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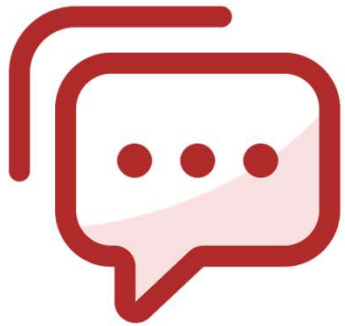
Europe's leading role in mainstreaming circular practice



DEPARTEMENT
ECONOMIE
WETENSCHAP &
INNOVATIE



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Type your questions for the speakers in the Q&A app of Slido

(i) Start presenting to display the audience questions on this slide

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For what kind of organization are you working?

(i) Start presenting to display the poll results on this slide

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What should be done to monitor the transition to a circular economy in a successful way?

(i) Start presenting to display the poll results on this slide



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Europe's leading role in mainstreaming circular practice



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Vlaamse
overheid



bruxelles
environnement
environnement
brussels



CIRCULAR
WALLONIA



Health
Food Chain Safety
Environment



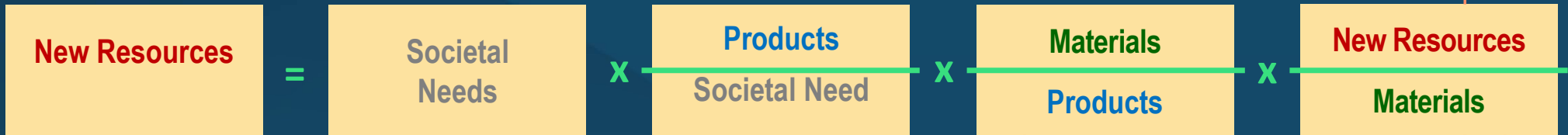
INFORMATION IN A CIRCULAR ECONOMY



**KAREL VAN ACKER
KU LEUVEN**

Circular Economy strategies

7. Responsible mining



4. Maintain/Repair/ReUse/Reman.
(Lifetime extension)



5. Functional Economy
– Pay per Service
(Intensify use)

6. Life Cycle Collaboration and Co-creation
(Open Source / Supply Chain Financing)



3. Ecodesign,
Material/process
efficiency

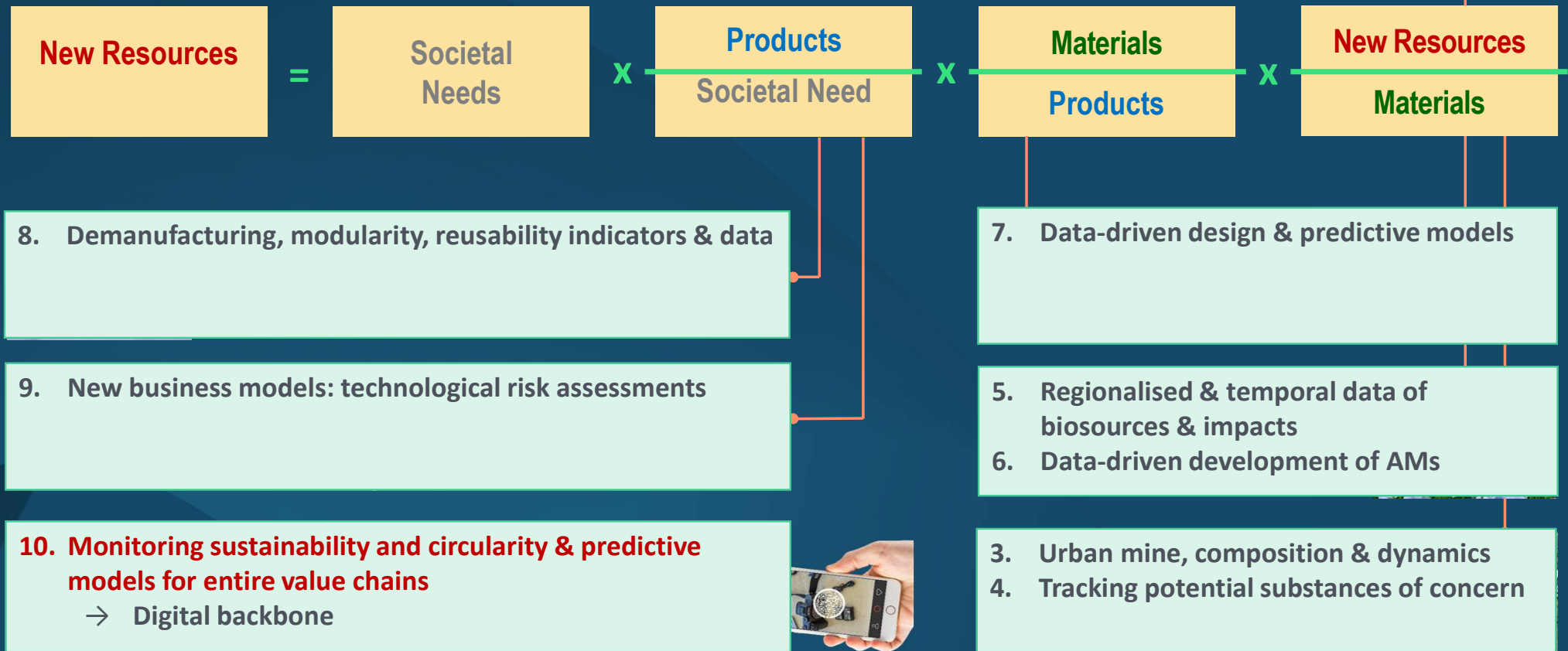
2. Substitution,
Renewable
resources



1. Recycling



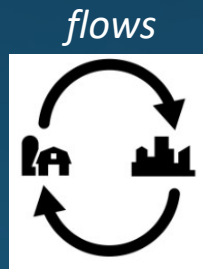
Information needs



What do we need information about?



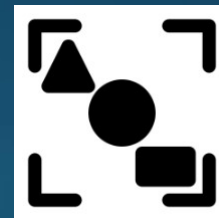
stocks



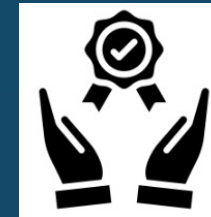
flows



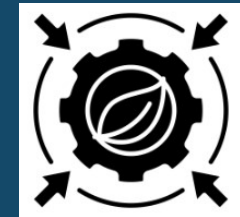
processes



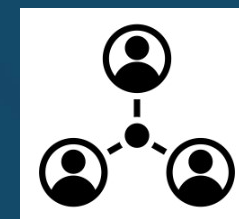
compositions



qualities



impacts



actors

etc ...

- Data availabilities?
- Data accessibilities?
- Lack of information = transaction cost!

Applications

Monitoring progress

The screenshot shows the Eurostat website interface. At the top, there is a navigation bar with 'eurostat' and the European Union flag. Below it, a search bar and a menu with options like 'Home', 'Data', 'News', 'Publications', 'About us', 'Contact us', and 'Help'. The main content area is titled 'Monitoring framework' under the 'CIRCULAR ECONOMY' category. A sidebar on the left contains a menu with 'Overview', 'Monitoring framework', 'Database', 'Visualisations', 'Publications', and 'Information on data'. The main content area displays a table for 'Material consumption' with columns for 'Value', 'Data', 'Trend', and 'Metadata'. The table shows data for 'Material footprint' (15 tonnes per capita) and 'Resource productivity' (137.5 index 2000 = 100).

Material consumption	Value	Data	Trend	Metadata
Material footprint tonnes per capita	15 (2022)			
Resource productivity index 2000 = 100	137.5 (2022)			

CIRCULAR FLANDERS Circular Economy Monitor Flanders

Circular Economy Monitor Flanders

How is the circular economy doing in Flanders? We paint a picture with analyses and more than 100 indicators.

[BROWSE INDICATORS](#) [READ MORE](#)

Planbureau voor de Leefomgeving

Integrale Circulaire Economie Rapportage 2021

Circularity metrics lab

BELLAGIO PRINCIPLES

- 1 Monitor the circular economy transition
- 2 Define indicator groups
- 3 Follow indicator selection criteria
- 4 Exploit a wide range of data and information sources
- 5 Ensure multilevel monitoring
- 6 Allow for measuring progress towards targets
- 7 Ensure visibility and clarity

THE CIRCULARITY GAP REPORT 2024

The circular economy is gaining popularity, but falling short on action

Applications

Product/material-centered

The screenshot shows the 2dehands website interface. At the top, there is a navigation bar with the 2dehands logo, links for 'Help en info', 'Voorwaarden', and 'Veiligheidscentrum', and a 'Chat' button. Below the navigation bar is a search bar with a dropdown menu set to 'Alle categorieën...' and a 'Postcode' field. The main content area is divided into two sections: 'Uitgelicht' (Featured) on the left and 'Voor jou' (For you) on the right. The 'Uitgelicht' section contains several links: 'Auto's' (Vind de auto die bij je past), 'Immo' (Ga voor je droomhuis), 'Betalen en verzenden' (Snel en eenvoudig geregeld in de Chat), 'Verzend met bpost' (Verzendetiket en Track & Trace), and 'Ons verhaal' (Elke deal maakt het verschil). The 'Voor jou' section displays a grid of product listings. The first row includes: 'Numark ns7. Bieden' (with an image of a Numark audio interface), 'Microfoon AUDIO TECHN... € 90,00' (with an image of an Audio Technica microphone), and 'Jurk 42 nieuw € 75,00' (with an image of a red patterned dress). The second row shows a rack of audio equipment, a vertical object, and a wooden floor.

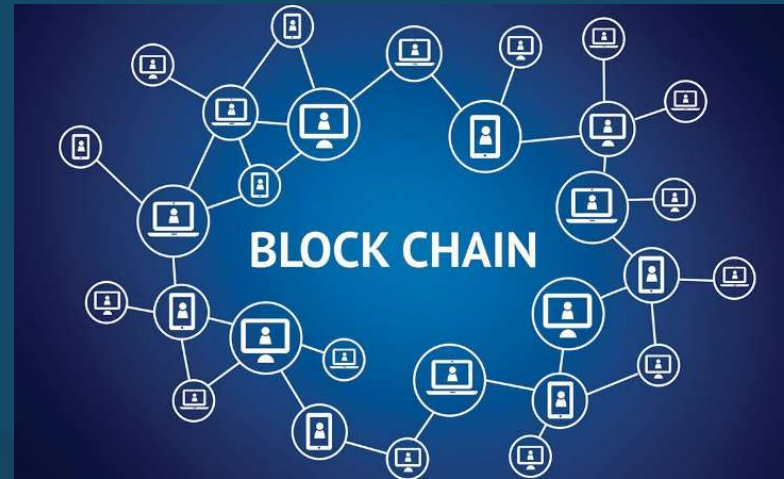
The screenshot shows the SYMBIOSIS PLATFORM website. At the top, there is a navigation bar with the 'Interreg Europe' logo, the European Union flag, and the text 'Co-funded by the European Union'. Below the navigation bar are two links: 'Discover the programme' and 'Look for funding'. A breadcrumb trail reads: 'Home / Find policy solutions / Good practices / SYMBIOSIS'. The main content area features the title 'SYMBIOSIS PLATFORM' in large, bold letters. Below the title is a green hexagonal icon with a plant, followed by the text 'GREEN Circular economy'.



Digital evolution

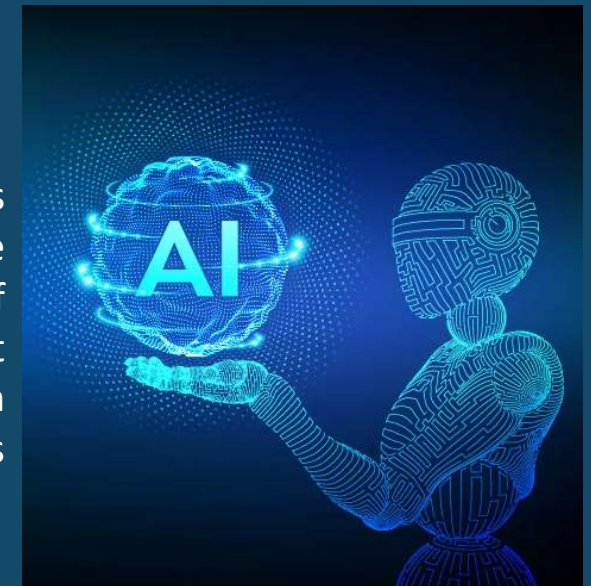


devices exchanging performance or sensor data



being able to unambiguously store the history of materials and products

generate insights from large amounts of different information sources



Bottlenecks

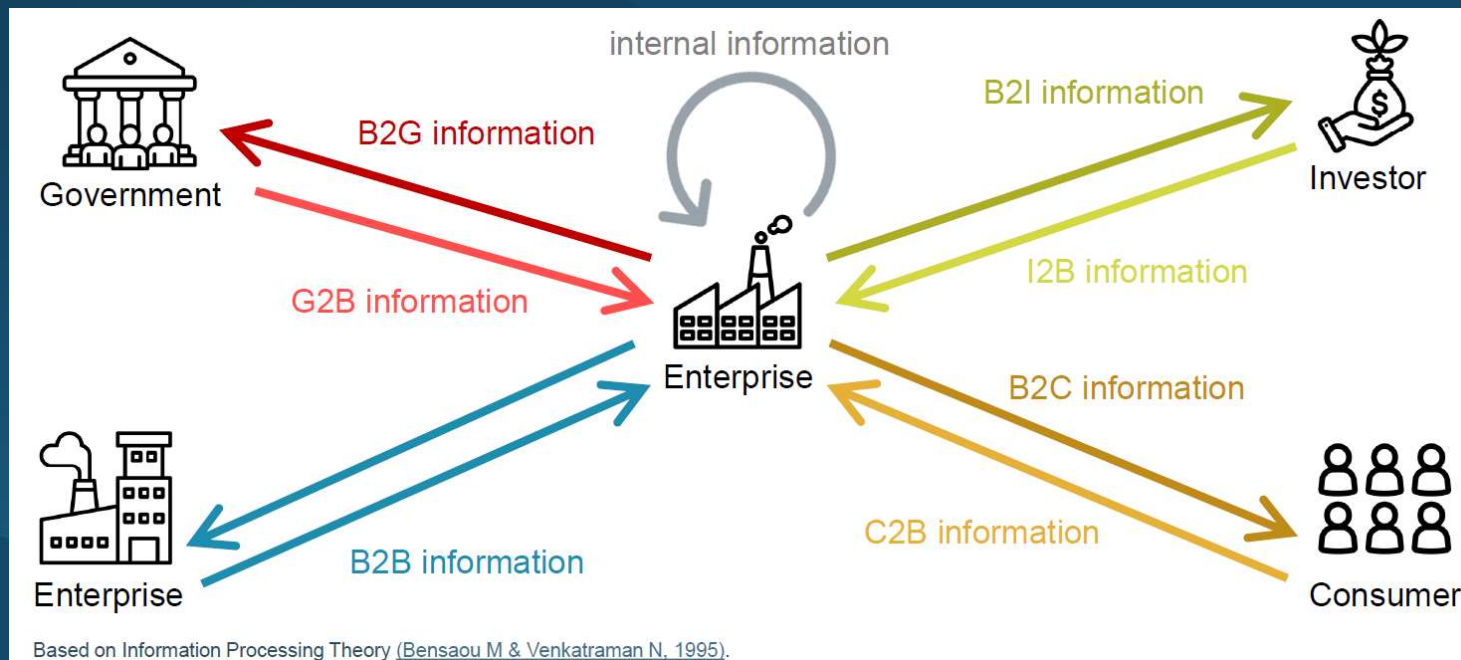
Circular economy + digital evolution seems to promise more and more open data

Though, availability of digital tools

- is not automatically creating the data we need
- does not solve data accessibility issues
- is not able to overcome reluctance to share data

Who needs which information for which purpose?

Information depends on the receiver



Also: data are eventually material

- infrastructure, devices, services etc.
- energy consumption and infrastructure

and contributions to CE are not granted

- How can a tool integrating product information contribute to a more circular management of the product or its materials?
- How can a CE monitor contribute to making the transition happen in a country?
- ...

Beyond experimenting: examples today



CIRCULAR FLANDERS Circular Economy Monitor Flanders

Circular Economy Monitor Flanders

How is the circular economy doing in Flanders? We paint a picture with analyses and more than 100 indicators.

[BROWSE INDICATORS](#) [READ MORE](#)

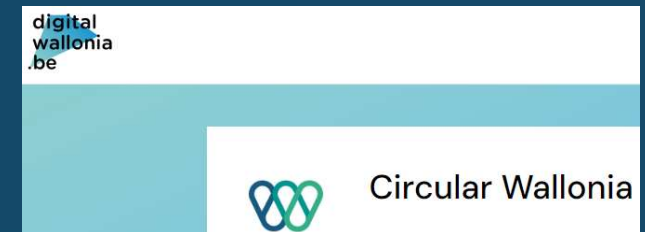


Circularity metrics lab



REPAIR INDEX

9/10



digital wallonia .be

Circular Wallonia



Pepite



vito RESEARCH COLLABORATE ABOUT VITO PUBLICATIONS IMPACT CONTACT

HOME / TECHNOLOGY GROUPS / DATA SCIENCE / ARTIFICIAL INTELLIGENCE

ARTIFICIAL INTELLIGENCE



AVERY DENNISON



Baromètre de durabilité

Vanden Borre



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Monitoring CE in Flanders



LUC ALAERTS
KU LEUVEN / CE CENTER

MONITORING IS KNOWING

Where are we today? Where are we heading towards?

Getting to the insights

- strong focus on waste and recycling
- essential to tackle the large intakes of materials
- need to move to higher R-strategies

<https://cemonitor.be/en/home-english/>

The screenshot displays the 'Circular Economy Monitor Flanders' website. The main content area is titled 'Circular Material Use Rate (CMUR)'. It features a navigation menu on the left with categories like CIRCULARITY, EFFECTS, HOUSING AND CONSTRUCTION, FOOD, CONSUMER GOODS, and MOBILITY. The main text explains that CMUR is the ratio of circular material use to overall material use, with a current value of 16.3%. A bar chart shows the CMUR for the years 2014 (14.97%), 2016 (17.32%), 2018 (17.7%), and 2020 (16.31%). The page also includes a 'What's the aim?' section and a 'Source' section listing OIVAM and VITO.

Circular Material Use Rate (CMUR)

The circular material use rate (CMUR), is the ratio of circular use of materials to overall material use. It focuses on a country's efforts to collect waste for recycling and recovery.

16.3%

Around **one sixth** of the total material consumption in Flanders consists of recycled materials.

What do we see?

Between 2014 and 2020, the CMUR first increased from 15.0 to 17.7% in 2018 before falling to 16.3% in 2020. The numerical value of the CMUR is determined by the Domestic Material Consumption and the stream of recycled materials. The latter stream consists mainly of non-metallic minerals (about 73%) and biomass (about 18%). These material flows were slightly lower in 2020 and this largely determines the decrease compared to 2018; the DMC in both years was almost identical. The COVID crisis in the last year for which there are data currently complicates further interpretation.

Year	CMUR (%)
2020	16.31%
2018	17.7%
2016	17.32%
2014	14.97%

Get the data • Download image

What's the aim?

In a circular economy, the long-term goal is to move towards an economy that consumes fewer materials. This can be done by keeping materials in circulation for as long as possible, for example through recycling. The CMUR is a measure of this circularity. However, other strategies in the circular economy, such as repair or reuse, are not

Source

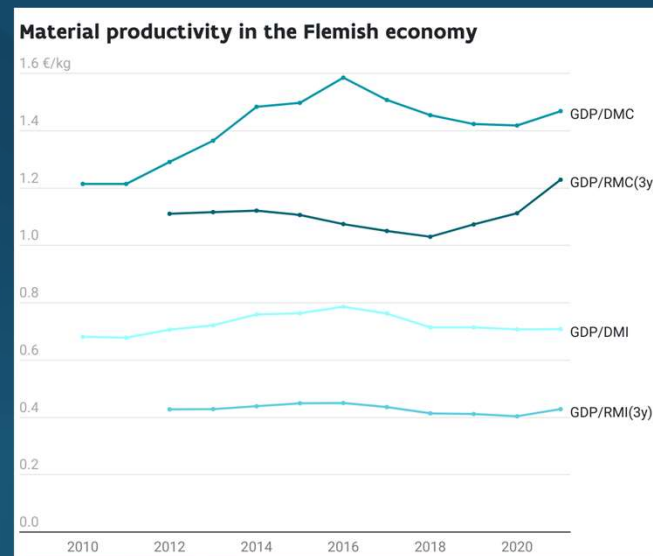
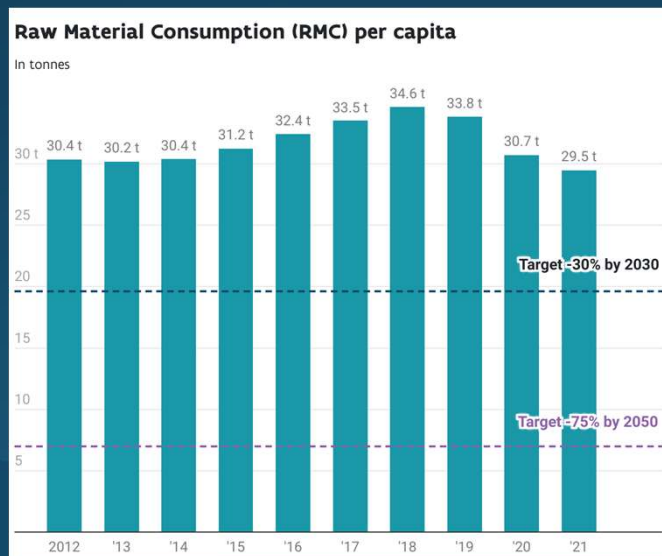
- OIVAM
- VITO

Circularity

This layer brings together indicators that portray the circularity of the entire Flemish economy. The so-called R-strategies (reuse, recycle,...)

FROM MONITORING TO STEERING

KPIs -> targets -> scenarios



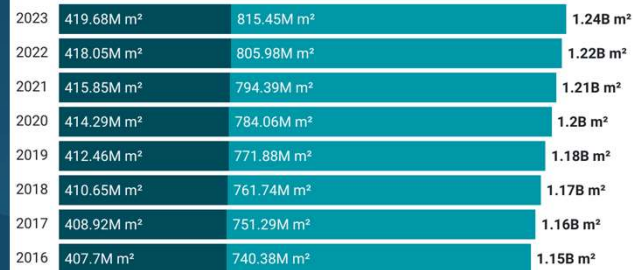
Who needs to undertake which action?

MORE DIRECT POLICY FEEDBACK

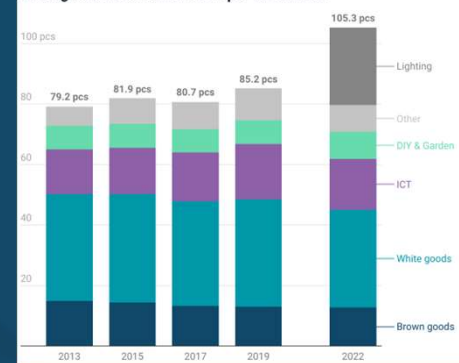
Beyond macro indicators:
fulfillment of societal needs

Living area of residential buildings

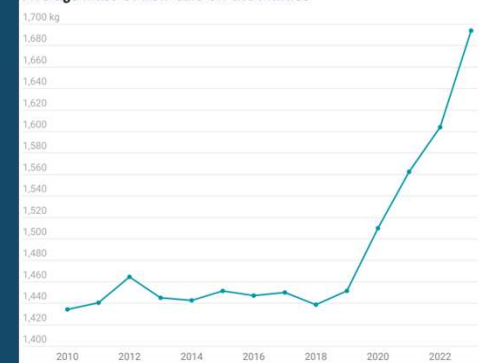
■ Single family houses ■ Multi-family houses



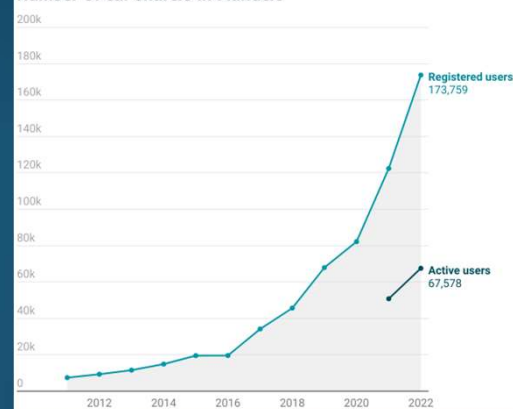
Average number of EEE units per household



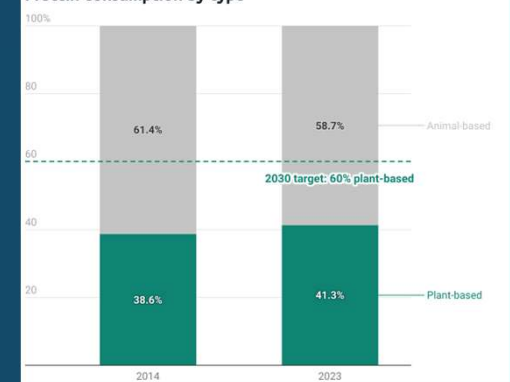
Average mass of new cars on the market



Number of car sharers in Flanders

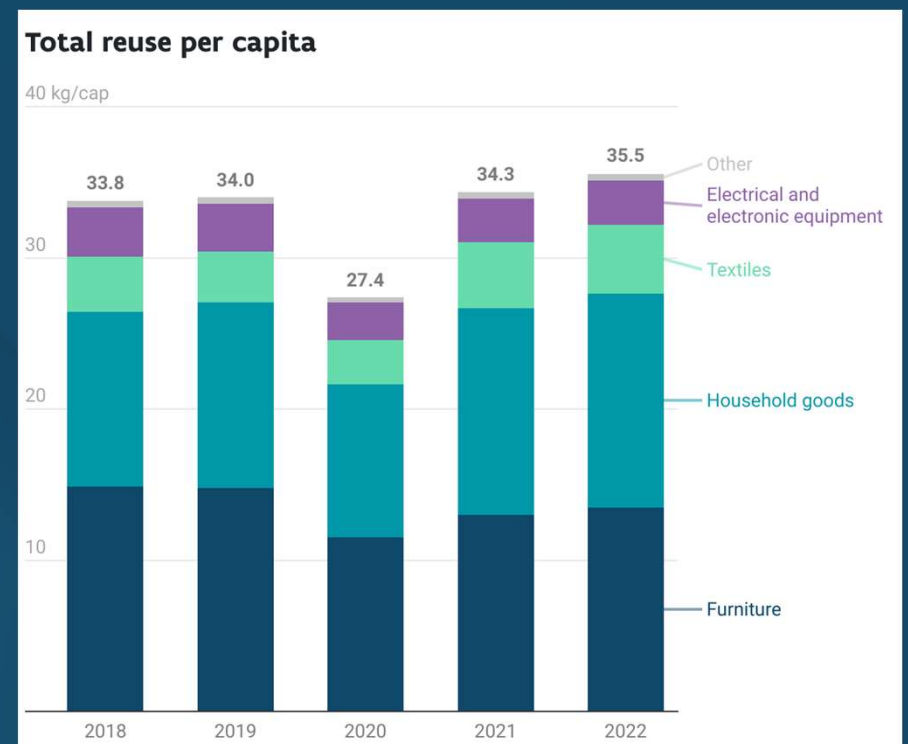
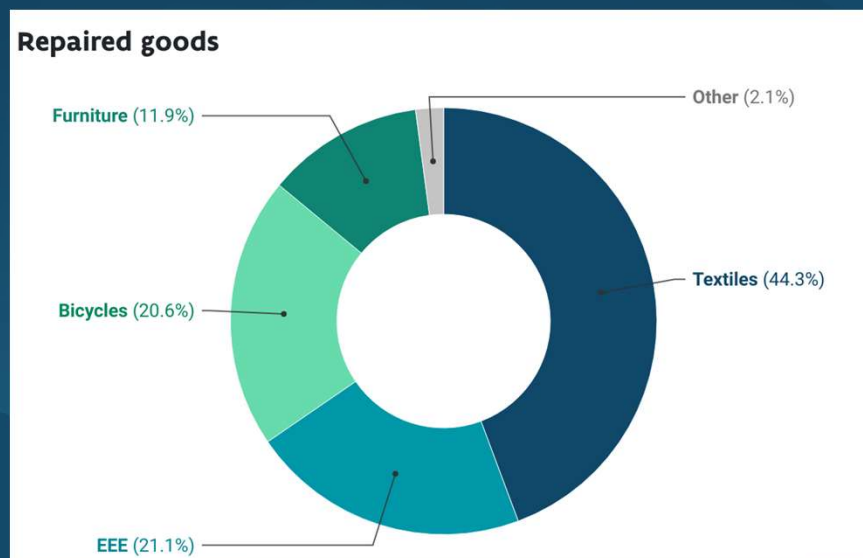


Protein consumption by type



TACKLE KNOWLEDGE GAPS

e.g. higher R-strategies





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02

Circularity Metrics Lab (CML)



An Vercajsteren (VITO)

Why do we need an additional monitoring framework besides the CEMF?

About the CML

- Developed, launched and updated by **European Environment Agency**
- Co-developed and maintained by the ETC-CE
- <https://www.eea.europa.eu/en/circularity>
- Most monitoring frameworks
 - focus on macro-level perspective:
 - Capturing macrophenomena
 - Aggregated accounting of material flows and related impacts
 - insufficiently capture:
 - Implementation and effect of CE policy measures
 - Trends and progress in 'inner circles' and use of products



About the CML

- CML
 - complements other frameworks by providing additional information on growth of CE from novel sources and across a wide range of perspectives
 - Aims to capture gaps which are not monitored by traditional indicators, often related to data gaps
- **Circularity:** Seeking out datasets that provide insight within product loops and material cycles – life spans, repair, etc.
- **Metrics:** Accessing responsive and informative data from national sources or research studies to allow insights not available via established indicators
- **Lab:** Exploring novel and emerging data sources, f.e. techniques such as web scraping to find new information



CML metrics - data

Indicators

Well-established and EU-wide datasets which are frequently updated

Signals

Less complete datasets, only fragmented geographical and time coverage

<i>Sources</i>	<i>Examples</i>
Reported datastreams (current)	Waste and recycling data, material flows etc
Reported datastreams (new)	Reuse, GPP
Proxy data	Consumption expenditure, sectoral employment
Unreported data	Municipality monitoring programmes
Surveys	Eurobarometer, national surveys
Scientific outputs	Models, literature reviews
Novel data	'Big data' and other non-statistical sources



Circularity Metrics Lab

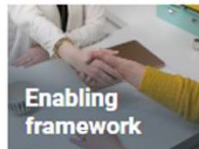
Image © Andrew Vaughan, Wall with Nature / EEA

Share

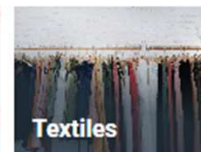


The EEA's Circularity Metrics Lab (CML) uses a range of sources such as European datasets, national statistics, surveys, and novel dataflows to provide insights on progress towards the development of the circular economy. It is intended to complement other monitoring frameworks by presenting additional evidence on circularity, including metrics focussed on the implementation of circular principles and practices.

The circularity metrics are grouped in four categories as shown below:



The thematic modules are groups of circularity metrics on a specific topic:



▾ [About circular economy](#)

▾ [Relevant resources and links](#)

Enabling framework

Image © "Work Business" by Kristin Hardwick

Share

Home > Metrics > Enabling framework

Implementation of circular principles in production and consumption systems will yield measurable changes towards reduced consumption of resources and moderated environmental impact. The development and growth of a circular economy requires a framework of enabling factors to be in place, including policy, innovation and financing.

Assessment

- Political and economic momentum for circular economy is building-up in Europe, including growth in financing for circularity projects. The introduction of circular economy strategies at national level is well-advanced across the EU.
- Citation information indicates a strong and growing level of research and innovation activity for circularity. Data is lacking to validate progress on uptake of green public procurement - a key driver for new circular business models.



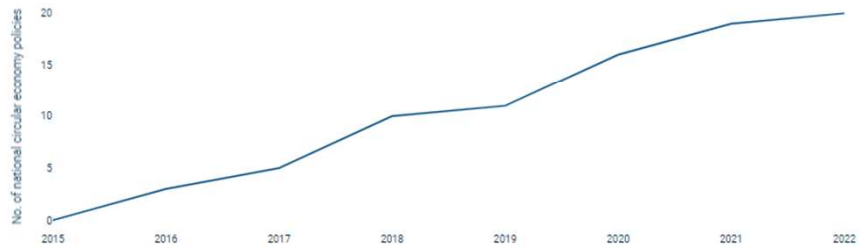
National circular economy policies

Share

Home > Metrics > Enabling framework > National circular economy policies

20 / 27 EU member states have published national circular economy policy documents by September 2022. These plans guide national efforts towards the development of a circular economy.

Metric Assessment Background Supporting information



Note | Sources | More info

Download Share Enlarge

Title: Countries with national adopted CE Strategies, Roadmaps, Action plans.

Status: Signal

Coverage: EU Member States, 2015-2022

Sources: ETC/WMG, 2019, Eionet, European Environment Agency.

National circular economy policies

Share

Home > Metrics > Enabling framework > National circular economy policies

20 / 27 EU member states have published national circular economy policy documents by September 2022. These plans guide national efforts towards the development of a circular economy.

Metric Assessment Background Supporting information

Since 2015 Member States started developing CE strategies, action plans and roadmaps. The cumulative number of countries that have adopted national policies provides an indicator for stakeholder engagement in CE from national policy makers across the EU 27 through the years since 2015. The CEAP 2020 reiterates the importance of national policies, and the table below shows the evolution of published national policy documents across EU member states.

These policy documents are generally designed to cover an operational period of several years; and in some cases, countries have already adopted second version or updated the original policy.

Year	Circular economy plans published
2015	European Circular Economy Action Plan
2016	Finland, Netherlands, Belgium
2017	Italy, Portugal
2018	Denmark, Greece, Luxembourg, Slovenia, France
2019	Poland
2020	Malta, Spain, Sweden, Latvia, Germany
2021	Ireland, Czechia, Cyprus
2022	Romania

Consumption

Image © PhotoAlto_photographer, 2004

Share

Home > Metrics > Consumption

Consumption patterns play a crucial role in moving towards the circular economy. In a consumption context, circularity is about organisations and individuals making sustainable purchases and use of the products and services.

Assessment

- There are signs that consumers are ready to embrace more circularity in the products and services they consume. Increased interest in the sharing-economy and other novel circular models is positive, so long as this replaces conventional consumption, rather than adding to it.
- High levels of food waste, especially post-consumer waste, are concerning given the significant environmental footprint of food production.

Indicator ^[1]

Europe's consumption footprint

- 8.4 %

Decrease in Europe's consumption footprint between 2012 and 2020, although levels continue to exceed planetary boundaries.

Improving

Signal ^[2]

Consumer environmental activities

N/A

increasing action for purchasing local and second-hand products and worsening behavior towards energy and water use.

No trend

Indicator ^[1]

Consumer food waste in Europe

55%

of food waste comes from households, which generated on average 70 kg of food waste per inhabitant.

No trend

Signal ^[2]

Number of members of car sharing schemes

Signal ^[2]

Citizens who have chosen alternates to new products

Indicator ^[1]

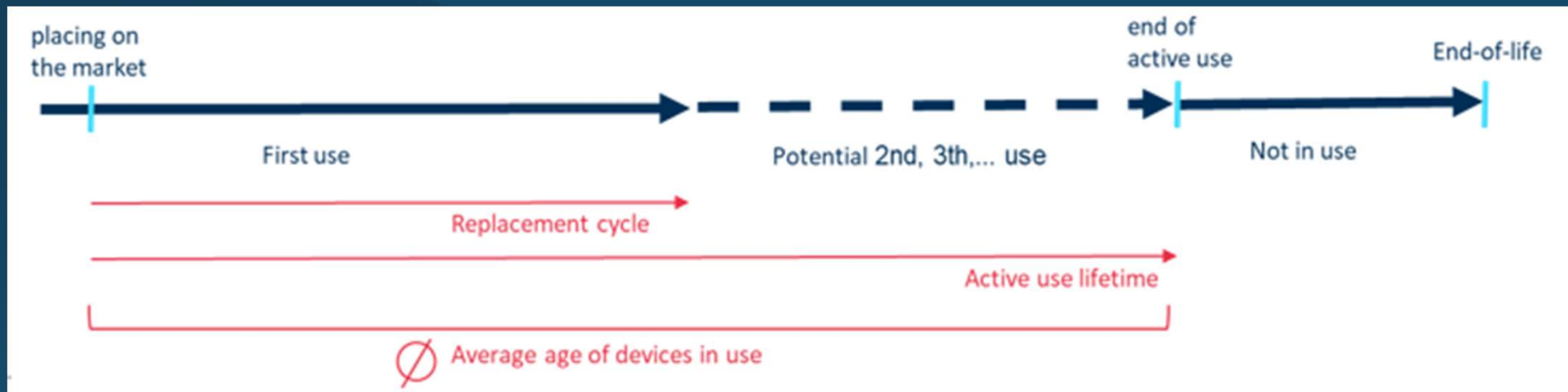
Household expenditure on repair and maintenance

What are bottlenecks/challenges in developing this type of signal indicators?

Life span indicator as example

- **Smartphones:** nice example where value retention strategies impact the time these products are in use, i.e. actual lifetime
 - an effort to monitor the actual lifetime of products could provide a good proxy indicator for the deployment and success of value-retention strategies
- **Work in progress** to develop product life span indicators for CML thematic module

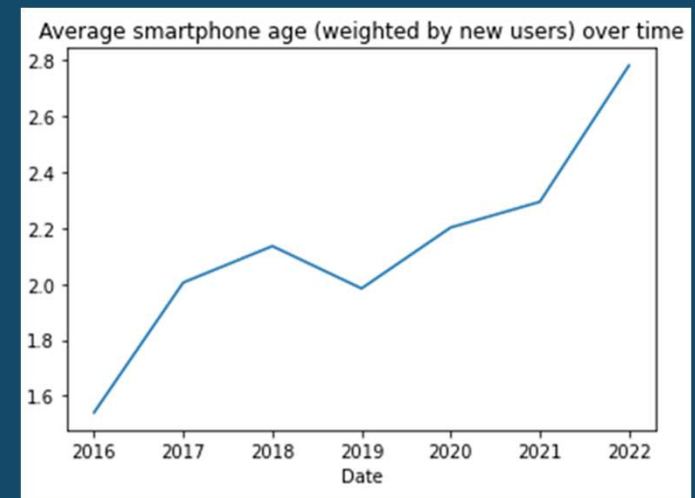
Product lifespans: concept



Source: Schischke, 2021a

Test: Google Analytics combined with website visits

- Data source: Daily website visits (October 4th, 2016 to October 10th, 2022)
- When the visitor accepts sharing of its data, a few specifications of the device are logged such as the brand and model number
- Combination with release dates of these models → indication of the average age



Average smartphone age (weighted by new users) over time

Challenges and bottlenecks

- **Ownership of data**
 - important to go in conversation with these organizations (e.g. Google)
 - Pay attention to sensitivity of data (brands, market shares, ...)
- Retrieved data need to be trustworthy
- Geographic boundaries are not always possible to set
- Data are not available for free (paywall)
- Challenge to control data (changes, discontinuation)
- Representativeness
- Careful interpretation is key (confounding factors)
- Go beyond one-off data → specific difficulties e.g.
 - Relation with data provider is key
 - Format for data exchange is required
 - NDA



The road ahead

EEA continuously updates and elaborates the CML:

- Strengthening existing metrics
 - Car sharing schemes
 - Repairability index
- Adding new metrics
 - Secondary raw materials
 - Anthropogenic material stocks
- Adding new modules
 - Plastics
 - Textiles
 - Life spans
- EEA Briefings

Challenges:

- More monitoring = more resources
- Data opportunities from digitalization
- Trustworthy sources are critical
- State indicators → impact indicators



Thank you!

An Vercalsteren (VITO/ETC-CE)
An.Vercalsteren@vito.be

Ioannis Bakas (EEA)
Ioannis.Bakas@eea.europa.eu



<https://www.eea.europa.eu/en/circularity>



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Repairable Products with a longer lifetime



John Wante

***Repairable
Products with
a longer
lifetime***














Ecodesign for sustainable products regulation

Right to repair directive

Directive on empowering consumers for the green transition

Repair index

Durability index

	 <p>9,7 /10 INDICE DE RÉPARABILITÉ</p>	 <p>6,5 /10 INDICE DE RÉPARABILITÉ</p>
		
		
		
	 <p>8,6 /10 INDICE DE RÉPARABILITÉ</p>	 <p>8,7 /10 INDICE DE RÉPARABILITÉ</p>
		

Repair database



Vacuum cleaner



Washing machine



Laptop



TV



Dish Washer



Pressure Washer



Tablet



Lawn Machine

← Back to categories

Brands

[BEKO](#)

Model

[VCC34801AR](#)

[VCC44821AB](#)

Manufacturer

Common issues

 **8.6**
/10
INDICE DE RÉPARABILITÉ



BEKO VCC34801AR

This device gets a rating of 8.6/10

Documentation: 8.4 /10



Dismantability: 8.9 /10



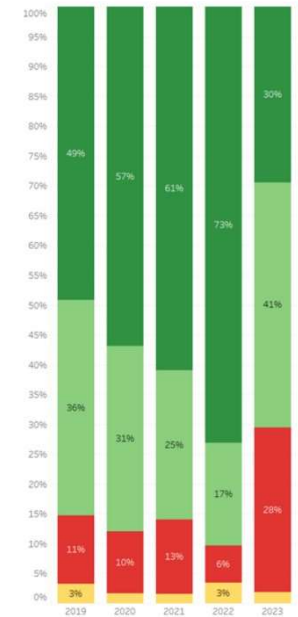
Availability of parts: 7.8 /10



Price of parts : 8/10



Specific criterion : 10/10



Repair Status
■ Fixed
■ End of life
■ Repairable
■ Unknown

**Repair score
versus actual
performance**

← Back to categories

Brands

BEKO

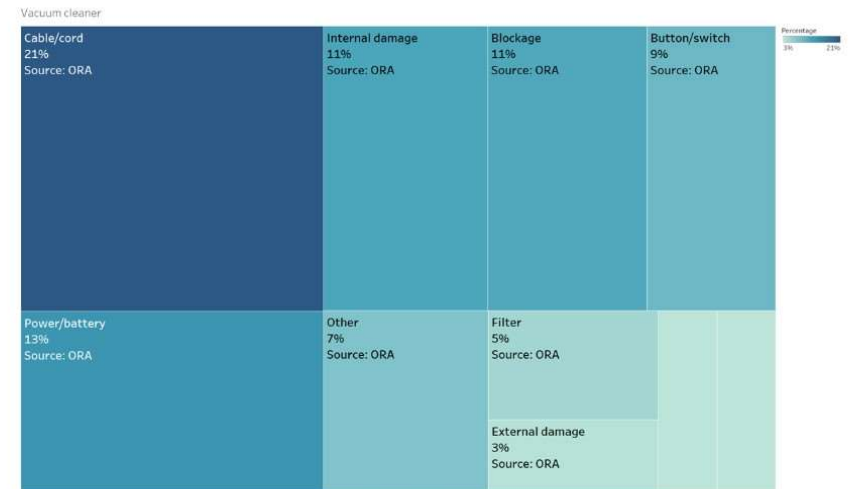
Model

VCC34801AR

VCC44821AB

Manufacturer

Common issues



Common Failure, sum of Percentage and Source. Color shows sum of Percentage. Size shows sum of Percentage. The marks are labeled by Common Failure, sum of Percentage and Source. The data is filtered on Product Category, which is set to Vacuum Cleaner.

Frequently occurring defects

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Will a repair score or durability score have an influence on what you buy?

(i) Start presenting to display the poll results on this slide

slido



Information Flows

ⓘ Start presenting to display the poll results on this slide.



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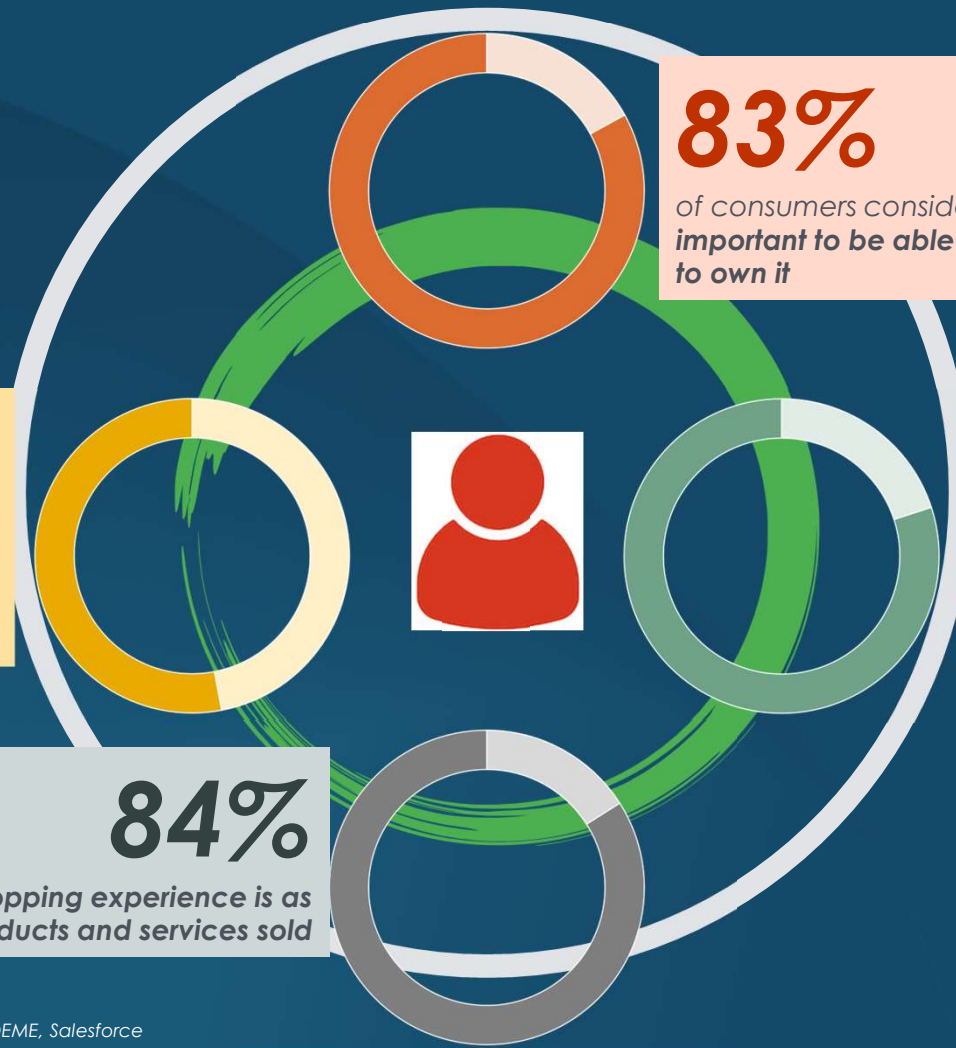
01

INFORMATION EXCHANGE WITH CUSTOMERS



CYRILLE REGARDIN
FNAC VAN DEN BORRE

STRONG CUSTOMER EXPECTATIONS



83%

of consumers consider that it is **more important to be able to use a product than to own it**

53%

of consumers say the abundance of choice **makes it harder to make a purchase decision**

80%

of consumers say they have **changed all or part of their daily practices to reduce the impact of their consumption**

84%

of consumers consider that the **shopping experience is as important as the products and services sold**

WE HAVE 3 BELIEFS ABOUT THE FUTURE OF RETAIL



The omnichannel model is the winning model for retail

+7 pts

of online market share for omnichannel non-food retailers vs. pre-covid¹



The act of buying is inseparable from the **advice** and service that surround it

7 to 8

the maximum number of options a consumer can consider before regretting their choice or not buying anything²



In the future, consumer behaviour will be **largely driven by environmental awareness**

60%

of French people buy second-hand products²

1. Étude BCG, France, retail non alimentaire

2. Crédoc (Centre de recherche pour l'étude et l'observation des conditions de vie), 2018-2019

Baromètre de durabilité

Vanden Borre

Durability Scoring

Durability



A durable products is
reliable & repairable

= Average from scores reliability & repairability

Repairability

&

Reliability



A repairable product can get
spares at economical cost and
is rarely exchanged



A reliable product
is failing rarely

Wasmachine

Wil je weten of een toestel of een merk duurzaam is? Ontdek of het tot de best presterende behoort wat betreft betrouwbaarheid, herstelbaarheid, prijs en beschikbaarheid van reserveonderdelen.



Top 3 merken

1 ELECTROLUX

Duurzaamheidsscore:	143 /200
Betrouwbaarheid:	116
Herstelbaarheid:	169
Beschikbaarheid van onderdelen:	12 jaar

2 AEG

Duurzaamheidsscore:	137 /200
---------------------	----------

Vanden Borre
Life 

(PRE) DIGITAL PASSPORT FOR PRODUCTS

The screenshot shows the 'My Vanden Borre' user dashboard. At the top left is the Vanden Borre logo with the tagline 'la confiance'. A search bar is located at the top center. To the right of the search bar are icons for 'Connecté', 'Magasins', 'NL Langue', and a shopping cart. Below the search bar, the breadcrumb 'Home > My Vanden Borre' is visible. On the left side, there is a vertical menu with options: 'Mon profil', 'Mes commandes', 'Mes réparations', 'Remboursement de la différence', 'Mes listes d'envies', 'Mes adresses', 'Mes préférences', 'Vanden Borre Life', 'Multimedia Service Pack', and 'Se déconnecter'. The main content area features a welcome message: 'Bienvenue sur My Vanden Borre' followed by 'Bonjour Marie-Alexandra Janssens'. Below this, a paragraph explains that user information is saved and provides access to order and repair history. To the right of the text is a photo of a woman working on a laptop. At the bottom of the main content area is a 'Centre de notifications' section with three items: '05.02.22 Entretien filtre machine à laver', '01.02.22 Entretien bras lave-vaisselle', and '21.01.22 Changement filtre hotte'. A link 'voir toutes mes notications' is at the bottom right of this section.

The screenshot shows a mobile app interface for a product's digital passport. At the top, the time is 9:52 AM. The product name is 'LAVE-VAISSELLE ENCASTRABLE AEG FSE83827P Comfortlift'. Below the name is a small image of the dishwasher. To the right of the image are links for 'Codic', 'Purchasing date', 'Detail garantie', and 'Manual'. Below these links is the 'Vanden Borre Life' logo and the warranty period: 'Couvert du 03/03/2022 au 03/03/2026'. There is also a 'Supprimer de mon parc' option. Below the product information are three tabs: 'Carnet d'entretien', 'Demande de réparation', and 'Accessoirs'. The 'Carnet d'entretien' tab is active and shows a list of maintenance tasks with dates and links to guides: '05.02.22 Entretien filtre', '01.02.22 Entretien bras', '21.01.22 Changement filtre hotte', '05.01.22 Intervention SAV', and '01.01.22 Entretien bras lave-vaisselle'. Below the list is a 'Plus de conseils' section with three items: 'Comment choisir un lave-vaisselle encastrable?', 'Comment bien installer votre lave-vaisselle?', and 'Comment utiliser un lave-vaisselle?'.

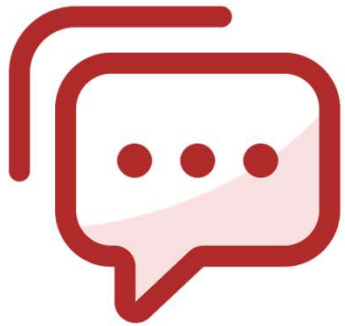


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slido



Type your questions for the speakers in the Q&A app of Slido

(i) Start presenting to display the audience questions on this slide

Data 4 Wallonia



Benoit Hucq
CEO, Agence du Numérique

Data 4 Wallonia

***Territorial intelligence platform
for Wallonia***

Data 4 Wallonia is a collaborative dynamic aiming to place data at the heart of public policies in Wallonia. It has been developed based on the technical foundations of the Digital Wallonia Platform.

Data 4 Wallonia : Goals

Representing

Identification, mapping and description of actors (private and public companies, UAP, research centers, etc.) and their role/involvement in public strategies. Description of programs, operational actions, events, press articles, ...

Understanding

Putting data into perspective through generic and thematic taxonomies. Clusters by types of actions, programs, ... Analysis of ecosystems and identification of key players. Dashboard, business intelligence, data visualization, etc.

Prescribing

Analysis of dashboard indicators based on specific criteria (geographic areas, periods, budgets, etc.). Monitoring and evaluation of actions. Identification of areas of excellence. Transversal vision and recommendations for public policies.

Data 4 Wallonia : 2 main concepts

Data Model

Data 4 Wallonia is based on a data model covering all the resources necessary for the representation of public strategies in a vision of “platform as a service”, in particular through the concept of “profile” which makes it possible to identify any actor (business, administration, ...) depending on its role within the framework of a strategy.

Taxonomy

The data and editorial content of Data 4 Wallonia are structured and managed on the basis of generic and specific taxonomies allowing resources to be qualified and grouped dynamically. These taxonomies are organized in collections of categories (products and services, networks, value chains, ...). They are enriched according to the needs of the partners.

Data 4 Wallonia : Services

- **Support and assistance.**
Each Data 4 Wallonia partner benefits from dedicated support to define their needs, draft specifications, integrate their data, ...
- **Data Back Office.**
Data 4 Wallonia is based on a “full cloud” back office that guarantees stability, elasticity and security for the capture, management and sharing of data and content.
- **Definition of taxonomies.**
In addition to the use of existing taxonomies, Data 4 Wallonia allows each partner to design taxonomies to describe their areas of activity and ecosystems.
- **Business Intelligence.**
Data 4 Wallonia also offers business intelligence and data visualization services based on data integrated into the platform, alone or combined with external data.

More info : www.data4wallonia.be

Example of dashboard created for the Digital Wallonia Strategy : www.digitalwallonia.be/dashboard



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DIGITAL & AI Opportunities for the circular economy



Philippe Mack

MISSION & VISION



OUR VISION

Fair access to basic goods and services for humanity requires **smart and rational** consumption of natural resources.

OUR MISSION

Enabling factories in reducing waste, in being more sustainable thanks to **digitalisation, data and AI**

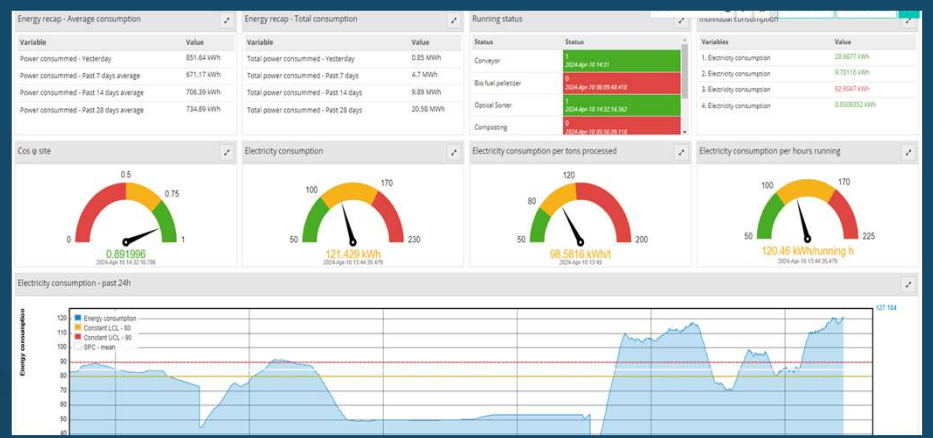
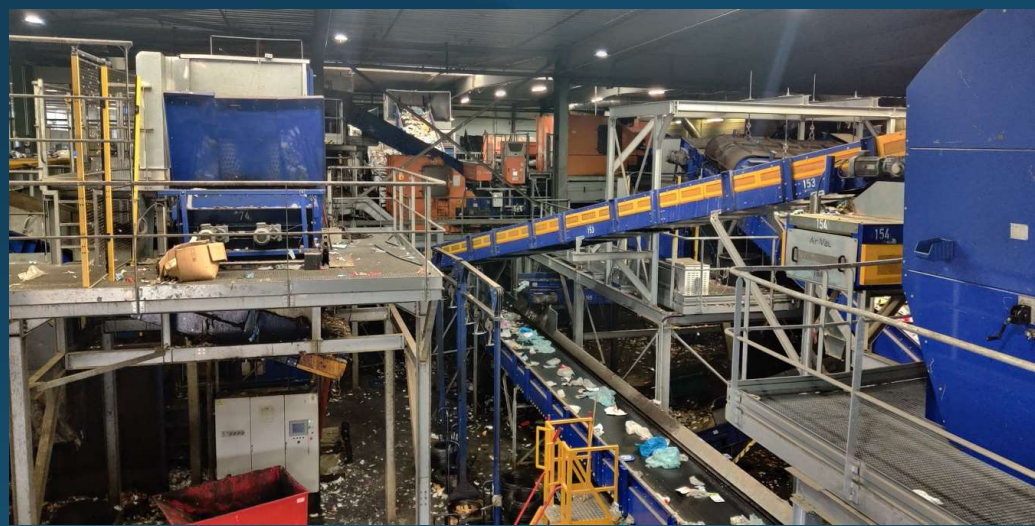
OUR ASSETS

- ❖ **DATAmaestro software** to embed AI at scale in factories
- ❖ **OPTmaestro methodology** to transform workforce and foster AI adoption in factories



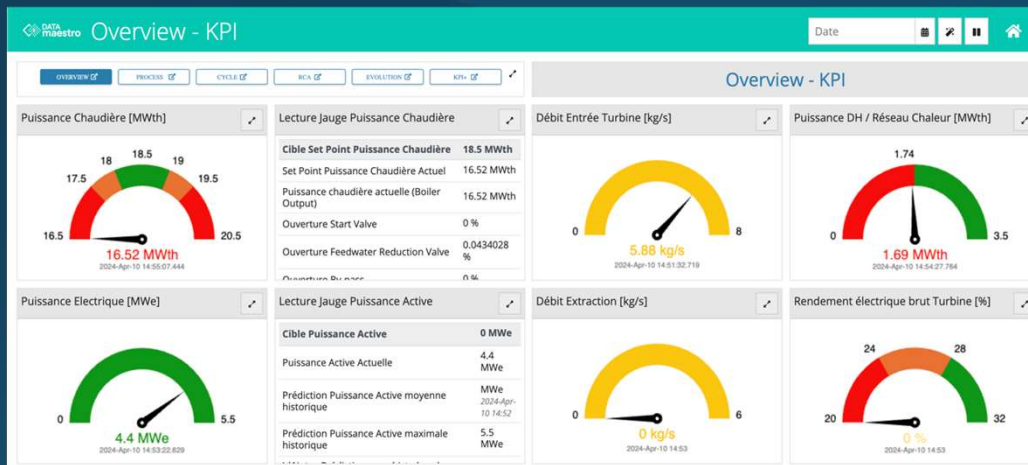


Use case 1: waste sorting plant



Zone Rose				Zone Jaune				Zone Noire			
Repère	Meure	Moyenne	Déplacement	Repère	Meure	Moyenne	Déplacement	Repère	Meure	Moyenne	Déplacement
002M1	7.5 A	7.48567 A	0 %	007M1	5.1 A	5.14494 A	0 %	068M1	3.7 A	3.64507 A	0 %
004M1	9.7 A	9.6217 A	0 %	047M1	3.9 A	3.93974 A	0 %	089M1	0 A	1.74286 A	0 %
220M1	9.9 A	9.80205 A	0 %	060M1	13.5 A	13.4133 A	0 %	161M1	2.2 A	2.16157 A	0 %
342M1	6.3 A	5.49733 A	0 %	068M1	3.7 A	3.64 A	0 %	171M1	3.9 A	2.67819 A	0 %
401M1	0 A	2.65 A	0 %	219M1	4.2 A	4.69488 A	0 %	221M1	12.9 A	12.8071 A	0 %
402M1	0 A	2.65 A	0 %	218M1	3.5 A	3.5601 A	0 %	222M1	11.1 A	11.1692 A	0 %
403M1	0 A	3.02045 A	0.681818 %	217M1	0 A	A	0 %	370M1	4.7 A	4.69187 A	0 %
404M1	0 A	A	0 %	331M1	7.7 A	7.742 A	0 %	371M1	6 A	5.90487 A	1.66667 %
405M1	0 A	3.15 A	0 %	332M1	5.6 A	5.46587 A	0 %	372M1	3.9 A	3.80181 A	25.2241 %
406M1	0 A	2.61643 A	0 %	333M1	7.6 A	7.70858 A	0 %	373M1	4.9 A	4.821 A	0 %
407M1	0 A	A	0 %	334M1	10.5 A	10.5048 A	0 %	374M1	12.8 A	6.18558 A	0 %
408M1	0 A	4.725 A	0 %	335M1	12.8 A	12.6687 A	0 %	375M1	4.3 A	4.2507 A	0 %
409M1	0 A	4.1355 A	0 %	361M1	3 A	2.87133 A	15.6306 %	376M1	5 A	5.0489 A	0 %
410M1	0 A	A	0 %	362M1	1.9 A	1.95442 A	0 %	377M1	4.3 A	4.3489 A	0 %

Use case 2: waste to energy





Use case 3 : steel casting



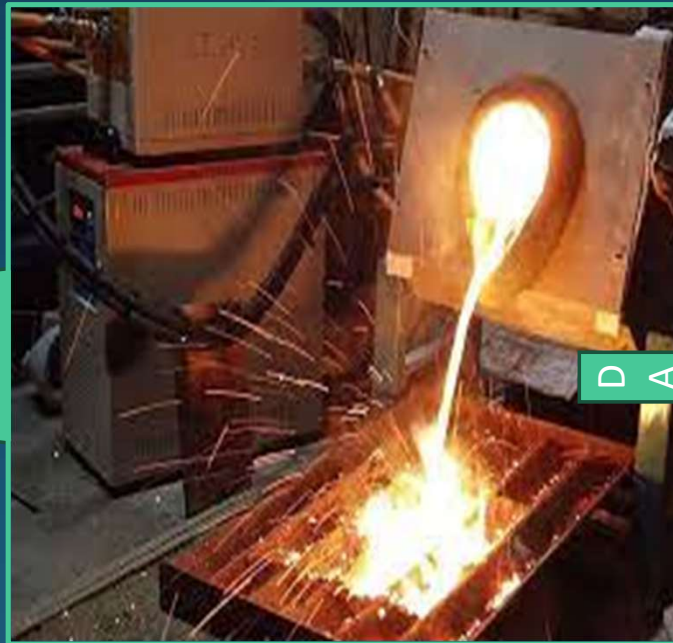
Scrap Low Quality



Scrap High Quality



Pure Alloy



DATA

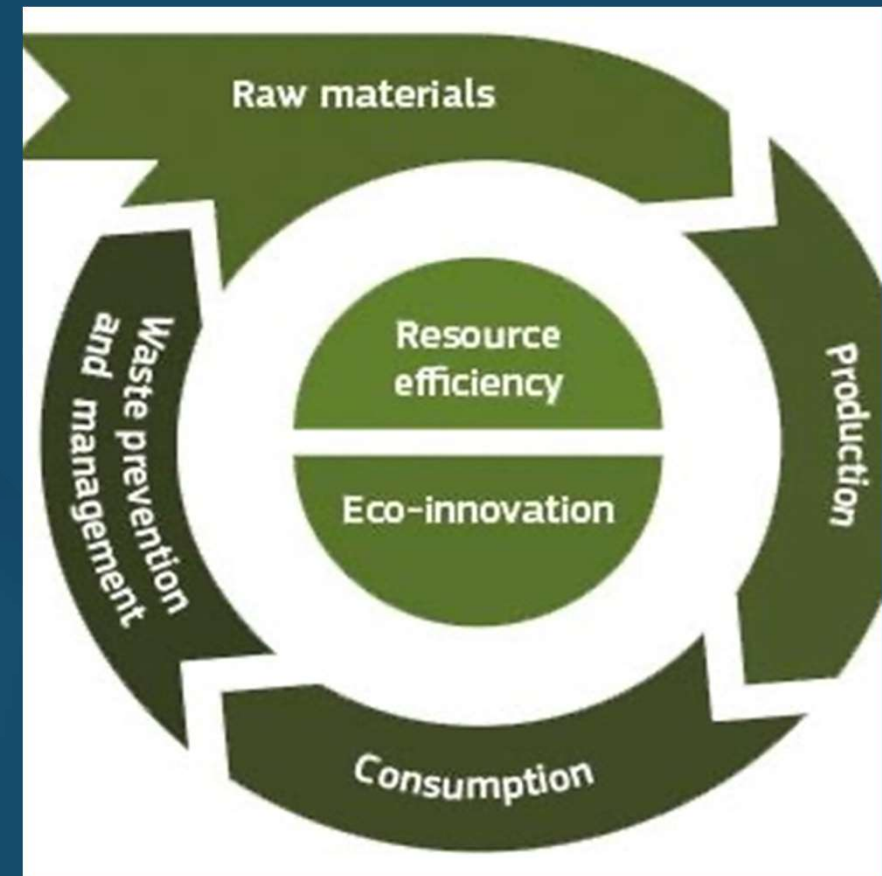
AI is used to continuously **minimize consumption** of pure alloy extracted from Earth.



Conclusions

Impact of digital and AI is almost at every step of products circularity:

- ❖ Reducing waste
- ❖ Recovering and processing waste
- ❖ Re-use processed waste
- ❖ Design new sustainable products and processes (genAI).





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Implementing the EU Digital Product Passport Challenges and Opportunities

Emilie Bartolini, Government Affairs Lead EMENA, Avery Dennison



The EU Digital Product Passport is coming: challenges faced by brands

1. Where to begin?

- Uncertainty regarding the legislative timeline
- Uncertainty regarding specific requirements
- They need guidance for implementation. This is especially true for small and medium enterprises (SMEs)
- Regulatory fragmentation challenge: European DPP vs. the rest of the world

2. Retrieving data from the supply chain

- Many suppliers' systems are obsolete and difficult to integrate

3. Ensuring data quality, consistency and integrity



Challenges facing the mattress industry

Impact of mattresses on climate change

- Raw material usage and waste generation
- Energy consumption and emissions
- CO₂ footprint

Waste handling

- 60% landfilled – 40% incinerated
- However, 85% potentially can be recycled

Data gaps preventing circularity

- Material composition
- Consumer care and sorting instructions
- Repair instruction

Linear

make

use

dispose



Circular

recycle

repair

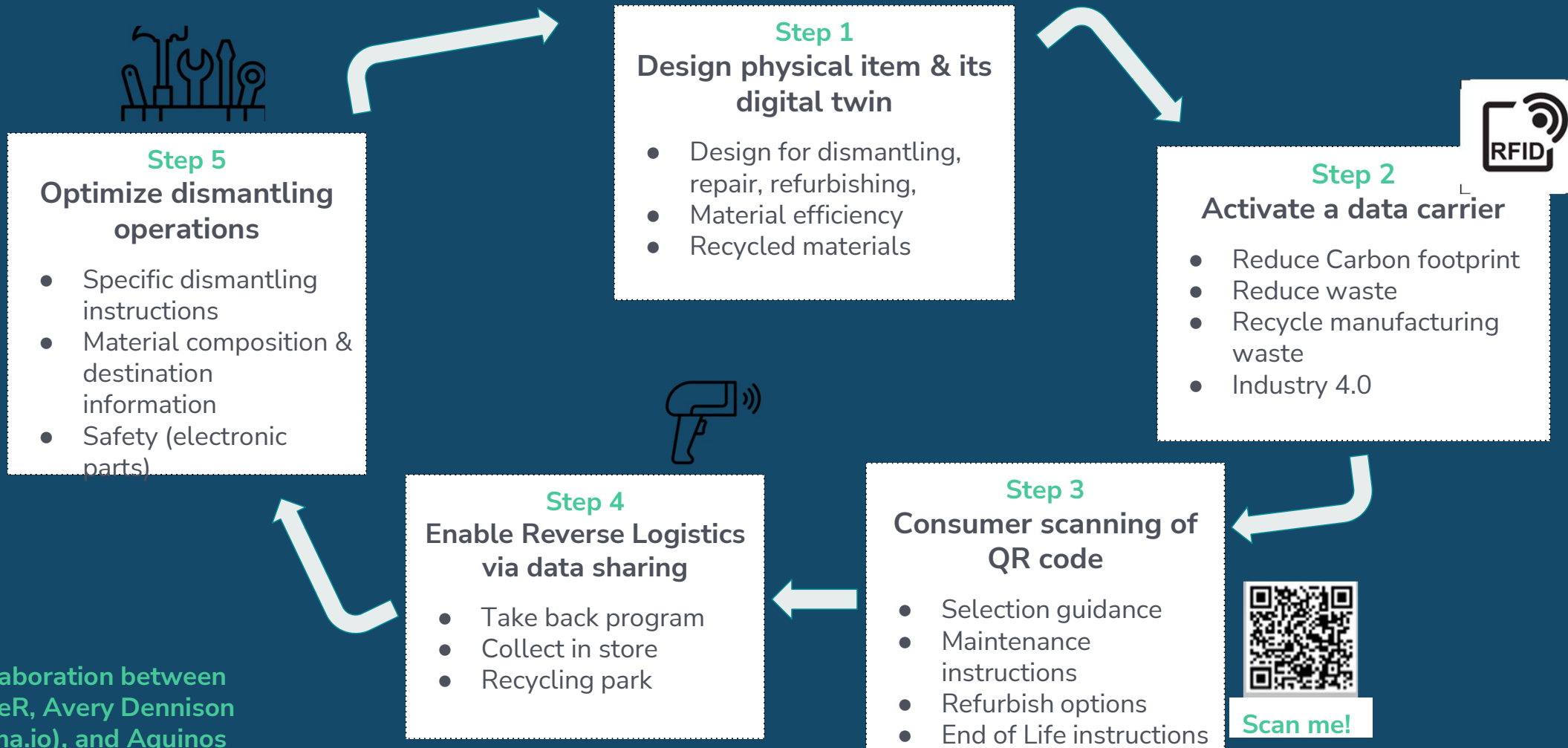
remanufacture

reuse

resell



Case study: enabling circularity of the bedding industry via information flows



What companies need from legislators to implement DPP

Regulatory Framework

- A consistent and clear legislative framework
- Standardization of data vocabulary, access requirements and more
- Arrange for a single transaction to access all necessary tools; DPP as a one-stop-shop for product data reporting
- Harmonization across across jurisdictions

Support Implementation

- Guidance and tools for small companies
- Best practice sharing of DPP-enabled circular business models
- Use-cases built through pilots, partnerships & research projects



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01

How Open Science and AI could scale up the circular economy practice?



Bart.Doms@VITO.be

slido



What is the weirdest hallucination you ever got back from ChatGPT?

ⓘ Start presenting to display the poll results on this slide.



Insights and learnings?

- > 5000 studies VITO
- > 300 experiments VLAIO and Vlaanderen Circulair
- > 700 Europese experiments CE



Public and private advisers amplifier

Questions SME

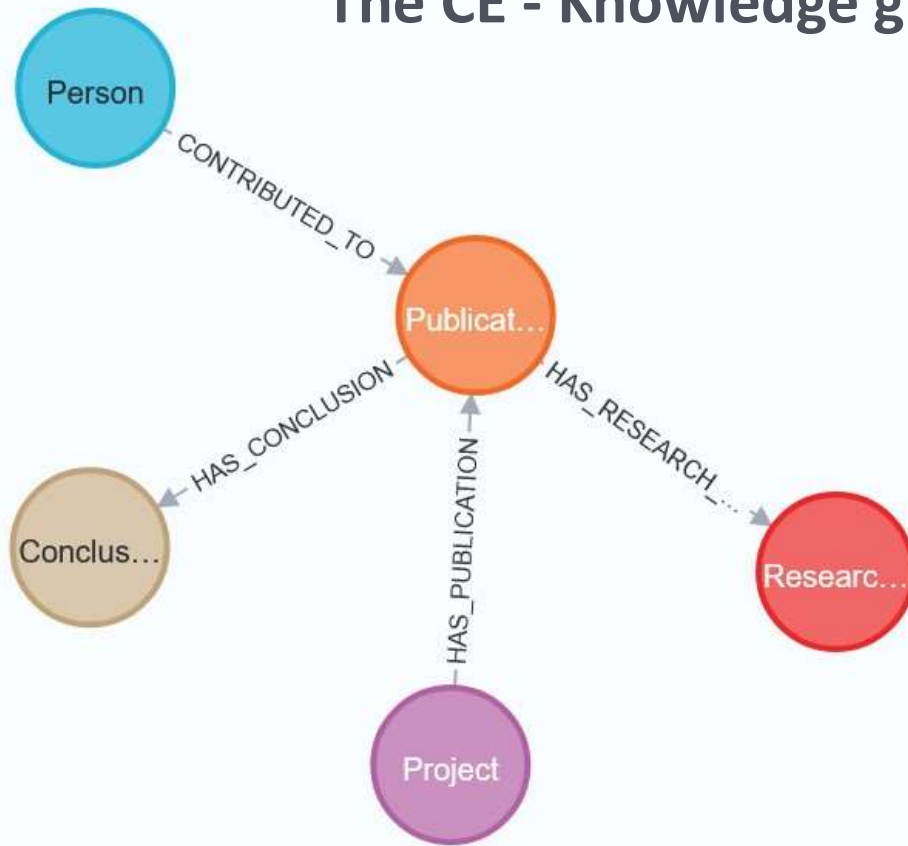
CIRCULAIR = FUTURE PROOF

How to scale business?

Sustainable entrepreneurship?

01 Using Large Language Models (LLM) to extract research question and conclusion from existing projects/publications

The CE - Knowledge graph scheme

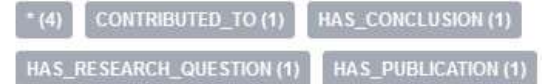


Overview

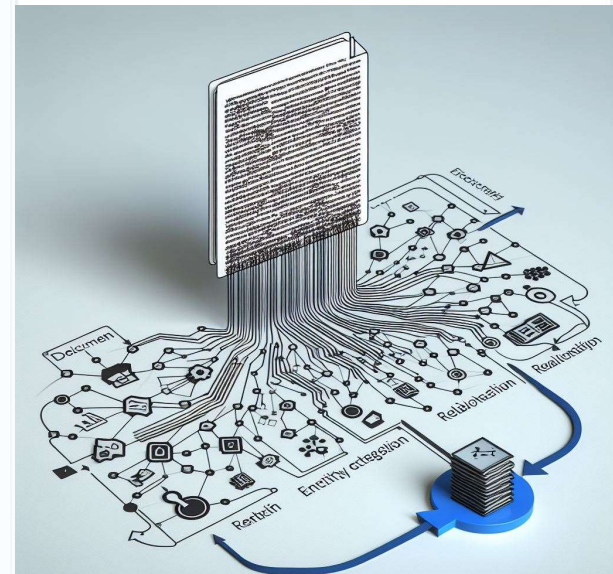
Node labels



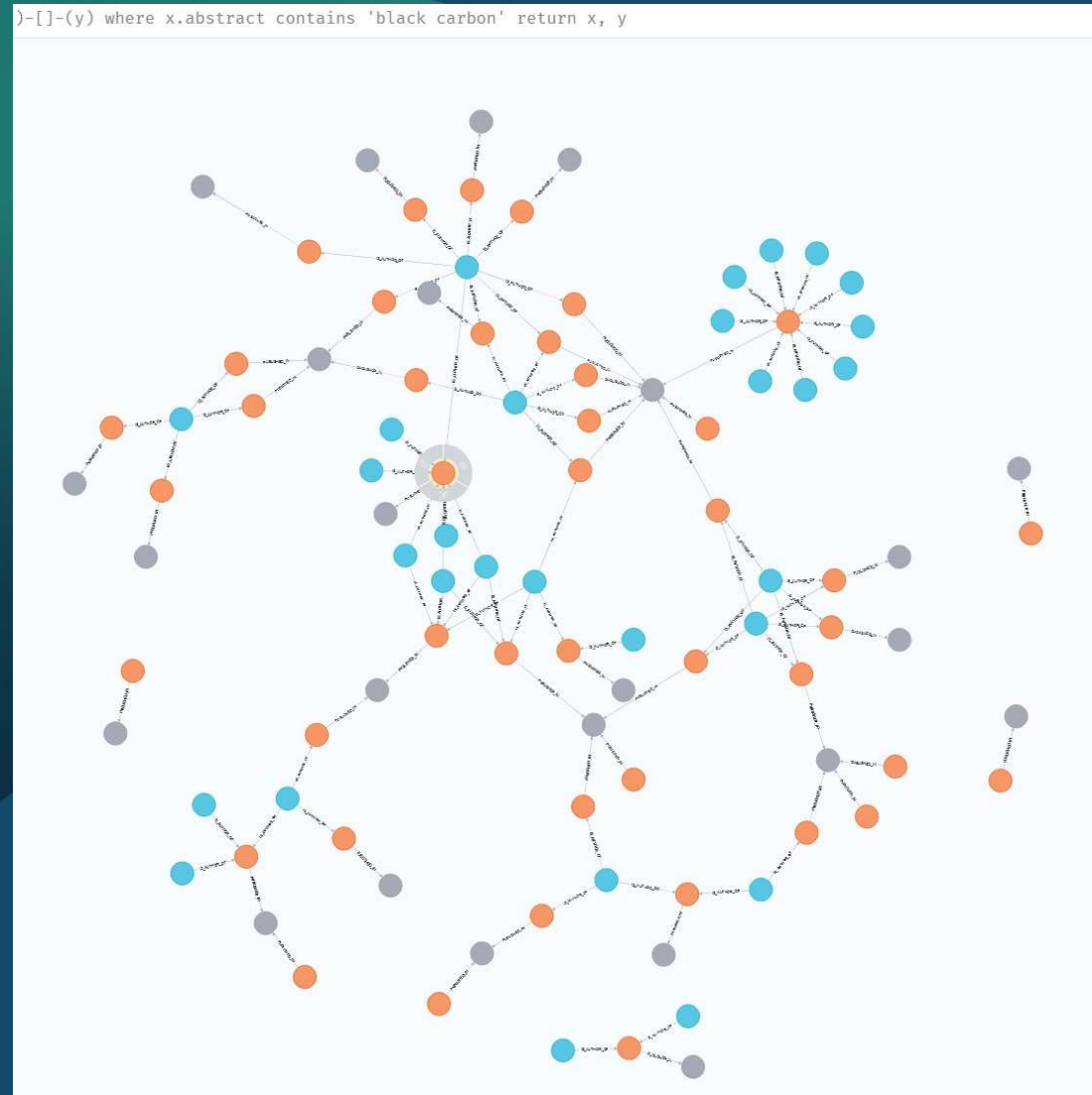
Relationship types



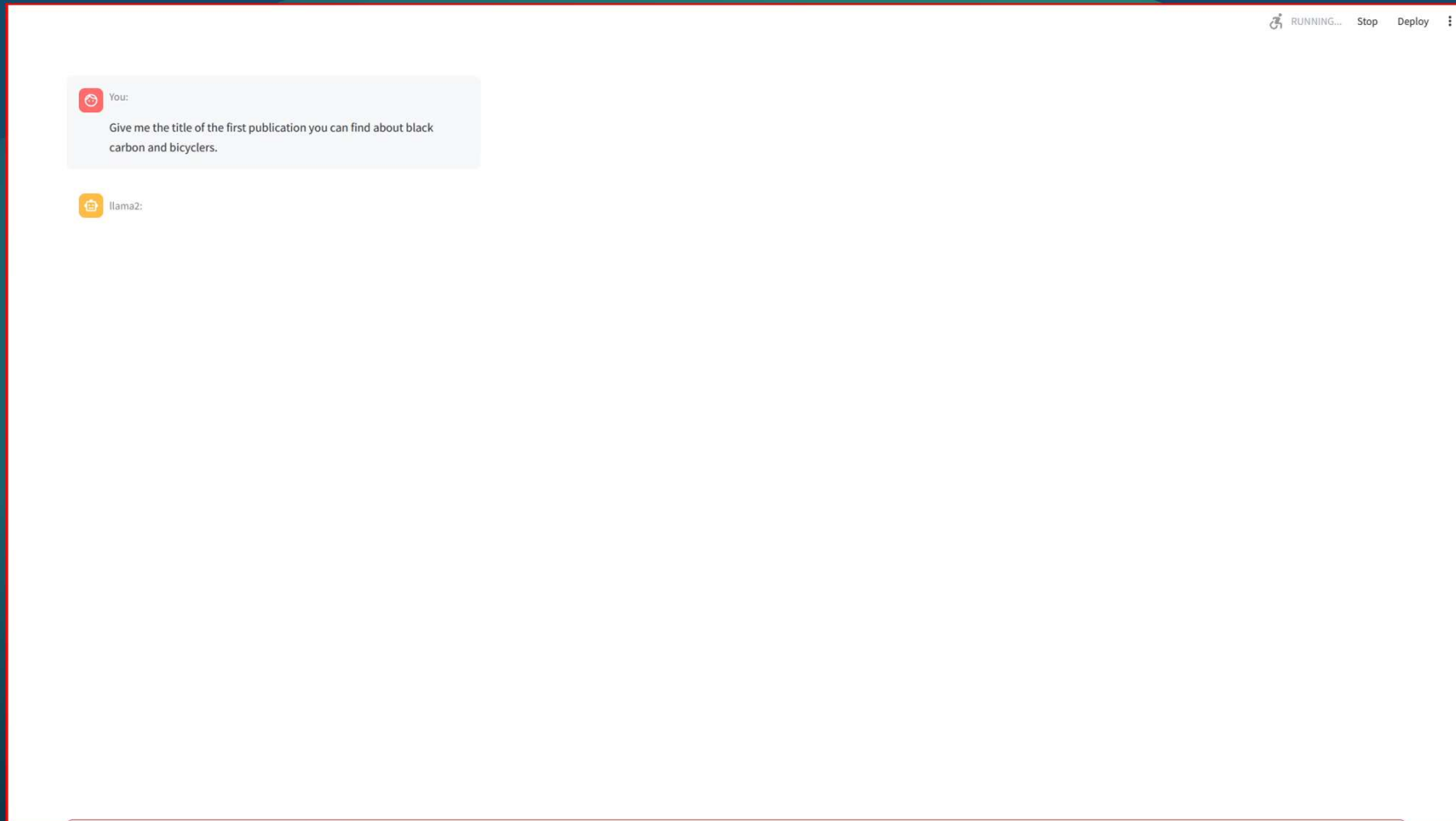
Displaying 5 nodes, 4 relationships.



02 using LLM and the CE-knowledge graph scheme to retrieve the relevant information



03 Using Retrieval-Augmented Generation (RAG) and LLM to give an answer





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