

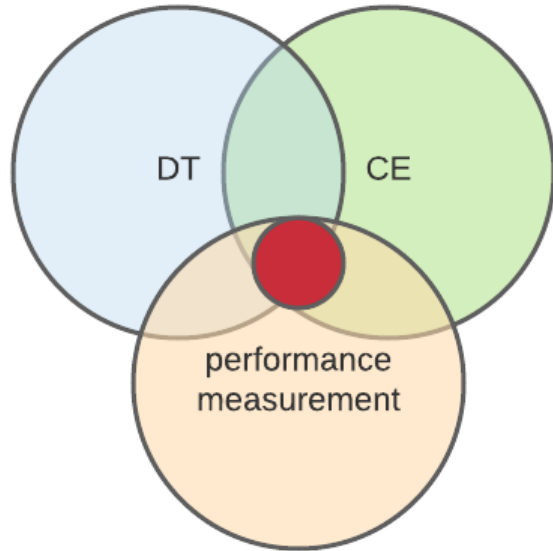
Circulair denken en service logistiek

Arjen Wierikx

SLF Summit
21 November 2023



Mijn promotieonderzoek



How can organizations use Digital Technology strategies to increase Circular Economy performance?

Broken down into:

1. How do we measure CE performance on a micro level?
2. How to determine DT strategies?
3. Impact of DT strategies on CE performance

Logistiek is de motor van de circulaire economie



Service Logistiek is circulair ondernemen ten voeten uit.

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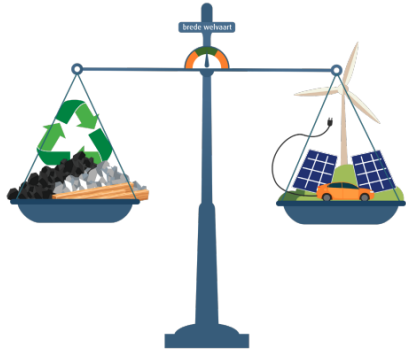
TKI DINALOG
Dutch Institute for Advanced Logistics

Wat is service logistiek

...meer dan reserve onderdelen (bron: SLF)

- ❖ **Service logistiek** is het sturende onderdeel van de service keten.
- ❖ **De service keten** is een aaneenschakeling van producten en diensten die aangeboden worden voor onderhoud, herstel en verwijdering van aankopen, van aankoop tot einde levensduur.
- ❖ De logistieke component zorgt ervoor dat mensen, middelen en materialen in de service keten tijdig beschikbaar zijn en op het juiste moment op de juiste plaats arriveren.
- ❖ Het orkestreren van alle deze aspecten is het domein van service logistiek

SER: Maak meer vaart met de grondstoffentransitie



April 2023:

SER: Climate targets will not be achieved without accelerating the raw materials transition

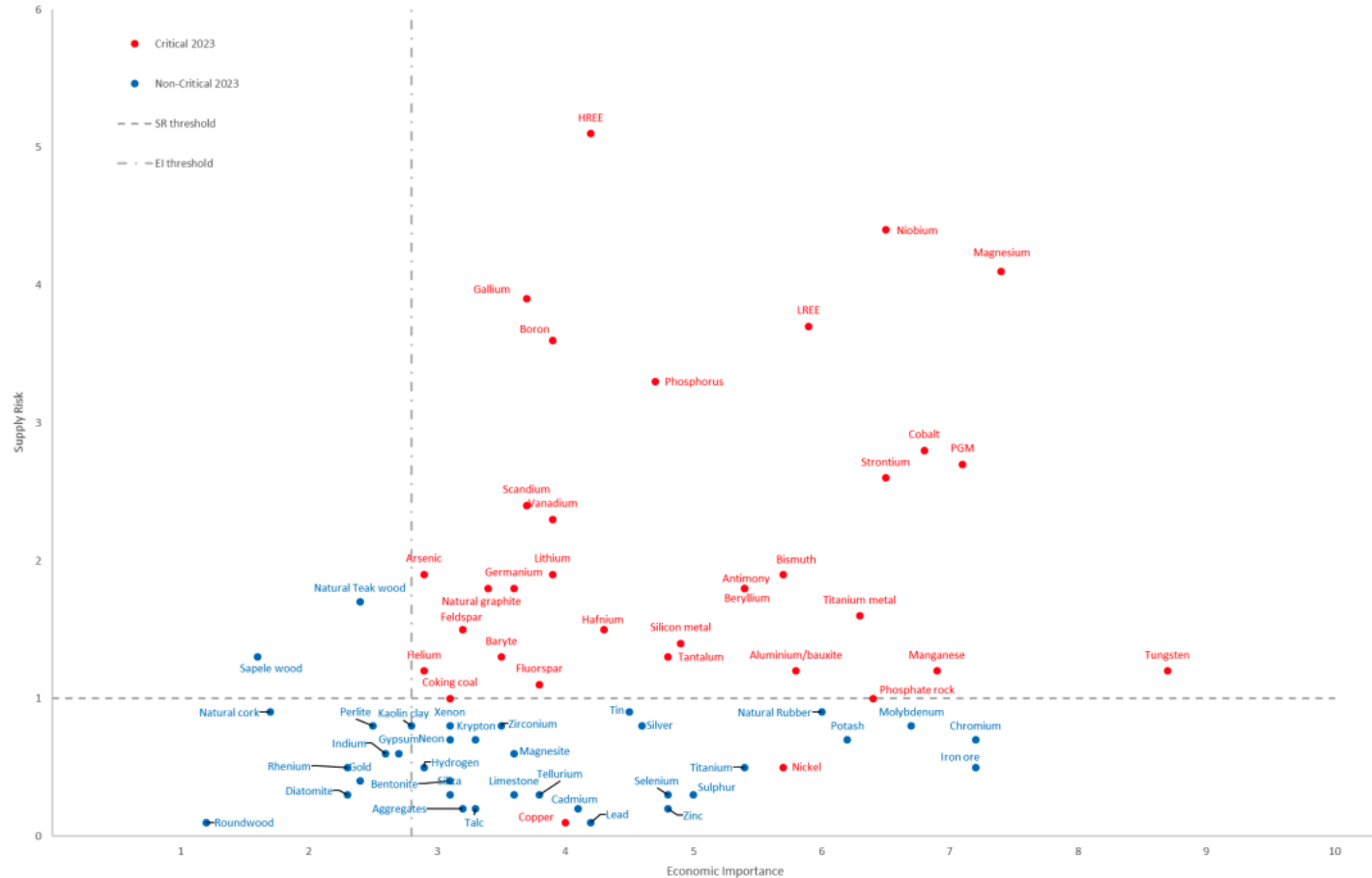
“High-quality reuse of raw materials and materials, high-quality use of bio-based raw materials and making international chains more sustainable are necessary conditions for both transitions. Cohesive policy is therefore crucial.”

Ed Nijpels, chairman SER-commission Sustainable Development

- ❖ Energy transition and Raw materials transition are at odds;
- ❖ With CO2 we can make the energy transition measurable. What about the raw materials transition / circularity?

The 5th List of Critical Raw Materials

From 14 in 2011 to 30 in 2020 and 34 in 2023



Source: EU Science hub, Raw Materials Information System



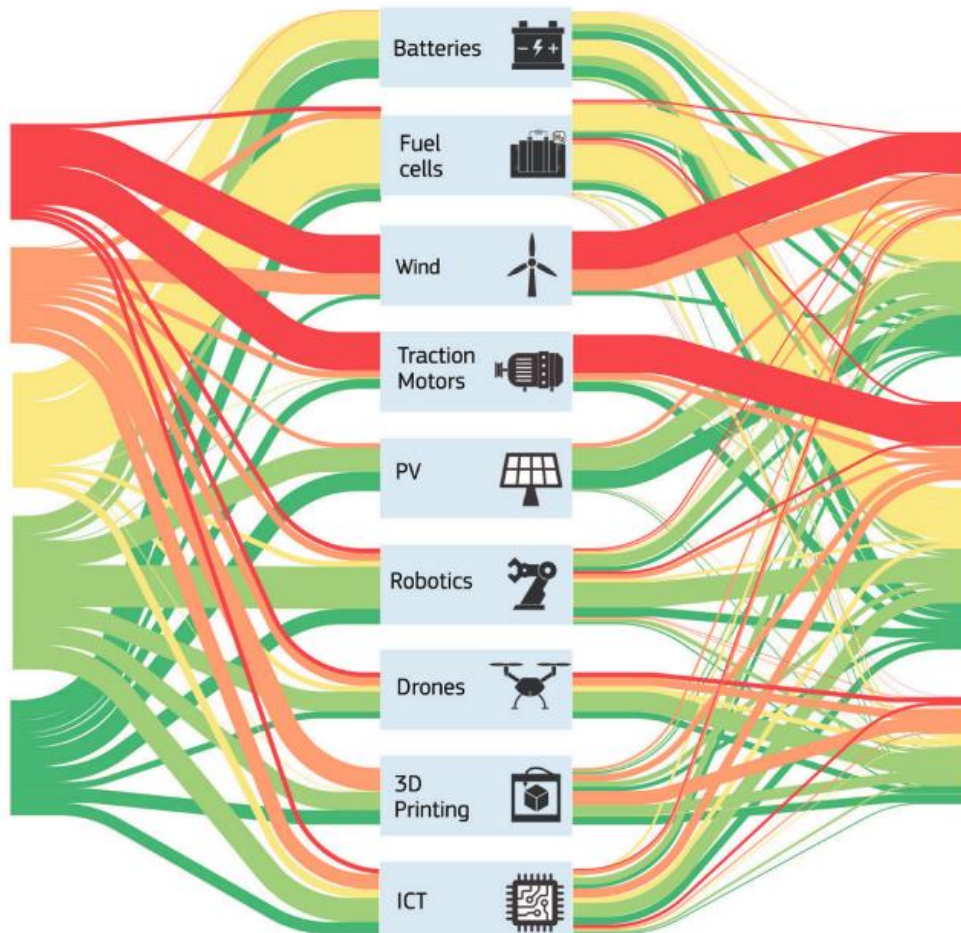
Materials

Supply Risk

(sorted largest to smallest)

Very high	LREEs HREEs
High	Magnesium Niobium Germanium Borates Scandium
Moderate	Strontium Cobalt PGMs Natural graphite
Low	Indium Vanadium Lithium Tungsten Titanium Gallium, Hafnium Silicon metal
Very low	Manganese Chromium Zirconium Tellurium Nickel, Copper

Technologies



Sectors



Where we are?



Governments worldwide are announcing that they want to be 100% circular by 2050 (EC, 2011).

Euhh, that is 27 (!!) years from now.

To get an idea

source: Circularity Gap Report Initiative (<https://www.circularity-gap.world/>)



World	7,2%
EU	12%
Netherlands	24,5%
UK	7,5%
Switzerland	6,9%
Denmark	4%
Sweden	3,4%
Norway	2,4%
Italy	18,4%
Poland	10,2%
Northern Ireland	7,9%



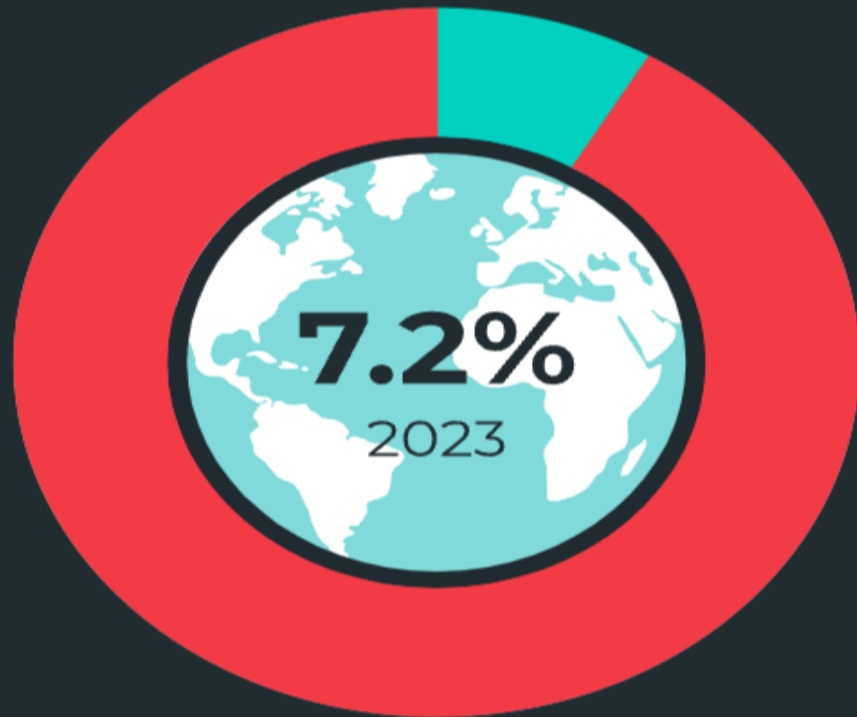
The Naked Truth.....

THE GLOBAL ECONOMY IS NOW ONLY 7.2% CIRCULAR

The global situation is getting worse year on year—driven by rising material extraction and use.

Rising material extraction has shrunk global circularity: from 9.1% in 2018, to 8.6% 2020, and now 7.2% in 2023. This leaves a huge Circularity Gap: the globe almost exclusively relies on new (virgin) materials.

This means that more than 90% of materials are either wasted, lost or remain unavailable for reuse for years as they are locked into long-lasting stock such as buildings and machinery.



Materials that are cycled back into the global economy after the end of their useful life, otherwise known as secondary materials, account for 7.2% of all material inputs into the economy—this is the Circularity Metric.

How do we measure circularity? ➔

How circular are you / is your organization?

- ☐ 0-5%
- ☐ 5-10%
- ☐ 10-15%
- ☐ 15-25%
- ☐ 25-50%
- ☐ 25-75%
- ☐ 75-100%

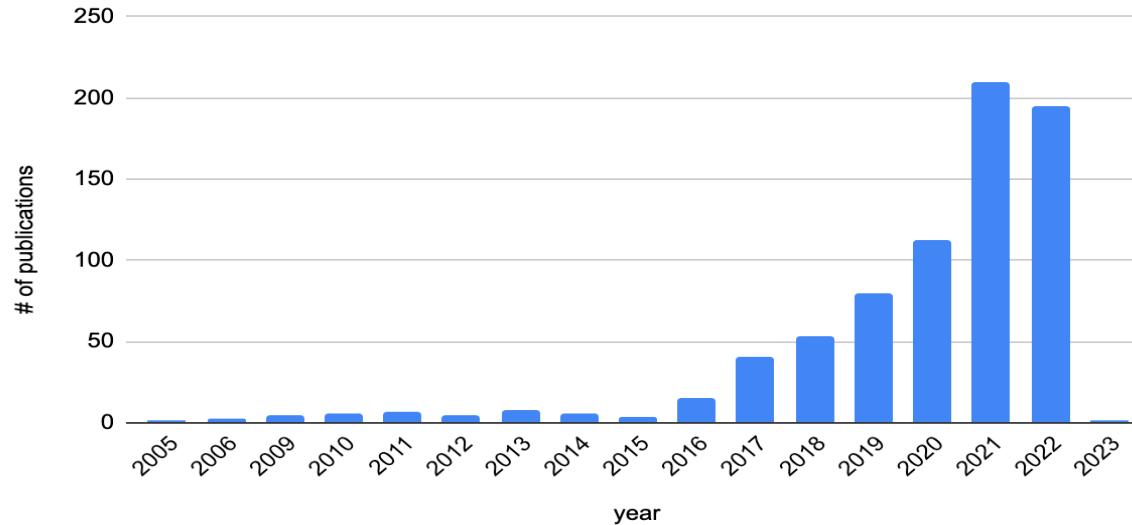


Publication explosion..

751 and counting



Publications on CE & Performance

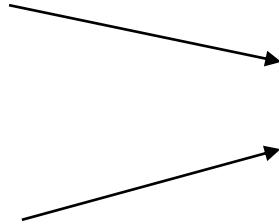


Source: constructed by authors (Dec. 2022)

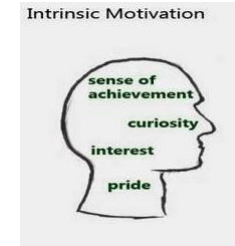


We are getting there

Converging knowledge



Intrinsic motivation



Standardization & Normation

Regulations



> 115 definitions
(Kirchher et al., 2017)

Een circulaire economie is een economie die herstellend en regeneratief is van opzet en tot doel heeft producten, componenten en materialen te allen tijde op hun hoogste nut en waarde te houden, waarbij onderscheid wordt gemaakt tussen technische en biologische cycli (EMF, 2013)

1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste

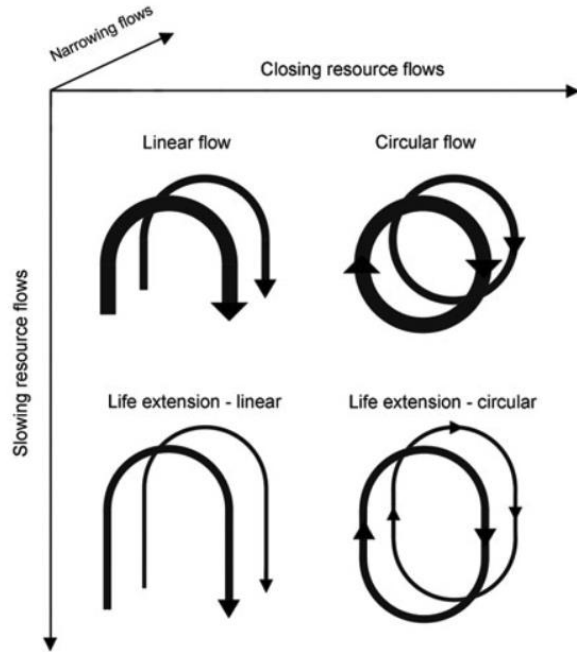
SOURCE
Ellen MacArthur Foundation
Circular economy systems diagram (February 2019)
www.ellenmacarthurfoundation.org
Drawing based on Braungart & McDonough,
Cradle to Cradle (C2C)

MINIMISE SYSTEMATIC
LEAKAGE AND NEGATIVE
EXTERNALITIES



Circulaire bedrijfsmodellen

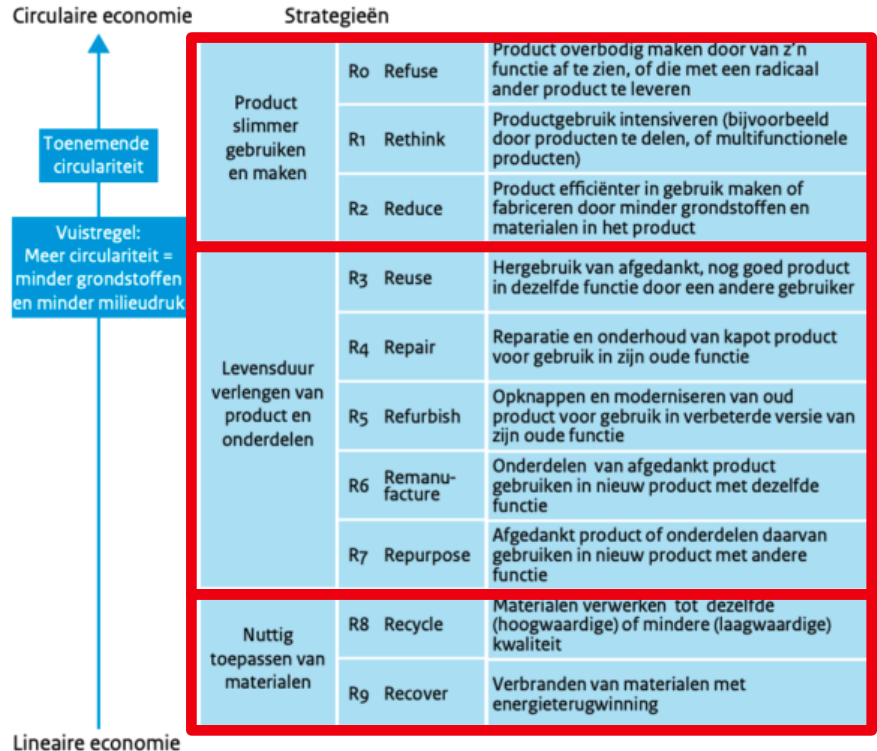
Ritala et al. 2023 (Handbook for the circular economy), Bocken et al, 2016



- ❖ Verkleining (narrowing)
- ❖ Vertragen (slowing)
- ❖ Sluiten (closing)
- ❖ Regenereren

De 10 R strategieën

o.a. Potting et al., 2017 & Kirchherr et al., 2019



Waarom service logistieke bedrijven in toenemende mate een prominente rol gaan spelen?

REPARATIE IN DE CIRCULAIRE ECONOMIE

EUROPESE
WETGEVING,
PRODUCTONTWERP
EN VERDIENMODELLEN

SUSTAINABLE SOCIETY



Foto: Eric de Vries

10 wetenschappers | 5 praktijkverhalen |
26 inzichten | 14 adviezen

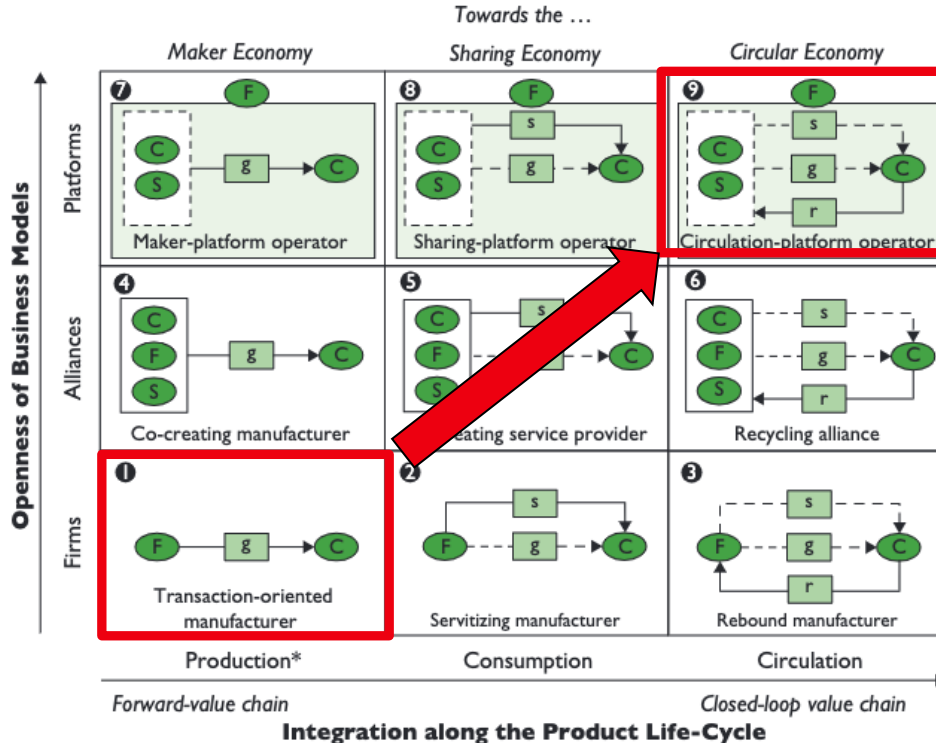
Right to repair

..belangrijke stap op weg naar
een circulaire economie..??



https://www.slimcirculair.info/1556993_reparatie-in-de-circulaire-economie

Nieuwe initiatieven... Wegnemen van waardelekken.. (Fundamenteel) Anders denken...



C Consumer
F Focal firm
S Supplier

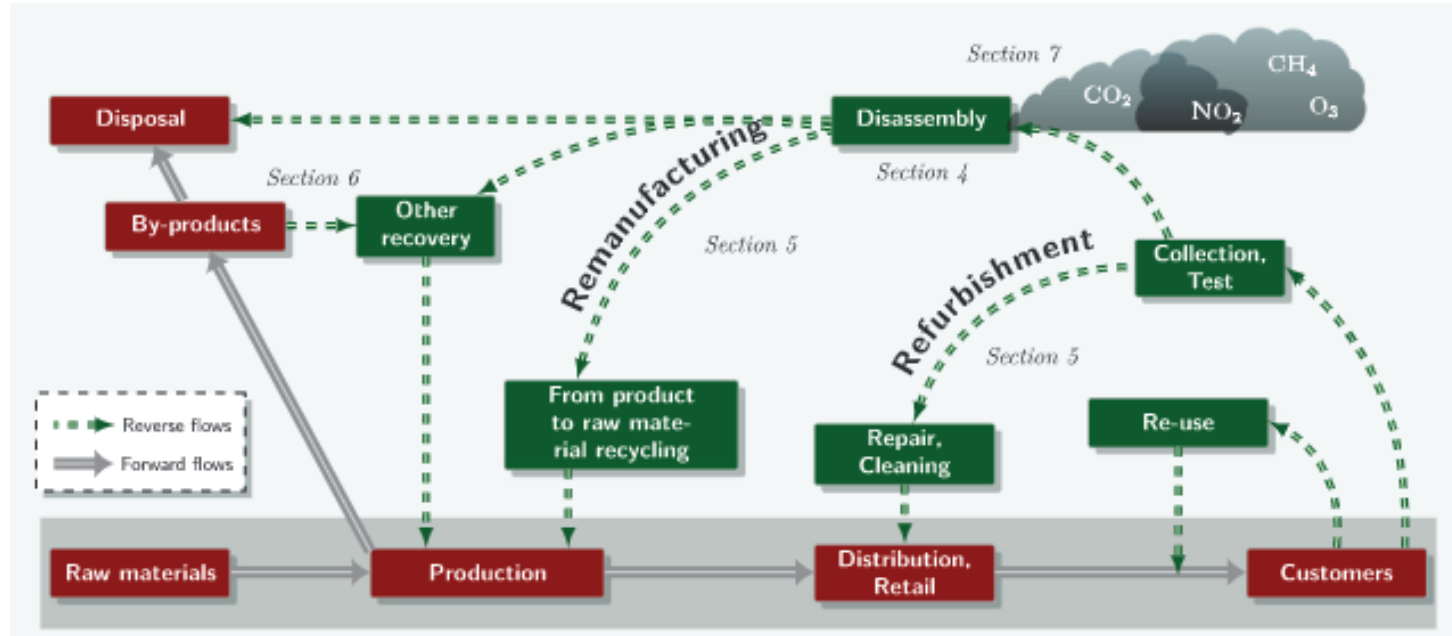
g goods
s value added services
r re-acquired products



Source: Kortmann & Piller (2016)



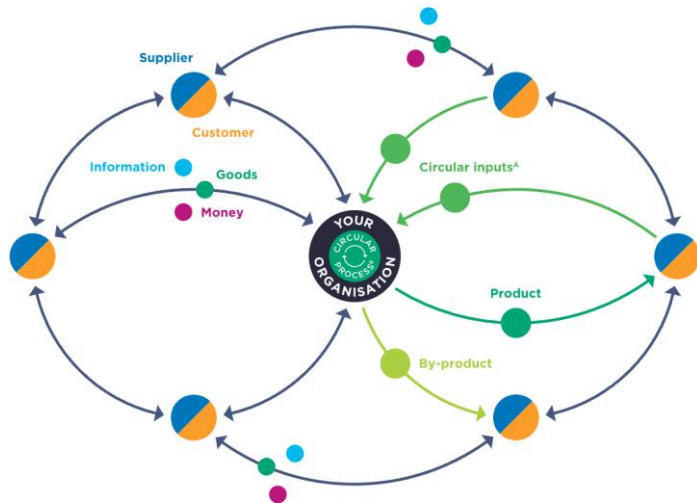
Nieuwe entiteiten in nieuwe netwerken



Source: Suzanne et al. (2020)

Stelling

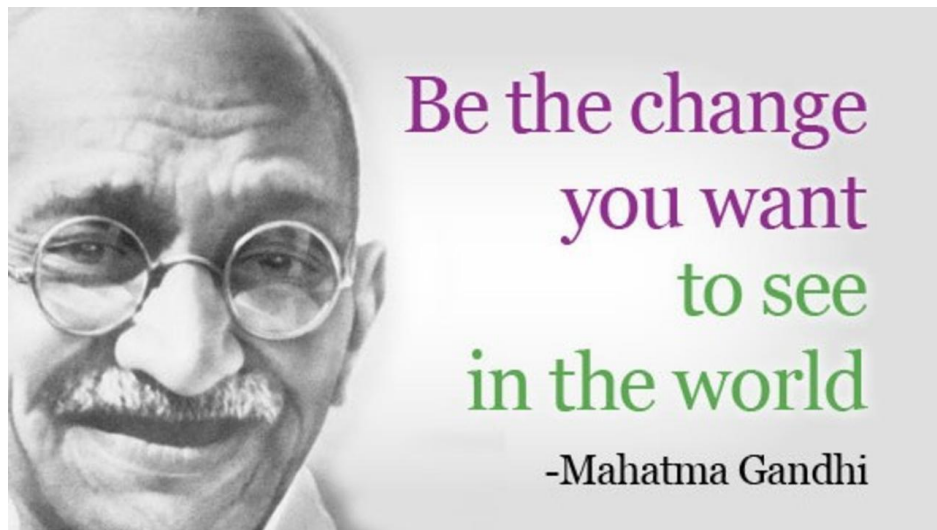
Een closed loop supply chain bestaat niet, en als ie al zou bestaan, zou het niet je ambitie moeten zijn, met uitzondering van één...



What are circular supply chains?

Circular supply chains require three things:

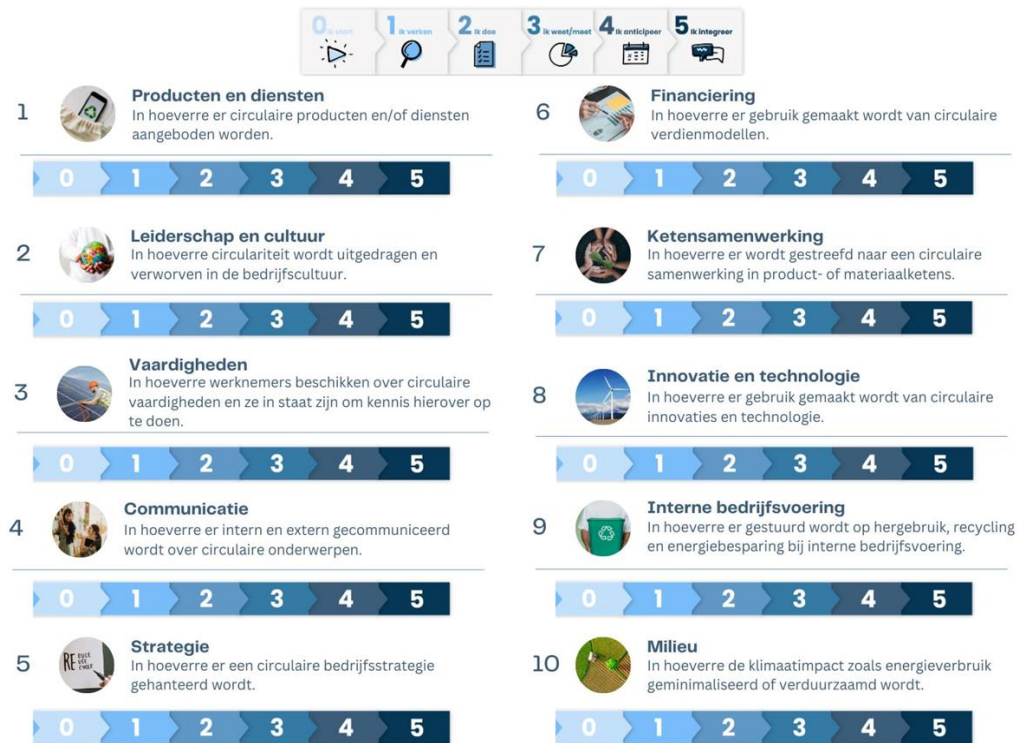
- Distributed and interconnected networks to leverage local and global partnerships with suppliers, customers, and industry peers
- Multidirectional flows of information, goods, and money to enable data — such as the location, material composition, and disassembly options of an item — to flow between network partners
- The ability to capture and deliver value by keeping products and materials in use



**Service logistiek is
belangrijke enabler
voor circulair
ondernemen.**

**Circulair ondernemen is ook aan de orde
voor bedrijven in de service logistiek!!!**

Dimensies van circulair ondernemen?



Samenvatting

- ❖ Circulair ondernemen is een transformatie van de eerste orde
- ❖ Circulair ondernemen is niet de vraag **of**, maar meer **wanneer** en **hoe**
- ❖ Verlangen tot levensduur verlenging enorme kans voor service logistiek
- ❖ Denk aan de schoenmaker
- ❖ Circulariteit $\neq$ Duurzaamheid
- ❖ Practice what you preach

Questions?



www.slimcirculair.info
a.a.c.m.wierikx@tue.nl
arjen.wierikx@hu.nl