Economia circular

Economia circular

Sabias que?

The European Union uses around **8.1 Billion Tonnes** of materials per year, which amounts to an annual per capita consumption of materials of roughly **16 tonnes.**

Only **5%** of the original value of **Raw Materials** consumed in Europe is recovered through **Recycling** and energy recovery from waste.

2014

In Portugal alone, **each person** produced **452kg** of rubbish, **+2.5%** more than in 2013.

of the value of these materials and the energy used is **lost.**

Source: European Commission

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Sabias que?

92%

In Europe, a car on average spends 92% of its time parked.

35 to 50%

An office is only used 35% to 50% of the time, even during working hours.

+x6

The European Union imports 6 times more materials and natural resources than it exports.

31% of food **is wasted** along the value chain.

Between **30** of the value of to **75%** the materials used in the steel, plastics and paper industries is lost during the 1st production cycle.

On average, Europe uses materials

ONLY ONCE.

Source: "Growth Within: A circular economy vision for a competitive Europe", Ellen MacArthur Foundation, SUN, McKinsey & Co. (June 2015)

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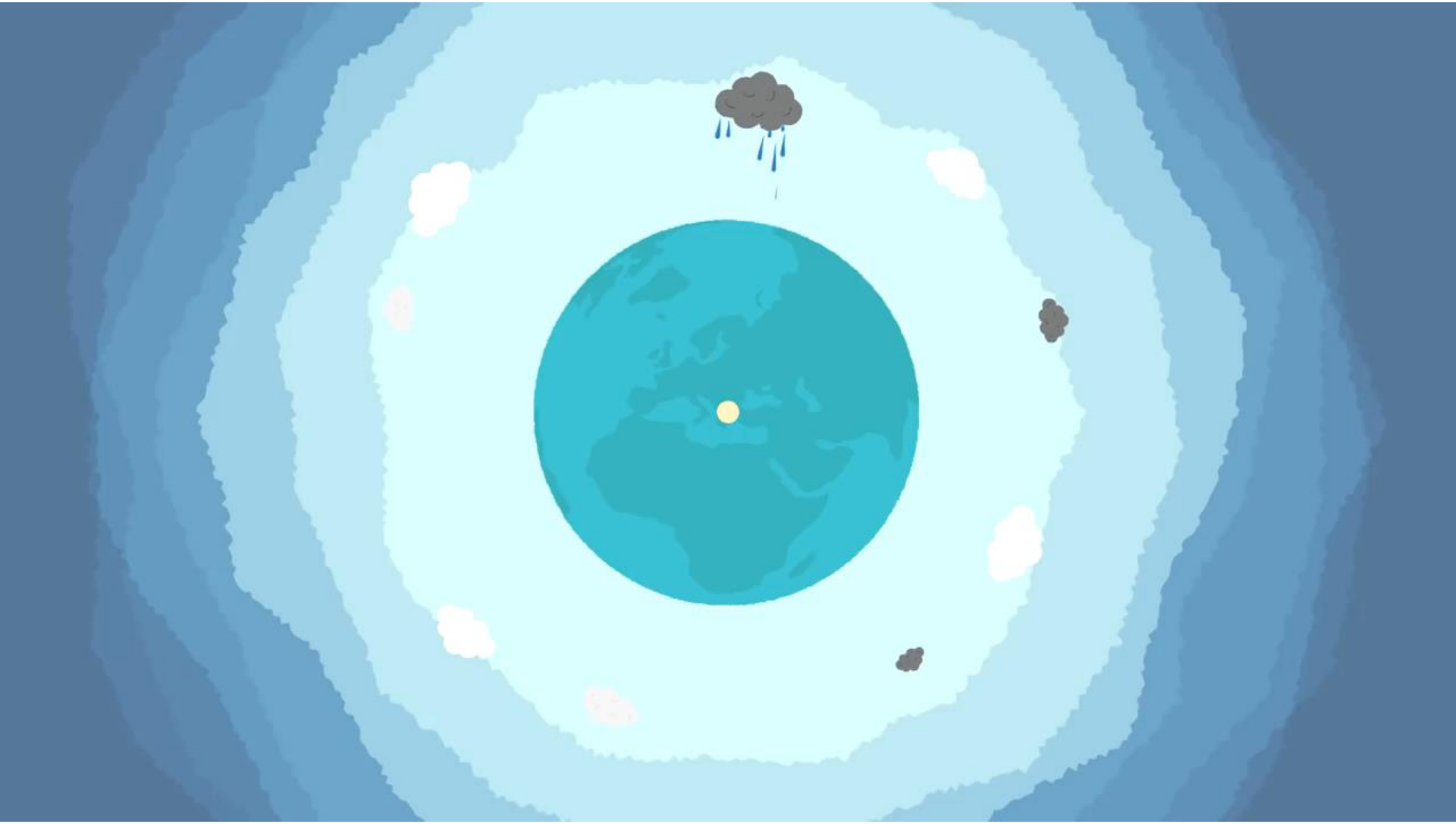


Economia circular

O que acontecerá se tudo continuar "*business as usual*"?

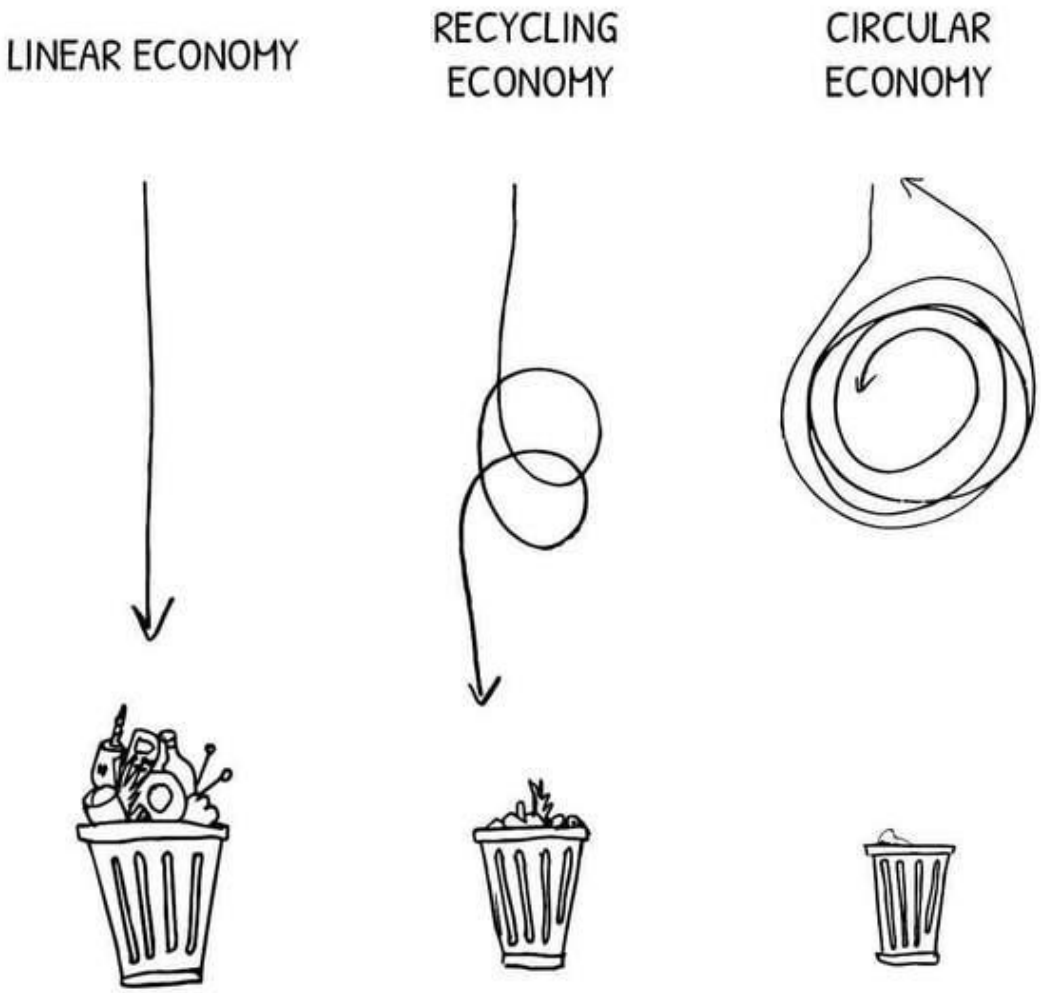
Diminuição/destruição dos recursos naturais!

Os preço das matérias-primas aumentará

A pressão ambiental aumentará!

Economia circular

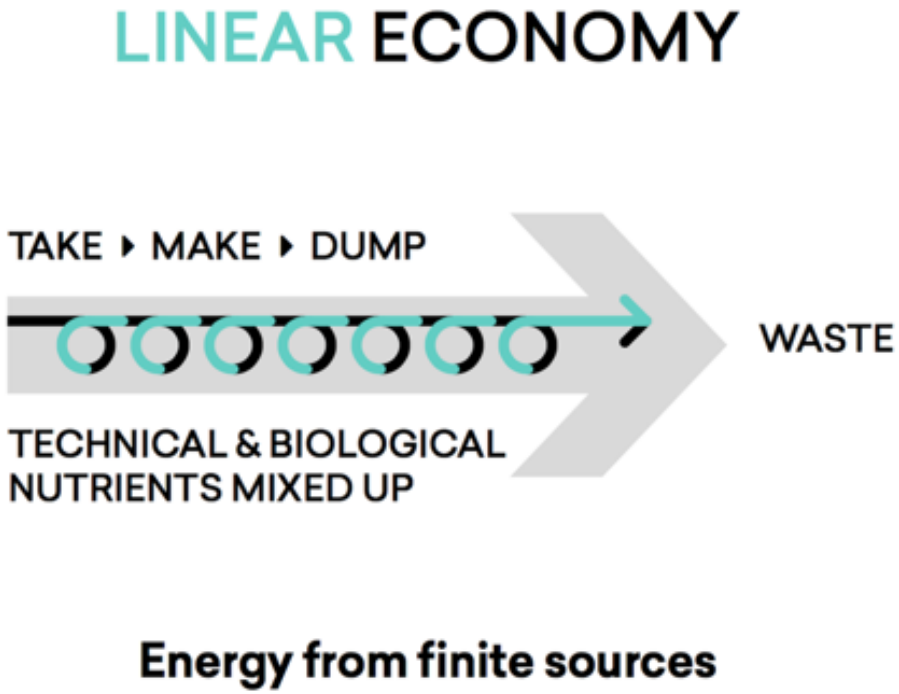
Numa imagem…



Economia circular

Princípios de uma economia linear

- baseado no princípio “produz- utiliza-deita fora”. Este modelo exige vastas quantidades de materiais a baixo preço e de fácil acesso e muita energia.

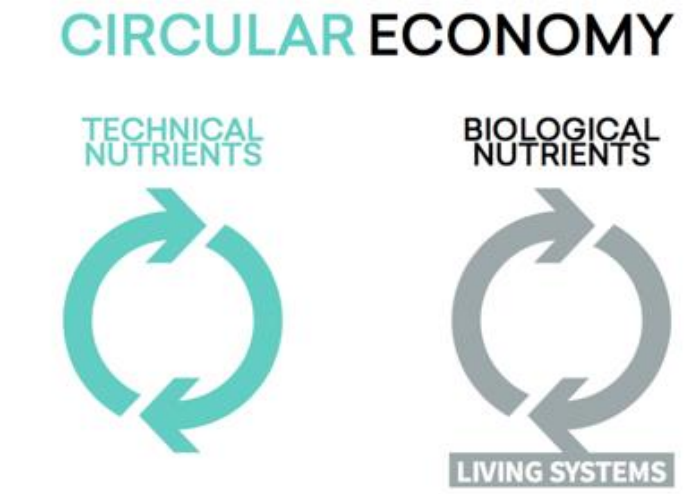


after W McDonough and M Braungart

Economia circular

Princípios de uma economia circular

- A economia circular é um **modelo de produção e de consumo** que envolve a partilha, a reutilização, a reparação e a reciclagem de materiais e produtos existentes, alargando o ciclo de vida dos mesmos.
- A economia circular implica a redução do desperdício ao mínimo. Quando um produto chega ao fim do seu ciclo de vida, os seus materiais são mantidos dentro da economia sempre que possível, podendo ser utilizados uma e outra vez, criando assim mais valor.



The three Rs (3R)
Reduce, Reuse and Recycle. The rule of the three Rs (3R).

Economia circular

Princípios de uma economia circular

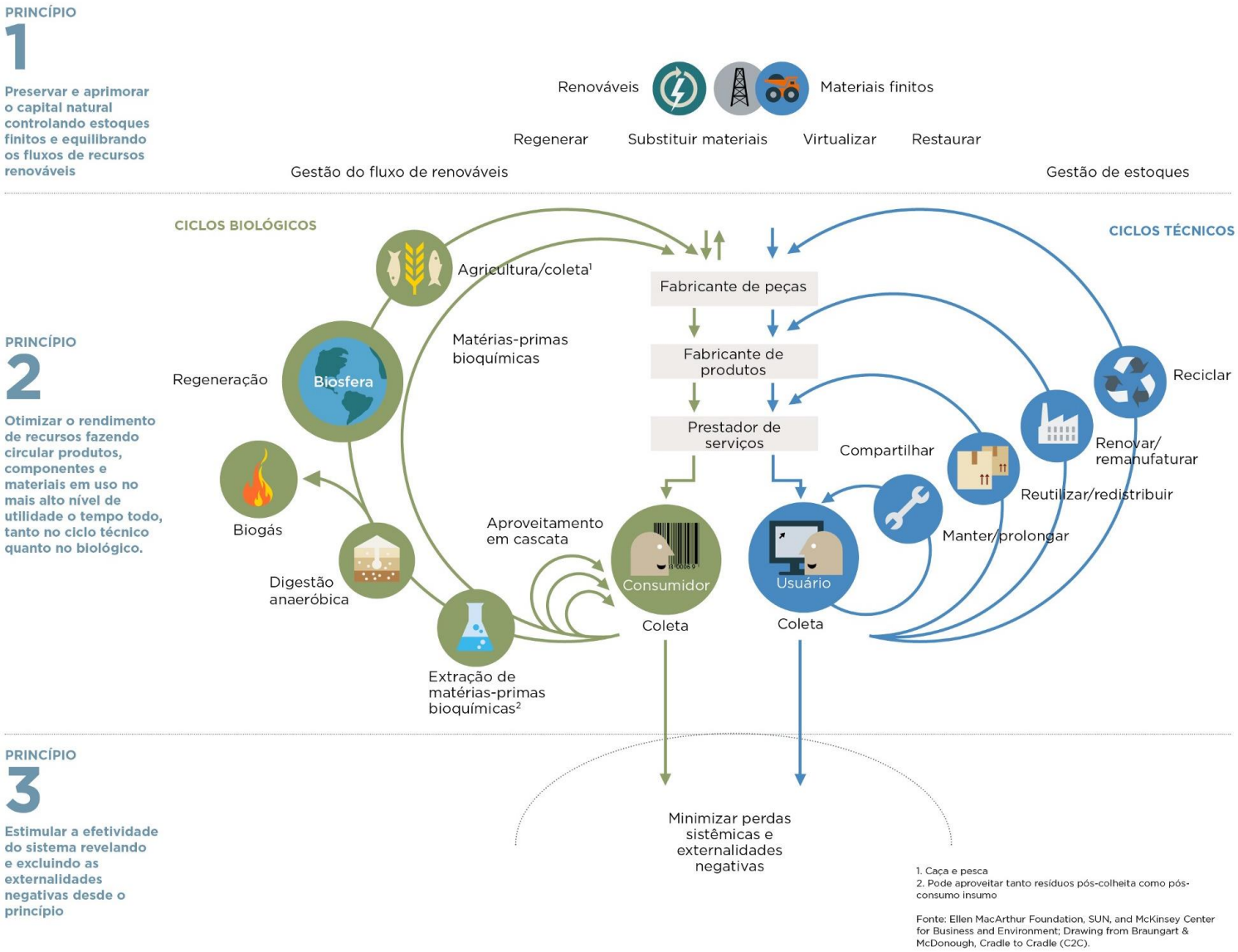
Preservar e aumentar o capital natural controlando recursos finitos e equilibrando os fluxos de recursos renováveis.

Otimizar a produção de recursos fazendo circular produtos, componentes e materiais no mais alto nível de utilidade em todos os momentos, tanto no ciclo técnico quanto no biológico.

Fomentar a eficácia do sistema revelando as externalidades negativas e excluindo-as dos projetos.

Economia circular

FIGURA 1: DEFINIÇÕES DA ECONOMIA CIRCULAR



Economia circular

Fonte: Kirchhier and Piscicelli, Towards an Education for the Circular Economy (ECE): Five Teaching Principles and a Case Study, Resources, Conservation & Recycling 150 (2019) 104406.

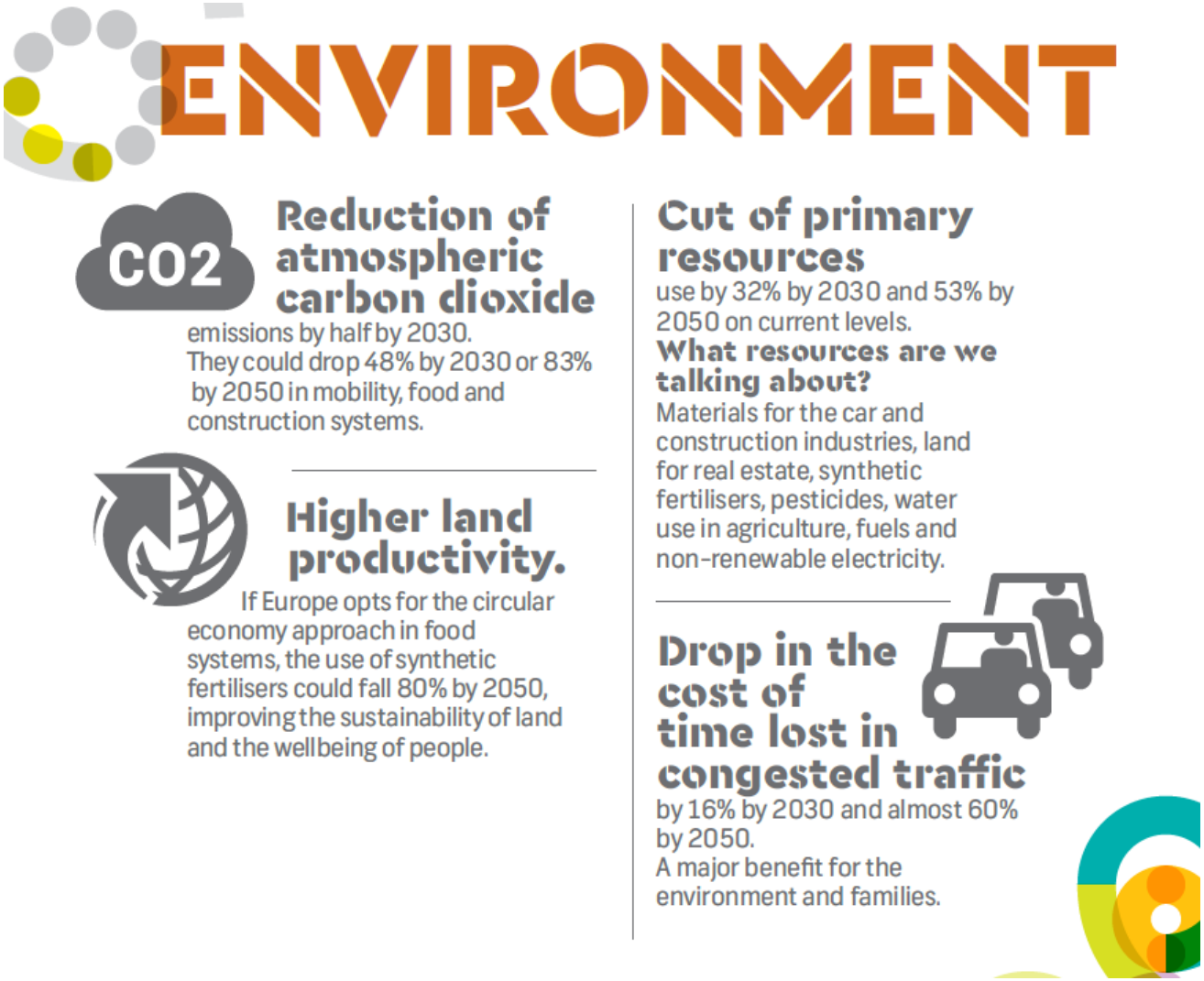
Economia circular

Benefícios da adoção de uma economia circular

Fonte: "The circular economy booklet", COTEC Portugal, 2020.

Economia circular

Benefícios da adoção de uma economia circular



Fonte: "The circular economy booklet", COTEC Portugal, 2020.

Economia circular

Benefícios da adoção de uma economia circular

Fonte: "The circular economy booklet", COTEC Portugal, 2020.

Economia circular

Exemplos práticos:

edifícios

SKANSKA

This is Skanska | 2019 in brief | CEO message | Business streams | Sustainability | Annual Report 2019

2019 in brief

177
Total revenues, SEK billion

2.4
Construction margin, Percent

14.60
Unrealized gains in Project Development, SEK billion*

-28%
Reduction of carbon emissions since 2015

2045
Target to achieve net-zero carbon emissions in 2045

#20
Fortune's Change the World List 2019

→ Residential Development

Expanding the concept of sustainable, quality homes for all

BoKlok, jointly owned by Skanska and IKEA, provides space-saving, functional quality housing at a price that enables more people to afford a comfortable home. The use of standardized designs and large-volume industrialized production result in cost-effectiveness and high-quality control. Sustainability is at heart of the BoKlok concept, which is why the homes are made of timber – the most climate-smart building material.

The pre-fabricated modules are built indoors in dry and safe conditions, enabling high quality, low and predictable costs and minimum waste, before being transported to the construction site for assembly. In 2019, BoKlok began equipping all of its new apartment projects in Sweden with solar panels, which will help people reduce their energy costs and carbon emissions while providing an easy way to live more sustainably.

Since its launch in 1996, BoKlok – "live smart" in Swedish – has developed almost 12,000 homes in Sweden, Norway and Finland.

In 2019, BoKlok expanded into the UK, having identified this as a market with high demand for quality homes for people with an average income. The initial focus is on the South Coast, Southampton to Brighton and the West, North Cheltenham to North Somerset. These areas have people in need of low-cost home ownership as well as affordable land. BoKlok UK is in dialogue with both municipalities and private land owners. Most of the homes will be for market sale while a portion will be sold to municipalities and housing associations to be part of their social housing schemes.

Economia circular

Exemplos práticos: telemóveis

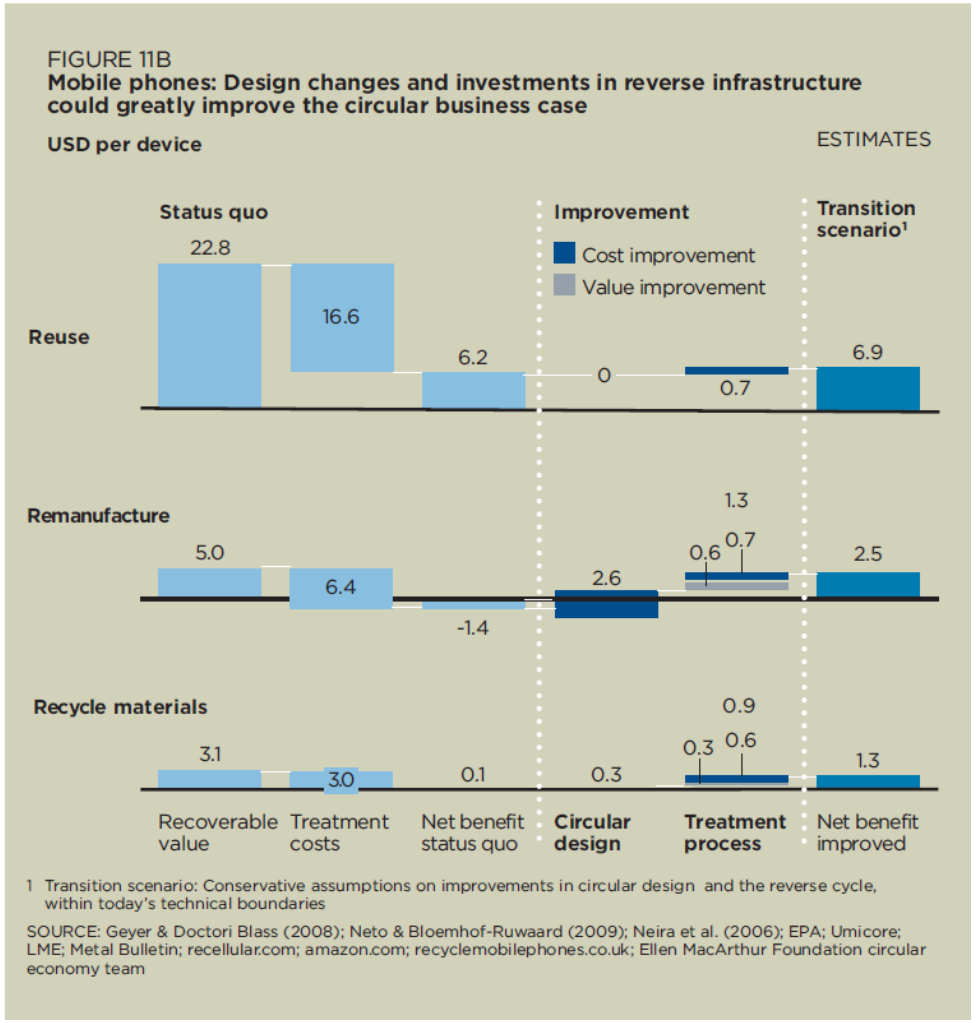
- Em 2010 foram produzidos 1.6 biliões de telemóveis.
- Em economias desenvolvidas (Europa Ocidental, USA e Japão) os consumidores possuem 1.1 telemóveis e o tempo médio de utilização é inferior a 2.5 anos.

- Na Europa cerca de 160 milhões de equipamentos foram descartados representando uma perda de materiais de cerca de 500 milhões USD.
- A taxa de recolha é de cerca de 15%, enquanto que o mercado secundário de telemóveis (apesar de estar a crescer significativamente) atinge apenas cerca de 6%.

Fonte: "Towards the circular", Ellen Macarthur Foundation, 2013.

Economia circular

Exemplos práticos: telemóveis



Fonte: "Towards the circular", Ellen Macarthur Foundation, 2013.

Economia circular

Exemplos práticos: Máquinas de lavar roupa

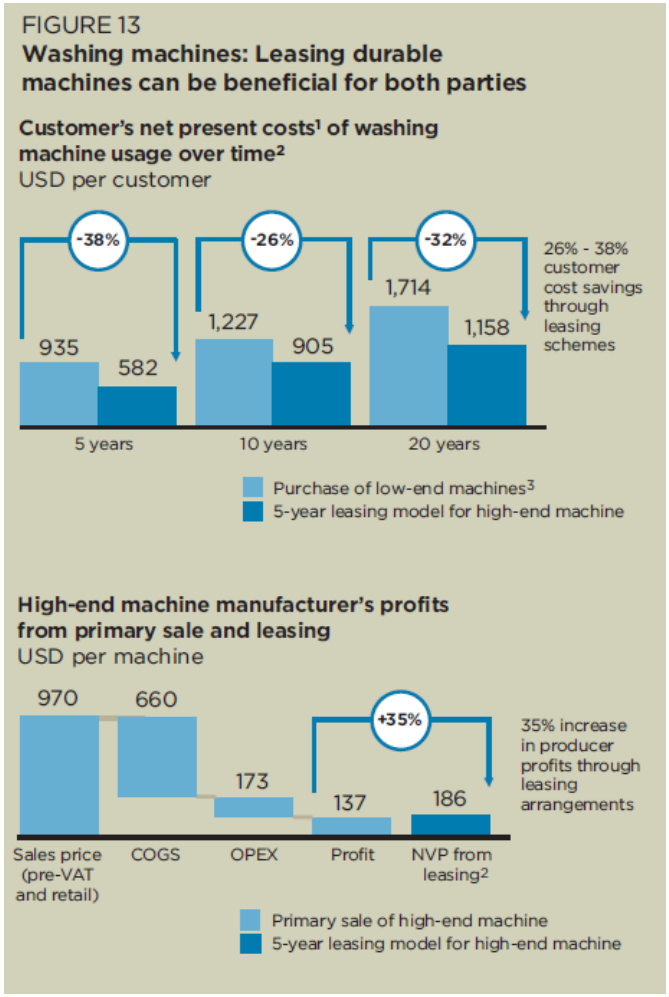
- **Na Europa o número de máquinas de lavar roupa é superior ao número de carros.**
- **Cada máquina de lavar roupa contém entre 30 e 40 kg de aço.**

- Embora estes equipamentos possuam componentes similares a sua longevidade varia entre 2000 e 1000 ciclos, dependendo da qualidade do equipamento.

Fonte: "Towards the circular", Ellen Macarthur Foundation, 2013.

Economia circular

Exemplos práticos: Máquinas de lavar roupa



Fonte: "Towards the circular", Ellen Macarthur Foundation, 2013.

Economia circular

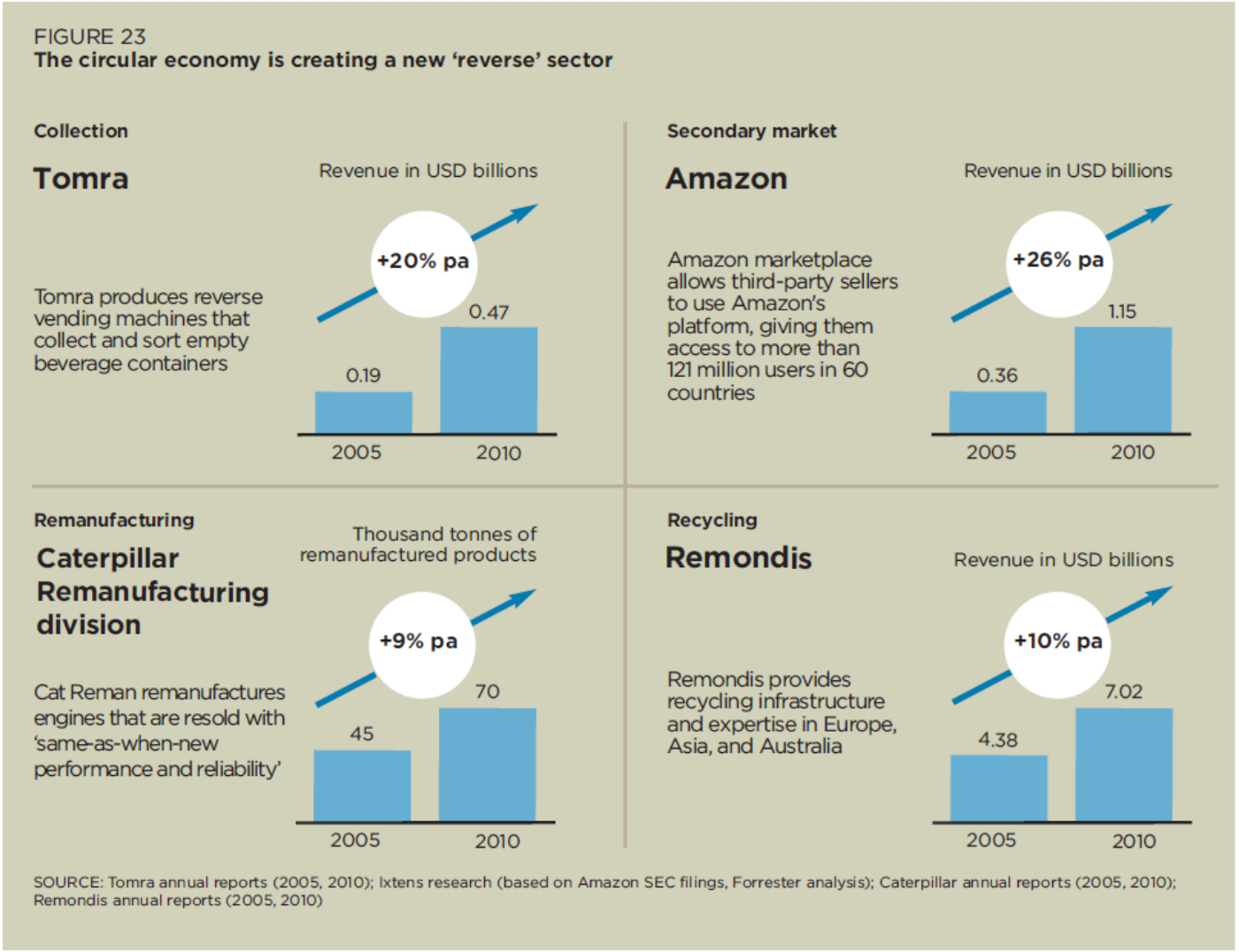
Exemplos práticos:

	Building blocks of a circular economy	Examples — Mobile phone		Light commercial vehicle (LCV)		Washing machine		ILLUSTRATIVE
		From...	To...	From...	To...	From...	To...	
A	Product design	Highly integrated product designs and low degree of component standardisation	Component standardisation (e.g., displays) and design for disassembly (e.g., clip-hold assembly)	Limited degree of modularisation (e.g., bolted connections in LCV engine bay)	Design for disassembly—wider design of engine bay and use of quick fasteners	Efficiency gains in energy and water consumption drive economic obsolescence and limit lifetimes	Regular software updates and upgrades of electronics and sensor systems post sale	
B	Business models	Low customer incentives to return devices after usage	Deposit payment or leasing models	Customer concerns about quality of refurbished vehicles	Warranty offered on refurbished vehicles	Customer concerns about alternative business models	Creation of transparent, 'win-win' leasing contracts and effective marketing	
C	Reverse cycle skills	Limited development and choice of circular options	Automated disassembly and efficient technologies (e.g., fault-tracking software)	Sub-scale refurbishing facilities	Centralised refurbishment plants with optimised workflows, allowing for economies of scale	Quality losses within inappropriate collection channels	Manufacturer-controlled collection, enabled by leasing models	
D	Cross-cycle and cross-sector collaboration	High damage/loss rate along all reverse value chain steps	Industry-wide efforts to establish comprehensive collection and treatment system	University curricula for engineers still focused on linear system	OEM/sector initiatives to foster R&D of circular production methods	Diverging incentives of customers and producers in context of new ownership models	Specialised intermediaries enable alternative ownership models on larger scale	

Fonte: "Towards the circular", Ellen Macarthur Foundation, 2013.

Economia circular

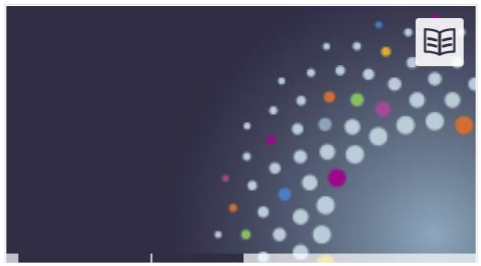
Exemplos práticos



Fonte: "Towards the circular", Ellen Macarthur Foundation, 2013.

Economia circular

Exemplos práticos



Case studies by topic

Cities

Examples of cities that are helping to scale up the circular economy transition.

Design

Examples of companies using design to enable circular economy outcomes.

Fashion

Examples of innovative production systems, materials and business models for a circular fashion...

Food

Examples of circular economy for food from every corner of the globe.

https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/examples