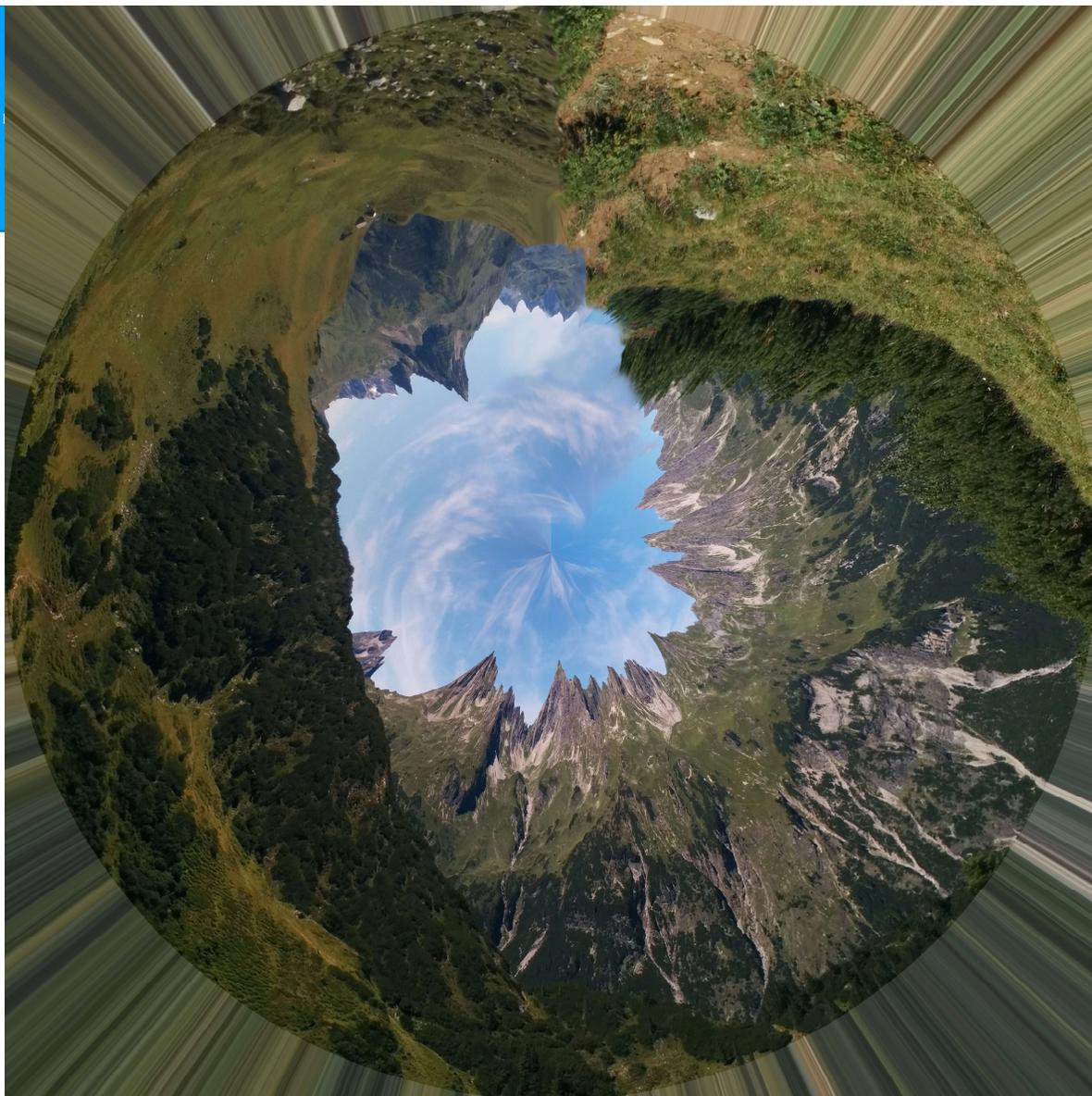


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CIRCULARITY



Accelerating Chemical & Mechanical Circularity

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Agenda

- **Accelerating Circularity**
- **Circularity = Connectedness**
- **Knowledge/Data Requirements**
- **Feedstocks**
- **Systems**
- **Business case**

TEXTILES ARE TOO GOOD TO WASTE



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Mission

To establish systems that will use the embedded value and resources in existing textiles for new products, reducing the millions of tons of textile waste annually going into landfills and thereby supporting the reduction of the industry's environmental impacts.

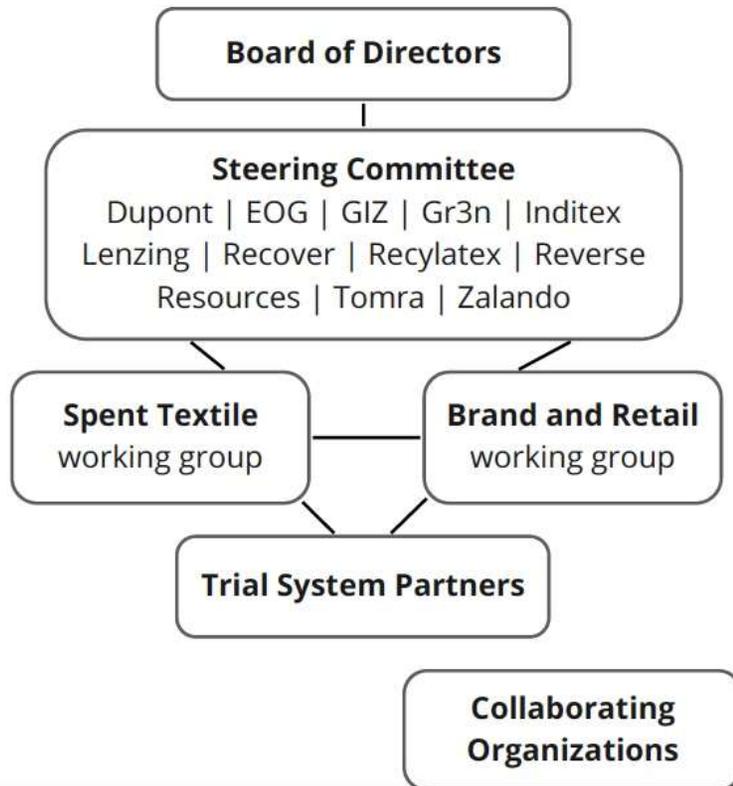
Theory of Change

The development of knowledge on missing or under-utilized supply chain links and the identification of requirements necessary to connect those links, maps can be developed that will allow the industry to choose among a multitude of paths the right direction for their individual businesses to quickly and efficiently adopt truly circular supply chains. By outlining these roadmaps to include multiple waste streams as raw material sources through waste handlers, sorters and recycling technologies that can link to the traditional textile supply chain the use of virgin resources will be displaced and textile waste will be reduced.



Circularity = Connections

Organisation



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System Trial Elements

TRIAL INPUTS

COLLECTION TYPES

Commercial Bin
Contract Commercial/
Industrial
Curbside
Drop-off
Event-based
Mail-in
Residential Bin
Take-back

SORTING RANGES

Whole garments
Mixed color
Mixed construction
Mixed fibers
Knit constructions
Rolled goods
Sorted colors
Yarn waste

SORTING REQUIREMENTS

Sort to grade
Sort to rFeedstocks
Feedstock aggregation

COLOR SORTING GRADES

Mixed color
Dark colors
Light color
White
PC by color group
PI by color group

PREPROCESSING REQUIREMENTS

Trim removal
Right sizing
Shredding
Disassembly
Sanitation
Testing
Feedstock aggregation

FEEDSTOCK TYPES

Post-consumer
Cotton
Polyester
Polyester/Cotton Blends
Polyester/Cotton Blends with <10% other fibers
PET Bottles
Post Industrial
Cotton
Polyester
Polyester/Cotton Blends
Virgin
Cotton
Wood Pulp

RECYCLER TYPES

Chemical Cellulosic
Chemical PET
Mechanical Cotton
Mechanical Poly
Mechanical PET
Semi-Chemical Cellulose

TRIAL OUTPUTS

RECYCLED OUTPUTS

Refibra™
Cellulose Pulp
Staple Fiber
Filament Fiber
PET Monomer
PET Chip
Yarn
Fabric

TEXTILE TYPES

Knits
Jersey
Fleece
Pique
Wovens
Denim
Canvas
Terry

PRODUCT TYPES

T-shirts
Jeans
Fleece
Home Textiles

FIBER TYPES

Recycled
rCotton
rPolyester
rPET Chip
Refibra™
Virgin
Cotton
Polyester
Elastane
Dupont Sorona®
Tencel™
Naia Renew™

YARNS

Knitting
Naia Renew™/Polyester
20/1 Cotton
20/1 Cotton/Polyester
20/1 Cotton/Polyester/Refibra™
150D/78F Polyester
Weaving
8/1 Cotton
10/1 Cotton
10/1 Cotton/Polyester
10/1 Cotton/Polyester/Refibra™

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Recycler Matrices

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Mechanical Recycling Matrix

Feedstock Fibers	Acceptable for:		Can include:						Must Consider:				
	Textile-to-Textile	Wipers, Shoddy & Insulation	Elastane	Trims		Pigments/ Prints	Coatings/ Films		Chemistry/ Dyes	Fabric Construction	Color	Full Garments v. Parts	Fabric Scraps
				Plastic	Metal		PET	Other					
100% Cotton	Y	Y	N	N	N	N	N	N	Y	Y	Y	Y	Y
98% Cotton/ 2% Elastane	Y	Y	Y	N	N	N	N	N	Y	Y	Y	Y	Y
90% Cotton/ 10% Other	Y	Y	Y	N	N	N	N	N	Y	Y	Y	Y	Y
60% Cotton/ 40% Polyester	N	Y	N	N	N	N	N	N	Y	Y	Y	Y	Y
60% Cotton/ 40% Other	N	Y	Y	N	N	N	N	N	Y	Y	Y	Y	Y
100% Polyester	Y	Y	N	N	N	N	Y	N	Y	Y	Y	Y	Y
98% Polyester/ 2% Elastane	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	Y	Y
80% Polyester/ 20% Other	N	Y	N	N	N	N	N	N	N	N	N	N	N
60% Polyester/ 40% Cotton	N	Y	N	N	N	N	N	N	N	N	N	N	N
60% Polyester/ 40% Other	N	Y	N	N	N	N	N	N	N	N	N	N	N
100% Viscose	?	?	?	?	?	?	?	?	?	?	?	?	?
60% Viscose/ 40% Other	?	?	?	?	?	?	?	?	?	?	?	?	?

■ Textile to Textile Recycling ■ Wiper/Shoddy

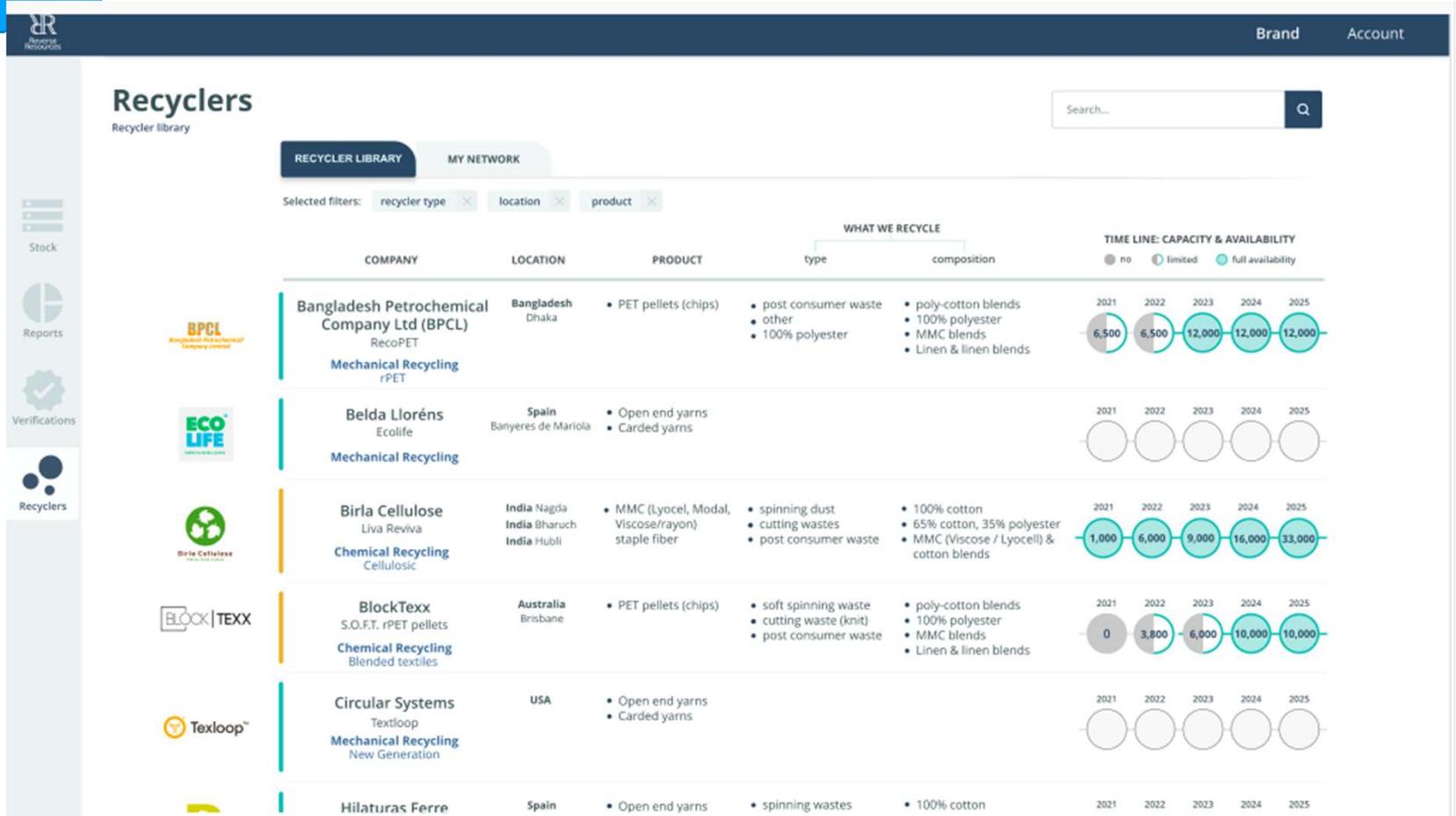
Chemical Recycling Matrix

Feedstock Fibers	Can Include:						Must Consider:					
	Elastane	Trim		Pigment/ Prints	Coatings/Films		Chemistry/ Dyes	Fabric Construction	Color	White	Full Garments v. Parts	Fabric Scraps
		Plastic	Metal		PET	Other						
							Y	Y				
100% Cotton	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
98% Cotton/ 2% Elastane	Y	N	N	N	N	N	Y	Y	Y	Y	Y	Y
90% Cotton/ 10% Other	Y	N	N	N	N	N	Y	N	N	N	Y	Y
60% Cotton/ 40% Polyester	N	Y	N	N	Y	N	Y	N	N	N	Y	Y
60% Cotton/ 40% Other	Y	Y	N	N	Y	N	Y	N	N	N	Y	Y
100% Polyester	N	N	N	N	Y	N	Y	N	N	N	Y	Y
98% Polyester/ 2% Elastane	Y	N	N	N	Y	N	Y	N	N	N	Y	Y
80% Polyester/ 20% Other	Y	N	N	N	Y	N	Y	N	N	N	Y	Y
60% Polyester/ 40% Cotton	N	Y	N	N	Y	N	Y	N	N	N	Y	Y
60% Polyester/ 40% Other	Y	Y	N	N	Y	N	Y	N	N	N	Y	Y
100% Viscose	?	?	?	?	?	?	?	?	?	?	?	?
60% Viscose/ 40% Other	?	?	?	?	?	?	?	?	?	?	?	?
Other												



Reverse Resources

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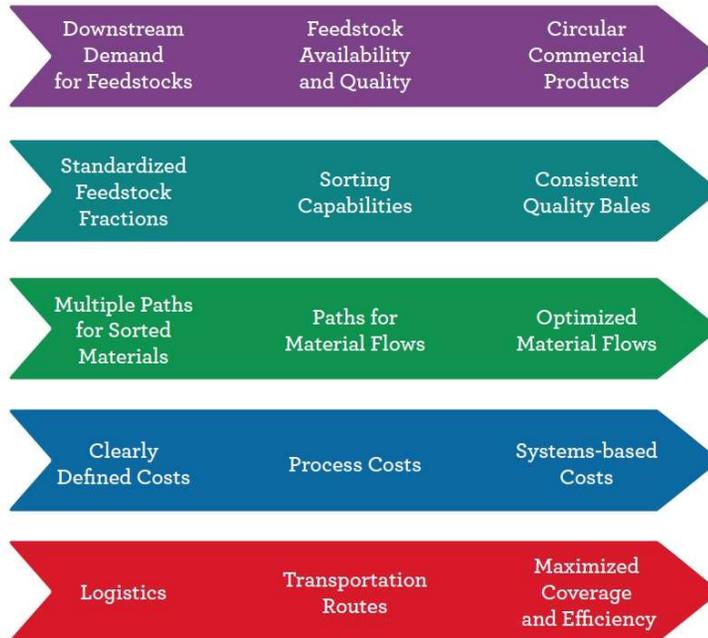


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Envisioning Circular Systems

NEEDS  TRIAL DEMONSTRATES  FUTURE



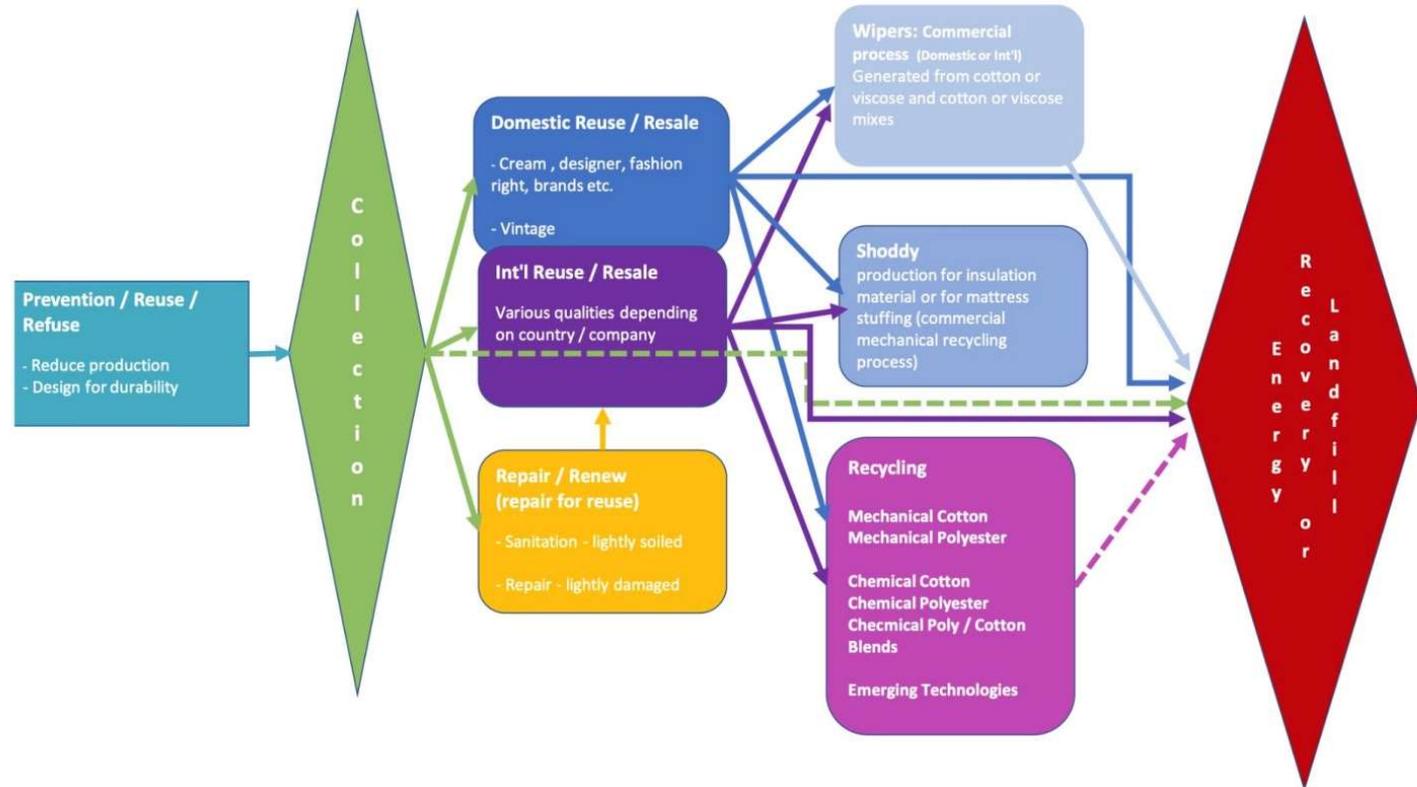
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Spent Textile Use Case Hierarchy



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Business Models

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Economics

- What.....
 - are current business models?
 - needs to change?
 - are the considerations?
- Who will participate?

Environmental

- What's included.....
 - GHG?
 - Water?
 - Chemicals?
- How to measure?

Policy

- What required.....
 - legislation?
 - local/global alliances?
 - social compliance?
- Who will advocate?

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Collaboration = Action

ACP has done an incredible job bringing key stakeholders in the global fashion landscape together for the first time. These conversations have resulted in the joining, in a very real and practical sense, the chains that will make the circular economy. We can see fantastic examples for scalability in circularity in fashion already being put in motion....action is what our industry needs and action is what ACP is doing.

.....*Steven Bethel,
President & Partner Bank & Vogue*

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PUTTING
TEXTILES
TO GOOD
USE



JOIN US

<https://www.acceleratingcircularity.org/stakeholder-registry>