



Sustainable Office Solutions

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## “Call to Arms”

Bringing Office Furniture  
Towards Full Circle





*“Changing the attitudes of the corporate environment at large is our challenge”*

Rob Wall, 2022



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# Global Furniture Market

Opportunities and forecast,  
2020-2027

The [global market value of furniture](#) was estimated to be US\$ 509.8 billion in 2020, and is expected to increase every year to reach a forecasted value of approximately US\$ 650.7 billion by 2027.

Steelcase and Herman Miller were the [two leading office furniture companies](#) worldwide in 2020, generating revenues of 3.73 billion U.S. dollars and 2.49 billion U.S. dollars, respectively.

Driven by urbanisation, growing real estate industry in developing countries and increasing renovation projects are major market drivers. In the short term, a [fuller return to the office is expected to strengthen](#) as higher vaccination allows economies to open more fully, which together with occupiers making decisions around their space requirements, will drive office demand of furniture over the year ahead.

# Introduction

## Breaking down the context

With furniture being a multi billion industry, office furniture businesses hold up a **3.7% of the manufacturing industry** and employs tens of millions of people, for it being one of the oldest, most labour intensive and artistic industries around the world.

**Furniture plays an important role in people's lives.** Besides, it's an investment, to last and ensure people are safe from toxic or harsh products. It is also a big source of embodied carbon emissions in an office building.

And yet the **“fast furniture” problem** makes the furniture industry a far cry from the uplifting, inspiring and empowering force it should be. According to the US EPA, furniture waste generated by Americans in 2018 totalled a staggering **12.1 million tons - 80.1% of it went to landfill and only 0.33% of it was recovered for recycling.**

**Not only is it wasteful, but it's also not a good investment.**

More people than ever are aware of furniture's negative social and environmental impacts and want no part of them. Indeed, investing in higher quality sustainable furniture takes more than effort. But it isn't necessarily hard or unstylish or expensive. It can be easy, cool, beautiful, and accessible to anyone, including yourself.

**It can change the world. And it will change your life.**

Conscious furniture is a mindset, a movement, and a way of life. It is a manifesto and a call to action. Let's use the awesome power of furniture to change furniture itself and in turn we are one step towards saving the world!



# State of Play

01

Climate Crisis is here...  
and little we are doing  
about it

# State of Play

Climate Crisis is here... and little we are doing about it

## The Worrying...

Material handling and use makes up approximately [70% of the total greenhouse gas \(GHG\) emissions](#) – stemming from the food we eat, clothes we wear, to furniture we own – and more than [90% of water stress and biodiversity loss](#) due to land use.

Despite climate talks, the harsh reality is that between Paris and Glasgow, global resource extraction continues to grow, driven by our take-make-waste economy that consumes 100 billion tonnes of materials annually, compared with 27 billion tons in 1970, far faster than the population, which has just doubled.

It implies that, on average, **every person on Earth uses 13 tons of materials per year**, which is well over 750 chairs that you are seating on. To make matter worse, we only reuse 8.6% of what we use, and that leaves a massive Circularity Gap of 90%.

*“We risk global disaster if we continue to treat the world’s resources as if they are limitless,” said Harald Friedl, the chief executive of Circle Economy.*



# Current 'Take-Make-Waste' Office furniture lifecycle

Fast turnover and mostly linear



In today's world of abundant options and free delivery, the 'take-make-waste' approach to resources has exacerbated. The model is the basis of the linear economy, in which raw materials are collected, transformed into products which are used briefly, due to wear, tear, breakages, and then thrown away.

The problem is, it operates on the assumption that there will be an infinite supply of raw materials, energy and labour. Today, we are seeing just how wrong that assumption was - our landfills are growing by some [2 billion tonnes](#) of garbage every year.

**If all this waste was put on trucks, they would stretch around the Earth 24 times.**

This insatiable appetite for cheap replacement furniture can be a reflection of low-income, exploited workers living in poverty.

Taking wood, a versatile material that dominates over 60% of furniture market, it's role to regulate ecosystems, protect biodiversity, play an

integral part in the carbon cycle.

**Just Ikea's wood consumption alone, its estimated that it currently consumes [one tree every second](#).**

Amounting the harvesting and transportation, to industrial manufacturing, which typically involves addition of resin as synthetic adhesive and thermal energy for curing before it gets cuts and remodelled into tables or cabinets.

All financial, environmental, social complications combined, it is unsustainable and leading humanity towards an incredibly challenging future, but presents itself as a clear case to rethink furniture design and delivery mechanisms.

It's true that the world may feel like climate is acting up more and more often, but here's the solution: **Working together is no longer optional - it's an imperative. Circular Economy can bridge the emissions gap.**

# The Upside...

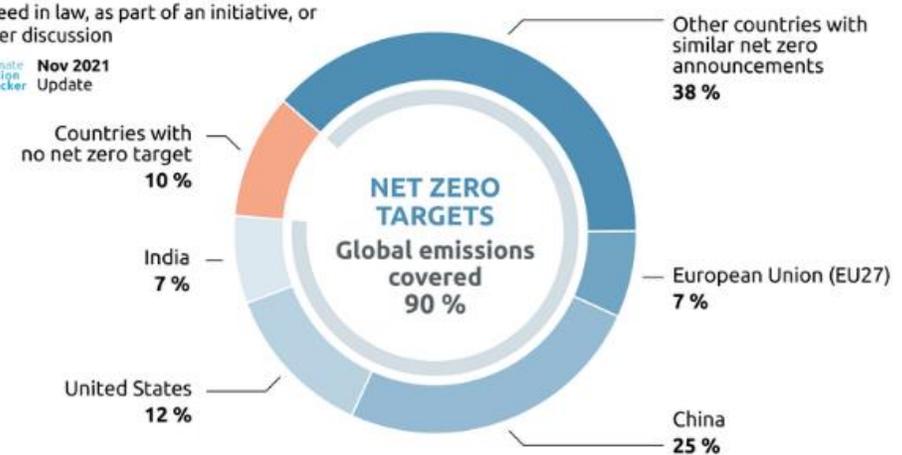
Clearly, time is not on our side, but finally momentum is coming along. Hot on the heels of COP 26, both businesses and public interest in climate action is high – around **90% of emissions are now covered by net zero commitments or targets under discussion**.



## Net zero emissions target announcements

Agreed in law, as part of an initiative, or under discussion

Climate Action Tracker  
Nov 2021 Update



Over **1,200 companies** have put in place science-based targets in line with net zero, and more than 1,000 cities, over 1,000 educational institutions, and over 400 financial institutions have joined the Race to Zero, pledging to take rigorous, immediate action to halve global emissions by 2030.

While setting a net zero target presents itself as a great first step, getting to net zero still looks like a black box to many in the corporate sector as disclosure rules for Scope 3 emissions [awaits clarity](#) and the [ease of accurate tracking](#) of its up- and down value chain.

The danger is for anyone to kick the problem into the “long grass” for future administrations or leaders, eventually, creating a situation where it really is too late.



# The Circular Revolution

02

Circular economy is nature's equivalent of 'living within your means'.

# Sustainability isn't a compromise on returns

## Benefits to Circular Economy



Sources

[UNCTAD representation of circular economy benefits](#)

Consider Pareto's 80-20 rule, which states that 80% of something relates to 20% of those involved – a surprisingly useful and robust rule of thumb. Applied to climate crisis this would mean that **80% of emissions derive from roughly 20% of the population.**

Rationally looking at decarbonisation strategies of the traditional “take-make-dispose” economies, it's clear that material efficiency provides a route to minimise primary energy use and waste that has the potential to trigger far-reaching change and put the world on track to net zero.

Circularity based on the four flows - **narrow, slow, close and regenerate** gives us the tools to transform our linear economy into one that maximizes the value of material resources and minimizes greenhouse gas emissions, resource use, waste and pollution. Benefits of circular economy includes, but not limited to, less material input, emissions reduction and increase value retention.

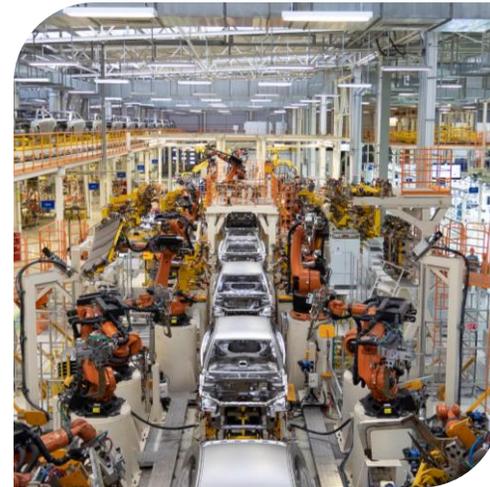
If we transform our global economy to one where waste and pollution are eliminated, products and materials are reused and nature is regenerated, we can **cut material use by 28% and greenhouse gas emissions by 39%.**

All in all, in a world of scarcity, companies will need to consider their total return not just on assets but on resources and that sustainability is now a choice, not a compromise – for it again and again, drives returns.

## Where and how to start?

Whilst no two industries are the same, there are still obvious similarities and valuable storehouse of transferable knowledge, backed up by examples of inspiring best practices.

Here, we are addressing the elephant in the room - **fashion and automobile industries** who makes up two-fifth of manufacturing industry respectively, but are also ahead in terms of integrating sustainability into their business models which allow us to guide furniture industry in accessing the most impactful circular strategies for its context.



# Slow Fashion Industry: The Conscious Closet



Clothes shopping used to be an occasional event. But about 20 years ago, when clothes became cheaper, trend cycles sped up and shopping grew into a hobby. Enter fast fashion – a toxic system of overproduction and consumption that plays into the idea that outfit repeating is a fashion faux pas.

Fast fashion’s impact on the planet is immense. **Fashion production makes up 10% of humanity’s carbon emissions, dries up water sources, and pollutes rivers and streams.**

What’s more, 85% of all textiles go to the dump each year. And washing some types of clothes sends thousands of bits of plastic into the ocean.

There’s no denying that the fashion industry has been a major contributor to climate change and biodiversity loss—which means the industry’s sustainability efforts are critical to our planet’s health.

Optimistically, a growing number of brands are looking for ways to use what’s already been created and are offering shoppers options for recycling, upcycling, and donating clothes they don’t want anymore, well known as Take Back Schemes. For instance, [H&M’s Garment Collection program](#), which allows you to put old clothes into in-store recycling bins to be given a new life in exchange for a voucher are similar to programs of Swedish womenswear brand [Eileen Fisher](#), outdoor specialists [North Face](#) and American jeans icons [Levi’s](#).

# Is fast fashion going green?



## Patagonia

As an increasing number of consumers call out the true cost of the fashion industry, there's an uptake in retailers to introduce so-called sustainable and ethical fashion initiatives.

One of the pioneers leading sustainable fashion since 2005 with its [Common Threads Recycling Program](#) to 2011 Black Friday “[Don't Buy This Jacket](#)” Daring Campaign is Patagonia – a company defying the odds by staying through to their mission, thereby not compromising ideals for petty desires.

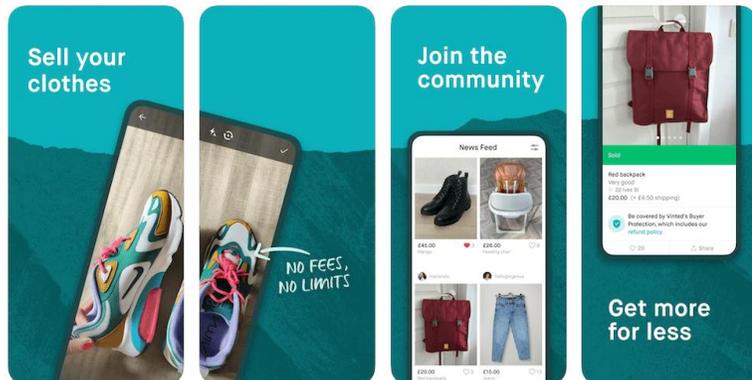
**Buy thoughtfully, Buy better, Buy less.**

## Vinted

Just like many other great ideas, [Vinted](#) - where users sell and swap items used clothes and accessories, was born out of necessity.

The creation of an ecosystem where sellers are empowered to unlock value from their unwanted clothes which instead would have been thrown away. Similarly, buyers can access different styles at affordable prices while having the ‘newness factor’ in a more guilt-free way by purchasing second hand items.

Looking to the future, Vinted's focus is on its mission to “make second-hand first choice worldwide”, supporting a sustainable shift in consumption and purchasing decisions.



# Automotive Industry: Driving towards a sustainable future



The automotive industry is experiencing radical upheaval - driven by four main trends: electromobility, shared mobility services, autonomous driving and connected vehicles, all racing it into a new world of mobility and sustainability.

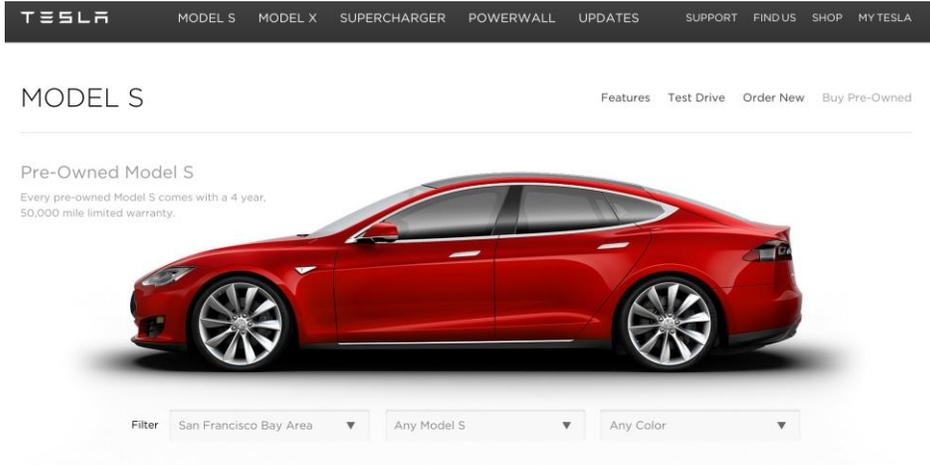
Who would have possibly guessed that less than a decade ago, transportation contributed more than 50% of the carbon monoxide and nitrogen oxides emitted into our air, and up to 30,000 premature deaths are caused by [particulate matter](#), in just the US alone.

Whilst so, **global transportation emissions that accounts for approximately 25%, continue to grow** - due to economic activity that drives demand.

Over years and billions of dollars invested, modern vehicles are light years away from the vehicles of the past. Not only are they cleaner than ever before, but they are also the much more efficient, translating into lower fuel bills.

Coupled with emerging technological opportunities and policy levers in place, the world will have to wait and see whether necessary change will actually transpire in years to come. Here are some clear-cut examples.

# Automotive Industry: Driving towards a sustainable future



## Tesla

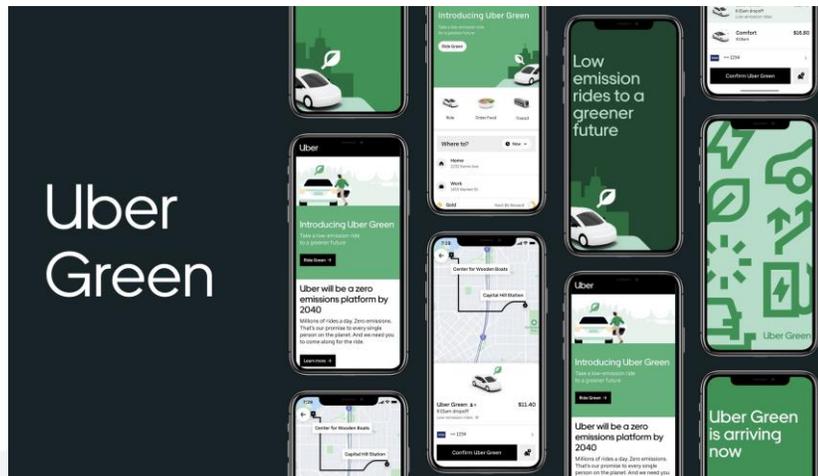
Crowning the 52<sup>nd</sup> spot on World's most sustainable company, Tesla rose to position for its leadership that played the long game with R&D, focusing on automation, material costs and software updates – all around its mission to accelerate the world to sustainable energy.

[Tesla Motors Certified Pre-Owned program](#), an online marketplace to sell used car to it Solar Roof rollout are schemes of how Tesla defines a new era for the global auto industry.

## Uber

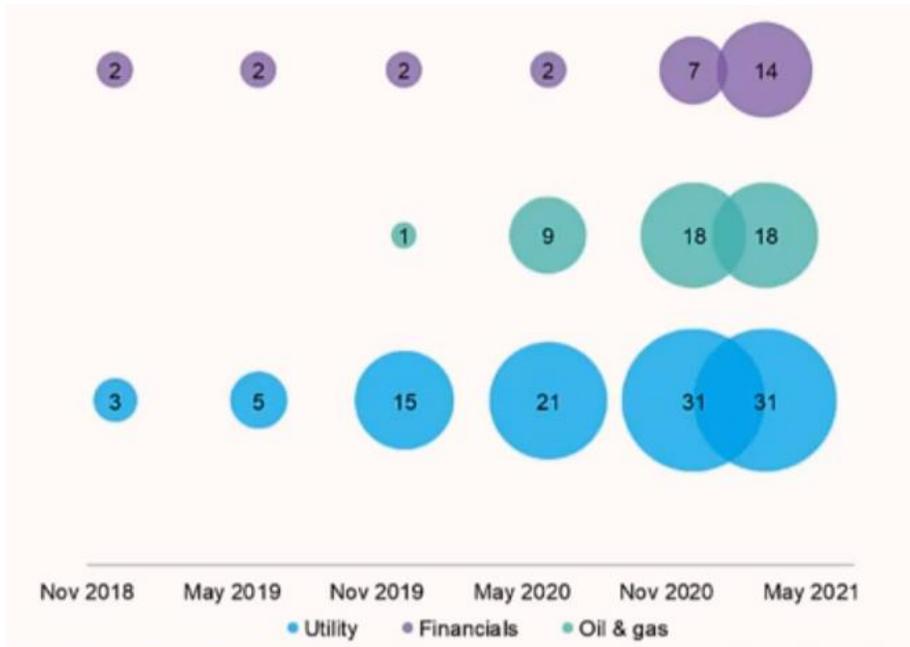
Sharing is super circular - resources are used optimally and to keep the materials in a closed-loop as long as we can. Car-sharing scheme like Uber helps create less waste as it puts fewer (often unused) cars on the road.

Taking a step further, [Uber Green](#) was launched with low-emission ride option, anchored on its zero emissions commitment.



# Thy competitor's net zero ambition

## Net-zero targets, by sector



Sources  
Bloomberg NEF

Social scientists have demonstrated the influence of peer behaviour in a host of areas – we’ve been building taller skyscrapers, driving heavier vehicles to buying the newest iPhone – and term it as the **power of behavioral contagion**. What it means is that when our peers take actions, we’re more likely to follow suit.

This human instinct to conform is becoming the cause for hope: When contagion cause a problem, it can also help solve it. Just as in the case of [solar-panel](#) or electric vehicle adoption, where peer effects exacerbated and then reduced the prevalence of the practice, so too could contagion help us meet the climate challenge.

Net zero target is a great example of engineered benign social environments that amplifies by contagion effects, rather than with complex, intrusive regulation made mandatory all around the world.

Similarly for furniture or any other industries, when a company leads, that goes to engage its entire workforce, the public’s mindset, behaviour and lifestyle can also change for the better – that’s when the competitors follow suit.

**When positive influence happen on a global scale, progress ripples outward, with greater impact for everyone.**

A top-down view of a person's hand wearing a black smartwatch and a beige knitted sleeve, resting on a desk. The desk features a laptop, a small air plant in a black pot, a pair of glasses, and two pencils. A large green Monstera leaf is visible on the left side of the frame.

# Green Future of Furniture?

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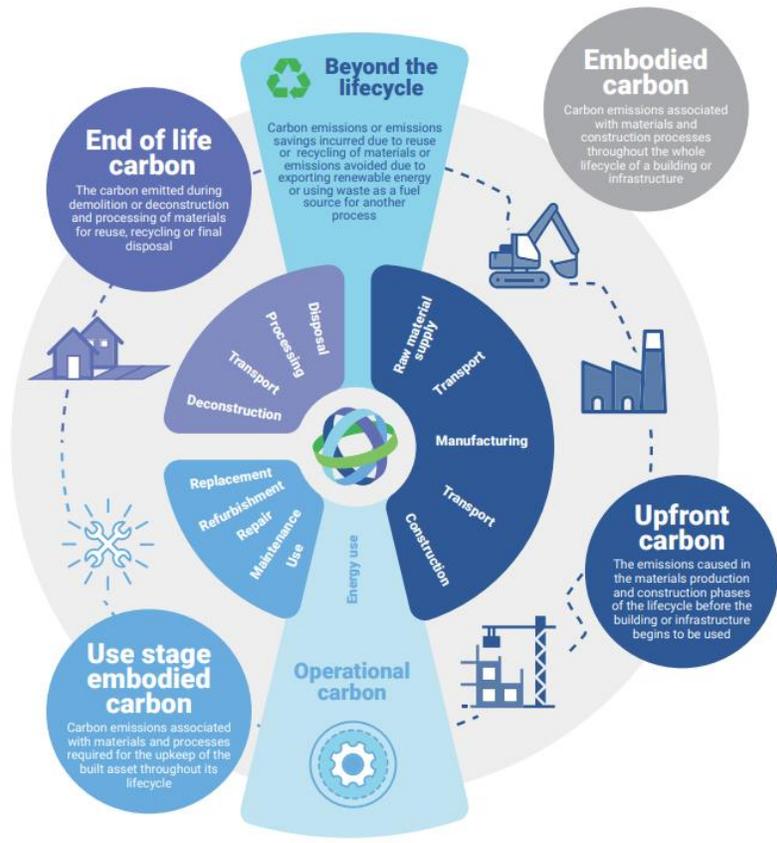
What can build environment learn and embrace sustainability?



Buildings generate nearly **40%** of annual global CO<sub>2</sub> emissions.

# Built Environment is under spotlight. Why?

## Project lifecycle of built environment industry



For its large-scale and complex system of assets for heating, cooling, lighting and other purposes, the Built Environment even rose to its villainous status at COP26, with an entire day set aside to address this implications of sector on climate change.

“We require a **solution focused response** to the urgent need to significantly **reduce upfront emissions in buildings**. We will accelerate action to achieve our goal of **slashing embodied carbon by 40% by 2030** and **securing net zero embodied carbon by 2050**, in addition to our **net zero operational carbon goals**.”

- Cristina Gamboa, CEO, World Green Building Council

That’s a big ask, but ESG in the real estate industry can be far more impactful. **It’s about your bottom line.**

Studies and real world examples have proven over and over again that good environmental practice is excellent for business. When done right, ESG initiatives not only address sustainability, but can also contribute to cost savings, social equity, tenant and employee health and well-being.

Sources

[WGBC, Bringing Embodied Carbon Upfront](#)

# Embodied carbon plays a critical role in existing and new construction



**Operational carbon** emissions can be reduced over time with building energy upgrades and the use of renewable energy.



**Embodied carbon** emissions are locked in place as soon as a building is built.

# Embodied carbon in typical office furniture

Furniture gains attention in LCA of a net-zero energy building, as it was responsible for 10% of the building's impact on global warming and non-renewable energy demand, and therefore it shall be considered in building's design.

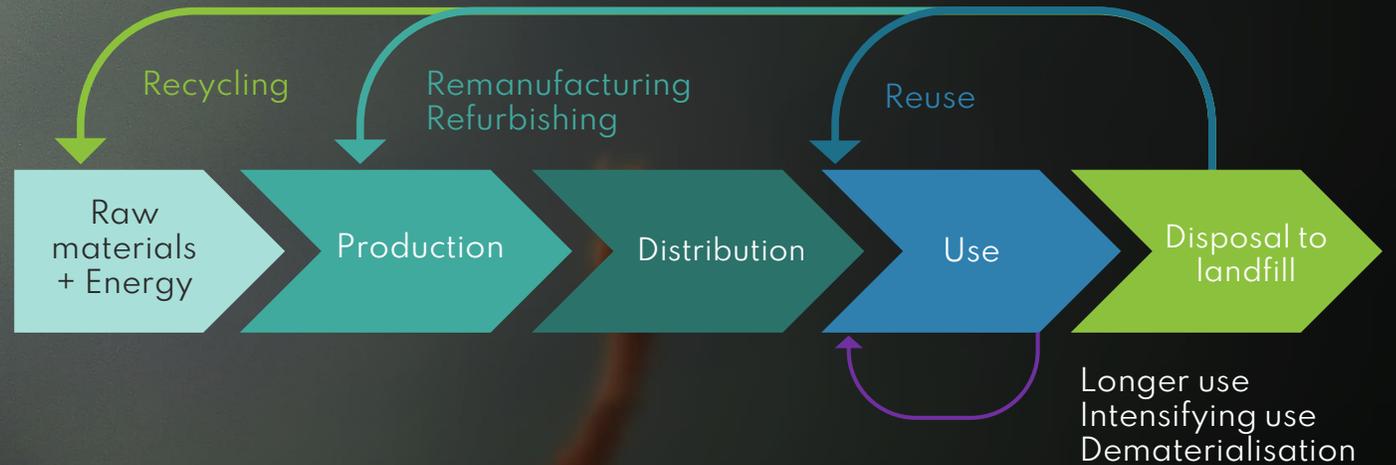
 vs plastic straw = 1.46g CO<sub>2</sub>e



# Future of Furniture Industry is GREEN.

Given the strong business incentives to decarbonise, reflected by investors and customers behavioural pressure, sustainability has become an important topic in many different industries, and furniture is no exception.

In short, the companies' own sustainability guarantees its "license to operate" in a net zero world ahead.



Making the leap from consuming and discarding products to using and reusing them to the maximum extent possible, in closer alignment with the patterns of living systems, is a challenge for the whole society to ensure that continuing growth generates greater prosperity.

# Furniture and Circularity: Put into Practice

## Principle #1: Designing Out Waste and Pollution/ Design a Circular Furniture

*“Up to 80 per cent of a product’s environmental impact is baked in at the design stage.” — Katie Treggiden, author of Wasted*

Critical to circular economy is thoughtful design – that reduces or, ideally, **eliminates waste and pollution**. Designing out waste could mean manufacturing with precision, in order to maximise usage of ‘leftover’ materials or it could mean making products that are built to last. Like waste, pollution is created throughout a product’s life cycle – eliminating toxic glues and fire retardants helps.

## Principle #2: Keeping Products & Materials in Use / Furniture Becomes Superhero

*“There is no such thing as ‘away’. When we throw anything away it must go somewhere.” — Annie Leonard, Proponent of Sustainability*

Circularity looks to keep finished products and the materials in the usage loop for as long as possible. **Reuse, repair and refurbishment** practices have allowed furniture to suit changing needs, tastes and homes that may be donated, thrifted or passed down generation-to-generation. When it comes to materials, the furniture industry is the world’s third largest consumer of wood. Wood is prized as a durable biomaterial, but rather than clear-cutting forests, the circular alternative would be **responsibly-sourced, recycled or salvaged supply**, as long as it was kept free of toxic glues or finishes in its useful life.

## Principle #3: Regenerating Natural Systems / Superhero Furniture 2.0

*“The inability to imagine a world in which things are different is evidence only of a poor imagination, not of the impossibility of change.” – Rutger Bregman, Utopia for Realists*

Last but not least, looks to go way beyond minimizing harm to actually benefiting the planet in which used **natural resources are returned to biodegrade into the ground and nourish the Earth where trees are grown**. This also applies to return company profits to people and communities with values and nourishment of health and well-being, through fair and safe labour practices, welfare and benefits, and equitable and inclusive hiring. Arguably the most complex, but necessary with materials and products to ultimately return to the natural systems that created them and honour the people who produce them.



## Sustainable Office Solutions

**“So far, SOS has saved more than 17,000 pieces of furniture, in the process diverting 250,000 kilograms (551,000 pounds) of waste from the rubbish heap.”**

The process of recuperating old office furniture begins when SOS learns of a company needing to quit its premises.

Part of our strategy is to get in as early as possible so as to maximise the reuse and redistribution scheme.

Following that is to inventory the furniture. Then comes the reuse and redistribution.

The client “gets the first bite at the cherry”, followed by the company’s staff, who can opt to take smaller items home. Beyond just doing it environmentally right, SOS takes it one step further for the community through redistribution to worthy charities, schools, shelters, and more, that would otherwise have to purchase these items. What’s left will then go to the circular partners for recycling.

Looking ahead, our SOS vision is to form alliance towards extending and eventually, closing the loop starting with office furniture.

Your essential partner in  
**sustainable asset management**



# What's Next

While the emergence of the circular economy in the furniture industry is increasingly promising, there's still a lot to learn and a lot of work to be done!



## 1. Sustainability Oriented

Doing the right thing is no longer a choice, but a will to extend and adopt circular economy at a mass scale. Over in SOS, we look deep into the commercial waste streams and continuously challenge ourselves to increase our value to our clients such as with our ISO compliant reporting pertaining to resultant carbon emission savings of each project.

## 2. Measure to Manage

Confront even if fear is acting up because struggles and setbacks aren't an abnormality, they are part of the change process. At SOS, we provide metrics as benchmark for companies to comply with regulations and set aims for higher and better. Eventually, it will come back to show that circular economy initiatives are financially viable that reduces waste, increases sales by eco conscious consumers while being environmentally and socially responsible.

## 3. Standing on the shoulders of giants

As the momentum for responsible and forward-thinking business practices increases, are you choosing to collaborate or compete? At SOS, we believe that collaboration inspires innovation, and that is 100% necessary. Looking within, we are in talks with vendors, service providers to set up a thinktank on commercial waste management so to service our clients holistically.

Again and again, research shows that businesses who implement circularity, thrive. So might now be the time for YOU to take action and partner with SOS to shift YOUR trajectory?

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