



Design for circularity

Subtitel presentatie

Navied Tavakolly November 16th 2022

Introduction



Voettekst 3

Knowledge and Innovation Agenda Circular Economy (KIA-CE)



- Knowledge and Innovation Agendas are part of the portfolio of the Mission-driven
 Topsector and Innovation Policy (MTIB) of the Dutch government
- Themes include Health & Healthcare, Agriculture Water & Food, Energy transition & Sustainability, Security, Societal Earning power, Key Enabling Technologies
- Topsectors (such as Chemistry, Hightech, Life Science and Health) coordinate the KIAs together with governmental departments (such as Infrastructure and Water management) and other stakeholders. Topsector Chemistry coordinates KIA-CE.
- Among the stakeholders are the representatives of the **Transition agendas** for CE
 - Plastics
 - Consumer goods
 - Manufacturing Industry
 - Construction
 - (Biomass and Food)

Scope and activities KIA-CE



- Innovation across innovation funnel, TRL 1-9
- Connecting Transition Agendas and Topsectors in triple/quadruple helix
- **Communication** of inspiration, opportunities and results
- Maintaining an overview of activities (portfolio)
- Combination and cross-fertilisation among sectors and value chains through three multi-year mission-driven innovation programs (MMIPs)
 - Design for Circularity
 - Circular material chains and processes
 - Trust, Acceptance and Behaviour
- Organisation of tenders

MMIP-1 Design for circularity





1A. Design principles and tools



1B. Safe-by-Design and avoidance of undesired materials



1C. Design for disassembly



1D. Modularity and refurbishment



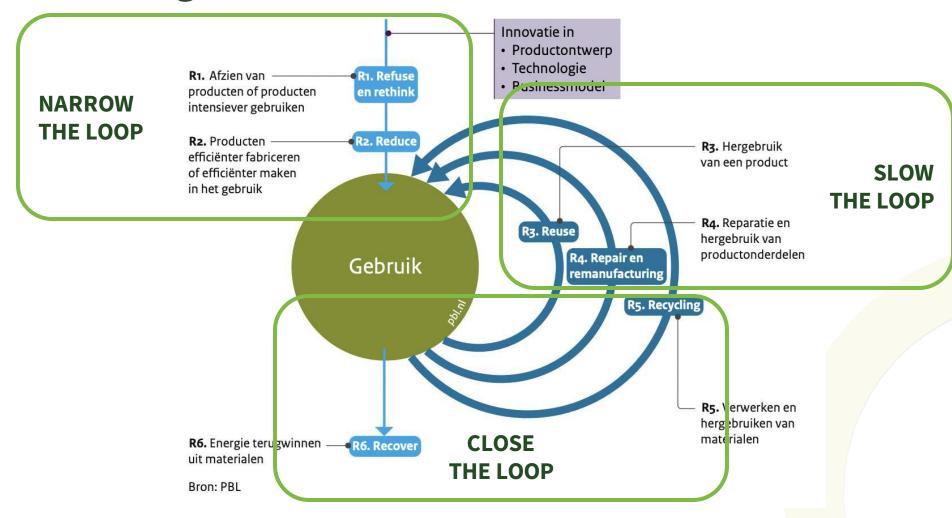
1E. Life-time extension & Smart maintenance



1F: Logistics for circularity

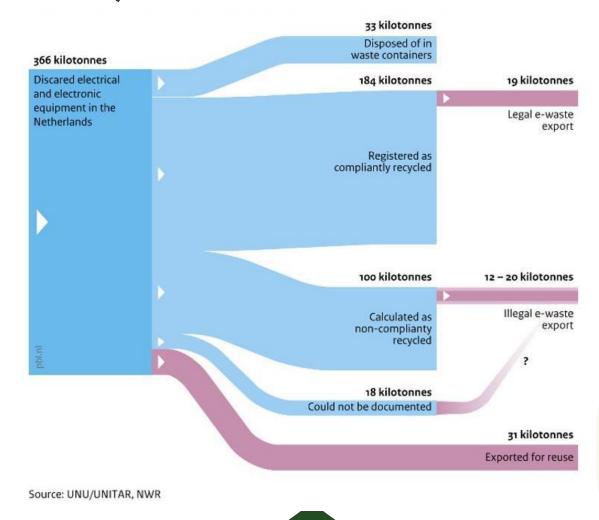
Circular strategies





Dutch flows of discarded electrical and electronic equipment (PBL 2018)





Rare metals demand is driven by the energy transition



Li Lithium	2109%
Dy Dysprosium	433%
Co Cobalt	403%
Te Tellurium	277%
Sc Scandium	204%
Ni Nickel	168%
Pr Praseodymium	110%
Ga Gallium	77%
Nd Neodymium	66%
Pt Platinum	64%
Ir Iridium	63%

Si	Silicon	62%
Tb	Terbium	62%
Cu	Copper	51%
Al	Aluminium	43%
Sn	Tin	28%
Ge	Germanium	24%
Мо	Molybdenum	22%
Pb	Lead	22%
In	Indium	17%
Zn	Zinc	14%
Ag	Silver	10%

Aluminium Copper Zinc Silicon

Lithium Nickel Cobalt

Dysprosium Neodymium Praseodymium

Eco-design directives



Sustainable products package

Complementary sectoral rules on construction and other product categories (e.g. batteries, chemicals, packaging)

ccodesign for Sustainable

Products Regulation

requirements for greener products

Tackle the destruction of unsold goods

Performance and information

→ Waste prevention and reduction
 → Mandatory criteria for green public

Digital Product Passport and new

Stronger market surveillance

Global action

→ Global sustainable consumption and production forum

labelling rules

A Corporate sustainability due diligence

Ecodesign Working Plan 2022-2024

- Higher energy efficiency and circularity for energy-related products
- → New rules for consumer electronics (smartphones, tablets, solar panels)

Support for circular business models

- → European circular business hub
- → Guidance to businesses

Bron: Europese Commissie

Strategy for Sustainable and Circular Textiles

- Binding eco-design requirements durability, reparability, and recycled fibre content
- → Stop microplastics pollution
- → Tackle fast fashion, textile waste, and the destruction of unsold products
- → Accurate green claims
- → Sustainable global value chains

New rules to empower consumers for the green transition

- Protection against greenwashing and the deliberate planning or design of produces with the lifespans
- Information on product durability and reparability

(Herziene) ecodesign richtlijn:

- Minimum eisen aan significante milieu-aspecten, zoals energieverbruik, repareerbaarheid, levensduur
- Informatie aan consumenten (labels)
- (Voorkomen van vernietiging van niet verkochte producten)
- (Digitaal Product Paspoort)

Ecodesign of mobile phones, tablets, computers and computer servers.



The implementing regulation will aim to address issues such as

- 1. limited availability of the most commonly damaged spare parts
- 2. limited availability of updated versions of the operating system, firmware or software
- 3. cost and ease of repair
- 4. reduced battery endurance over time

The implementing regulation will aim to

- 1. update energy efficiency requirements for these products
- 2. increase reparability of computers
- 3. improve lifetime of both computers and batteries
- 4. reduce purchases of unnecessary chargers



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