Consumer electronics
Knowledge on consumption, circularity and lifetime of electronics from a European perspective
EU circular talks, 25 May 2021
Today’s presentation

Where are we with electronics?

1. The issue of short lifetimes
2. A closer look to some product categories
3. Reflections around policy options
Where are we with electronics?
A Global, complex and highly linear supply chain

Current shape of the electronics supply chain

- Mainly virgin materials, often critical
- Integrated designs
- Glued parts, composites, other complex materials
- Hazardous substances present
- Insufficient consideration of ethical or environmental aspects
- Mainly virgin materials, often critical
- Sub-optimal environmental performance
- 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

Import 8.8 kg/person

Export 2.4 kg/person

Production (EU) 11.8 kg/person

Final consumption (EU) 18.2 kg/person

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

Optimal lifetime

Desired 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
Lifespans are currently very short.

Source: Eionet report - ETC/WMGE 2020/3
Influencing lifespans is key
A closer look to some product categories
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
• 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
• 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
• 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
• 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
- Minimise
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
To know more
On the issue of obsolescence
Technical report

Resource losses in waste
Technical report

EEA briefing

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