with the U.S. architect William McDonough. In 2012, his daughter **Nora Sophie Griefahn** co-founded the Cradle to Cradle NGO, which accelerates and disseminates the concept through education and public engagement.

to Cradle, however, means stopping the old and daring the new. Moving away from linearity and from traditional circular economy, and instead operating in spheres where materials are always useful and never harmful. What we have called sustainability for decades often means reduction: consume less, emit less CO₂, use slightly less energy. But this merely shifts the problems. Less bad is not good. It is not enough to become more efficient while continuing to circulate harmful substances or recycle products that were never designed for recycling.

If Europe continues to understand sustainability as it has until now — producing another ten years of absurd sustainability reports — then, frankly, we may have no choice but to inspire the Chinese market with the ideas we already have. Provocatively stated: we are leaving innovation to autocracies because they can implement change faster.

Aside from the pace: the success of C2C is unmistakable, with thousands of certified products worldwide — particularly many in the office sector...

Braungart: If only the entire economy were as far along as the office furniture sector. Many major office furniture manufacturers have long switched to Cradle to Cradle. That’s because their designers have influence and are not hidden inside R&D departments. Some manufacturers no longer sell carpets but offer ten-year “floor-covering insurance.” The same applies to lighting. Light is now sold as a service — you don’t need to own the lamps anymore.

Griefahn: Yes, selling the right of use — not the product — is becoming increasingly popular. It creates an incentive to build high-quality products, because companies get

their raw materials back. These new business models and C2C design not only create space for innovation, they finally make the sustainability approaches we have tried to implement for decades truly effective. The Right to Repair, for example, is meaningless if products become waste after two repairs or if repairs are expensive. We must move completely away from the concept of waste. Cradle to Cradle therefore calls for a Right to Intactness — a right to functioning products and the guarantee thereof. And all of this begins with fundamental design questions.

Braungart: With Cradle to Cradle, we talk about use scenarios. That means we ask in advance: what function should the product fulfil, and in which context? Will it abrade and enter the environment — the biosphere — or can it circulate as a nutrient in the technosphere? How do we retrieve its components? These are not questions to ask after a product has reached its end of life; they belong at the beginning. That is the difference between C2C and conventional recycling or circular economy approaches. Waste is not “managed” as an inevitable end product — it is prevented from arising in the first place.

Concretely: instead of using 27 types of plastic in an office chair, it is absolutely possible to achieve the same functionality with two types. Components are connected in ways that allow for complete disassembly. The number of positive examples is increasing, but progress could definitely be faster.

Griefahn: Yes, we need to rethink completely and understand that many things must be reinvented. More of the old — only slightly optimised — is not what we need. Too often companies are founded purely for the sake of founding, not to solve real problems. Yet there are so many challenges waiting for solutions. We need Cradle to Cradle start-ups and companies willing to think anew.

Braungart: I see this again and again. How can anyone produce shoes without thinking about microplastic abrasion? How can polyester clothing be manufactured without considering the highly volatile fibres we all inhale and that enter the water with every wash? These cannot be afterthoughts. There is huge potential for genuine innovation. But young people should not be focused on selling their start-up quickly or launching something that already exists a thousand times. They should dare to create something new, even if applause is not guaranteed.

Beyond the mindset of companies and inventors: what additional barriers have prevented the development of a Cradle to Cradle economy, Nora?

Griefahn: Our thinking and behaviour are still shaped by a throwaway mentality that worked for my parents’ generation. Of course there were exceptions — like my parents themselves, who understood early on that this path wouldn’t work. But a lot of damage was done, and

even at university I was taught that every form of value creation necessarily comes with value destruction. We see ourselves as a harmful species. Letting go of that mindset is extremely difficult. I don’t want to be the “less harmful” organism — I want to contribute positively.

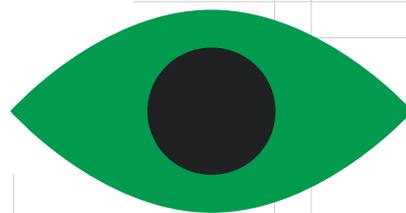
Braungart: This mindset lingers and prevents real solutions. Since the 1990s, I’ve argued that humans can be beneficial organisms. We are the only species that produces waste. But renunciation does not make us useful. Take the cherry tree in spring: it produces thousands of blossoms and seeds, yet only a few develop into fruit. It reduces nothing. The seeming “excess” becomes nourishment and creates new value. At the same time, the tree cleans the air, filters water, and builds resilience in the ecosystem around it. Living, diverse systems are more resilient, healthier, and more productive than monotone structures. This thinking applies to all aspects of life: buildings that clean the air, factories whose wastewater is cleaner after production than before, agriculture that enriches soil rather than depleting it.

Griefahn: In my role at Cradle to Cradle NGO, I speak with policymakers, businesses, and civil society about this idea of being a beneficial organism. Almost no one says it makes no sense — the idea resonates widely. But the transformation is difficult: missing framework conditions, low acceptance for new usage models, quality assurance challenges in refurbishment, lack of reverse logistics, public tenders without C2C criteria. Yet there are examples that show it can work. The necessary transformation, which begins with rethinking, requires stable conditions that encourage climate-positive and resource-positive actions — and make linear thinking unprofitable. In a C2C economy, value creation is measured by whether it creates long-term social, economic, and ecological benefit — possible only with real pricing that reflects the external costs of linear models. Still, the shift is worthwhile: with rising material prices and geopolitical tensions, Cradle to Cradle is becoming more attractive than ever. A great deal of work lies ahead. Michael, looking back to the origins of C2C in the 1990s — how do you see it?

Braungart: Since the 1990s, Cradle to Cradle has evolved from a rather theoretical design philosophy into a holistic economic and innovation approach now implemented across many industries — construction, fashion, electronics, and more. Today, more than 50,000 products from over 500 companies are certified according to C2C criteria.

Griefahn: Our role as Cradle to Cradle NGO is to bring this approach into the mainstream. We create educational material, work with cities, municipalities and policymakers, run public outreach, and host events — all to carry the idea forward.

From Reporting to Return



WHEN SUSTAINABILITY BECOMES A DRIVER FOR DIGITAL PROCESSES AND NEW BUSINESS MODELS

The Digital Product Passport: From Compliance Tool to Catalyst for Circular Business

As a co-founder of *Klima.Metrix*, I worked with companies to calculate their carbon footprints – using data already available in their supply chains, procurement, logistics, and ERP systems.

Like in most manufacturing sectors, the majority of emissions in the office furniture industry fall into Scope 3 categories: materials, upstream transportation, and end-of-life treatment. Our experience shows these often account for **over 80–90%** of total emissions.

This naturally led us to ask: Is there anything companies can do that doesn't just generate costs and reduce competitiveness – but instead creates new business opportunities?

We found the answer in circular economy strategies. If products and materials are kept in circulation efficiently, **entirely new and profitable business models can emerge – and emissions can be cut significantly.**

But for that to work, we need more than creative thinking. We need digital infrastructure from the start. Linear business processes – produce, sell, discard – have been optimized over decades. Today, throwing something away is often still cheaper than taking it back. To correct that imbalance, we need **reliable data and digitalized processes** from the beginning.

That's why the European Commission is introducing the **Digital Product Passport (DPP)**. It will be rolled out to most product categories in the coming years – and **furniture is among the first.**

The DPP will play a central role in meeting compliance requirements. But it also presents a real chance for companies to digitally differentiate themselves and gain a competitive edge.

The DPP as a Catalyst for Circular Business?

Let's imagine a typical situation: A company relocates its office. Much of the old furniture is professionally discarded. Only a few items make it to the new location. New furniture is ordered. Selling the old furniture fails – mostly due to missing product information and the lack of a resale platform geared toward professional buyers.

Now imagine every item had a **Digital Product Passport**. With a simple scan, all resale-relevant product data would be available. A resale platform could even be integrated directly into the DPP – tailored to professional B2B users. This would dramatically simplify logistics and administration, opening the door to **lucrative second-hand markets.**

Manufacturers could run these resale platforms themselves (as Apple does) or partner with third-party providers and earn commissions. Such digitally supported reverse logistics processes – with the DPP at the center – are **essential to making circular economy models scalable and profitable.**

Why? Because circular systems need to compete with linear systems – and those have been optimized to the point of fragility. Today, discarding still beats returning. To reverse that, **digital data must be available in real time and in machine-readable formats.** That's the only way to make processes economically viable.

The Path to a Digitally Enabled Circular Economy
Circular business models require new infrastructures – not just physically, but digitally.

Yes, products need to be designed for disassembly and repair. But that's not enough. They must also be **trackable and recoverable at scale.**

The DPP will be a key enabler here, providing **material, origin, use, maintenance, repairability, and recyclability data** throughout a product's entire lifecycle.

That allows all players in the reverse logistics chain to act more efficiently – and to build entirely new business models around these flows.

Once data is live and machine-readable, reverse logistics becomes smarter, automatable, and finally: **scalable.**

Why the Office Furniture Sector is Ripe for “Twin Transformation”

The Digital Product Passport is a perfect example of what the EU calls **Twin Transformation** — the intersection of digitalization and sustainability. On one hand, it satisfies growing regulatory requirements for transparency and reporting under the new Ecodesign for Sustainable Products Regulation. On the other hand, it opens the door to **entirely new value creation**.

Office furniture is a textbook case: High-quality products with short lifespans.

Office spaces are constantly being reconfigured. Companies relocate. Entire furniture sets are replaced. The resale of used furniture is **currently inefficient, fragmented, and barely profitable**.

That’s exactly where massive potential lies. If office furniture is designed, produced, and sold from the start to be **digitally identifiable, modular, and returnable**, an entirely new market opens up:

- **Refurbishment** becomes viable
- **Remanufacturing** becomes cost-effective
- **Furniture-as-a-Service** models become scalable

The office sector, with its large B2B clients and centralized buyers, is **ideally structured to run pilots** and test solutions with measurable KPIs and limited risk.

Shifting Mindsets — Not Just Technology

The greatest challenge isn’t the tech. It’s the mindset. Many companies wait for everything to be fully regulated and perfectly planned. But transformation doesn’t happen on paper. It happens through **pilots, iteration, and bold collaboration**.

That’s what circular thinking means, too: **Open standards. Shared platforms. Collective innovation.** No more siloed solutions.

The DPP could serve as the foundation for **shared digital infrastructures** — cross-company resale systems, reverse logistics platforms, repair networks.

And the best part: **many industries are already working on this.**

From Compliance Cost to Innovation Opportunity

Circular economy is still too often seen as a cost — as a sustainability burden. But when seen through the right lens, it becomes an **innovation strategy**. Companies that use circularity as an opportunity to modernize their system architecture, digitize their processes, and rethink business models can turn obligation into investment — and sustainability into competitive advantage.

The Digital Product Passport is not a control tool of the future. It’s a tool for companies that want to **shape the future**. The key is knowing where to begin. And that’s not with a perfect solution — but with a clear view of your current system landscape.

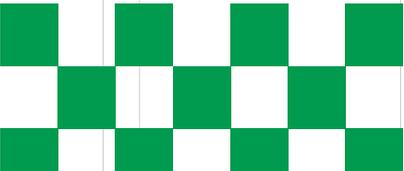
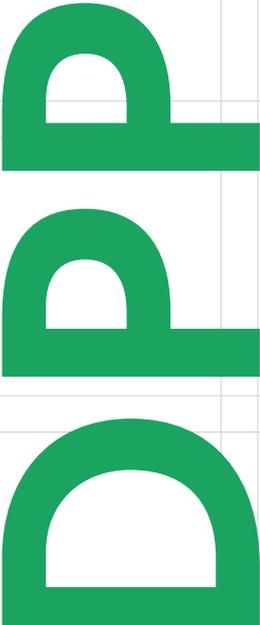
That’s exactly where my work comes in.

While working at **foryouandyourcustomers**, I developed a **DPP Readiness Framework** to help companies map their current state, clarify goals, identify gaps, and turn complexity into structured action.

This creates a roadmap for transformation that brings together all relevant departments and turns circularity into a real and manageable project.



Nadine Michalske – Digital Product Passport & Circular Economy Expert, Co-Founder Klima.Metrix, Mentor & Advisor



WHY MEASURING CLIMATE IMPACT IN CIRCULAR FURNITURE IS SO DIFFICULT — AND WHY WE NEED BETTER TOOLS

As circularity becomes more important in the office furniture sector, organisations increasingly want to measure the climate benefits of reuse and refurbishment. But today, comparing the CO₂ impact of furniture is far from simple. Even products that look identical on paper can show very different results depending on how their life cycle is calculated.

The reason is straightforward: the methods used to calculate climate impact are not yet harmonised.

Life Cycle Assessment (LCA) — the standard tool for environmental analysis — is intentionally flexible, allowing researchers to adapt the method to their goals. But this flexibility has also created **large inconsistencies**, especially when furniture is used across multiple life cycles. Studies use different system boundaries, allocation rules, functional units and assumptions. As a result, climate benefits reported for reuse vary enormously.

In the literature, reuse impacts range widely — from savings of 21% up to 90% for buildings, and from 45% to 72% for furniture, depending on how the study was designed. These differences do not mean that reuse is uncertain — they show that the **methodologies behind the calculations differ**, sometimes dramatically.

The biggest difficulty lies in one unresolved question: How should the environmental impact of a product be shared across several lives?

ISO standards give high-level principles, but not detailed guidance. This means that researchers and practitioners choose different allocation methods. Some assume the second user avoids the full impact of producing a new product; others split impacts 50/50; others assign environmental burdens based on market value, use time or residual lifespan.

Each approach is legitimate — but each produces **different numbers** for the same reused product.

A simplified example illustrates this: depending on the chosen allocation method, a refurbished chair can show anything from –280 kg CO₂e avoided (system expansion) to +110 kg CO₂e (time-based allocation). This is not an error — it reflects different interpretations of responsibility and system boundaries.

Another reason results diverge is that LCA can be carried out in two different ways: attributional or consequential.

- **Attributional LCA (ALCA)** describes the environmental impact of a product as it exists today. It divides the global footprint of materials and processes into proportional “slices” for each product life cycle.
- **Consequential LCA (CLCA)** asks a different question: *What changes in the environment if we make a different decision?* For example: if a reused chair replaces a new one, CLCA calculates the avoided production of that new chair.

ALCA and CLCA **naturally produce very different results** because they answer different questions.

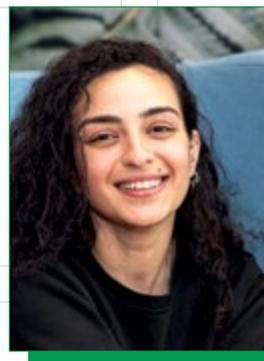
The problem becomes even larger when studies **mix them inconsistently** or fail to communicate which one they use.

For public buyers and companies, this lack of comparability makes it difficult to evaluate offers, set criteria or justify decisions. When two suppliers present CO₂ results calculated in completely different ways, tenderers cannot compare them fairly. And for the sector, it weakens trust: if numbers can vary so widely, how do we know which ones to use?

This is not a reason to abandon LCA.

It is a reason to improve how we use it.

The solution lies in shifting the focus from isolated numbers to the quality of the organisation’s practices — how they repair, refurbish, test, design and manage products over multiple cycles.



Fadwa Kassem is an environmental engineer exploring how material flows, design choices, and institutional behaviors intersect through the CEO project.

THE SAME CHAIR. SIX METHODS. SIX DIFFERENT CO₂ RESULTS.

WHY DIFFERENT CO₂ METHODS PRODUCE DIFFERENT RESULTS – A CONCRETE EXAMPLE

To show how strongly methodology shapes outcomes, the CEO project analysed a real product: the **Wing Tip S281 (EPD19752) from Lapalma S.r.l.** – a high-quality item with a typical production footprint of **300 kg CO₂e**.

We created a hypothetical second life for this chair, with realistic assumptions from refurbishers:

1. **7 years of first use**
2. **3 years of second use**
3. **50 km transport for refurbishment**
4. **Light refurbishing (cleaning, tightening, local reupholstery, repainting steel legs)**
5. **Total second-life emissions: 20 kg CO₂e (~13 kg CO₂e transport + 7 kg CO₂e refurbishment)**

Then, we calculated the climate impact of reuse using **six commonly used allocation methods** – the same product, the same activities, the same refurbishment. Only the method changes.

The results show why CO₂ numbers in tenders can be so difficult to compare.



Consequential Approaches

1. System Expansion – Avoided Production (1:1)
Assumes reuse fully replaces a new chair.

First life: **300 kg CO₂e**
Second life: **-280 kg CO₂e**

A strongly climate-positive result because the avoided new production is credited in full.

2. Replacement Rate (50%)
Assumes reuse replaces only half of a new product.

Second life: **-130 kg CO₂e**

Still a clear benefit, but smaller than in the 1:1 model.

Cut-Off & Time-Based (Attributional)

5. Cut-Off Method (Burden-Free)
Second life bears no production burden – only transport and refurbishment emissions.

Second life: **20 kg CO₂e**

A simple and widely-used attributional approach.

Burden Allocation (Attributional)

3. 50/50 Split
Splits production burden equally across both users.

First life: **150 kg CO₂e**
Second life: **170 kg CO₂e**

Reuse appears climate-detrimental because the second user inherits half of the production burden.

4. Residual Value (Economic-Based)
Allocates burden by relative resale value (here: 10% of original).

Second life: **30 kg CO₂e**
A moderate, intuitive approach frequently used in building LCAs.

6. Lifespan Allocation (Time-Based)
Distributes production impacts according to years of use (7 years = 70%; 3 years = 30%).

First life: **210 kg CO₂e**
Second life: **110 kg CO₂e**

WHAT THIS TELLS US

Across methods, the same reused chair produces outcomes ranging from **-280 kg CO₂e** (large climate benefit) to **+110 kg CO₂e** (added burden).

None of these results are “wrong”. Each method answers a different question about avoided production, responsibility and time.

This is exactly why CO₂ numbers in the furniture sector cannot yet be treated as interchangeable facts – and why procurers, designers and refurbishers often struggle to compare offers.

This is why, in the CEO project, we chose a different path. Instead of trying to produce one definitive CO₂ number, we focused on understanding how different methods work, how they influence results, and how organisations can use this knowledge to make better decisions. Our goal was not to solve the methodological debate, but to make it visible – and to create tools that help public buyers and companies navigate it with confidence.

De Kringwinkel

WE WANT TO PROVE WHAT A CIRCULAR APPROACH REALLY DELIVERS

In the CEO project, we don't just want to think differently about office spaces – we want to prove what a circular approach really delivers. That is why **the seven CEO pilots will undergo an independent impact assessment**, with a clear focus on the climate benefits we achieve in terms of CO₂ emissions.

Across Europe, most discarded office furniture is still incinerated or landfilled. **Valuable materials are lost, and unnecessary emissions are released.** CEO is built on the conviction that this can change. By putting reuse, repair, refurbishment and circular business models at the centre, we move away from the traditional “take–make–dispose” model towards a system that preserves value and reduces our climate footprint. The seven pilots – spread across different types of regions in the North Sea area – show how this transition works in real offices, with real users and real constraints.

To turn these examples into a credible basis for decision-making, we need more than good intentions and inspiring pictures. **We need transparent, comparable numbers.** The impact assessment will make visible how much CO₂ we actually avoid when we furnish offices with reused and refurbished furniture instead of buying everything new, and how big the gap is between circular and linear choices.

For this work, **De Kringwinkel Antwerpen partners with VITO**, an independent research organisation with strong expertise in life cycle thinking and climate impact. VITO will carry out a **concise but robust CO₂ impact analysis of the seven pilots**. For each pilot, VITO compares the real circular scenario with a reference linear scenario. For example, when an entire office floor is (re)furnished with circular solutions, VITO compares this with the linear scenario in which the same space would have been equipped with newly produced furniture.

The approach is structured but pragmatic. Together with the CEO partners, **VITO first clarifies objectives, scope and system boundaries for all pilots**, and agrees on a common calculation framework. Next, the necessary data are collected in a harmonised

way: quantities and types of furniture, information on whether items are new, reused or refurbished, how long they are expected to be used, and what logistics or interventions were needed to make circular use possible.

This data is then translated into CO₂ figures for both the reference and the circular scenario, for each pilot.

The impact assessment looks at the full life cycle of the office furniture: from material production and manufacturing, through use, to end-of-life treatment. For each pilot, we ask two simple but powerful questions:

What would the emissions have been with a conventional fit-out based on new furniture?

What are the emissions linked to the circular approach that was actually implemented?

The difference between these two answers is the explicit climate gain of the pilot.

The consolidated results of the seven pilots will be published on the digital CEO channels in May 2026. There we will share, in a transparent and accessible way, the climate gains achieved and the key lessons learned.

Our ambition is that this work becomes a reference for public authorities, companies and other organisations that want to radically rethink their office environment in a circular, climate-conscious way – and that it shows, in concrete terms, how circular choices in office furniture can contribute to a low-carbon future.



Laura Lambrecht is Project Lead at De Kringwinkel Antwerpen vzw, focusing on how social enterprises can strengthen and scale circular business models in the furniture sector.

RESULTS DOWNLOAD
ON OUR
OFFICIAL WEBSITE



BLOX



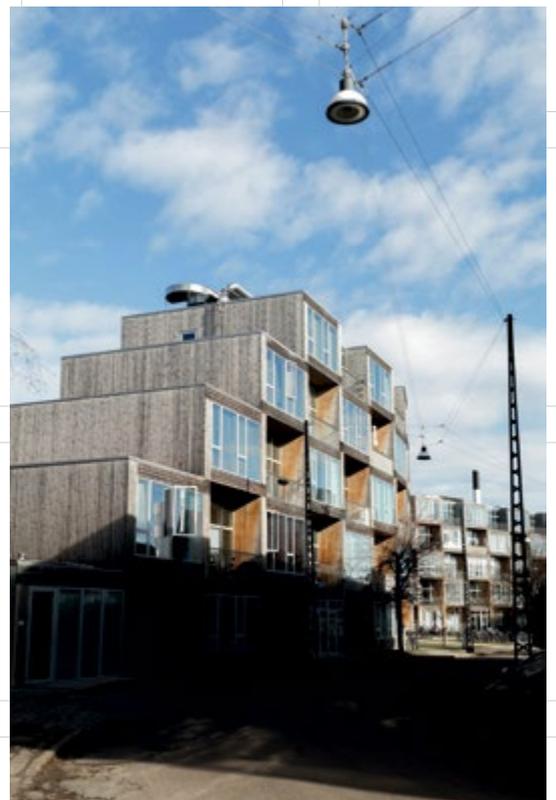
CRP

Amager Bakke



UN17

UN17 Village



The most sustainable building in Copenhagen might not be the one you think

When it comes to sustainable design, Copenhagen shines. From the rooftop ski slope of **Amager Bakke** to the timber towers of **UN17 Village** and the cultural hub of **BLOX** – the city’s architecture has become a global symbol of climate ambition. But some of the most meaningful circular innovations are found in more humble spaces.

Copenhagen

THE MOST SUSTAINABLE BUILDING OF THE CITY MIGHT SURPRISE YOU

Tucked away in the city’s logistics zone is a 3,500 m² reuse warehouse. It doesn’t win architectural prizes — but it quietly powers one of the most advanced municipal furniture reuse systems in Europe.

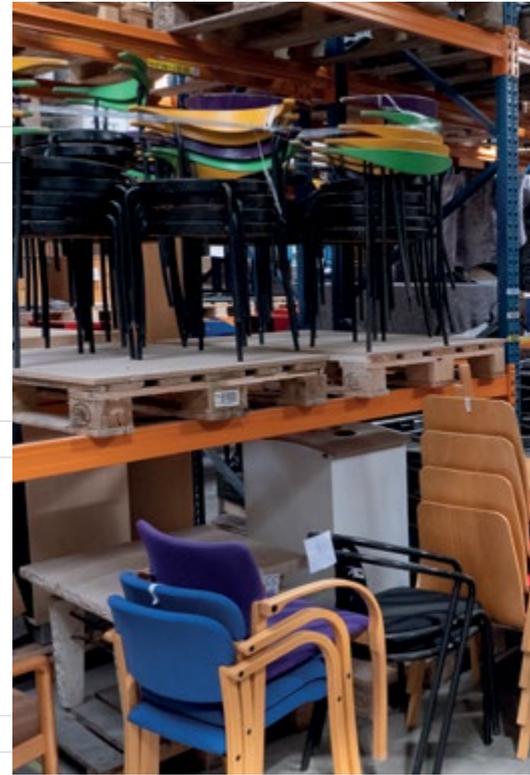
The reuse warehouse is not a pilot — it’s an operational service used across all of Copenhagen’s municipal administrations.

Key principles of the system:

- **Free of charge:**
All inventory — whether ordered, collected, or delivered — is handled at no direct cost to departments.
- **Shared webshop:**
Over 10,000 pieces of furniture are registered and searchable through an internal platform accessible to all city employees.
- **Reinvestment logic:**
Savings from avoided new purchases are reinvested into the circular system — financing staff, operations, and expansion.
- **System-wide access:**
All city units — from schools to offices — can donate or request inventory, creating an internal circular economy at scale.

In 2024 alone, the warehouse processed **6,411 reused items, corresponding to 15.8 million DKK (≈ €2.12 million)** in avoided procurement. The estimated **CO₂ savings reached 320 tons** — benchmarked using environmental data from EPD Norway.

A



B



Sine Stenbek Andersen

OPERATED BY PEOPLE, POWERED BY DATA

Interview with Sine Stenbek Andersen,
Chief Consultant, Municipality of Copenhagen

Why did the City of Copenhagen choose to invest in a furniture reuse warehouse?

We saw enormous untapped potential in what was being discarded. Perfectly usable desks, chairs, and shelves were being replaced — not because they were broken, but because we didn’t have a structured way to circulate them internally. That’s why we created this system.



- A** – Furniture from all municipal departments
B – Every item is registered and photographed before being added to the internal webshop
C – A hands-on workshop held during the partner meeting in Copenhagen
D – Private transport companies handle the delivery of ordered furniture

How does the system work in practice?

We operate a central warehouse where released furniture from schools, offices, and institutions is collected. Every item is registered in an internal webshop accessible to all city employees. If someone needs a piece of furniture, they simply order it there — just like they would order something new. But in this case, it's reused, immediately available, and free of charge.

What kind of impact has the system had so far?

In 2024, we reused more than 6,400 items. That helped us avoid procurement costs of about 15.8 million DKK — or roughly €2.12 million — and reduced our carbon emissions by over 320 tons. These figures come from benchmarking with EPD Norway and help us tell a clear environmental story.

Who's behind the system on a daily basis?

We have a team of three warehouse staff who handle logistics, intake, and inventory. In addition, two development consultants — including myself — work on improving the system, tracking data, and expanding our reuse strategies across the municipality.

Is refurbishment part of the model?

Yes, increasingly so. Last year, we refurbished over 450 items. We're now exploring partnerships that could expand this — including with sheltered workshops and social enterprises — to create more jobs and reduce waste.

What's next for Copenhagen's reuse system?

We're planning to invest in a range of improvements: better IT infrastructure for the webshop, streamlined logistics, more staffing capacity, and — most importantly — a sustainable model for systematic furniture upcycling.

Our goal is to increase reuse rates by at least 50% and make circularity the standard, not the exception.



THE R-STRATEGIES IN ACTION

HOW CIRCULAR DESIGN CUTS CARBON – THROUGH REAL FURNITURE EXAMPLES

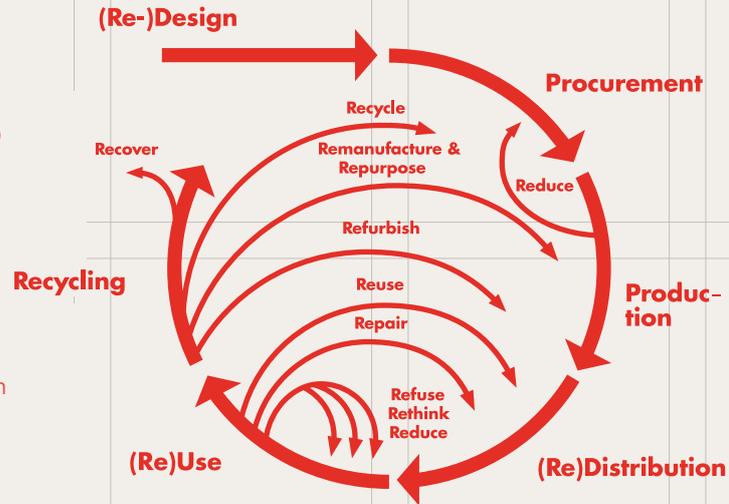
The carbon footprint of office furniture is not only created when we manufacture a desk or chair – it is created long before, in extraction of raw materials, refinement, transport, and production.

Every product we keep in use avoids emissions.

Every material we avoid or substitute reduces pressure on the planet.

Every loop we close prevents new carbon from entering the cycle.

The R-strategies show the climate logic behind circular design: the higher the R-strategy, the more emissions are avoided because more of the original product value is preserved.



R1 — RETHINK

Climate benefit: avoid emissions before they exist

Rethinking material choices, forms and business models stops carbon-heavy production at the source. It's climate action at the design table.

Vepa Hemp Chair

Made entirely from hemp and natural resin — both fully plant-based and recyclable.

Hemp grows with minimal water, no pesticides, and absorbs CO₂ while growing, giving the chair a negative material footprint.

→ **Climate benefit: prevents virgin plastics and stores biogenic carbon.**

VANK Cube & Acousticwall (Flax & Hemp)

Modular cubes and acoustic panels made from fast-growing regenerative plants.

These materials replace energy-intensive composites and naturally store carbon.

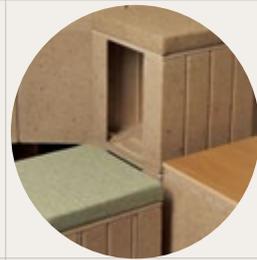
→ **Climate benefit: replaces fossil-based materials and locks in CO₂.**

Rethink = design out emissions before production even starts.

R1 — RETHINK



R2 — REDUCE



R2 — REDUCE

Climate benefit: fewer virgin materials = fewer embodied emissions

Reduce means using less — less material, less energy, less carbon.

Vepa Blue Finn

Seat and back made from 85% recycled sterile-wrap from hospitals.

→ *Avoids raw plastic production and diverts a difficult waste stream.*

Vitra RE

Manufactured using post-consumer packaging waste collected from the "Gelber Sack" system.

→ *Transforms household waste into resource and reduces extraction.*

KÖHL Klean

Uses biodegradable fibres and recycled PET to minimise composite materials.

→ *Simplifies end-of-life, reduces embedded carbon.*

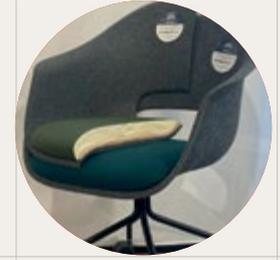
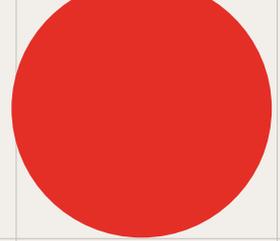
Tarkett Desso & Interface CQuest™ Carpet Tiles

Incorporate recycled inputs and low-impact manufacturing.

Some Interface tiles even store more CO₂ than they emit, turning flooring into a climate-positive element.

→ *Reduced material footprint, reduced emissions.*

Reduce means cutting emissions across extraction, transport, and production.



R8 — RECYCLE

R3 — REUSE



R4 — REPAIR



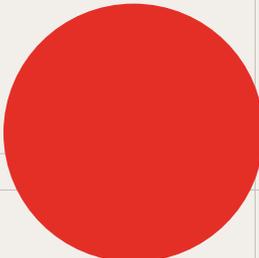
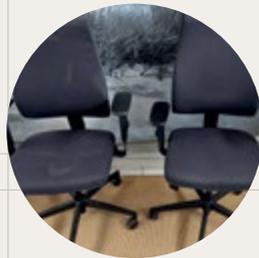
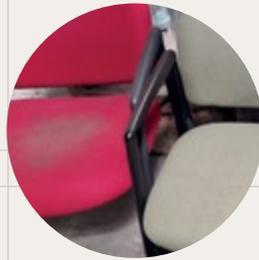
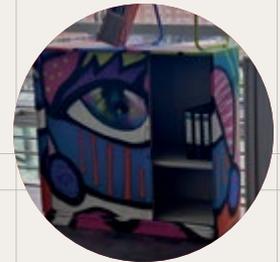
R5 — REFURBISH



R6 — REMANU.



R7 — REPURPOSE



R3 — REUSE

Climate benefit: highest carbon savings per product

Reusing a piece of furniture avoids the entire footprint of making something new — often the largest carbon win of all.

Thonet Chairs & Tables

Used for decades with little or no modification.

→ **Zero new extraction, zero new production emissions.**

Ege CircleBack Carpets

Returned, sorted and reused through a dedicated take-back system.

→ **Every tile reused avoids the full material and manufacturing footprint of a new one.**

Reuse keeps the whole product intact — maximum climate impact, minimal effort.

R4 — REPAIR

Climate benefit: small interventions prevent high-emission replacements

Repair extends life with almost no new materials, avoiding emissions linked to manufacturing and transport.

Sedus Se:Air

Mono-material frame, no glues, and parts that can be swapped easily.

→ **One replaced component = one entire chair not produced.**

Steelcase Think

Disassembles in minutes; every part is accessible.

→ **Repair is quick, practical, and carbon-efficient.**

When repair is easy, replacement becomes unnecessary — and emissions stay low.

R5 — REFURBISH

Climate benefit: extend life by refreshing, not replacing

Refurbishment preserves most of the product's materials and structure — keeping 80–90% of the original carbon footprint "in the bank."

USM Haller Sideboards (Relogg)

Cleaned, repaired, and powder-coated for a new finish.

→ **Almost all original metal and components preserved; only the surface renewed.**

Human Office Meeting Chairs

New textiles, new foam, re-coated frames.

→ **Fresh look, minimal material input.**

Refurbished Office Chairs (Relogg)

Repaired armrests, renewed upholstery, modern colours.

→ **Significant carbon savings through small interventions.**

Refurbish = long life, low emissions, modern aesthetics.

R6 — REMANUFACTURE

Climate benefit: new performance using old structures

Remanufacturing rebuilds products to "as new" condition by reusing core structures — the parts with the highest embodied carbon.

Human Office (Full Rebuild Chairs)

Old frames are stripped, inspected, rebuilt and upgraded.

→ **Frame reuse avoids high-carbon metal production.**

School-Table Workbench (CIRC&LOV / Pfleiderer)

Old steel school-table stands — destined for incineration — were cleaned and fitted with new Cradle-to-Cradle certified tabletops by Pfleiderer.

→ **Same function, saved metal frames, renewed workbench — major carbon savings.**

Remanufacture = new life, same purpose, far lower emissions.

R7 — REPURPOSE

Climate benefit: extend life even when original function is lost

When a product can no longer serve its original purpose, repurpose gives it an entirely new life — delaying recycling and avoiding disposal emissions.

Graffiti Artist KLAAR — Meeting Room Set

A full meeting room set — table, chairs, waste bin — was transformed into vibrant art pieces by graffiti artist KLAAR. Materials stay in use; the function becomes cultural rather than practical.

→ **Life extended through creativity; disposal avoided.**

Bona Berlin — File Cabinet & Storage Units

Outdated office cabinets were turned into bold murals and graphic sculptures.

→ **Repurpose keeps materials and imagination alive — and carbon stored.**

Repurpose is circularity with emotion: value extended through meaning.

R8 — RECYCLE

Climate benefit: recover materials, avoid future extraction

Recycling preserves raw materials but not functional value — the lowest circular loop, yet still essential for carbon savings.

Sedus Se:Air

Mono-material construction enables clean, efficient recycling.

→ **High-quality material recovery reduces need for virgin inputs.**

KÖHL Klean

Uses fibres and plastics designed for recycling, enabling low-carbon material loops at end-of-life.

→ **Simplifies recycling and supports long-term carbon reduction.**

Recycle keeps materials circulating — the last step before value is lost.

WHY IT MATTERS FOR THE CLIMATE

Each R-strategy cuts emissions in different ways:

Rethink & Reduce

→ Prevent carbon-intensive materials before they enter the system

Reuse, Repair, Refurbish, Remanufacture

→ Avoid the huge emissions of producing new products

Repurpose

→ Extend material life by shifting function

Recycle

→ Reduce future extraction and material carbon

The higher you stay in the ladder, the bigger the climate benefit.

Office furniture — full of steel, aluminium, plastics, foams and composites — carries a heavy carbon load.

Applying the R-strategies is one of the fastest, clearest, and most practical ways to reduce emissions today.

Circular furniture is climate action — elegant, functional, and already available at scale.



VANK approaches furniture design with a clear philosophy: sustainability begins with the material itself. Their preferred resource, hemp, plays a central role in this vision. As a fast-growing fibre plant, hemp captures significant amounts of CO₂ during its growth cycle and converts it into biomass — giving it an exceptional negative carbon footprint of –1.3 to –1.6 kg CO₂e per kilogram of fibre. Unlike many agricultural crops, the plants used for VANK’s BIO-panels do not compete with food production. They require no intensive cultivation, no fertilisers, and very little water, making them an environmentally responsible source of raw material.

By transforming hemp fibres into a biocomposite using natural polymers, VANK produces acoustic panels and

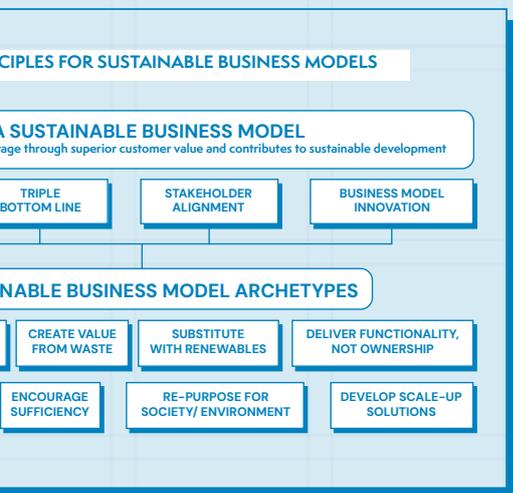
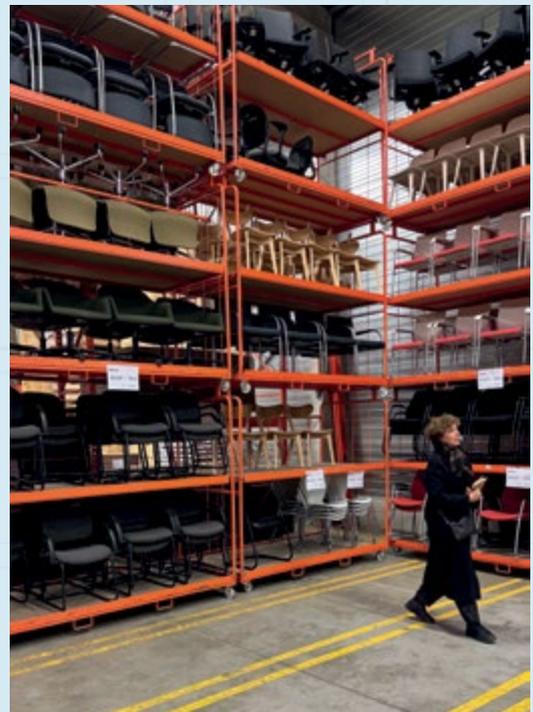
a wide range of other furniture items that combine high performance with low environmental impact. After use, these BIO-panels can be returned to the biological cycle through industrial composting, closing the loop in a truly circular way. In embracing hemp, VANK demonstrates how regenerative materials can reduce emissions, avoid virgin resource extraction, and bring nature’s intelligence directly into interior architecture. Their work shows that circularity is not only possible — it can be beautiful, functional, and scalable. www.vank.design

VANK was one of the first companies which went through the CMI-selfassessment-tool during ORGATEC 2024. Find it on page 89 for further information.

ECONOMY STORY

Circularity is often associated with environmental benefits, but it is equally a new way of doing business. Office furniture companies are discovering that extending product life, offering services instead of sales, and building long-term relationships with customers can open new markets, diversify revenue, and build resilience.

Circular business is not about doing less – it is about doing things differently. It is about designing value chains that work over time, creating products that live multiple lives, and meeting the growing demand from clients who want sustainable and economical solutions. The transition is already underway, and the companies that embrace it are shaping the future of the sector.



PAAS
B2B
B2C

Maik Fischer

ORGATEC

FROM ROOMS TO RELATIONSHIPS: HOW ORGATEC IS SHAPING THE CIRCULAR FUTURE OF WORKSPACES



Maik Fischer Maik Fischer has been Director of ORGATEC since 2025. With his extensive experience in the international trade fair industry, he is responsible for the strategic development of the leading global trade fair for workspaces and contract business.
Credit: Koelnmesse GmbH / Hanne Engwald

ORGATEC is increasingly seen as a driver of change in the office furniture sector. How do you view this development – and what role can trade fairs play today in accelerating circularity in the industry?

The sector is undergoing profound societal, technological, and ecological shifts. Workspaces are no longer understood as purely functional environments but as places that shape relationships – a mindset reflected in our new guiding theme, “From Rooms to Relationships.”

For us, this means that a trade fair must achieve more than showcasing products. It must offer orientation, enable meaningful exchange, and advance tangible concepts.

In the context of the circular economy, ORGATEC plays a central role because we bring together the actors who matter. Our aim is to make successful circular models visible and to work collaboratively on scalable concepts. Trade fairs cannot mandate change – but they can accelerate it. And we do so by placing spaces at the center: spaces that are sustainable, adaptive, and human-centric.

What, in your view, are the key drivers behind the changing understanding of “workspaces” – and how are manufacturers, planners, and buyers responding?

Three megatrends are shaping this transformation: **digitalisation, artificial intelligence, and sustainability.** At the same time, **expectations around belonging, purpose, and human connection** are rising – a core aspect of the human-to-human experience.

Manufacturers are responding with modular, durable, and adaptive solutions. Planners increasingly think in scenarios and relationships rather than pure functionalities. Buyers are looking at spaces holistically – as strategic assets that influence culture, creativity, and productivity.

In short: workspaces are evolving from static environments into dynamic, relationship-oriented ecosystems that actively support transition.

Many market players are still strongly rooted in linear structures. What is needed to ensure that traditional manufacturers can embrace this shift – technologically, organisationally, and culturally?

The transition towards circular models is profound. Technologically, we need transparency in material flows and modular product architectures. **Organisationally, take-back, repair, and refurbishment processes must become natural components of the business model.**

Culturally, the most important step is recognising that change has become a permanent condition – we call this transition. It’s not about constant reinvention, but about continuous development and an awareness of ongoing adaptation needs. The realisation that workspace solutions must be adaptive, durable, and resource-efficient is increasingly taking hold.

ORGATEC offers the inspiration, expertise, and network to help companies navigate this transformation successfully.

ORGATEC brings together a wide range of actors – manufacturers, retailers, planners, and institutions. How can this platform be used to forge new alliances for circular business models?

Circular models only work within ecosystems – no single stakeholder can deliver them alone. Under our new theme, “From Rooms to Relationships,” we are placing even more emphasis on collaboration. We showcase how design, technology, and humanity intersect to create future-ready spaces, and how cooperation can work across traditional industry boundaries.

The trade fair is the place where ideas become real projects. We already see connections emerging that last far beyond the exhibition days.

Europe is placing strong political emphasis on sustainability and the circular economy. Is this shift reflected in the reality of companies — or is there still a need for different signals?

Political frameworks are having an impact — even if the initial transition is challenging for many companies. They provide guidance, set clear expectations, and give the topic the priority it needs.

At the same time, we see that a large part of the industry is initiating transformation not only due to regulation, but out of strategic conviction: **sustainability has become a competitive factor.**

What continues to slow progress is the **lack of consistent standards and comparison systems across Europe.**

International companies in particular need coherent rules and reliable metrics to plan long-term.

This is precisely where ORGATEC positions itself: as a translator of complex requirements and as a platform that shows how political aspirations can be turned into practical, economically sound concepts — and as a stage for those proving that sustainable, circular, and commercially successful models are no longer a promise for the future, but a reality.

When you think of ORGATEC 2026: which developments would make you say the industry is on the right track?

For ORGATEC 2026, I hope to see even clearer evidence that the industry is taking transformation seriously — especially through circular concepts that integrate take-back, reuse, and refurbishing in meaningful ways.

I also hope the human factor moves even more into focus: spaces that enable genuine encounters and embrace the human-to-human experience as a design principle.

Finally, I would like to see products and concepts that naturally anticipate change — demonstrating that transition competence has become part of everyday practice, and that flexible, resource-efficient, adaptive solutions truly represent the new norm.

If these developments become visible at ORGATEC 2026, then it's clear to me: the industry is shaping its future actively, ambitiously, and with a strong sense of responsibility.



Britta Peters (HiiCCE), Eunji Park, Larissa Scherrer (both INDEED) and Mathias Rüschi (mattrr) representing the CEO project at the Circular House.



Britta Peters from lead partner HiiCCE contributed with one of the first podcast sessions for the new series of the Circular House organisers from Cademi.



Eunji Park guiding through the CMI tool, an easy to handle self assessment for buyers and producers. Here with the founder of VANK at their stand.

Circular Business Models

FROM THE PANEL DISCUSSION DURING THE 3 DAYS OF DESIGN IN COPENHAGEN

Clearly companies are increasingly aware of the benefits of closing loops, **improving resource efficiency**, such as **saving material costs**, creating competitive advantages as a **closer customer relationships**, and **accessing new markets**. More than that, a CBM is a driver to improve **local economy** and create ecosystems and a certain **company culture**. And it encourages the growth of repair services, remanufacturing facilities and recycling centres.

A lesson we learned can be to collaborate with **social economy**, to have a human resources and keep cost relatively low. However, usually the goal of a social economy company is not to compete in the furniture market, but mostly educate and train people with a certain distance to the labour market. That means people leave the social company when they are trained, and the quality of their work is not high level as a traditional furniture company. So, there is something new to invent to work better with this kind of companies.

For example in Netherlands, the *Fair Furniture Group* integrates different profiles of companies in the same group, from manufacturers, a social economy company and a service company... they really work all together and they distribute the work according to specific skills.

Lifespan extension : between circular and linear

Logistics and cost are crucial topics : storage space and showroom in the big cities are very expensive, and reverse logistic as transport are complicated when the volume of products is not big enough.

In Belgium, some companies chose to respond to these challenges by building on existing logistics infrastructure. They specialise in furniture transport and other services and expanded their activities to include the renovation

and resale of used furniture. This is the case, for example, with *NNOF (Nearly New Office Facilities)*, part of *Trans-move*, which uses the storage capacity of its removal activities to build a circular, scalable model offering repair, refurbishment and sale of used products.

Cooperation and digitalisation: keys to upscaling

However, this logistical challenge transcends the local level. How can we organise circular office practices on a larger scale, even internationally? One promising avenue for this is the establishment of **joint ventures across national borders**. In France and Belgium, *Relieve Furniture* and *Adopte un Bureau* are pooling their stocks for large-scale renovation projects. **Digitalisation** plays a crucial role in this: it facilitates collaboration, stock management and communication between partners.

Labour costs remain a major obstacle, however. Remanufacturing is currently difficult to optimise and automate: it relies on manual processes that are often highly diversified. Nevertheless, this approach allows for a high degree of customisation, which in turn offers a competitive advantage.

Circular Design, and in particular designing with reparability in mind, could offer a solution here, as it could facilitate repairs. However, manufacturers are still unsure about the return on investment (ROI) because they no longer have control over their products after sale. The new *ESPR (Ecodesign for Sustainable Products Regulation)* could change this. Repairability becomes an essential criterion in this regulation, which could stimulate the development of new, service-based models.

Hybrid designs and brand identity

What if parts from different brands are combined in the same piece of furniture, such as a chair with legs from Brand 1 and a seat from Brand 2? What are the agreements between the different brands to improve the original design of a product into a second-generation hybrid product? Can anyone simply use, modify and resell a product that has already been sold as they see fit? These are questions that touch on the visual identity of a brand, its design signature and how the market will respond to this new practice.

More than CO₂ reduction: circular furniture as cultural enrichment

Although reducing CO₂ emissions are often highlighted as the main benefit of reuse, the advantages go far beyond that. A nice parallel can be drawn with architecture: when renovating an old building, some parts are preserved in their original state, while extensions are built in a contemporary style. The result is a hybrid composition that enhances both the past and the present. Applied to furniture, this balance makes it possible to integrate pieces from a particular period that tell a story while interacting with more modern elements. Thus, reuse is not only sustainable, it also creates authentic and inspiring spaces.

Encourage behaviour change

But how can we promote behavioural change and encourage circular offices?

If we look at what is happening in France, we see that **legislation** remains one of the most effective levers today, particularly in the public sector. It is far from being an ideal solution in terms of freedom of choice, but it certainly has the merit of initiating a virtuous and innovative dynamic.

The AGECE law, for example, which stands for Anti-Waste for a Circular Economy, requires that at least 20% of furniture in public procurement contracts be made from reused or recycled products or materials.

One of the lessons learned from our research for the CEO project, beyond the regulatory requirement, is that it is essential to **communicate**, in several media, and through the examples of pioneering companies that are adopting circular practices and showing that this path is not only desirable but also possible.

Creating a culture of reuse requires **highlighting its concrete benefits**: authenticity of spaces through the mixing of products, respect for what already exists, a dynamic local economy, and, of course, a tangible contribution to the ecological and circular transition.

THE SECOND LIFE OF THE WORKSPACE: A NEW ECONOMIC STORY

The modern office furniture sector, despite its sophistication, has historically operated under a burdensome, outdated model: the traditional “take, make, use, and throwaway” approach. This linear system generates shocking amounts of waste — **10.5 million tons of discarded office furniture per year in the European Union**, with 80 to 90% ending up incinerated or landfilled. This trajectory leads to unnecessary material waste and significant CO₂ emissions.

But a new story is unfolding. The Circular Economy (CE) is emerging and growing, driven by the need to keep products and materials in use, maximizing their value for as long as possible.

This shift is not merely an environmental mandate; it is a profound economic story. The circular economy is projected to **unlock \$4.5 billion in economic value by 2030** through material cost savings and the creation of new revenue streams.

Designing for eternity: the inertia principle in action

The foundation of this circular shift lies in redesigning the physical world around us, focusing on **durability and longevity**. The core ethos follows the **Inertia Principle**: prioritize keeping the product in use, repair it if broken, remanufacture it if unrepairable, and use recycling only as a last resort. The smaller the loop (e.g., maintenance vs. remanufacturing), the greater the profitability and the environmental benefit.

We see this principle applied brilliantly in diverse corners of the industry. **Interface Carpet**, for instance, pioneered modular design, allowing users to repair only the damaged or used carpet squares without having to replace the entire surface. This targeted repair saves immense resources, as the removed pieces are reused or converted to other materials.

In the world of furniture, durability is the key to capturing long-term value. American company **Herman Miller's Aeron Chair** serves as an iconic example: designed to last, built largely from recycled materials, and featuring easily replaceable parts subject to wear and tear. In the Netherlands, **Human Office** exemplifies keeping high-quality, recognizable brands in use longer, adapting used office furniture to a client's desired look and feel, making it look new again after thorough technical inspection.

The revolution of access: from selling goods to selling outcomes

The transition to circularity radically alters the economic relationship between manufacturer and customer, moving away from sales-based profits toward service-based revenues. This is the essence of **Product-as-a-Service (PaaS)**. By retaining ownership of the product, the provider is inherently incentivized to ensure the product lasts longer, reducing the costs associated with maintenance and materials.

This model creates four distinct types of value for businesses:

1. **Sourcing Value:** Companies realize cost reductions and risk mitigation by relying less on volatile virgin materials.
2. **Informational Value:** When a product is eventually returned, the manufacturer gathers valuable data on wear and tear, failure rates, and usage patterns. This data is critical for refining product design and optimizing supply chains.
3. **Customer Value:** Offering convenient, sustainable services, like easy product take-backs, increases customer satisfaction and loyalty, leading to superior brand protection.
4. **Value Capture:** PaaS guarantees recurring revenue streams, shifting from single transaction sales to long-term income derived from access and usage fees.

Innovative companies are capitalizing on this model. **NORNORM** in the Netherlands is building a flexible subscription service for office interiors based on a pay-per-square-meter approach, including all logistics, installation, and maintenance. By designing furniture with interchangeable parts and tracking assets with digital passports, they ensure continuous use across multiple lifecycles.

Furthermore, **waste-to-value models** demonstrate profitability by capturing economic worth from materials once destined for disposal. In Belgium, **PAMI** showcases a vertically integrated approach, refurbishing and remanufacturing used furniture. For the City of Brussels' new administrative center, Pami successfully won a public contract to integrate existing furniture—refurbished and adapted—alongside new pieces, aligning aesthetic goals with sustainability and reinforcing the City's positive environmental image.

The essential ingredient: collaboration and the circular family

Scaling the circular economy is fundamentally a lesson in **systems thinking**. The challenges involved—from managing logistics and storage space to navigating complex regulatory landscapes—cannot be solved by any single company. Successfully closing the loop requires strong partnerships and cooperation across the entire value chain.

A compelling example of this industrial symbiosis comes from Denmark, where furniture maker **Mani Pine** found a new value network through collaboration. By partnering with a demolition company (Salling Entreprenørfirma) for high-quality recycled wood and an industrial company (Desmi) for unused steel bolts, Mani Pine turned the waste of others into its own raw material. This collaborative approach led to financial gain for all parties and significant environmental benefits.

The future of the circular economy relies on fostering robust, localized ecosystems of partners (manufacturers, suppliers, repairers, policy-makers). This movement toward localization reduces dependence on global supply chains, fostering economic resilience and local job creation.

This is the spirit behind the Danish **Circular Furniture Network** and the Belgian **Circular Family**. Recognizing that the transition from a linear to a fully circular economy requires strategic alignment, this initiative aims to unite Belgian office furniture brands. By building the necessary trust and shared purpose required for collaboration, the 'Circular Family' can collectively address systemic barriers like logistics and ensure that circularity moves from niche pilot programs to scaled, profitable business models.

Through this collective effort, circular ecosystems will accelerate the uptake of circular services, enhance the quality and measurable impact of remanufactured goods, and secure the economic advantages of a truly sustainable office furniture sector.



Susanna Campogrande

... is a leading voice in eco-design and circular innovation within Europe's furniture and materials sector. As Senior Advisor at WOOD.BE, she combines scientific rigor with a sharp, future-oriented design perspective. Her work focuses on embedding sustainability into industrial practices, guiding companies toward low-impact materials, circular product strategies, and lifecycle thinking. A long-standing pioneer of eco-design, she helps bridge research, policy, and industry—pushing the sector to move from linear habits to regenerative, resource-efficient solutions.

Ahrend's FAAS Journey

BARRIERS OVERCOME AND VALUE UNLOCKED, AND A BLUEPRINT FOR EUROPE

Designing for Durability and Circular Performance Ahrend's FAAS model is rooted in products engineered for long life cycles. Frames, bases, and mechanical systems are designed for replacement, upgrade, and remanufacture. **This modularity keeps desks and chairs in circulation for decades**, with only high-wear components needing renewal. Customers receive not merely leased furniture but a workspace that continuously meets functional, ergonomic, and aesthetic requirements.

A Digital Backbone for Circularity **Ahrend's digital lifecycle system** tracks each item's identity, condition, maintenance history, and usage. This enables predictive maintenance, efficient allocation of returned assets, transparent reporting, and resource optimisation. The digital layer is **essential for scaling FAAS and retaining value** across multiple product lives.

Operational Excellence Through Refurbishment Hubs Regional refurbishment hubs inspect, clean, repair, and

upgrade returned furniture. These hubs ensure predictable quality, fast redeployment, reduced material losses, and shorter lead times than manufacturing new items. As these centres expand, Ahrend's ability to maintain continuous product circulation grows.

A Shift from Ownership to Performance FAAS replaces ownership with performance. Clients avoid depreciation, asset management, storage, and disposal burdens. Ahrend benefits when products last longer, aligning incentives for durability and reuse. The longer the lifecycle, the higher the profitability—a cornerstone of circular business logic.

Measurable Environmental and Economic Impact FAAS reduces virgin material extraction, lowers carbon emissions, extends lifetimes, and increases utilisation rates across sites and clients. Ahrend sold 150,000 desk chairs in 2018—around 2,400 tonnes of material. Over 30 years, circular upgrades can save more than 4,000 tonnes compared to three linear life cycles.

A Blueprint for the Future of Office Furniture Ahrend's FAAS model is one of Europe's most mature circular service systems. It shows that the transition from linear sales to circular services is not theoretical but a scalable business reality. With modular design, return logistics, and digital lifecycle management in place,

FAAS sets a benchmark for circularity in the European office furniture market.



FAAS

Circularity Pays Off

HOW FAIR FURNITURE GROUP REDEFINES ECONOMIC VALUE

The Fair Furniture Group demonstrates that circular business is not idealism, but a strong and smart economic model. By keeping every step of production in-house, using regional supply chains, and turning waste into value, this **family-owned group of seven furniture brands** shows that circular thinking creates both ecological and financial resilience.

Local production as backbone

While many manufacturers moved production to low-wage countries, the Fair Furniture Group deliberately **kept its factories in the region**: four in the Netherlands and one in Telford.

A decision once considered economically risky has now become their greatest strength. **Local production means in-house knowledge, modern production capabilities, agility, quality control and independence from volatile global supply chains.** By sharing logistics, materials and R&D across their brands, the Fair Furniture Group achieves economies of scale — without losing the craftsmanship and family character of each individual location.

“NPR 8313 brings clarity to a fragmented market: one language, one standard, real circularity.”

Circular business = meaningful business

As a pioneer in sustainable and circular furniture, the Fair Furniture Group co-initiated the development of NPR 8313 for Circular Design together with NEN in 2019.

“We saw that the market needed to accelerate its sustainability efforts, yet manufacturers, clients and designers were still working without shared, clear standards. Circularity was interpreted differently everywhere, and claims were difficult to compare,” says Frank Bouma, Chief Sustainability Officer.

NPR 8313 introduces a practical, verifiable guideline that defines what circular design truly entails: from long lifespan, material choice and modularity to reuse, repair



Frank Bouma Chief Sustainability Officer, Fair Furniture Group, NL

and end-of-life strategies. The market benefits through transparency, reliability and comparability, while designers and producers gain a shared language to demonstrate circular value.

Within the Fair Furniture Group, circularity is **not an ethical aspiration but a deliberate business strategy.** Furniture is designed to be modular and timeless. Residual streams are treated as feedstock for new products. Social investments — from apprenticeships to language programmes — are viewed as strategic tools to build loyalty, craftsmanship and continuity.

The result is a business model that demonstrably pays off: a resilient cost structure and a growing demand from clients purchasing sustainably in line with the CSRD framework.

Regulation as an accelerant

Thanks to his background in public policy, Frank Bouma translates the — at times dense — Corporate Sustainability Reporting Directive (CSRD) into practical examples and actionable initiatives. Rather than seeing reporting as bureaucracy, the Fair Furniture Group uses it as a strategic instrument for steering value creation.

Insights from the CSRD help the company make sharper decisions relating to well-being, environmental impact and supply-chain collaboration. Reporting becomes not a burden, but a driver of continuous improvement and innovation.

“By focusing on impact and value instead of just numbers, you create a different kind of profit — one that benefits people, society and the planet, even in a changing world.”

From profit to purpose — and back again

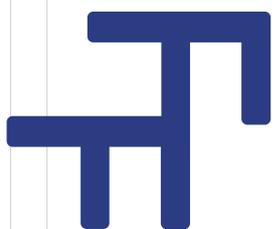
The Fair Furniture Group's business model shows that sustainability and healthy financial performance reinforce one another. By investing in craftsmanship, supply-chain cooperation and renewable material flows, the group builds not short-term gains but a robust, future-proof industry.

Their long-term vision is clear: a value chain in which nothing is lost, value is continually regenerated and circularity is a natural, non-negotiable starting point.

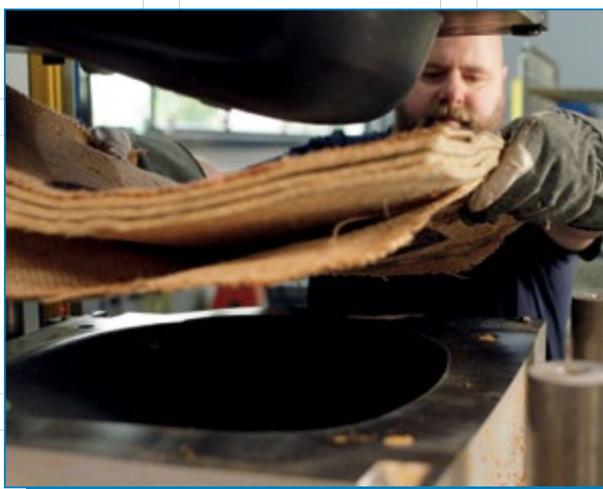
Looking 25 years ahead, the company hopes the furniture industry will operate entirely circular. No new raw materials are needed, materials are endlessly reused and if new

materials are required, they are produced, processed and harvested locally and circularly.

"The Fair Furniture Group shows that circularity is not a cost — it is a strategy that creates value. For people, for society, and for the planet."



Fair Furniture Group



"Circularity is not an end in itself; it's the foundation on which we design, produce and organise our business. It is woven into every part of our model."

NORNORM

TURNING OFFICE FURNITURE INTO A CIRCULAR SERVICE

What if office furniture never became waste? NORNORM is proving that this idea is more than a provocation — it is a viable business model reshaping how companies furnish their workspaces. Founded in 2020 and headquartered in Denmark, the company offers a **subscription-based approach that replaces ownership** with access. Instead of purchasing desks or chairs, organisations pay a fixed rate per square metre for a complete, functional workspace. A **digital 3D model defines the setup**, while delivery, installation, repairs, replacements, and upgrades are included in the service.

At the core of NORNORM's concept is industrial circularity: **furniture components are standardised, modular, and fully interchangeable**. Parts can be swapped between products, enabling fast repairs and efficient refurbishment. Every item carries a digital passport, and **customers can track their full inventory through an app** — an example of the digital transparency that is highlighted as essential for scaling circular practices in the EU.

Because NORNORM retains ownership of all assets, the company is incentivised to maximise product lifecycles. When office needs change, furniture is taken back, refurbished, and put into circulation again at another location. This avoids overproduction, warehouse accumulation, and the premature disposal that still defines large parts of today's office furniture market. The result is a system where growth is decoupled from resource consumption — and where quality, durability, and reuse generate both environmental and economic benefits.

Operating across Sweden, Denmark, Norway, Germany, the Netherlands, France, Austria, Switzerland, and the UK, NORNORM is already proving its scalability. Leading organisations such as Electrolux, EY, and WSP rely on the service to furnish their workspaces without owning a single item. For them, the appeal is clear: predictable costs, effortless flexibility, and a dramatically reduced environmental footprint.

NORNORM demonstrates what a circular business model can look like in practice — a system where office interiors can be upgraded without waste, and where every product is designed for its next life from the very beginning.

PAMI

CIRCULAR OFFICE FURNITURE AT INDUSTRIAL SCALE

PAMI is one of Belgium's leading pioneers in circular office furniture, proving that **high-quality design, industrial refurbishment, and large-scale reuse** can coexist in a single business model. Their products are not only modular but engineered from the start for disassembly and recycling — **every component is 100% recyclable**. Yet the company goes far beyond product design: PAMI actively takes back existing office furniture, giving it a second life wherever possible, and recycling it responsibly when refurbishment is no longer viable. Each project begins with a **tailored consultation to determine how existing assets can be upgraded, reused, or transformed in a sustainable and cost-efficient way**.

This approach is already visible in major projects across Belgium. For a large banking group seeking new employee lockers, PAMI proposed an unexpected solution: refurbish and convert thousands of existing roller-shutter cabinets instead of producing everything from scratch. The result was a circular success story at scale — more than 10,000 refurbished and newly produced lockers delivered within a tight deadline, including all technical studies, production, logistics, installation, and quality control.

PAMI's **vertically integrated production model is its greatest strategic strength**: design, manufacturing, refurbishment, remanufacturing, logistics, and recycling all take place within the same organisation. This ensures full control over quality, spare parts availability, and long-term lifecycle management — essential factors in an era where more organisations recognise the economic and environmental value of circular furniture. By combining new circular products, large-scale refurbishing, take-back programmes, and leasing models, PAMI demonstrates how a mature, profitable circular ecosystem can be built in the office furniture sector.

Human Office

EXTENDING THE LIFE OF ICONIC FURNITURE

Human Office, based in the Netherlands, has built a reputation as a trusted partner to many renowned organisations — companies that regularly release high-quality office furniture during mergers, relocations, or downsizing phases. **Instead of letting these iconic pieces fall out of use, Human Office gives them a new future.** Guided by the principle “Sustainability is just action,” every item undergoes a detailed technical inspection and is adapted to the client’s preferred look and feel, emerging with the aesthetic and performance of a brand-new product.

Their approach is rooted in a simple truth: some products are worth keeping alive. By focusing on well-known brands and timeless, recognisable designs, Human Office ensures that the furniture they refurbish or remanufacture is **built for long-term desirability** — and therefore long-term use. This creates a natural pathway toward circularity, where high-quality design becomes a strategic resource rather than a disposable asset.



Human Office offers **three levels of circular service.**

1. Repair restores functionality through basic fixes, either performed by the client or by Human Office technicians.
2. Refurbishment goes further, replacing components and carrying out deeper interventions to bring products back to reliable working condition.
3. Remanufacturing is the most advanced stage: products are completely disassembled into their individual components, rebuilt to at least their original quality, and reintroduced as technically “new” again.

Each step increases in complexity — and in circular value.

These circular services only work when products are designed for longevity. Ease of maintenance, thoughtful material choices, and the ability to disassemble and reassemble components are essential. Standardised parts and cross-product compatibility also enable components from one product to live on in another, closing loops at the material and modular level.

Beyond technical excellence, Human Office highlights something often overlooked in circular design: **attachment and trust.** When people like, value, or emotionally connect with a product, they tend to keep it longer. Designing products that people will cherish is difficult — but when it succeeds, it becomes one of the most powerful drivers of circular behaviour. Human Office’s work shows that durability is not only engineered; it is also felt.



Relogg

LOGISTICS FOR THE CIRCULAR OFFICE

The discussion in the furniture sector has moved beyond reuse itself to the infrastructure behind it. Some argue for purely digital platforms that match supply and demand online; others emphasise the need for physical storage and refurbishment hubs. Both have advantages — digital solutions save space and transport, but timing is often the barrier. The window between one office clearing out and another needing furniture can be too short to match perfectly online.

Relogg's decentralised network offers a pragmatic answer: local depots create the necessary buffer in time and space to make reuse actually work. Formed as a network of around **15 regional logistics partners across Germany**, Relogg has turned office-furniture logistics into a driver of circularity. Each partner operates within its region, collecting used furniture from **companies that are downsizing, relocating, or redesigning** their workplaces. The furniture is then refurbished, cleaned, and prepared for resale or reuse — either to new clients or within the same organisation. This **reuse-based business model** is built on infrastructure and cooperation rather than ownership.

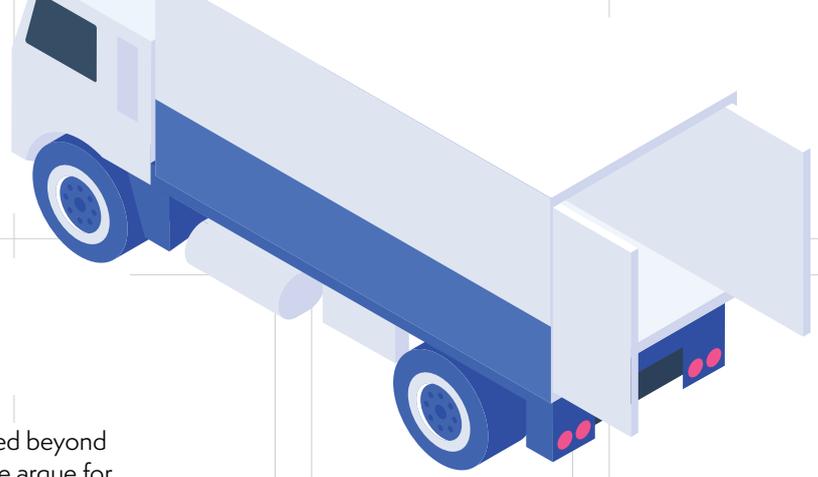
By linking existing logistics companies, **Relogg connects forward and reverse logistics:** trucks that deliver new furniture can pick up used pieces on their return trip. The decentralised structure shortens transport routes, reduces idle mileage, and makes reuse economically viable.

The idea was born out of change.

As Alexander von Drahten from Krügel in Hamburg recalls, *"We used to move offices — now offices move differently."*

With flexible workplaces, shared desks, and hybrid work models, companies relocate less but reconfigure more. The traditional moving sector had to reinvent itself, and Relogg became that reinvention: from movers to enablers of circular flows.

Relogg shows that the transition to a circular economy is not only about new materials or design philosophies — it's also about rethinking movement. By combining local presence, logistics know-how, and refurbishment skills, the company keeps products in motion and value in circulation. Its network shows how a **smart, decentralised infrastructure** can turn the idea of reuse into everyday economic practice — keeping furniture, materials, and jobs close to where they belong.



LOGISTICS



TICS

CIRCULAR TRANSFORMATION AT SCALE

NNOF – **Nearly New Office Facilities** – is one of Belgium’s most established circular pioneers. Founded in 2013 and part of Transmoove, **the company operates at the intersection of workspace design, logistics, and material reuse.** Their mission is simple: transform existing furniture and materials into new value instead of replacing them. With a team of 15 specialists — from interior designers and change experts to furniture designers and project managers — **NNOF rethinks the office environment in all its facets.**

A major strength lies in its **access to large volumes of used office furniture**, collected during corporate relocations and reorganisations. NNOF removes these items free of charge, and sometimes even compensates customers for them. This stream of high-quality materials forms the basis for a broad circular product range: second-hand items in good condition, refurbished pieces upgraded for a new lifecycle, and entirely new products designed in collaboration with Duplex Studio using production waste.

One of the most emblematic examples of this approach is the Mister Lounge — a product made from recycled tabletops and desk surfaces. By cutting these surfaces to size and re-upholstering them, **NNOF preserves up to 80% of the original material.** The upholstery work is carried out by a social-economy organisation, reinforcing the social value embedded in the circular supply chain. Evergreen colours like black, white, and oak are prioritised to maximise product longevity. Yet some categories, such as low-cost office chairs, remain difficult to refurbish due to poor initial quality and unfavourable economics — a challenge common across the European circular furniture market.

Pricing also illustrates a structural imbalance: while refurbished furniture often costs nearly as much as new products, the environmental benefits of reconditioning are rarely reflected in monetary value. Still, initiatives like Green Public Procurement and Belgium’s growing circular legislation have **significantly increased market demand for NNOF’s services.**

Challenges and Lessons Learned

Several barriers shape NNOF’s daily reality:

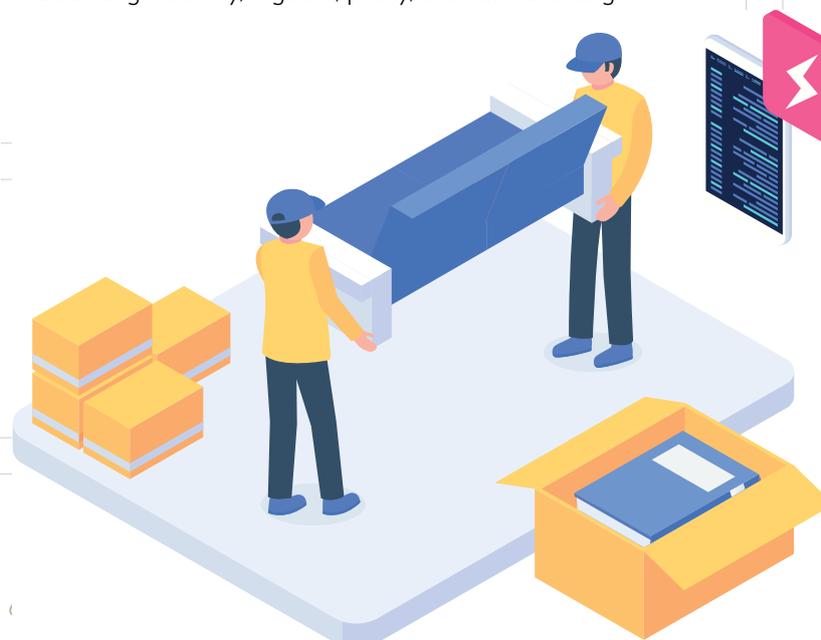
- **Regulatory fragmentation:** waste collector and transport rules differ across Belgium’s three regions, complicating the movement of used furniture.
- **Urban Low Emission Zones:** LEZ regulations can restrict trucks and vans needed for removals.
- **Cultural transformation:** embedding a circular mindset internally requires continuous work on team culture and values.
- **Market dynamics:** public authorities increasingly ask for circular solutions, yet many corporate clients still perceive them as complex or costly — even though demand for second-hand products is growing rapidly.

A key insight for NNOF has been the power of carbon transparency. **Understanding the emissions impact of traditional office furniture procurement became the turning point.** For many clients, the carbon footprint — together with the emerging requirements of the CSRD (Corporate Sustainability Reporting Directive) — is becoming the decisive reason to shift toward circular action.

A Circular Model Based on Design and Logistics

Backed by Transmoove’s extensive storage capacity and logistics fleet, NNOF can **collect, sort, refurbish, redesign, and redistribute office furniture on a large scale.** It is a model where operational practicality meets design intelligence: materials are kept in use, new value is created from existing assets, and organisations can transform their workspaces with minimal environmental impact.

NNOF shows that circularity is not an abstract ambition — **it is a working system that grows stronger each year,** balancing creativity, logistics, policy, and cultural change



office.rent

With remote work becoming increasingly prevalent, there is a growing demand for flexible furniture solutions that can adapt to various work environments, whether it is the office, home, or co-working spaces. Modular furniture designs allow for easy customization and reconfiguration to meet the evolving needs of modern workplaces.

In Germany, **Office. Rent**, a part of Rent.Group company, stands for high-quality and modular equipment for office. The market launch of Office. Rent was during Orgatec fair in October 2024. With their durable and premium products, they propose to create working environments with a high retention and motivation factor. Office. Rent designs concepts with ergonomic aspects in mind, they have a high level of design expertise and over 30 years of experience in temporary interior design within the Rent. Group. They propose a simple cost planning with transparent monthly costs and their all-inclusive service. Office. Rent has 29 locations in Europe, the furniture comes from different manufacturers in Europe. They have logistic centres in each partner country . They have made easy to dismantle a not-so-easy dismantlable chair from Vitra. As a result, the legs and seat can be dismantled, which means they can stock several seats and fewer legs (to change colour of seats). They order detached legs and seats from Vitra. For the tables, they have invented their own tables when

they can't find them with suppliers. And they have them produced by manufacturers. Two brands they love to work with are Andreu World and Arper.

Office. Rent has 3 different rental models, but not the leasing because it would be a linear model:

1. **Fixed model** price from 1 month to 60 months (Typical smartphone model);
2. **Flex model** price from 1 month up to 60 months. Before to sign clients decide the period, then if they want to change the period they have to pay 3 months if they want to leave but it's possible to extend the period;
3. **Combination of fix and flex**, depending on the project

For coworking spaces, contracts are for 36 months, which is a good period for testing.

The biggest benefit for customer is the flexibility in the office.

OFFICE.RENT

Share.Me Reuse.Me

We use a circular system that has been refined over more than 30 years — a system for delivering, collecting, maintaining, refurbishing, and then renting out materials again in optimal condition. Thanks to this model, furniture and interior items are used more intensively throughout their entire lifespan, improving their resource efficiency.

Our decentralized organization, with offices in key European metropolitan areas, ensures short transport routes. This allows us to respond very flexibly and at short notice to customer requests or changing conditions. In this way, our customers benefit from an exceptionally sustainable form of temporary material use.

Choose your preferred materials again and again from our wide range of options. This is not only more ecological, but in most cases also more economical than purchasing the materials yourself.



Source: Office.Rent at Orgatec 2024

Relieve Furniture

BARRIERS OVERCOME AND VALUE UNLOCKED

The company RELIEVE FURNITURE, based in Brussels, is an example of a young company that has achieved great commercial success in just a few years. One of the keys to its success is to keep its physical infrastructure light and its operations agile, thanks to collaboration with other players specialised in certain services (cleaning, recycling...). RELIEVE FURNITURE is a private marketplace company connecting donors and organisations in need of equipment, offering classic design and vintage second life furniture, and removing logistic and time costs for donating businesses.

For many companies, the gift model is interesting as a tax issue and certainly less costly than disposing of old furniture at a landfill site.

Relieve Furniture also takes advantage of another tax advantage for its customers: most of them are large companies, which reinvest in new furniture around every five years (cost cutting period and the need to make new expenses). When the initial investment has been made in a quality product, the product is still in excellent condition after 5 years. Relieve Furniture therefore takes care of recovering it from its customer and reselling it directly after a simple cleaning. "Remanufacturing is not necessary, and in any case is not really considered by Relieve Furniture because it is too expensive.

When possible, the cleaning phase is made directly at the new client office, via a cleaning company, without need of space to do it at the stock place." (Interview to Jeremy Van Mullem, Relieve Furniture CEO).

Relieve Furniture works in Belgium and in France and United Kingdom with local partners who propose a similar business. They have two storage depots in Brussels and Huizingem and a showroom, in the center of the city of Brussels, "in an empty surface that is loaned by a property owner who takes advantage of their installation as a demo space and in this way pays no tax for the empty rental."

Relieve Furniture propose to their clients:

- The inventory of the existing furniture
- An employee portal for reselling furniture to employees (illegal to give it away internally as it would be a case of benefits in kind)
- A network of associations to done or resale used furniture (30% to 50% of the initial price)
- A service of collect, disassembly and recycling materials (via partners)
- A carbon report based on the inventory saved and/or recycled

Here what they propose to their client if they have more than 3 months before moving:

They are certified BCORP® and ShiftingPact® (<https://shiftingpact.be/>), and they declare 100% transparency of destination of furniture. At the end of the mission, they provide their clients with a certificate outlining their total impact along with an end-of-campaign report outlining where all their furniture went and who benefited the most, that is a plus for marketing both for relieve Furniture and for their clients.

Relieve Furniture prices for that activity:

Relieve furniture also propose a space design service, of course furnishing with circular furniture. They have around 10.000 products in stock. They propose 6 month guaranty for each product.

The showroom in Brussels.

The cost of storage is a major challenge, and also how to optimise this if they grow. The most important thing is to have a turn over. The aim is to keep the balance between what is stored and what is sold at all times. If items don't sell, they will be sold at a lower price on Relieve Solidarity, a market place for NGOs and associations.

For the moment Relieve furniture concentrates more on the sale of products, but the demand for rental or leasing is increasing. People rent their office space and move every 3-5 years and at the end of the lease. They work directly with clients, architects and with real estate brokers. The ecosystem is there. The ecosystem is there, and their strength lies in working with other complementary players.

Oost NL

CIRCULAR PROCUREMENT AS A CATALYST FOR PUBLIC-PRIVATE INNOVATION

Circular procurement is often discussed as a powerful lever for change — but its true potential becomes visible only when public and private partners work together with confidence, clarity, and a shared ambition.

Our **collaboration between Oost NL and Enschede Textielstad** has shown exactly how this can unfold in practice.

As a regional development agency, one of the areas Oost NL is committed to is to support companies and public organisations in accelerating the circular transition. Enschede Textielstad, a pioneering textile weaving mill working with yarns made of recycled and biobased (local) fibres, embodies the innovative strength of SMEs in our region. When we brought both sides together, it became clear how much **value is unlocked when procurement is approached not as a transaction, but as a strategic collaboration.**

In this partnership, functional requirements played a decisive role. Instead of prescribing specific products or materials, we **focused on performance, durability, reparability and circular value.** This opened the door for Enschede Textielstad to propose solutions that combined recycled content, local production, and design for long life — options that would have been excluded under traditional, product-led tendering.

Early market engagement proved equally essential. Before drafting specifications, we held orientation sessions and explored what circular textile solutions were available today. This reduced uncertainty, fostered trust, and created space for innovation rather than risk avoidance. It also allowed SMEs to participate competitively — demonstrating that circular innovation thrives when smaller players are not shut out by overly technical criteria.



Through this collaboration, we experienced firsthand what many procurement guidelines only describe in theory. Circular ambitions become **effective only when roles are clear:** the contracting authority articulates a consistent vision; advisors translate this vision into functional, circular criteria; suppliers contribute creativity and technical expertise. When all actors engage early and openly, the outcome is more ambitious — and more realistic.

Our partnership with Enschede Textielstad illustrates that circular procurement is not merely a policy instrument. It is a driver of innovation, a platform for regional cooperation, and a practical pathway to reduce environmental impact at scale. By embracing functional specifications, lowering procedural barriers, and enabling early dialogue, organisations can **turn procurement into one of their most effective tools for circular transformation.**



Annemieke Koster (left)
... is founder of the circular textiles company Enschede Textielstad

Sylvia Snoeren
... is a project manager and circular economy expert at the Regional Development Agency Oost NL



EN- ABLERS STORY

Circularity does not happen in isolation. It needs the right conditions: supportive regulations, forward-thinking procurement, new skills, and collaboration across sectors and professions. These enablers form the ecosystem that allows circular ideas to move from pilots to practice and from niche to normal.

This chapter focuses on the wider environment that makes circular transformation possible. Policies and standards can set the direction; procurement practices can shift markets; and education and skills development can empower designers, manufacturers, and buyers to work in new ways. Partnerships between cities, companies, and knowledge institutions create the momentum needed to bring circular approaches into the mainstream.

Circularity is ultimately a collective effort. When the enabling conditions are in place — when regulations encourage reuse, when public buyers ask for durable and repairable products, when professionals understand new materials and methods — the transition accelerates naturally. In this chapter, we look at what creates that fertile ground and how a supportive ecosystem can turn circular ambition into everyday reality.



ED we you

STATEMENT OF EU COMMISSIONER JESSIKA ROSWALL

“Moving to a circular economy is no longer simply an environmental choice, it has become an economic necessity. **We need a smarter model for the 21st century.** One that maximises value and minimises waste. One that reuses and recycles materials and keeps them in the economy for as long as possible. And one that reduces our dependencies on other countries and on vulnerable supply chains. **The circular economy is Europe's best chance to stay competitive in a world of scarce raw materials and expensive energy.** I see growing momentum behind the transition to circularity, and we need to continue fostering this. Citizens are demanding more sustainable products. Companies are embracing circularity as a driver of innovation. And it's for us policymakers to set the right framework – at national, regional authorities and European level.

We are preparing a Circular Economy Act to speed up the circular transition across Europe. You are stepping up cooperation in the North Sea region which is key to test solutions and scale up circular practices. Through circular strategies, your sector has the potential to become a key driver of sustainable industrial transformation. **There is no turning back on circularity, it's the path for our competitiveness, our environment, and our long-term future to thrive.**”

Jessika Roswall serves as the European Commissioner for Environment, Water Resilience and a Competitive Circular Economy. In this role, she drives some of the EU's most transformative agendas: strengthening markets for secondary materials, advancing the Circular Economy Act, improving water resilience across Member States, and ensuring the effective implementation of environmental and biodiversity legislation.

Before joining the European Commission, she spent more than a decade shaping Swedish politics as a Member of Parliament, later becoming Second Deputy Speaker, and most recently serving as Sweden's Minister for EU Affairs.



Roswall represents a new generation of European leadership—pragmatic, forward-looking, and focused on accelerating the shift towards systems that are not only less harmful but fundamentally regenerative. Her work underscores a simple truth: the circular economy is no longer a niche ambition, but a cornerstone of Europe's competitiveness, resilience, and ecological responsibility.

CEO

Interreg
North Sea



Co-funded by
the European Union

Knowledge, expertise and influence across the entire value chain

The **Interreg North Sea project CEO** brings together 13 partners from 6 countries. The consortium is led by **HiiCCE Hamburg Institute for Innovation, Climate Protection and Circular Economy GmbH**.

The partners are categorized as follows:

Local municipalities and public organizations:

- **Municipality of Copenhagen,**
- **Communauté de Communes Pévèle Carembault,**
- **City of Utrecht,**
- **City of Malmö,** and
- **Development Agency Oost-Nederland.**

These partners will implement circular office pilots throughout the North Sea Region (NSR), testing concepts and exchanging knowledge on specific challenges. Their diverse maturity levels enable mutual learning and growth.

Expert partners and consultancies:

Public Waste Agency of Flanders/Circular Flanders contributes extensive knowledge on circularity, procurement, and Circular Business Models (CBM).

INDEED Innovation is an expert in system mapping and includes human behavior components and stakeholder mapping in their approach.

WOOD.BE and **Institut Technologique Forêt Cellulose Bois-construction Ameublement** are experts in the wood and furniture industry, providing insights into circular design and its application in the conception and redesign of circular offices. They collaborate closely with local SMEs.

Suppliers of office equipment and SMEs in the furniture industry:

De Kringwinkel Antwerp has insights into the second-hand furniture industry and expertise in furniture refurbishment. They collaborate with **ONBETAALBAAR**, circular design experts.

Our partner **Enschede Textielstad** Innovatie specializ-

es in producing circular textile fibers suitable for office environments. Their expertise is applied in various pilot activities of the CEO project, starting with the pilot in the East of the Netherlands.

Collectively, the consortium partners possess **comprehensive knowledge, expertise and influence across the entire value chain** of office furniture in the European North Sea region.



Skills & Training

BUILDING THE WORK-FORCE FOR CIRCULAR FURNITURE



Masterclass at the Lycée Charlotte Perriand in Genève - Making new furniture from a reusable chair and eco-materials.

The circular transition is not only a matter of materials, regulations or procurement models. It is also — and perhaps above all — **a matter of skills**.

A circular office furniture sector requires new kinds of expertise: the ability to repair, to reinterpret, to upcycle, to work with new materials, and to navigate designs that prioritise longevity over disposability.

Today, these skills are **not part of most traditional training routes**. Crafts, manufacturing, design and vocational programmes still largely reflect a linear economy. As a result, the shift toward circularity cannot succeed without **capacity building** that equips both new learners and experienced professionals with the knowledge and methods of a circular future.

The CEO project addresses this gap through an ambitious training pathway developed with *FCBA, Pèvèle Carembault* and leading educational institutions. Its goal is simple: **to make circular furniture upcycling a recognised discipline in its own right**.

A Training Pathway for a New Profession

The CEO training course provides professionals — whether apprentices or experienced craftspeople — with the foundations of circular practice:

- **circular economy principles,**
- **eco-design,**
- **eco-materials,**
- **design and quality requirements,**
- **and manufacturing processes in wood, textile, metal and glass.**

Unlike simple reuse, which restores furniture “as is,” **upcycling** requires technical and creative interventions: stripping, lacquering, structural modification, redesign, or the addition of new materials. It reduces waste while producing high-quality, durable pieces.

Masterclasses – Testing and Strengthening the Skills We Need

To prepare the full training programme, the CEO partners tested the approach through a series of pilot masterclasses, each focused on one core theme of the curriculum. These short, intensive sessions acted as incremental steps — a way to validate methods, refine content and understand what professionals really need to work in a circular way.

The format was simple and powerful: learn by doing. Over three to five days, students, teachers and practitioners worked together on real pieces of reused furniture and recycled materials. Under the guidance of design, craft and materials experts, they explored repair techniques, transformation methods, eco-materials and redesign — always grounded in circular economy and eco-design principles.

A circular furniture sector cannot grow without people who know how to dismantle, repair, redesign and upcycle with confidence. The masterclasses demonstrated that these skills can be taught, practised and scaled — and that hands-on learning is essential to making circularity real.

Skills are the backbone of the circular transition — and masterclasses are how we begin building them.

TRAINING PROGRAMME STRUCTURE

MODULE 1

Circular Economy & Eco-Design

Foundations, principles, and design approaches enabling circularity.

MODULE 2

Circular Materials

Material flows, low-impact choices, and circular material strategies.

MODULE 3

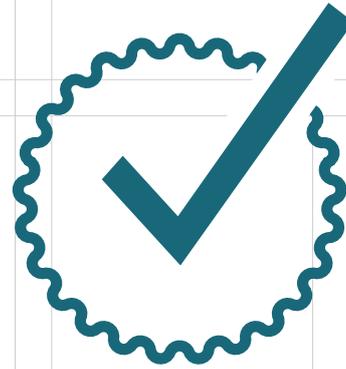
Quality, Design & Ergonomics

Performance, durability, user comfort, and design quality.

Supporting Elements (cross-cutting): Detailed instructional kits | Pedagogical sequences | Teaching tools | Learning indicators

Certification

SUPPORTING CIRCULAR PRACTICES, NOT JUST PRODUCTS



Extended Producer Responsibility (EPR) has long structured how France manages furniture waste. Eco-organisations oversee collection, recycling and reporting — useful tools, but mostly focused on end-of-life. As the sector shifts toward reuse, refurbishment and upcycling, it becomes clear that traditional **EPR alone cannot drive circularity**.

Circularity begins much earlier: in design choices and in the methods companies use to repair and transform products.

This raises an essential question:

What if accelerating circularity depends on certifying practices rather than products?

This is the direction explored by **FCBA**, the French institute for the wood–furniture industries. Through its “**Verified by**” initiative, FCBA is piloting a model that evaluates how companies work — the quality of their repair processes, their safety controls, and their capacity to deliver reliable second-life furniture. One example is the **Reconditioned Office Chair Verification Programme**, based on:

- field observations,
- FCBA quality requirements,
- visits to 10 companies,
- and a maturity scale with three levels: essential, mastered, exemplary.



The goal is not to approve a single chair but to **strengthen the processes behind reuse and refurbishment**. This approach builds trust, supports professionalisation, and encourages continuous improvement — elements that the current EPR framework does not always address.

To scale circularity, **buyers must trust reused and refurbished furniture**. Process-based certification can provide that confidence without freezing innovation or locking companies into rigid rules.

This is also where the **Circular Maturity Indicator (CMI)** fits in: like FCBA’s approach, the CMI helps organisations assess how circular their practices already are — and what their next steps should be. Both tools point in the same direction:

the transition will accelerate when we certify how organisations work, not just what they produce.

Certification can be more than compliance. Used well, it becomes a catalyst for a truly circular furniture sector.



Justine Rouger (left)

... is manager of the innovation team at Institut Technologique FCBA and provides additional insight and information to complement the training strategy on reuse.

Alice Houchon

... is Innovation, Materials and Design Consultant at Institut Technologique FCBA and provides additional insight and supports in the development of training programmes

TRAINING PROGRAMME STRUCTURE

MODULE 4

Manufacturing Techniques

Processes, technologies, and scalable pathways for circular production.

MODULE 5

Circular Business Models

New value chains, service models, lifetime extension and reuse systems.

THE LEGAL FOUNDATIONS OF A CIRCULAR MARKET

Circularity does not advance on ambition alone. It depends on the legal frameworks that shape how products are designed, purchased, and kept in use. In this chapter, we focus on three regulatory areas that directly influence the future of the European office furniture sector: public procurement law, ecodesign regulation, and the legal environment for circular business models. Together, they form the legal backbone that can turn circular principles into everyday market practice.

1. PUBLIC PROCUREMENT LAW

Using Legal Mandates to Shift Demand

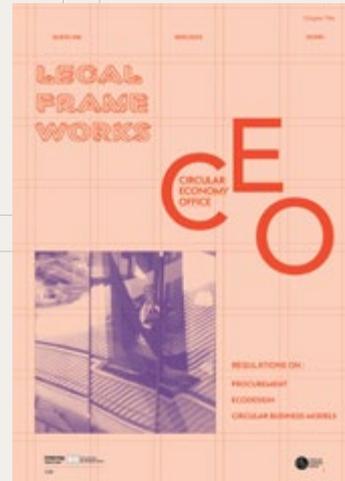
Public procurement is one of the strongest legally recognised levers for advancing circularity. Across Europe, procurement directives determine:

- **how tenders are structured,**
- **what criteria may or must be applied,**
- **how long contracts can run,**
- **and which products can legally be purchased.**

Many sustainability criteria remain voluntary, but several countries are beginning to embed mandatory circular requirements into procurement law — such as minimum shares of reused goods, bans on harmful products, or obligations to justify lowest-price awards. These changes signal a shift from encouraging circularity to requiring it.

A key legal challenge remains contract duration. Most public contracts last only 3–5 years, while circular models (repair, refurbishment, leasing) depend on longer commitments. Extending contract lengths and allowing maintenance and renewal clauses are becoming essential reforms.

Procurement law is increasingly recognised not just as an administrative tool but as a regulatory engine capable of steering entire markets toward circularity.



For a complete and detailed overview about the legal framework for the office furniture business visit the guidelines section on our website.

interregnorthsea.eu/ceo/guidelines

2. ECODESIGN & PRODUCT REGULATION

Setting the Legal Minimum for All Products

The new **Ecodesign for Sustainable Products Regulation (ESPR)** represents a major legal shift. For the first time, EU law establishes binding requirements for durability, reparability, disassembly, and material transparency across a wide range of products — including furniture.

Two innovations stand out:

Digital Product Passports (DPPs)

Mandatory, legally binding data records for each product, containing information on materials, repair options, chemical content, and environmental performance. They are designed to support transparency, enforcement and circular business models.

Minimum Sustainability Requirements

Specific rules for each product group will be established through delegated and implementing acts. These may include requirements for spare-part availability, maximum disassembly time or restrictions on the destruction of unsold goods.

For the furniture sector, ESPR creates legal clarity and a harmonised framework across the EU market. It rewards companies already working with modularity and reparability, while requiring others to adapt. Implementation will be supported by monitoring, testing and enforcement mechanisms as they develop.



3. REGULATION OF CIRCULAR BUSINESS MODELS

Updating Laws for a Post-Linear Economy

Today’s legal and financial systems were built around linear “purchase–use–dispose” models. As a result, many circular approaches do not yet fit comfortably into existing regulations.

Key barriers include:

- **ownership and liability rules for leased or continuously refurbished products,**
- **warranty regulations that often exclude second-life goods,**
- **tax and depreciation systems that favour purchasing over service contracts,**
- **lack of explicit legal recognition for take-back systems or product–service models.**

Across Europe, policymakers are beginning to adapt. Some countries are testing tax incentives for refurbished goods; others are clarifying liability across multiple life cycles or experimenting with lifetime guarantees. Discussions on extended producer responsibility for furniture are gaining momentum, aiming to define producer obligations from design to end-of-life.

These developments mark the start of a legal transition: from systems that reward disposal to frameworks that enable long-term stewardship, reuse and service-based offerings.

A LEGAL LANDSCAPE IN MOTION

Across procurement, product regulation and business models, the direction is clear:

European law is moving toward durability, transparency, reuse and long-term responsibility.

As procurement law evolves, as ecodesign becomes more ambitious, and as regulation adapts to circular business models, the office furniture sector stands at a pivotal moment. The legal environment is shifting from permissive to proactive — shaping a market where circularity is not just desirable but expected.

Regulation is becoming the foundation upon which circular practice can grow, offering clarity, stability and a shared direction for the years ahead.



Alexandra Vandevyvere and Veerle Labeeuw (left) are Circular Economy Facilitators at Circular Flanders/OVAM and experts in circular economy, circular procurement and change management.

POLICY RECOMMENDATIONS TO THE EUROPEAN UNION

From the CEO pilots and our regulatory analysis, one message is clear: the laws are moving in the right direction, but they are not yet strong or clear enough to make circular furniture the default. Based on our experience, we see nine priority actions at EU level:

1. Make well defined, product specific criteria mandatory for office furniture in EU procurement rules

- Introduce minimum requirements for reuse, durability, reparability and recycled content.
- Require contracting authorities to justify “lowest price only” awards where circular criteria are possible.
- Provide standard clauses and templates to support cities and regions.

2. Enable longer contracts and product–service models

- Clarify that leases, take-back schemes and service contracts are encouraged under EU procurement rules.
- Promote contract durations of 8–10 years for circular models, combined with performance and renewal clauses.

3. Build capacity for circular procurement

- Support EU-level training, helpdesks and guidance for public buyers.
- Develop common tools for life-cycle costing and circularity assessment.

4. Use ESPR implementing acts to set ambitious rules for furniture

- Define strong minimum requirements for durability, reparability, modularity and disassembly.
- Restrict destruction of unsold goods and require transparency for returns and surplus items.

5. Make Digital Product Passports comparable and useful for procurement

- Harmonise required data fields for furniture passports.
- Link DPP data to procurement tools to enable consistent comparison.

6. Remove legal and fiscal barriers to circular business models

- Clarify ownership and liability rules for multi-life products.
- Adjust tax and accounting frameworks so service-based models are not disadvantaged.

7. Introduce extended producer responsibility (EPR) for furniture at EU level

- Use eco-modulated fees to reward durable, repairable, modular designs.
- Use EPR funds to support local reuse, refurbishment and repair capacity.

8. Invest in circular infrastructure and regional clusters

- Use EU funds to co-finance refurbishment centres, storage hubs, logistics networks and living labs.
- Encourage cross-border collaboration rather than isolated investments.

9. Support certification of circular practices, not only products

- Promote EU-wide frameworks that verify organisational practices — take-back systems, refurbishment processes, quality control.
- Align these with tools like the Circular Maturity Indicator (CMI). circular practice can grow, offering clarity, stability and a shared direction for the years ahead.

The direction of travel is clear:

Europe is moving toward a market where durability, reuse and long-term responsibility are not exceptions but expectations. Yet regulation alone cannot deliver the transition. It must be matched with clear implementation, confident public buyers and companies ready to redesign products and services around circularity.

The CEO project has shown that this shift is entirely possible. Across the North Sea Region, cities and companies have demonstrated that reuse, refurbishment and service-based models can deliver high-quality interiors, reduce emissions and operate at scale. What is needed now is a coherent EU framework that turns these frontrunner examples into normal practice across Europe.

With stronger procurement rules, ambitious ecodesign requirements, fair conditions for circular business models and supportive fiscal and data policies, Europe can move from isolated action to an integrated circular furniture system. This is an opportunity not only to reach climate goals but to strengthen regional economies and set a global benchmark for sustainable interiors.

Regulation can become the foundation that turns circular ambition into everyday reality.

Change Management

MAKING CIRCULARITY STICK INSIDE AN ORGANISATION

Circularity does not take root through procurement criteria alone. It becomes real when people change how they work, how they plan, and how they make everyday decisions. The City of Malmö’s journey toward 40% reused furniture shows that organisational change is not a side issue — it is the core enabler.

1. Culture: Give people time to adjust – and stay persistent

Values and norms do not shift in a single project cycle. Malmö began engaging internal stakeholders in circular furniture flows already in 2018. Over time, this built a shared understanding that reuse is not a compromise but a responsible, modern choice. The lesson is simple: culture grows through repetition, evidence, and persistence. Keep showing what works, and do not give up when adoption is slow.

2. Governance: Leadership must give the mandate and hold the line

Circularity needs political and managerial backing. In Malmö, elected officials champion sustainable procurement, and senior management gives staff the mandate to act. Without this commitment, circularity becomes an “extra task.” With it, it becomes part of how the organisation works.

3. Strategic Purpose: Link circularity to bigger goals

The mission to close the loop for furniture is tied directly to Malmö’s broader goal of becoming a net-zero organisation by 2030. That clarity matters: it positions furniture as a proof-point that circularity is possible, scalable, and transferable to other categories with even higher climate impact. If people understand why circularity matters, they will help make it happen.

4. Skills & Roles: Create capacity — don’t expect change to happen “on the side”

Real change needs time and specialised roles. Malmö created a permanent circular coordinator in 2023. In 2024, they added a change-management leader to redesign the internal reuse system. These roles give structure, continuity, and the ability to move from ambition to implementation. If circularity is everyone’s job, it will end up being no one’s job.

5. Communication & Feedback: Show the wins, track the numbers

People change their behaviour when they see evidence. Malmö has consistently highlighted good examples, showing that reused furniture can be just as attractive — or better — than buying new, while saving money. Departments can track their own performance: new vs reused, year by year. This transparency turns sustainability into a shared effort rather than an abstract goal.

6. Market Readiness: Internal change depends on external partners

Circular transformation requires suppliers who can repair, upcycle, store, and deliver reused furniture. Malmö benefits from a growing ecosystem of local companies. Internal change will only thrive if market actors are ready to support it.

If there is one lesson from Malmö, it is this: circularity becomes normal only when organisations build the structures that support it.



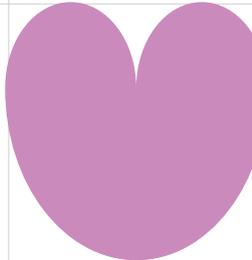
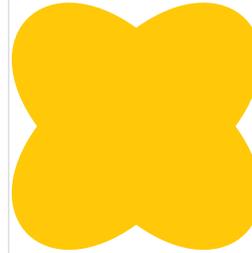
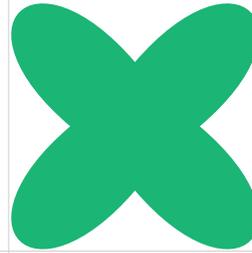
Change Management

To make change last, every administration, company or institution must:

1. Anchor circularity in culture and leadership — not as a trend, but as a value.
2. Create dedicated roles and skills — coordination and change management matter.
3. Communicate successes clearly — show that reuse delivers quality.
4. Use data to drive progress — what gets measured gets managed.
5. Work with suppliers who can actually deliver circular solutions.

7. Operational Process:
Start small, take steps that likely will be successful and build on that.

Circularity will not happen by itself. But with the right culture, mandate, skills, communication and partnerships, it can become the new organisational default.



INFLUENCING FACTORS

CATEGORIES	FACTORS
Organisational culture	Values and norms aligned with the changes
Governance system	- Collaboration, employee empowerment, stakeholder involvement - Leadership commitment



Factors addressed using organisational change strategies

STRATEGIES FOR ORGANISATIONAL CHANGE

CATEGORIES	STRATEGIES
Strategic Initiatives	- Statements with vision and goals - Champions
Human Resource Management	- Training and awareness raising - Experts recruitment - Transversal teamwork
Communication and assessment	- Monitoring and assessment - Reporting

Circular Public Procurement

TURNING PUBLIC BUDGETS INTO CLIMATE ACTION

Every city, region, and public institution buys furniture — for offices, schools, hospitals, and public spaces. Behind those buying decisions lies one of the most powerful tools for climate protection: **public procurement**. If every tender considered resource use, repair, reuse, and emissions, the impact would be enormous. Cities could cut waste, save materials, and reduce the embodied carbon in millions of desks and chairs.

Public procurement is not only an administrative process — it's **climate policy in action**. By asking for circular and durable products, public buyers can directly influence how the market designs, produces, and delivers. In a linear system, every purchase adds to extraction and waste; in a circular system, **every purchase can close a loop**.

Within the CEO project, partners explored how to make this happen. We first analysed the **barriers and opportunities of circular procurement** across the North Sea Region: many public buyers still lack clear definitions and criteria, and “lowest price” often outweighs long-term value. But awareness is growing — and so is the will to act.

Building on the experience from the earlier **Interreg ProCirc project**, we developed **Action Plans** to move from ambition to implementation. The focus: to turn procurement into a lever for climate-smart circular transformation.

In **Malmö**, new criteria for reuse and refurbishment were included in framework contracts and tested in practice.

In **Hamburg**, public buyers, suppliers, and manufacturers co-developed tender templates and circular text blocks.

In **Utrecht**, early market dialogues prepared the ground for tenders that prioritise reused and remanufactured furniture.

These pilots showed that climate action doesn't always require new technology — sometimes it starts with how we buy.

The people who order furniture — procurement officers, office managers, facility teams — hold the key to change. Every purchasing decision can save materials, reduce emissions, and support regional repair and refurbishment industries.

For producers, circular procurement opens access to a **fast-growing market of public clients** ready for sustainable products.

For cities and regions, it turns everyday purchasing into **measurable climate action**.

Circular public procurement is both **a market signal and a climate strategy**. Every tender can be a declaration: **we choose reuse, we choose repair, we choose circular**.

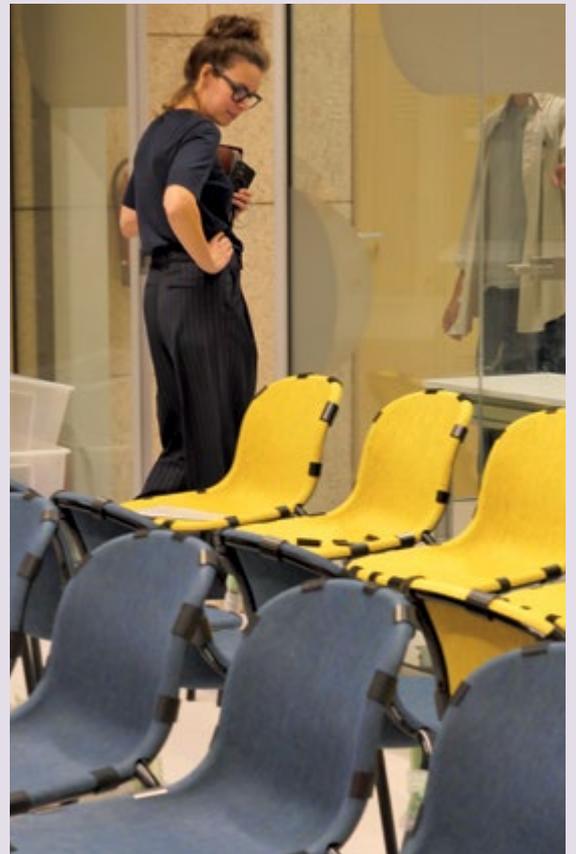
TAKE- AWAYS & TOOLS

The transition to circular office furniture is a journey — and every organisation starts from a different place. Whether you design furniture, manufacture it, procure it, or manage public buildings, the question is not if circularity matters, but how you begin and where you go next.

This chapter gathers practical recommendations for two key groups — the office furniture sector and cities and regions — with tailored guidance for both starters and those ready to scale up. It brings together everything we have learned across the project, from design and procurement pilots to workplace demonstrations and business-model innovation.

To help you find your starting point, the Circular Maturity Indicator (CMI) plays a central role. It allows companies and public organisations to assess where they stand today, identify their strengths, and understand the next steps that will bring the greatest impact. Paired with the CEO Guidelines — covering circular design, materials, business models, and legal/procurement frameworks — it forms a practical toolkit that supports real change.

These takeaways are therefore not a checklist, but a roadmap. They invite you to take concrete steps, to experiment and learn, and to integrate circularity into daily practice. Circular transformation grows through action — and every step you take contributes to a more sustainable, resilient, and inspiring office furniture sector for Europe.



For Starters

BEGIN YOUR CIRCULAR JOURNEY

Before you start, take the **Circular Maturity Indicator (CMI) self-check** to see where you stand. It will help you understand your strengths and identify the most important next steps. Circular transformation doesn't happen overnight — but every small, deliberate step builds momentum.

- **Start with one product.**
Pick one piece of furniture and redesign it for easy repair and disassembly — no glues, no secrets.
- **Make it last.**
Offer a longer warranty and commit to keeping spare parts available.
- **Use better materials.**
Begin introducing recycled or renewable materials and tell your customers about it.
- **Enable repair.**
Create simple repair kits or guides that help users fix small things themselves.
- **Take it back.**
Offer to collect used products and give them a second life — even as a pilot.
- **Work with others.**
Connect with local repairers, refurbishers, or recyclers — they are part of your future value chain.
- **Give your products a story.**
Add a “second life” corner to your website or showroom with refurbished items.
- **Collect data.**
Keep track of what goes into your products — materials, parts, and suppliers. It will soon be essential.
- **Train your team.**
Bring your designers and engineers together to explore circular design principles.
- **Measure progress.**
Repeat the CMI once a year to see how far you've come and celebrate each improvement.



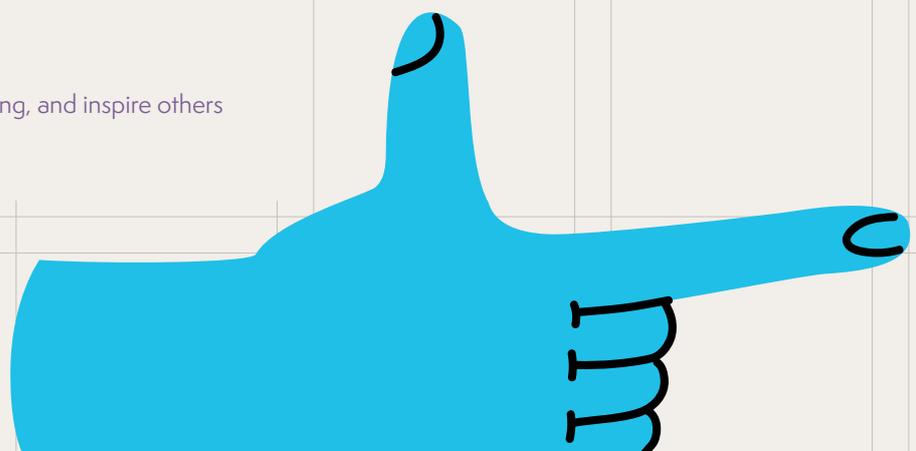
For Scale-Ups

FROM PROJECT TO PRACTICE

If you've already begun your circular transformation, the next step is to **make it systemic**. The CMI can show you where your circular strategies are working — and where you can grow next.

Think bigger:
from single products to entire portfolios, from pilots to policy.

- 1. Set clear design rules.**
Make circular design the standard for all new developments.
- 2. Offer furniture as a service.**
Rent, lease, or share — sell comfort and quality, not ownership.
- 3. Stay close to your customers.**
Partner with local refurbishers and logistics companies to shorten transport routes.
- 4. Ask for the same from others.**
Encourage your suppliers to meet your circular standards too.
- 5. Simplify your range.**
Use compatible parts and materials across product lines for easier repair and reuse.
- 6. Follow the product.**
Give each item an ID or QR code to trace its history and condition.
- 7. Be transparent.**
Share what makes your furniture circular — repairability, recycled content, longevity.
- 8. Design for life.**
Offer maintenance and refurbishment services alongside new products.
- 9. Set circular goals.**
Define targets for reuse, recycling, or resale — and report your results proudly.
- 10. Lead by example.**
Use the CMI regularly, share your learning, and inspire others in the sector.



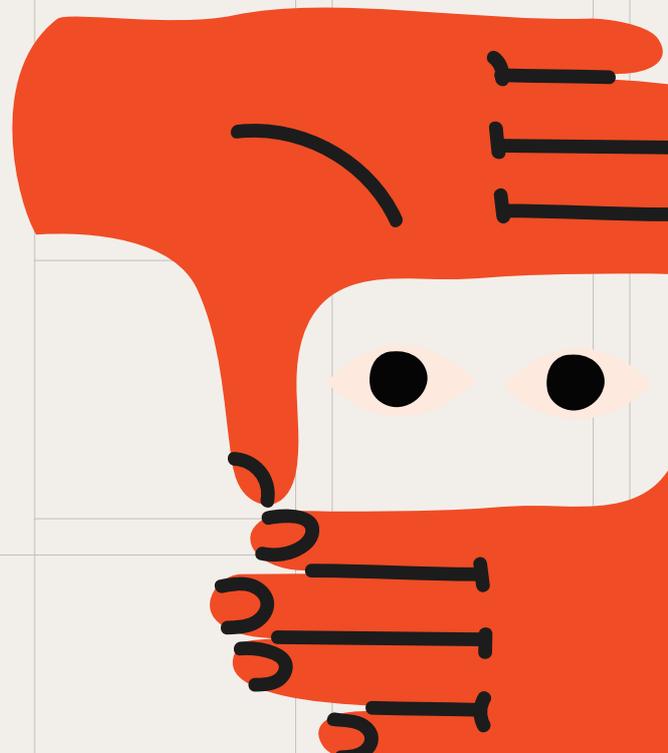
For Starters

BEGIN WHERE YOU ARE

Start with the **Circular Maturity Indicator (CMI)** to understand your current situation.

Even small municipalities or departments can make a difference. Circular public procurement begins with curiosity, openness, and one pilot at a time.

- 1. Know what you have.**
Make an inventory of all your furniture — what's in use, what's stored, what's still usable.
- 2. Reuse first.**
Before buying new, check whether existing furniture can be repaired or repurposed.
- 3. Start small.**
Try one circular tender — for one department, one floor, or one office.
- 4. Ask different questions.**
In tenders, include criteria for durability, repairability, and take-back options.
- 5. Invite innovation.**
Ask suppliers to show refurbished products or creative reuse ideas.
- 6. Think in services, not just products.**
Contract for maintenance and repair, not just for delivery.
- 7. Learn from the market.**
Talk with suppliers early — they can help shape practical circular criteria.
- 8. Build knowledge.**
Train your procurement team on circular economy basics and best practices.
- 9. Start measuring.**
Track how many pieces you reuse, refurbish, or buy circular.
- 10. Celebrate and share.**
Communicate your successes — every reuse story can inspire others to follow.



For Scale-Ups

MAINSTREAM CIRCULAR PROCUREMENT

If you already have pilots running, the next step is to make circular procurement part of daily practice. Use the CMI to identify which systems and partnerships will help you scale.

Cities and regions can turn their purchasing power into real climate action.

- 1. Adopt a “reuse-first” policy.**
Make reuse and refurbishment the default option in all tenders.
- 2. Update your procurement guidelines.**
Include circularity as a standard requirement — not a special add-on.
- 3. Think in life cycles.**
Compare total costs over time, not just the purchase price.
- 4. Join forces.**
Collaborate with neighbouring cities or agencies to create stronger market demand.
- 5. Build local capacity.**
Support regional storage, refurbishment, and logistics networks.
- 6. Track your furniture.**
Label or tag assets to enable reuse, repair, and redeployment.
- 7. Reward circular suppliers.**
Use clear criteria that value durability, take-back, and transparency.
- 8. Keep learning.**
Continue training and exchanging with peers and networks across Europe.
- 9. Align with EU policy.**
Follow the upcoming Sustainable Product Regulation and green public procurement goals.
- 10. Show leadership.**
Publish your results and invite others to visit your circular offices — change inspires change.



Tip for all

The CMI tool helps everyone
**producers,
procurers, and
planners**

see circularity as a journey.
It's not about perfection, but
about progress, collaboration,
and creativity.

Start where you are, use what
you have, and let every piece of
furniture become part of a living,
circular story.

COMMUNICATION AS INFRASTRUC- TURE FOR CHANGE

FROM AWARENESS TO ACTION

How strategic communication and stakeholder activation turn circular ambition into sector-wide momentum.

Transforming an entire industry requires more than innovation, pilot projects, or regulatory alignment. It requires **shared understanding, trust, and a sense of collective direction**. From the very beginning, the Circular Economy Office (CEO) project approached communication not as a supporting activity, but as a strategic infrastructure for change.

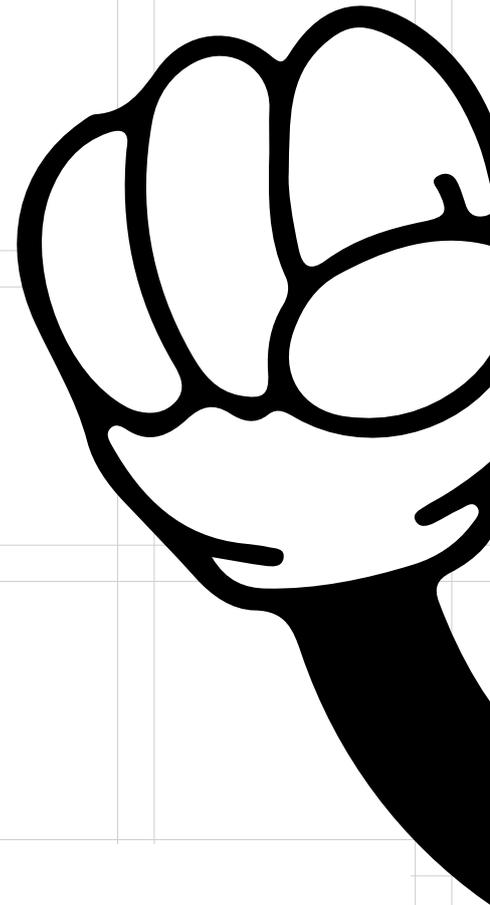
The transition towards a circular economy in the office furniture sector is complex. It affects design, production, procurement, logistics, use, and end-of-life strategies simultaneously. CEO's communication strategy was therefore **designed to translate complexity into clarity and ambition into participation** — connecting environmental responsibility with economic opportunity and cultural change.

Inspired by the Bauhaus manifesto, CEO addresses the sector directly with a clear call to action:

“Producers, retailers, office managers – we all must turn to the circular economy.”

This framing shifts communication from neutral information to **collective responsibility**. It invites participation rather than observation.

Instead of isolated campaigns, **CEO established a multi-layered communication ecosystem**: combining storytelling, tools, pilot documentation, and public visibility across fairs, media, digital platforms, and professional networks. Communication becomes the glue that connects actors, scales knowledge, and turns frontrunners into visible role models for the entire sector.



CEO COMMUNICATION PRINCIPLES

1. Make complexity tangible
2. Address people, not institutions
3. Show work in progress, not perfection
4. Turn frontrunners into role models
5. Enable participation, not consumption

Producers, retailers, office managers we all must turn to the circular economy!



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CEO

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The CEO poster was the first visual communication tool during the whole project time. It created a common sense amongst the partners and stakeholders by addressing the **target groups**, promoting the **program's mission**, prominent display of the **program's name**, entering the

world of furniture design with **simple symbolism**, showing **work in progress**, showing **modularity**, showing **interconnection**, announcing the **fundamental ideas of the program**, following the **Bauhaus style** and showing **reuse, repair and refurbishment**.

The Sector Activation Map

ACTIVATING AN INDUSTRY – A SYSTEMIC APPROACH FROM INTERNAL ALIGNMENT TO SECTOR-WIDE MOMENTUM

Systemic change does not happen through a single campaign or message. It emerges through coordinated action over time. To make this process visible and manageable, CEO developed the **Sector Activation Map – a strategic framework** that visualises how an entire industry can be mobilised step by step.

The map illustrates a **phased activation process** from 2024 to 2026, moving from internal alignment to full sector mobilisation. It connects **target groups, tools, communication channels, and emotional drivers** into one coherent system. Rather than treating dissemination as a linear funnel, the map reflects a network logic: relationships, feedback loops, and shared momentum.

At its core, the Sector Activation Map demonstrates that **communication, tools, and stakeholder engagement must evolve together**. Each phase builds on the previous one, gradually expanding the circle of participation while **maintaining clarity of purpose and value**.

The map also highlights a central insight: successful dissemination requires both **rational incentives and emotional motivation**. Visibility, recognition, peer influence, and the fear of missing out play a crucial role in activating change – alongside measurable benefits and practical guidance.

The Sector Activation Map is therefore not just a communication tool. It is a **strategic blueprint for scaling circular transformation** across the European office furniture sector.

Stage 1 – Internal Activation

The process begins within the CEO partnership itself. Internal activation focuses on alignment, shared language, and common tools. CEO partners co-develop the Circular Maturity Indicator (CMI), edit the Manifesto, and establish membership structures. This phase builds trust and ownership while equipping partners to act as initiators of transformation.

Stage 2 – Strategic External Outreach

In the second phase, selected external stakeholders – including Compass Group members and key institutional actors – are invited to contribute. Through CMI assessments, webinars, and personal Manifesto stories, participation becomes visible and meaningful. Peer influence and shared visibility encourage engagement beyond formal project boundaries.

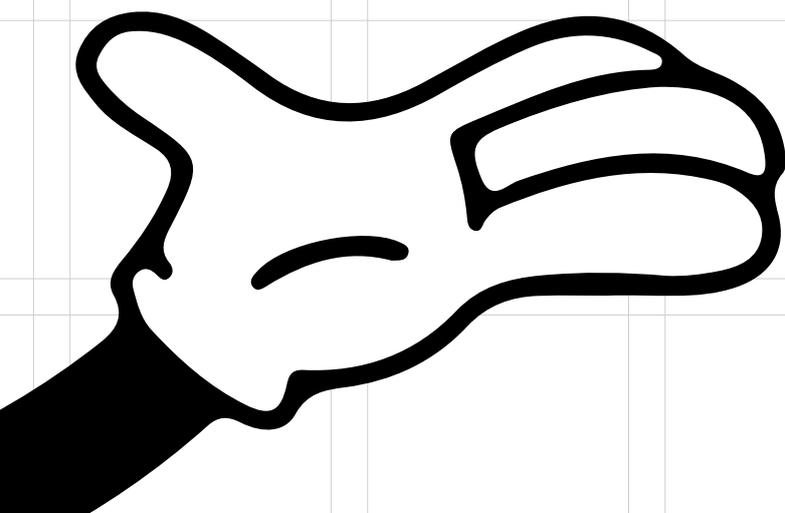
Stage 3 – Industry Leader Engagement

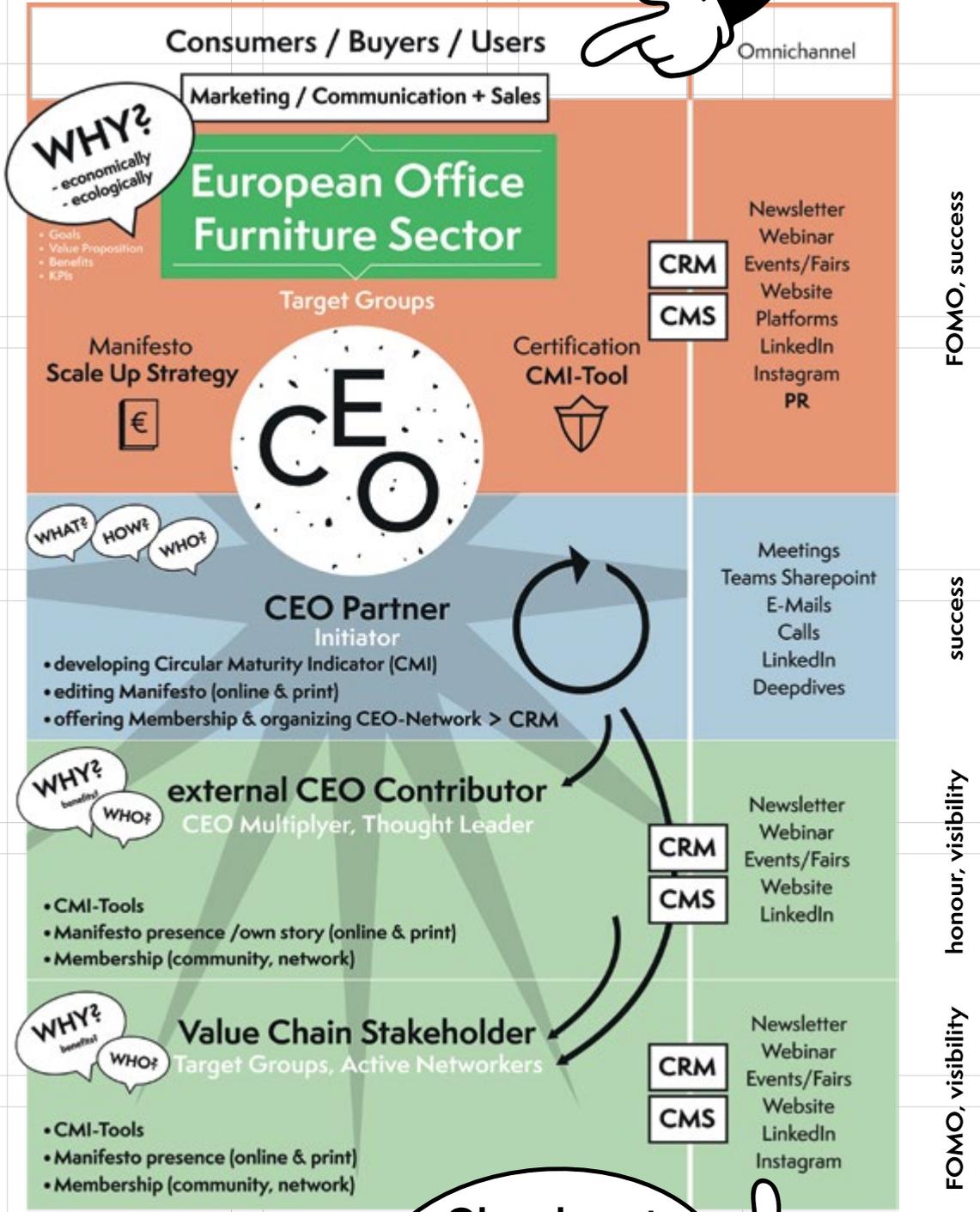
The third phase activates frontrunners across the value chain: manufacturers, designers, recyclers, and service providers. Circular Champions are recognised through CMI certification (Bronze, Silver, Gold) and featured through interviews, showcases, and expert networks. Benchmarking and recognition become powerful motivators for leadership.

Stage 4 – Full Sector Mobilisation

The final phase addresses the broader European office furniture sector. The public Manifesto, campaigns, events, and media partnerships turn accumulated knowledge into sector-wide momentum. Local multipliers, trade associations, and national networks ensure reach and relevance across regions.

Together, these stages demonstrate that activation is not a one-time effort – it is a carefully orchestrated process that balances structure and openness.





WHY?
- economically
- ecologically

- Goals
- Value Proposition
- Benefits
- KPIs

WHAT?
HOW?
WHO?

WHY?
beneficial

WHO?

WHY?
beneficial

WHO?



THE CIRCULAR MATURITY INDICATOR

A TOOL FOR TRANSFORMATION

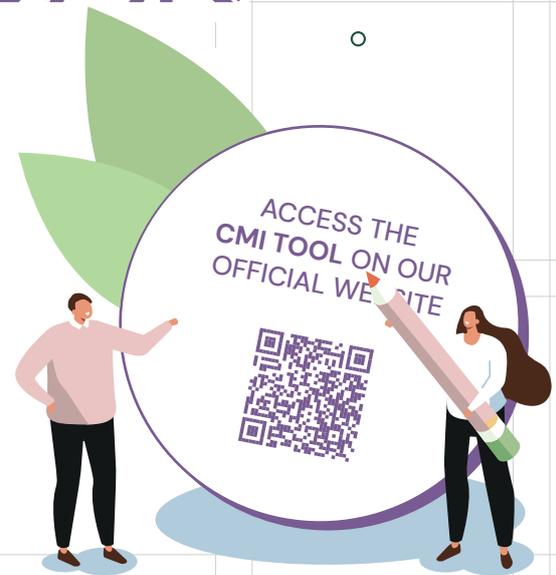
Transformation begins with clarity, understanding where you stand and what truly matters. Yet until now, measuring circular progress in the office furniture industry has been fragmented and inconsistent. Companies lacked a common language to evaluate, compare, or communicate their circularity performance.

To address this gap, INDEED Innovation, in collaboration with CEO project partners, developed the Circular Maturity Indicator (CMI).

The CMI offers a practical self-assessment for both furniture manufacturers and organizations, evaluating critical dimensions: repairability, recycled content integration, circular business models, product traceability, and end-of-use management.

Built on industry standards and regulatory frameworks (including EU circularity regulations, ISO 14001, and DIN SPEC 68008) and informed by extensive interviews with CEO project partners and industry leaders, the CMI reflects real-world sector **challenges** and provides actionable **insights**.

Through a graded scoring system, companies receive a clear maturity rating from Beginner to Trailblazer, with **targeted recommendations to advance their circular practices**. This creates a universal measurement framework and strategic roadmap that drives substantive progress beyond compliance.



LOOKING FORWARD

As Heiko Tullney, Co-Founder and Executive Director of INDEED Innovation, notes: *"Building circularity in the furniture industry is not just a technical exercise. It is a strategic transformation requiring measurement, collaboration, and innovation at every step."*

Through the CMI and ongoing work within the CEO project, INDEED supports a circular future that's measurable, scalable, and economically viable.



The CMI Tool

is set up as an online self assessment tool which seamlessly runs on your mobile devices and desktop browsers

HOW TO USE THE CMI TOOL

Consider whether each criterion applies to your organization's products, activities, operations, or business model. Leave blank any irrelevant criteria. Rate each applicable criterion on a scale of 1 to 5.

Score 0: Not Applicable

This indicator does not apply to your organization's products, activities, operations, or business model. Scores of "0" are excluded from the overall calculation.

Score 1: Not Achieved

The organization is aware of the topic but hasn't initiated actions yet.

Score 2: Partially Achieved (Initial Stage)

Early implementation has begun with minimal impact. The organization has begun addressing the topic but is still in the early stages.

Score 3: Moderately Achieved (Developing)

Practices are in place with room for improvement. The organization has made moderate progress in implementing practices, although there may be difficulties scaling them for greater impact.

Score 4: Substantially Achieved (Advanced)

Well-established practices are consistently applied with minor gaps. The organization has advanced in its implementation and is making noticeable progress.

Score 5: Fully Achieved (Leading)

Best practices are deeply embedded, serving as an industry model or the gold standard. The organization fully implements best practices, which are deeply embedded across its operations.

SCORE INTERPRETATIONS

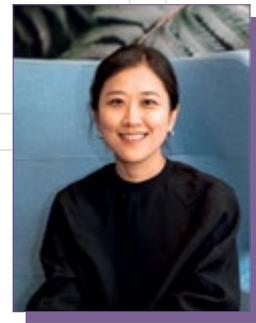
Score 1 / 1-20%:	Needs Improvement
Score 2 / 21-40%:	Developing Practices
Score 3 / 41-60%:	Moderately Circular
Score 4 / 61-80%:	Advanced Circularity
Score 5 / 81-100%:	Leading Circular Practices

CALCULATING YOUR CIRCULARITY SCORE*

1. Sum the scores for all applicable criteria.
2. Divide the sum by the total number of applicable criteria.
3. This average score reflects your organization's overall circular maturity.



Heiko Tullney
Co-Founder and Executive
Director of INDEED Innovation



Eunji Park
Executive Director at
INDEED Innovation



MATURITY CRITERIA

FOR OFFICE FURNITURE PROVIDERS

This category encompasses **manufacturers, brands, suppliers, distributors, and organizations that produce office furniture**, who contribute to the circular economy by designing durable, repairable, and recyclable furniture. They can utilize recycled or compostable materials and offer take-back schemes and refurbishment services to extend furniture lifecycles and manage end-of-life responsibly.

“Providers” use criteria that assess effective supply chain management, commitment to sustainable material sourcing, eco-friendly production processes, design for longevity and recyclability, and responsible end-of-life strategies.

PRODUCT DESIGN, PRODUCTION AND MATERIAL SELECTION		
1. Design for Durability and Repairability	The extent to which furniture is designed for long-term use (10+ years), including ease of disassembly, repair and availability of replacement parts, to extend its lifespan.	score (0-5)
2. Recyclability of Products	The percentage of a company's products that can be recycled at the end of its life in regions where they are sold and used.	score (0-5)
3. Use of recycled materials and refurbished spare parts	The percentage of recycled materials and refurbished spare parts utilized in the manufacturing of new furniture products.	score (0-5)
BUSINESS MODEL AND SUPPLY CHAIN		
4. Supplier Compliance with Circular Principles	The extent to which a company's suppliers adhere to circular economy principles, such as using durable and recyclable materials and minimizing waste in their operations.	score (0-5)
5. Furniture-as-a-Service Adoption	The proportion of a company's revenue generated from furniture leasing or rental models compared to traditional sales.	score (0-5)
6. Second-Hand/Refurbished Furniture in a Product Range	The proportion of second-hand and refurbished furniture offered in the company's product portfolio.	score (0-5)
MAINTENANCE SUPPORT		
7. Furniture Longevity and Maintenance Support	A company's efforts to help the furniture users to extend its life, e.g. through clearly communicated comprehensive warranty, maintenance support with readily available spare parts, convenient repair services, customer education on product care.	score (0-5)
END-OF-USE MANAGEMENT		
8. Take-Back Programs	The extent to which furniture is designed for long-term use (10+ years), including ease of disassembly, repair and availability of replacement parts, to extend its lifespan.	score (0-5)

MATURITY CRITERIA

FOR OFFICE FURNITURE USERS

Office furniture users, including **businesses and organizations, procure and use office furniture in their operations.** They play a vital role by selecting furniture designed with circular principles in mind and implementing proper maintenance and repair practices to extend furniture life. Additionally, they contribute to responsible disposal through recycling or take-back programs to minimize waste.

- The criteria for **“Users”** focus on responsible procurement practices, efficient furniture utilization, maintenance and repair initiatives, and proper end-of-life disposal or recycling.

OFFICE SPACE DESIGN		
1. Adaptability of Office Space	The ability of the office space to accommodate changes in workforce size or work style without the need for additional furniture, e.g. through modular furniture systems and design elements that can be easily adjusted, repurposed, or moved to other areas.	score (0-5)
PROCUREMENT AND SOURCING		
2. Percentage of Circular Procurement	The proportion of office furniture that is leased, rented, or purchased second-hand, remanufactured or from recycled materials, as opposed to newly manufactured purchased items.	score (0-5)
3. Supplier Life-Extension Alignment	The extent to which furniture suppliers provide takeback, repair or refurbishment options.	score (0-5)
4. Circular Furniture Design Integration	The degree to which the design of newly purchased office furniture facilitates longer use, durability, ease of repair and recycling.	score (0-5)
USE AND ASSET MANAGEMENT		
5. Furniture Utilization Rate	The percentage of furniture that is actively used to its full potential out of the total available inventory. The aim is to make more efficient use of furniture, reducing the need for additional purchases and giving a second life to unused furniture.	score (0-5)
6. Inventory System Efficiency	The organization’s proficiency of inventory management system in tracking, allocating, and optimizing furniture assets throughout their lifecycle, supporting optimal utilisation and maintenance.	score (0-5)
7. Maintenance and Repair Practices	The extent to which the organization integrates practices for maintaining and repairing furniture rather than replacing it, in order to extend its useful life.	score (0-5)
END-OF-USE MANAGEMENT		
8. Waste Diversion Rate	The percentage of office furniture and materials diverted from landfills through reuse, donation, refurbishment, or recycling.	score (0-5)

THE CEO GUIDELINES

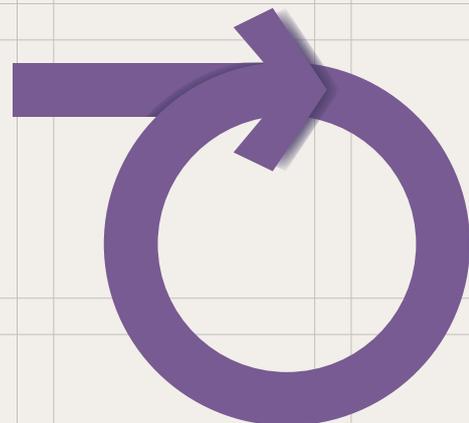
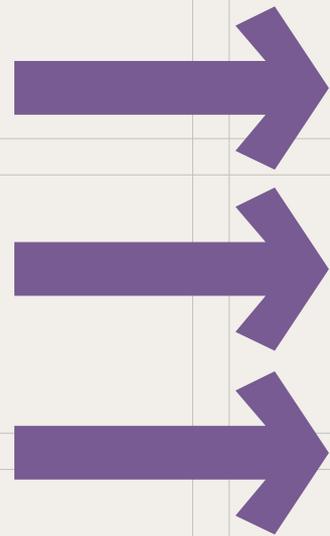
LEGAL FRAMEWORKS CIRCULAR BUSINESS MODELS CIRCULAR DESIGN

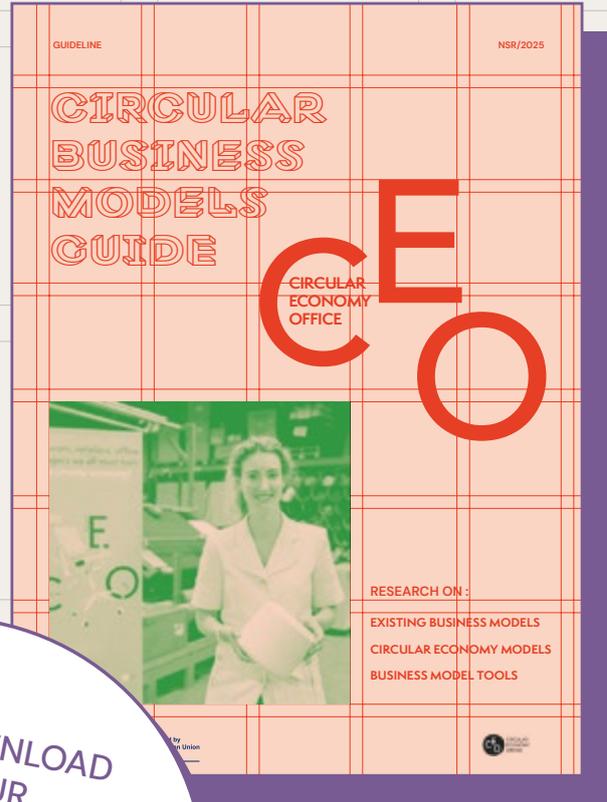
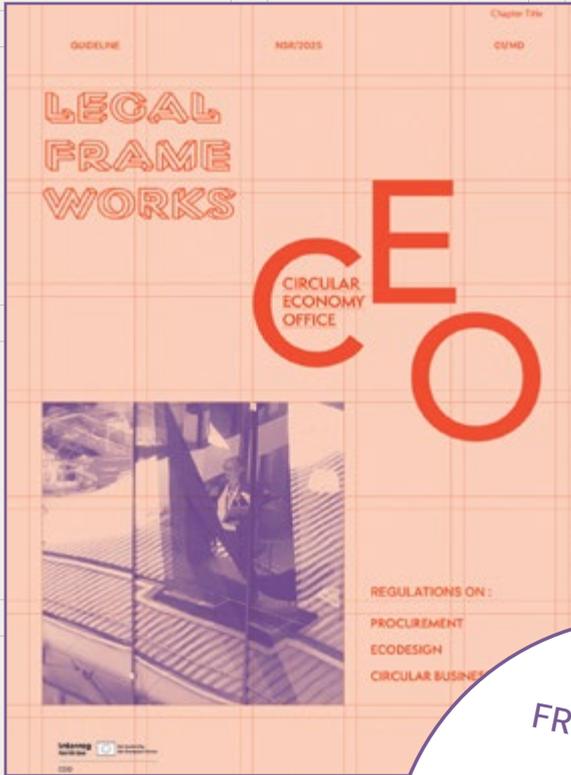
The guidelines developed by the partners of the CEO – Circular Economy Office translate circular economy principles into practical, actionable guidance for the office furniture sector. They are designed to support manufacturers, public authorities, designers, facility managers, and procurement professionals in implementing circular strategies across the entire value chain.

Building on real pilot experiences, the guidelines address key themes such as circular design, material selection, procurement models, reverse logistics, refurbishment, and service-based business models. Rather than prescribing one-size-fits-all solutions, they provide flexible frameworks, criteria, and best practices that can be adapted to different organisational contexts and market realities.

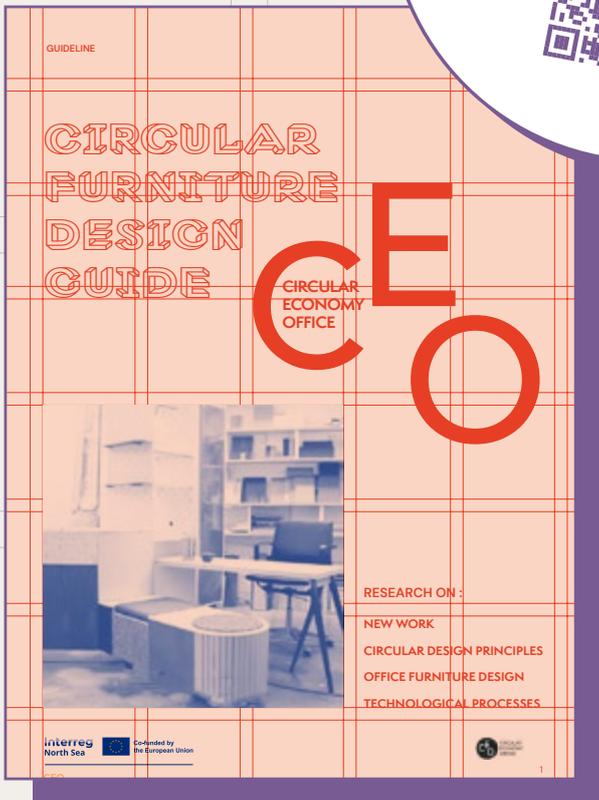
By making complexity tangible and linking ambition with feasibility, the CEO guidelines help turn circular economy from strategy into practice. They are available online as an open resource, supporting the sector in accelerating the transition towards resilient, resource-efficient, and future-ready office environments.

www.interregnorthsea.eu/ceo/guidelines





FREE DOWNLOAD
ON OUR
OFFICIAL WEBSITE



CLOSING CHAPTER

TOWARDS A CIRCULAR FUTURE

Over the course of this manifesto, we have shown what is possible when ambition meets practice. We began with a simple idea: office furniture can be a powerful entry point into the circular economy — a field that is often seen as abstract and complex, yet becomes tangible the moment we touch materials, walk through spaces, and meet the people who design, repair, refurbish and use them. Across all chapters — design, workplace, climate, economy and enablers — one message echoes clearly: circularity is no longer an aspiration; it is becoming a way of working.

We have seen that circular design can be beautiful, functional and scalable. We have seen workplaces transformed with reused furniture without compromising comfort or aesthetics. We have seen that extending product life is one of the simplest and most effective climate actions available today. We have seen business models that prove circularity is not a niche experiment, but an emerging market reality. And we have seen how regulation, procurement, skills and collaboration form the environment in which circular solutions can thrive.

Above all, we have seen that this transformation is already happening — in workshops, warehouses, design studios, universities, public administrations, and offices across the North Sea Region and beyond. It is driven not by abstract theory, but by people: designers with new ideas, refurbishers with deep craft, procurers willing to try new approaches, companies ready to rethink value, and municipalities stepping forward as market shapers.



A JOURNEY MADE POSSIBLE TOGETHER

The CEO project has been more than a partnership — it has been a community of practice. A collective learning journey across borders, disciplines and sectors.

To the EU Interreg North Sea Programme, whose support made this collaboration possible. To the cities, regions and public authorities who opened their offices, shared their challenges, and tested new approaches with honesty and courage. To the producers, designers, refurbishers, logisticians and innovators who showed what circularity looks like in real life — sometimes messy, always inspiring. To the universities, students, researchers and educators who explored ideas, challenged assumptions and built the skills of the next generation. To the frontrunners across Europe who welcomed us into their warehouses, factories and studios and openly shared their knowledge. And above all, to the CEO partners, whose commitment, curiosity, and persistence have turned a project into a movement.

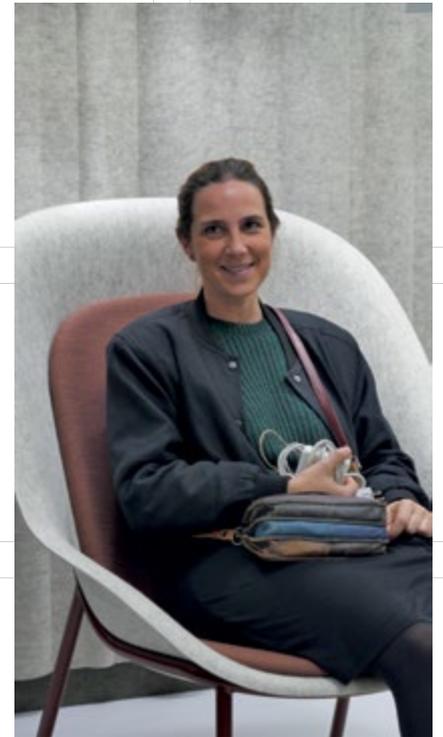
Thank you. This manifesto is the result of your work, your belief and your willingness to rethink what is possible.



Takeaways and Tools



Takeaways and Tools





LOOKING AHEAD – A CIRCULAR OFFICE FURNITURE SECTOR FOR EUROPE

The path forward is clear. We know the tools, the methods, the strategies and the policies that can make circularity the new standard. We have evidence from pilots, examples from frontrunners, and momentum across the industry. The question now is not whether circularity will come – but how fast we choose to move.

The transition will take continued collaboration, courage and investment. But it is within reach, and it is full of opportunity: for local economies, for skilled jobs, for innovative materials, for better public spending, for climate action – and for workplaces that reflect the values of our time.

CIRCULARITY OFFERS MORE, MORE

IMPRINT

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WE
ALL
MUST
TURN
TO
THE
CIRCULAR
ECONOMY