

Educatief moment

Tussen de kleiduiven en de bbq

Arjen Wierikx

Key take aways

- No Guts No Glory
- Als je doet wat je deed, krijg je wat je had
- Het is maar werk
- 'Onkruid' vergaat niet
- Wat aandacht krijgt, groeit
- Vier het leven
- Toeval bestaat niet
- Waarde van sociaal kapitaal
- Relax, reflect, recharge
- Logistiek, motor van de circulaire economie

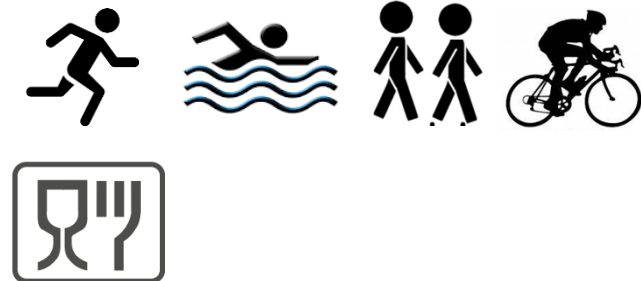
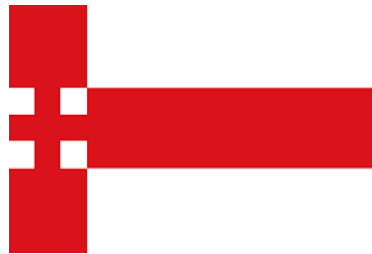
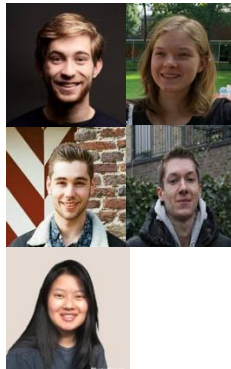
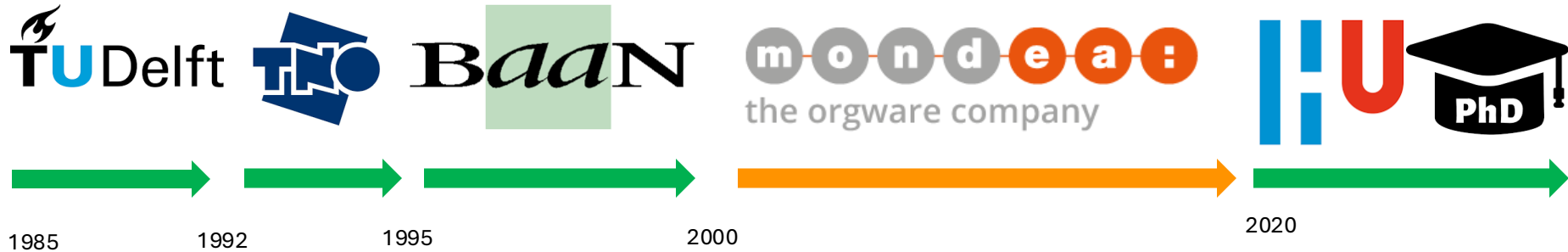


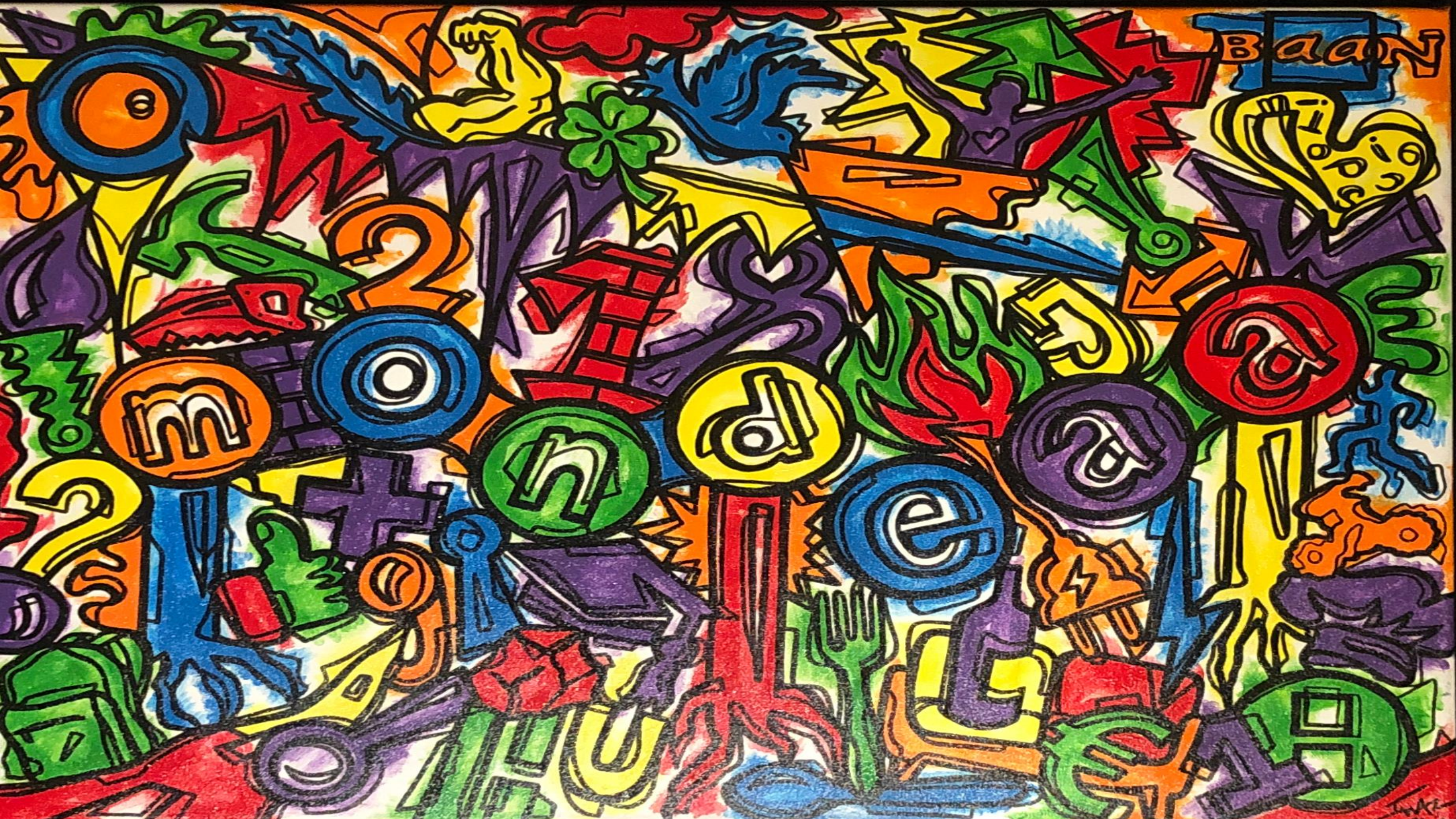
Passion For Logistics Allergic To Waste



SMART CIRCULAR
PASSION FOR LOGISTICS, ALLERGY TO WASTE

www.slimcirculair.info





3 Peilers → In 2000

- Geen kantoor
- Geen loonlijst
- Aandacht voor sharity

Maatschappelijk
betrokken
ondernemen


dankzij
overwaarde




©2010
Maaike
Hartjes
.nl

monde a: 10 jaar!

Contacten (8.703)

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A group of approximately 15 people, mostly men in business casual attire, are gathered outdoors in a courtyard or garden area. In the foreground, a man in a bright red short-sleeved shirt and khaki trousers stands with his back to the camera, facing the group. The group consists of men in light blue, white, and purple shirts, and a few women in light-colored blouses and a grey vest. They are standing on a paved area with wooden chairs and tables nearby. In the background, there are lush green trees and a building with large glass windows. The overall atmosphere is professional yet relaxed.

Buiten – gewoon – ont – moeten
Sociaal honk: VELA / VIM



Focus:
Je kunt niet alles voor iedereen zijn

Waarde van je sociaal kapitaal





Van ambitie
naar groei

“Zonder dieptepunten geen hoogtepunten”

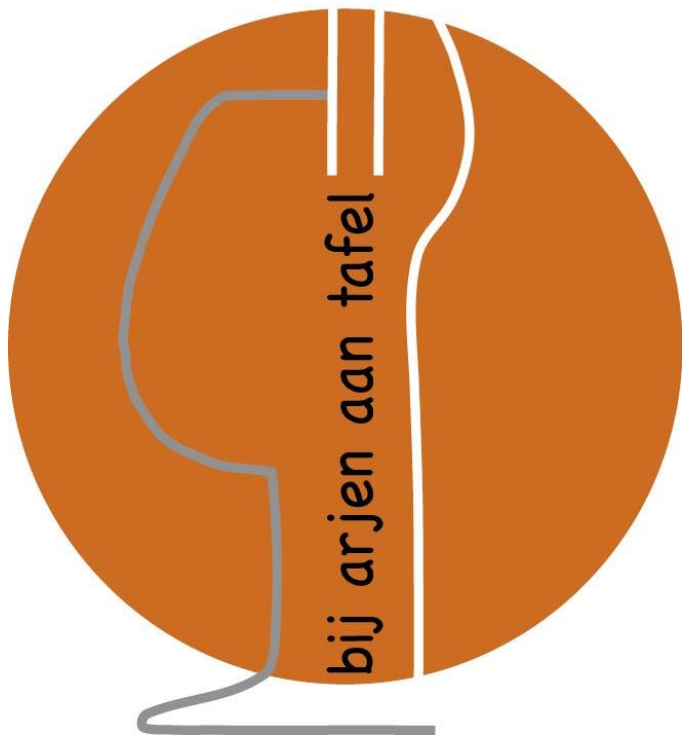
Relax, reflect, recharge



Succes?

m o n d e a :

the orgware company



Wat aandacht krijgt groeit

Effectief
netwerken

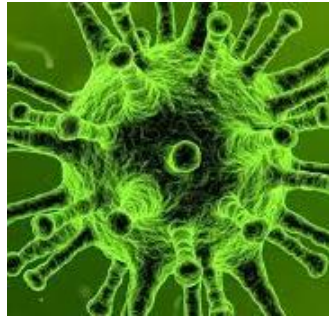
‘Network
for life’

Discipline
loont



Synchroniciteit: elke gebeurtenis heeft een betekenis. Je komt er alleen soms pas jaren later achter welke....

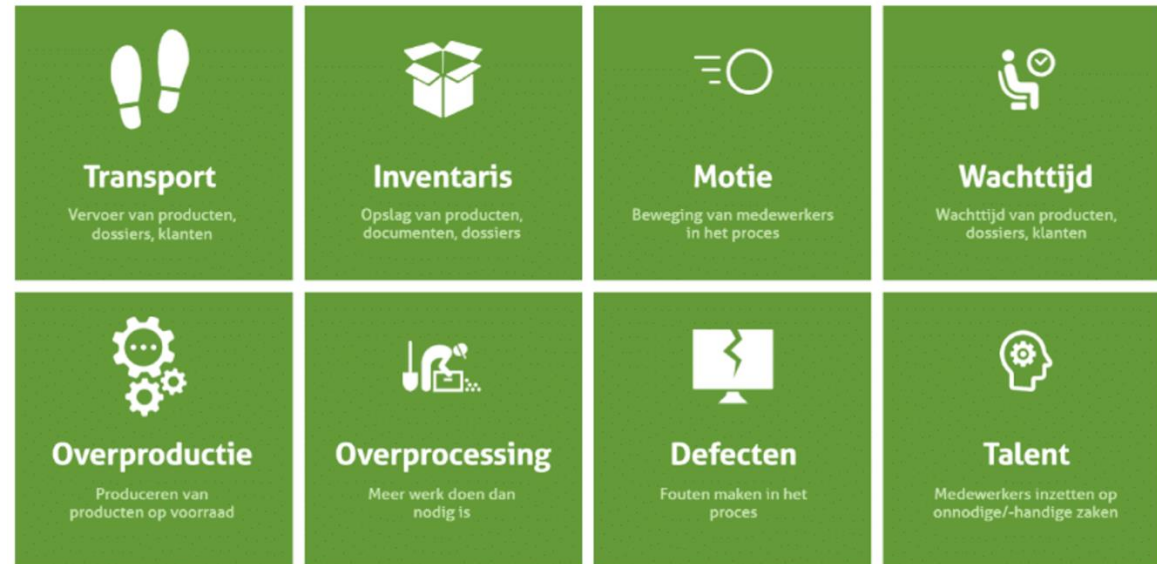
“Joe Jaworksi”



1995 – 2020
synchroniciteit



Logistiek is
de motor van
de circulaire
economie



Geschiedenis van de logistiek

- Frans of grieks?
- Roos, 2002
- Jomini (1830) / **maréchal des logis** Vroeger werden stafofficieren genoemd: huismaarschalk, huisgeneraal-majoor; vandaar de term logistiek, die wordt gebruikt om te verwijzen naar wat betrekking heeft op de **marsen van een leger.**
- Tepic, J.; Tanackov, I.; Stojić, Gordan (2011). "Ancient logistics – historical timeline and etymology": Het Franse woord: logistique is een homoniem van de bestaande wiskundige term, uit het Oudgrieks: λογιστικός, geromaniseerd: logistikós, een traditionele afdeling van de Griekse wiskunde; de wiskundige term is vermoedelijk de oorsprong van de term logistiek in logistieke groei en aanverwante termen → 7^e eeuw voor Christus.



Definitie

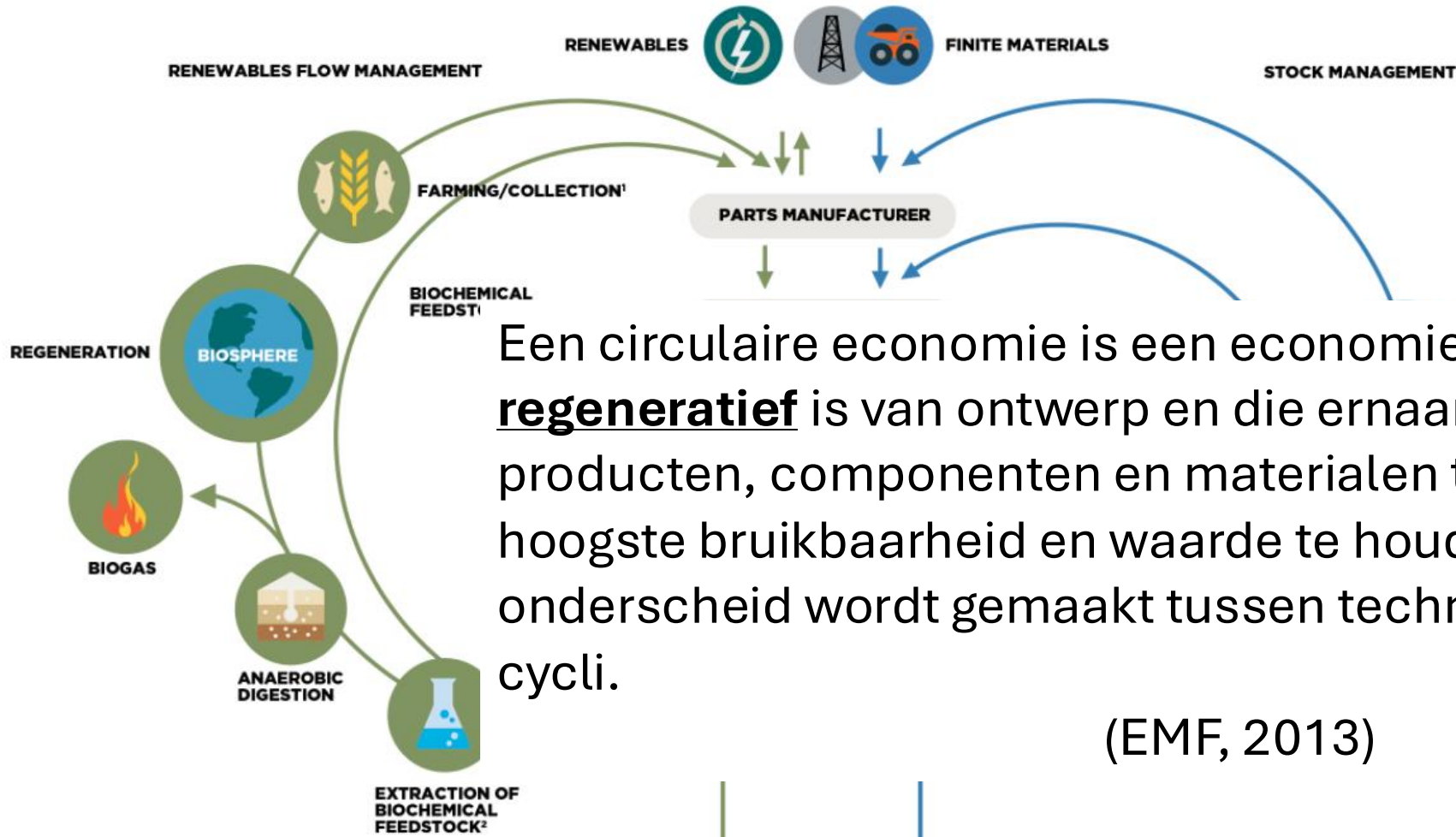
- **Jomini (1830, p. 74)** ... de kunst om de marsen van een leger te ordenen, om de volgorde van de troepen in de kolommen, de tijd van hun vertrek, hun route, de communicatiemiddelen die nodig zijn om hun aankomst op genoemd punt te verzekeren ..
- **Christopher (2011):** Logistiek is het proces van strategisch beheer van de inkoop, verplaatsing en opslag van materialen, onderdelen en afgewerkte voorraad (en de gerelateerde informatiestromen) door middel van de organisatie en haar marketingkanalen zodanig dat de huidige en toekomstige winstgevendheid wordt gemaximaliseerd door de kosteneffectieve uitvoering van bestellingen.
- **Topsector Logistiek (2009):** De kunst van het slim organiseren

non à forces égales ou inférieures. 7) On voit donc que toutes les combinaisons d'une bataille consistent à employer ses forces de manière à ce qu'elles obtiennent le plus d'action possible sur celui des trois points qui offre davantage de chances, point qu'il sera facile de déterminer en le soumettant à l'analyse que nous venons d'exposer.

Art. 7. Des marches d'armées considérées comme manœuvres.

La **logistique** *) est l'art de bien ordonner les marches d'une armée, de bien combiner l'ordre des troupes dans les colonnes, le tems de leur départ, leur itinéraire, les moyens de communications nécessaires pour assurer leur arrivée à point nommé; c'est le fond des devoirs d'un officier d'état-major. Mais, outre ces détails tout matériels, il existe une espèce de

*) Autrefois les officiers de l'état-major se nom-



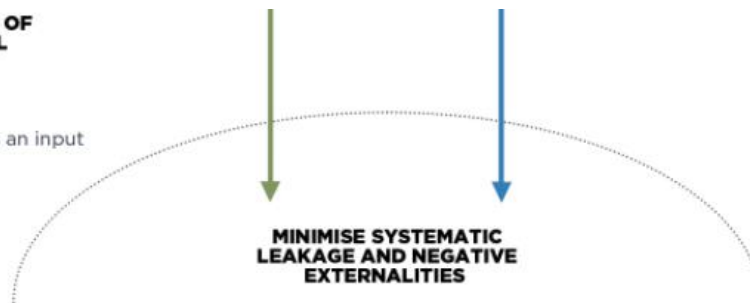
> 115 definitions
(Kirchher et al., 2017)

Een circulaire economie is een economie die herstellend en regeneratief is van ontwerp en die ernaar streeft om producten, componenten en materialen te allen tijde op hun hoogste bruikbaarheid 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 as an input

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



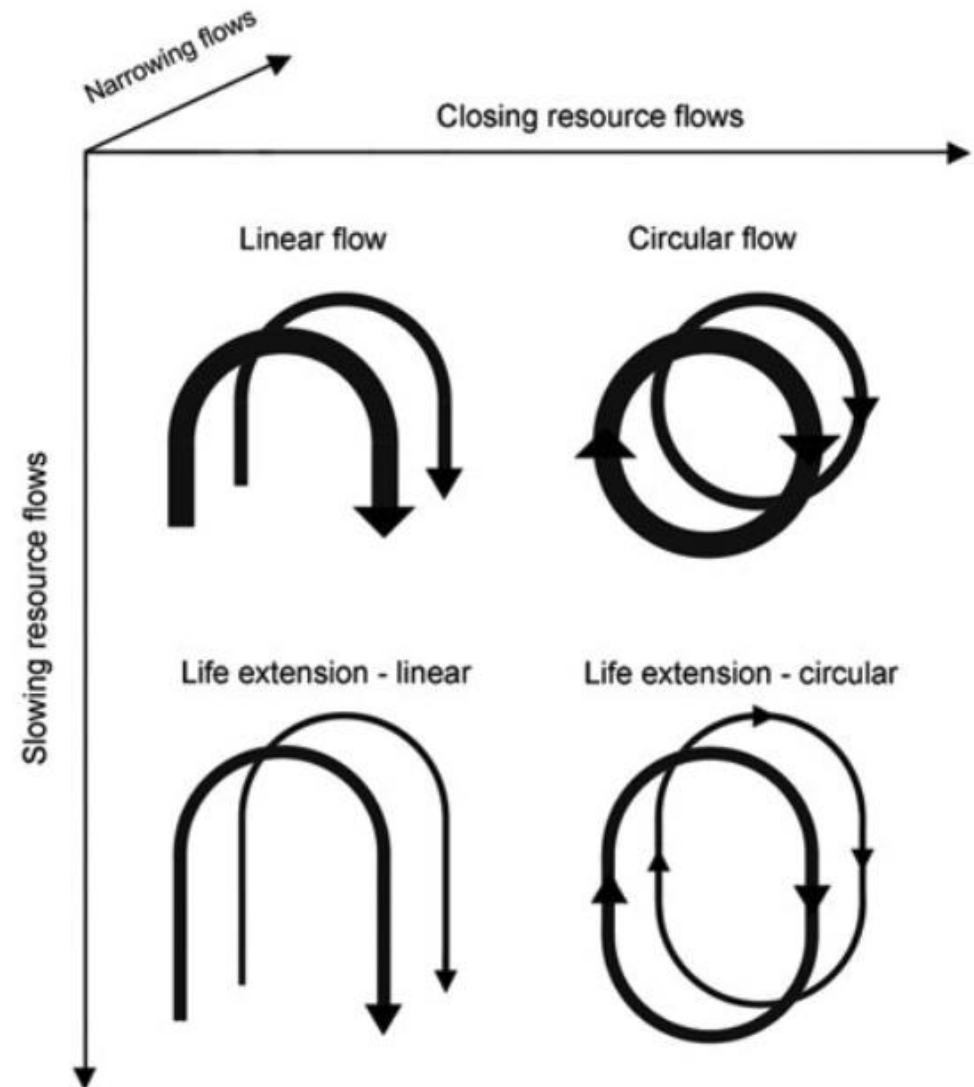
Strategies

R-strategies / narrowing, slowing, closing

o.a. Potting et al. (2017) and Bocken et al. (2016)

Circular economy		Strategies	
Smarter product use and manufacture	R0 Refuse	Make product redundant by abandoning its function or by offering the same function with a radically different product	
	R1 Rethink	Make product use more intensive (e.g. by sharing product)	
	R2 Reduce	Increase efficiency in product manufacture or use by consuming fewer natural resources and materials	
Extend lifespan of product and its parts	R3 Reuse	Reuse by another consumer of discarded product which is still in good condition and fulfils its original function	
	R4 Repair	Repair and maintenance of defective product so it can be used with its original function	
	R5 Refurbish	Restore an old product and bring it up to date	
	R6 Remanufacture	Use parts of discarded product in a new product with the same function	
	R7 Repurpose	Use discarded product or its parts in a new product with a different function	
Useful application of materials	R8 Recycle	Process materials to obtain the same (high grade) or lower (low grade) quality	
	R9 Recover	Incineration of material with energy recovery	
Linear economy			

Kirchherr & Piscicelli (2019)



Bocken et al. (2016)

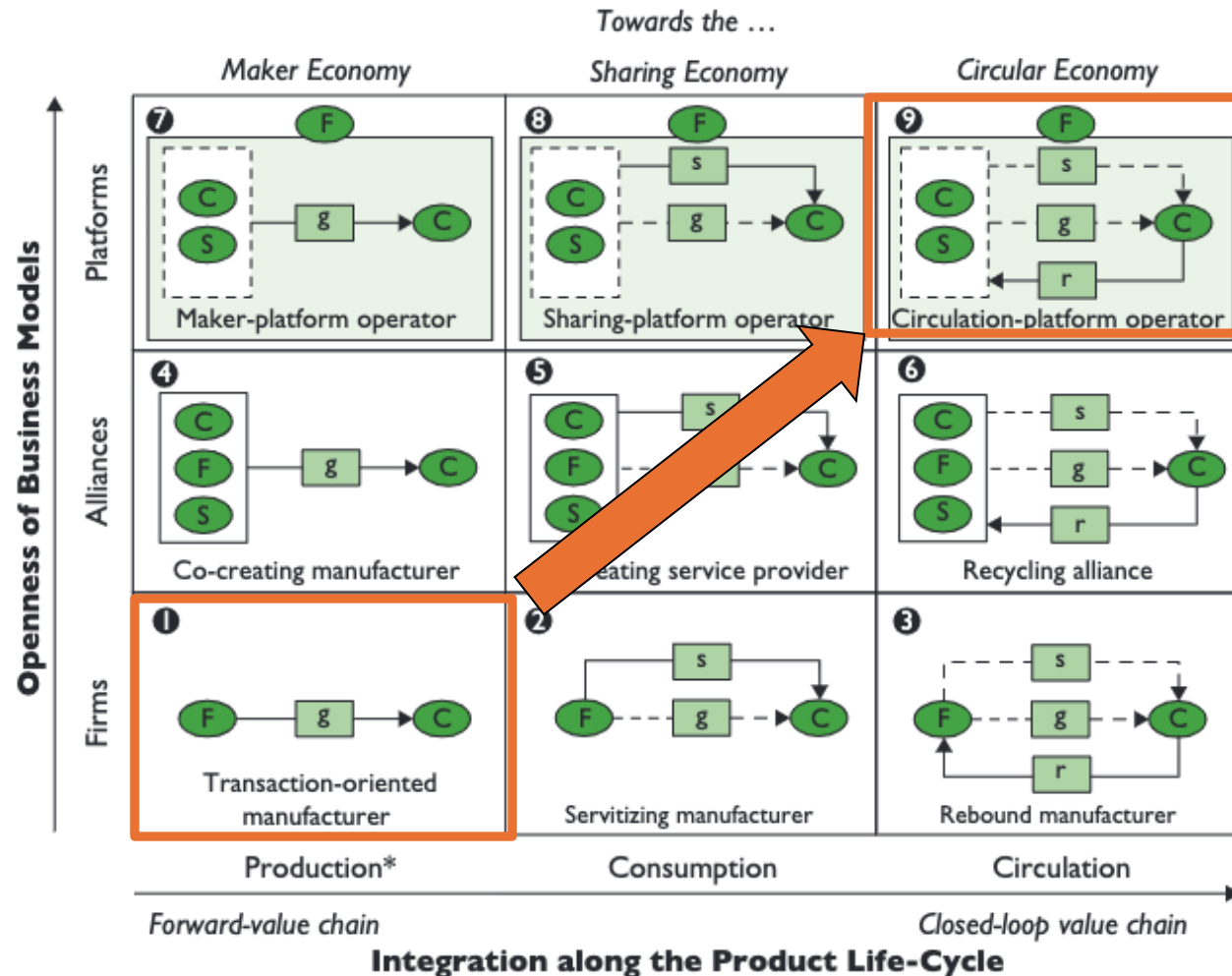
Ergo, een economie die
herstellend en
regeneratief is, gebruikt
geen primaire
grondstoffen en realiseert
geen afval

In zo een economie is er geen
sprake van verspilling en zijn er
geen waardelekken

**Zo een economie is optimaal
'slim georganiseerd' conform
de definitie van Logistiek.**



Waardeketen... Platform denken



C Consumer
F Focal firm
S Supplier

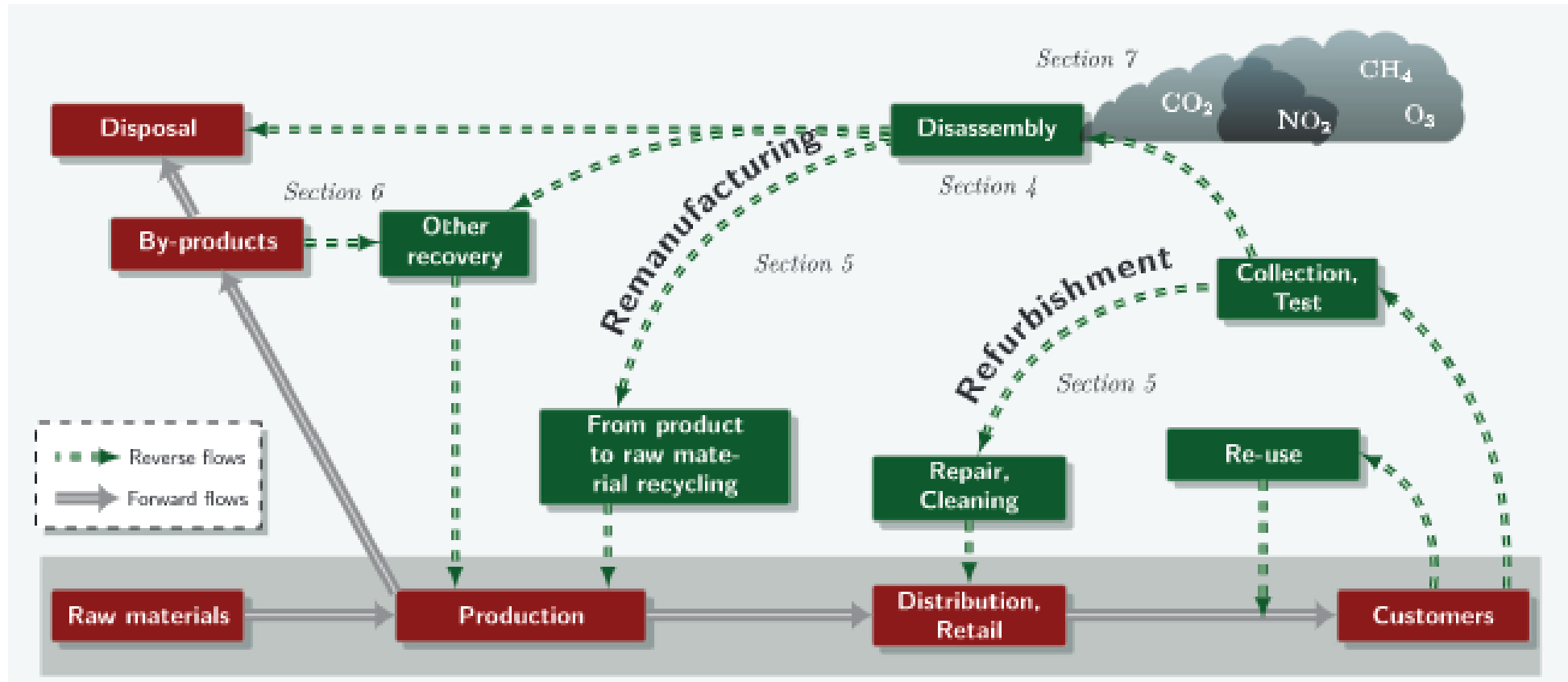
g goods
s value added services
r re-acquired products





Schoenmaker blijf by uw leest!

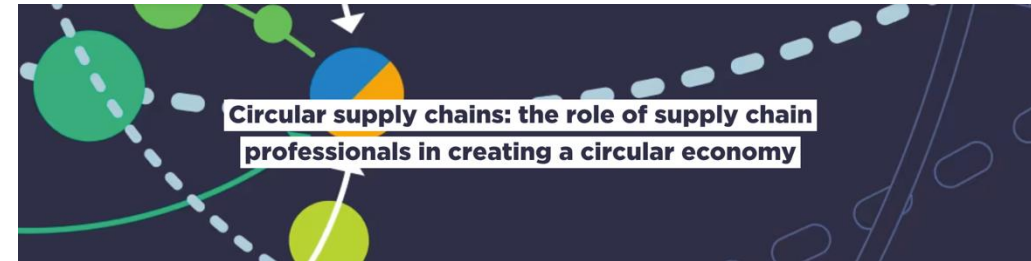
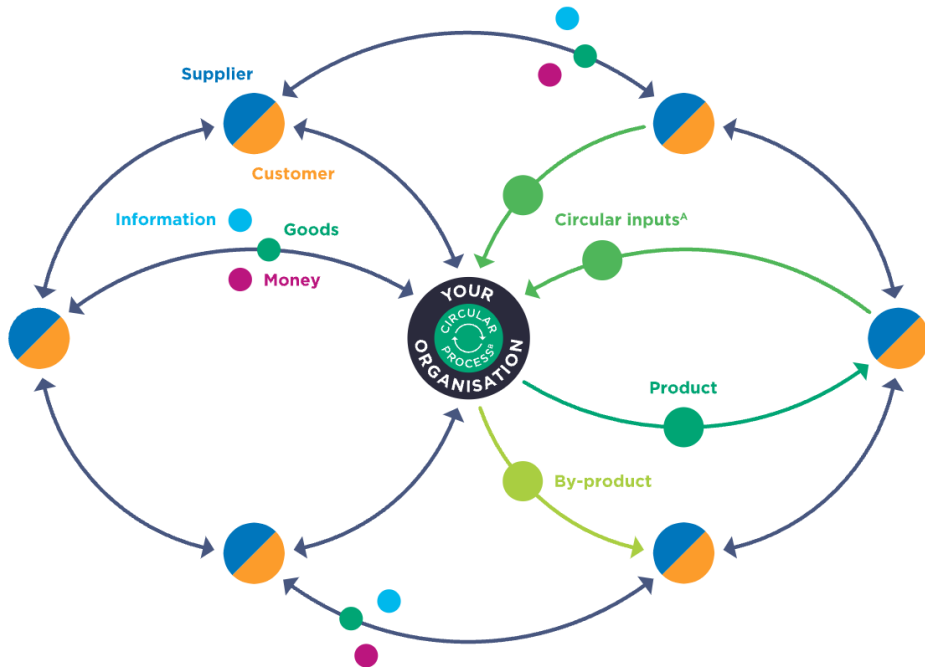
New entities in new networks



Source: Suzanne et al. (2020)

Hypothesis

Closed loop supply chain does not exist, and if it does, it should not be the ambition, except for one....

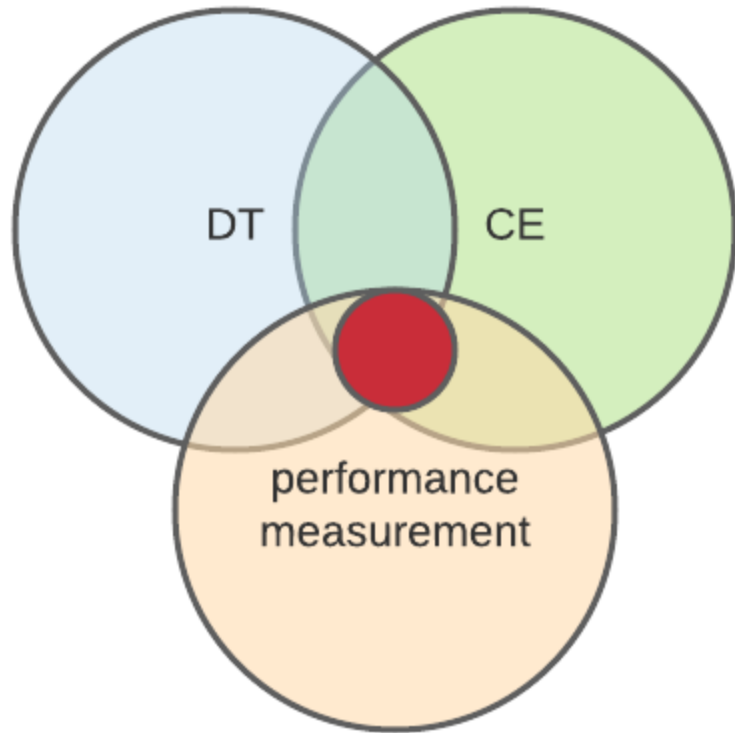


What are circular supply chains?

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

Research question

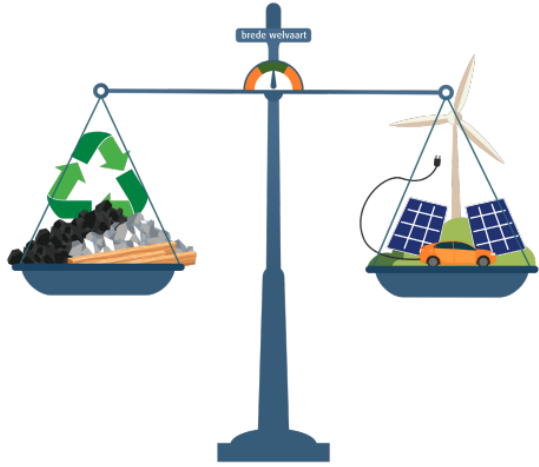


How can organizations use Digital Technology strategies to increase Circular Economy performance?

Broken down into:

- **How do we measure CE performance on a micro level?**
- How to determine DT strategies?
- Impact of DT strategies on CE performance

SER: Make Raw Materials transition a priority



September 16, 2022:

SER (social economic board) **exploration: Climate targets will not be achieved without accelerating the raw materials transition**

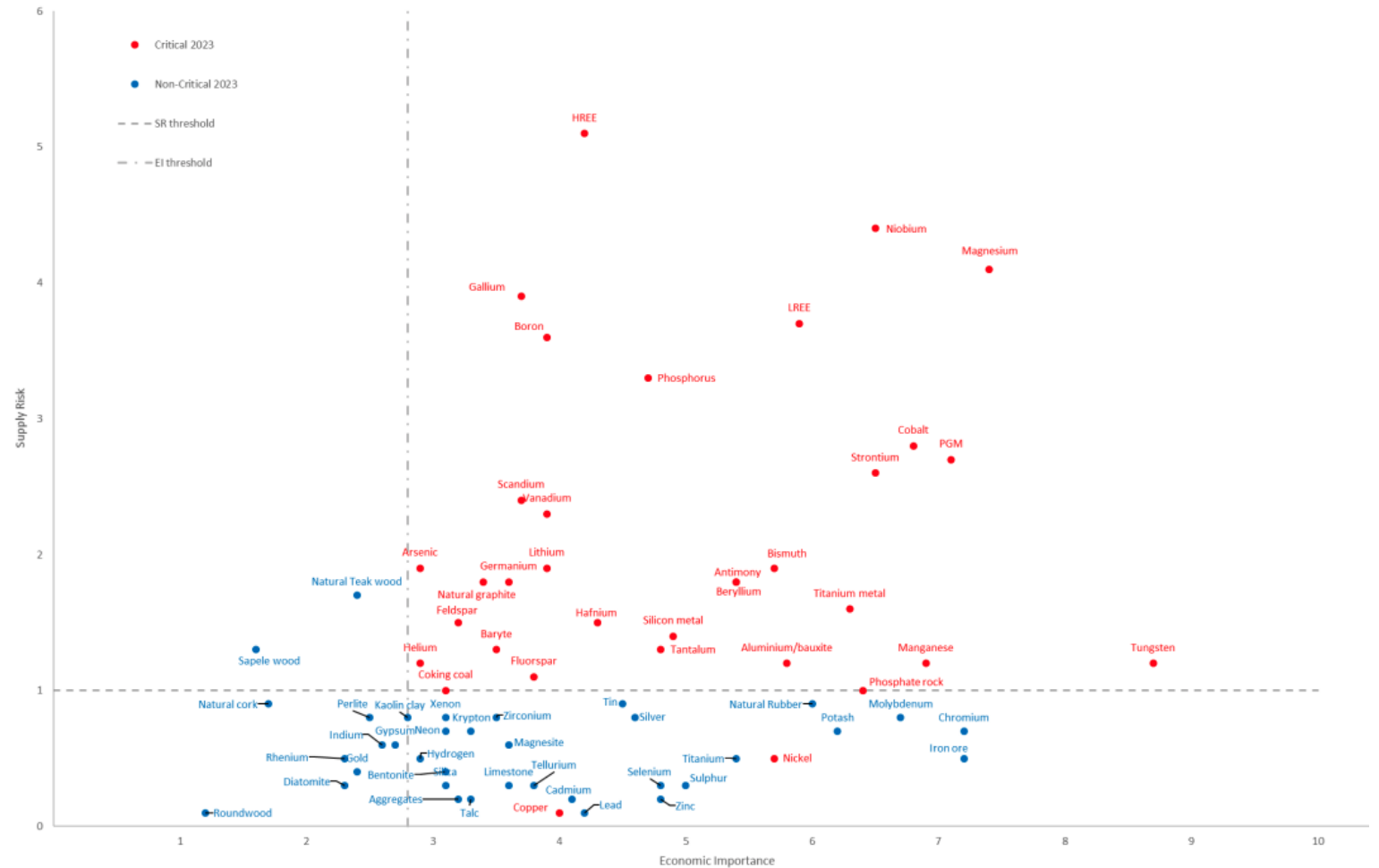
“High-quality reuse of raw materials and materials, high-quality use of bio-based raw materials and making international chains more sustainable are necessary conditions for both transitions. Cohesive policy is therefore crucial.”

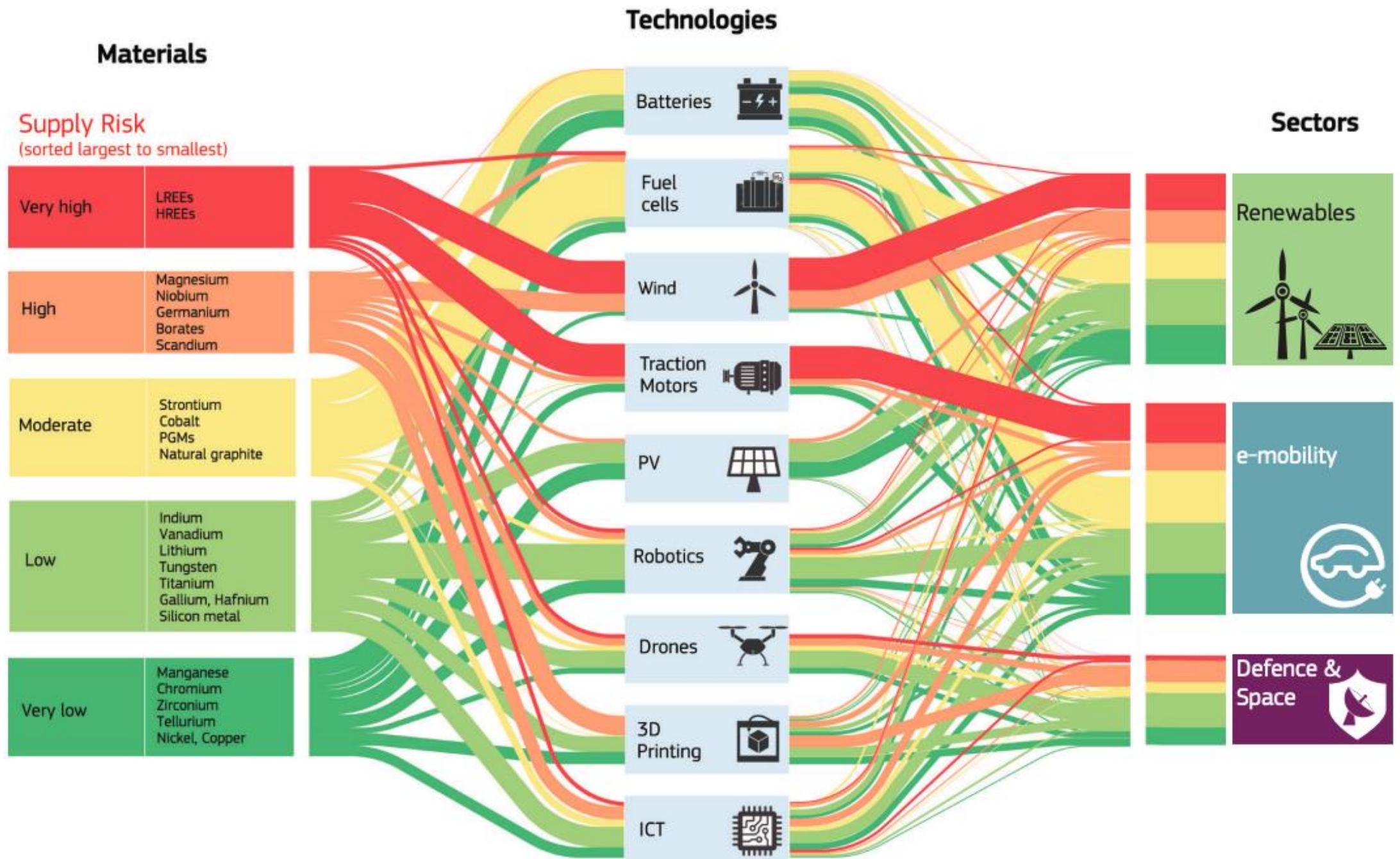
Ed Nijpels, chairman SER-commission Sustainable Development

- ❖ 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





Where we are?



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

Euhh, that is 26 (!!) years from now.



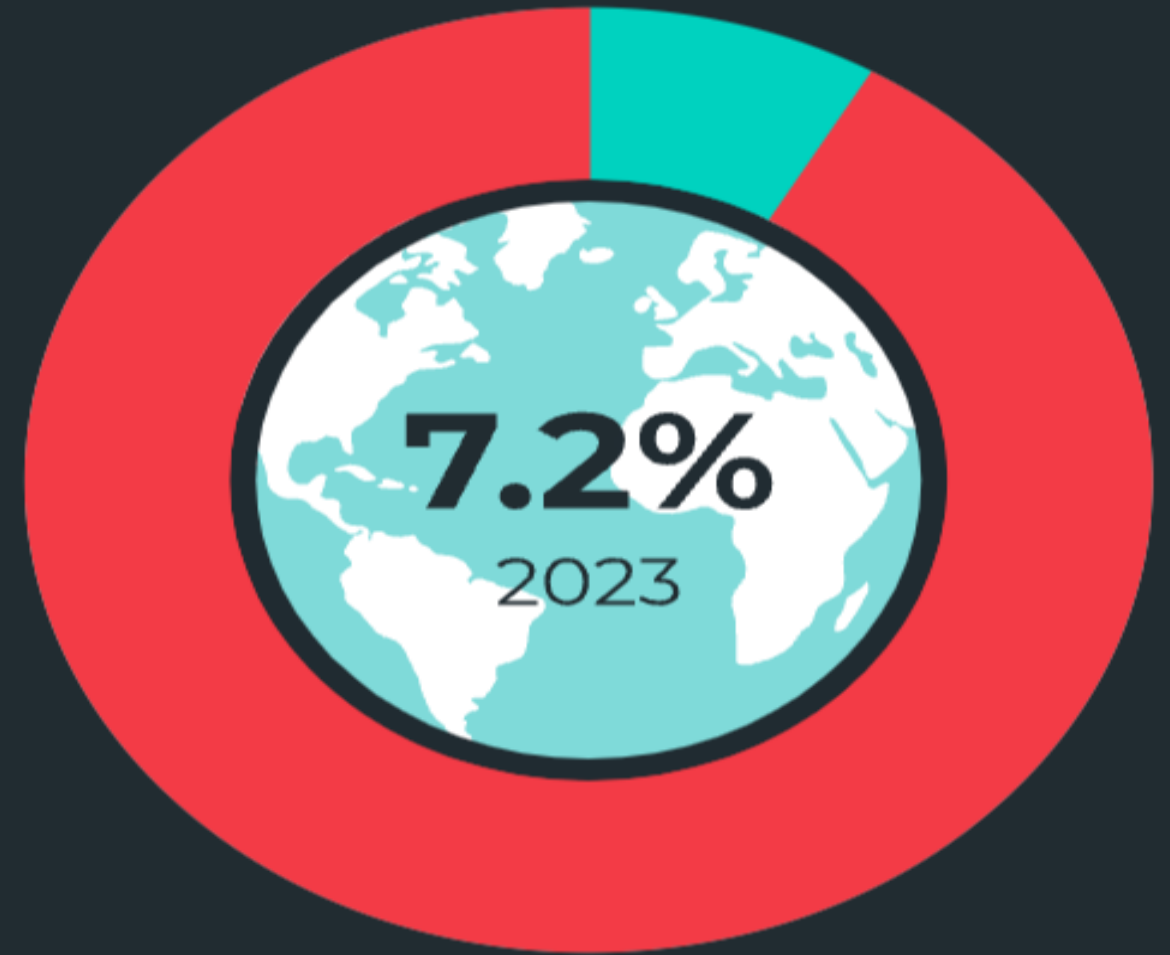
The Naked Truth.....

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.

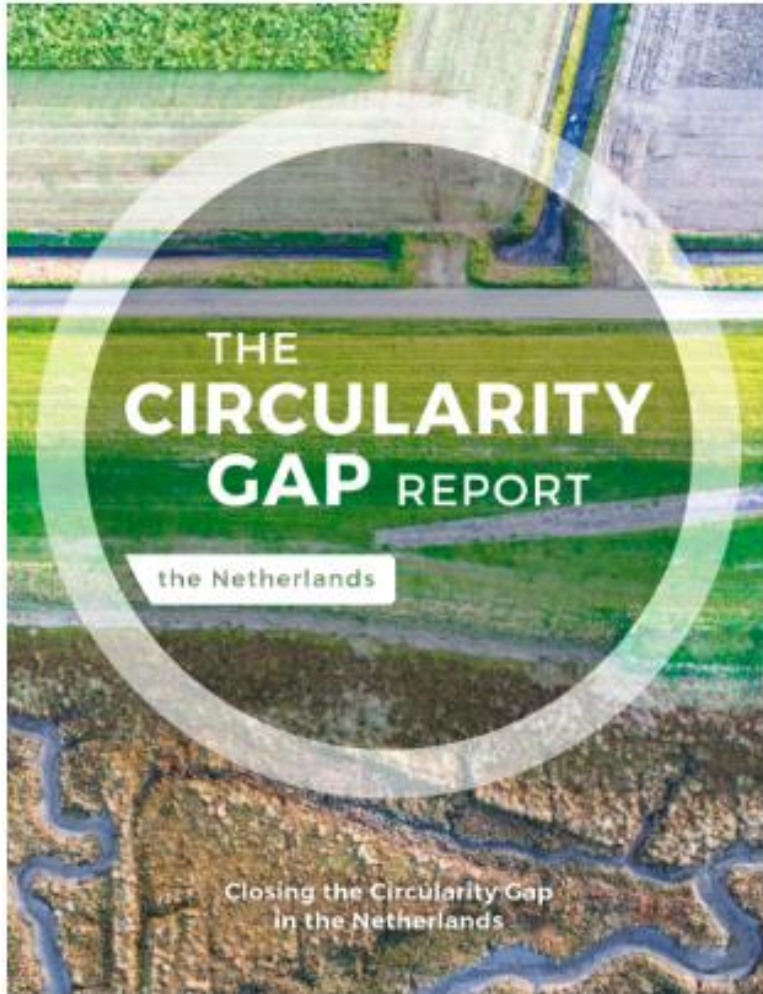
This means that more than 90% of materials are either wasted, lost or remain unavailable for reuse for years as they are locked into long-lasting stock such as buildings and machinery.



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? ↗](#)

A little better for the Netherlands



The Netherlands is a global frontrunner in the race to circularity with a Circularity Metric of 24.5%. However, the government has ambitious goals: an economy that is 50% circular by 2030 and 100% circular by 2050. The Circularity Gap Report, the Netherlands, recommends wide-ranging ways in which the economy can pivot away from its linear habits across four key sectors: agriculture, construction, manufacturing and energy. The suggested strategies could triple the Dutch metric from 24.5% to 70%.

[Explore the full report](#)

<https://www.circularity-gap.world/countries>

Een illustratie

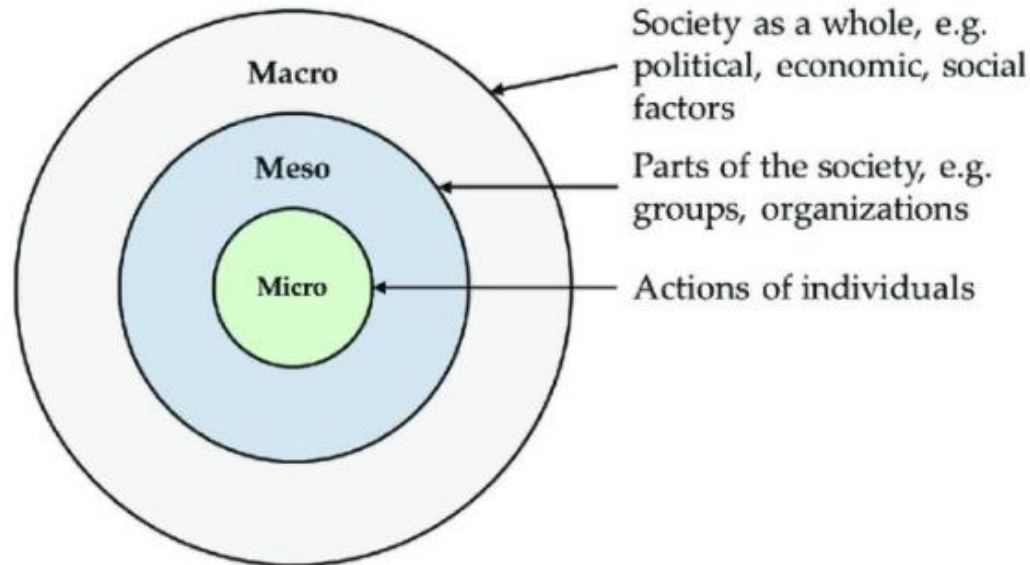
- World ▪ 7,2%
 - EU ▪ 12%

 - Denmark ▪ 4%
 - Italy ▪ 18.4%
 - Netherlands ▪ 24,5%
 - Poland ▪ 24,5%
 - Switzerland ▪ 10,2%
 - UK ▪ 6,9%
 - 7,5%
- <https://www.circularity-gap.world/2023>
 - [link](#)

 - <https://www.circularity-gap.world/denmark>
 - [Link](#)
 - <https://www.circularity-gap.world/netherlands>
 - <https://www.circularity-gap.world/poland>
 - <https://www.circularity-gap.world/switzerland>
 - <https://www.circularity-gap.world/united-kingdom>

macro, meso, micro thinking in de circular economy

Focus on micro: "what's in it for me?"



Macro, meso and micro level overview (Javaid, Javed & Kohda, 2019)

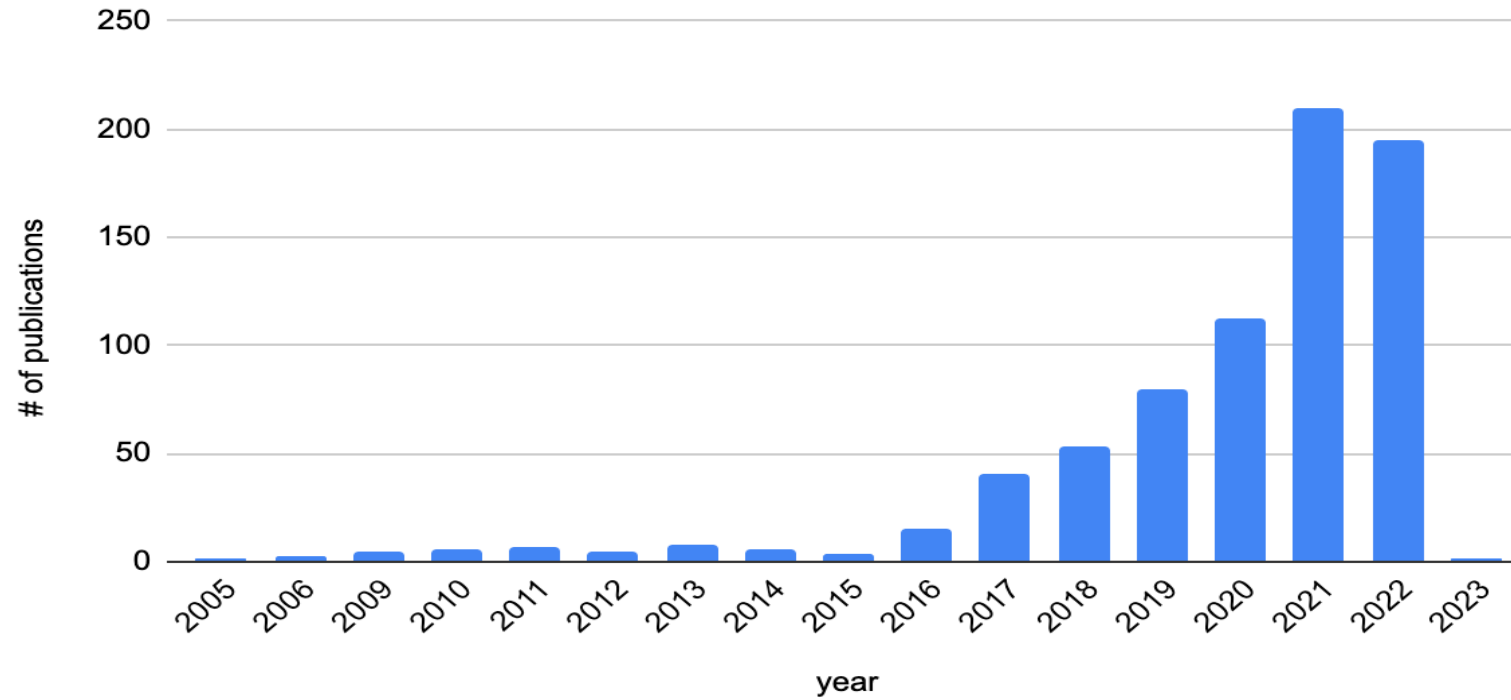
Hoe circulair is de organisatie waar jij zit?

Ergo waar zitten waardelekken en verspillingen

Publication explosion..

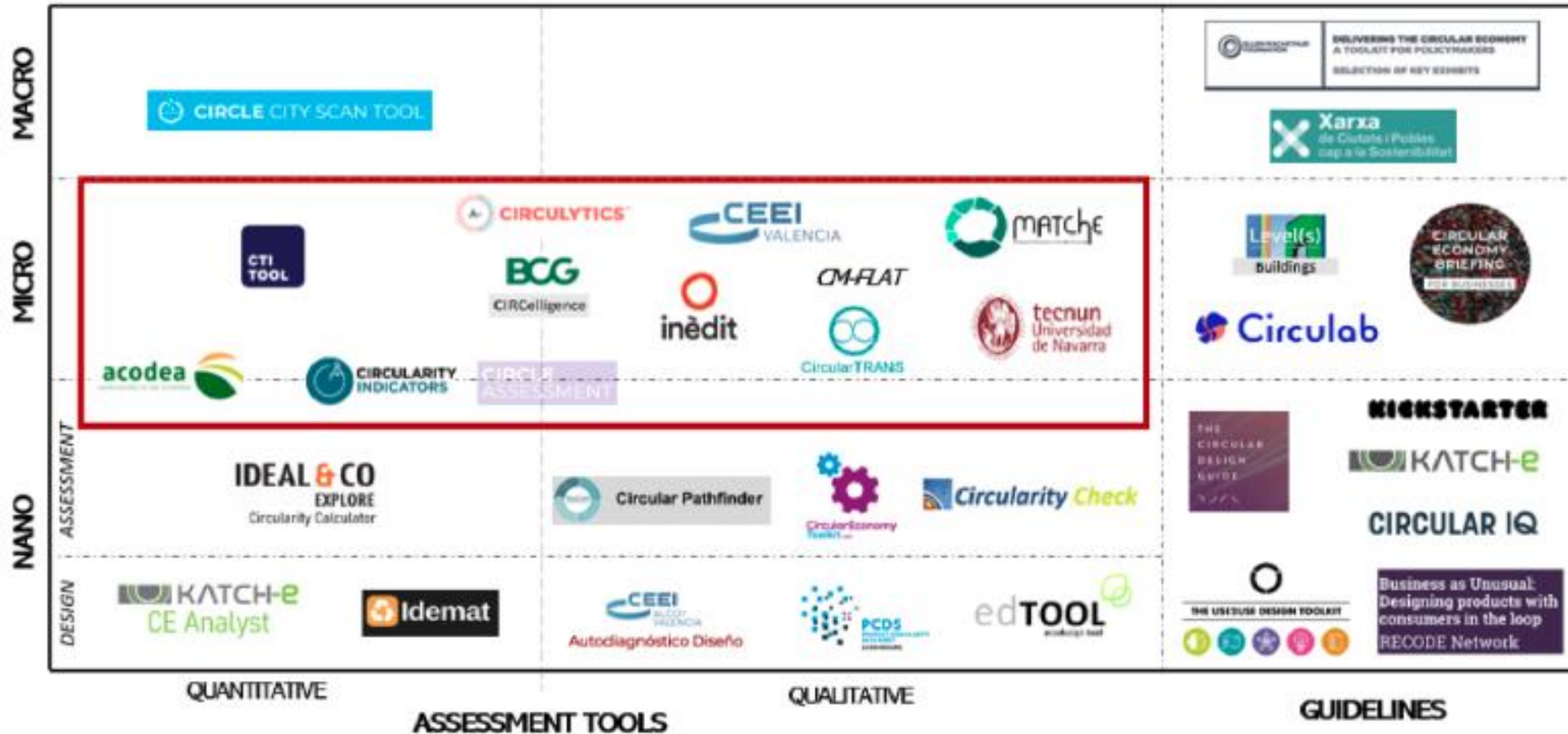
751 and counting

Publications on CE & Performance



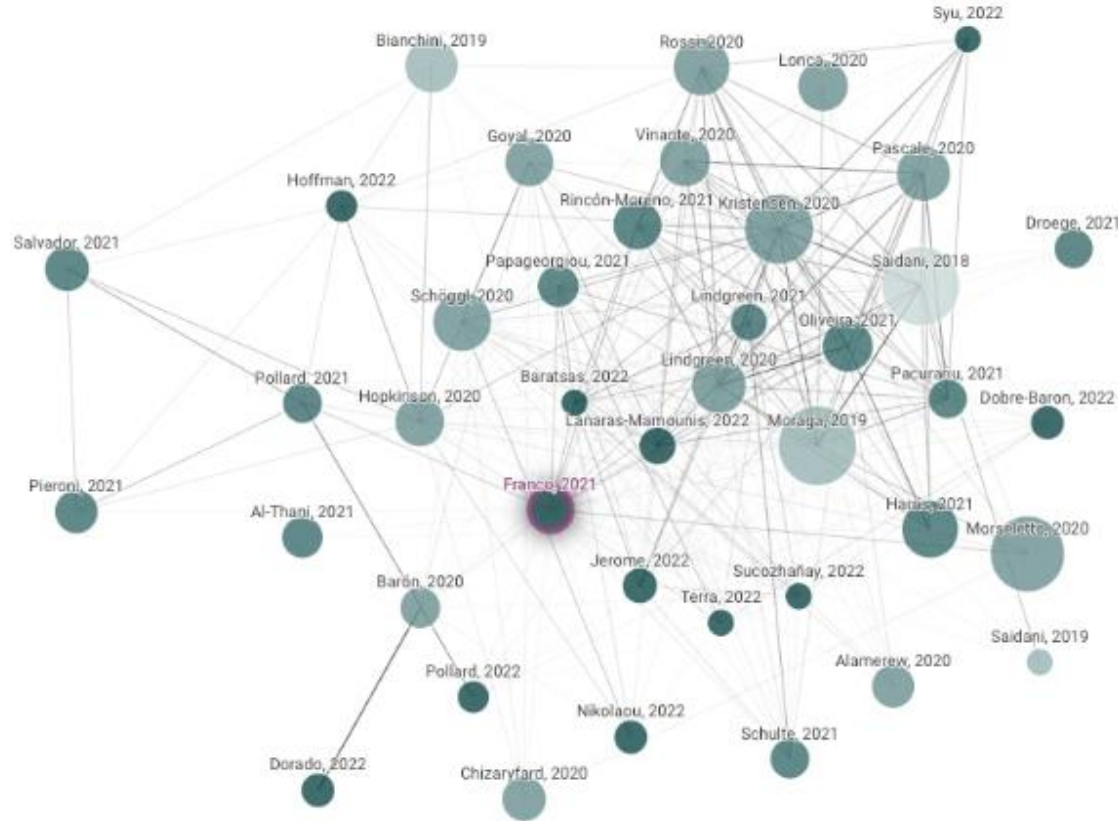
Source: constructed by authors (Dec. 2022)

Snapshot (semi) commercially available tools



Existing tools for the assessment of the circular economy (Valls-Val et al., 2022)

Findings



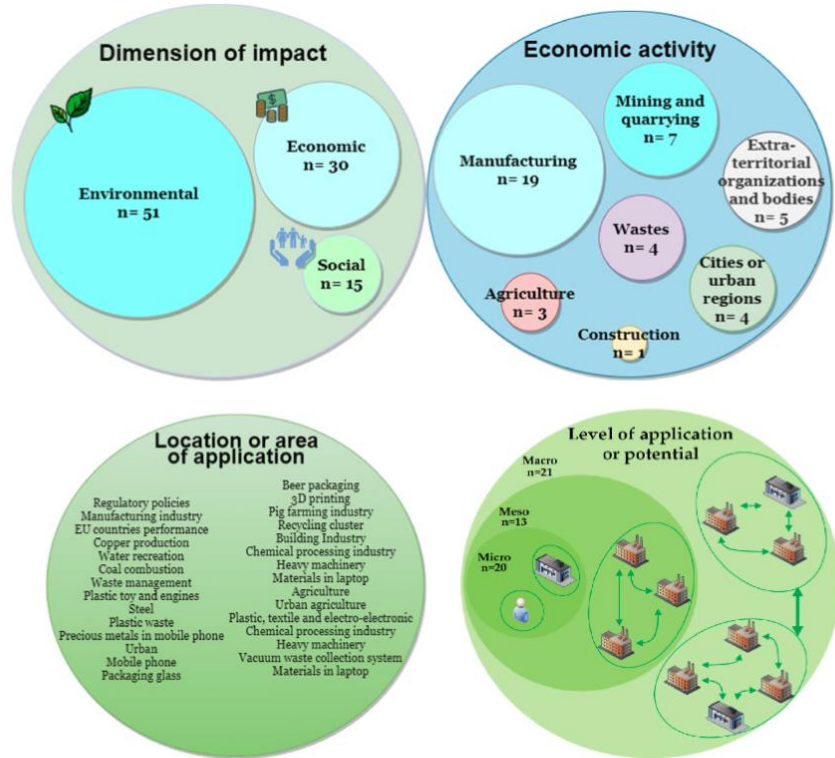
Reference	Approaches	Characteristic
(Valls-Val et al., 2022)	12	Tools capable of measuring the level of circularity of organisations.
(Vinante et al., 2021)		Focus on 365 different firm level metrics, classified in 23 categories.
(Kravchenko et al., 2020)		Review and ex-ante classification of sustainability performance indicators for proactive CE-strategies assessment
(Kristensen & Mosgaard, 2020)	30	Focus on micro level, zooming in on 'CE categories' and connection to Sustainable Development (SD) dimensions. Less attention for implementation perspective. Also includes grey literature.
(Lindgreen et al., 2020)	74	Newly constructed review framework, applying four review perspectives: A general, descriptive (methodological), normative (inclusion of SD/CE dimensions), and prescriptive (implementation-focused) perspective.
(Corona et al., 2019)	72	Zooms in on 'validity', 'reliability', and 'utility' of metrics, and connection to existing methodologies (Life Cycle Assessment (LCA)/Material Flow Analysis (MFA), no focus on micro level.
(Moraga et al., 2019)	20	Introduces classification framework for CE indicators, both on macro- as well as micro level. Addresses different CE strategies captured by indicators.
(Parchomenko et al., 2019)	63	Applies Multiple Correspondence Analysis (MCA) to assess metrics. No distinction between different levels of assessment.
(Michael Saidani et al., 2019)	55	Proposes intricate taxonomy of indicators, applying 10 differentiation categories.
(Sassanelli et al., 2019)	45	Collects and reviews CE-performance assessment methods. Primary focus on methodological foundation. No specification of level of assessment.
(Elia et al., 2017)		Review, analyses, and comparison on how environmental assessment methodologies based on quantitative indicators are effective in measuring CE-strategies' level of application in companies, products and services.

- ❑ 11 meta studies
- ❑ Reference set of 731 papers

- ❑ 125(!) models to make CE measurable
- ❑ 365 (!) micro level parameters

SLR Update 2024 Barros et al., 2024

51 approaches based on 16 meta studies adding # 17



Challenges

- Detailed description of indicator/tool
- Intensive data collection
- Conveying information clearly
- Linking leadership and management with systems thinking
- Promoting public and societal awareness
- Standardizing indicators

Opportunities

- Bringing indicators to life
- Economic incentives
- Identifying circular routes
- Coupling Circularity and Sustainability
- Sensitizing political leaders, society, companies, and customers



The Gordian knot

- Scientific transparency is lacking (Valls-Val et al., 2022) ;
- Varying substantiation (Sacco et al., 2021);
- Focus on in-& outflow / LCA & MFA;
- Inconsistent in purpose, scope and application (Saidani et al., 2019);
- Lack of standardization (Vinante et al.,2020; Kristensen et al., 2020);
- Terminology not formalized (Baratsas et al., 2022);
- Confusion and ambiguity (Vinante et al., 2020; Fiksel et al., 2012)



Co-evolution / complexity
science
the one influences the
other



Meten van circulaire volwassenheid

1



Strategy

To what extent a circular business strategy is employed.

2



Business model

To what extent circular business models are used.

3



Environmental Impact Data

To what extent climate impacts such as energy consumption are minimized or preserved.

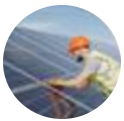
4



Leadership & Culture

To what extent circularity is expressed and acquired in the corporate culture.

5



Skills

To what extent employees have circular knowledge and skills and are able to acquire knowledge about them.

6



Communication

To what extent circular issues are communicated internally and externally.

7



Innovation & Technology

To what extent circular innovations and technology are used.

8



Internal operations

To what extent reuse, recycling, and energy conservation are managed in internal operations.

9



Products and services

To what extent circular products and/or services are offered.

10



Supply Chain Collaboration

To what extent circular cooperation is sought in product or material chains.

6 niveau's van volwassenheid

Niveau 0 - 'Ik start'

Er is nauwelijks circulair bewustzijn, alleen wettelijke vereisten, bijvoorbeeld voor afvalverwerking, zijn van kracht.

Niveau 1 - 'Ik verken'

In uw organisatie blijkt er behoefte aan circulair ondernemen. Er zijn discussies over hoe en waar te handelen. Nog maar weinig onbedoelde Circulaire Economie principes genereren waarde.

Niveau 2 - 'ik doe'

Demonstratieprojecten en pilots worden gestart in verschillende functies in de organisatie om de waarde van de Circulaire Economie te bewijzen en de capaciteiten van de organisatie te testen.

Niveau 3 - 'ik weet/meet'

Middelen voor het nastreven van circulair ondernemen zijn, qua ontwerp, breed in de hele organisatie geïmplementeerd. Succesvolle pilots worden uitgevoerd en schaalvergroting wordt ingezet.

Niveau 4 - 'ik anticipeer'

Circulaire initiatieven en ambities zijn afgestemd op de hele organisatie en de kritische toeleveringsketen.

Niveau 5 - 'ik integreer'

De organisatie is echt betrokken bij de circulaire economie en is regeneratief en herstellend door intentie en ontwerp.

Value Chain Collaboration

- Essential
- Stakeholder management / Creating alliances
- Creating value / adding meaning
- What's in it for ...
- Financing, supply, production, demand, NGO, government, design, knowledge...
- Minds thinking alike ⇔ Old fashioned thinking
- Procurement / tendering

Logistics / Supply Chain

- Successful take-back system
- Push versus Pull (demand driven is less waste)
- Lacking predictability
- Volume is essential
- Efficient but / and flexible production
- Outsource or do it yourself
- Preferring local
- Physical Internet
- Circular Service Provider

Key take aways

- No Guts No Glory
- Als je doet wat je deed, krijg je wat je had
- Het is maar werk
- ‘Onkruid’ vergaat niet
- Wat aandacht krijgt, groeit
- Vier het leven
- Toeval bestaat niet
- Waarde van sociaal kapitaal
- Relax, reflect, recharge
- Logistiek, motor van de circulaire economie



Dank voor het luisteren



Circulaire Volwassenheidsmeting



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