

Policies to promote the Circular Economy

The EU Sustainable Product Policy Initiative and other upcoming proposals

C. Dalhammar, IIIEE, Lund University

REMOVABLE, REPLACEABLE AND REPAIRABLE BATTERIES

HOW TO IMPROVE THE CIRCULARITY OF RECHARGEABLE BATTERIES IN CONSUMER
ELECTRONICS AND LIGHT ELECTRIC VEHICLES

6TH DECEMBER 2021

CARL DALHAMMAR, JESSIKA LUTH RICHTER



Planned obsolescence

Built not to last



Increasing the lifespan of products

Policies and consumer perspectives

ER 2021:25

Moving away from the throwaway society

Five policy instruments for extending
the life of consumer durables

Carl Dalhammar
Cornelia Hartman
Jörgen Larsson

Johan Jurelin
Leonidas Milios
Olizana Mont



The circular economy: towards a new business paradigm with support from public policy

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Photo: © Thomas Mann / Getty

Abstract

Today, we live in a linear economy and the current situation is a product of past ideas on effective markets, legal concepts and legal culture, business models and ideas on ownership and consumer culture. For us to move to a more circular economy, we need to start questioning how we look at products, markets, ownership and resources.

As a foundation for this process, this report highlights what the circular economy is about and some key issues we need to address to move towards a circular economy. It also highlights the need to connect the business and policy developments related to the circular economy to other sustainability fields, such as climate change and chemicals, and to place it within the broader context of sustainable consumption. A circular economy is not only about taking care of our resources; we must also ensure that all humans have access to the resources they need to live a decent life. Thus, the social dimensions of the circular economy should not be neglected: it must be an economy that benefits all humans.

Key messages

- Our language is a means for change: we must pay attention to terms we use and

BACKGROUND PAPER May 2022

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This Background Paper supports the
scientific report, Stockholm+50
Unleashing a Better Future

Making governance better for fair and sustainable consumption

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Abstract

The past 50 years have seen the birth of many environmental policies, and yet, despite some progress, the ecological integrity of the planet remains threatened. Resource-intensive lifestyles, and the difficulties in decoupling increased consumption from resource use and greenhouse gas emissions at the scale needed, seem to be the main causes of our crisis.

Furthermore, the current distribution of Earth's resources is very unequal, both between countries, but also within countries. The basic needs of too many people are not met. In order to reach the targets of the Paris Agreement, safeguard ecological limits, and reach sustainable development, we must address the consumption challenge.

Key messages

- Monitor consumption-based emissions;
- Work towards more fair and inclusive consumption patterns and support strong sustainable consumption governance;
- Develop more comprehensive policy packages for sustainable consumption;
- Support policy experiments that can increase public support for new policies;
- Analyse the potential for introducing sufficiency policies.

BACKGROUND PAPER May 2022

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Circular Business models

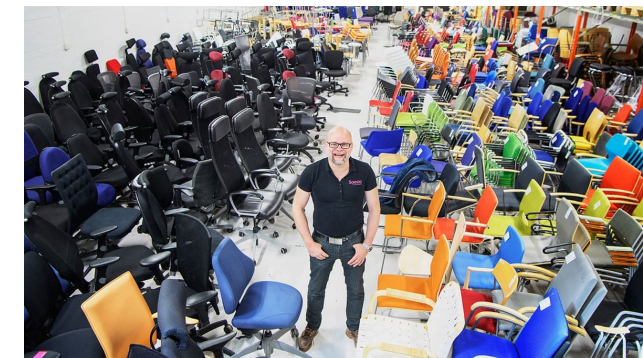
Bioeconomy

New products and markets (e.g. wood construction, biobased plastics & products, biorefineries, wood-based textiles), industrial ecology in supply chains etc.



Manufacturing

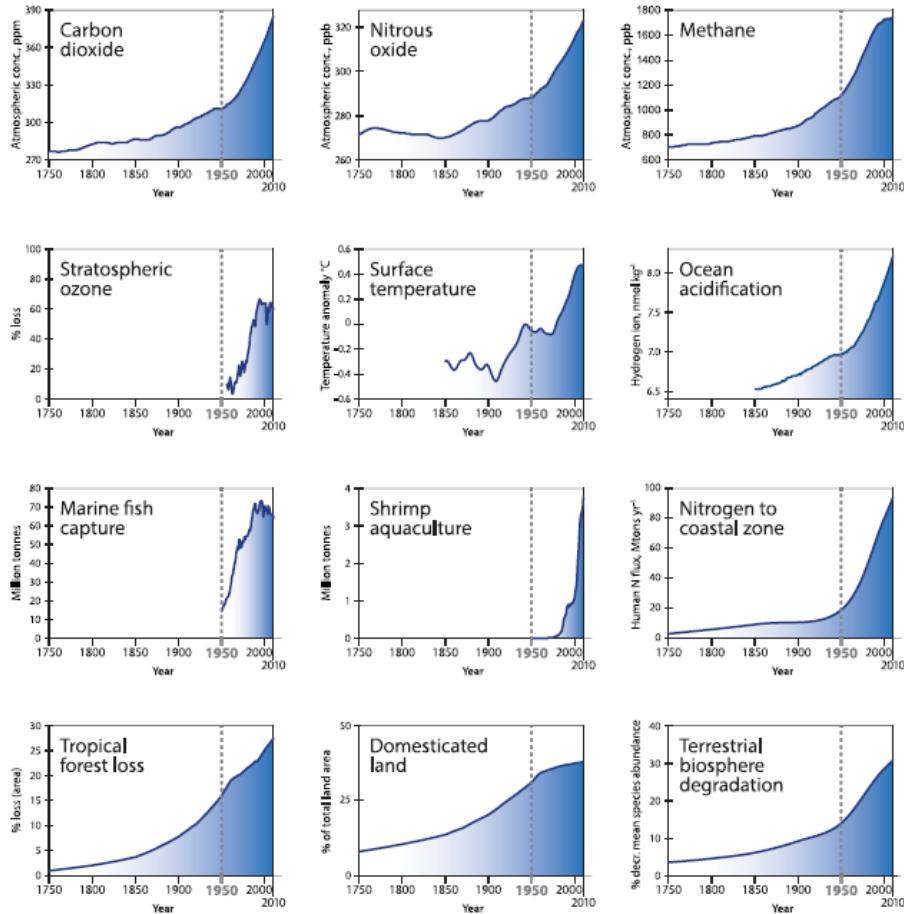
Durable & sustainable products, remanufacturing, repair, re-use, sharing & renting (cars, tools etc.), PSS, modular design, design for durability & repair, software support & upgrading etc., recycling of materials



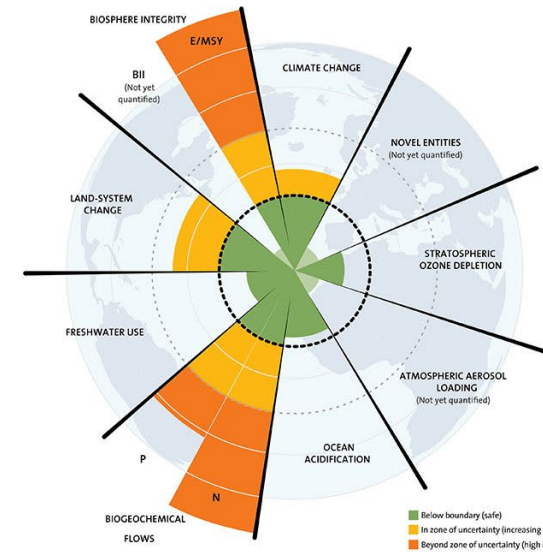
Content

- The consumption challenge
- The Circular Economy and climate change
- Circular Economy policies
- Policies to green the life cycle impacts of products
- EU and national policies: need for harmonization?
- Need for rethink: consumers, products & markets

Earth system trends



Source: Steffen et al., *The trajectory of the anthropocene...*



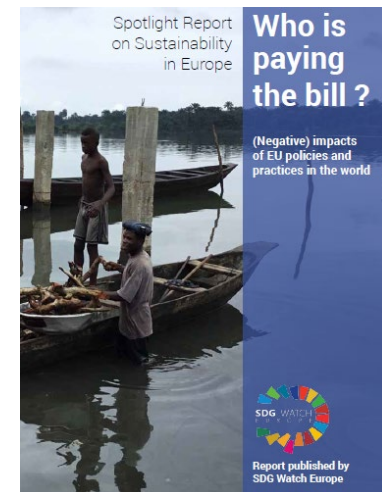
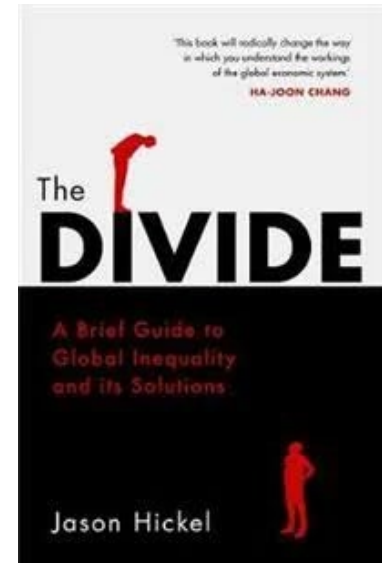
Source: SEI

“Using 'business-as-usual' projections, we predict that, by 2100, solid-waste generation rates will exceed 11 million tonnes per day - more than three times today's rate”

Hoornweg et al. 2013, Nature

Who takes the resources?

- Resource use per capita points to "neo-colonial" structures: some countries seems to take a bigger and bigger slice of the "pie" (Moll m fl 2005; Tukker m fl. 2016; Hickel m fl 2021)
- Poverty is not an accidental by-product of the current economic system, but rather "created" through it (Hickel 2016)
- The mechanisms that create wealth can also create increased economic inequality (Rodrik 2021)
- Current discourses on the circular economy are technocratic and often neglects resource distribution, seeing "win-wins" (Corvellec et al. 2021)
- *Policy coherence* is a key issue for the future: financial support for social and economic development in developing countries are in conflict with measures in other policy areas



MARIANA
MAZZUCATO
THE VALUE OF
EVERYTHING

MAKING AND
TAKING IN
THE GLOBAL
ECONOMY

allen lane

‘In modern capitalism, value-extraction is rewarded more highly than value-creation: the productive process that drives a healthy economy and society. From companies driven solely to maximize shareholder value to astronomically high prices of medicines justified through big pharma's 'value pricing', **we misidentify taking with making, and have lost sight of what value really means. . .**’

STRONG

SUSTAINABLE CONSUMPTION

WEAK

SUSTAINABLE CONSUMPTION

REDUCE

**SUFFICIENT
CONSUMPTION**

CHANGE

**DIFFERENT
CONSUMPTION**

IMPROVE

BETTER CONSUMPTION

If the “pie” isn’t growing, there is a need to consider fairness & justice

“Niche” activities, slow progress, limited environmental potential

“The central challenge... is to decouple growth absolutely from material and energy intensity” (UNEP, 2011).

“It's easier to imagine the end of the world than the end of capitalism” (Mark Fischer)

“There are generally three ways of reducing emissions - apart from the most obvious, to replace current fossil energy with renewables, such as solar and wind. ... Number one is technical solutions.... The second alternative is to use nature’s own ability to absorb and store carbon... .

*The third option is the only method that is available at scale already today. And that is to simply stop doing certain things. But it is also the alternative which people seem to find the most unrealistic. **Just the thought of us being in a crisis that we cannot buy, build or invest our way out of seems to create some kind of collective mental short circuit.**”*

Greta Thunberg, translation of a speech from Swedish public radio, Sveriges Radio, published in Time



Greenhouse Gas Emissions

2020	2030
-20%	≥-40%



Renewable Energy

2020	2030
20%	≥32%



Energy Efficiency

2020	2030
20%	≥32.5%



Climate in EU-funded programmes 2014-2020

2020	2030
20%	25%



Interconnection

2020	2030
10%	15%



CO2 from :

Cars	Vans	Lorries
2030		
-37.5%	-31%	-30%

As part of the European Green Deal, The European Commission has proposed to raise the 2030 greenhouse gas emission reduction target, including emissions and removals, to at least **55%** compared to 1990 (Fit for 55 Package)



eurostat

Your key to European statistics

INDICATORS: INFORMATION

Which indicators are used to monitor the progress towards a circular economy?

The monitoring framework on the circular economy as set up by the European Commission consists of ten indicators, some of which are broken down in sub-indicators.

[> read more](#)

These ten indicators, for which data is available in the [database](#), are divided into the following four thematic areas:



Production and consumption

This area comprises four indicators:

- Self-sufficiency of raw materials for production in the EU;
- Green public procurement (as an indicator for financing aspects);
- Waste generation (as an indicator for consumption aspects);
- Food waste.

[> read more](#)



Waste management

This area comprises two indicators:

- Recycling rates (the share of waste which is recycled);
- Specific waste streams (packaging waste, biowaste, e-waste, etc.).

[> read more](#)



Secondary raw materials

This area comprises two indicators:

- Contribution of recycled materials to raw materials demand;
- Trade of recyclable raw materials between the EU Member States and with the rest of the world.

[> read more](#)



Competitiveness and innovation

This area comprises two indicators:

- Private investments, jobs and gross value added;
- Patents related to recycling and secondary raw materials as a proxy for innovation.

[> read more](#)

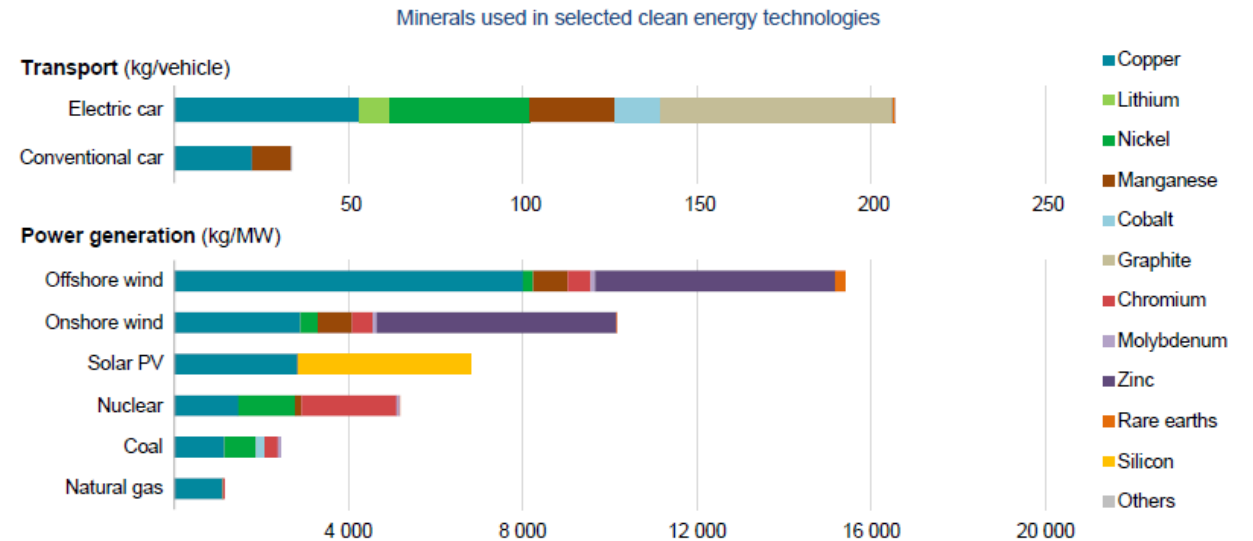
The climate and resource challenges are connected

The Role of Critical Minerals in Clean Energy Transitions

World Energy Outlook Special Report



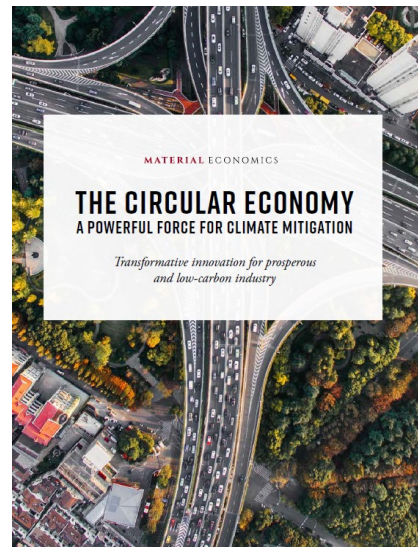
The rapid deployment of clean energy technologies as part of energy transitions implies a significant increase in demand for minerals



Notes: kg = kilogramme; MW = megawatt. Steel and aluminium not included. See Chapter 1 and Annex for details on the assumptions and methodologies. IEA. All rights reserved.

The Circular economy & the climate challenge: synergies

- The Circular economy has high climate potential
- Longer-lasting products and materials & re-use can cut greenhouse gas emissions



COMPLETING THE PICTURE
HOW THE CIRCULAR ECONOMY
TACKLES CLIMATE CHANGE



It's all connected...

- The climate solution may lead to a resource crisis
- But many resource-related solutions are dependent upon other policies...
- For instance, we cannot recycle some stuff because they contain chemicals or impurities

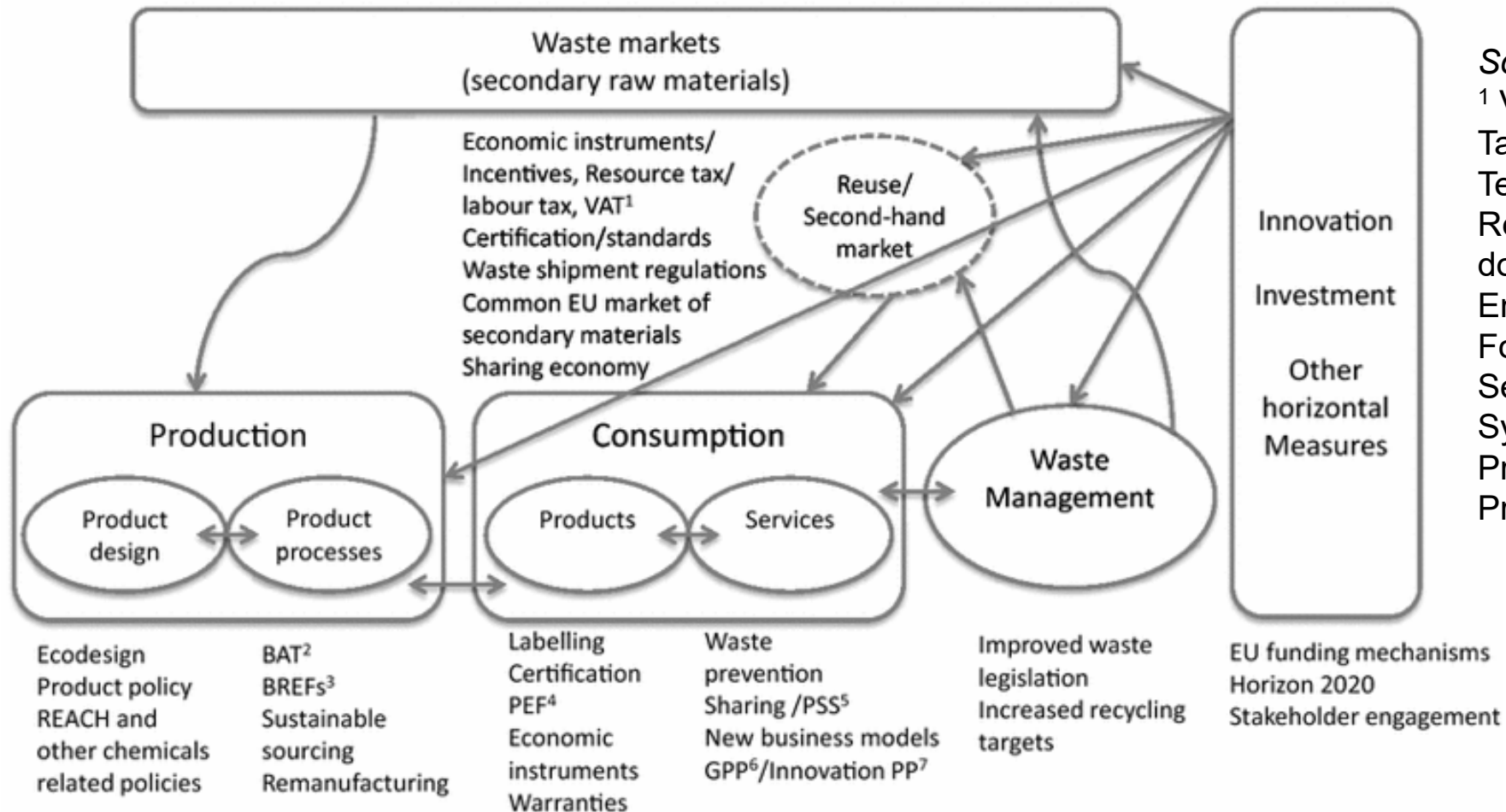


The EU: This is why the circular economy and chemical strategies are discussed under the New Green Deal!



EU Circular economy policy landscape (1st Action Plan)

EU level:
product laws,
chemicals
National
level: taxes,
green public
procurement
Shared
competence:
consumer
issues, waste

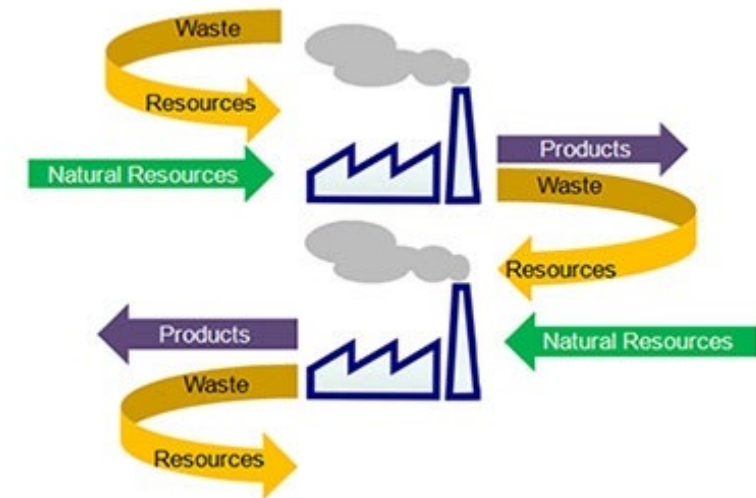


Source: Milios 2017.

¹ Value Added Tax; ² Best Available Techniques; ³ BAT Reference documents; ⁴ Product Environmental Footprint; ⁵ Product-Service System; ⁶ Green Public Procurement; ⁷ Public Procurement

Some concerns

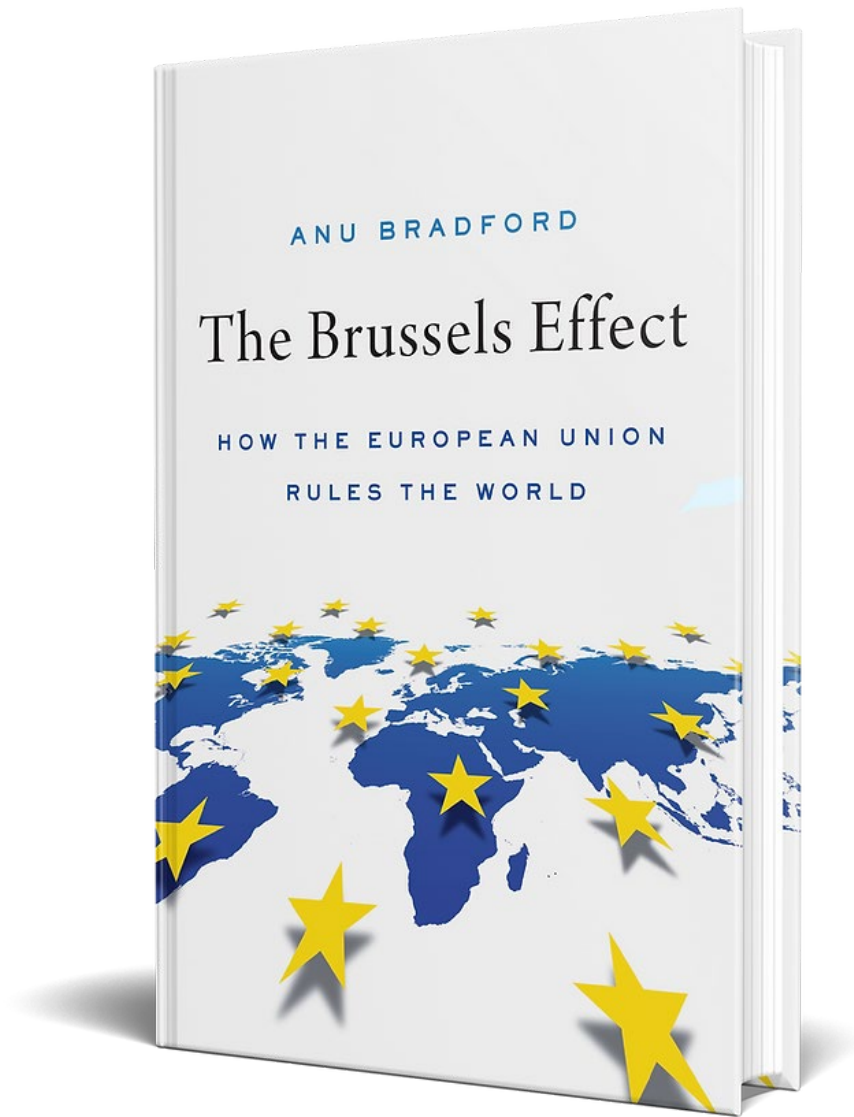
- **Industrial symbiosis:** stopped by laws, organisational barriers, logistics
- **Markets for recycled materials:** hindered by laws on chemicals, waste laws, product design, low quality materials etc.
- **Green public procurement:** high potential, but hard to realize; often requires significant changes in mindsets, routines, & may increase costs
- **Can consumers lead the way:** research seems to indicate that the answer is probably "no"!



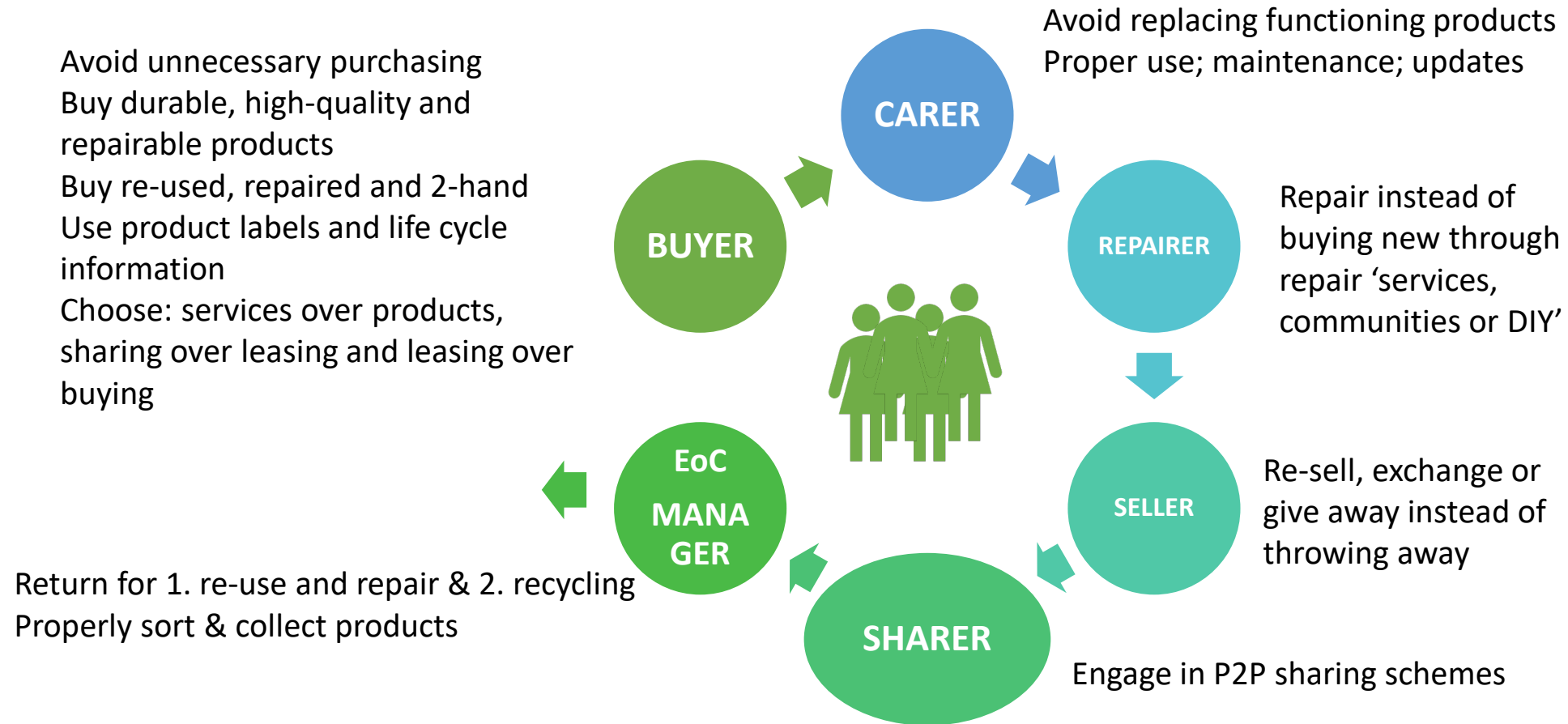
Addressing the life cycle environmental impacts of products

Legal developments with large future influence on corporate practices

1. Corporate social sustainability (CSR) and supply chain due diligence
2. Sustainable finance (e.g. the Taxonomy)
3. Carbon disclosure and carbon markets
4. *Sustainable products - policies, laws and standards*
- *EU developments have global reach*



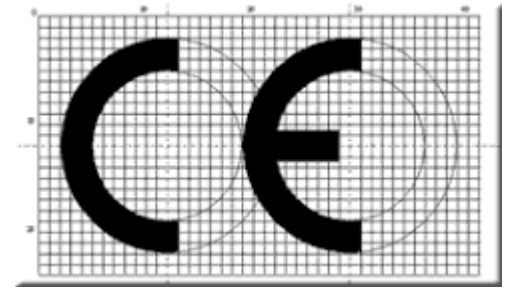
Citizen roles in "circular" consumption



Source: D. Mont., Maitre-Ekern & Dalhammar

Product law: EU internal market requirements

- **Product safety** regulations etc.
- **Chemical content** in goods; REACH Regulation, RoHS Directive, Toy Safety, Product Safety etc.
- **Energy efficiency** of goods: The Ecodesign Directive
- **Extended producer responsibility** for goods (packaging, electronics etc.) – producers responsible for collection and recycling of used products



Product policies: demand side

- **Public procurement**

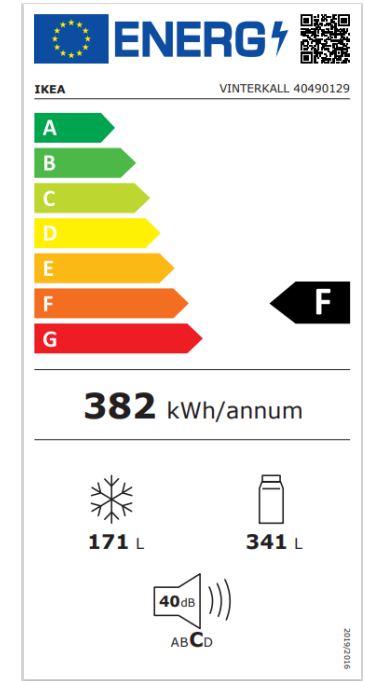
- Electric cars, healthcare products with bioplastics, wood-based construction etc.
- Influences product offerings, volumes of scale
- Some effects on design, e g more biobased products

- **Mandatory labels, e g EU energy label**

- Influences design, especially among top performers

- **Voluntary labels, e g eco-labels, TCO labeling**

- Influences design, but not always visible!
- Used as benchmark!



NORDIC
COUNTRIES



We have taught people that recycling is good...
...now we want longer product lifetimes and support for other 'R' activities!

“In a circular economy, the value of products and materials is maintained for as long as possible.”

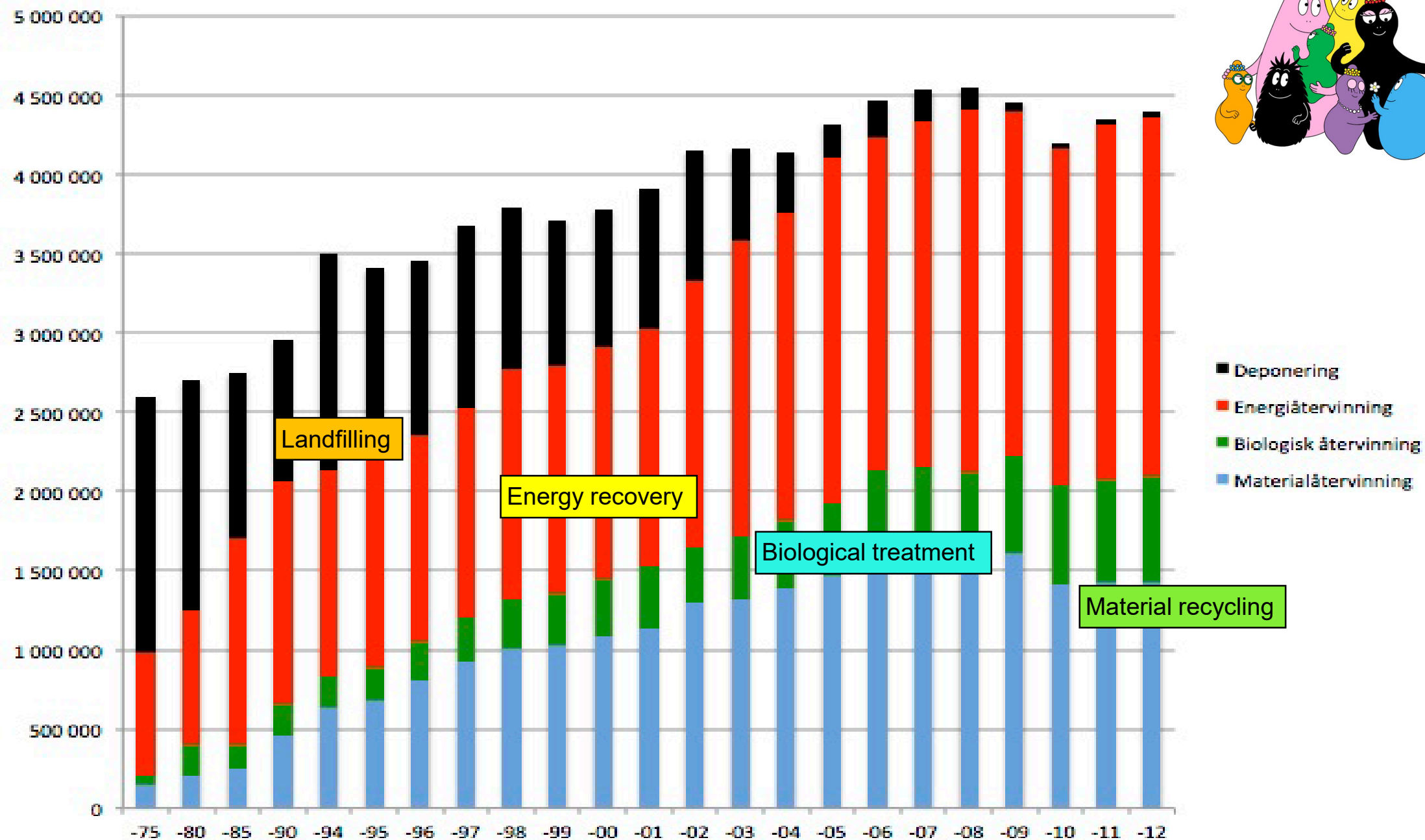
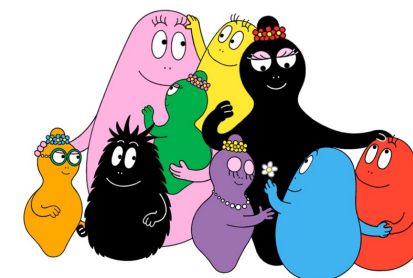
European Commission



Term	User	Level
Repair & maintenance	First user	Product
Re-use	Second Hand	Product
Refurbish	Second Hand	Product
Repurpose	Second hand in another application	Product
Remanufacture	Second Hand	Component
Recycle	Same industry (closed) Any other industry (open)	Material
Recovery	Any	Energy/material

Lifetime is dependent on e.g. product design and quality of materials, price of repairs vs. price of new product, proper maintenance/service, access to reasonably priced spare parts and repair services, and repair information etc.; consumer behaviour and fashion trends; access to re-use infrastructure and repair support, secondhand shops etc.

Product lifetime/repairability/recyclability are thus "potentials"



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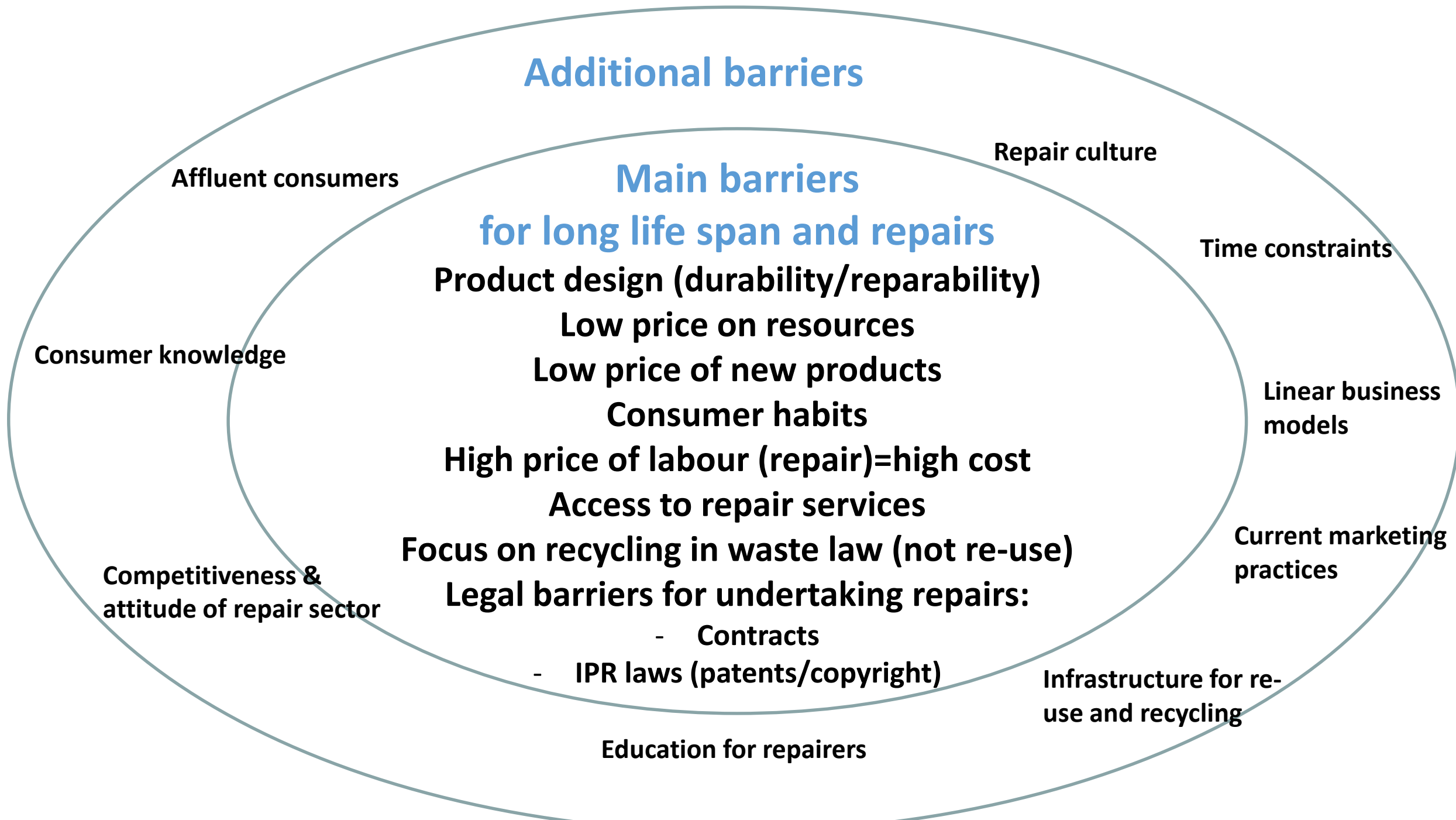
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Product lifetime/repairability/recyclability are thus "potentials"

Longer product lifetimes can be environmentally beneficial...

- For passive products that do not use energy, e.g. furniture, clothing
- For energy-using products with the majority of environmental impacts in the production stage, e.g. computers, tablets, phones
- For energy-using products with slowing rates of energy-efficiency improvements, e.g. vacuum cleaners
- For energy-using products with low intensity of use, e.g. appliances in a summer house
- For energy-using products used in decarbonised energy context, e.g. Norway, Sweden
- We should not forget the *consumer dimension*



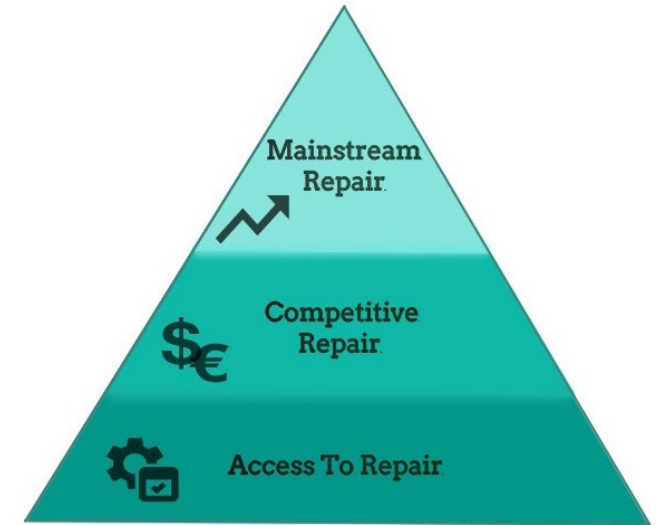


How promote product durability?

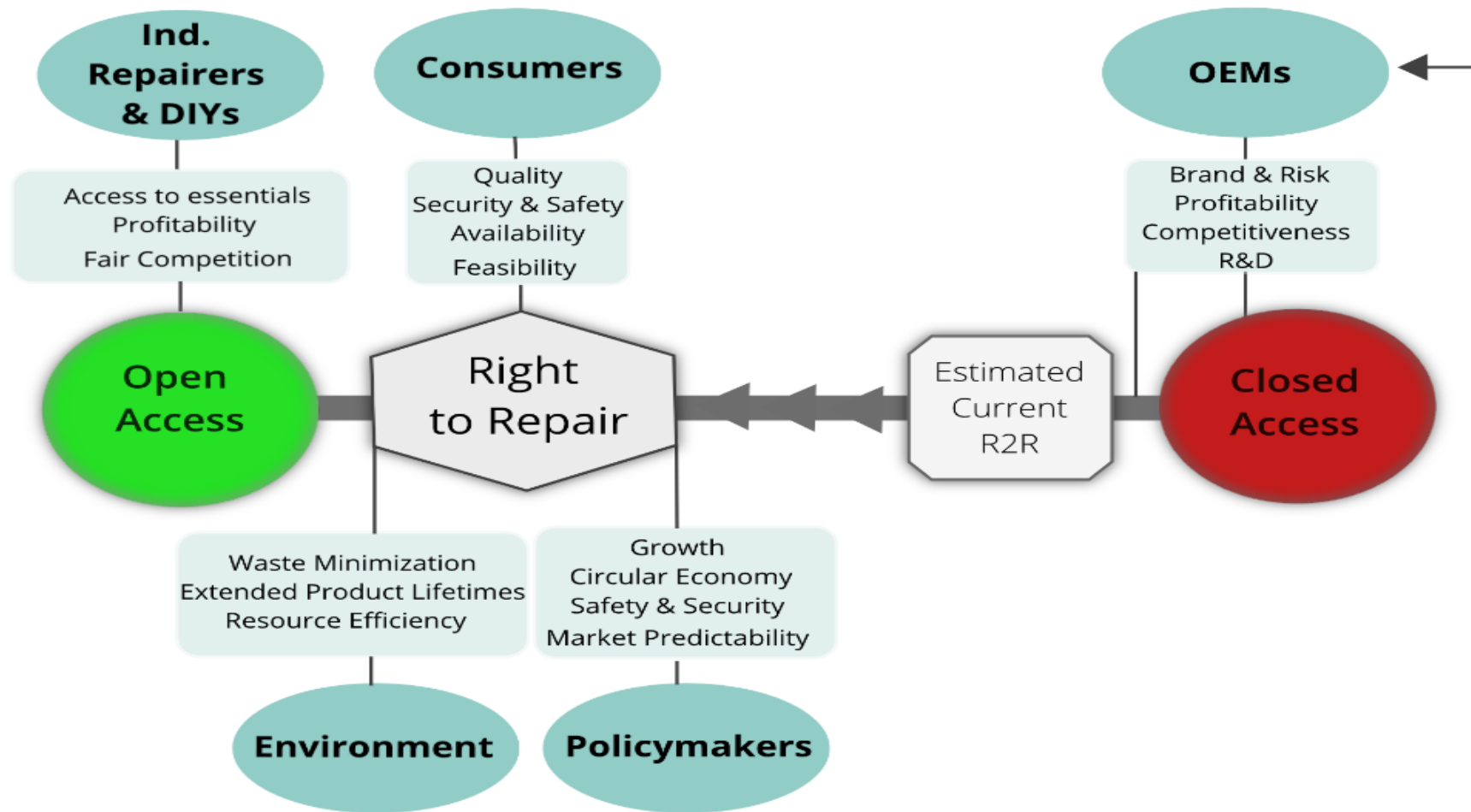
- Ecodesign requirements - product design
- Longer consumer guarantees in consumer law
- Encourage consumers to purchase higher-quality products, consider "total cost of ownership"
- Force sellers to provide information on e.g. software updates, commercial warranties offered, and repair information
- Mandatory labeling: information about lifetime guarantees, software update implications etc.

How promote product repairs I?

- Ecodesign requirements - product design to support repairs
- Ecodesign requirements: provisions of spare parts, tools, manual and software to independent repairers and consumers
- Intellectual property law: enable repair and spare parts provisions
- Competition law: competition in repair markets

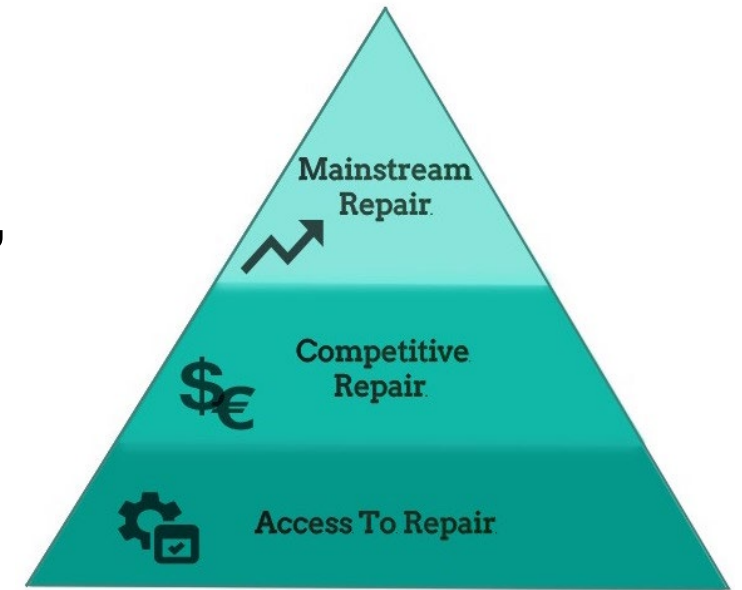


What is a "right to repair" (R2R)?



How promote product repairs II?

- Mandatory product labeling: spare parts, software updates etc.
- Consumer law: guarantees related to repairs etc.
- Force sellers to provide information on e g software updates, commercial warranties offered, and repair information
- Tax breaks for repair sector
- Repair vouchers for consumers
- Repair cafés and similar activities
- Repair education in schools



EU product policy package, March 2022

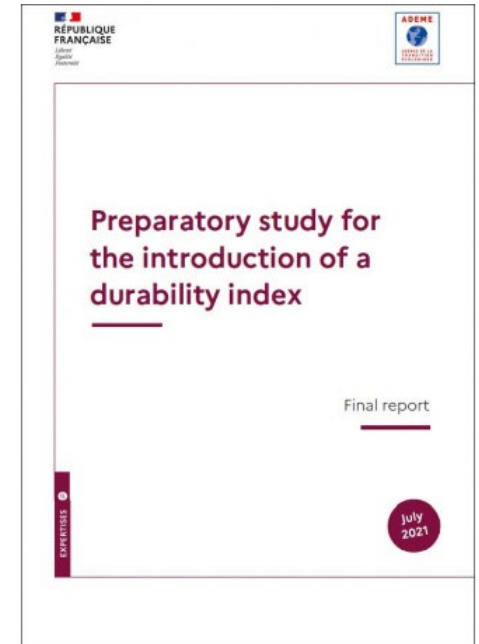
COM(2022) 140 final, 'On making sustainable products the norm'

- **The proposal for the Ecodesign for Sustainable Products Regulation**
 - Applicable to all sorts of goods
 - Introducing digital product passports
 - Reporting on destruction of unsold goods
- **EU strategies for sustainable textiles & revised Construction Products Regulation**
- **Proposal for empowering consumers in the green transition**
 - Proposed changes to consumer law directives
- **Future EU policy developments:**
 - Right-to-repair package, Autumn 2022
 - New Battery Regulation
 - REACH revision
 - New Product Safety Regulation

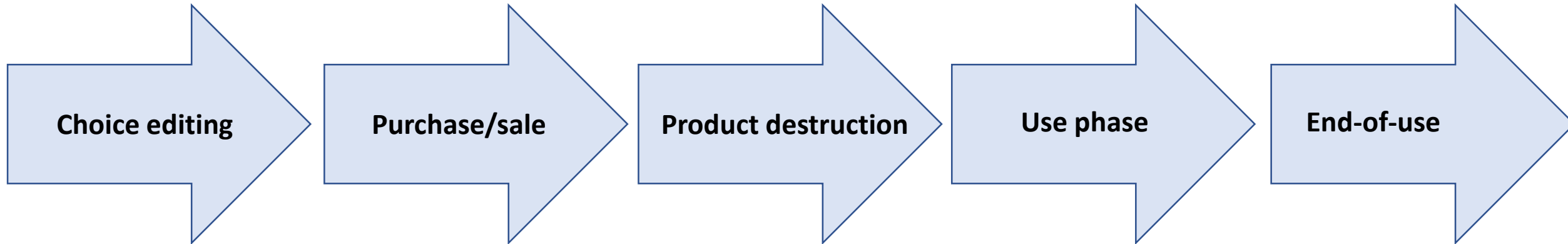
Other relevant EU policy developments include the new Standardisation Strategy + various standardisation activities

National policies

- France: Repairability (2021) and durability (2024) indexes
 - Spain has similar plans
- French repair fund: producers pay part of costs for repairs
- Changes in tax law, tax breaks for repairs
- Repair vouchers and repair networks
- Consumer law, EU member states:
 - Longer consumer guarantees, changes in 'burden of proof'



Product policy & law: some intervention points: how will it be in 10`-15 years time



I will integrate existing, proposed and expected policies in my analysis!

Choice editing: editing out unsustainable products

- **Product safety** regulations etc.
- **Chemical content** in goods; REACH Regulation, RoHS Directive, Toy Safety, Product Safety etc.
- **Energy efficiency** of goods: The Ecodesign Directive
- **Right-to-repair obligations**: The Ecodesign Directive
- Expected: more **durability and repairability** requirements, requirements on **recycled content** in new products; in proposed new Ecodesign Regulation



Choice editing:
what's allowed in
the market

The purchase/sale

- EU Energy labeling
- French repairability index
- Eco-labels
- Proposed: seller must inform buyer about commercial warranties, information about repair and spare parts, software updates etc.
- Expected: French durability index (2024)
- Expected: EU labeling developments
- And: support the alternatives to purchase of new product: sharing, second hand, leasing etc.



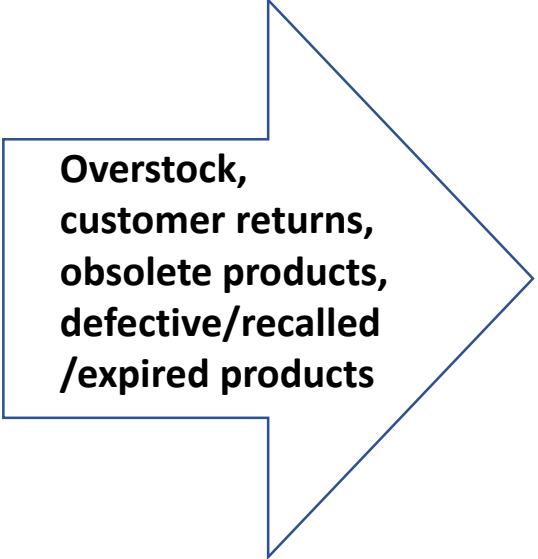
Source: ECOS

A key objective: educate consumers about lifetime, 'total cost of ownership'!

Destruction of unsold goods

- **France: banning destruction of unsold goods**
- **Germany: duty of care**
- **Belgium: reduced VAT when products given to charity**
- **Proposed, new EU Ecodesign Regulation: textile sector must account for destruction volumes**
- **Other proposed policies:**
 - **Do not allow “free” e-commerce consumer returns**
 - **Do not charge VAT when companies donate to charity**
 - **Consumer information**
 - **Ban “scale” business models – require “made to order”**
 - **Green tax reform**

(Roberts, 2022)



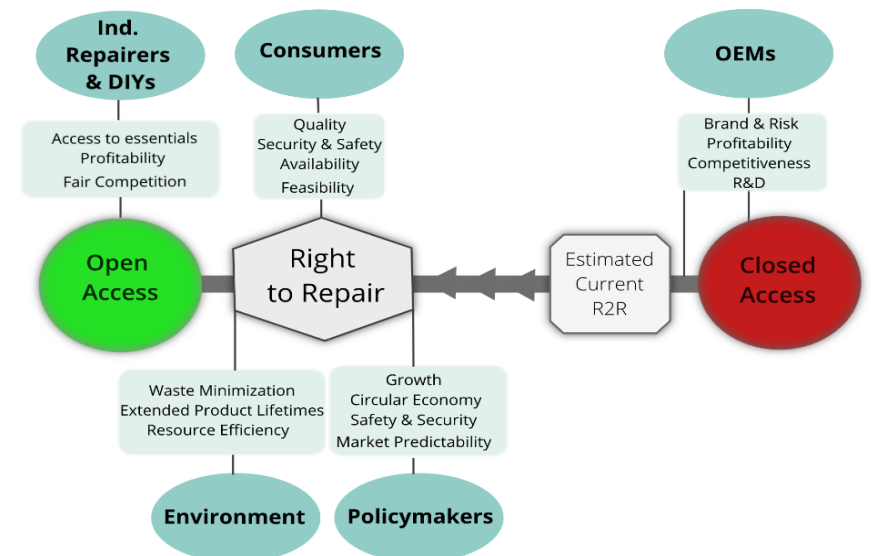
Overstock,
customer returns,
obsolete products,
defective/recalled
/expired products

Modelling suggests that the sum of unsold products being destroyed in the European Union from only two product categories (textiles and electronics) is expected to reach €21.74 billion by 2022 (Rödig et al. 2021)

Use and maintenance

- Longer consumer guarantees
- Right-to-repair: manuals, tools and spare parts provided, DIY and independent repairers (Ecodesign Directive)
- VAT reductions for repair services (e.g. Sweden)
- Repair vouchers and local repair networks (Vienna/Graz)
- Repair fund (France)
- Repair cafés etc. & education
- Guarantees on repairs

Use phase:
maintenance
and repair etc.



End-of-use

End-of-use: selling, re-use, remanufacturing, recycling etc

- Support re-use, second hand
- Re-use options at recycling stations/re-use parks
- Remove legal barriers to remanufacturing
- Support remanufacturing sector, e g public procurement of
 - Reman ICT
 - Reman furniture
- For B2B: ban throwaway of functioning products
- Information to consumers



Term	User	Level
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Some conclusions

- **More “choice editing” through policies: consumers can only choose among “sustainable” products**
- **“Total cost of ownership” and potential consumer backlash**
- **Consumer knowledge, installment schemes or leasing**
- **The product policy mix is increasingly complex; requires careful analysis**
- **Need for harmonization: Some policies should be set at the EU level, but national, regional and local policies can be complementary; provides “dynamic” policy mix**
- **The European Commission: enough resources?**

Food for thought

- There is nothing “given” or “natural” in relation to markets, consumer preferences and business models
- Some conventional thinking may mislead us
 - Would it make sense to make products and services more expensive, as an objective in itself?
- A need to redistribute money away from private consumption towards healthcare, education, research, infrastructure etc.?
- Consumers have many rights, should they have more responsibilities?
 - Resource-efficient consumption: choosing high-quality products and maintain and repair them
- In the near future, we need to consider our ‘consumption space’



Greenhouse gas emissions

‘Luxury carbon consumption’ of top 1% threatens 1.5C global heating limit

Phoebe Weston

@phoebe0

Fri 5 Nov 2021 12.09 GMT

The carbon dioxide emissions of the richest 1% of humanity are on track to be 30 times greater than what is compatible with keeping global heating below 1.5C, new research warns, as scientists urge governments to “constrain luxury carbon consumption” of private jets, megayachts and space travel.

The Guardian



Gracias! Tack så mycket! Thank you!

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How can we live a good life on one planet with over seven billion people?
- Greening the Economy: Sustainable Cities
How can we shape our urban development towards sustainable and prosperous futures?
- Circular Economy: Sustainable Materials Management
How can we create a circular economy through sustainable materials management?
- Urban Nature: Connecting Cities, Nature and Innovations
How can we work with nature to design and build our cities?
- Sharing Cities: Governance and Urban Sustainability
How can we govern the sharing economy in our cities?