Economia Circolare

Perché la sostenibilità non è solo un vincolo ma una grande opportunità

Enrico Bassi

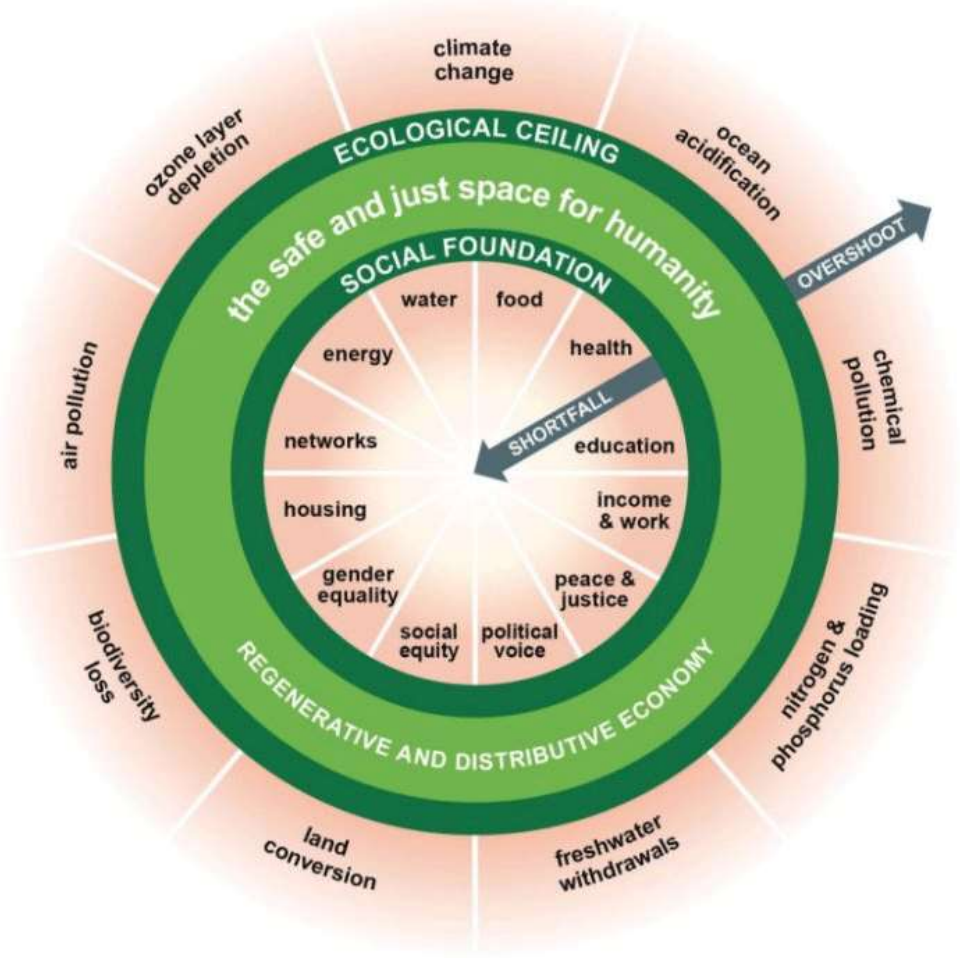
Ricercatore, Designer e Consulente per l'innovazione

CIRCULAR ECONOMY

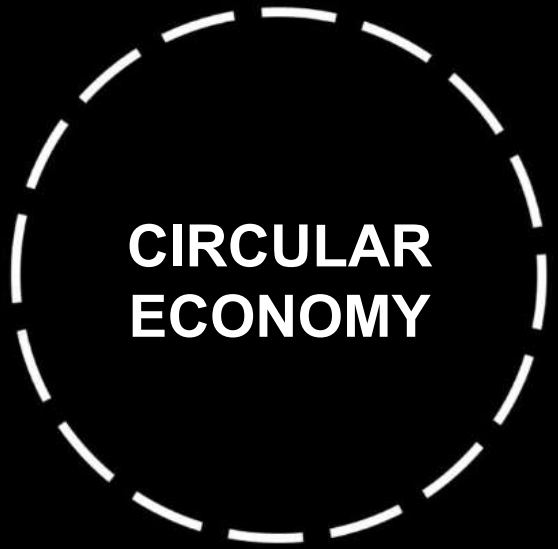
Cos’è l’economia lineare da cui partiamo
e come renderla Circolare

prima definizione di **sviluppo sostenibile:**

“sviluppo che soddisfi i bisogni delle odierne generazioni senza compromettere la capacità delle future di soddisfare i propri”


climate change
ocean acidification
chemical pollution
nitrogen & phosphorus loading
freshwater withdrawals
land conversion
biodiversity loss
air pollution
ozone layer depletion
ECOLOGICAL CEILING
the safe and just space for humanity
SOCIAL FOUNDATION
OVERSHOOT
SHORTFALL
water
food
health
education
income & work
peace & justice
political voice
social equity
gender equality
housing
networks
energy
REGENERATIVE AND DISTRIBUTIVE ECONOMY

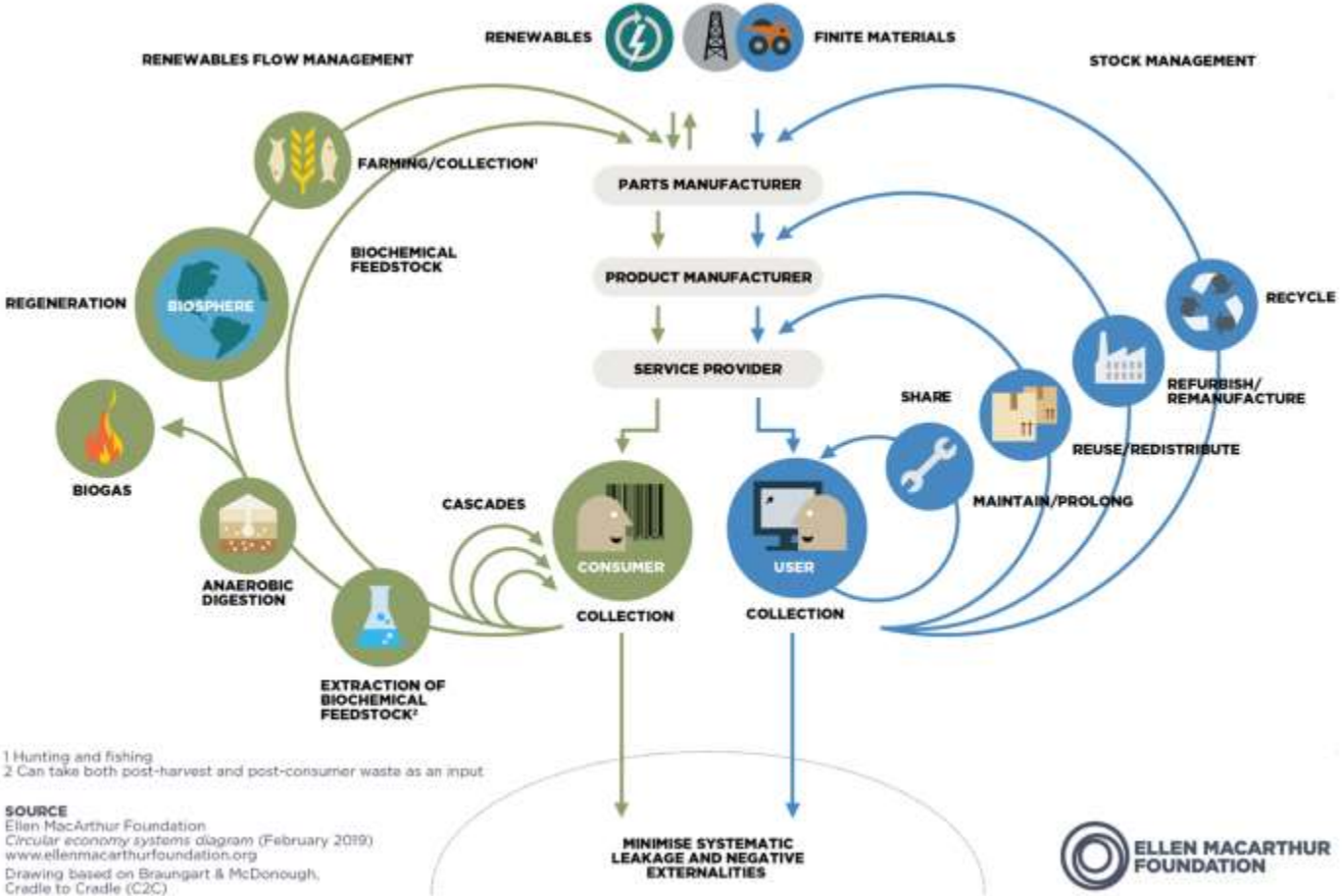
SOSTENIBILITÀ ED ECONOMIA CIRCOLARE



Objective

Strategy

CIRCULAR ECONOMY



Seminal thinkers/ frameworks

e.g. Lowe and Evans (1995) | Brezet and Hemel (1997) | Stahel (1986) | Pauli (2010)

Think tanks

Ellen MacArthur Foundation (2013) | Green Alliance (2014) | The New Economics Foundation (2004)

Legislative & advisory

Department of the Environment (1995) | British Standards Institute (2010) | Environmental Protection Agency (1995) | European Commission (2014)

Academia

Allwood et al. (2011) | Reuter et al. (2015) | Geiser (2001)

Business

Pauli (1994) | Waste Management (2015) | Reuters (2018) in: PRF (2019)

COS’È LA CIRCULAR ECONOMY

L’economia circolare è un modello di produzione e consumo che implica condivisione, prestito, riutilizzo, riparazione, ricondizionamento e riciclo dei materiali e prodotti esistenti il più a lungo possibile.

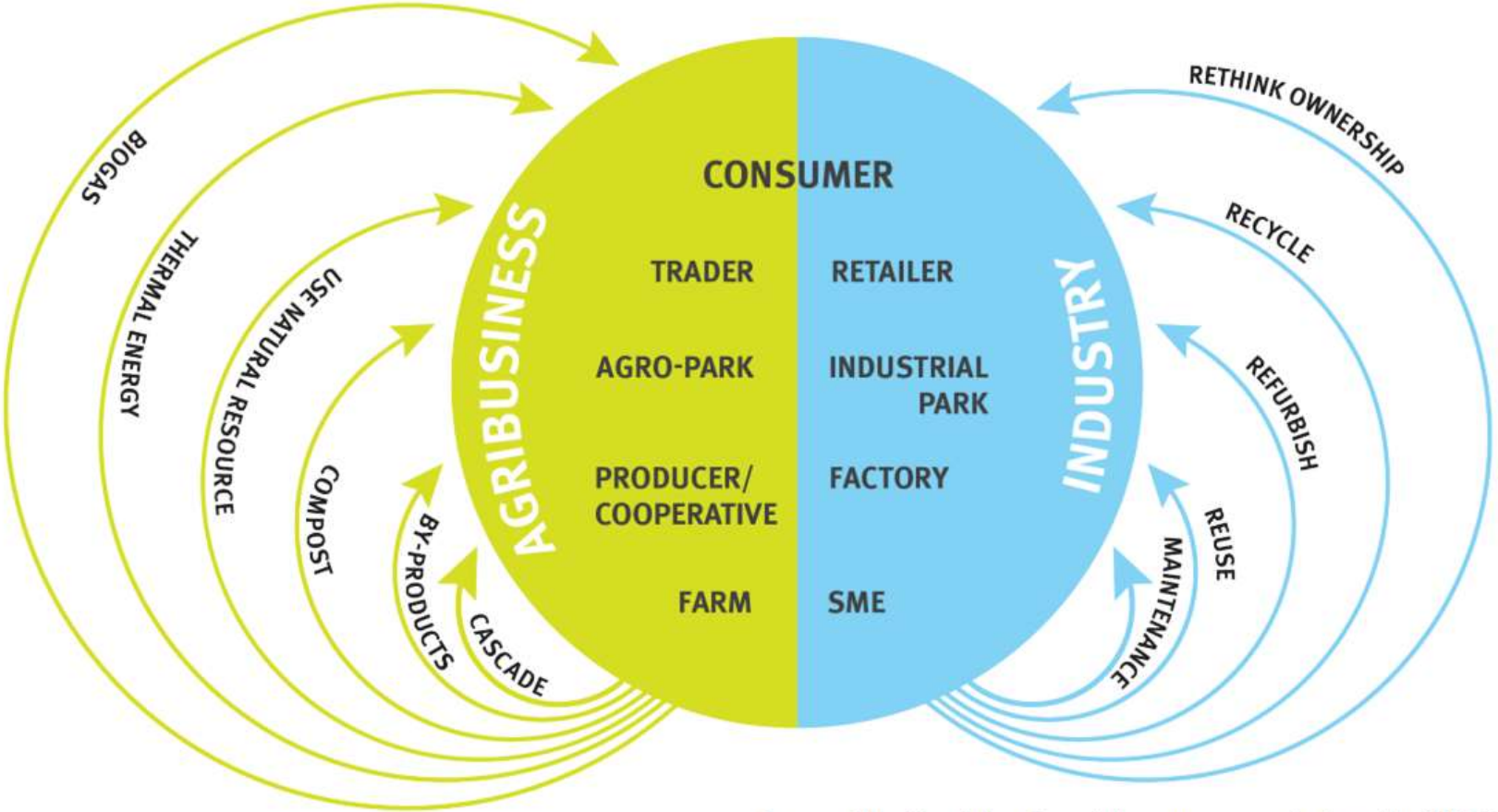
I CONCETTI CHIAVE

CHIUDERE I CERCHI - ogni flusso di materiale deve essere chiuso (confluire in un altro)

STRATEGIE - Ogni modello propone delle strategie che rendono il sistema circolare

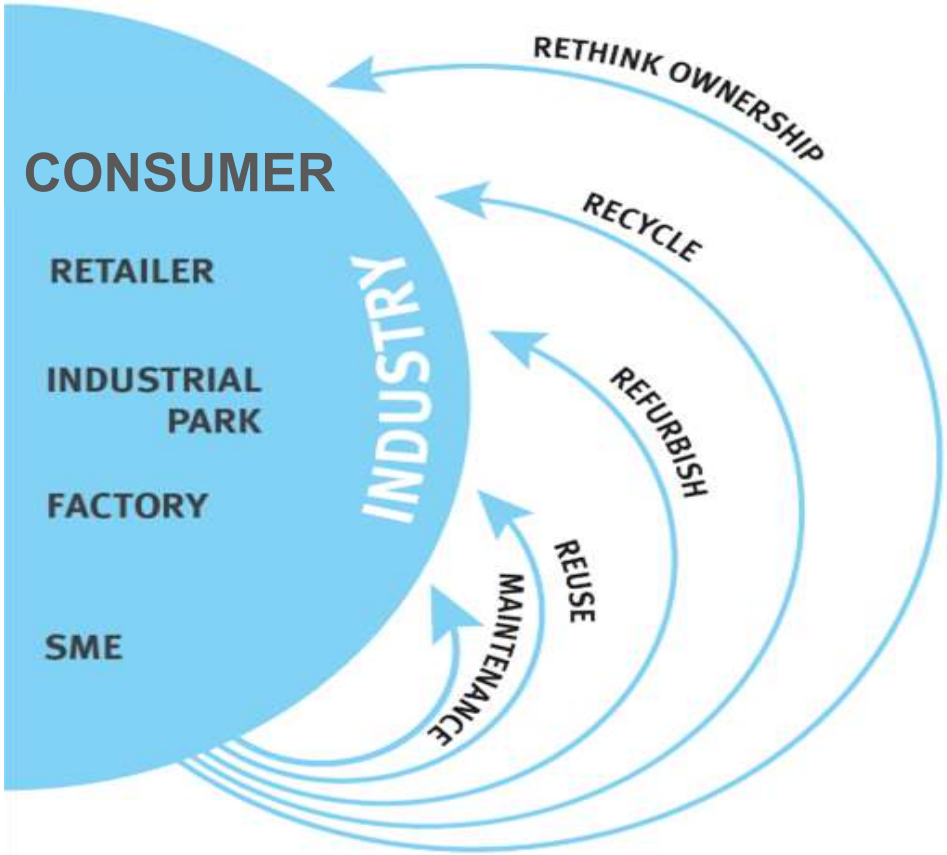
GERARCHIA - le strategie hanno un ordine di priorità, in base a quanto impattanti sono.

CIRCULAR ECONOMY

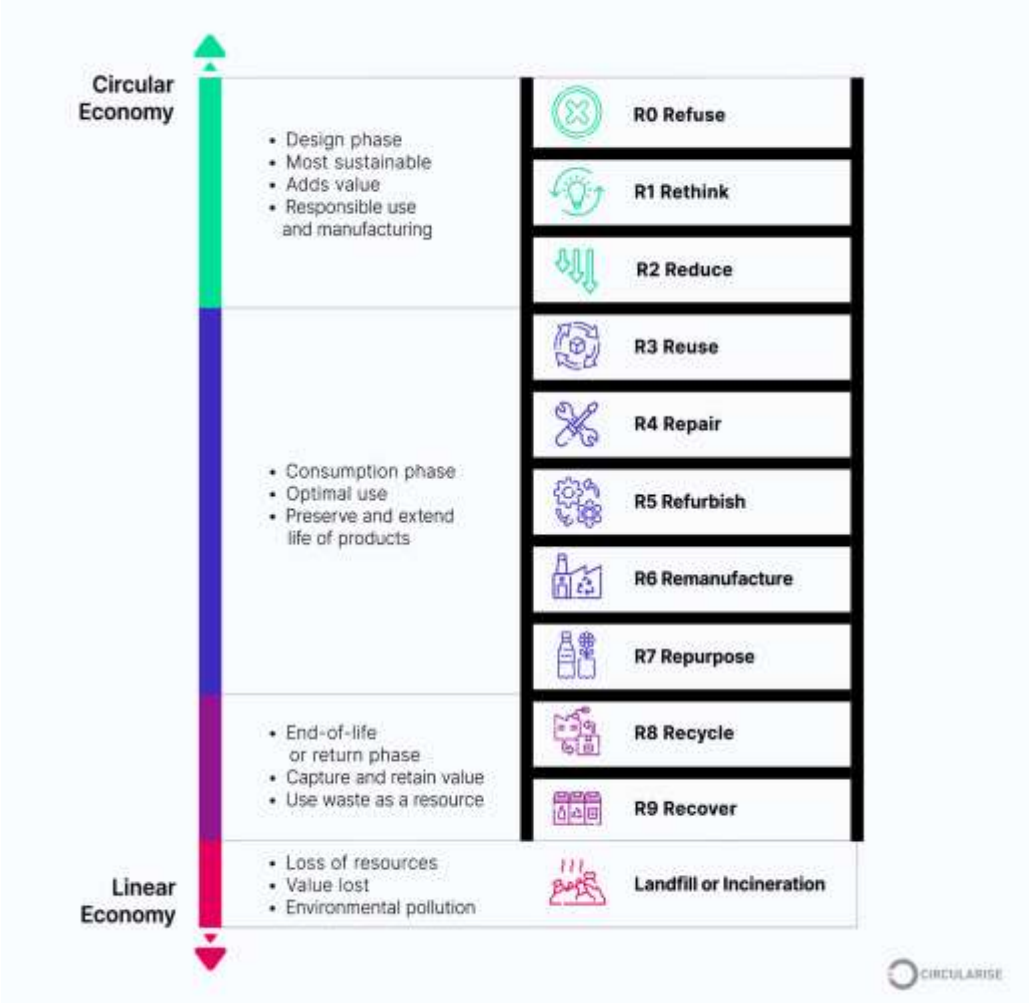


Source: Ellen MacArthur Foundation concept, redesigned by UNIDO

CIRCULAR ECONOMY



LE 10 “R” DELLA CIRCULAR ECONOMY



https://www.circularise.com/blogs/r-strategies-for-a-circular-economy

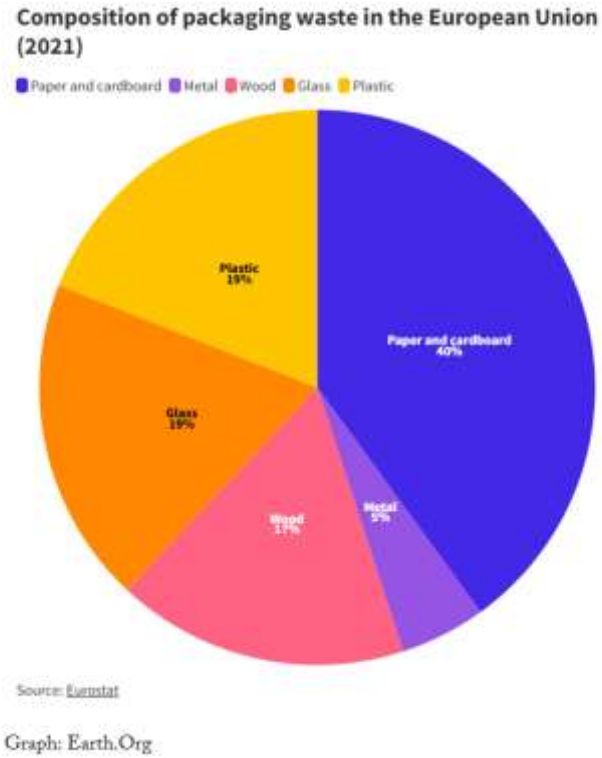
PACKAGING PLASTICO E NON SOLO

NON SEMPRE NEGATIVO

[...]In actual fact, a cucumber has a 'best before' life of 3 days – which film can increase almost 5 times over, to 14 days. This is because a cucumber is 96% water, which it begins to lose as soon as it is picked. After 3 days, it has lost so much water that it becomes dull, limp and unsellable. Wrapping it in just 1.5 grammes of plastic film extends its quality dramatically.[...]

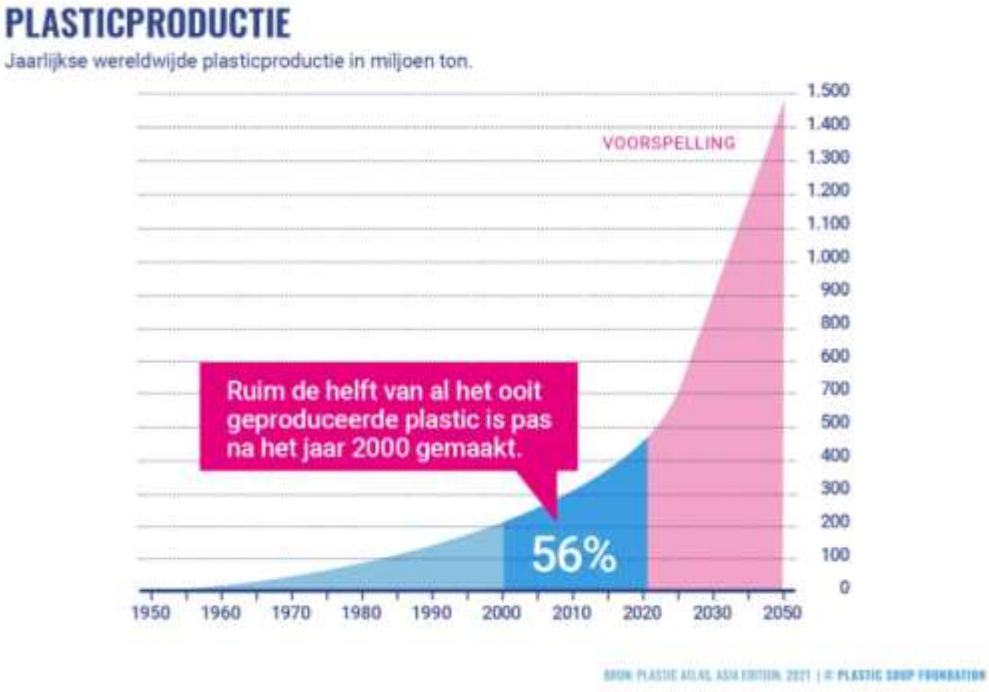
https://interplasinsights.com/plastics-environment-news/morrisons-to-remove-plastic-wrapping-on-cucumbers-despite-fo

QUALE PACKAGING



https://earth.org/eu-strikes-deal-to-reduce-packaging-waste-and-ban-single-use-plastics/

I DATI SULLA PLASTICA



More and more plastic

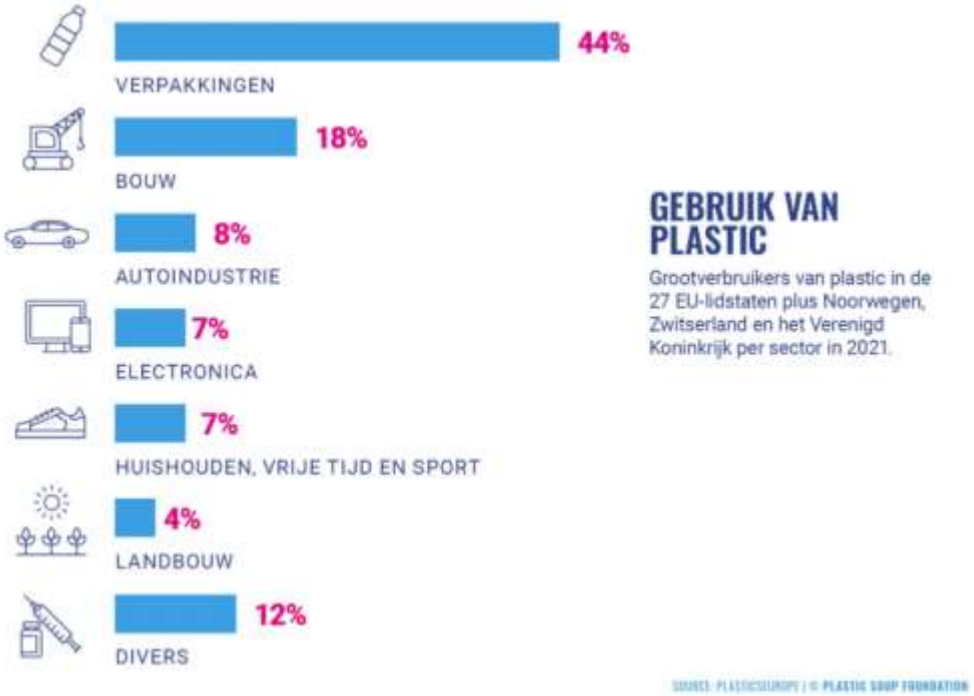
The amount of plastic produced worldwide each year has exploded within the span of one human lifetime: from 2 million tonnes in 1950 to over 390 million tonnes in 2021.[1]

These are the figures from the plastics industry itself, but this does not include all synthetic fibres, so actual production is much higher still.

More than half of all the total plastic produced was not marketed until after the year 2000. And production is expected to quadruple by the year 2050 (compared to 2019), reaching 1480 million tonnes.[2] So that would be almost three times the total weight of the current world population!

https://www.plasticsoupfoundation.org/en/plastic-facts-and-figures

I DATI SULLA PLASTICA

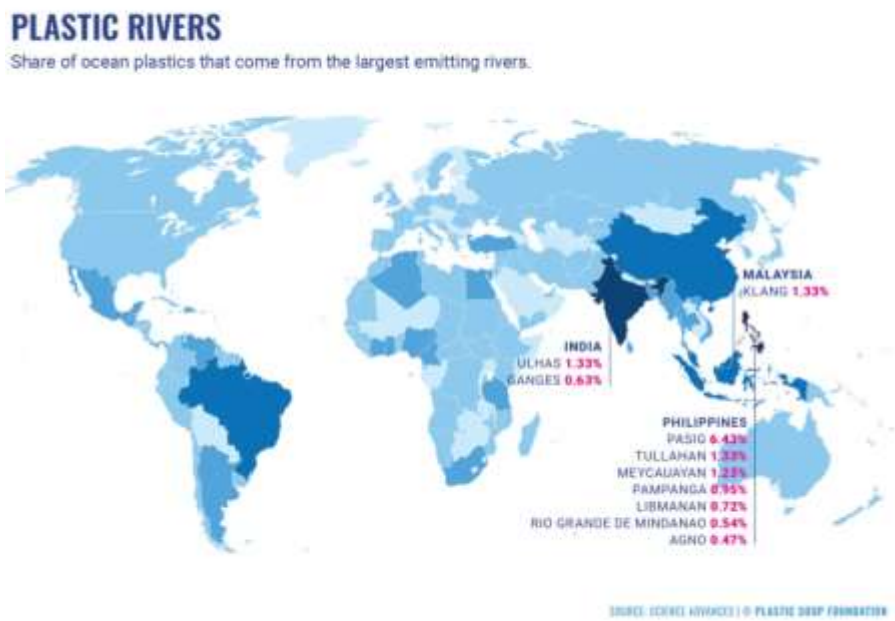


What do we use all that plastic for?

By far the most plastic, 44%, is used for packaging material. This is therefore where the most environmental gains can be made if we want to reduce our plastic use. In second and third place are the construction and automotive industries, respectively[1].

https://www.plasticsoupfoundation.org/en/plastic-facts-and-figures

IL VERO PROBLEMA



How much plastic ends up in the plastic soup?

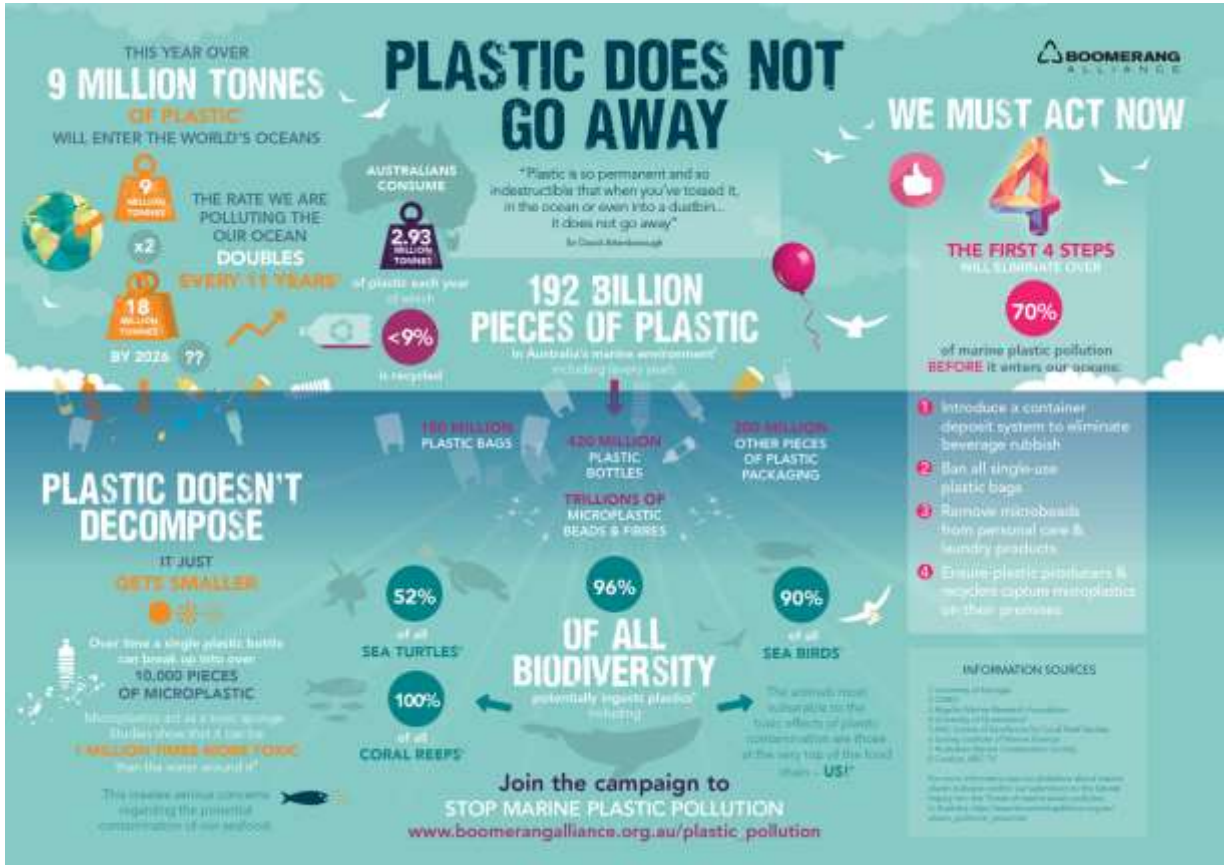
More than half the 9.2 billion tons of plastic that has been produced up to now – about 5 billion tons – has ended up as waste in landfill or has simply ended up in the environment.[1] Of this, between 5 and 13 million tons of plastic enter the oceans.[2] In 2017, two groups of scientists, independently of each other, discovered that 90% of all the plastic in the ocean was brought there by 10 major rivers which included the Nile, the Yangtze and the Amazon.[3] In 2021, that statistic was overturned by new research.4 This research showed that 80% of the plastic in the ocean was not emitted by just a small group of rivers, but by more than 1,000 rivers. And that most of the waste was not carried by the biggest rivers, but by the small rivers that flow through heavily populated areas. It appeared that it was not the Yangtze but the Pasig, that flows through Manila, the capital city of the Philippines, that brings the most plastic to sea.
Apart from all the plastic waste that comes from land, the fisheries are also a huge source of plastic pollution.

https://www.plasticsoupfoundation.org/en/plastic-facts-and-figures

IL VERO PROBLEMA

https://i.pinimg.com/originals/89/73/b6/8973b6535e8849d9b3a095e9c728b116.jpg

IL VERO PROBLEMA



https://www.boomerangalliance.org.au/microplasticsinfographic

R0
REFUSE

Evitare del tutto il prodotto o il componente superfluo, a monte della filiera. Significa sostituire la funzionalità con soluzioni digitali o condivise, rinunciare a gadget non necessari, eliminare gli

IL VALORE DEL “NON FARE”

«Quello che non c'è non si rompe»

Henry Ford

(e nemmeno inquina)

I PRODOTTI NUDI

NAKED

At Lush we believe you should get what you pay for

66%

of our products sold each year are Naked

https://weare.lush.com/lush-life/our-values/naked/

I NEGOZI LEGGERI

https://www.negozioleggero.it/

ALTERNATIVE ALLA PLASTICA

PULPEX

Mission Design ESG Team News FAQ Contact

Our products are designed for brands, consumers and circularity - with their entire lifecycle in mind.

https://www.pulpex.com/design

ALTERNATIVE ALLA PLASTICA

EVOLVE
ORGANIC BEAUTY

Hand & Body Wash / Shampoo

Evolve Organic Beauty is a purpose-driven, independent British beauty brand creating innovative, eco-conscious, natural beauty products that nurture healthy, radiant skin and total body wellbeing. Marking the first-ever commercial use of Pulpex bottles in personal care, we introduced two of our shower products in 550ml refill sizes: African Orange Aromatic Hand & Body Wash and Superfood Shine Shampoo allowing customers to easily refill at home, reducing packaging waste and enabling the bottles to be recycled alongside paper and cardboard.

Evolve's mission has always been to be a force for good, redefining beauty by combining organic, natural formulas with eco-friendly packaging, so this launch is a major milestone in our journey to drive positive change in the beauty industry.

Learn more

Love Beauty and Planet / Dirt is Good

Unilever is exploring the Pulpex technology to create paper-based bottles within its laundry and hair care product categories, paving the way for using alternative packaging materials of the future.

This is one of the steps we're completely rethinking our approach to packaging using our framework of 'less plastic, better plastic, no plastic'. In collaboration with innovation partners like Pulpex, we're making progress towards our commitment to halve our use of virgin plastic materials by 2025.

Learn more

Castrol

Castrol Engine Lubricant

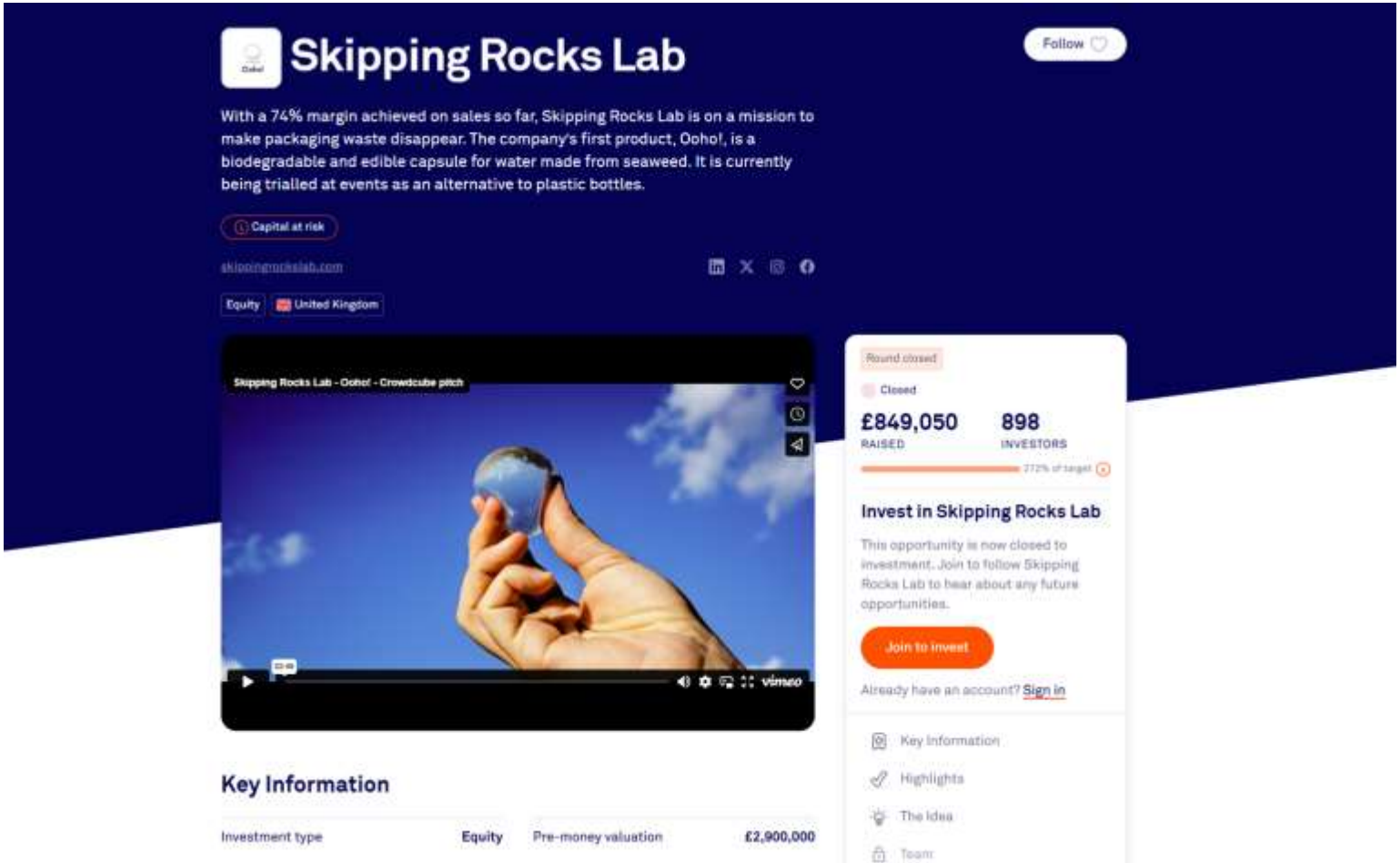
Castrol has a proud heritage of innovation and fuelling the dreams of pioneers. Our passion for performance, combined with a philosophy of working in partnership, has enabled Castrol to develop lubricants and greases that have been at the heart of numerous technological feats on land, on sea and space for over 100 years.

Today, Castrol is helping drive sustainability with our new strategy that sets out aims for 2030 to save waste, reduce carbon and improve lives. Working with innovation partners such as Pulpex is critical to developing novel packaging solutions to help achieve our sustainability aims.

Learn more

https://www.pulpex.com/design

PACKAGING CHE NON SI BUTTA



ALTERNATIVE ALLA PLASTICA

Notpla
Disappearing
Packaging

Convenience doesn't have to cost the world

This simple food container is carefully engineered to eliminate waste and make the planet a healthier place. Where conventional containers have petrol-based coatings that stick around forever, this one has a 100% natural seaweed coating. Once finished, the whole package can be composted and disappears without a trace—just like a fruit peel.

more about Notpla Food Containers

Seaweed forever

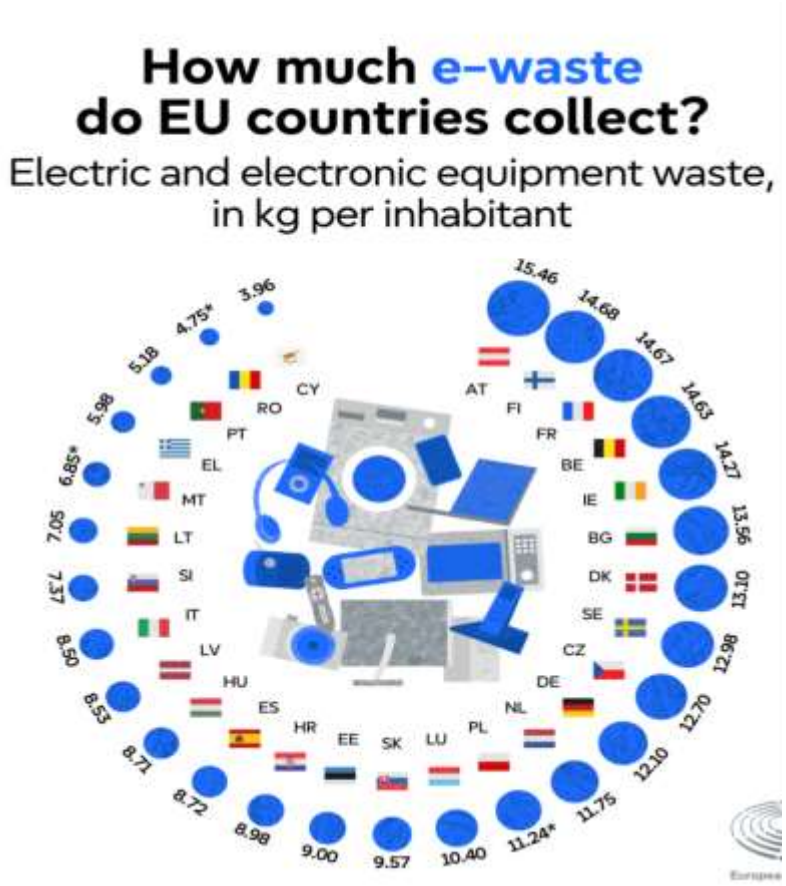
There are forests below the sea that are very dear to us. Seaweed grows quickly, and needs no freshwater, land or fertiliser. It captures carbon and makes the surrounding waters less acidic.

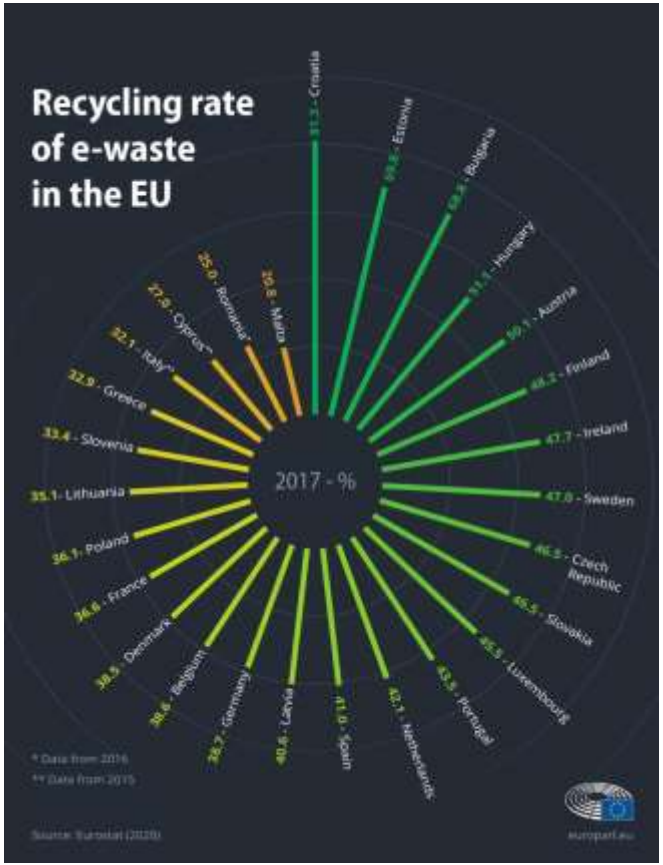
Beyond this, seaweed is abundantly available and has near-magical material properties. In the quest to heal our ecosystems and food chains from the toxic waste of plastic packaging, it is the perfect companion species and an integral partner to our solutions.

more about Notpla's Impact Theory

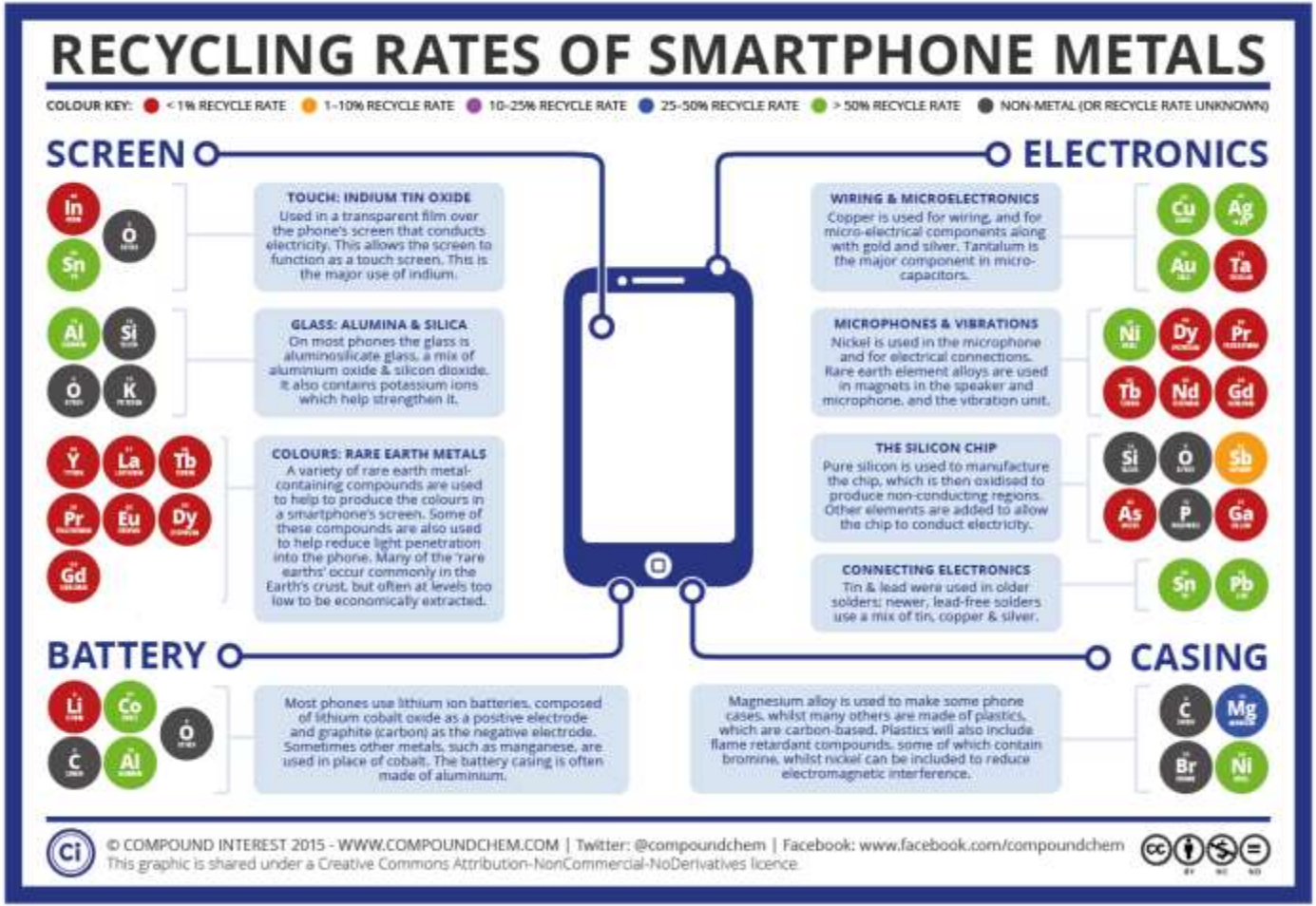
https://www.notpla.com/

LE APPARECCHIATURE ELETTRICHE E ELETTRONICHE





https://www.europarl.europa.eu/topics/en/article/20201208STO93325/e-waste-in-the-eu-facts-and-figures-infographic



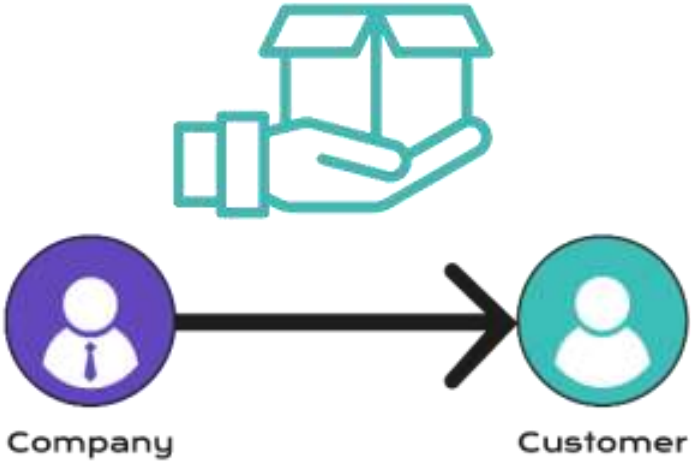
https://www.compoundchem.com/wp-content/uploads/2014/02/The-Chemical-Elements-of-a-Smartphone-v2.png

R1
RETHINK

Cambiare il modello di business o il design in modo da usare comunque il bene ma con molta meno materia o energia: es. “product-as-a-service”, condivisione, modularità, multi-funzione.

I LIMITI DELLA PRODUZIONE

PRODUCT AS A SERVICE



Product sales

Product-as-a-Service

https://www.health.belgium.be/en/product-service

DECOUPLING

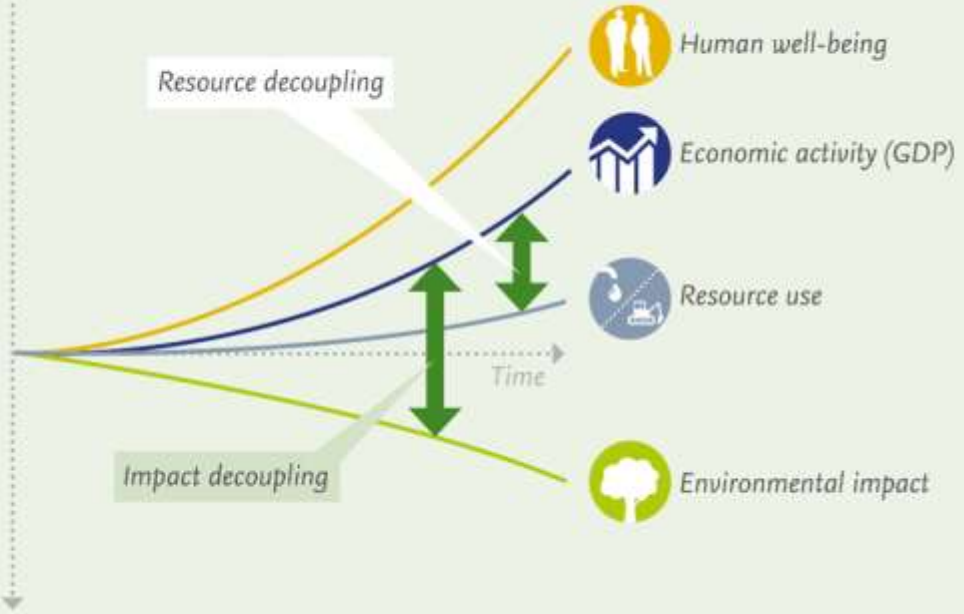
INNOVATIVE SOLUTION

How can we protect the environment, reduce poverty and maintain economic growth?

By Decoupling: breaking the link between resource use and economic growth

Using less land, water, energy and materials to maintain economic growth is: Resource decoupling

Using resources wisely over their lifetime to reduce environmental impact is: Impact decoupling



https://www.resourcepanel.org/reports/decoupling-natural-resource-use-and-environmental-impacts-economic-growth

VENDERE LUCE, NON LAMPADE

https://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/Global/Case-studies/CSLI20180723_001-UPD-en_AA-Case-Study-LaaS-Praxis.pdf

VENDERE LUCE, NON LAMPADE

Worry-free

With Light as a Service, retailers only pay a fixed monthly amount. For this they receive a guaranteed agreed amount of light as well as energy savings. Maintenance is also carried out during the agreed period.

Optimal lighting plan for every store

Those who choose Light as a Service can rely on years of lighting expertise. Lighting plans ensure the best-looking stores with the highest energy savings.

Saving on energy costs

Retailers who have not yet switched to LED lighting benefit immediately after installing LED lighting with substantial energy savings of up to 70%.

Unique shopping experience

A service contract from Light as a Service offers plenty of opportunities to take advantage of the many innovations of Philips lighting products and Interact connected lighting systems.

https://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/Global/Case-studies/CSLI20180723_001-UPD-en_AA-Case-Study-LaaS-Praxis.pdf

I MATERIALI E PRODOTTI DELL'INDUSTRIA DELLE COSTRUZIONI

L'Impatto Globale dell'Edilizia

34%

Energia Globale

Consumata dagli edifici nel 2022

37%

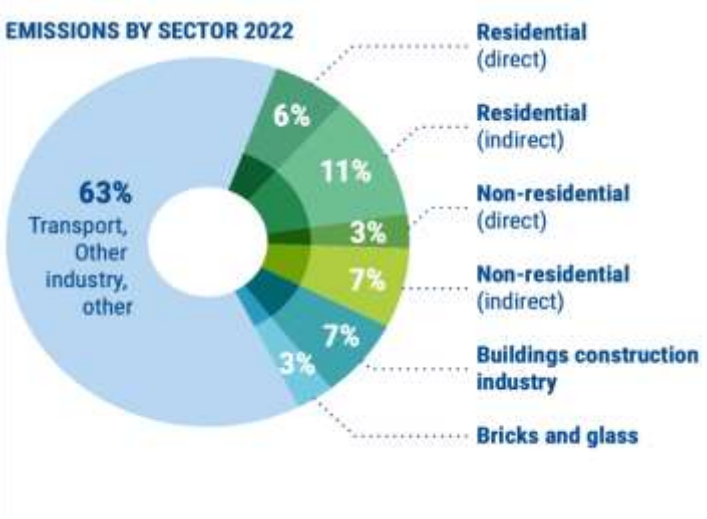
Emissioni CO_2

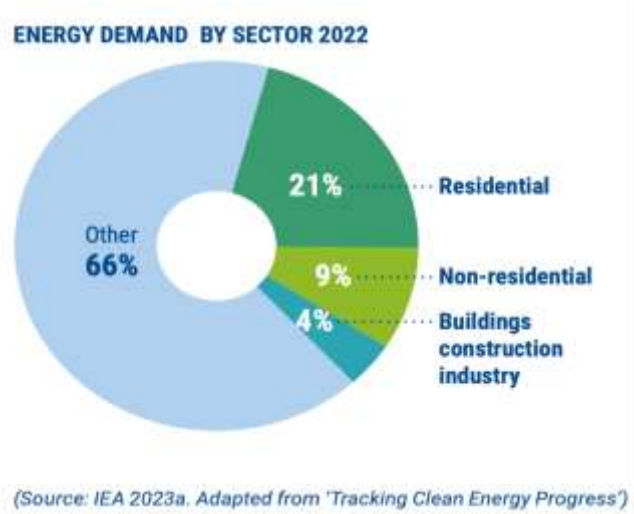
Generate da energia e processi edilizi

Gli edifici rappresentano un terzo delle emissioni globali, rendendo urgente la transizione verso pratiche sostenibili.

[...] As outlined in the latest edition, the buildings and construction sector contributes significantly to global climate change, accounting for about 21% of global greenhouse gas emissions. In 2022, buildings were responsible for 34% global energy demand and 37% of energy and process-related carbon dioxide (CO2) emissions. [...]

https://globalabc.org/resources/publications/global-status-report-buildings-and-construction-beyond-foundations



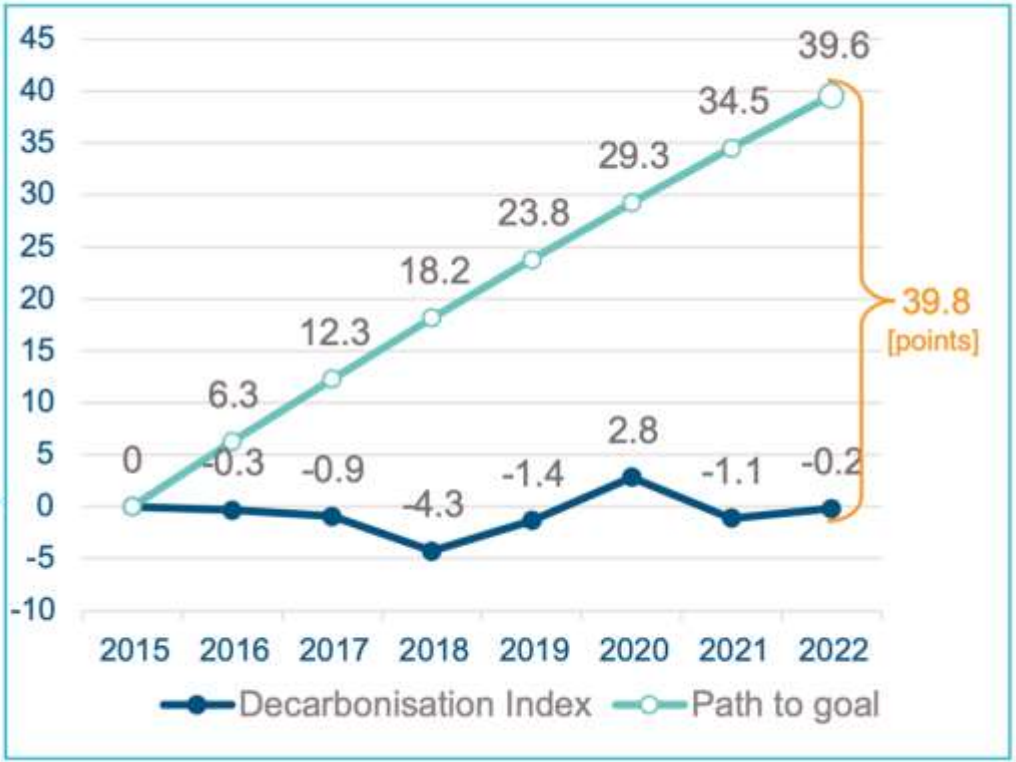


(Source: IEA 2023a. Adapted from 'Tracking Clean Energy Progress')

Figure 3 GBCT decarbonisation index. Left: Reference path until 2050. Right: Zoom in for the 2015-2022 period

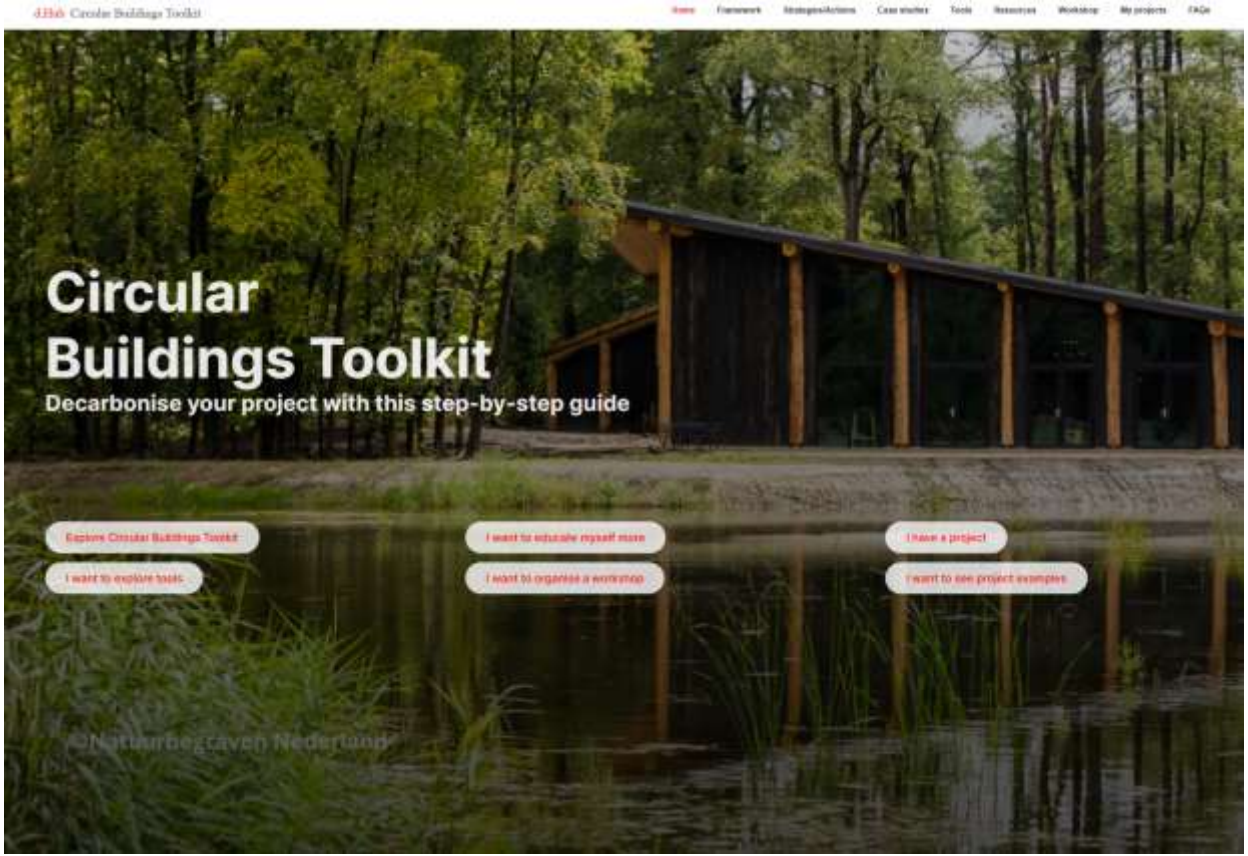
Global Buildings Climate Tracker

Launched in 2020, the GBCT assesses progress in the decarbonisation of the building sector from **2015**, the year the **Paris Agreement** was established.
The observations show that the **decarbonisation of the building stock worldwide is lacking significant progress.**



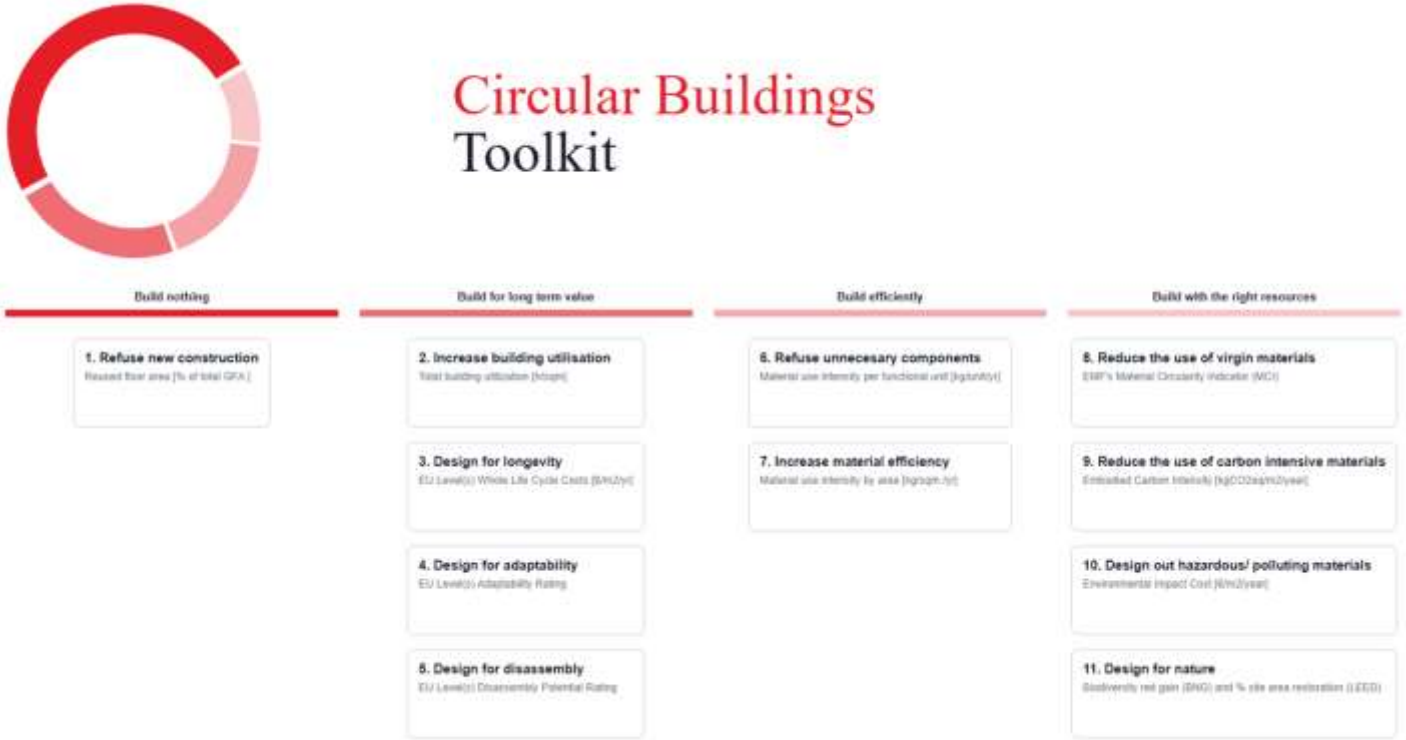
https://globalabc.org/resources/publications/global-status-report-buildings-and-construction-beyond-foundations

CIRCULAR BUILDING TOOLKIT



https://www.arup.com/services/digital-solutions/circular-buildings-toolkit/

CIRCULAR BUILDING TOOLKIT



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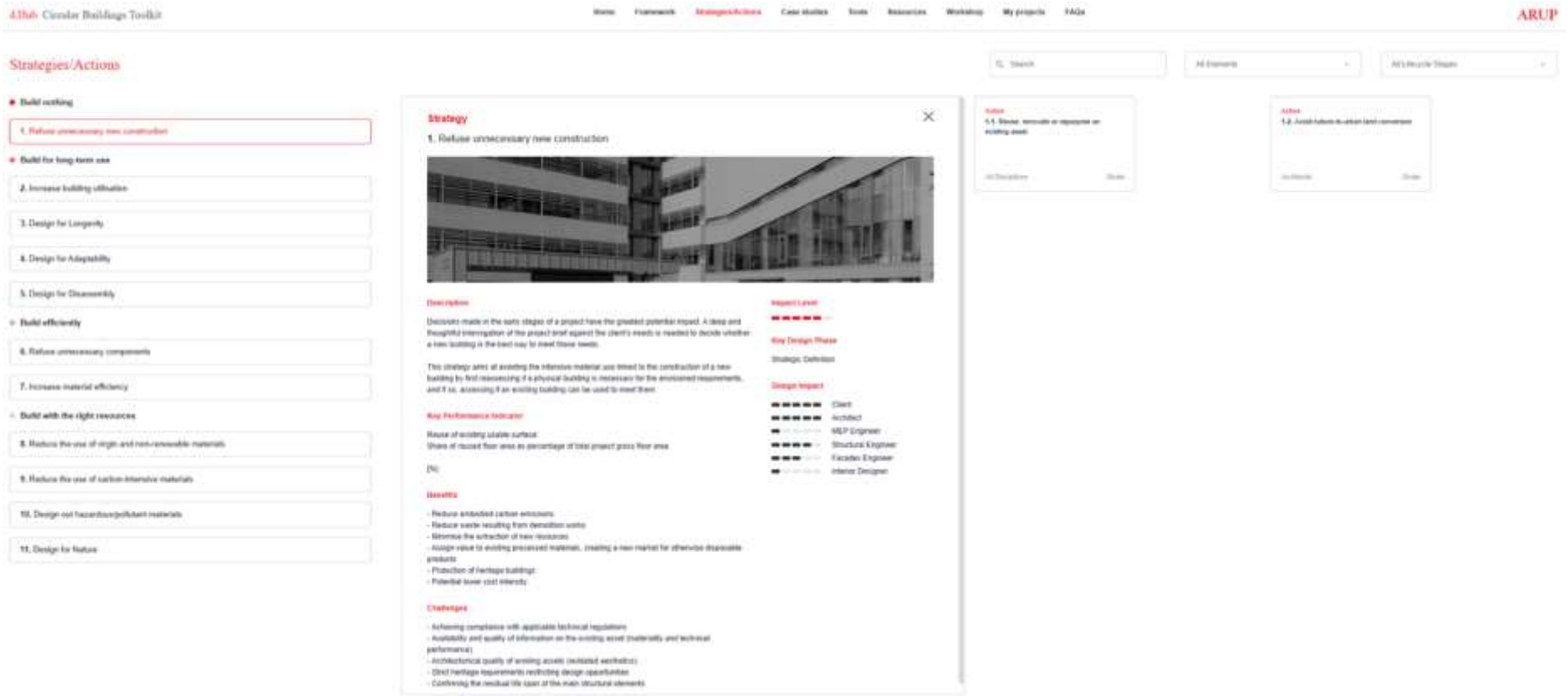
CIRCULAR BUILDING TOOLKIT



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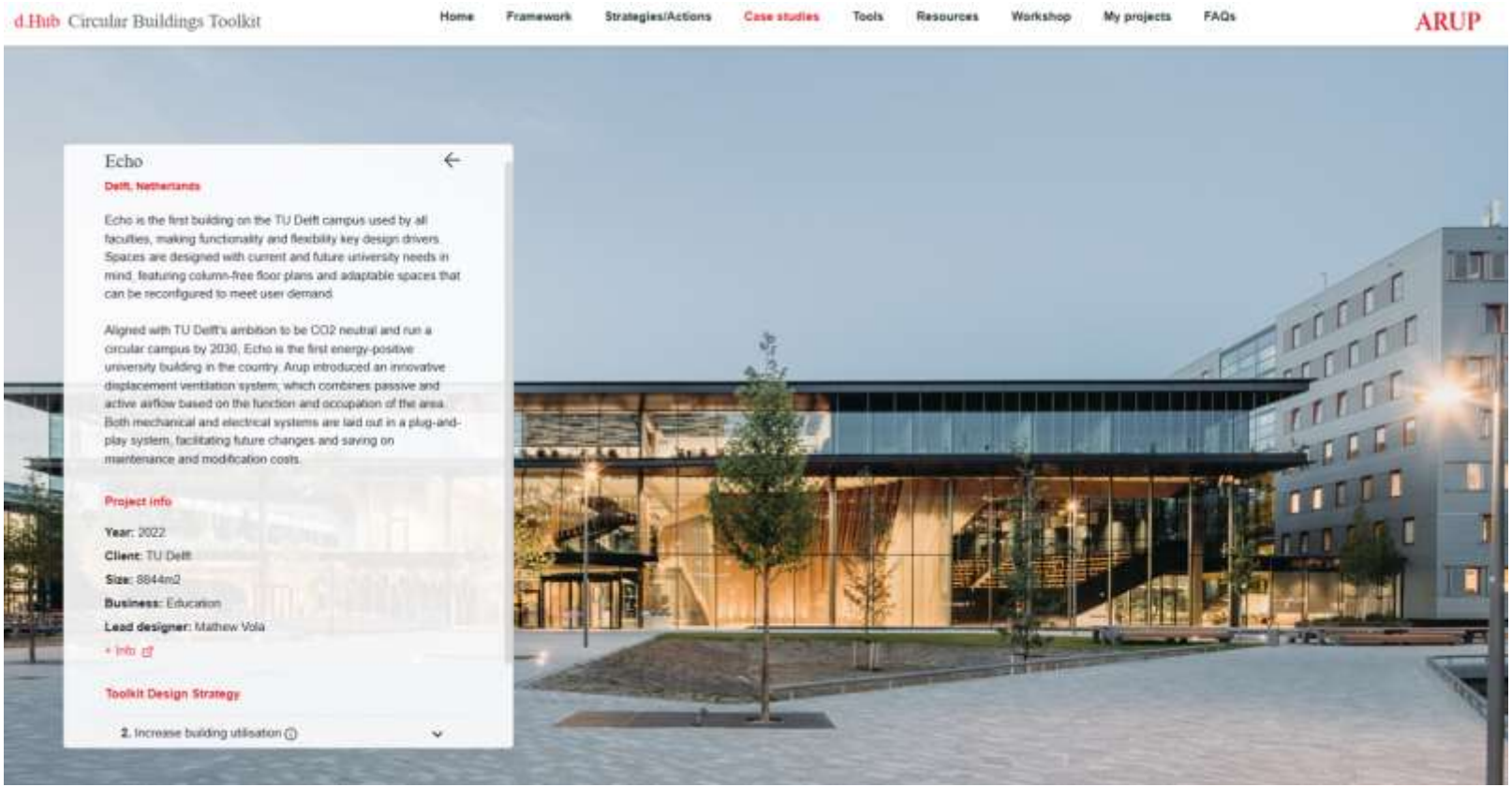


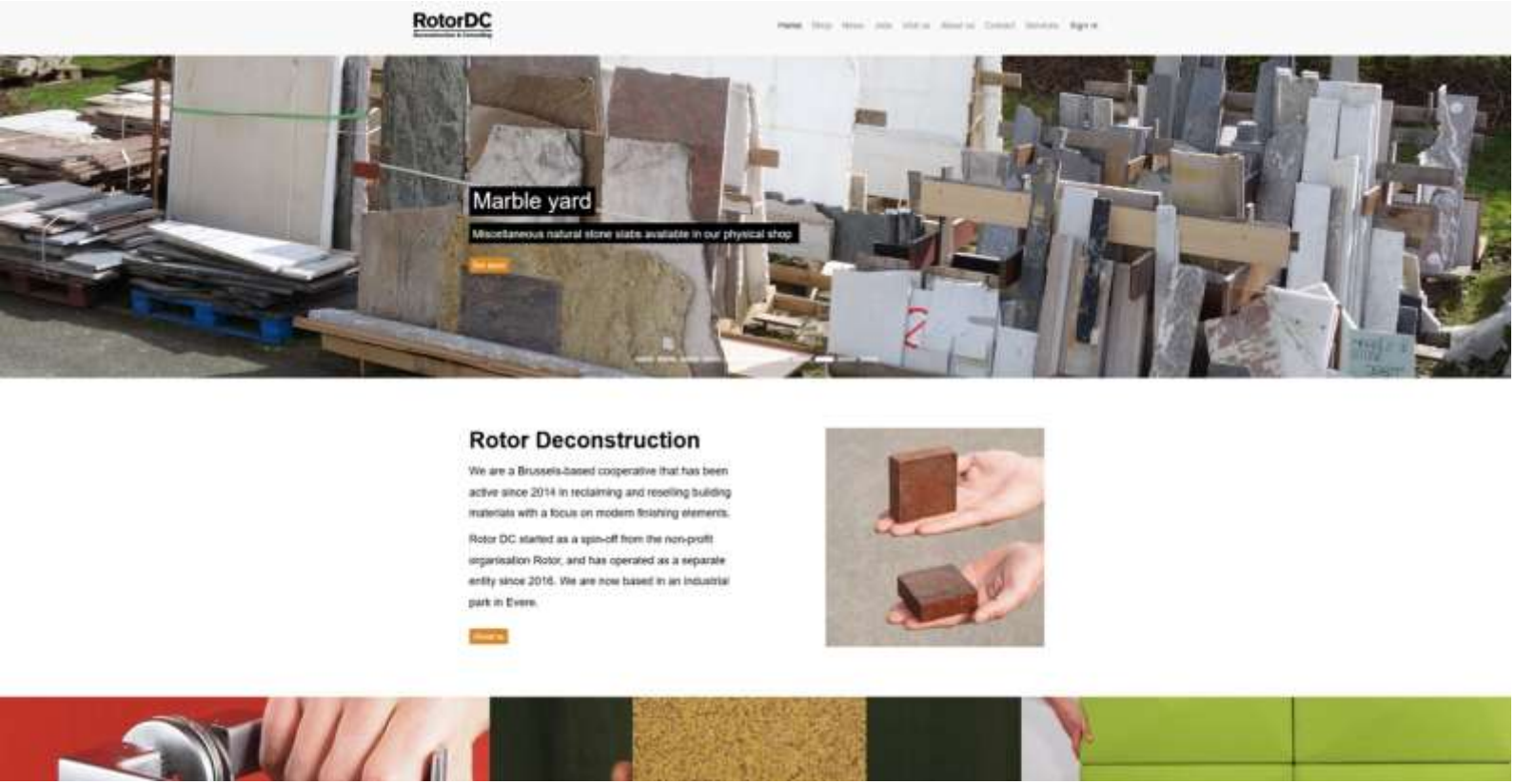
https://www.arup.com/services/digital-solutions/circular-buildings-toolkit/

R3 - RIUSA

Componenti e materiali per lo stesso uso originale.

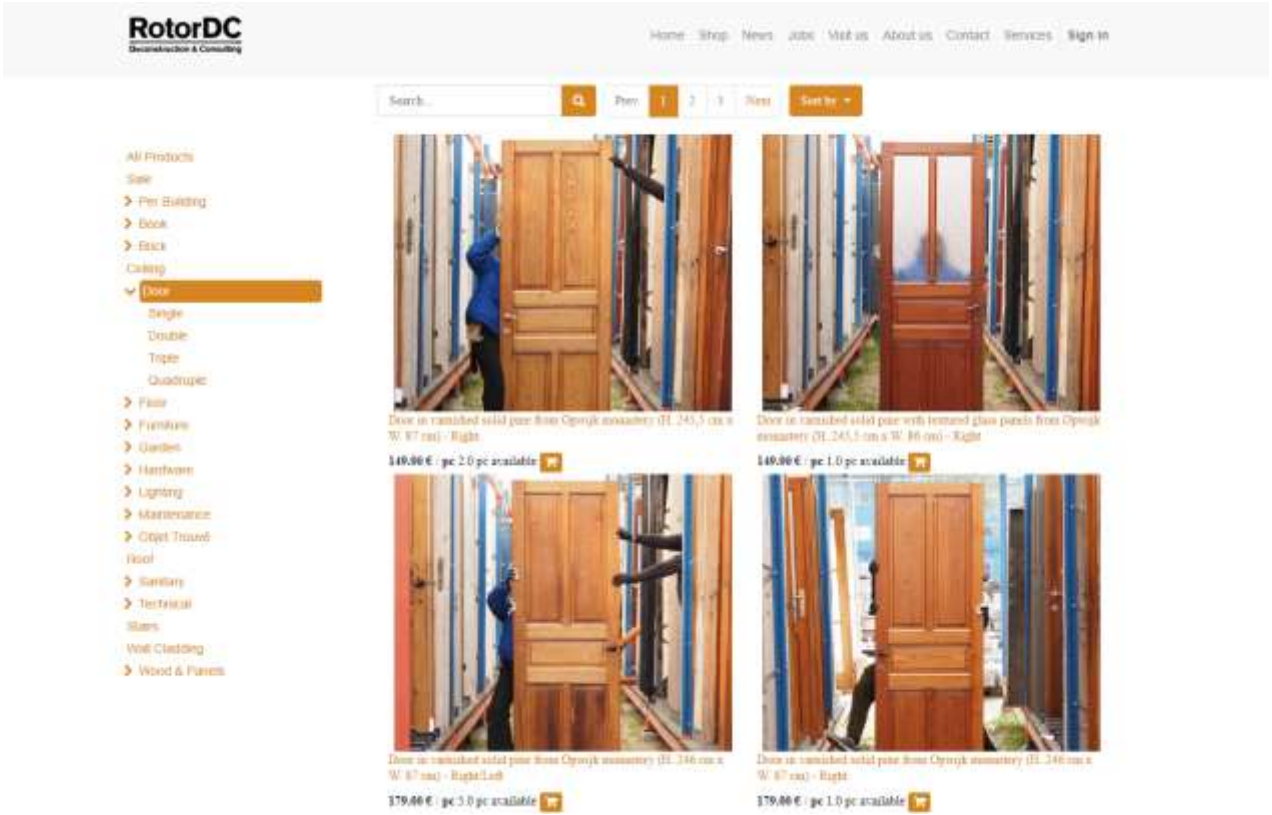
Questo principio, noto come Riuso, è un pilastro fondamentale dell'economia circolare e della gerarchia dei rifiuti, come definito dalla

RECUPERARE E RIVENDERE



https://rotordc.com/

RECUPERARE E RIVENDERE



https://rotordc.com/

MATERIALI EDILI RECUPERATI

rMIX THE RECYCLING PORTAL

CHI SIAMO PRODOTTI OFFERTE/RICHIESTE CERCA AZIENDE SERVIZI COME ABBONARSI BLOG CONTATTI NEWSLETTER PlastiCare

MATERIALI EDILI RICICLATI

rMIX accoglie le offerte e le richieste inerenti ai **materiali edili riciclati o da riciclare** che provengono da demolizioni o ristrutturazioni di edifici.

Le offerta/richiesta possono riguardare:

- Materiale edile con valore storico da recuperare come pavimenti, serramenti, travi, finestre, porte, vetrate, mobili, ringhiere, cancelli, tegole, coppi, camini e altri prodotti
- Materiale edile da demolizione misto
- Inerti e calcestruzzo da riciclare
- Scarti bituminosi da riciclare
- Materiali edili da sostituire o riutilizzare come tubi, isolanti, lastre di copertura pozzetti, impianti elettrici, idraulici e altre tipologie
- Attrezzature usate

Differenze tra Macerie Edili e Materiale Edile da Riciclo

Le macerie edili, note anche come rifiuti da costruzione e demolizione (RCD), comprendono materiali prodotti durante la costruzione, ristrutturazione, demolizione di edifici, strade, e altre strutture. Questi materiali possono variare da mattoni, calcestruzzo, legno, metallo, vetro, terra, rocce, fino a materiali isolanti e tubature.

Il materiale edile da riciclo si riferisce a quei componenti delle macerie edili che possono essere recuperati e riutilizzati in nuovi cicli produttivi, riducendo così il consumo di risorse vergini e l'impatto ambientale associato alla produzione di nuovi materiali edili. Il processo di riciclaggio può includere la pulizia, la classificazione, e la triturazione dei materiali per produrre nuovi prodotti edili.

https://www.rmix.it/prodotti/?cat=12&lang=IT

rMIX: Maioliche Antiche Decorate a Mano da Recupero Edile

rMIX Annunci Offerte/Richieste | Materiali Edili Riciclati

Maioliche Antiche Decorate a Mano da Recupero EdileCodice: 8306. Maioliche Antiche Decorate a Mano da Recupero Edile.Le maioliche antiche decorate a mano provengono da cantieri edili in cui sono state operate del...

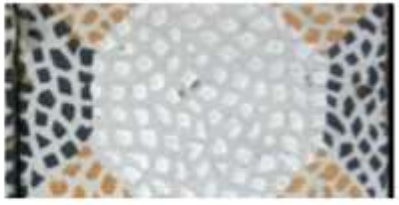
SCOPRI DI PIU'

rMIX: Piastrelle Smaltate Blu Fatte a Mano con Materiali Riciclati

rMIX Annunci Offerte/Richieste | Materiali Edili Riciclati

Piastrelle Smaltate Blu Fatte a Mano con Materiali RiciclatiCodice: 3345. Produzione di piastrelle maioliche fatte a mano utilizzando anche componenti che provengono dal riciclo di scarti di produzioni precedenti, con ...

SCOPRI DI PIU'



rMIX: Maioliche Antiche Decorate a Mosaico da Recupero Edile

rMIX Annunci Offerte/Richieste | Materiali Edili Riciclati

Maioliche Antiche Decorate a Mosaico da Recupero EdileCodice: 8308. Maioliche Antiche Decorate a Mosaico da Recupero Edile.Le maioliche antiche decorate a mano provengono da cantieri edili in cui sono state operate del...

SCOPRI DI PIU'

rMIX: Pavimento con Cotto Antico, Ardesia e Marmo di Carrara

rMIX Annunci Offerte/Richieste | Materiali Edili Riciclati

Pavimento con Cotto Antico, Ardesia e Marmo di CarraraCodice: 580. Produzione di una composizione di **elementi per il pavimento formato da mattonelle di cotto di recupero** da ristrutturazioni o demolizioni di edifici antic...

SCOPRI DI PIU'

rMIX: Vendiamo Mattoni Pieni Rossi Riciclati anni '70

rMIX Annunci Offerte/Richieste | Materiali Edili Riciclati

Vendiamo Mattoni Pieni Rossi Riciclati anni '70 Codice: 8653. Vendiamo i **mattoni pieni riciclati** con tonalità rossa che provengono dalle ristrutturazioni edili o da interventi di demolizione.**I mattoni pieni riciclati stile an**...

SCOPRI DI PIU'

rMIX: Piastrelle con Base Blu Fatte a Mano con Materiali Riciclati

rMIX Annunci Offerte/Richieste | Materiali Edili Riciclati

Piastrelle con Base Blu Fatte a Mano con Materiali RiciclatiCodice: 865. Produzione di **piastrelle maioliche fatte** a mano utilizzando anche componenti che provengono dal riciclo di scarti di produzioni precedenti, con la finitura ...

SCOPRI DI PIU'

MATERIALI EDILI RECUPERATI

MATERIALI EDILI RECUPERATI

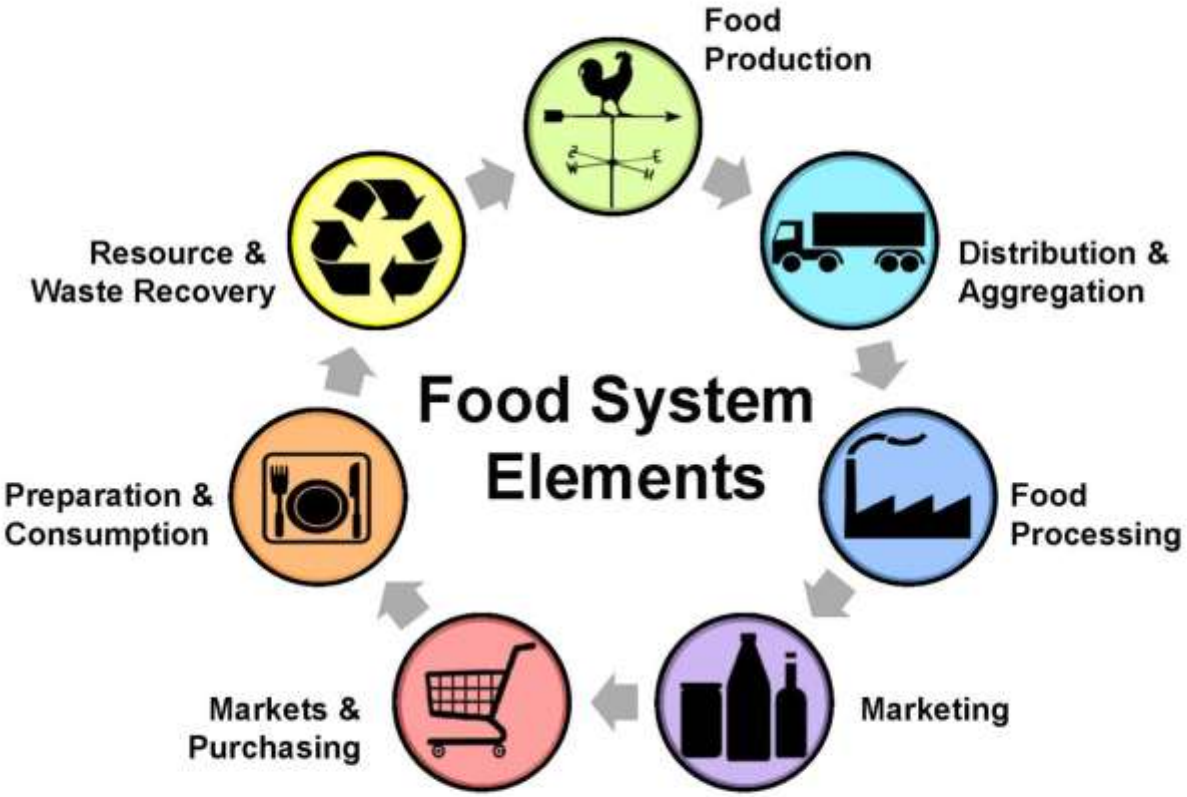
Biopartner 5

Leiden, Netherlands

[...] A key feature of BioPartner 5 **is the reuse of 160 tonnes of steel from a nearby university building,** which had served as its supporting structure for 50 years. **This steel was carefully dismantled, transported, and reassembled** to form the new building's framework. Designed by Popma & Ter Steege Architects, the project emphasizes circularity, sustainability, and biodiversity.

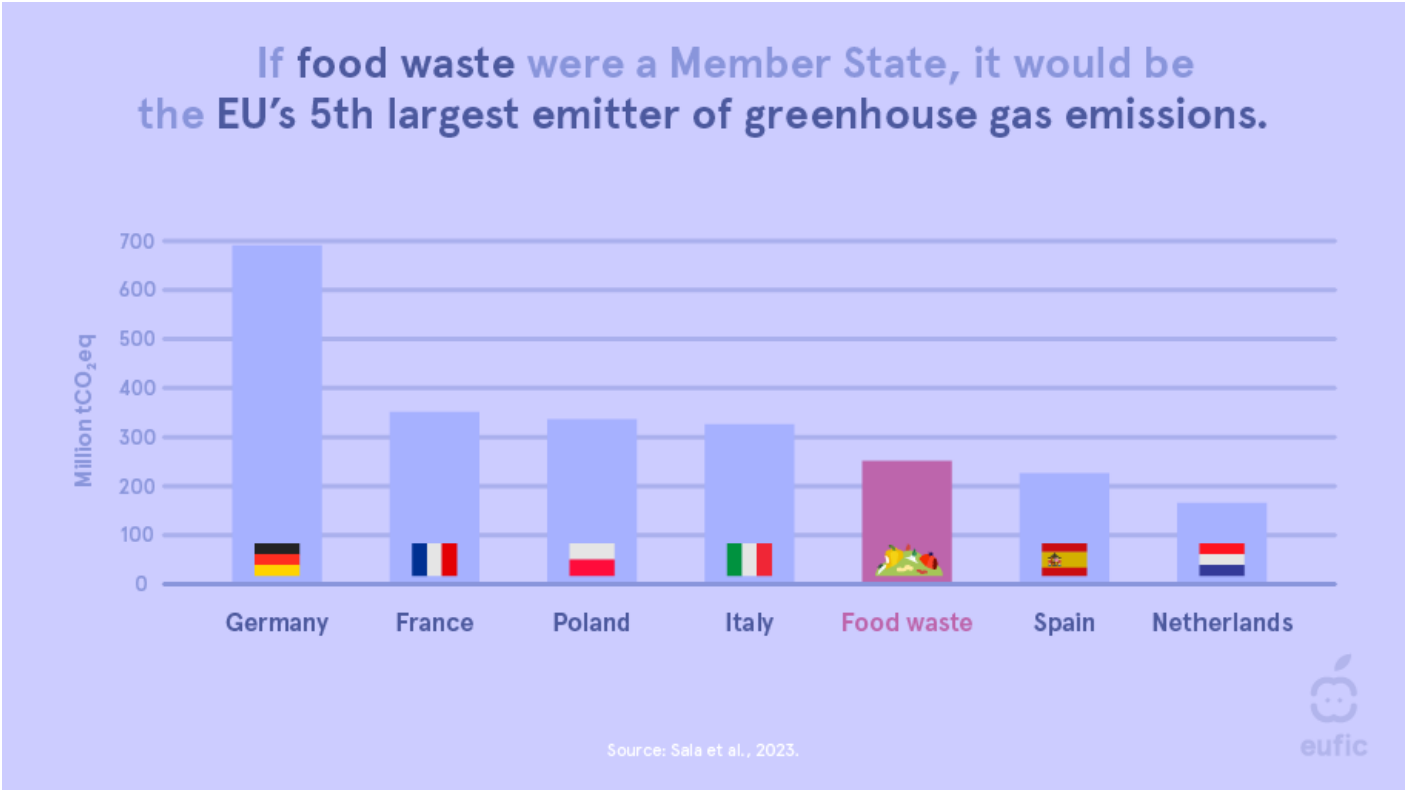
https://ce-toolkit.dhub.arup.com/case_studies/f843ccd9-3dc6-4360-8a74-f93db9b3ab8d

IL SISTEMA ALIMENTARE



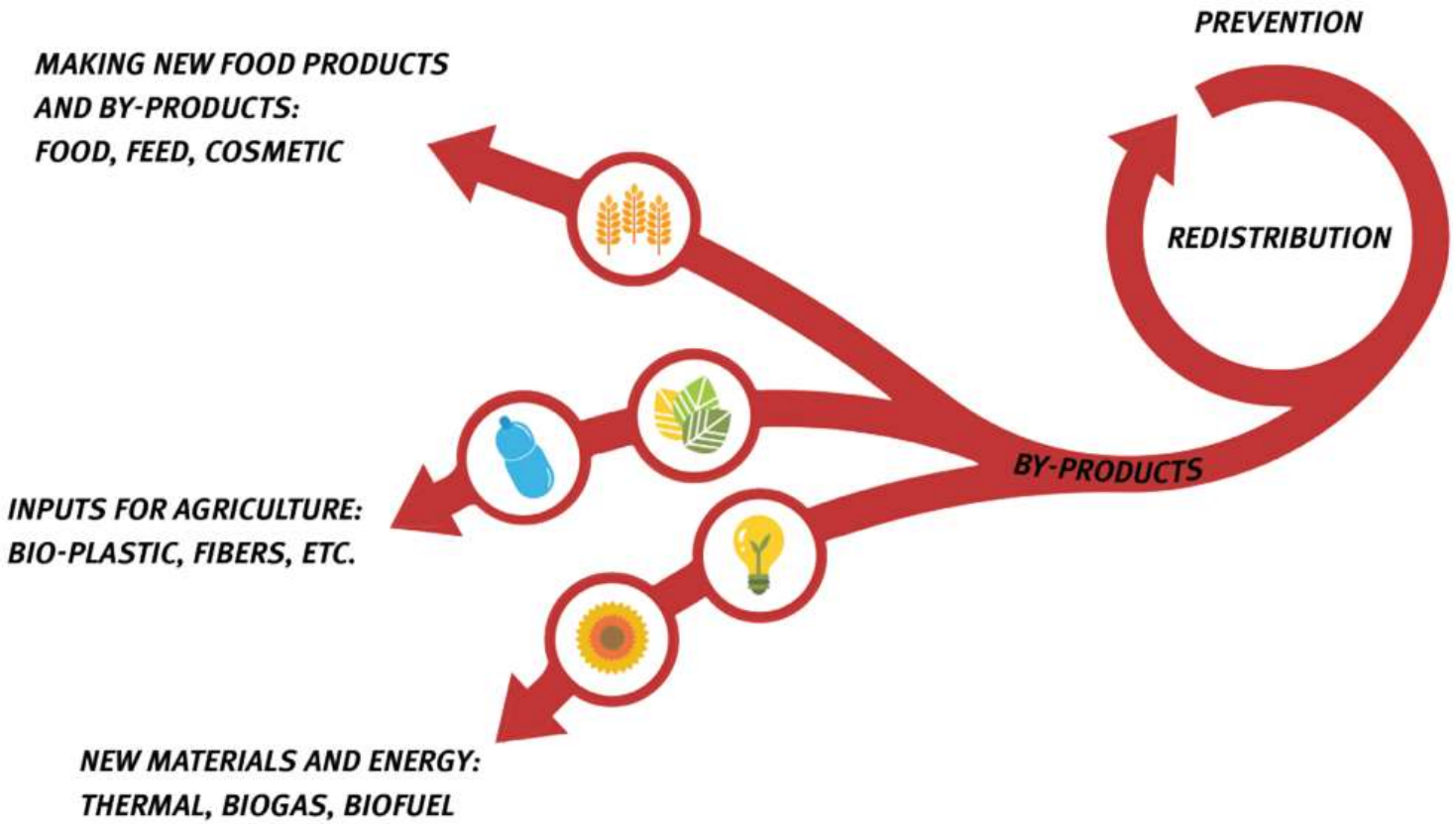
Adapted by Christy Shi, Center for Environmental Farming Systems.
From: Wilkins, J. and Eames-Sheavly, M. Discovering the Food System; An experiential learning program for young and inquiring minds. Cornell University, Departments of Nutritional Science and Horticulture. http://www.discoverfoodsys.cornell.edu/

FOOD WASTE



https://www.eufic.org/en/food-safety/article/food-waste-in-europe-statistics-and-facts-about-the-problem

L’USO A CASCATA

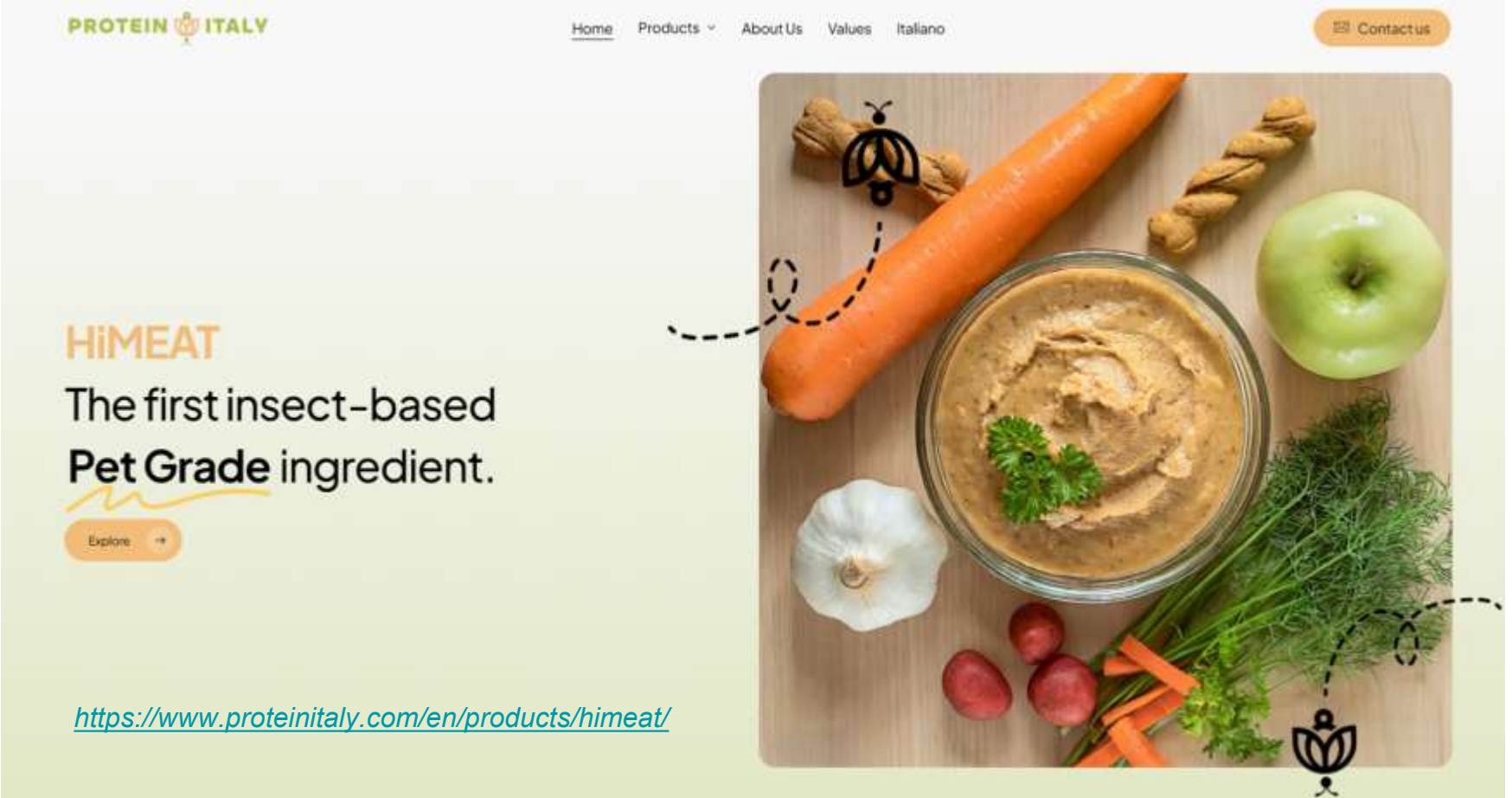


RIUSARE UN SOTTOPRODOTTO

https://www.biovaproject.com/

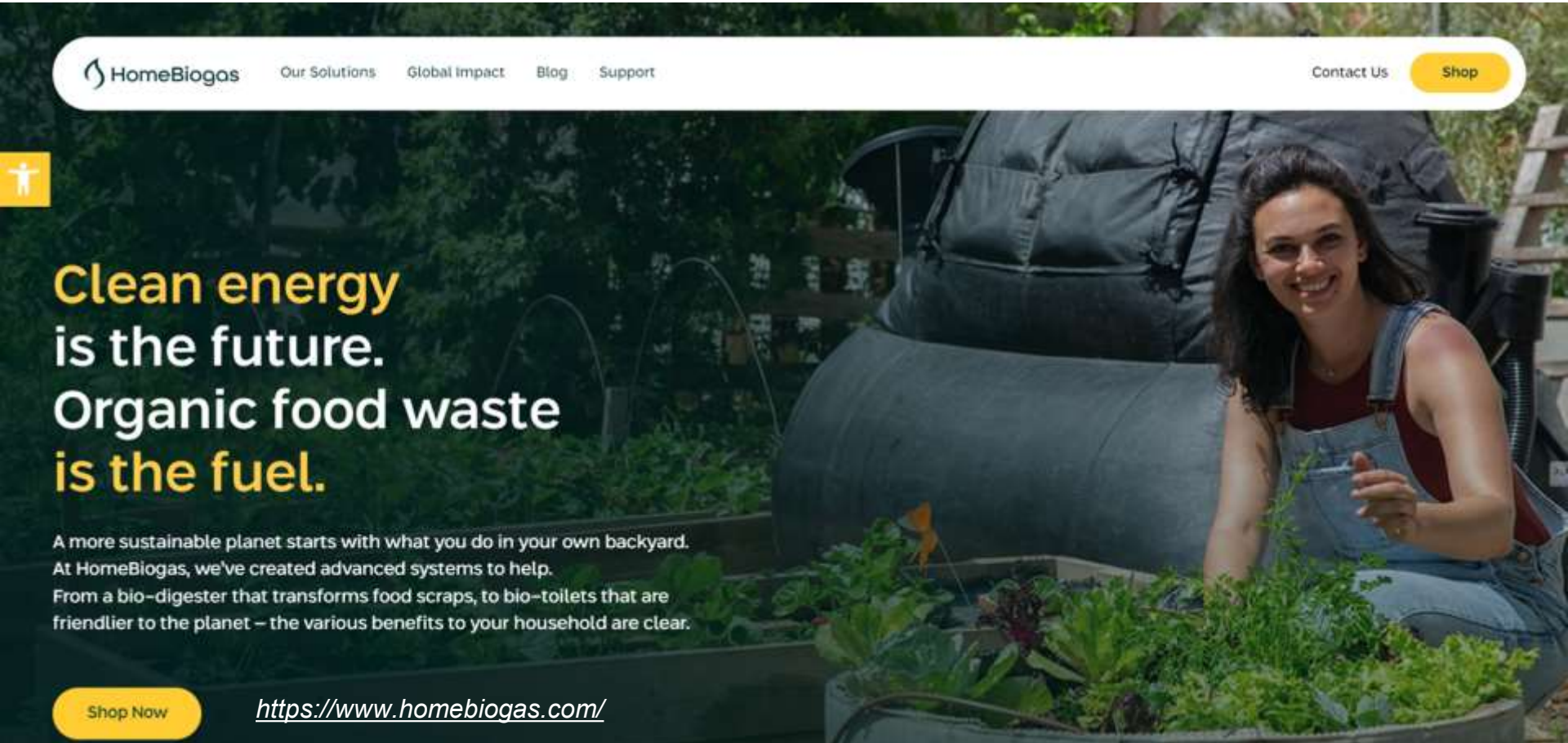

PRIMA LA BIRRA, POI LO SNACK
SCOPRI IL PROGETTO
RI-SNACK™
LO SNACK DA ECONOMIA CIRCOLARE
TRIANGOLINI DA MALTO D'ORZO
RIGENERATO
FATTO DALLE TREBBIE DI BIRRA BIOVA

NON SOLO CIBO PER LE PERSONE



https://www.proteinitaly.com/en/products/himeat/

NON SOLO CIBO, ANCHE ENERGIA



https://www.homebiogas.com/

QUALI OPPORTUNITÀ

Cosa può generare e per chi

Per Chi?

Studenti - Le sfide sulla sostenibilità aprono le porte a opportunità lavorative nella ricerca, nelle aziende e imprenditoriali.

Aziende - la circular economy aiuta ad individuare opportunità, ridurre gli sprechi, attrarre talenti, ammodernare le tecnologie e formare un nuovo mindset aziendale.

GRAZIE!

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https://www.linkedin.com/in/enricobassi/