





Kennis en Innovatie Agenda
Circulaire Economie

Design for circularity

Subtitel presentatie

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Introduction



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

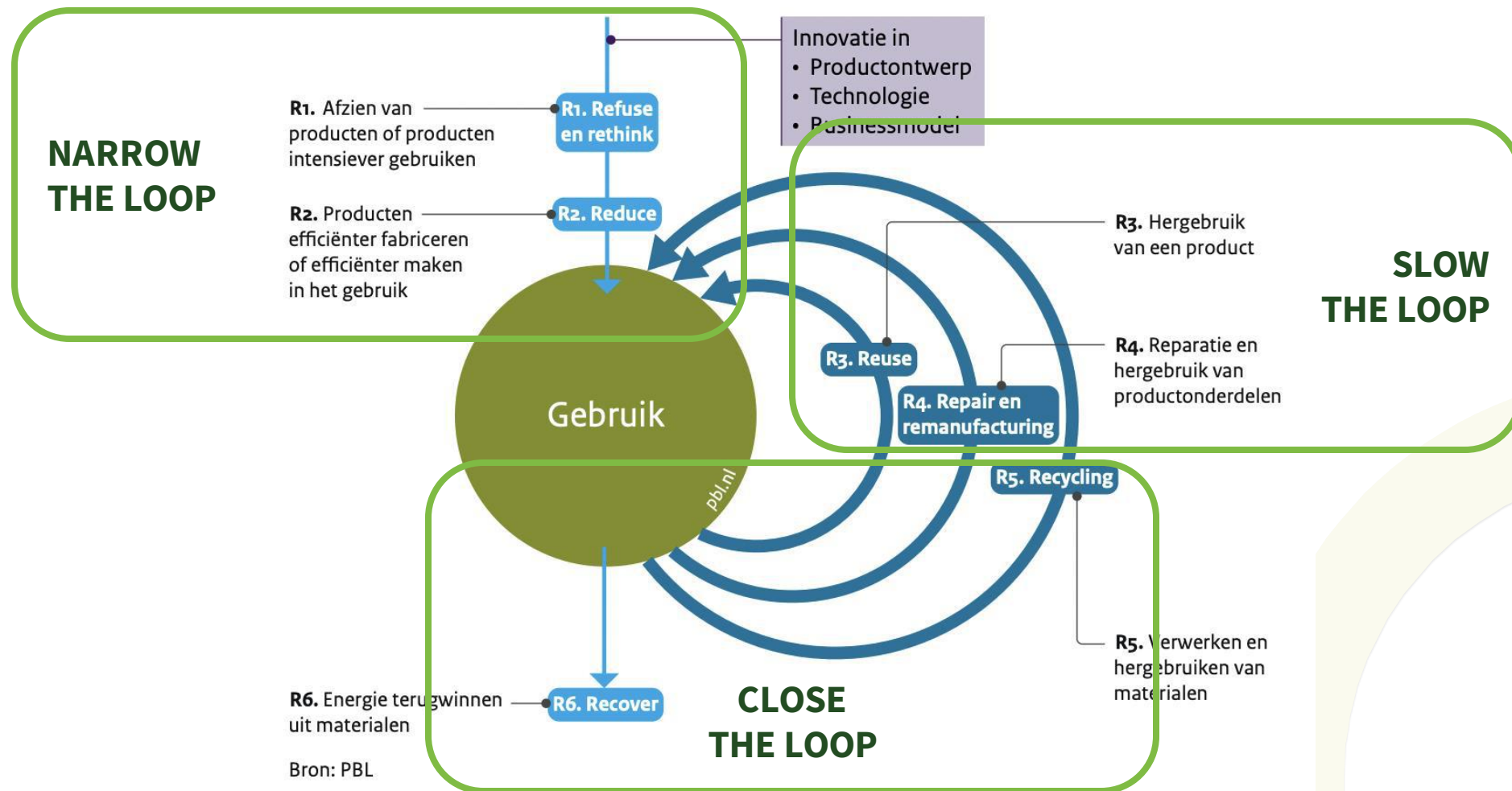


1E. Life-time extension & Smart maintenance

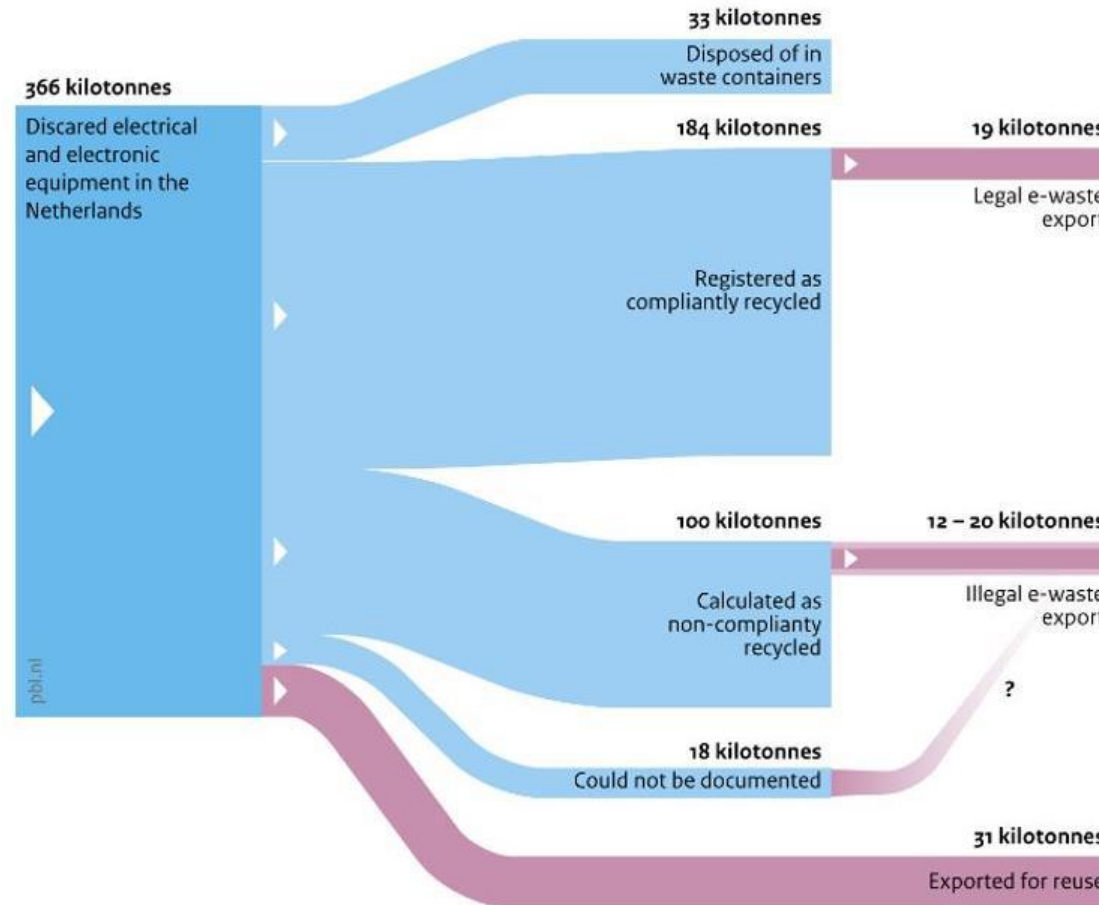


1F: Logistics for circularity

Circular strategies



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



Source: UNU/UNITAR, NWR

Rare metals demand is driven by the energy transition

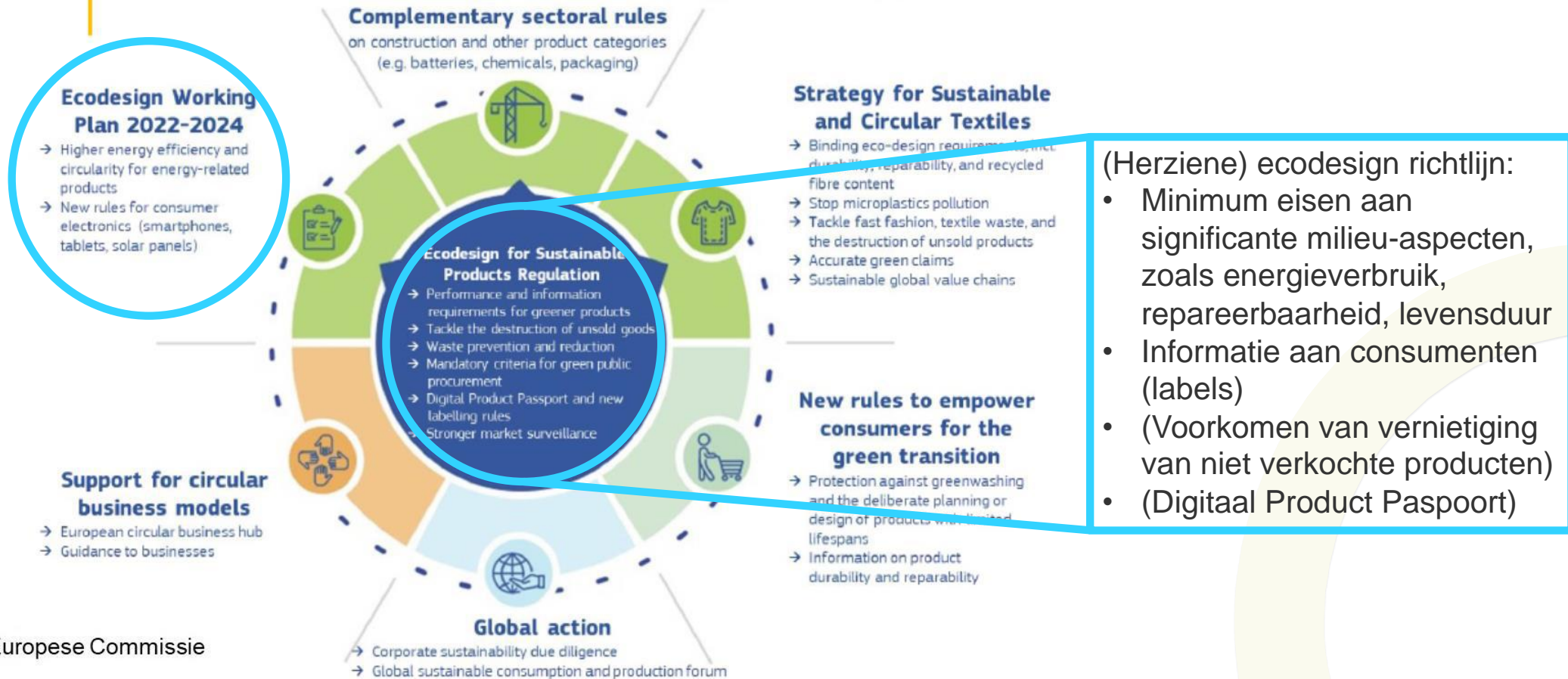


Li	Lithium	2109%
Dy	Dysprosium	433%
Co	Cobalt	403%
Te	Tellurium	277%
Sc	Scandium	204%
Ni	Nickel	168%
Pr	Praseodymium	110%
Ga	Gallium	77%
Nd	Neodymium	66%
Pt	Platinum	64%
Ir	Iridium	63%

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



Sustainable products package



Bron: Europese Commissie

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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