



# Building value chains for mixed textile waste with the RegioGreenTex Lowlands Hub

Introduction to the Hub, Interregional Focus Group and Presentations of SMEs

27 June 2024 • 10:30-12:00 • Online



# Webinar Procedures



The webinar is recorded and will be shared - in parts or entirely – with all consortium partners. By staying connected you agree to this. If you would not like to appear on the recording, please keep your camera and microphone off at all times.



Mute your  
microphone



Disconnect  
video



Type questions  
in the chat



Raise your hand  
when you wish  
to speak



When you are invited  
to speak, unmute mic  
and show video  
(if possible)



# COMMUNITY TALKS

**Online animation activities play a pivotal role in sustaining the engagement of SMEs within the digital ecosystem.** To stimulate interaction, a series of **14 intra-consortium webinars**, the RegioGreenTex Community Talks, are taking place throughout the duration of the project. **The RegioGreenTex Community Talks promote the latest progresses and results of the project, and well as encouraging dialogue and knowledge sharing in the textile sector, focusing on sustainability and the green transition.**

The RegioGreenTex Community Talks are organised as part of WP2 (T2.4 Animation of the Ecosystem) and managed by Textile ETP, with the support of Euratex, NE RDA, Ariadne Innovation, OOST NL and Techtera.



# AGENDA WEBINAR

- INTRODUCING THE **LOWLANDS HUB**; FLORENCE (ARIADNE INNOVATION)
- INTRODUCTION OF THE **REGIONAL VALUE CHAIN PILOTS**
  - **FLANDERS**
    - JAN MERCKX, ECOSO
    - SORAYA WANCOUR, QUEST
  - **HAUTS DE FRANCE**
    - CÉDRIC AUPLAT, PEIGNAGE DUMORTIER
  - **EAST-NETHERLANDS**
    - AUKE VAN DER HOEK, REGIONAAL TEXTIELSORTEERCENTRUM TWENTE
- UNDERSTANDING THE **TEXTILE POLICY/ IMPORTANCE** OF THE REGIONS IN BUILDING CIRCULAR TEXTILE VALUE CHAIN
  - **FLANDERS :**
    - ON POLICY: WOUTER DUJARDIN, OVAM
    - ON CIRCULAR TEXTILES IN FLANDERS; GUY BUYLE, CENTEXBEL
  - **HAUTS DE FRANCE:**
    - STEPHAN VÉRIN, EURAMATERIALS
  - **EAST-NETHERLANDS:**
    - KAROLIEN DE BRUINE, OOST-NL
- Q&A





# **FACILITATOR FOR CIRCULAR VALUE CHAINS IN THE LOWLANDS REGION**

**EAST-NETHERLANDS FLANDERS HAUTS-DE-FRANCE**



## STRENGTHENING TEXTILE CIRCULARITY IN EUROPE'S REGIONS

**In the framework of the European Green Deal,  
RegioGreenTex is a project promoting  
the collaboration in research and development for the  
textile industry between the four major sectors  
of society - industry, government, research  
institutes, and the public - in establishing a  
systematic circular economy business model  
across the EU.**





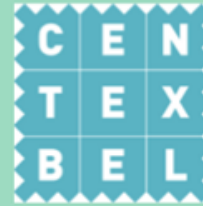
# LOWLANDS GREENTEX HUB

To unlock the true **circular potential of collaboration** between the Lowlands regions.

The RegioGreenTex Hub facilitates the growth and development of the textile reuse & recycling ecosystem, closing loops, across the different R-strategies.







ariadne



# HUB PARTNERS

# ACTIVITIES OF THE HUB

- **Driving Collaboration:**

- Setting up regional circular value chain pilots between the Hub partners
- Organising activities and meetups to identify and boost opportunities for collaboration between the Hub partners and within the region.

- **Driving Investment**

- Identifying the value chain gaps in closing the loops
- Identify investment and costs
- Facilitate access to funds via workshops and pitch sessions

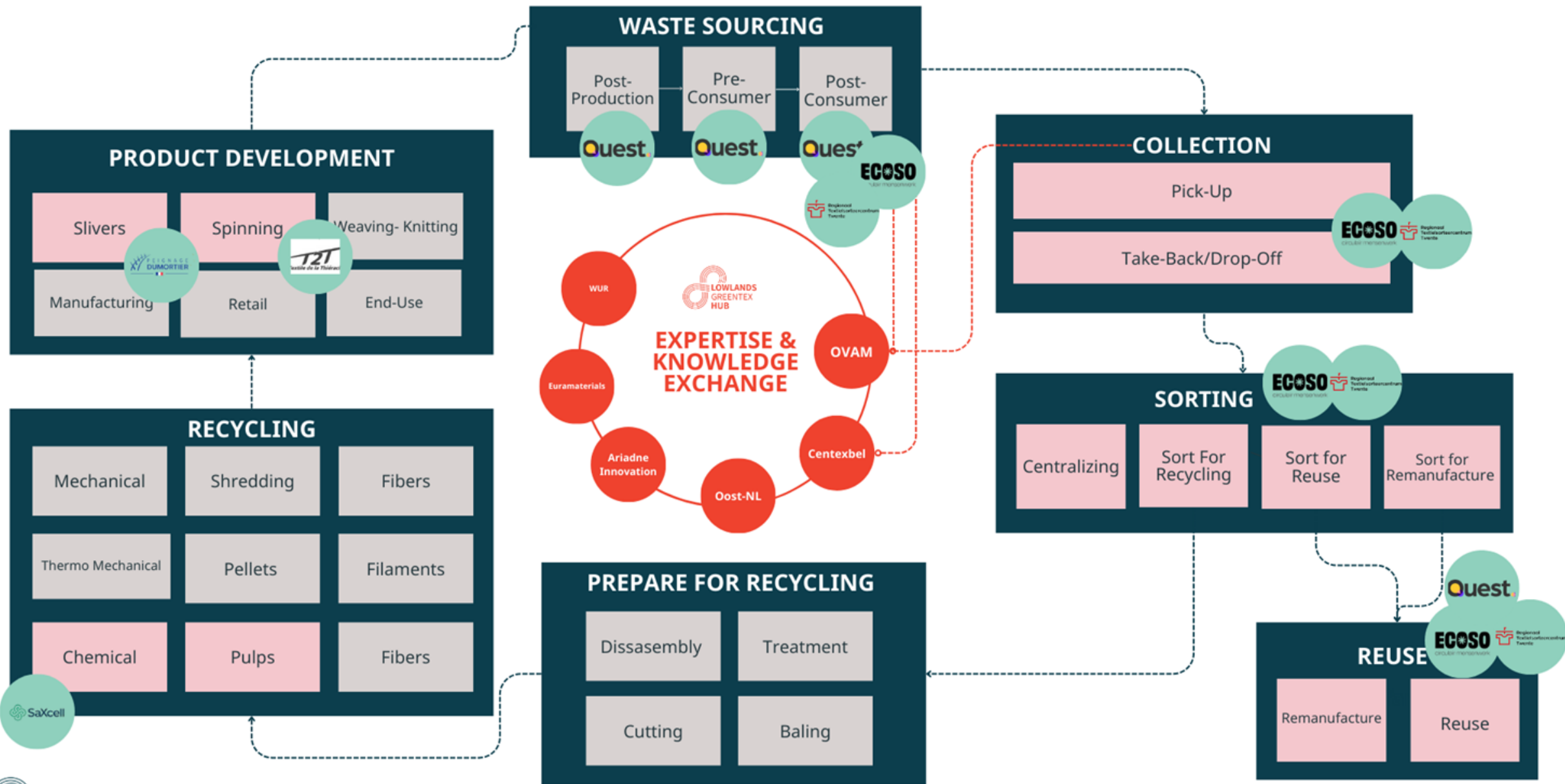
- **Driving Knowledge**

- Boost Knowledge exchange within the hub and within the regions via the RegioGreenTex Digital Tool

- **Supporting the hub partners**





- Supporting backbone of experts

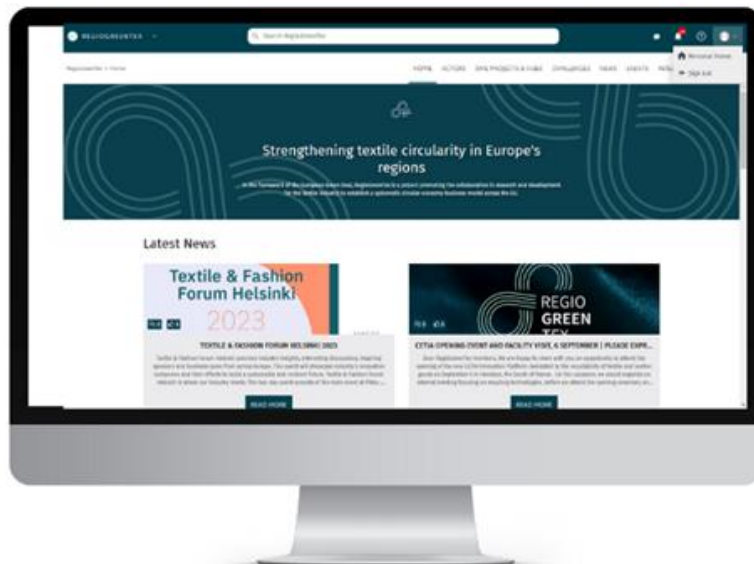






# HOW TO CONNECT?

-  LinkedIn @Euratex for project updates
-  **RegioGreenTex Digital Tool** for more information about all partners: [www.regiogreentex.eu](http://www.regiogreentex.eu)
-  Reach out via Lowlands GreenTex Hub leader: [florence.lootens@ariadne-innovation.com](mailto:florence.lootens@ariadne-innovation.com)
-  Circular Textile Days 18 & 19 September in Den Bosch, Netherlands



# REGIONAL VALUE CHAIN PILOTS

- FLANDERS: END-OF-LIFE SOLUTIONS FOR POST CONSUMER WASTE BLENDS
  - QUEST
  - ECOSO
- EAST-NL: POST CONSUMER WASTE BLENDS FOR RECYCLING
  - SAXCELL
  - RTT
- HAUTS-DE-FRANCE: PROTECTIVE GARMENTS (COLORED) AND ARAMIDS
  - DUMORTIER
  - TEXTILE DE LA THIÉRACHE

# Flanders: End of Life solutions for post consumer waste blends



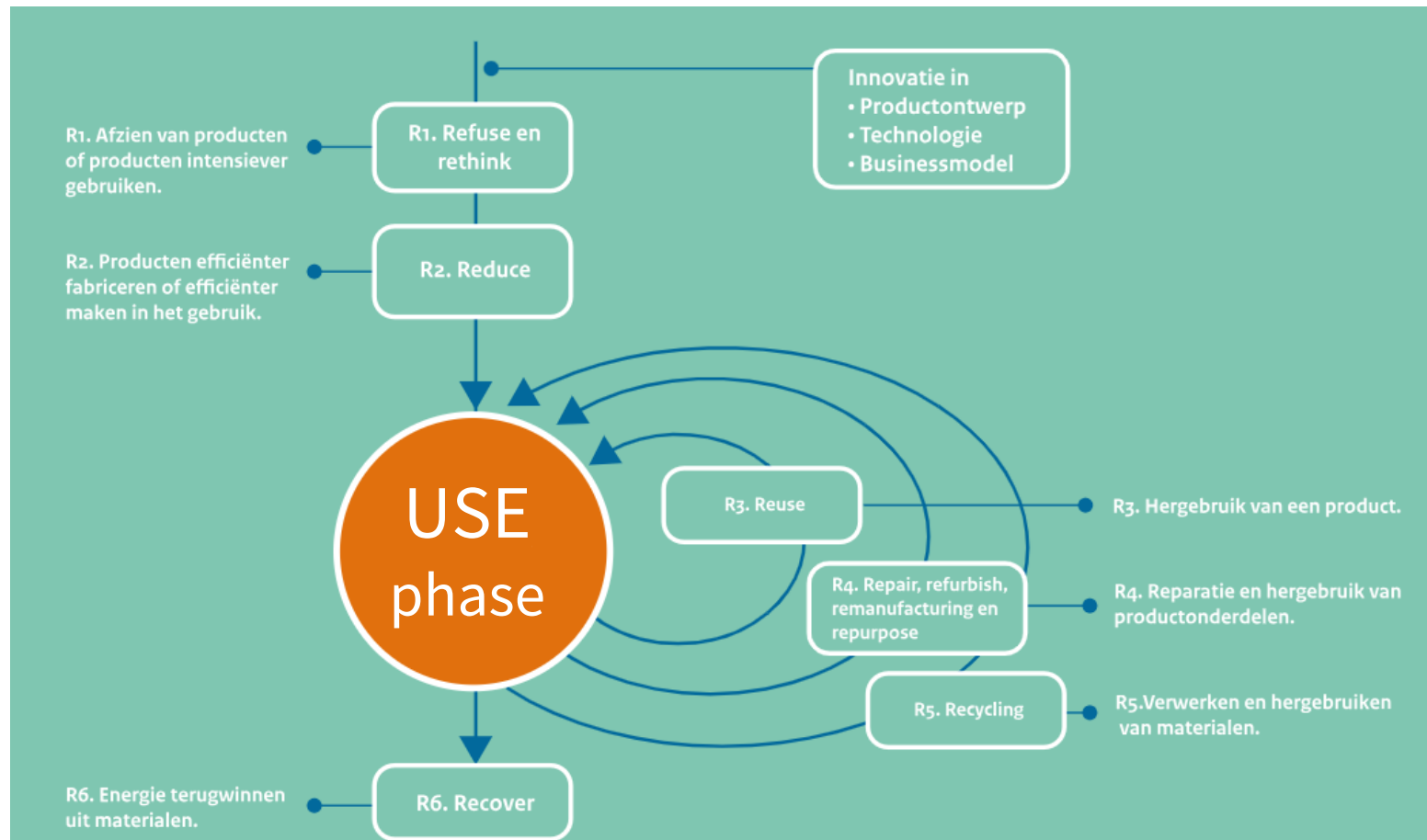


**We design & scale positive  
impact solutions**

No bs, no greenwashing



# Flanders : Zero Waste Across the R-Ladder





**Quest.**





Studio AMA



Natasa Leoni



Adidas

# Flanders : Zero Waste Across the R-Ladder



- why marketplaces failed
- what is the actual demand
- what goes wrong
- what is on the market what works

Waste verses byproduct - legal aspect

Business model is hard - matchmaking is a personal thing, once the connection is made, the platform gets bypassed, also in (recurring) income.

This is the impact we want to make, not the BM

Financial viability

Companies with loads of waste have a waste manager, they won't go for the platform

Others that have less have no waste manager and putting things up for sale/re-use is time consuming

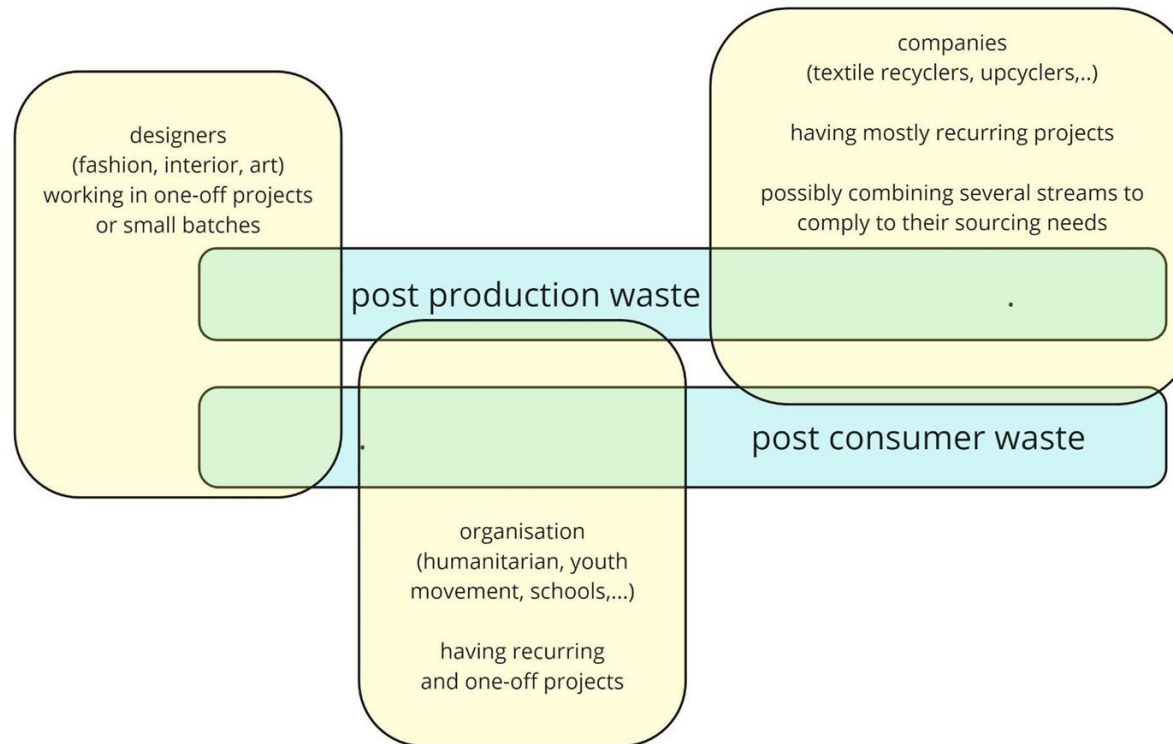
No hours allocated to do this

It has to be as easy as possible

It's still cheaper and easier (and better :) to ship waste away

1. Is it always Sustainable? Seeing a bigger picture, CO2 footprint, impact all decisions made.
2. Important to be smart about this, wastestreams that have potential for big revenue will increase the amount of waste.

# Flanders : Zero Waste Across the R-Ladder





# Flanders : Zero Waste Across the R-Ladder



building framework - able to align towards local context





# RegioGreenTex

26 – 06 - 2024

# Social Enterprise - Mechelen

- 260 FTE (187 payroll)



**fiets  
atelier**  
ecoso

**ebis**  
Nearly New Bikes

**fietspunt**

**foodsavers**  
MECHELEN  
SOCIAAL AAN DE SLAG MET VOEDSELOVERSCHOTTEN

**BUURWINKEL**  
La Luna

**CAMP  
CAMP**

**cirkels**  
tweedehands van ECOSO

**REUPPERIJ**



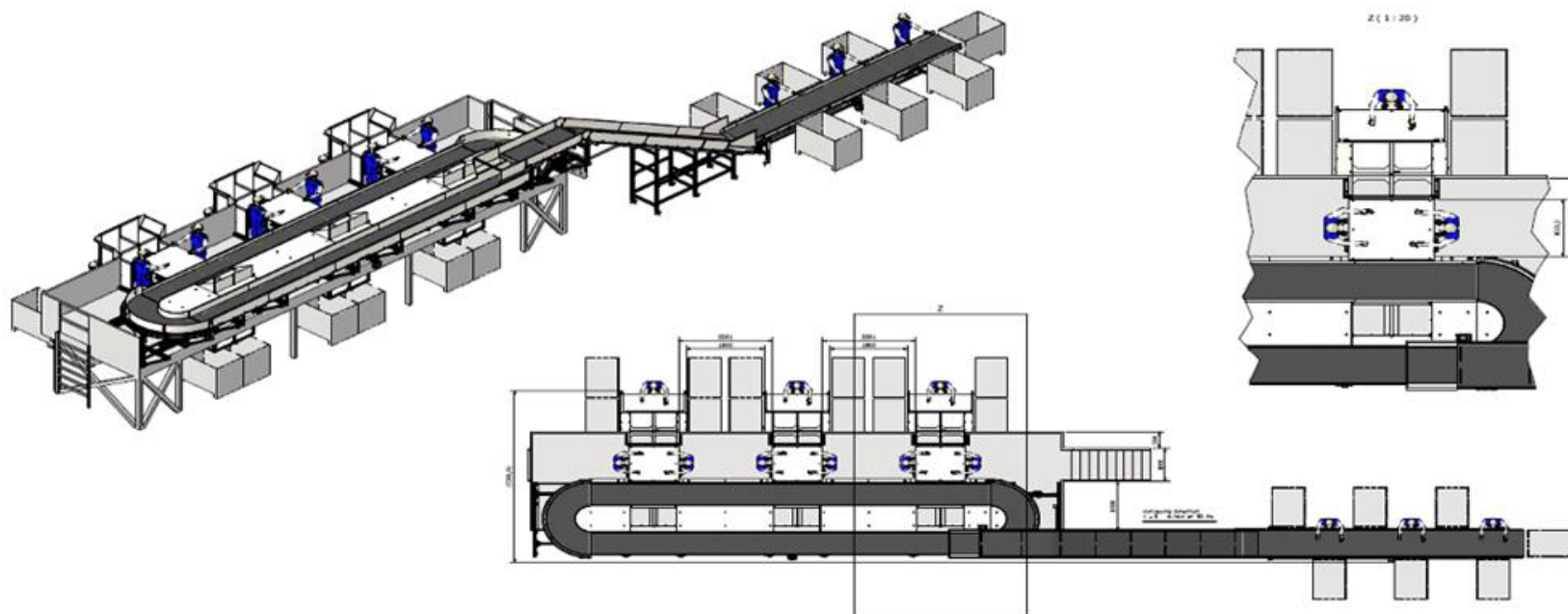
# Co-labs



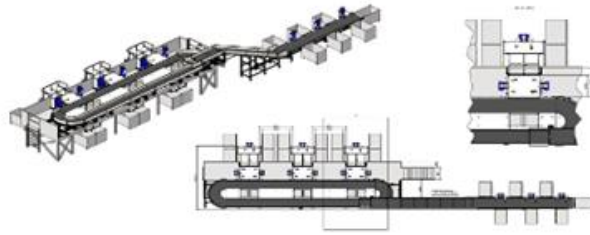
# RegioGreenTex



Co-funded by  
the European Union



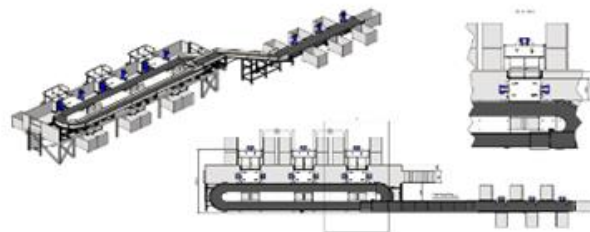
Co-funded by  
the European Union



# RGT- Pilots

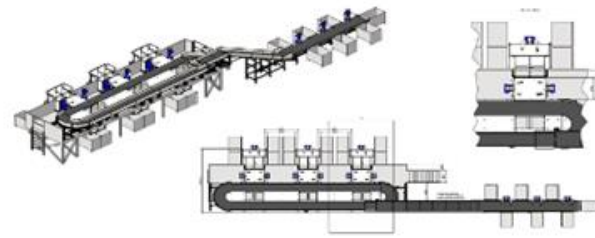






# RGT- Pilots





# RGT- Pilots



7



8



9



# Thank You

Jan Merckx

Kris Bauwelinck



RegioGreenTex Stories  
An interview with Jan & Kris from

*Ecoso*

**ECOSO**  
CREATED BY THE NETWORK



# East NL : Post consumer textiles for chemical recycling



# Update SaXcell activities



- Relocated To Enschede (former textile company)
- Sourcing of feedstock from textile waste collectors
- Design, engineering and commissioning of the new plant in progress: end 2024 operational
- Contract with Birla for outsourcing of wet spinning of pulp into SaXcell fiber
- 10 ton was produced and delivered to potential customers, 100 ton in preparation, marketing of the SaXcell brand in full swing
- Technology development





Regionaal  
Textielsorteercentrum  
Twente

RTT =

- Textile sorting company in Enschede;
- Joint venture, owned by 2 thriftshop organisations:
- receives about 3.000.000 kilo post consumer textile annually;



KRINGLOOPBEDRIJF  
DE BEURS



- Partner



- Member of Texplus foundation



- Member of Dutch Cooperation for textilesorting thriftshops:







Regionaal  
Textielsorteercentrum  
Twente

Sortingproces RTT:

**Step 1** receipt of the clothing from the truck of the collector: Twente Milieu

**Step 2** removing visible waste and contaminated and wet textiles



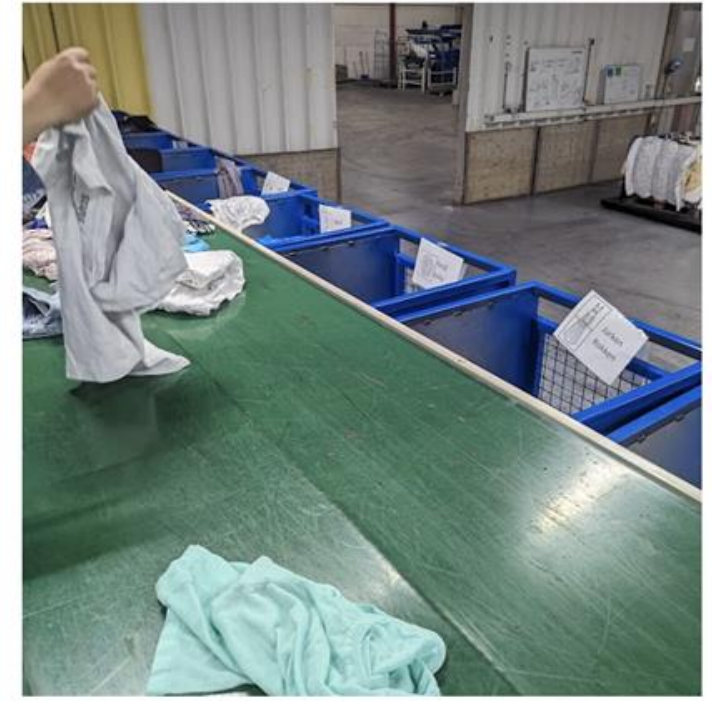




Regionaal  
Textielsorteercentrum  
Twente

Sortingproces RTT:

**Step 3** Subdividing the textiles into different categories;  
trousers, shirts, jackets, ....





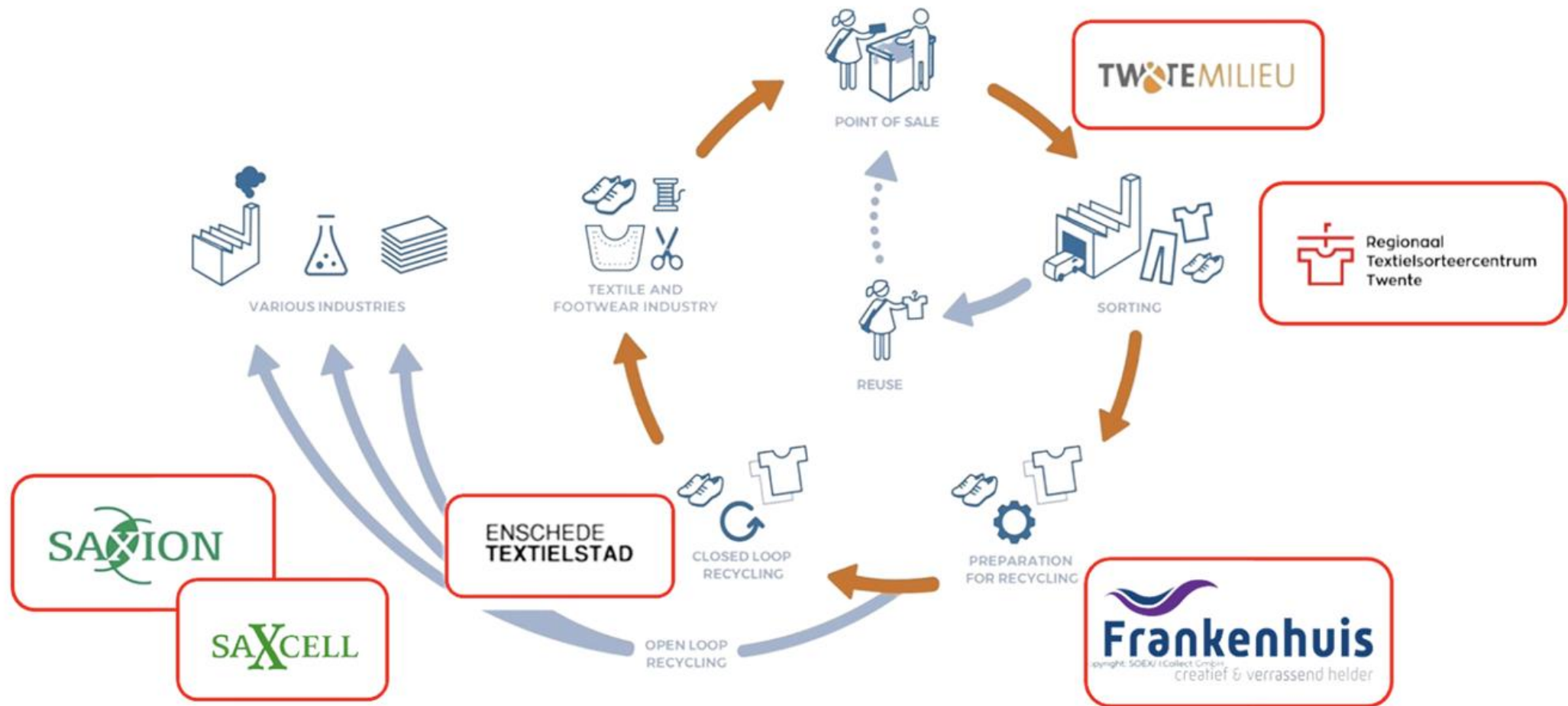
Regionaal  
Textielsorteercentrum  
Twente

Sortingproces RTT:

**Step 4** sort the selected categories in : re-use Netherlands, re-use for other markets, and for recycling ....







# Hauts de France: Closing the loop for pre and post consumer aramids



# HdF: Closing the Loop for Pre & Post Consumer Aramids

## WHY ?

Aramids fibres are expensive (> 30€/kg)  
Institutional clients (army, firefighters) introduce recycling requirements in their calls for offers

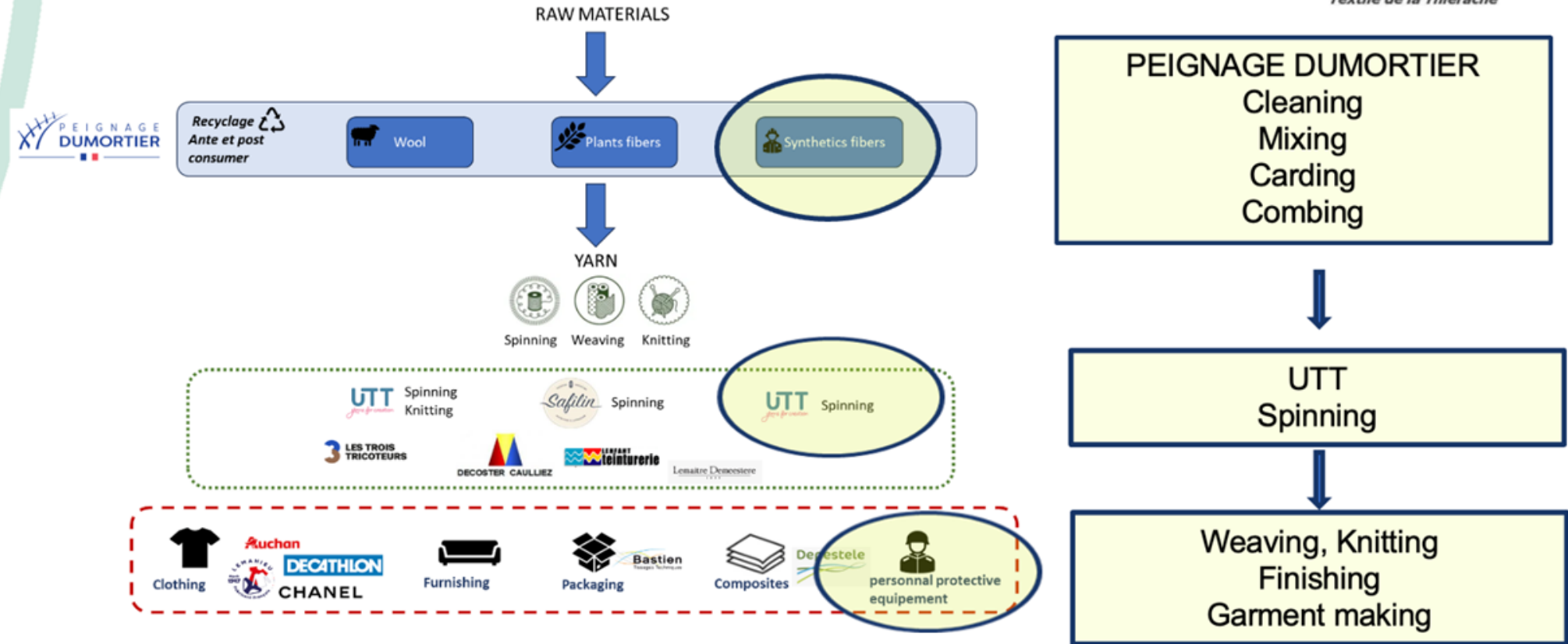
## WHO ?

To process recycled Aramid fibres requires dual specific skills and know-how :  
Processing of aramid Fibres + Processing of recycled fibres

**PEIGNAGE DUMORTIER HAS THIS DUAL SKILL**



# HdF: Closing the Loop for Pre & Post Consumer Aramid



# HdF: Closing the Loop for Pre & Post Consumer Aramid



Before Cleaning



After Cleaning

- **Sliver waste at PEIGNAGE DUMORTIER**

Successful trials 0,7%

- **Sliver waste at SPINNING MILL**

Successful trials 2,5% + Yarn testing on going

Trial with 20 Tons to be done

- **Pre-consumer Fabrics « waste »**

Shredding done + Trial with 20 to 30% recycled material to be done in July 2024

- **Post consumer Waste**

Chemicals potential issues to be evaluated

# HdF: Closing the Loop for Pre & Post Consumer Aramid



**FROM PRE & POST CONSUMER WASTES TO YARNS**

**Under process with significant positive results**

**FROM YARNS TO GARMENTS**

**To be done**

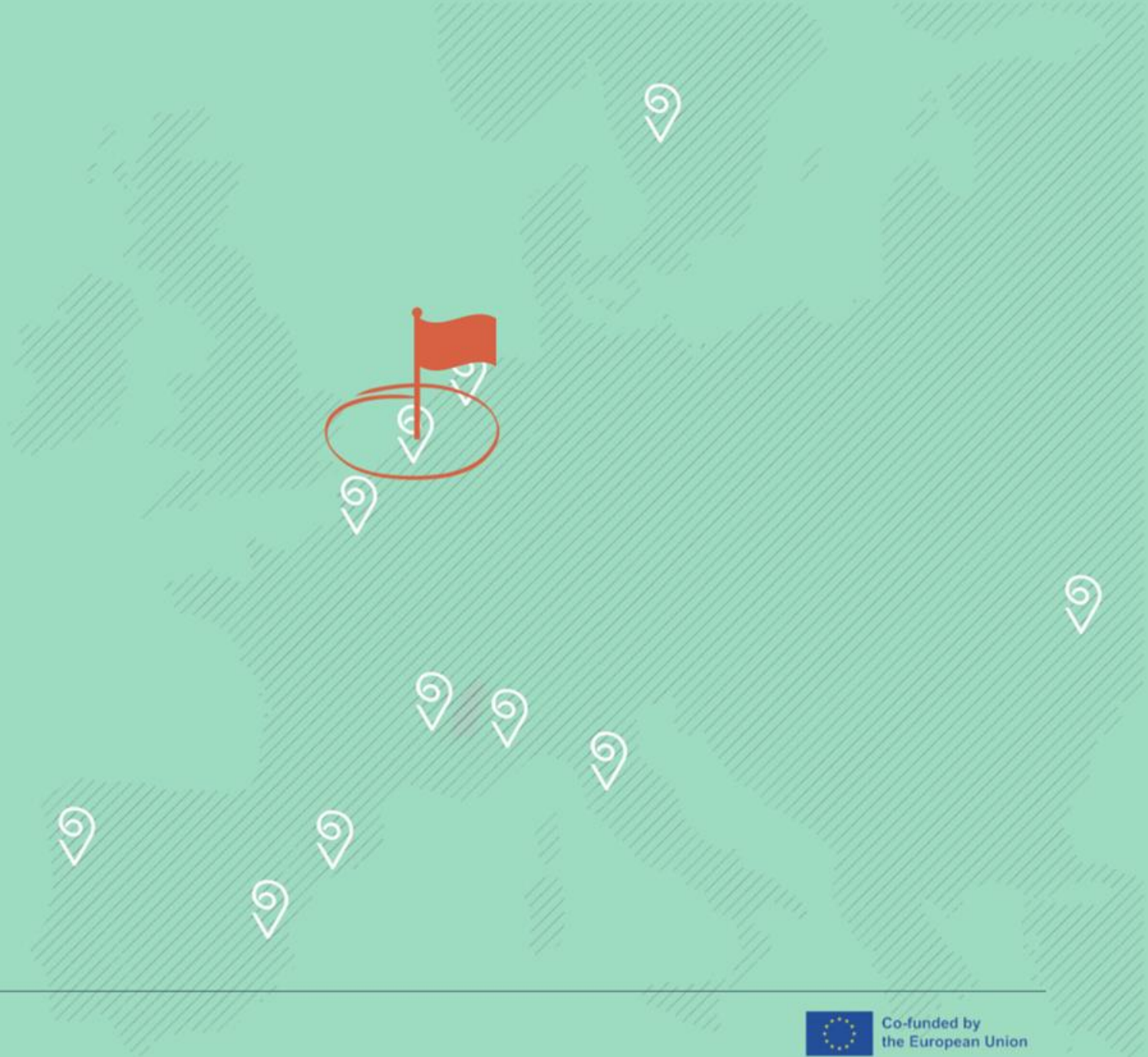


# REGIONAL OPPORTUNITIES FOR CIRCULAR COLLABORATION

FLANDERS  
HAUTS-DE-FRANCE  
EAST-NETHERLANDS



# FLANDERS







Flanders  
State of  
the Art

# Textile waste policy in Flanders

27 june 2024

Wouter Dujardin

WE MAKE  
TOMORROW  
BEAUTIFUL

**OVAM**



# OVAM's goals on waste

---

“By 2030, we aim to produce only a maximum of **100kg of residual household waste** per inhabitant in Flanders”

*2022: 128 kg/inhabitant*

“**Company waste** should decrease with **30%** compared to 2018-2020”

# Flanders' textile policy has enabled an extensive collection system

...but improvements are still needed



*All textile containers in Flanders accept following items: clothes, shoes, household textiles, curtains, plush toys, in reusable state or with defects*

## Household waste

Municipalities are responsible for selective collection of textiles

At least **1** container for each **1000** inhabitants

**42 kton** selectively collected (2022)

**6 kg/inhabitant** selectively collected (2022)

**5 kg/inhabitant** in residual waste (2021)

## Company waste

**41 kton** selectively collected (2020)

# OVAM also invests in knowledge, prevention and projects

## Non-exhaustive list of examples

### Development of knowledge & guidance



*Ecodesign tools to support companies*



*Research reports and guides*



*Development of guidance document on how to prove compliance with POP & REACH for recycled textiles. (Ongoing)*

### Participation in EU projects



### Subsidies for circular projects (with VLAIO)

Circulaire ketensamenwerking

€100k, no application possible anymore

Living labs circulaire economie

€500k, no application possible anymore

Circulaire maakindustrie: levensduurverlenging

€100k, no application possible anymore

GERICHTE CALL 2024  
**DESIGN 4 CIRCULARITY**  
systemisch ontwerpen voor een circulaire economie

€100k, DL: 13/09/2024, info: [vlaanderen-circulair.be](https://vlaanderen-circulair.be)



# Development of EPR is the next big step

OVAM develops internal discussion document on EPR

***BE regions consult stakeholders***

BE regions start writing the legislative text on EPR

Iterative process: feedback from stakeholders on draft proposal, adjust draft

Publication of legislative text

Accreditation of PRO(s)

Start EPR by summer 2027

# Flanders: Historical textile sector turned towards innovation

- **Strong manufacturing in several textile categories**
  - Carpets (rugs and tiles)
  - Mattress ticking
  - Interior textiles
  - PPE (Personal Protective Equipment): from fabric to final product
  - Workwear
  - Technical textiles
- **Fashion brands and renowned designers, eg 'Antwerp'**

The Antwerp Six: The Story of Fashion's Most Influential Collective



Source: SSFW Magazine (India)

# EoL textile products collection

- Advanced in varying modes of collection:
  - Direct collection by (social) actors (eg ECOSO, Kringwinkels, etc.)
  - Containers in streets for consumers
  - Bags picked up from the street
  - Separate stream at recycling parks
- Advanced waste regulations (OVAM)
- Active ERP for mattresses (VALUMAT)





# Current main EoL textile products sorting

- At social enterprises and private companies
- Deploying varying degrees of automation
- In practice 3 main output streams:
  - Regional Re-use  
(= 'Vintage' + 'Regular' + 'Cheap')
  - Re-use through export
  - Recycling
- Emerging: repair, remanufacturing ('upcycling')



# Flanders: Making circularity a reality *(non-exhaustive !)*

- **Product/fabric level:** repair, remanufacturing, upcycling, ...  
eg Cilab , Re-Antwerp, Studio AMA
- **Fibre/material recycling:**  
from sorting & (pre-)processing to yarns  
eg VALVAN, PROCOTEX, PURFI, ESG
- **Novel materials and (linked) technologies**  
eg NOOSA, RESORTECS
- **Commercial 'circular products'** are emerging,  
eg 'Dr. Green' from UTEXBEL
- **Enabling (digital) platforms/communities,**  
eg Ellie.Connect, COSH,...



Utexbel zorgt voor Europese primeur met industriële productie van circulair ziekenhuistextiel



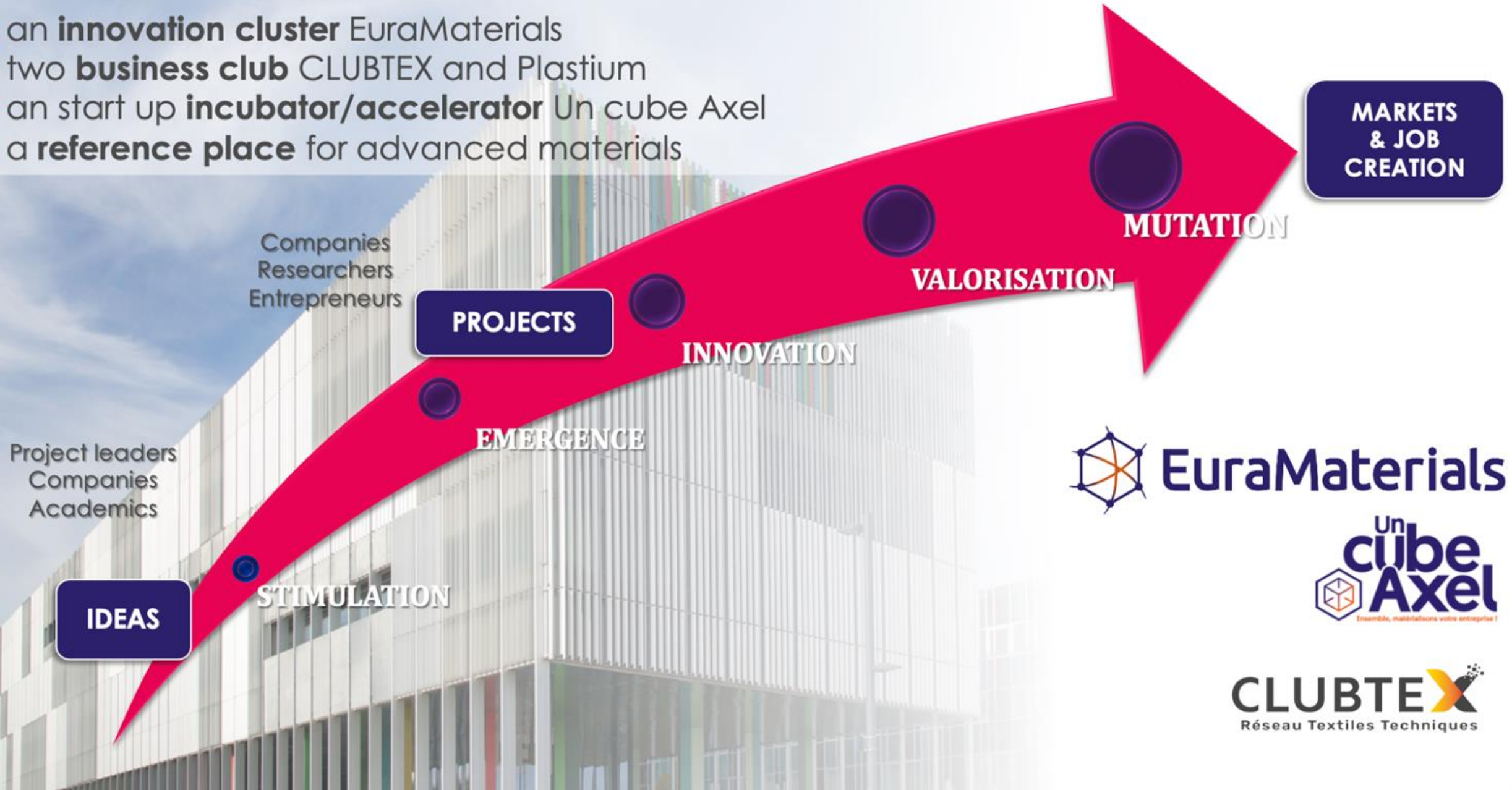
# HAUTS-DE-FRANCE



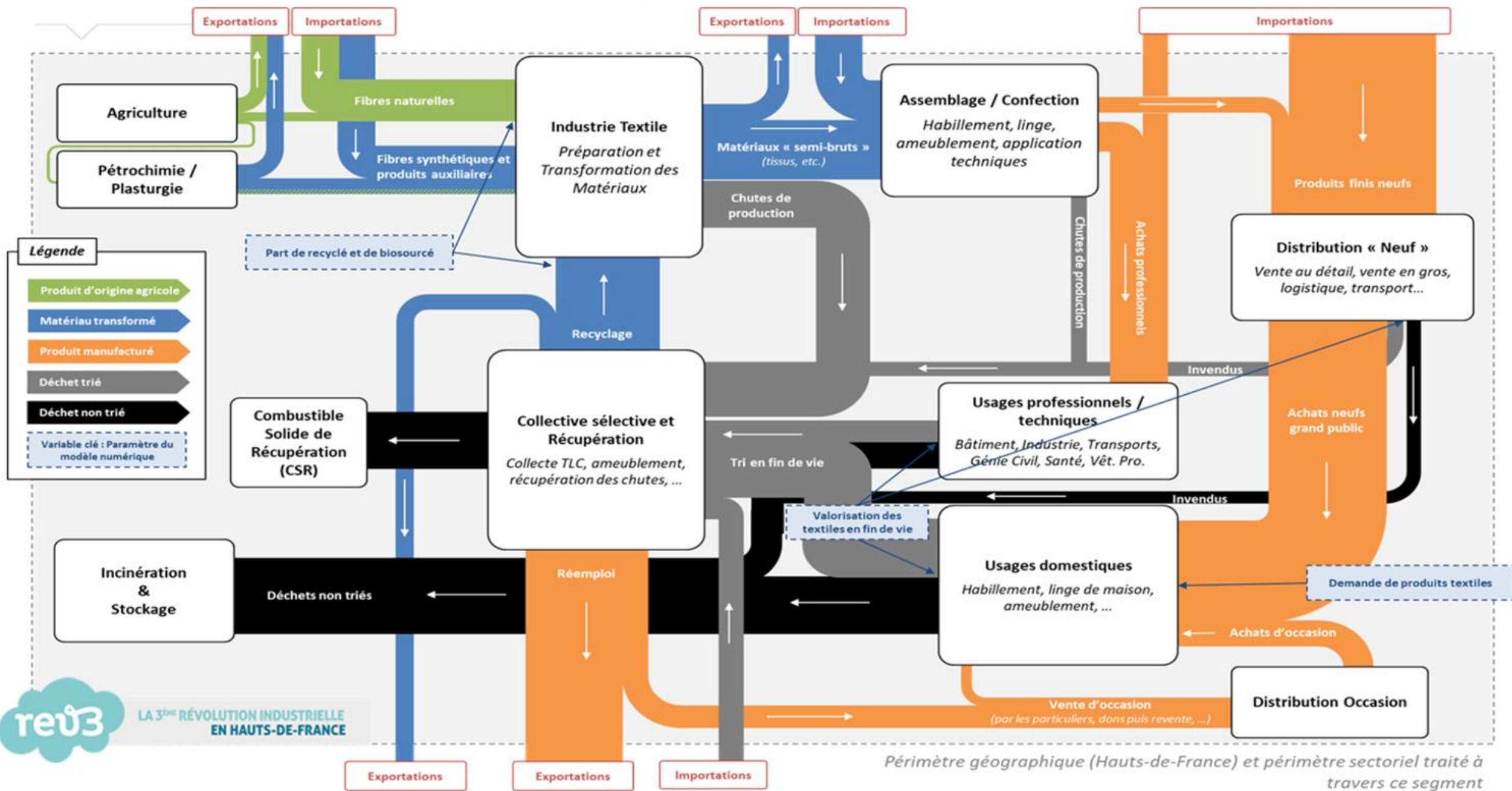


# The Dynamic

- an **innovation cluster** EuraMaterials
- two **business club** CLUBTEX and Plastium
- an start up **incubator/accelerator** Un cube Axel
- a **reference place** for advanced materials



# The Material flows - ADEME-REV3 study – 2022





# Circular projet – INTERREG RETEX

**Interreg**

France-Wallonie-Vlaanderen



UNION EUROPÉENNE  
EUROPESE UNIE

Circular value chain building <https://www.dotheretex.eu/fr/nouvelles>

EuraMaterials Leader of the project with CENTEXBEL <https://www.centexbel.be> and FEDUSTRIA

<https://www.fedustria.be/fr>

GoToS3

**RETEX**



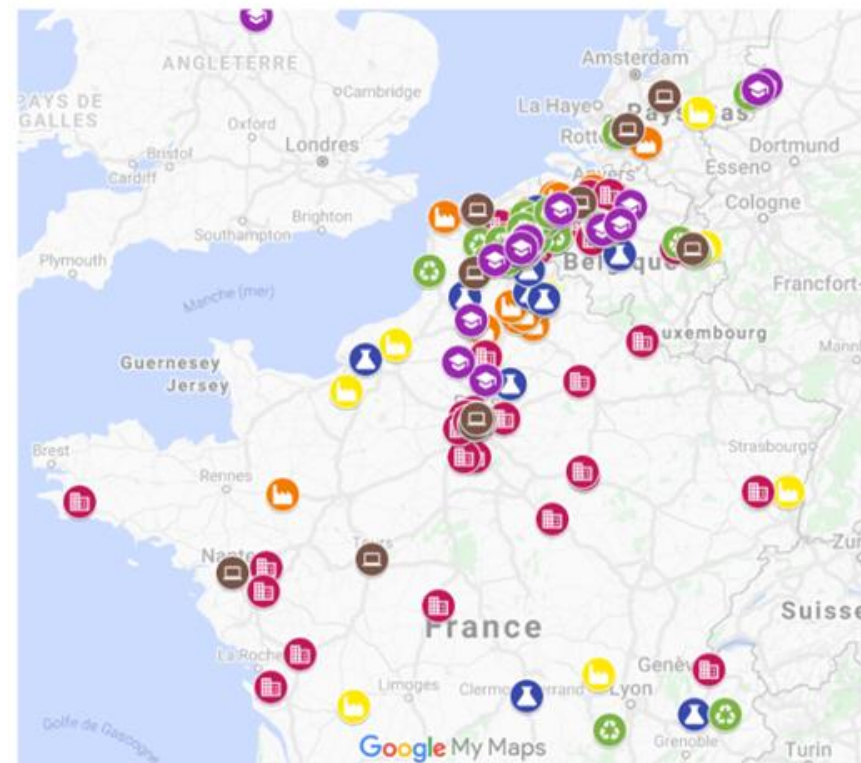
Value-chain  
Polyester/cotton



Value-chain  
Cotton



Value-chain  
Polyester



More than 400 companies sensitized in  
12 Workshops and about 150 individual  
visits and interviews



# Thermo-mechanical recycling process



GoToS3  
RETEX

Thermomechanical recycling  
of polyester: EuraMaterials  
Leader of the project with  
CENTEXBEL, its VKC platform



<https://www.dotheretex.eu/assets/uploads/site/20210312-RESULTATS-RETEX-ENGv4.pdf>

Ceti TRANSFORMATIVE  
TEXTILES

CETI is a member of  
EuraMaterials

<https://www.ceti.com/>

Recycling platform of CETI  
Mechanical and/or thermomechanical recycling of textile  
waste of all origins, artificial, synthetic or natural, to develop  
a new generation of recycled textiles.



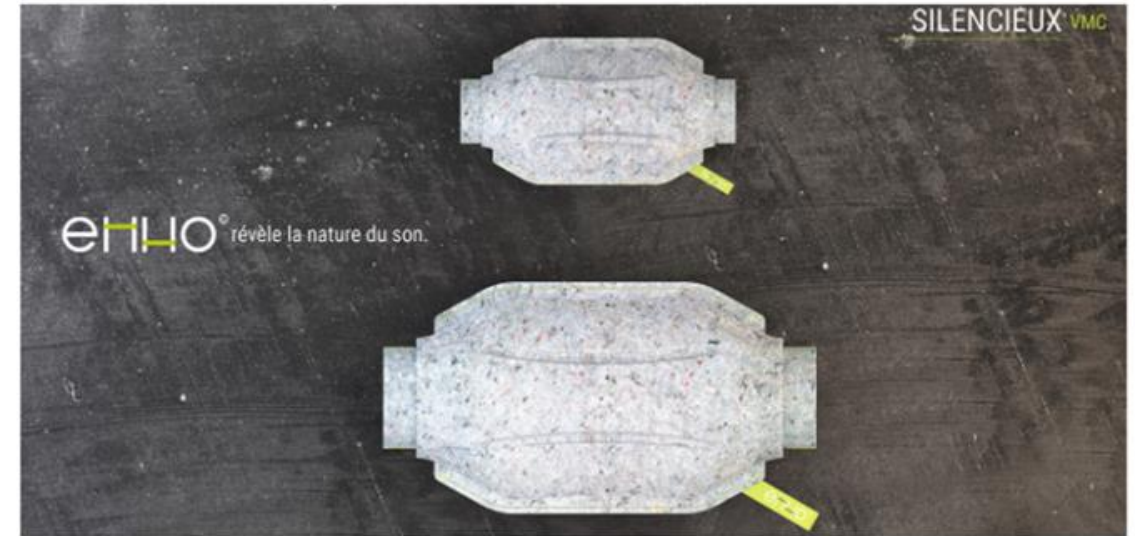
# Open loop recycling projects

## QWIET & SILENCIO



*LE RELAIS*

Tiles and silencers for controlled mechanical ventilation made of recycled textile



Founded by **Re\_fashion**

EuraMaterials supports and certifies WTX innovating projects

WTX member of EuraMaterials

<https://euramaterials.eu/projets/silencio/> <https://wtxeurope.com/>



# Open loop recycling projects

Pierreplume® and Vivaluz are supported by  
EuraMaterials within the incubator/accelerator program



## pierreplume®



<https://pierreplume.fr/products/>



## Vivaluz



Feutre recyclé blanc



Feutre recyclé multicolore



Feutre recyclé gris double face



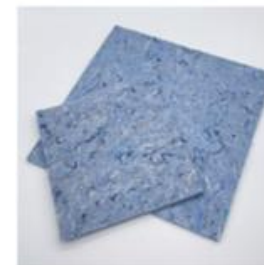
Feutre recyclé de couleur



Feutre lin 20



Feutre lin 100% recyclé



Feutre bleu recyclé jean



Matériau composite Viva

<https://www.vivaluz.fr/categorie-produit/matieres-recycles-vivaluz/>



# Chemical recycling process

## REFACT

Chemical recycling of cotton to make yarn (closed loop) - carried by INDUO with its GREENCOSE process



The diagram illustrates the Refact chemical recycling process. It features a blue background. On the left, there is a photograph of a pile of multi-colored textile waste. Above this pile is a white icon of a shopping cart. A white curved arrow points from the waste pile to a photograph of a pair of hands holding a ball of white cotton yarn. To the right of the hands is a white icon of a thumbs-up gesture. To the right of the entire diagram, there is white text on the blue background.

Refact is a revolutionary process that can handle mixed blends, multi coloured textiles and clothes'accessories without being sorted before processing.

**No other known technology is able to recycle such a huge pool post-consumer waste into textile.**



<https://www.refact-textile.com/>

EuraMaterials supports and certifies INDUO/GREENCOSE innovating projects  
INDUO® member of EuraMaterials





**Interreg**   
North-West Europe  
European Regional Development Fund

Proof-of-concept for fully **recyclable workwear** by developing technologies for **large-scale processing of PET workwear**, validated and demonstrated in a **closed chain pilot**.

<https://www.linkedin.com/in/circtex-circular-future-for-nwe-textiles-8080981b0/>

<https://www.nweurope.eu/projects/project-search/circtex-innovation-towards-a-circular-future-for-nwe-textiles/>



Total project budget € 4.049.750

ERDF € 2.429.850



# This new circular value chain would require significant capacity with 150-250 facilities

Overview of required capacity<sup>1</sup> in EU-27 and Switzerland, 2030

THIS IS A SCENARIO AND NOT A FORECAST

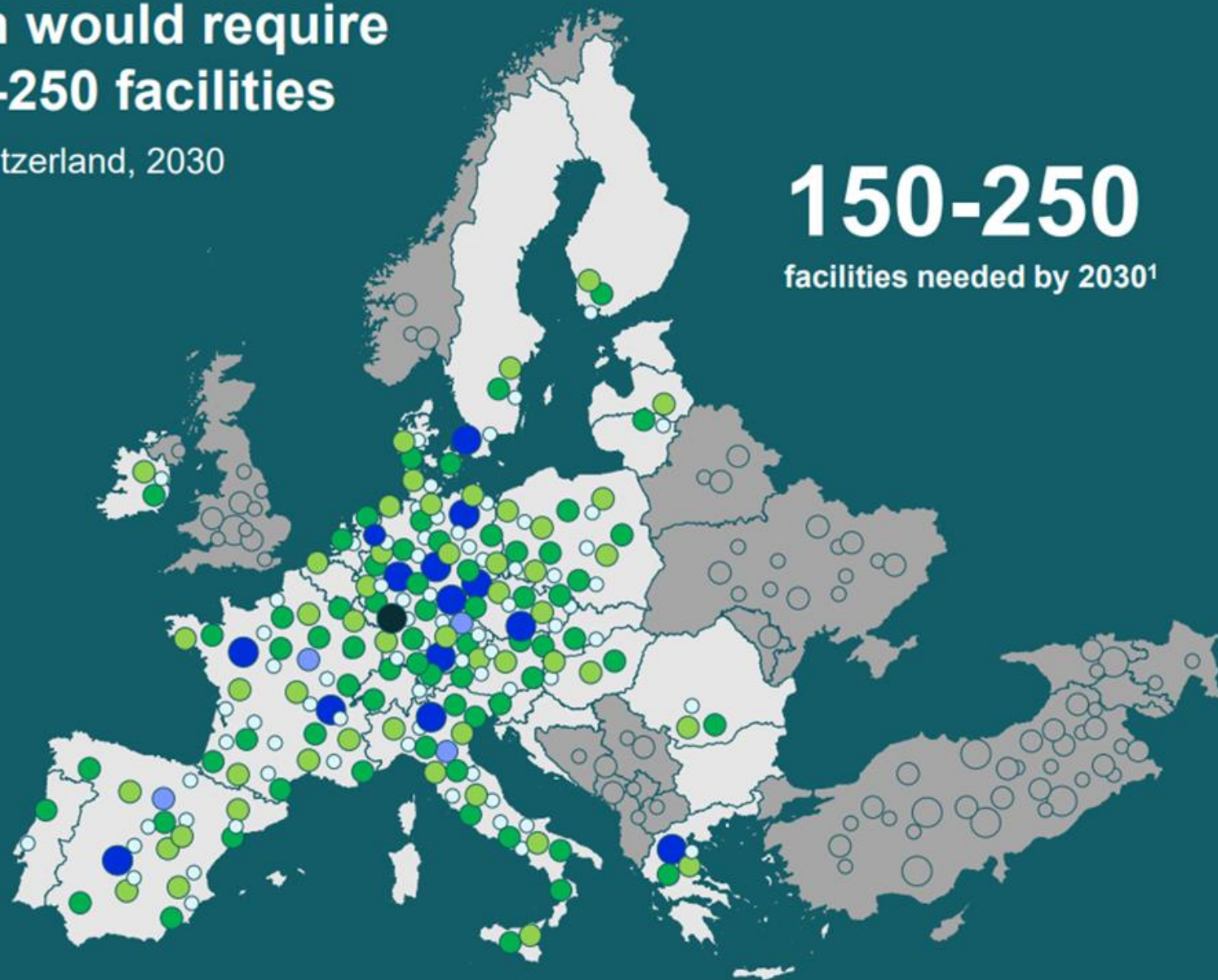
ILLUSTRATIVE LOCATIONS

**150-250**  
facilities needed by 2030<sup>1</sup>

- Sorting for re-use
- Sorting for recycling
- Mechanical recycling
- Thermo-mechanical
- Chemical recycling
- Thermo-chemical
- Illustrative facilities outside EU-27 and Switzerland

Scale, tons

- 25 000
- 50 000
- 100 000



<sup>1</sup> The project overview reflects the estimated amounts of facilities required in base case scenario where EU-27 and Switzerland reach a 50 percent collection rate and a upside scenario where 80 percent collection is reached; standardized non-integrated facilities are assumed for simplicity; Average plant sizes differ for the technologies. The assumed scales (in Ktn/year) are: Sorting (reuse) 50,000; Sorting (recycling) 50,000; Open-loop 25,000; Closed-loop traditional 25,000; Closed-loop soft 25,000; Thermo-mechanical 50,000; Chemical - cellulosic 100,000; Solvent-based 100,000; Chemical - Polyester 100,000; Thermo-chemical 100,000; For some of the value chain steps (sorting for re-use, open-loop mechanical, and closed-loop traditional mechanical) there exists some share of needed capacity already today.





## Projets implantations PET en Europe

### Chemical recycling

Mapping of new Investments in Europe



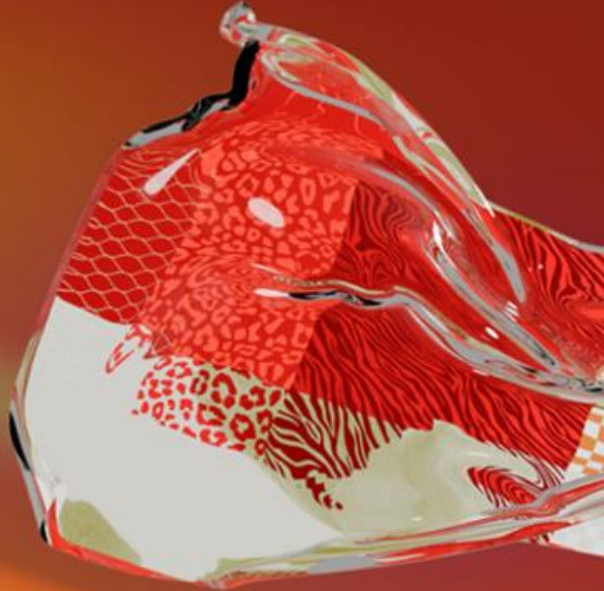
Ref. Lavoisier Circular Transition

MÉTROPOLE EUROPÉENNE DE LILLE

# Changez de mode!

Participez  
aux Trophées  
européens  
de la mode  
circulaire #3

Candidatures :  
jusqu'au 12 juillet 2024



EUROMÉTROPOLE  
EUROMETROPOL  
LILLE - MONTBELL - TOURNAI

MEL MÉTROPOLE  
EUROPÉENNE DE LILLE

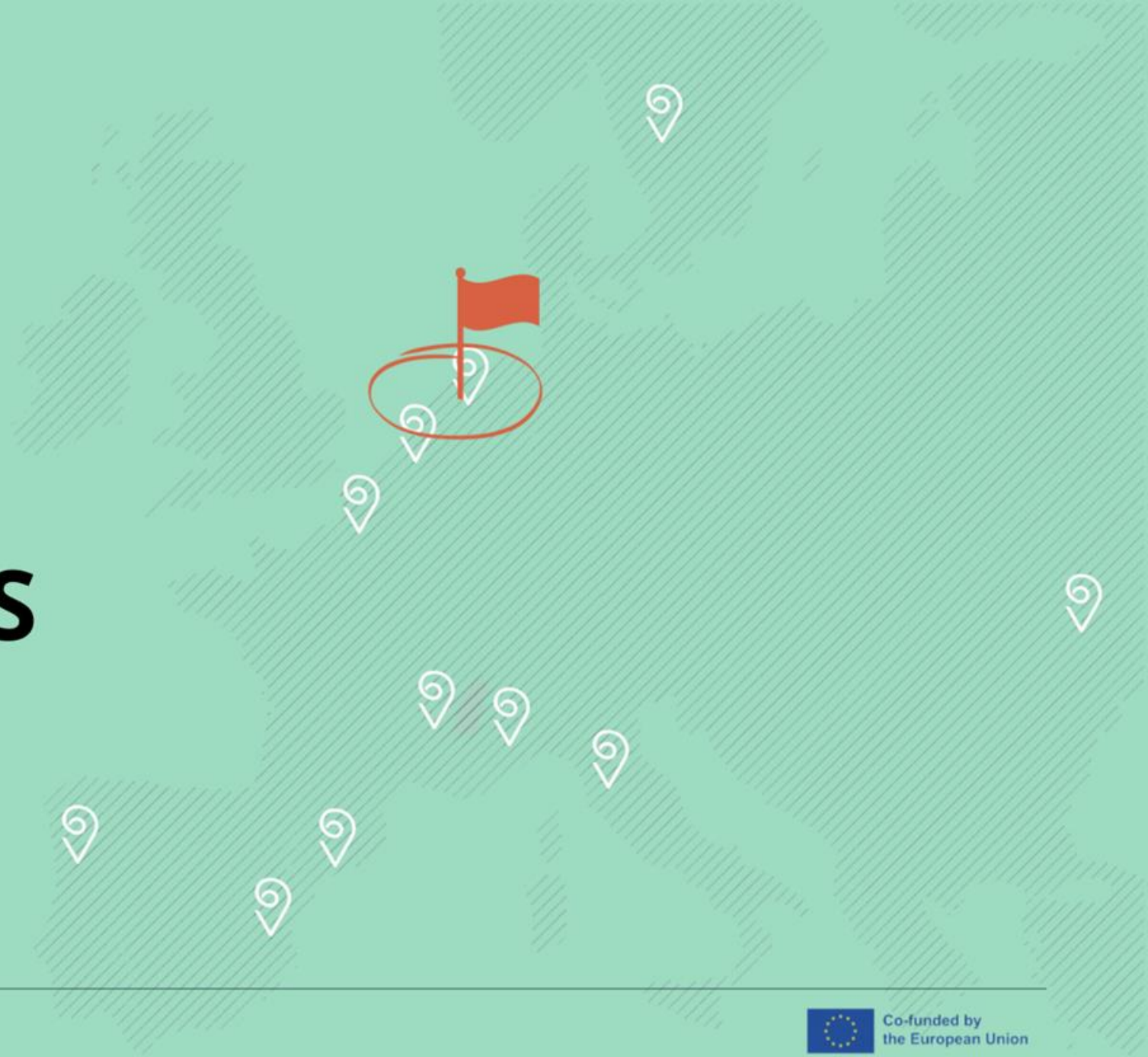
The aim of the competition is to reward innovation and business models in circular/sustainable/eco-responsible fashion. The call for entries concerns projects with products and/or services that innovate in the application of circular economy principles in the Linen, Textile and Footwear, Professional Textiles, Textile Accessories & Luggage sectors (only those incorporating textiles).

<https://modecirculaire.com/candidater/>





# EAST- NETHERLANDS





# Sustainable textile ecosystem in East-Netherlands



OOST NL

## East Netherlands Development Agency

Oost NL strengthens the economy of the provinces of Gelderland and Overijssel. We catalyse (foreign) investment, trade, innovation and growth. Oost NL is a governmental agency, under the Dutch Ministry for Economic Affairs.

**TEN, Think East NL:** With over 30 partners, Think East Netherlands is the platform in East Netherlands where we work together on innovative solutions for a healthy and sustainable future for everyone.





# Roadmap Sustainable Textiles in East-Netherlands 2023-2030

## Towards closed circular and bio-based textile value chains

Making the textile market more sustainable by fully closing circular and bio-based value chains and realizing and growing the manufacturing industry in the East Netherlands within these value chains.





## Markets

Focus = (Consumer) clothing

Stepping stone markets:

Interior textiles (upholstery fabrics and curtains)

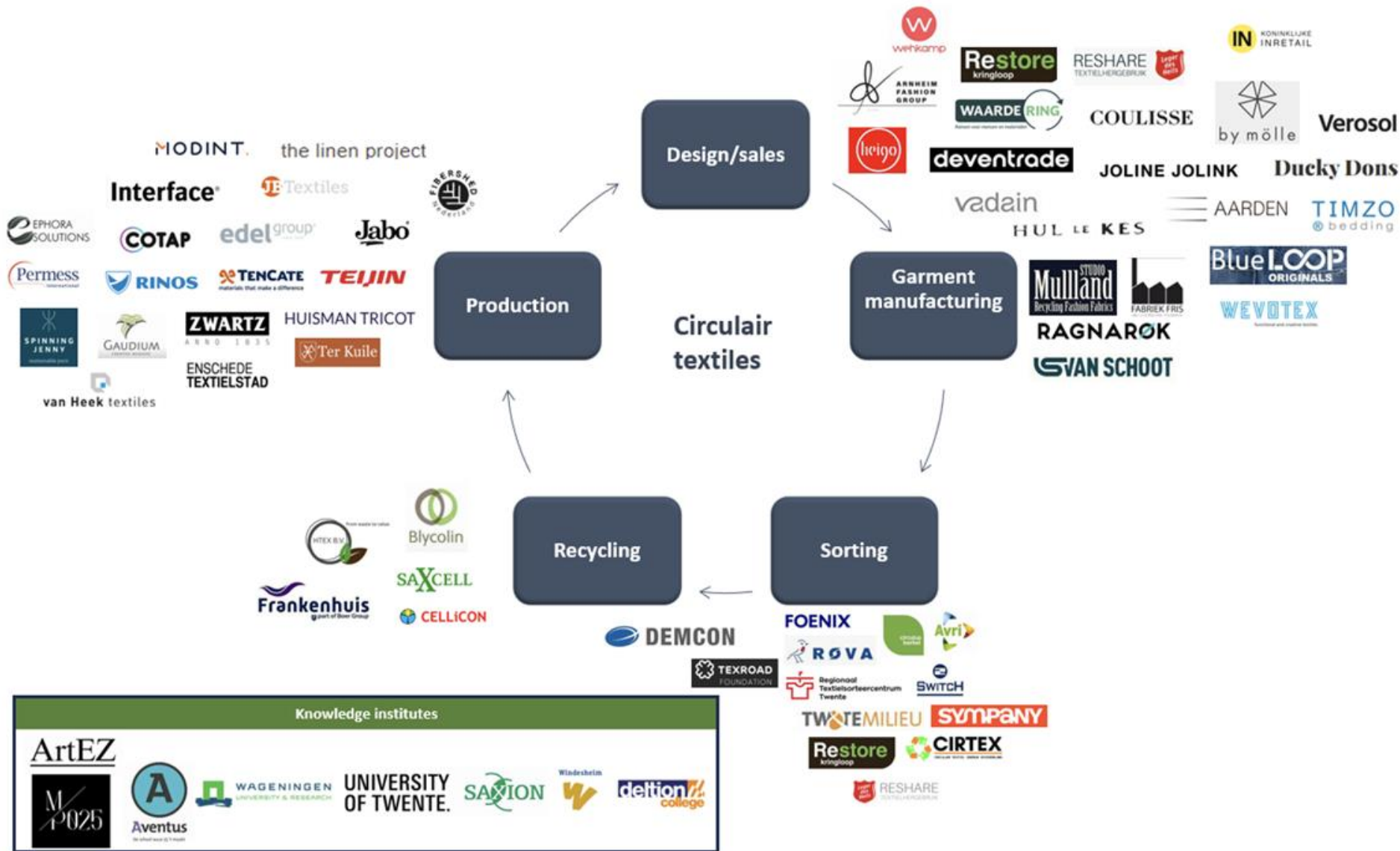
Bed linen,

Industrial clothing,

Carpets.



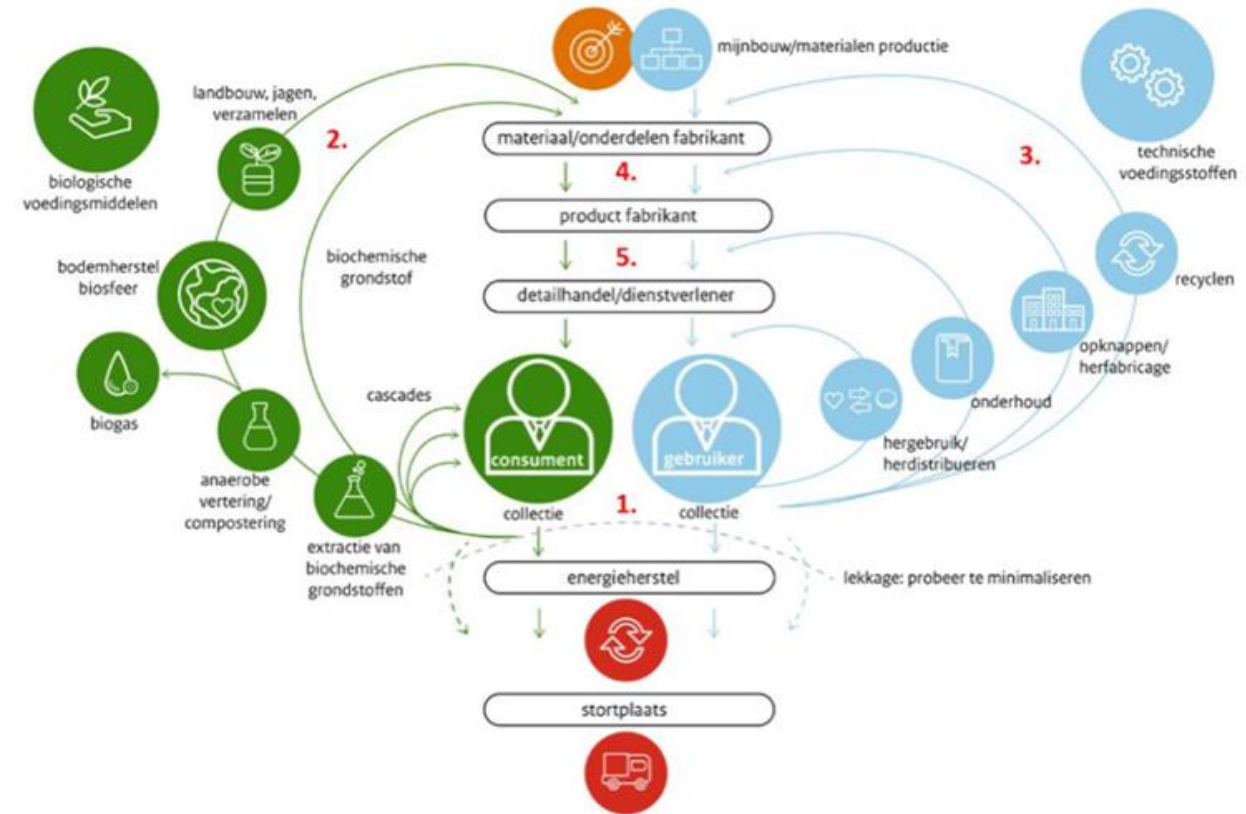
# Overview ecosystem East NL



## Links in the value chain that need attention:

1. Sorting of post-use textile waste.
2. Cultivation and extraction of natural fibres.
3. Recycling of textiles.
4. Spinning of yarns and weaving of cloth.
5. Garment manufacturing.

General: It is essential to explore investment opportunities at different stages along the value chain.





## Focus:

1. Automated sorting.
2. Unlocking and converting biobased raw materials into spinning fibre.
3. Develop and scale up recycling technologies.
4. Develop and scale up spin technologies.
5. Develop and scale up local garment manufacturing.



## Projects for Circular Textile Ecosystem

The implementation of the mentioned focus areas and scaling up efforts should be achieved through collaborative projects and support for individual companies.

- TRLs, Technology Readiness Levels.
- Ecosystem Approach:

Regional ecosystems are defined as a set of interconnected actors, factors, facilities, infrastructure, knowledge, talent, capabilities, institutions, leadership, and other conditions, within a specific regional/geographical context, where parties actively and deliberately collaborate on innovation, renewal, diversification, and thus create value.

***We want to build projects/undertake activities to address all elements in the 5 focus areas and advance from TRL 5 to 10.***



## Project overview

		Focus					Ecosystem Approach							TRL				
		Automated sorting	Unlocking and converting biobased raw materials into spinning fibre.	Develop and scale up recycling technologies.	Develop and scale up spin technologies.	Develop and scale up local garment manufacturing	Networking	Leadership	Investment	Talent	Knowledge	Intermediate services	hardware	International approach	TRL 1,2,3	TRL 4,5,6	TRL 7/8	TRL 9
Project	I3 RegioGreentex	X		X			X		X		X	X		X			X	X
	Mend The Gap		X		X		X					X	X		X	X		
	Interreg 6B CEO, circular economy office.			X			X					X		X		X	X	
	Circotrack			X			X			X	X					X		
	Transforming clothing from sorting centers into sellable/fashionable items.	X				X		X	X		X					X		
	NEWTEXECO	X		X	X	X	X			X	X				X			
	Engage4bio		X		X		X			X	X	X			X	X		



# Let's start the conversation!



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# Q&A

# Thank you

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