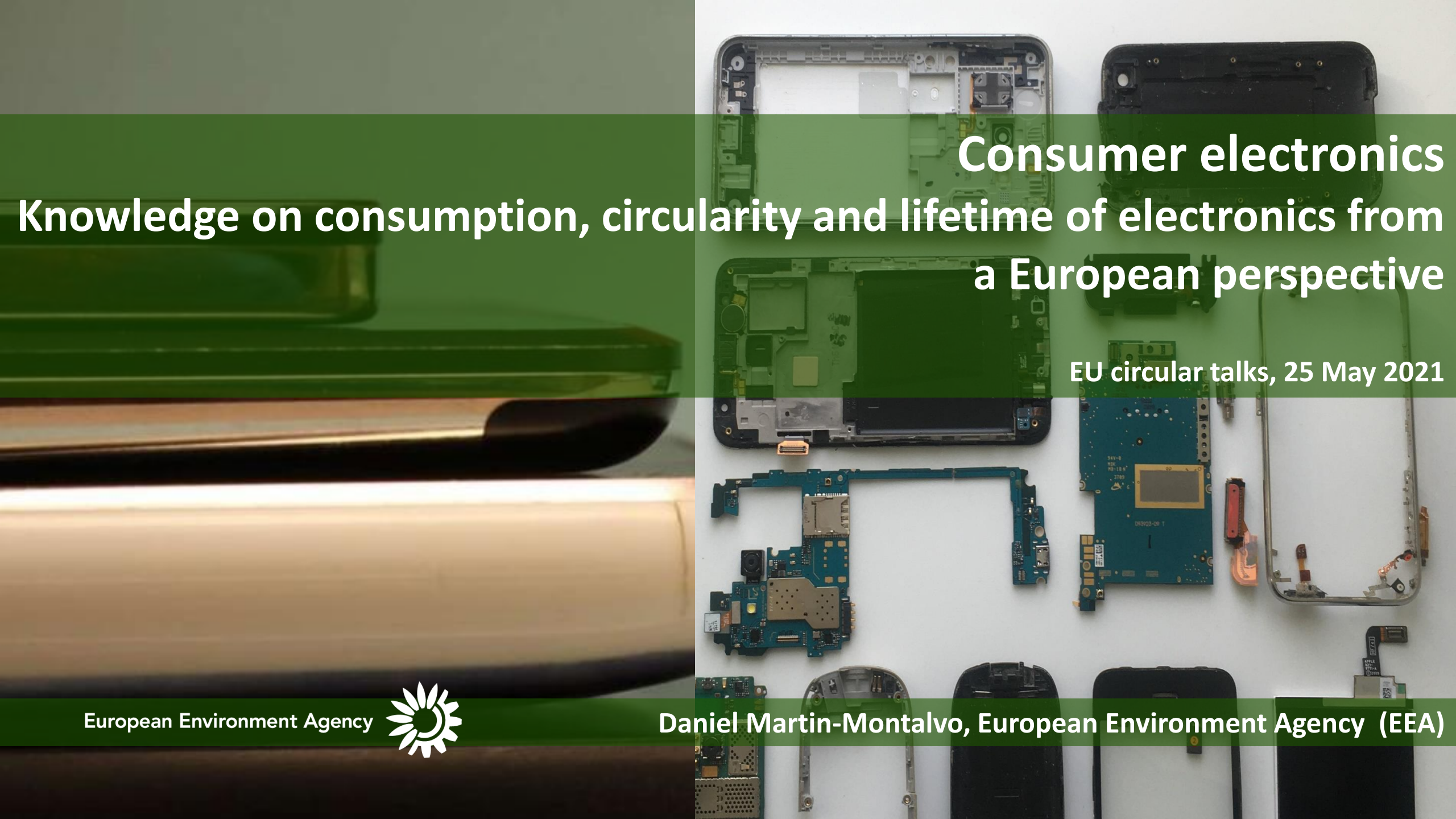
Consumer electronics

Knowledge on consumption, circularity and lifetime of electronics from a European perspective

EU circular talks, 25 May 2021



European Environment Agency

Daniel Martin-Montalvo, European Environment Agency (EEA)

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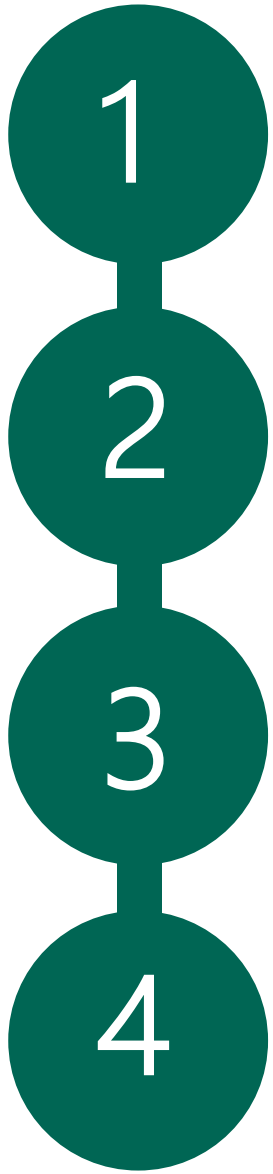
Today's presentation

1. Where are we with electronics?
2. The issue of short lifetimes
3. A closer look to some product categories
4. Reflections around policy options



Where are we with electronics?

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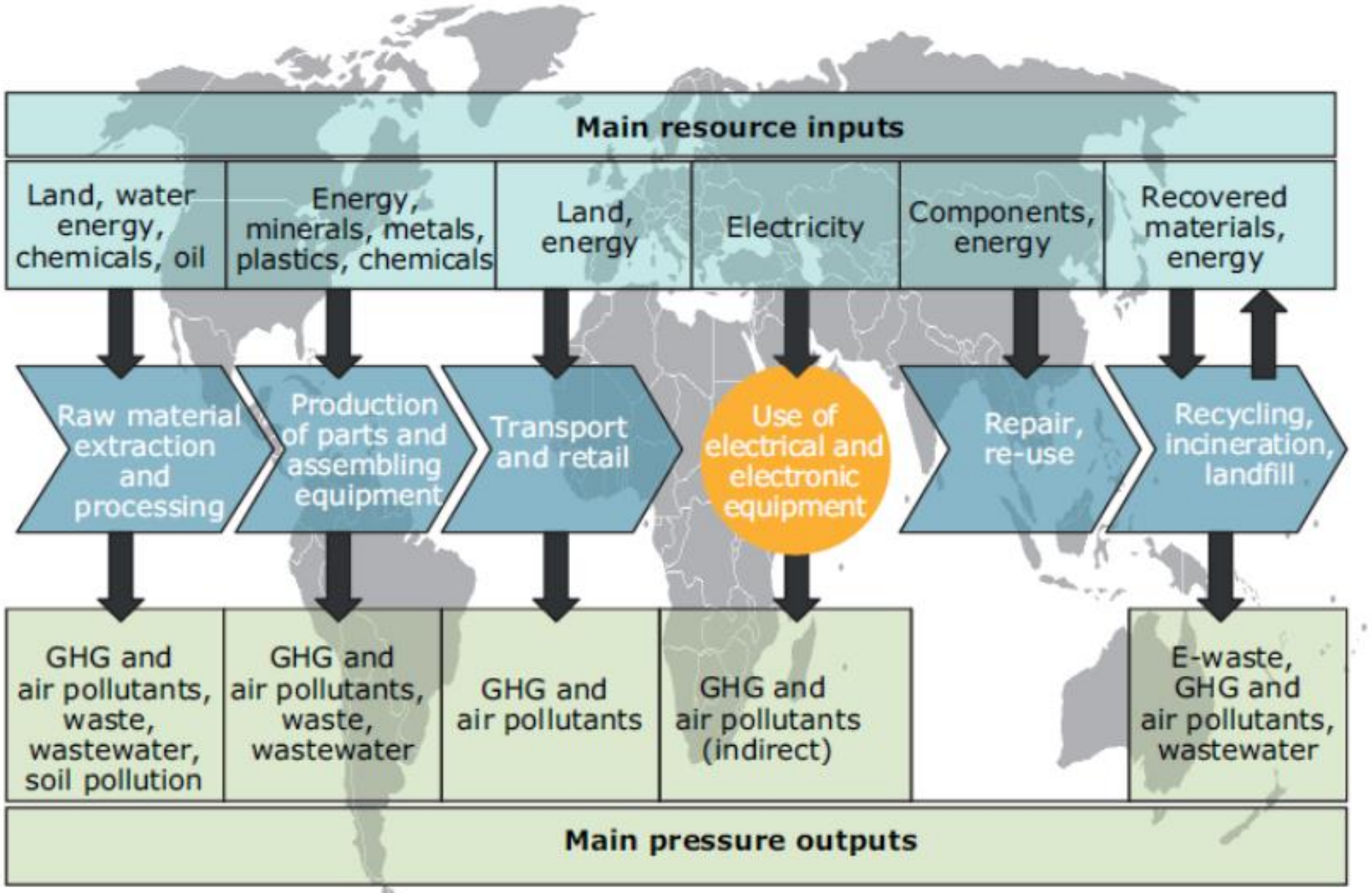
A Global, complex and highly linear supply chain



Source: EEA, 2014. Environmental Indicator Report

Current shape of the electronics supply chain

Sub-optimal environmental performance

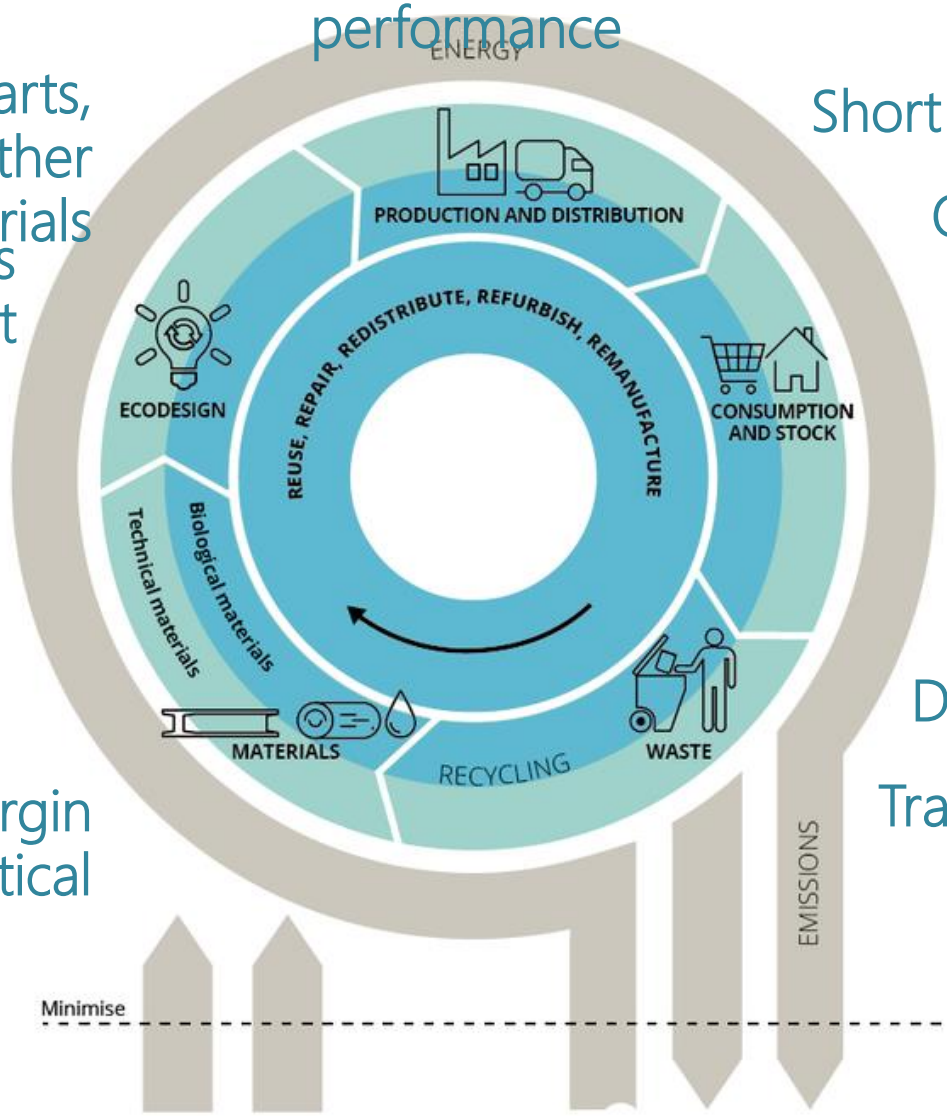
Glued parts, composites, other complex materials

Hazardous substances present

Integrated designs

Insufficient consideration of ethical or environmental aspects

Mainly virgin materials, often critical



Short lived products

Ownership models

Repair is not a credible option

Prices do not account for real cost

Very deficient collection

Downcycling prevails

Trading resources out as waste

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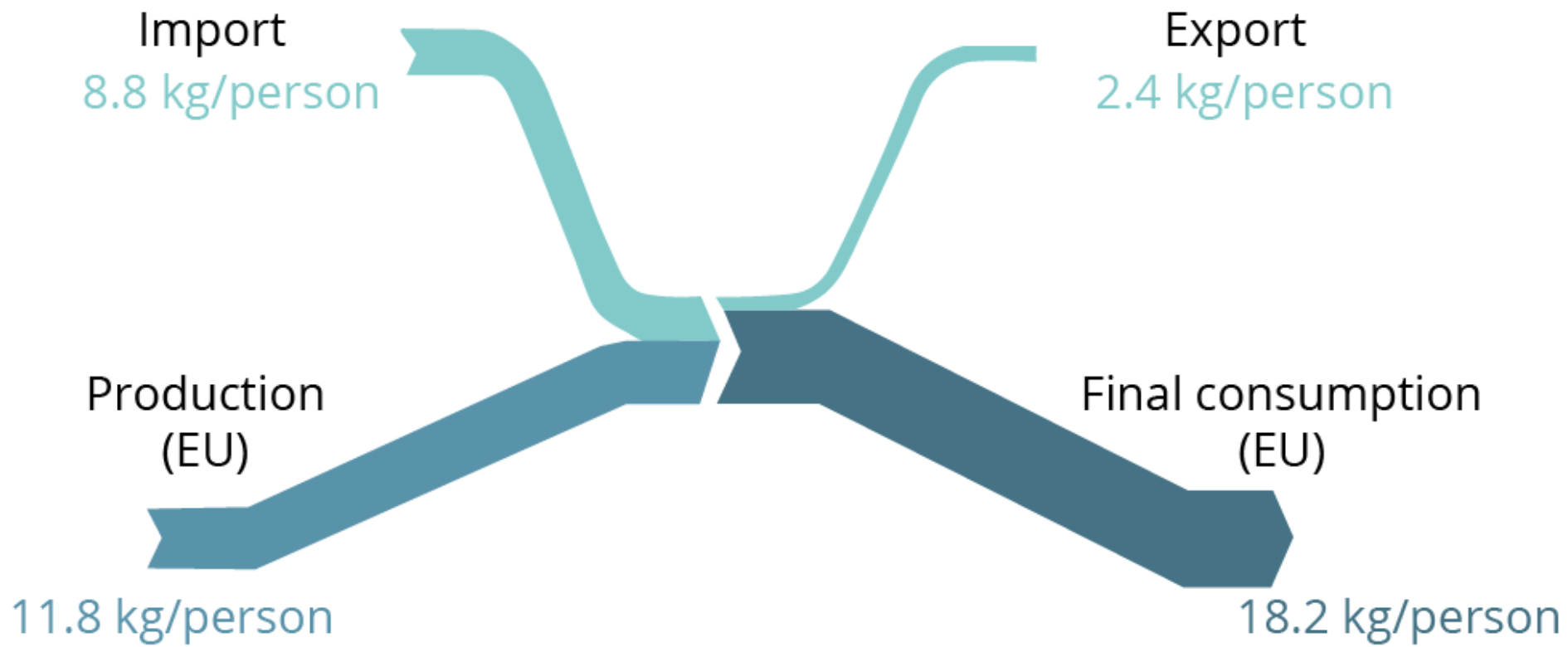
Significant imports, solid production within EU



2017 Eurostat Comext trade data

2017 Eurostat waste electrical and electronic equipment data

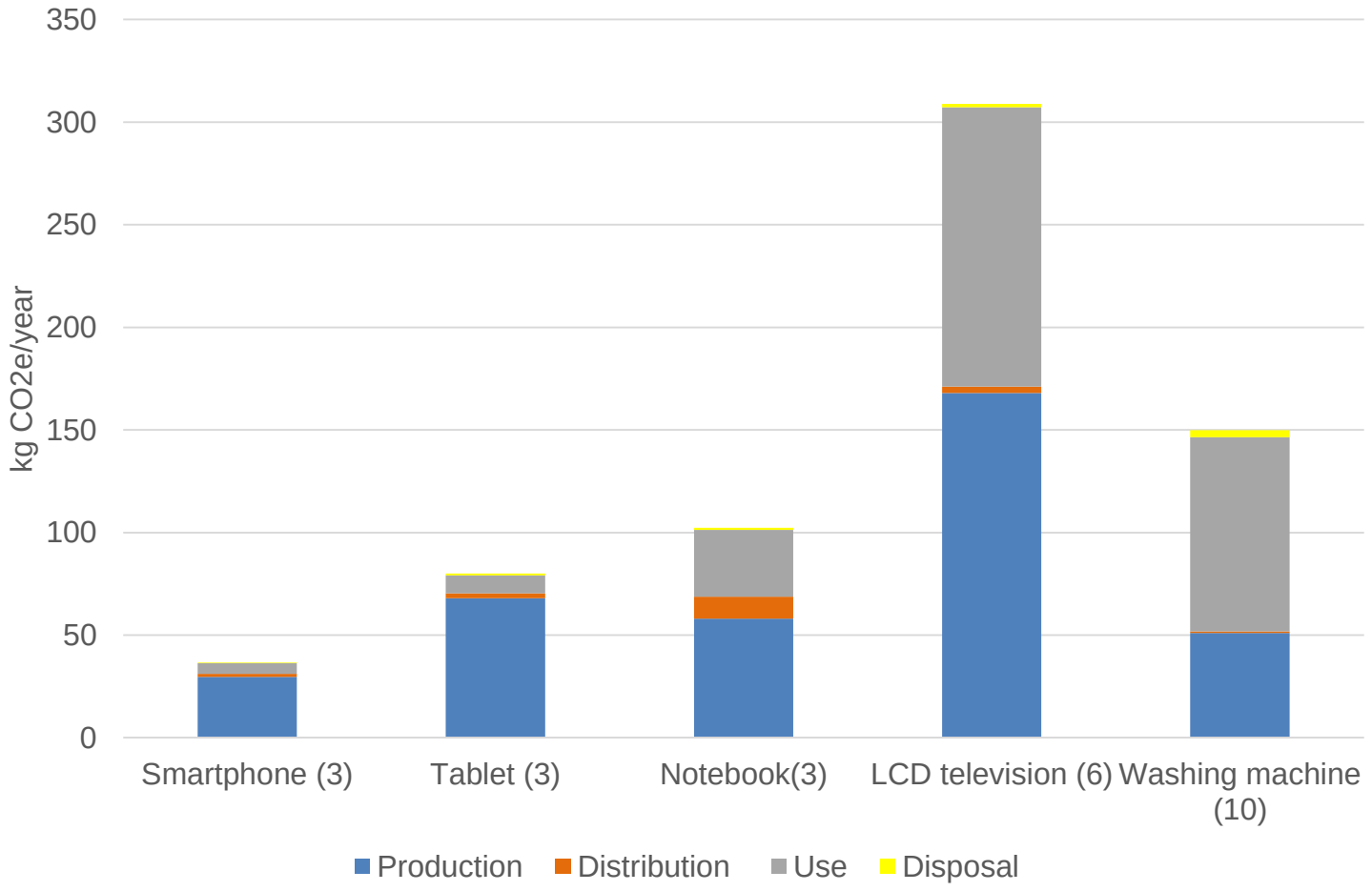
ETC WMGE own calculation

Source: Eionet report - ETC/WMGE 2020/3

Environment issues arise across the life cycle

The most sustainable electronic is the one that you already own

- Complex products: contain up to 60 different elements
- Production can present from <25 % up to >90 % of total GHG emissions
- In 2017, EU generated 10.4 million tonnes of WEEE



The issue of short lifetimes

Desired shape of the electronics supply chain

Actual lifetime

Designed lifetime

Desired lifetime

Optimal lifetime

Lifespans are dependent on multiple factors

Product quality

Marketing strategies

Innovation cycles

Repair options

Value of appliance

Cultural trends

...and much more

More a preference issue than a technical issue

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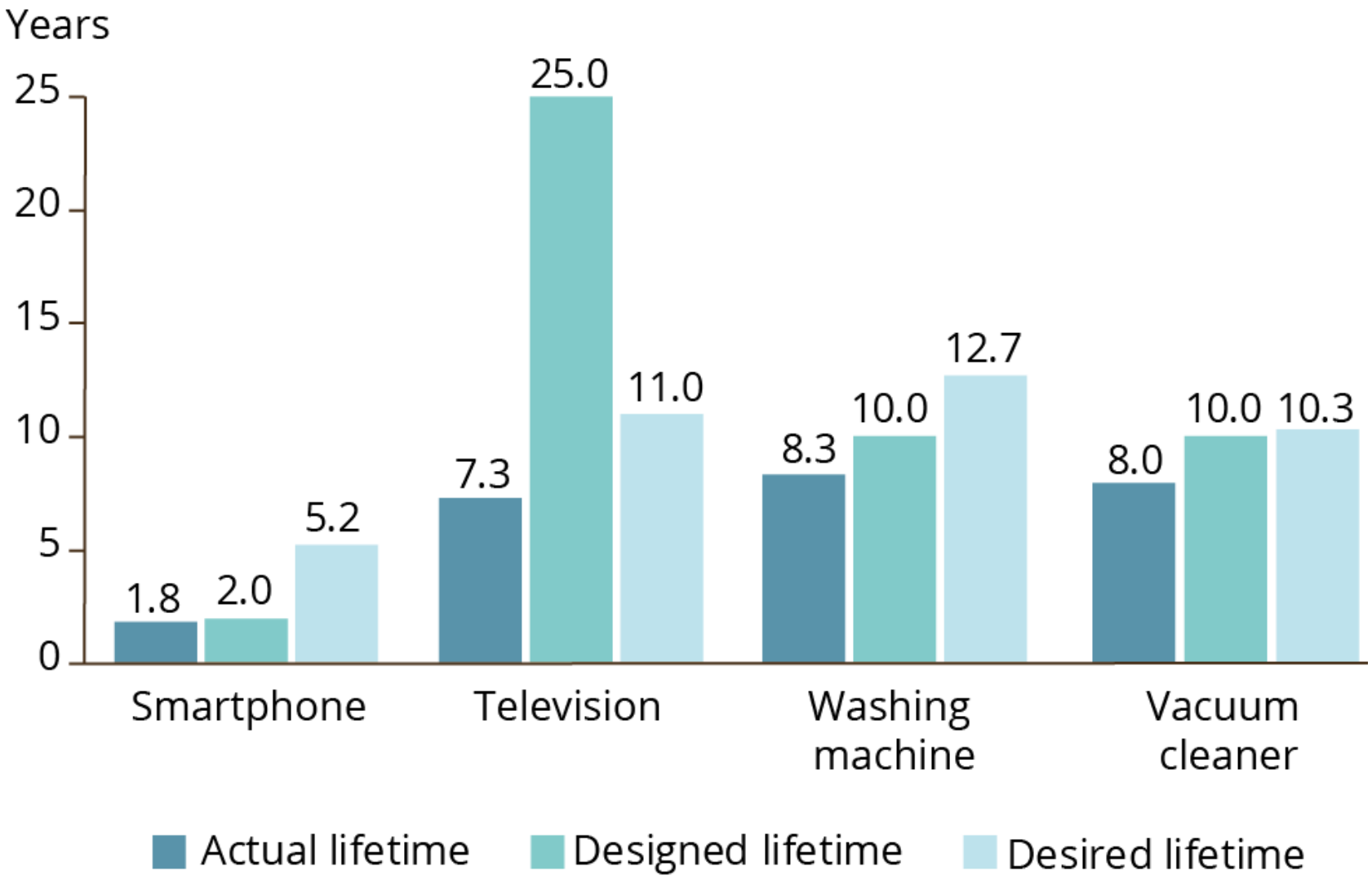
Lifespans are currently very short



Source: Eionet report - ETC/WMGE 2020/3

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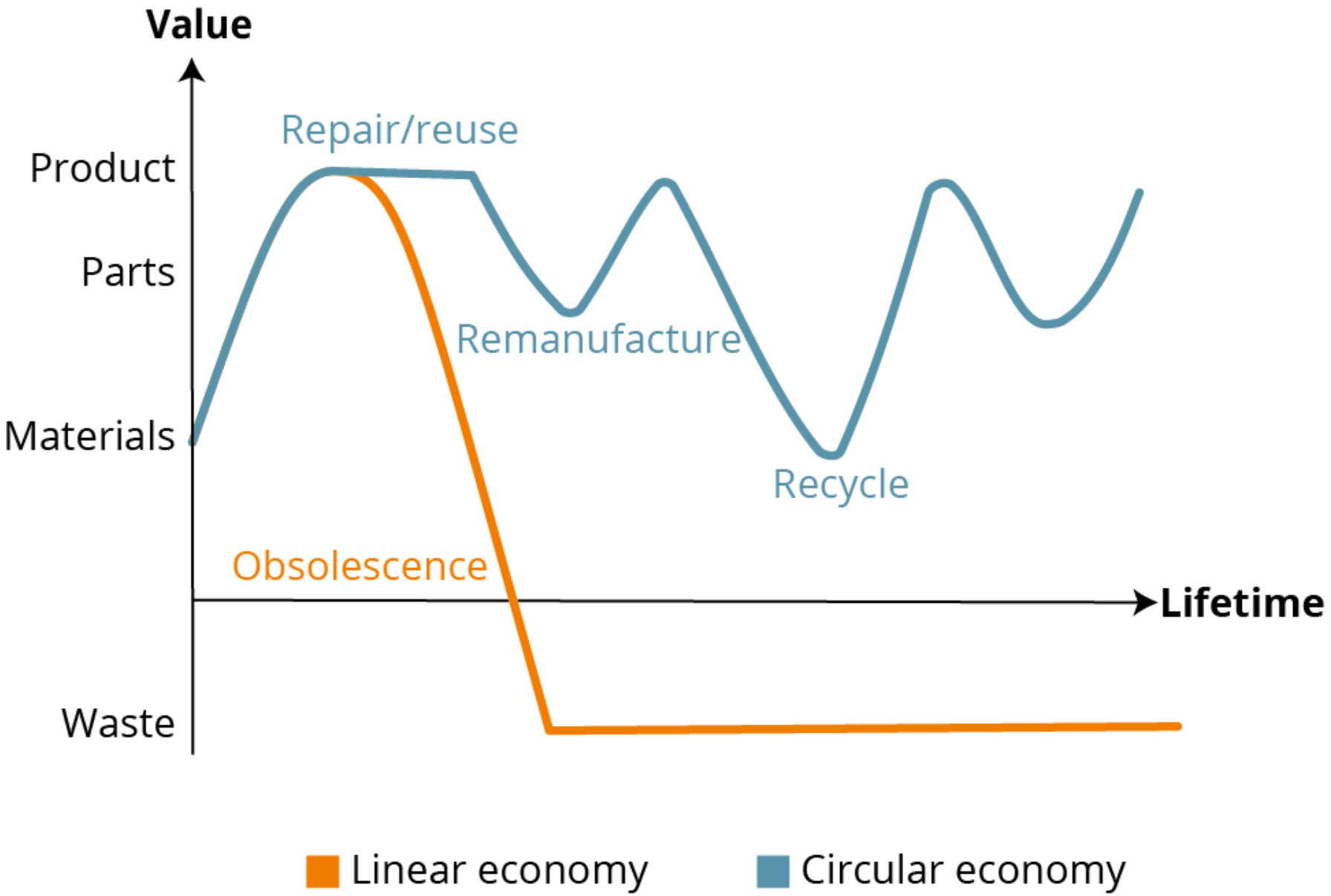
Influencing lifespans is key



A closer look to some product categories

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Electronics are resource rich

e-waste

10.3 million tonnes (Mt)
of waste generated in EU (2015)

40 % is officially collected

60 % is lost

LOSSES OF E-WASTE

- **0.75 Mt** thrown in waste bin
- **2,2 Mt** collected with metal scrap
- **0,95 Mt** recycled under non-compliant conditions
- **0.75 Mt** scavenged for valuable parts
- **1,5 Mt** exported

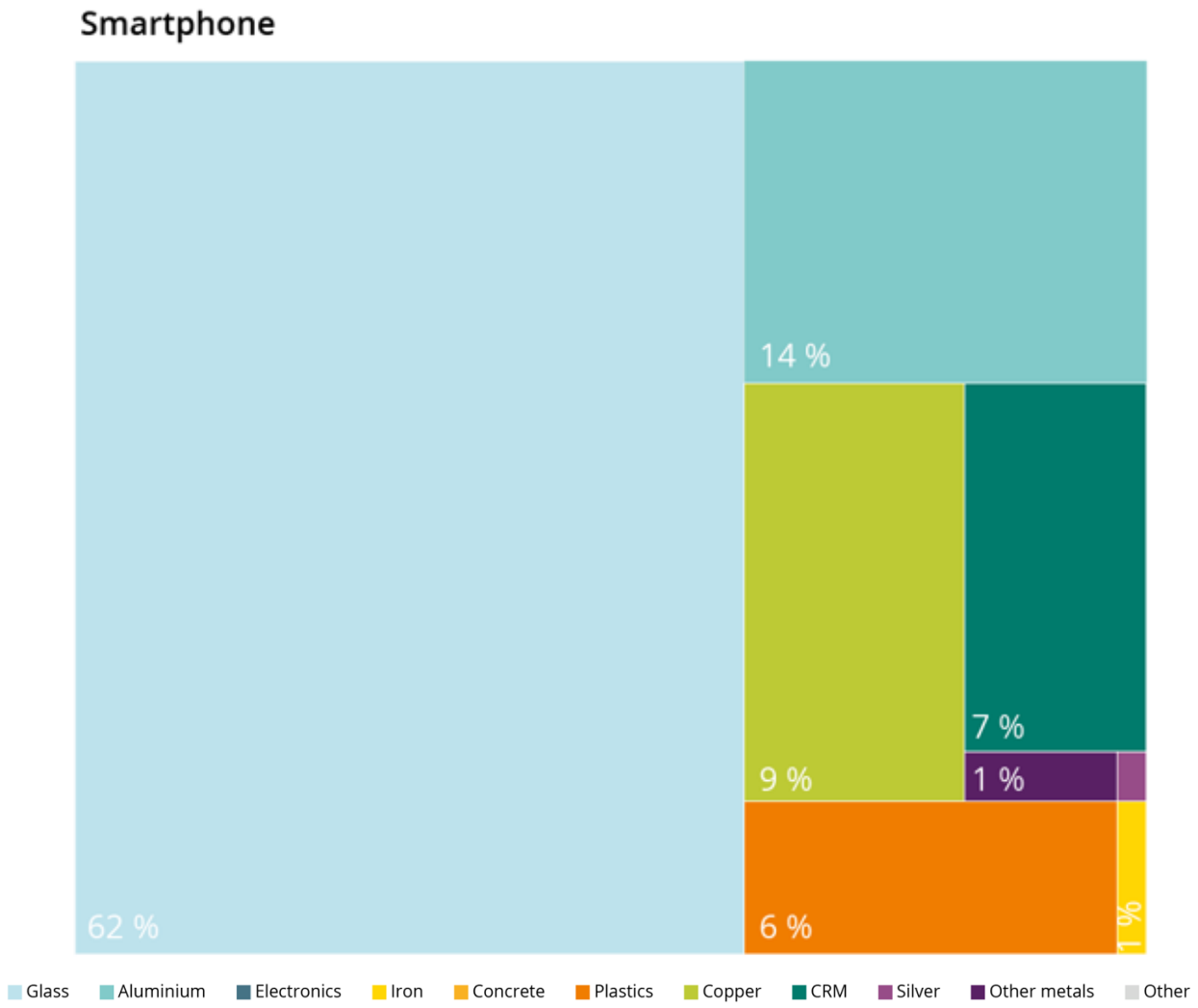
E-waste contains precious metals and several critical raw materials such as gold, silver, antimony, beryllium, cobalt, neodymium and indium. A higher recycling rate of these materials would reduce their supply risk.

E-waste also contains several hazardous materials and chemicals such as halogenated compounds, radioactive substances, heavy metals and other metals that pose environmental and health risks if not managed adequately.

Source: EEA/ETC-WMGE

Smartphones

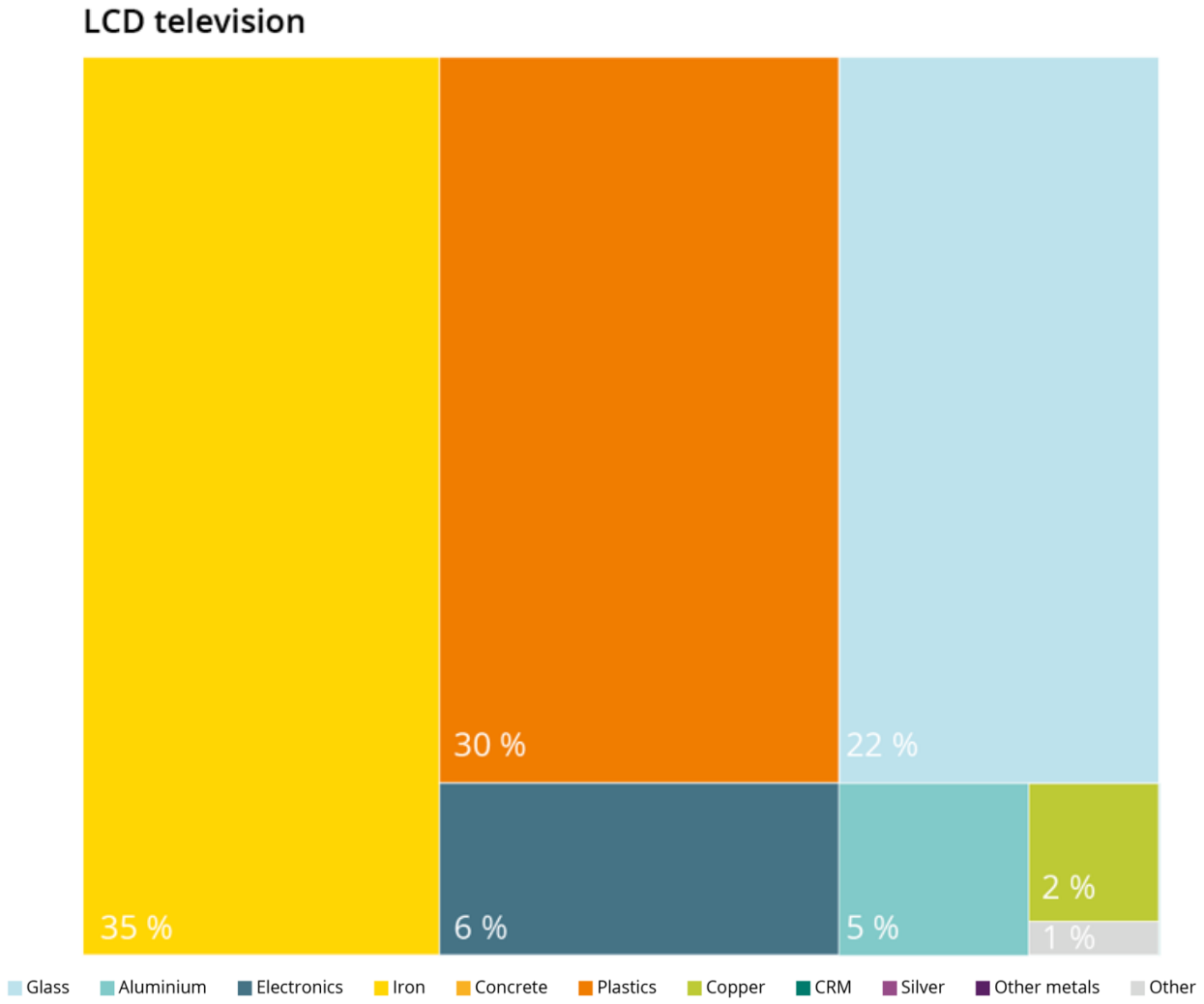
- Annually over 1.5 billion sold globally
- On average, used less than 2 years
- One year lifetime extension would save 2.1 million tons Mt of CO_2 per year by 2030



Source: Eionet report - ETC/WMGE 2020/3

Televisions

- In 2018, 70 million televisions sold in Europe
- Average lifetime of 7.3 years
- Production account around half of total GHG



Source: Eionet report - ETC/WMGE 2020/3

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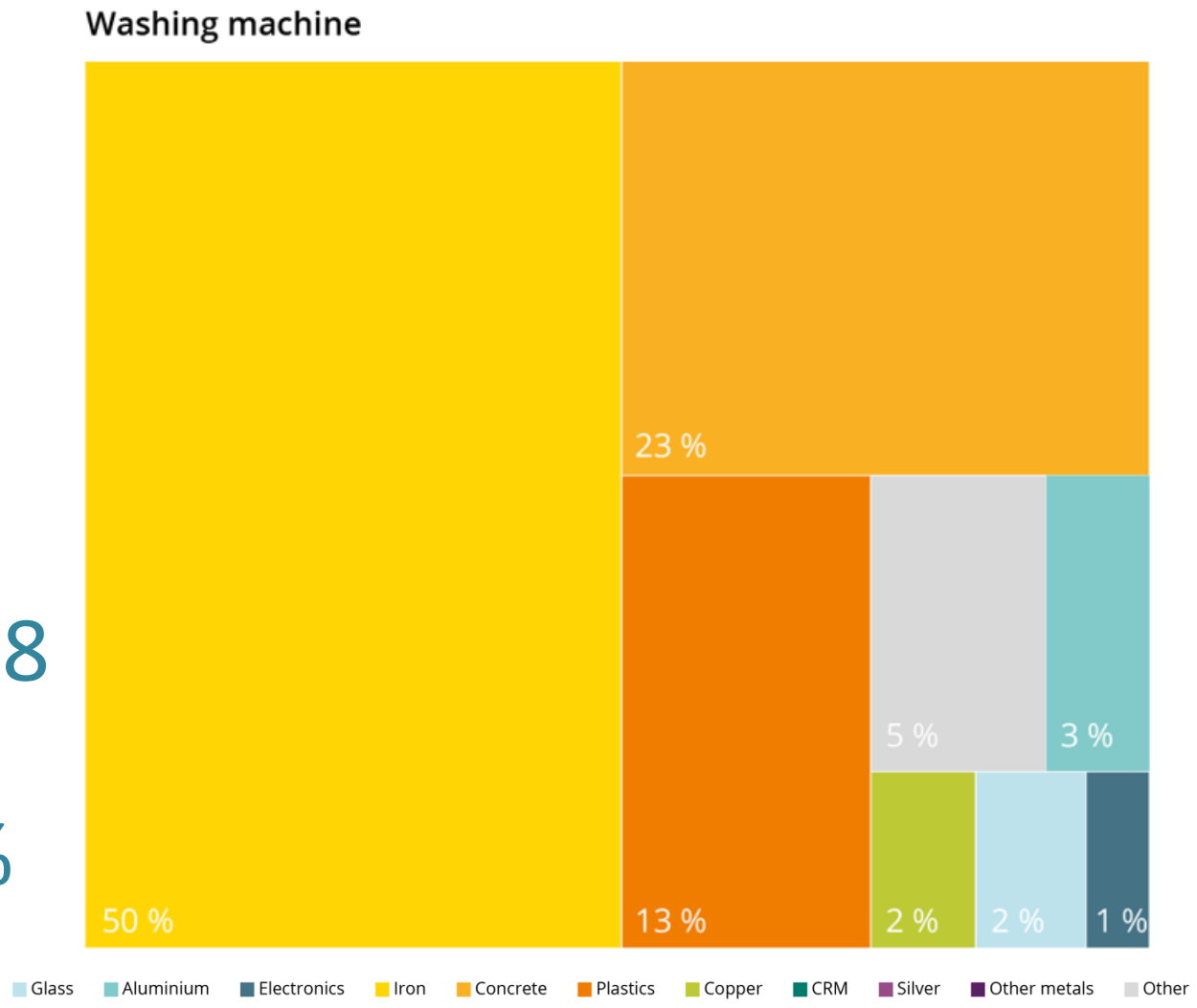
Washing machine

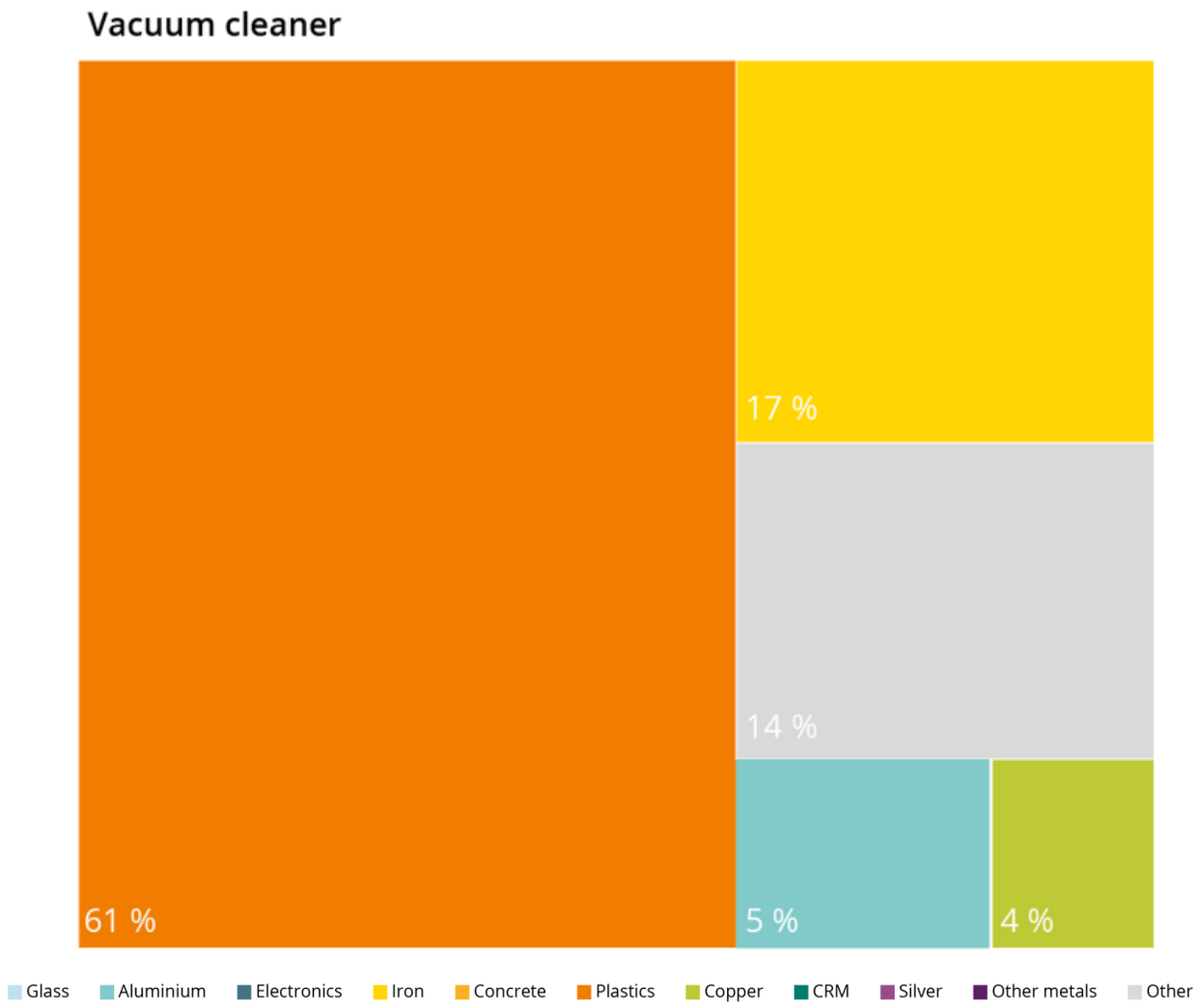
- 92 % of households in Europe owns a washing machine
- Used roughly 3.8 times per week
- Average lifetime of around 8 years
- Use phase account 40-60 % of total GHG



Source: Eionet report - ETC/WMGE 2020/3

Televisions

- In 2018, around 48 million units sold in Europe
- Average lifetime around 8 years
- Use phase account 47-67 % of total GHG



Source: Eionet report - ETC/WMGE 2020/3

Reflections around policy options

Desired shape of the electronics supply chain

Climate neutral, zero pollution ambition

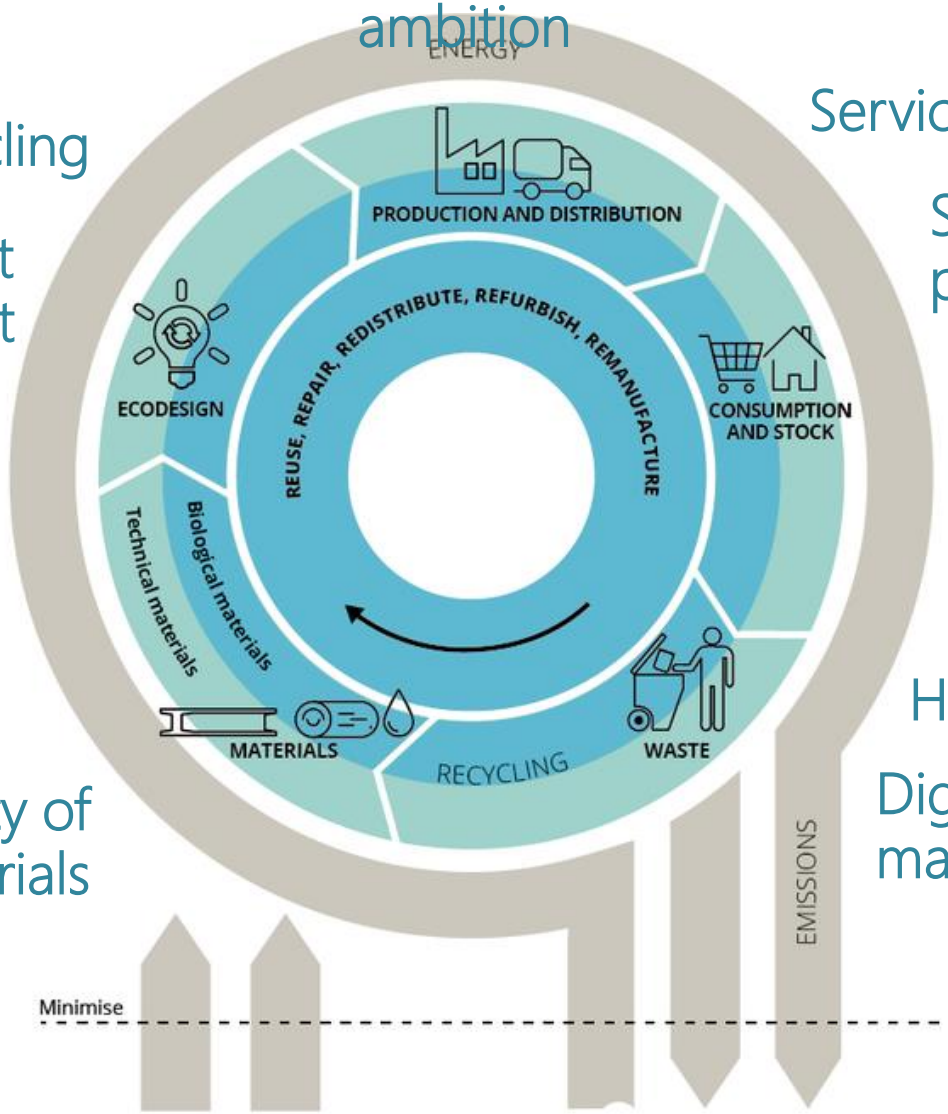
Design for recycling

Hazardous substances not present

Modular designs

Sustainable sourcing of virgin materials

High quantity of secondary materials



Service models

Spare parts accessible and well priced

Repair services available and credible

Externalities recognised by prices

Take-back, efficient collection

High-value recycling

Digital and robot assisted waste management

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How policy can help the transition

- Eco-design requirements and labelling
- Green public procurement
- Right to repair
- Extended producer responsibility
- Lowered VAT for refurbished electronics
- Take-back schemes
- Enabling a legal framework for emerging business models

Concluding remarks

- Consumption trends, shorter product lifetimes and obsolescence have increased the amount of electronics put on market and discarded soon after
- Resource intensive electronics production and consumption generate extensive environmental impacts
- Increasing product lifetimes with e.g. new business models is essential in the move towards circular economy

Thank you

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Daniel Martin-Montalvo, European Environment Agency (EEA)

To know more

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On the issue of obsolescence

Technical report

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EEA briefing

Read online

Resource losses in waste

Technical report

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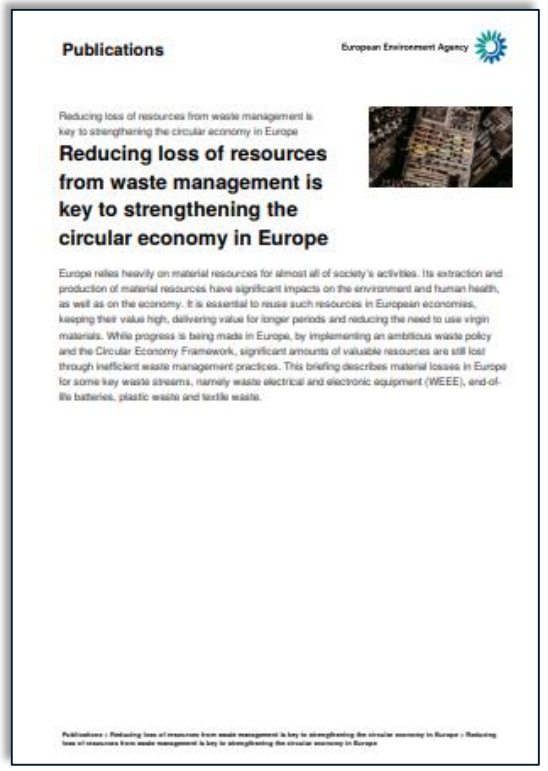
EEA briefing



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