SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

Introduction to Ecodesign

Presented by:

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SWIM and Horizon 2020 SM

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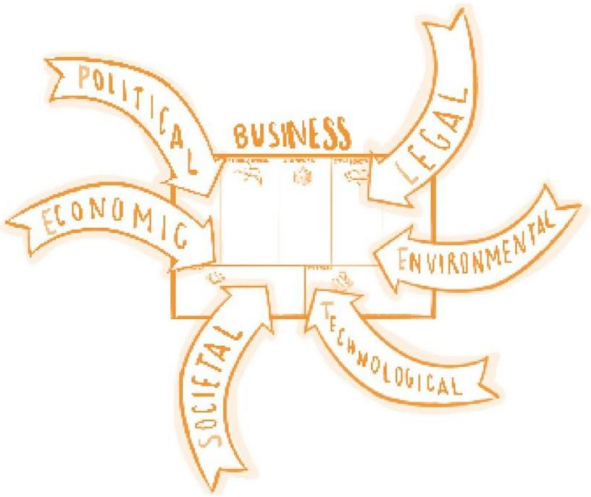
Key drivers for change

Economic losses and structural waste.
For example, in Europe, the average car is parked 92 percent of the time, 31 percent of food is wasted along the value chain, and the average office is used only 35–50 percent of the time, even during working hours.

Price risks.
The last decade has seen higher price volatility for metals and agricultural output than in any single decade in the 20th century.

Supply risks.
For example, the European Union imports six times as much materials and natural resources as it exports.



Regulatory trends.
Since 2009, the number of climate change laws has increased by 66%, from 300 to 500. In Europe, 20 countries levy landfill taxes, which together raised revenues of €2.1 billion in 2009/2010

Natural systems degradation.
Depletion of low-cost reserves and increasingly the degradation of natural capital are affecting the productivity of economies

Acceptance of alternative business models.
Rental, performance- based and sharing models, enabled by new technologies, are already finding ready customers & experiencing exponential growth.

Urbanisation.
For the first time in history, over half of the world's population resides in urban areas. Continued urbanisation and overall demographic growth is projected to add another 2.5 billion people to the urban population by 2050.

Advances in technology.
These advances allow more efficient collaboration and knowledge sharing, better tracking of materials, improved forward and reverse logistics set-ups, and increased use of renewable energy.

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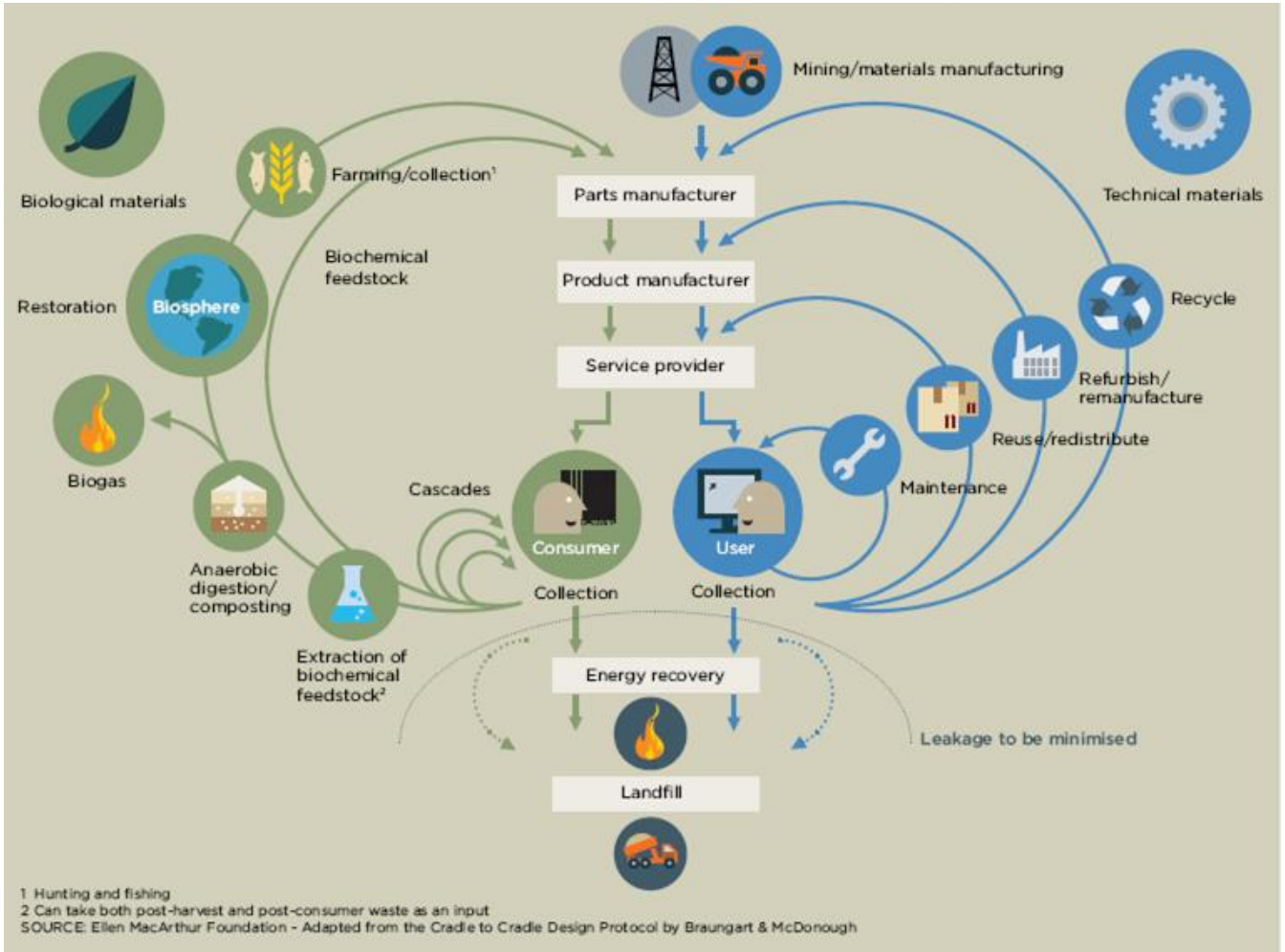
Butterfly diagram



Schools of thoughts..

- **Cradle to Cradle**
- **Biomimicry**
- Blue Economy
- Performance Economy
- Industrial Ecology
- Natural capitalism
- Regenerative Design

Biomimicry definition

Biomimicry is an approach to innovation that seeks sustainable solutions to human challenges by emulating nature's time-tested patterns and strategies.

The goal is to create products, processes, and policies—new ways of living—that are well-adapted to life on earth over the long haul.

Source: https://biomimicry.org/what-is-biomimicry/

Biomimicry

The core idea is that nature has already solved many of the problems we are grappling with. Animals, plants, and microbes are the consummate engineers.

After billions of years of research and development, failures are fossils, and what surrounds us is the secret to survival.

Source: https://biomimicry.org/what-is-biomimicry/


Waterproof materials

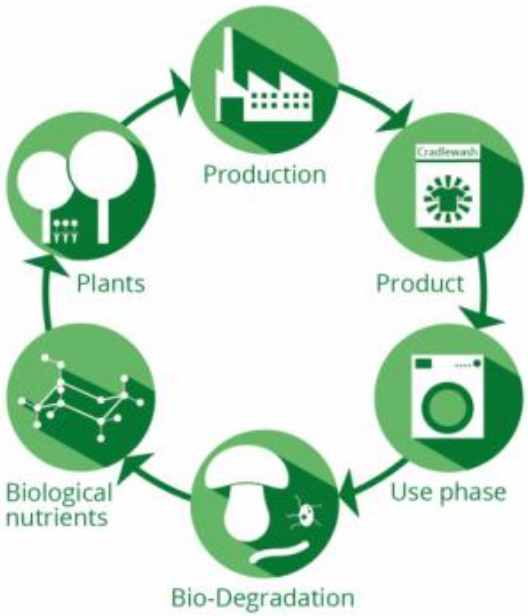

Safe materials


Compostable packaging

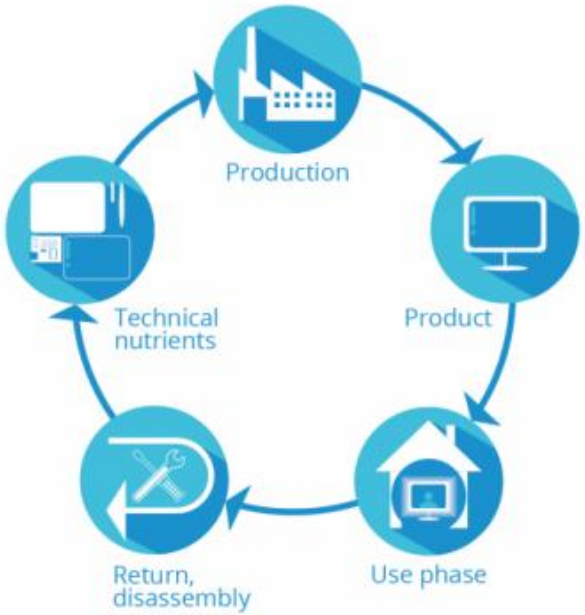

Compostable packaging


Waste = Nutrient

Thinking in metabolism



BIOLOGICAL CYCLE
for products for consumption



TECHNICAL CYCLE
for products for service

cradle to cradle

EPEA

Cradle to Cradle: Remaking the Way We Make Things. W. Mcdonough. 2002

Biological cycle

From agricultural waste

VOC free
Home compostable
Custom designed and molded
Naturally fire resistant
Not derived from petroleum or food
Rapidly renewable
Buoyant

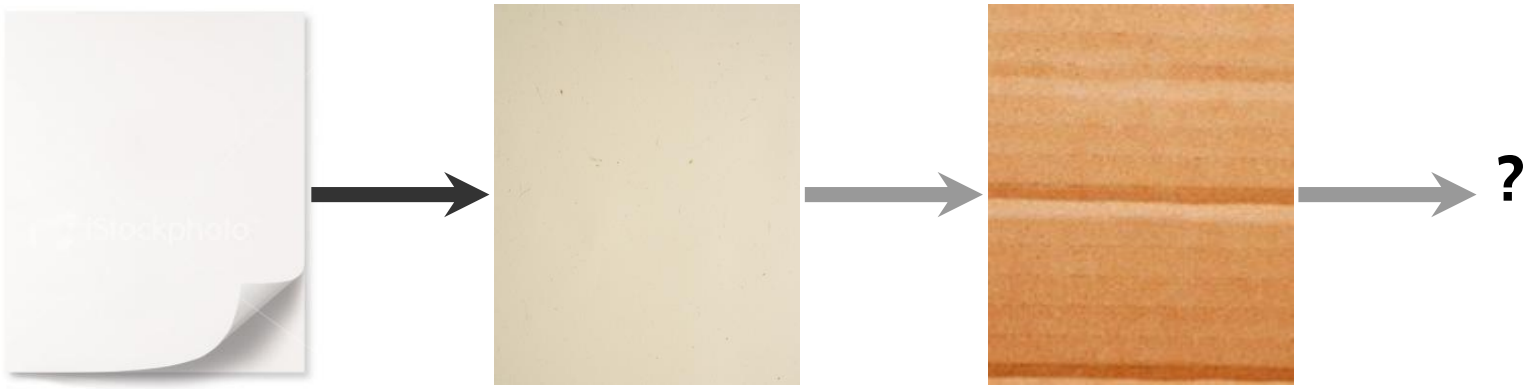
Stone paper
EmanaGreen

Credits: https://ecovativedesign.com/


Wine packaging “compostable” material design

When we talk about recycling..

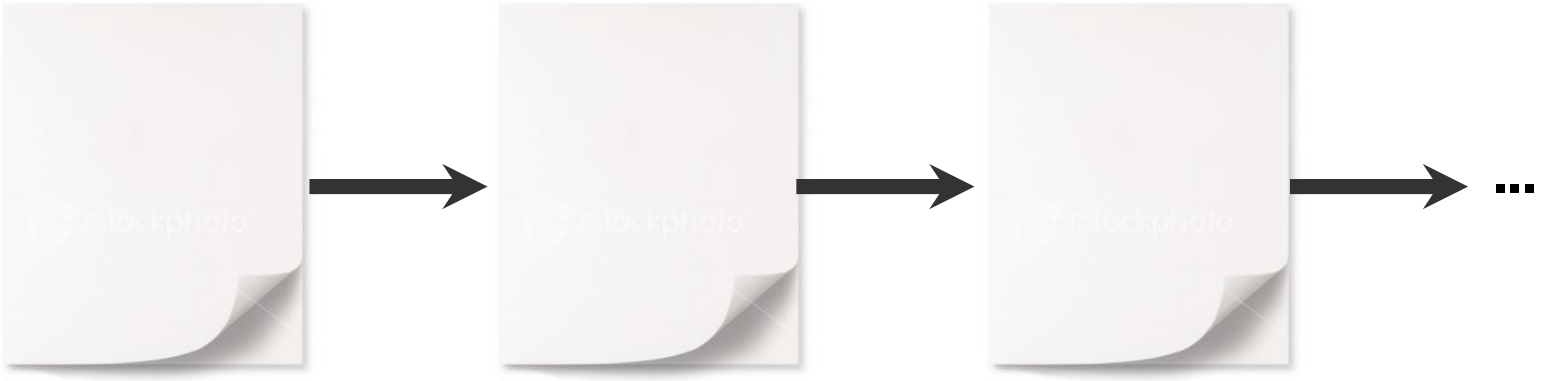
Paper processing



.. aka **DOWNCYCLING**
materials loses quality during the processing

When we talk about recycling..

up-cyclable paper processing



.. aka **UPCYCLING**

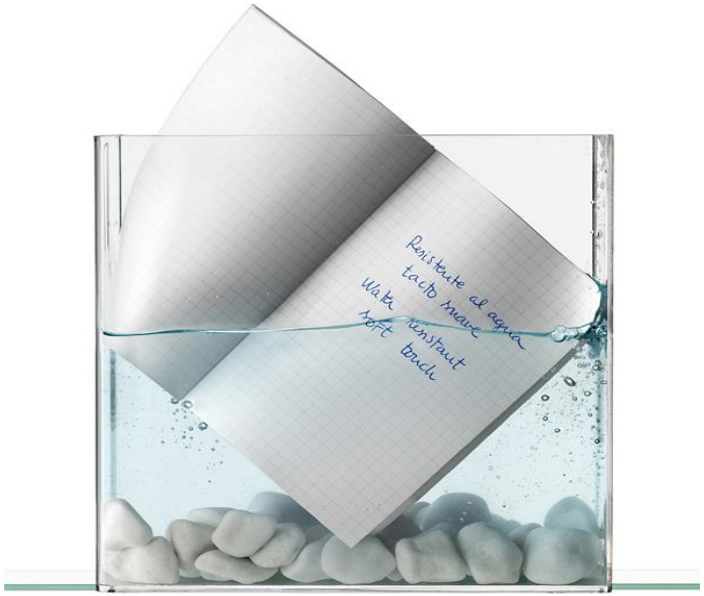
materials keep or even improve quality during the processing

Biological cycle

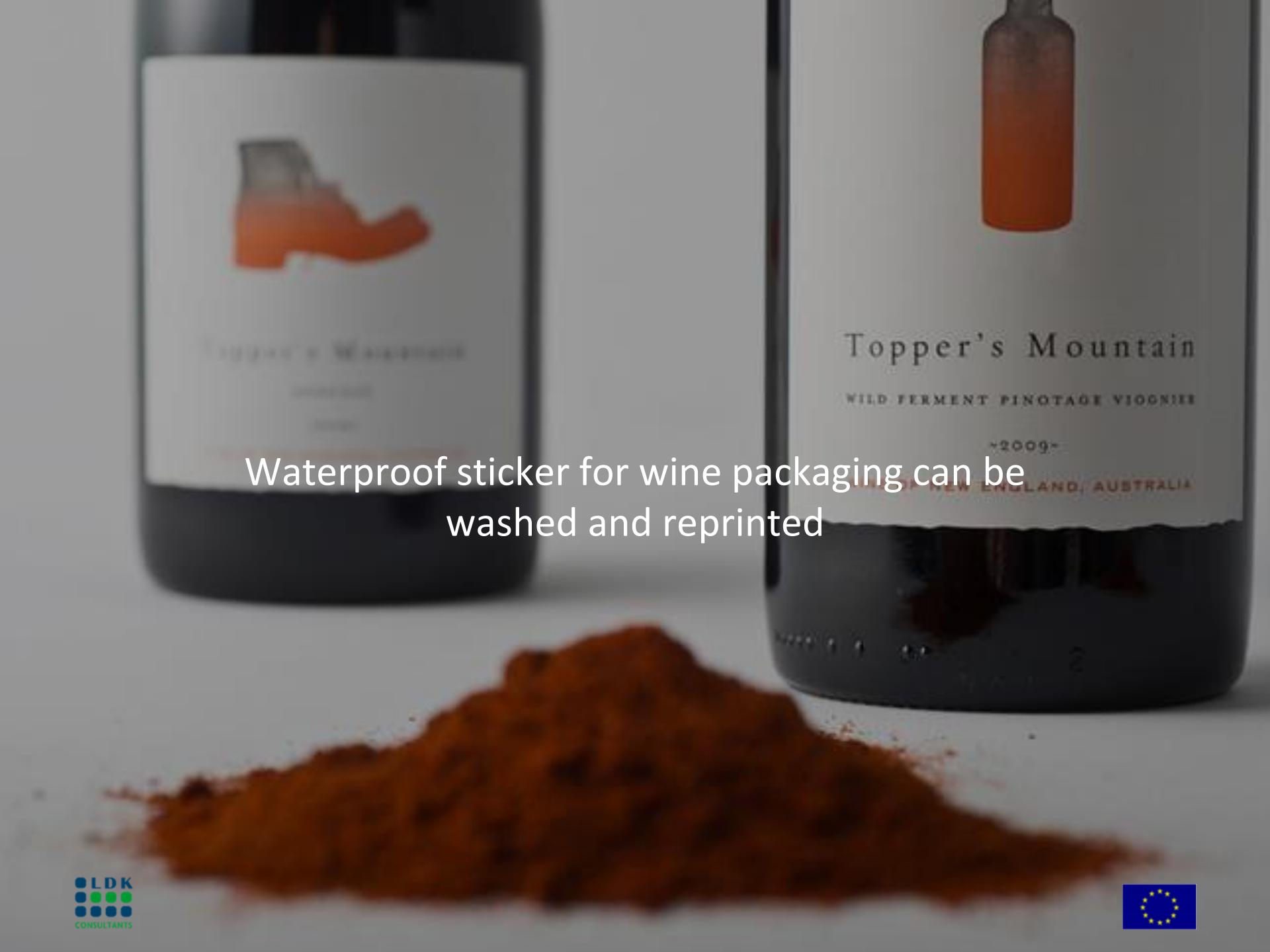
80% Calcium Carbonate
20% Toxins free HDPE resin

Bleach / chlorine free
50% less energy needed
50% CO_2 emissions
Washable / reprintable
Water proof

Stone paper
EmanaGreen



Credits: http://emanagreen.com



Waterproof sticker for wine packaging can be washed and reprinted

Ecodesign..

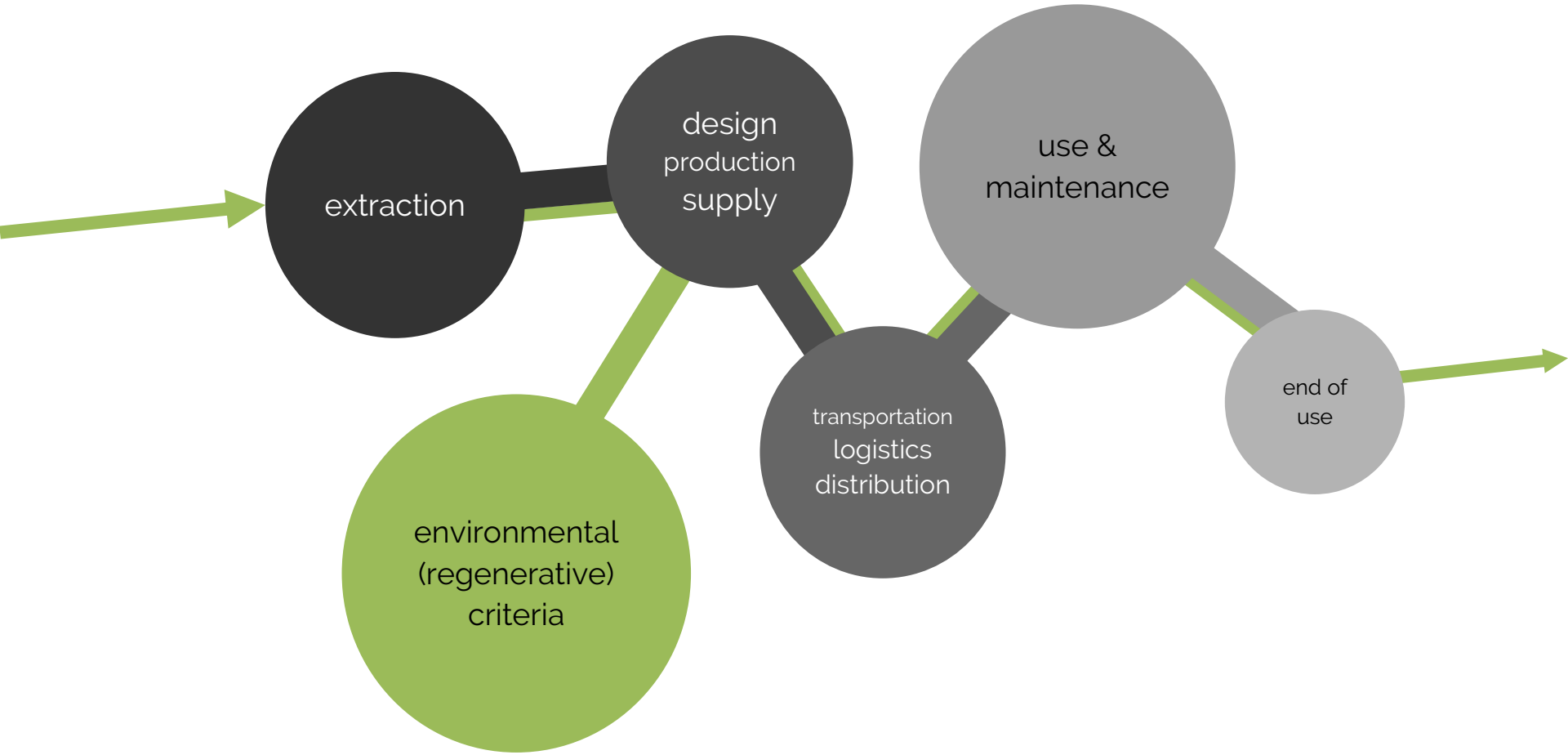
..is a **systemic approach**

..aims to include **environmental (regenerative!)** criteria in the design stage of a product / service and business

..must **avoid burdens reallocation** (example: outsourcing)

.. should be measurable, inclusive (social aspects) and scalable

Including Environment when we decide..

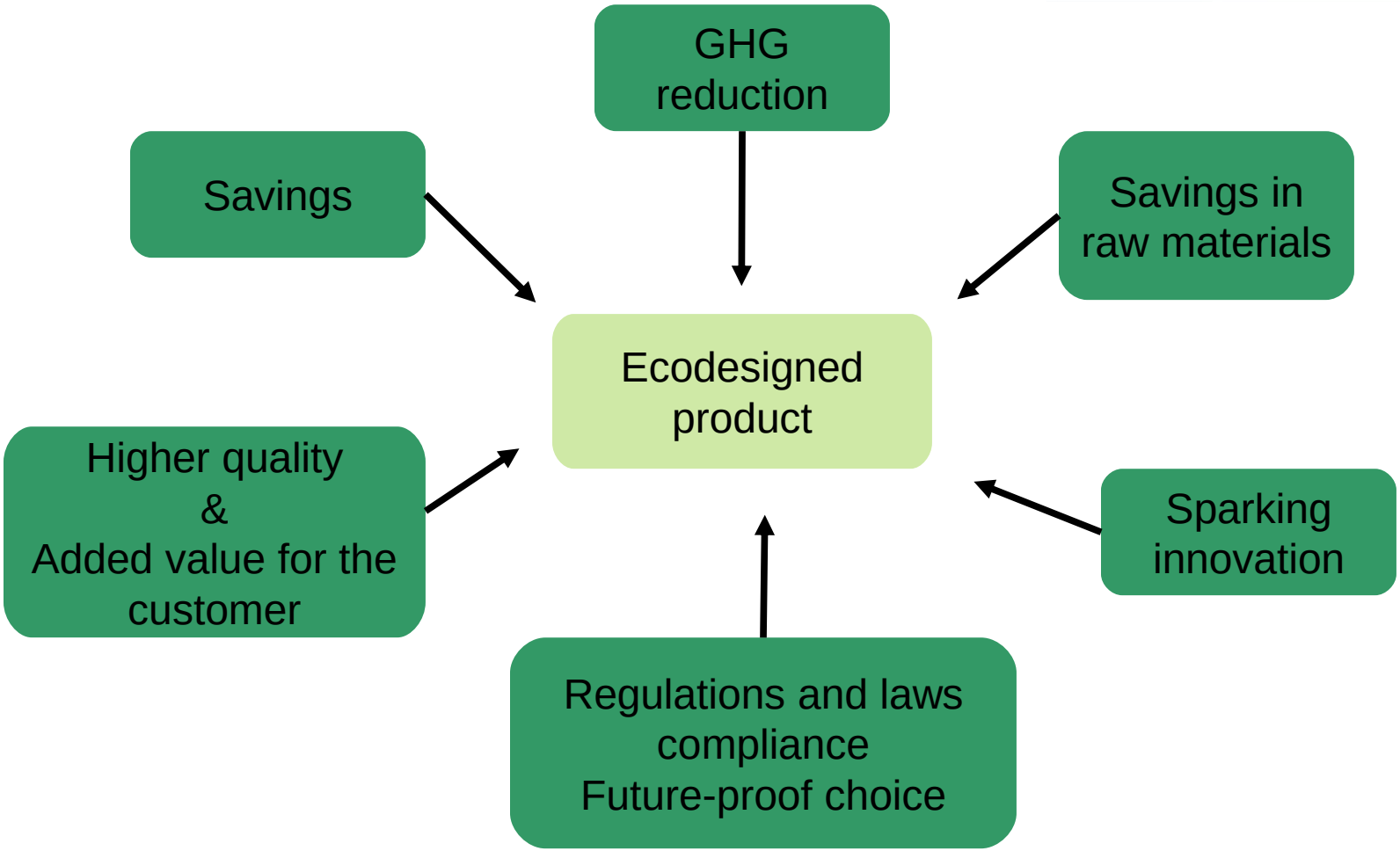


80% of environmental impact are directly influenced by design stage

Anonymous

*https://www.researchgate.net/post/Is_80_of_environmental_impact_determined_during_the_design_phase_or_not

Ecodesign.. main benefits



Ecodesign.. benefits in detail

- lower production and labour costs and greater efficiency
- reduced material and resource costs
- lower waste disposal costs
- improved functionality and quality of products
- increased market share
- improved environmental performance and access to Ecolabeling programmes
- improved customer and supplier relationships
- easier and lower cost of compliance with legislation
- easier disassembly and increased potential for recycling
- most suitable product design life
- a better working environment and business culture for your staff

Some examples

Reducing materials

The measure carried out consisted of redesigning the stoppers of the wine bottles of the ranges Ucenda and Tesoro de Bullas, passing these **from 6.90 grams to 4.70 grams**, thus obtaining a reduction of **31.88% in weight**. This measure leads to a saving in raw material used to manufacture these plugs, with its consequent environmental advantages.

Source: Ecoembes - COOP. AGRO-VINICOLA NTRA.SRA.DEL ROSARIO

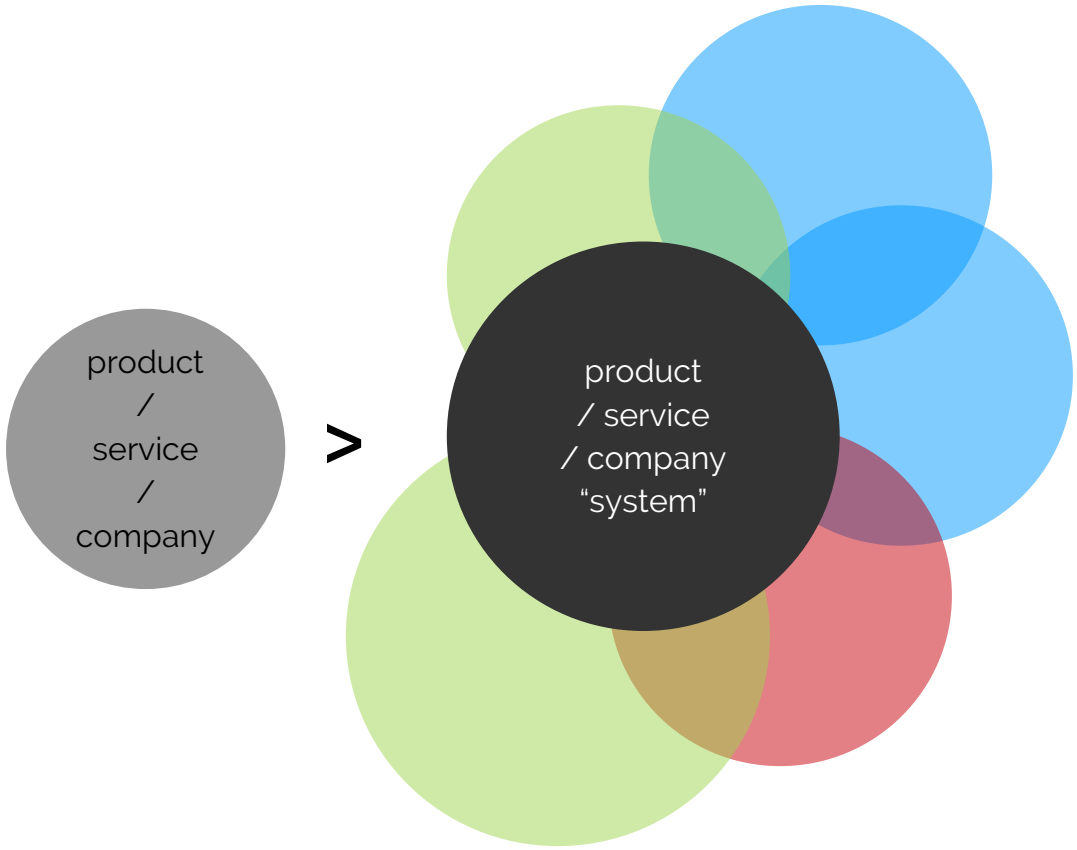
Some examples

Reducing materials

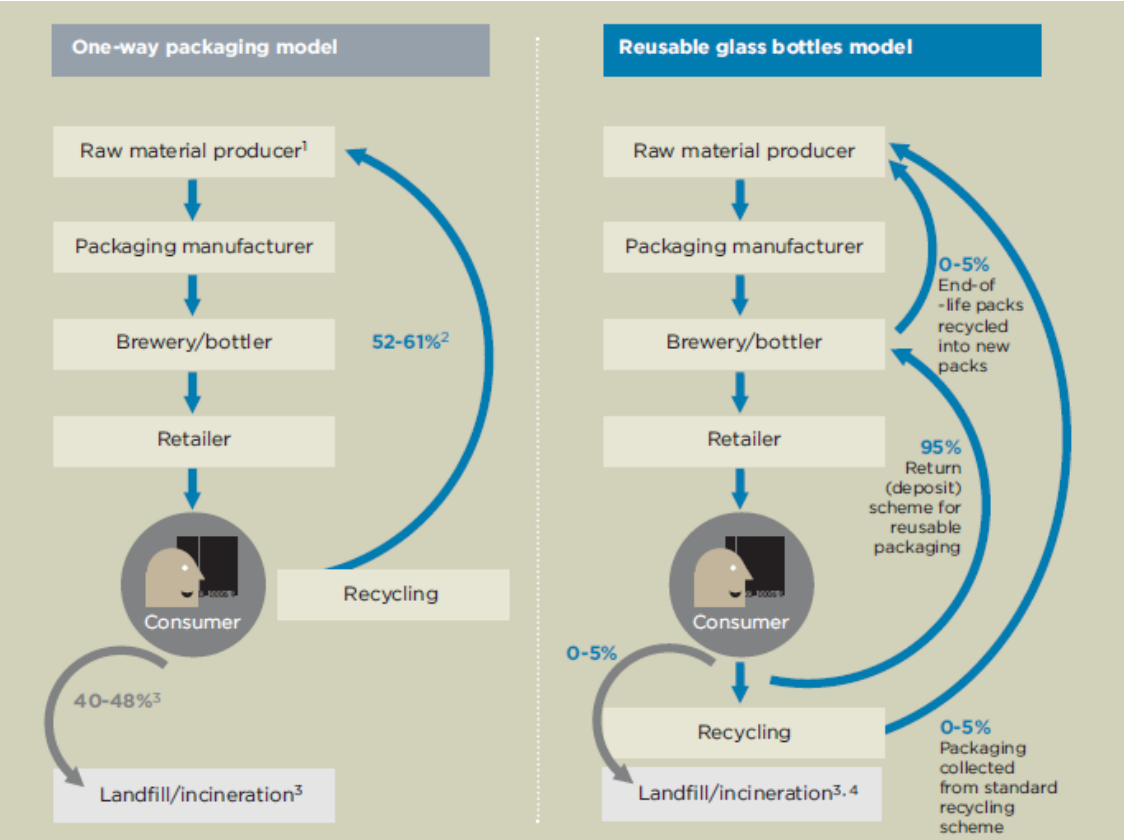
The shape of the bottles with larger diameter in the lower half has allowed a change of design in the grouping container, reducing the size of the cardboard, so that it only covers from the base to half height of the bottles. **-22% cardboard**

Source: Ecoembes - HERO ESPAÑA, S.A.

From product (service) design to a **system**



Linearity vs circularity



Ecodesign food and beverage packaging strategies for a Circular Economy

Renewability of the bioresources, water & energy

Choose resources, that make up the product, from renewable sources, abundant and easily accessible and that can be revalued in subsequent life cycles as materials again or as resources for composting or biomethanization (obtaining biogas). If there are more types of materials (for example technical) choose reversible fastening systems that allow easy separation at the end of life.

RENEWABLE RESOURCES

2013 FOODSERVICE PACKAGE OF THE YEAR 2013 FOODSERVICE

Sugarcane

RENEWABLE RESOURCES

Sugarcane

RENEWABLE RESOURCES

Wheat Straw Clamshell

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http://www.ecoproducts.com/


TEMP. CONTROL
2
2
3

TIPA
Sustainable Packaging

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Compostable Bio-material Packaging

It feels like plastic and looks like plastic.
There is just one difference: its end of life is fully compostable.

Imagine flexible packaging was just like an orange peel...

https://tipa-corp.com/

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FSC
www.fsc.org

Up-cyclability of the technical nutrients

Choose upcyclable resources. Unlike recyclable materials, upcyclable ones do not degrade significantly (lose quality) when they are processed / treated again. Prefer common materials that have higher market price and demand, to ensure and foster their recovery.

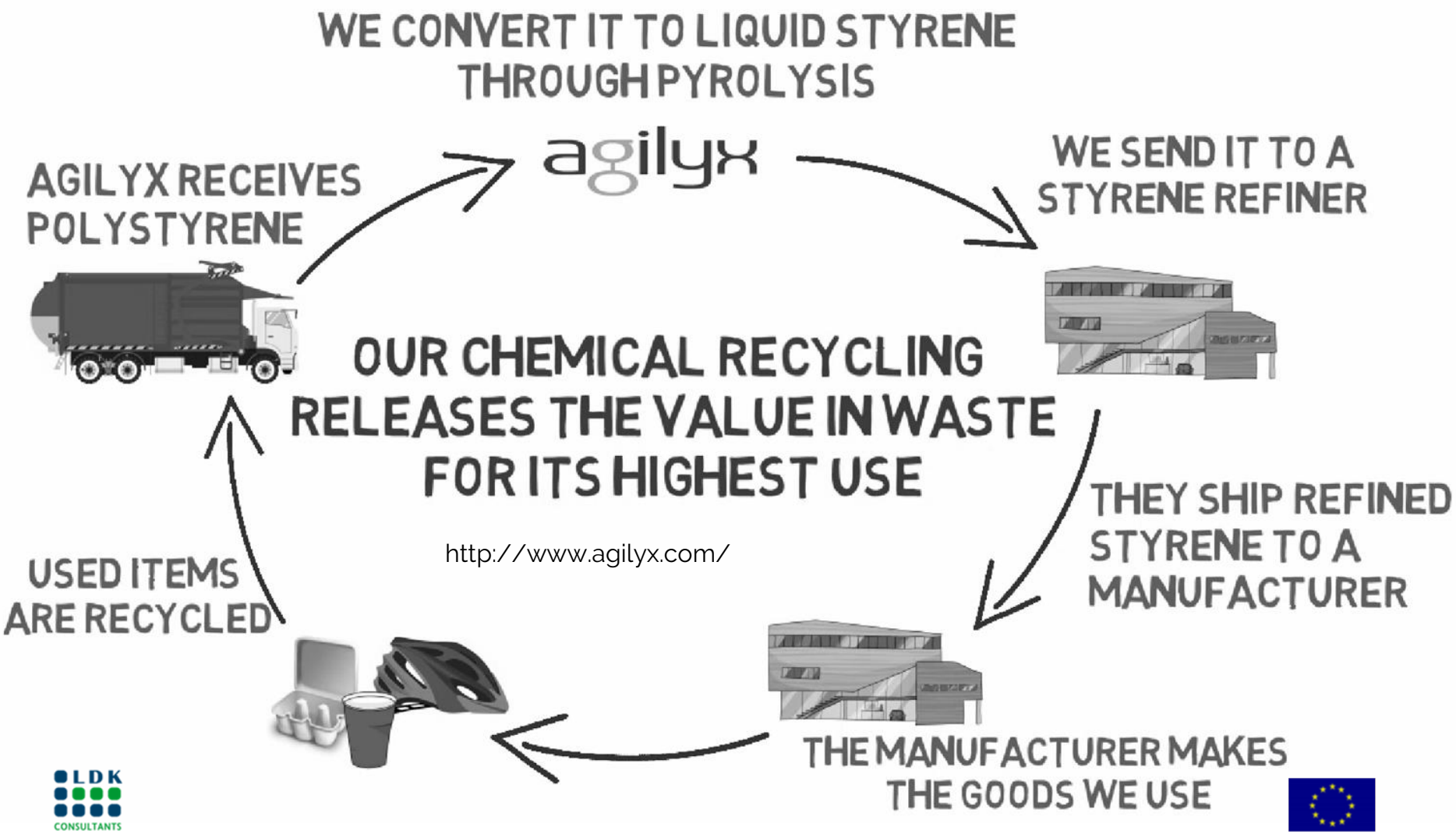
Avoid toxic and dangerous additives for the health of the user, processor and / or the natural ecosystem.

Nestlé Pure Life debuts 100% rPET bottle in North America

By Mary Ellen Shoup
20-Feb-2018 - Last updated on 20-Feb-2018 at 15:12 GMT

1 COMMENT

https://www.beveragedaily.com/Article/2018/02/20/Nestle-Pure-Life-debuts-100-rPET-bottle-in-North-America


WE CONVERT IT TO LIQUID STYRENE THROUGH PYROLYSIS
agilyx
AGILYX RECEIVES POLYSTYRENE
WE SEND IT TO A STYRENE REFINER
OUR CHEMICAL RECYCLING RELEASES THE VALUE IN WASTE FOR ITS HIGHEST USE
http://www.agilyx.com/
THEY SHIP REFINED STYRENE TO A MANUFACTURER
USED ITEMS ARE RECYCLED
THE MANUFACTURER MAKES THE GOODS WE USE

Repairability and reusability of components

Make all components, or at least those that are subject to breakage, designed to be easily repaired and accessible. Provide the user with the means, knowledge and resources necessary to carry out the repair or receive help. If repairing is complex, rethink if you can redesign to enable a more rapid and economically affordable support. In products with multiple functions, avoid that the malfunction of a component blocks other benefits..

Sustainability Benefits

CHEP Pallets

Benefits of our circular, reusable solution

- Reutilization
- Transport Efficiencies
- Resource Efficiencies

Sustainability Savings*
*When you use **1 million** CHEP Pooling vs. market alternative*

563,500
lbs solid waste

425,200
lbs CO_2e

99% of all timber is certified

*The Sustainability Calculator (based on third party verified Life Cycle Analysis)

Brambles

https://www.chep.com/es/en/consumer-goods

Durability

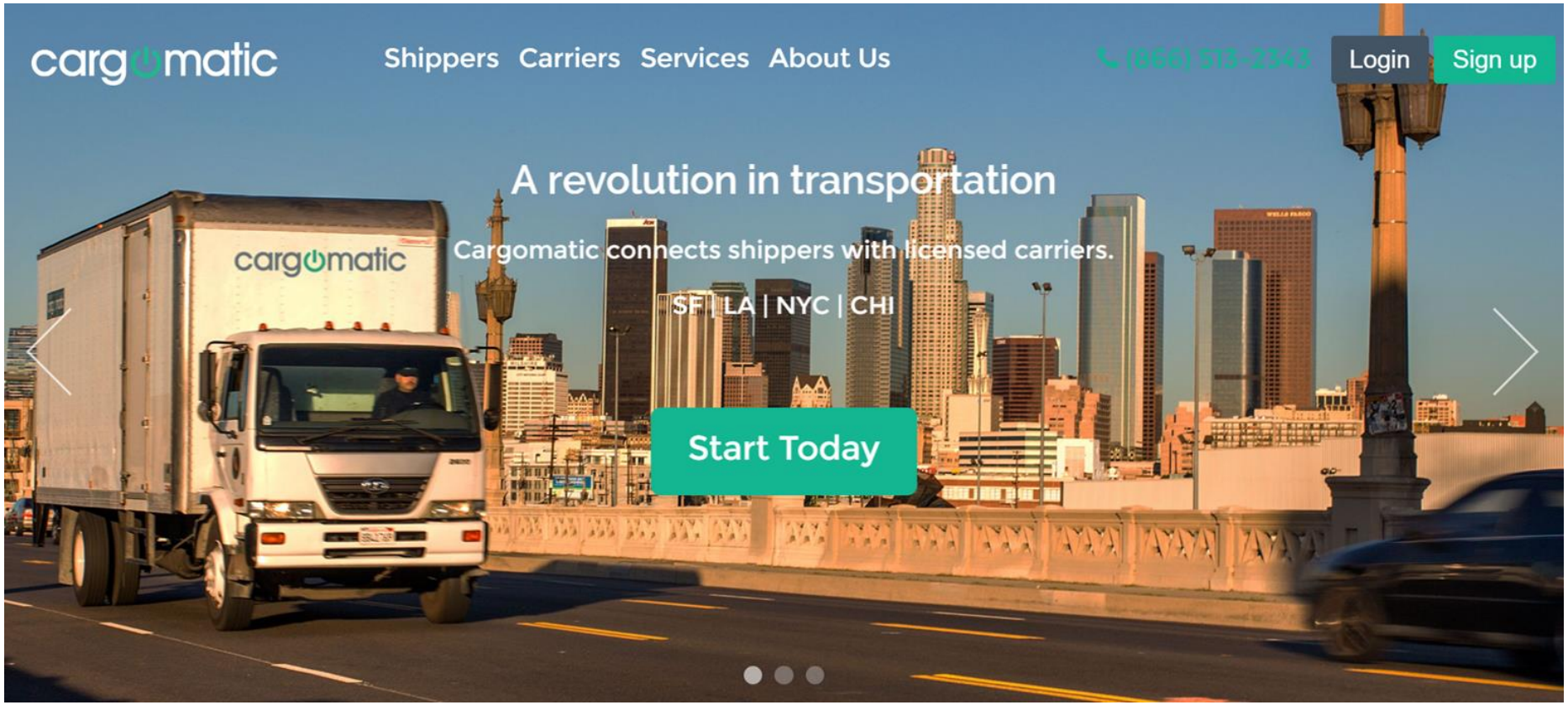
Facilitate the extension of the useful life of the product, towards forms of use in successive life cycles (after the first use) maintaining the best usability and quality of benefits for the user, increasing life cycles and also second-hand buying and selling between users. Provide the means, knowledge and resources to enable the extension of life assuring the quality of the product and its economic and social revaluation in time.

Plastic (PP) pallet 10 years lifespan instead of 6 months (wooden)

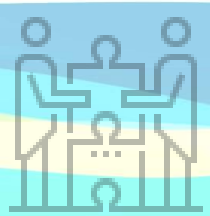
https://www.comberplast.cl/

Shareability between multiples users (sharing & pooling)

Design products and services to be usable by multiple users, that resist the use in different styles and ways of interacting. Provide the means, knowledge and resources to promote an easy and complete exploitation of the shared object and also favor the creation of emotional and social ties between users (collaboration). Promote co-creation with users, respect and coexistence within public and / or shared services.

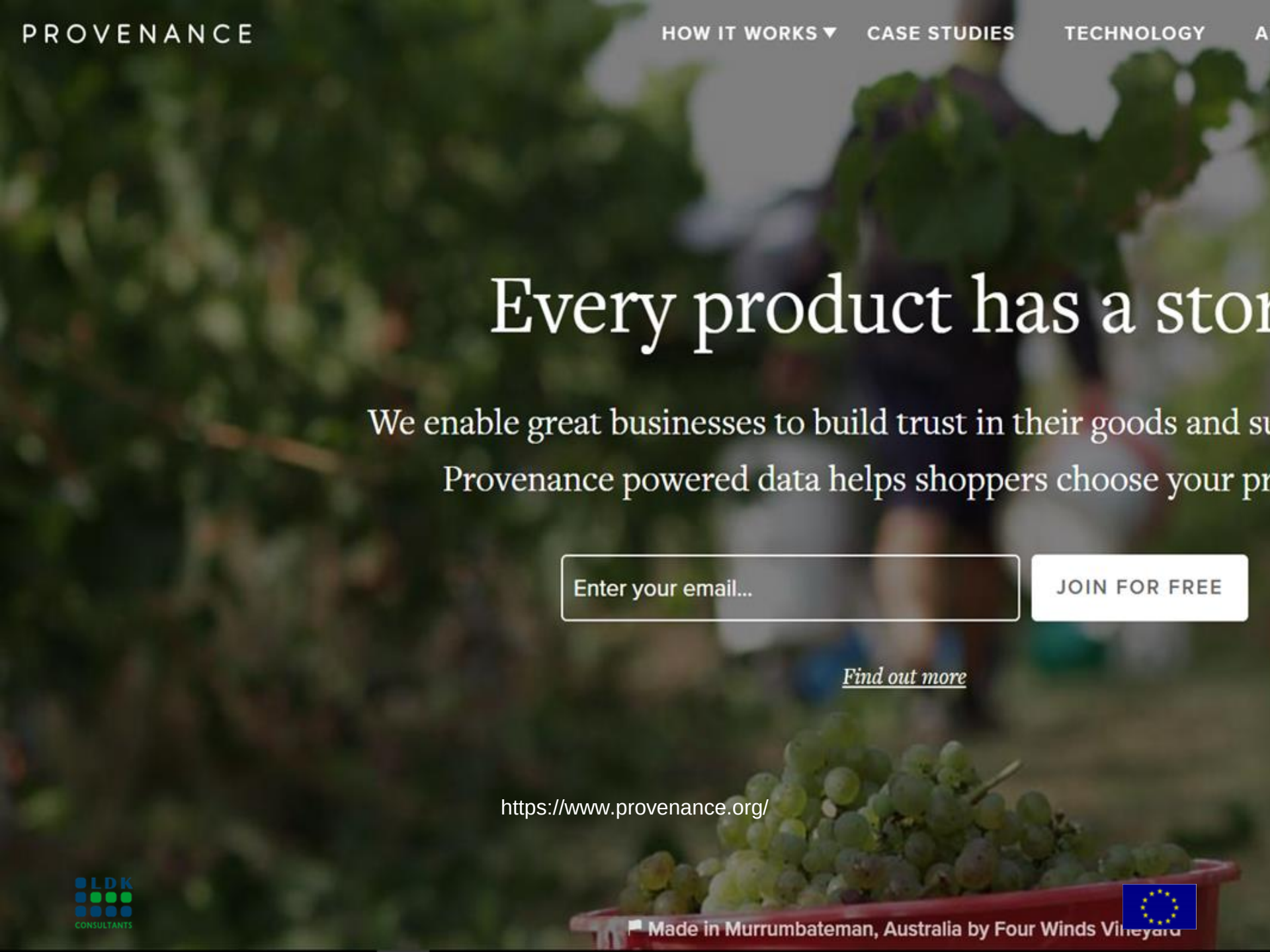


https://www.cargomatic.com/



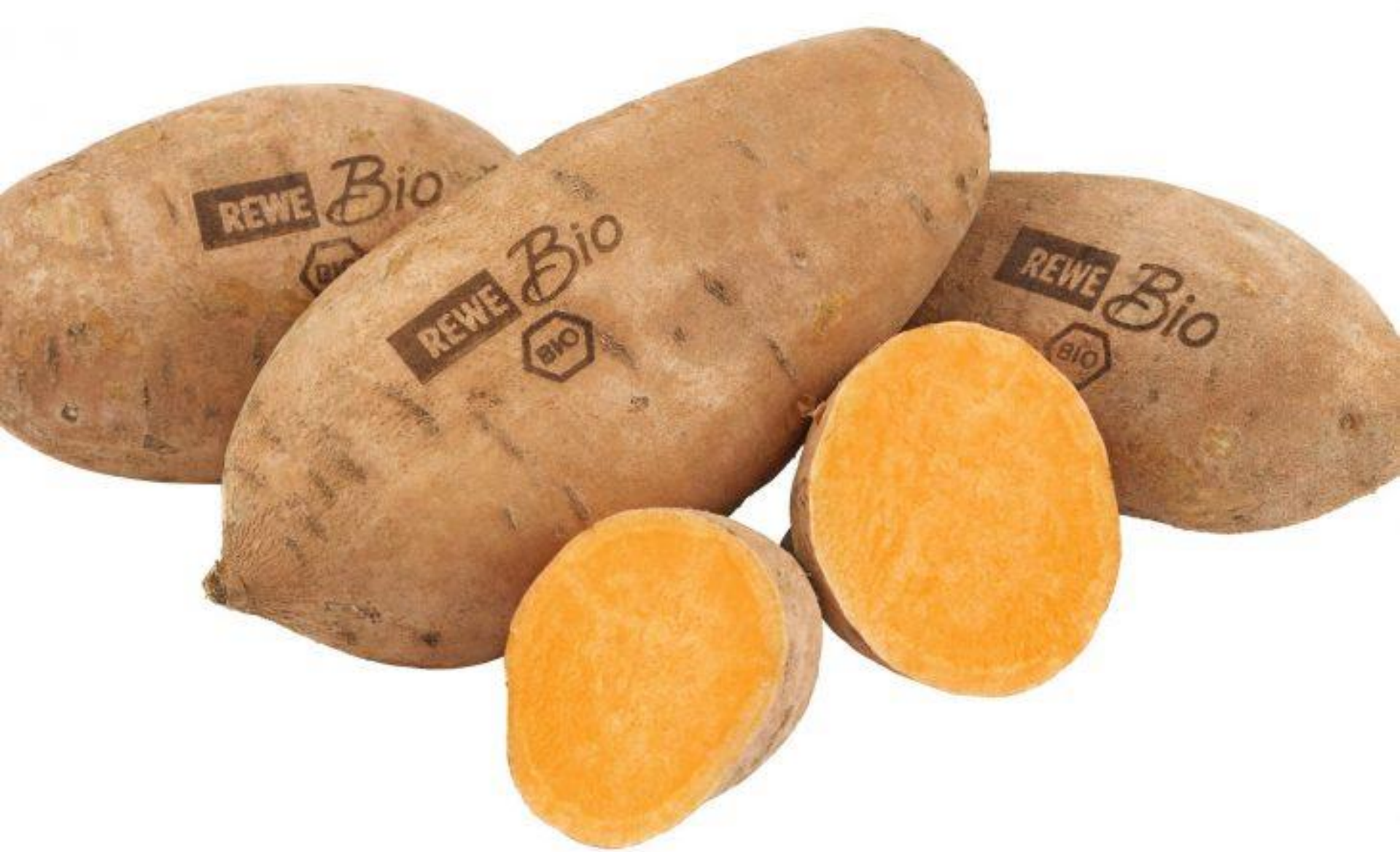
Collaboration and traceability of value chain

Provide the means, knowledge and resources so that the features of the products and services are understandable for other manufacturers, users, developers and especially up-cyclers (or recyclers). Encourage the dissemination of knowledge and know-how in areas that promote human well-being and innovation, as well as the search for global solutions to current environmental and economic challenges. Provide information about the sourcing of the product / service to enable and promote the traceability of the value chain.


PROVENANCE
HOW IT WORKS
CASE STUDIES
TECHNOLOGY
A
Every product has a stor
We enable great businesses to build trust in their goods and su
Provenance powered data helps shoppers choose your pr
Enter your email...
JOIN FOR FREE
Find out more
https://www.provenance.org/
Made in Murrumbateman, Australia by Four Winds Vi

Dematerialisation and virtualisation

Dematerialize towards increasingly lighter / smaller / thinner / more foldable products to the point of no longer having a physical presence converting the product into 100% digital. Move from producing units in remote industries to manufacturing directly where, when and how the object is required to a model at zero km and on demand, minimising stock and logistics. Embed new digital technologies (e.g. sensors..) in the product & services in order to improve efficiency or innovate business model.



https://www.theguardian.com/sustainable-business/2017/jan/16/ms-and-swedish-supermarkets-ditch-sticky-labels-for-natural-branding

Refurbish, Resale & Buy-Back Programs

Aim to to find a way to give a new life / s to products that no longer serve their users. Provide the means, knowledge and resources necessary to refurbish a product and obtain a semi-new or "almost zero km". Design products that facilitate the brand new start after the first "life". Choose materials and components that are easy to replace or reprocess, concentrate wear on certain replaceable components and think about re-marketing strategies and revalorization of the "pre-owned".

Español Euskara English Français Deutsch

eko3r

HOME RECYCLING OF COOKING OIL OIL RECYCLING SYSTEM EKO3R CONTACT

Acceso Clientes

Entre aquí para ver el estado de sus contenedores, aceite recogido, estadísticas de

recycling of cooking oil

We offer a comprehensive system for the collection of used cooking oil. We visit all homes to help with the recycling of cooking oil, a highly polluting waste that is very widespread in our society. We reduce, reuse and recycle (3R) oil waste by turning it into biodiesel or other new products, always with the aim of contributing to sustainable development and the protection of the environment.

Our objectives are to bring to our society systems that are secure, convenient, accessible, clean and reusable for the recycling of domestic waste, making it easier for the public and administrations to play their part.

oil and numbers

1x1000

1 litre of used oil contaminates 1,000 litres of water.

20l=4l

One resident consumes 20 litres

Cascade value extraction & eco-efficiency

Design products and services in which all the embedded value (accumulated) throughout the supply chain is fully exploited in "cascade". Whether it is a bio-material or a technical material, the idea is that in each use or life, the maximum residual value can be extracted, up to the final disposal. Design a set of components so that, at least, some of them will take on several new lives when the previous one is finished, until the full potential of the product or service is realized.

Cart Checkout Change Country

TOAST
BREWED WITH BREAD

MEET TOAST OUR BREAD OUR BEER BUY TOAST

http://www.toastale.com/

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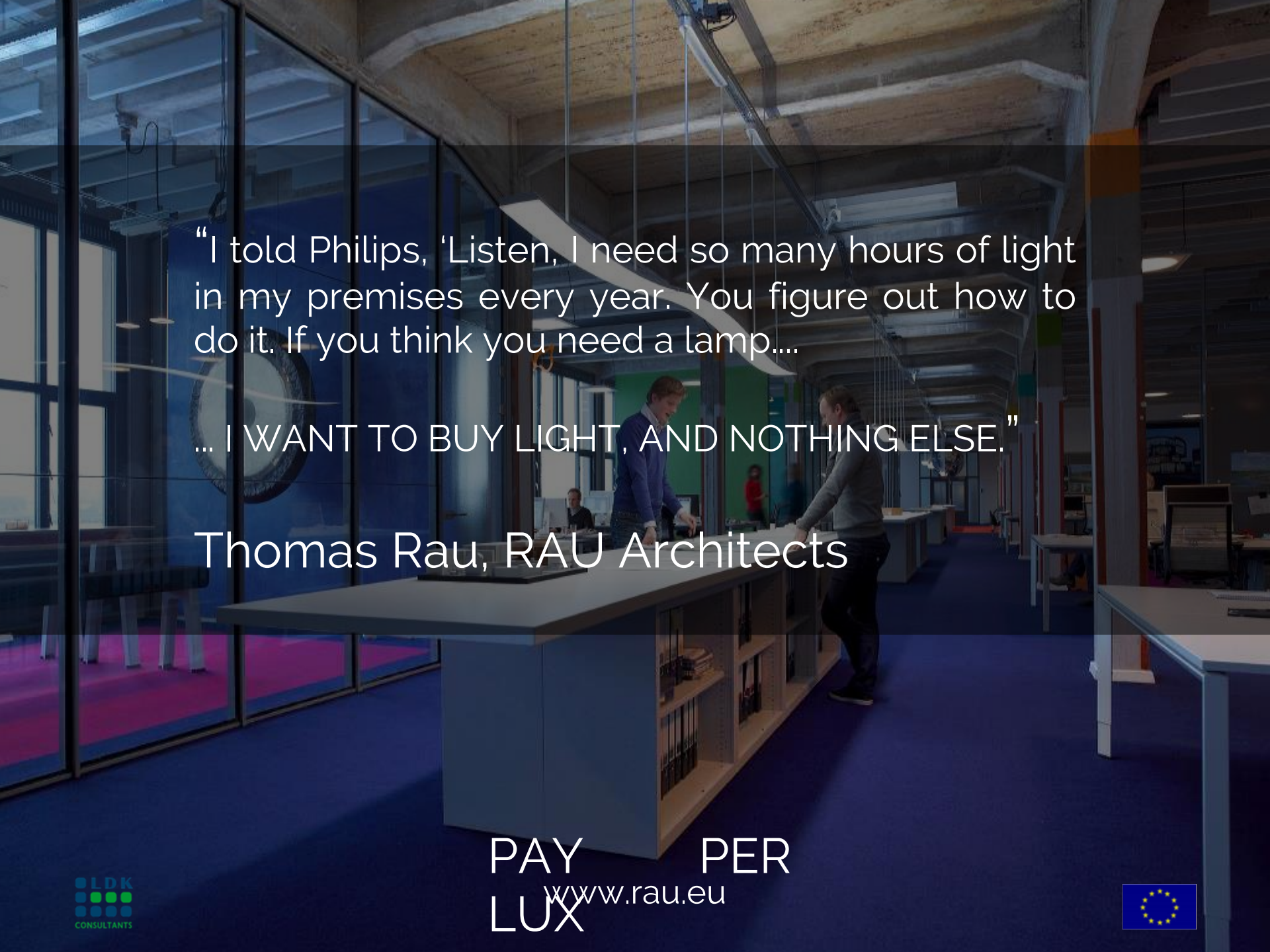
They process tetra-brik to obtain a ALU-PP resistant raw material

https://www.comberplast.cl/

Servitization (product as a service / performance)

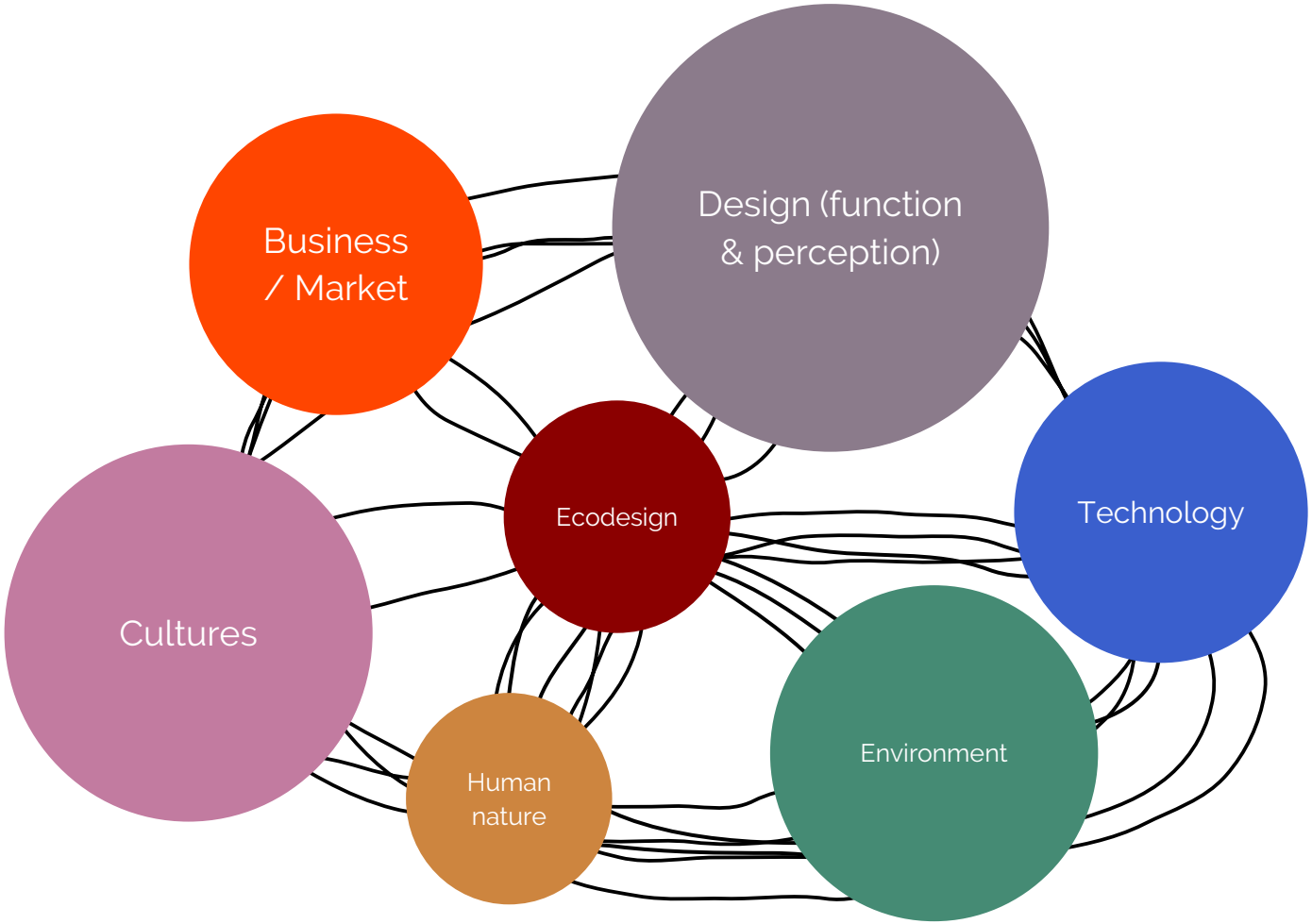
"Servitizing" means “extracting” the performance offered by a product in property to be offered as a service, in which the manufacturer maintains the control and management of the components and resources. The consumer (who becomes a user), is guaranteed access and "enjoyment" without being burdened with maintenance, repairs or final disposal by the producer who can exploit the resources and can give it output for other products.


“I told Philips, ‘Listen, I need so many hours of light in my premises every year. You figure out how to do it. If you think you need a lamp....
... I WANT TO BUY LIGHT, AND NOTHING ELSE.”
Thomas Rau, RAU Architects
PAY PER LUX
www.rau.eu

www.splosh.com


ECORP

Complexity & interconnection



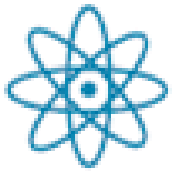
Ecodesign VS Marketing

Scoring.. an apple organic vs conventional

	org	conv
Taste	8	6
Appearance	6	8
Health aspects	8	5
Presentation	7	8
Availability	6	8
Environment	8	5
	7.1	6.7

Perceived quality of organic apple +6%

Aspects to be considered



Material

Material type & number

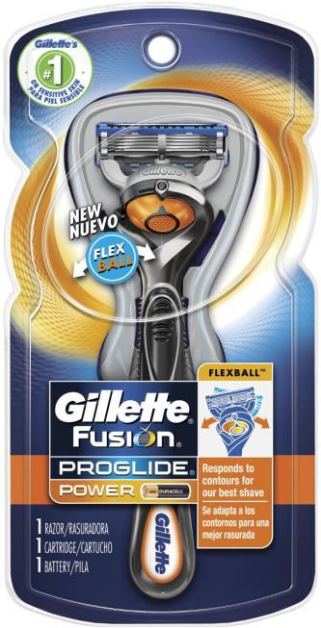
Undersized

Oversized

Appearance

Finishing

Some examples



Some examples

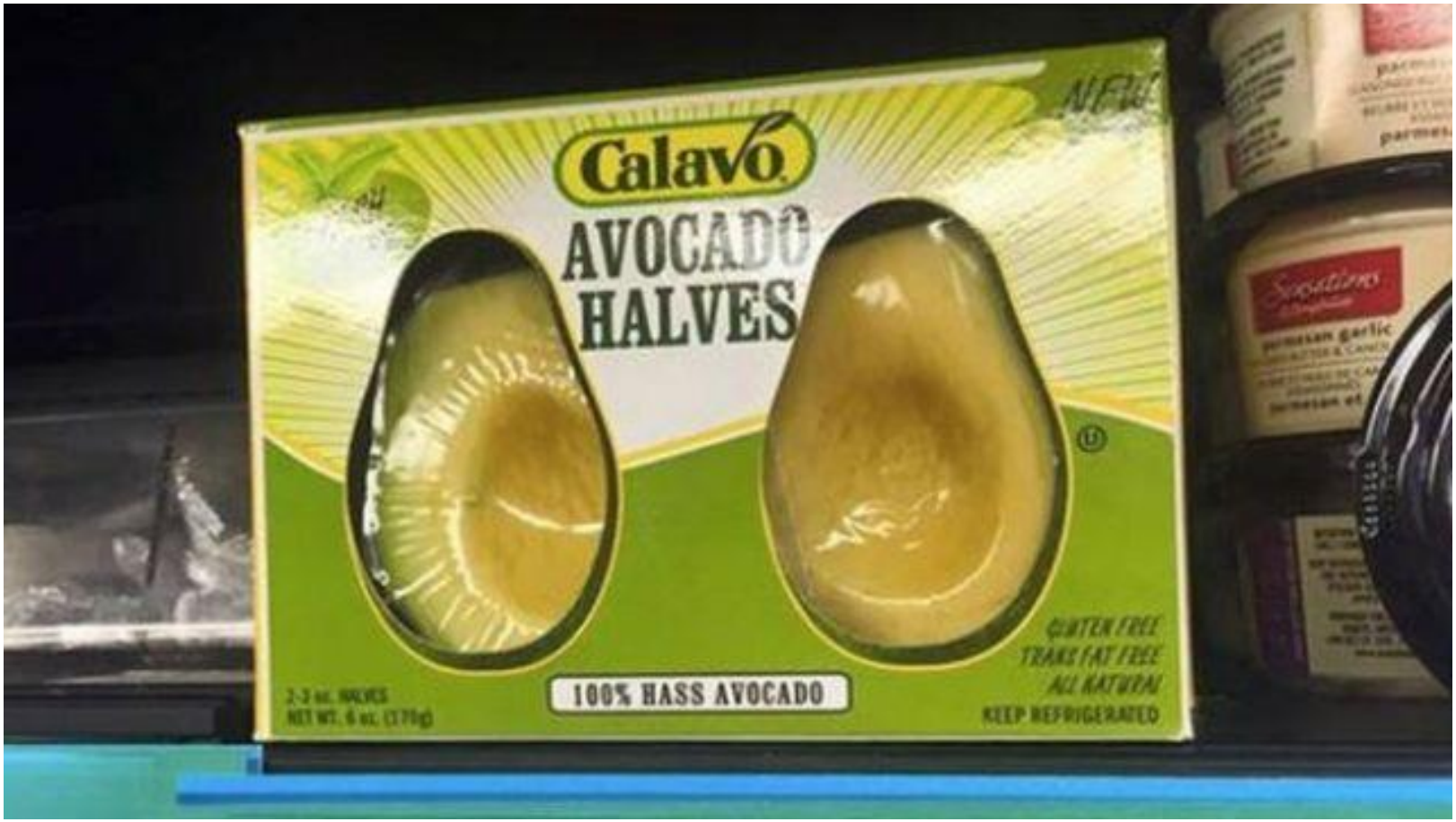
Some examples

Some examples

Some examples

Some examples

Some examples



Green washing

THE ~~SIX~~ SEVEN SINS OF GREENWASHING™

Green·wash (grēn'wŏsh', -wôsh') – *verb:* the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service.

Credits: http://sinsofgreenwashing.com

Avoiding the green washing

SIN OF THE HIDDEN TRADE-OFF

A claim suggesting that a product is 'green' based on a narrow set of attributes without attention to other important environmental issues.

Example: Paper is not necessarily environmentally preferable just because it comes from a sustainably-harvested forest. Other important environmental issues in the paper-making process, such as greenhouse gas emissions, or chlorine use in bleaching may be equally important.

SIN OF IRRELEVANCE

An environmental claim that may be truthful but is unimportant or unhelpful for consumers seeking environmentally preferable products.

Example: 'CFC-free'. This is a frequent claim despite the fact that CFCs are banned by law.

SIN OF NO PROOF

An environmental claim that cannot be substantiated by easily accessible supporting information or by a reliable third-party certification.

Example: Facial tissues or toilet tissue products that claim various percentages of post-consumer recycled content without providing evidence.

SIN OF FIBBING

Environmental claims that are simply false.

Example: Products falsely claiming to be Energy Star certified or registered.

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Avoiding the green washing

SIN VAGUENESS

A claim that is so poorly defined or broad that its real meaning is likely to be misunderstood by the consumer.

Example: 'All-natural'. Arsenic, uranium, mercury, and formaldehyde are all naturally occurring, and poisonous. 'All natural' isn't necessarily 'green'.

SIN OF LESSER OF TWO EVILS

A claim that may be true within the product category, but that risks distracting the consumer from the greater environmental impacts of the category as a whole.

Example: Organic cigarettes and fuel-efficient sport-utility vehicles.

SIN OF WORSHIPING FALSE LABELS

A product that, through either words or images, gives the impression of a third-party endorsement where no such endorsement actually exists; fake labels, in other words.

Example: Manufacturers who add their own label to a product with images and statements such as, 'this product fights global warming'.

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Looking behind the tag

Social activism & condemn

SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

Thank you for your attention.

This Project is funded by the European Union