

re:newcell

We make fashion sustainable

Used textiles: waste or value?

Tallinn, 12 December 2018



11.21.18

Holiday guilt? Sweden's most popular gift will make it even worse



[Photo: courtesy of HUI Research]

Trendsetters and consumers demand sustainability

+47%

increase in searches for "sustainable fashion" on Lyst in 2018

88%

think it is important that fashion brands tackle environmental protection¹

Business leaders are putting sustainability at the core



Politicians are taking a closer look at waste



Leading brands commit to circular materials

Circular Fashion System Commitment

94
SIGNATORIES

206
TARGETS SET

<https://www.globalfashionagenda.com/commitment>

Examples

ASOS
discover fashion online

"Each year from 2018 - 2020 we will publish external targets for increasing postconsumer recycled textile materials in our products whilst eradicating those that cannot be cycled. We will report on our progress and continue this initiative past 2020."

Gap Inc.

"By 2020, we will have identified the most promising recycling technologies for postconsumer materials across multiple product categories, and will start scaling them up in our supply chain."

H&M

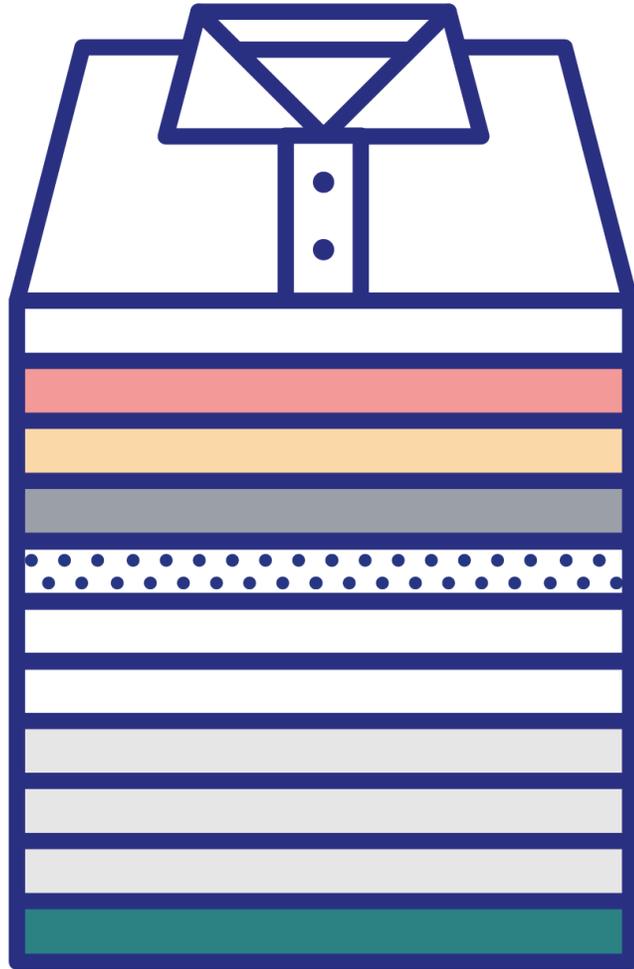
"By 2030 we will use only recycled or other sustainably sourced materials"

INDITEX

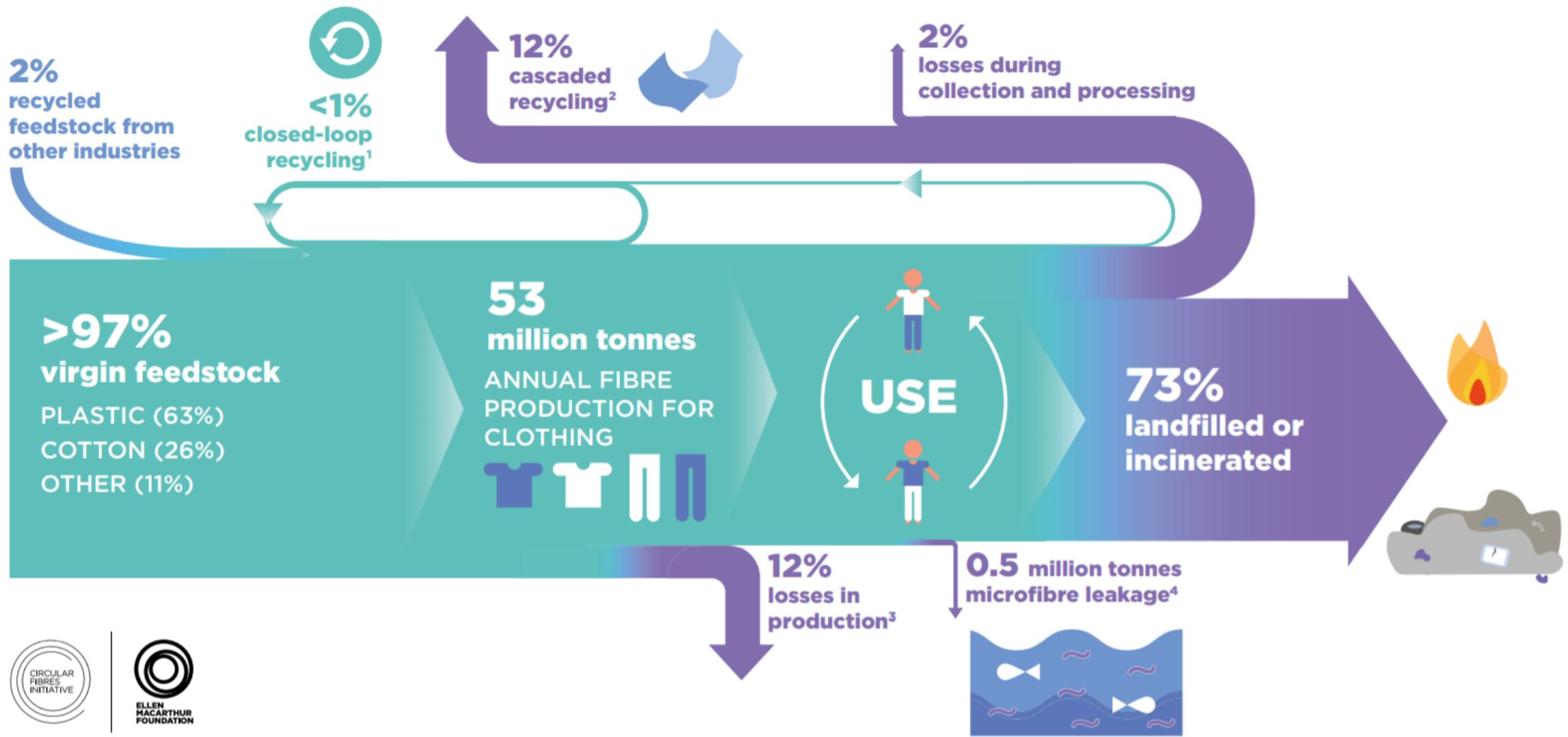
"At Inditex, we want to close the loop and move towards a circular economy – developing a complete and efficient life cycle for our products, in which nothing goes to waste."

K E R I N G


"By 2020, we will have identified the most promising pre and post consumer raw material recycling technologies for luxury and will start scaling them up in the supply chain."



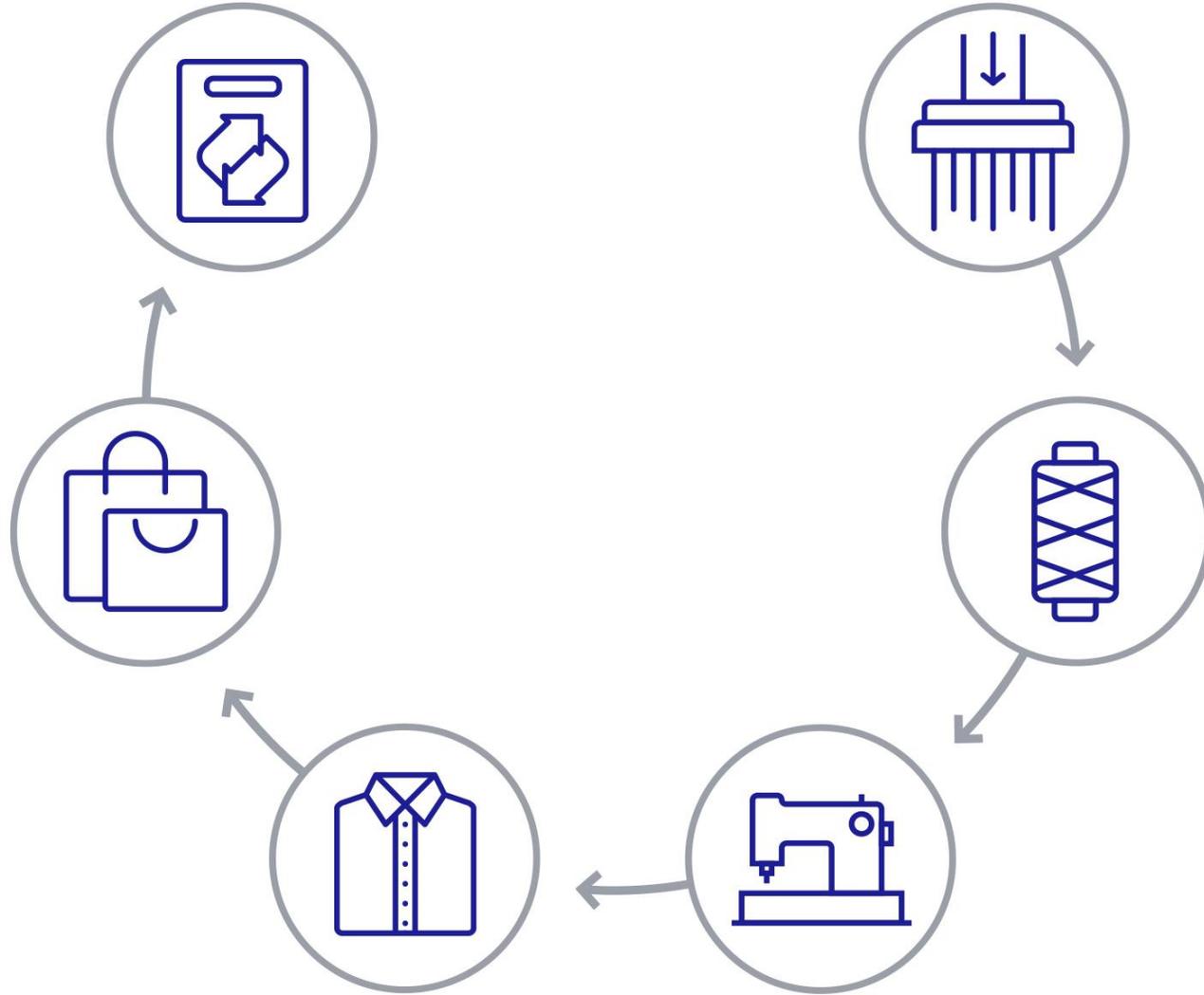
3 out of 5 garments are discarded within a year



← 1%

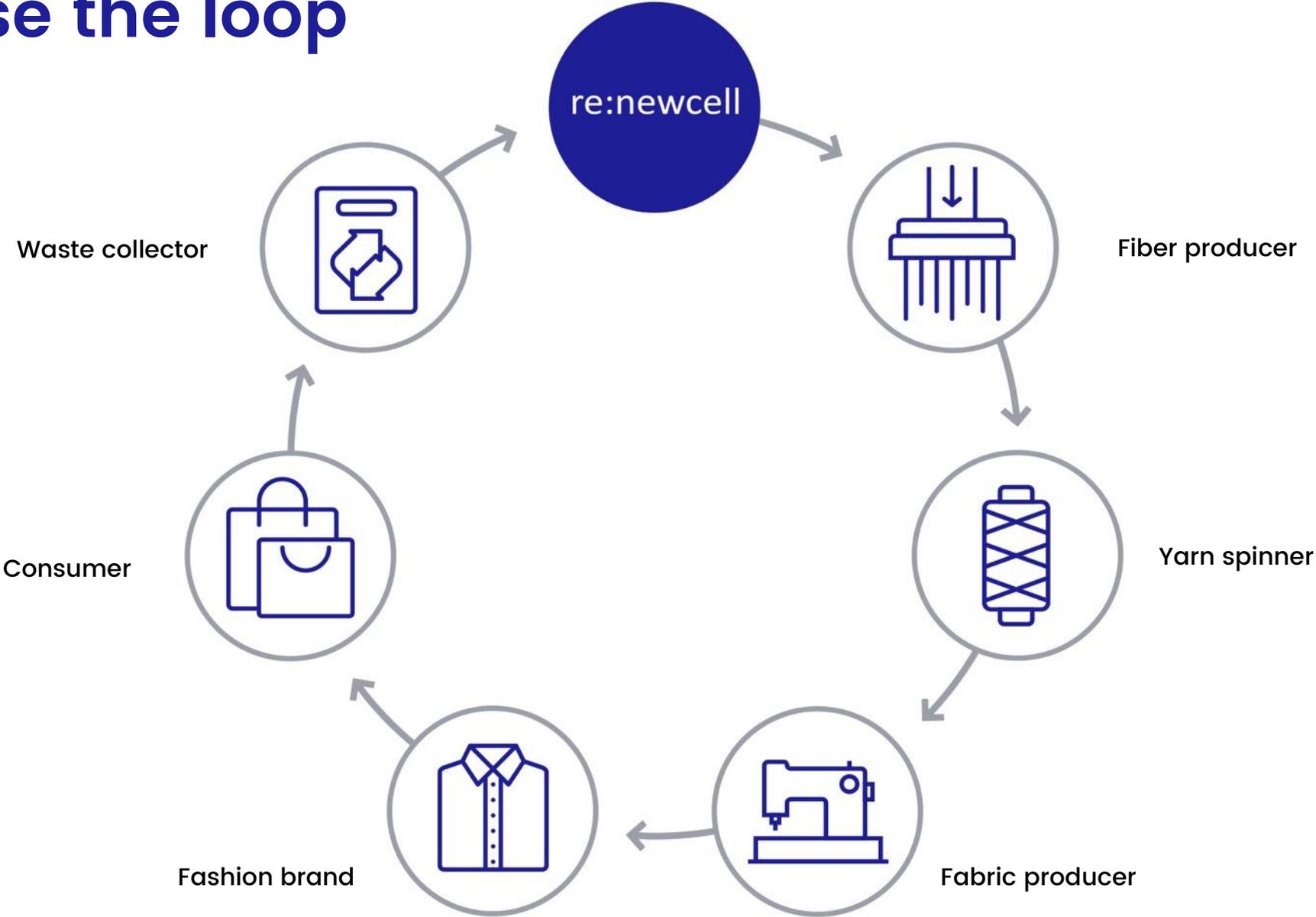


Something is missing...

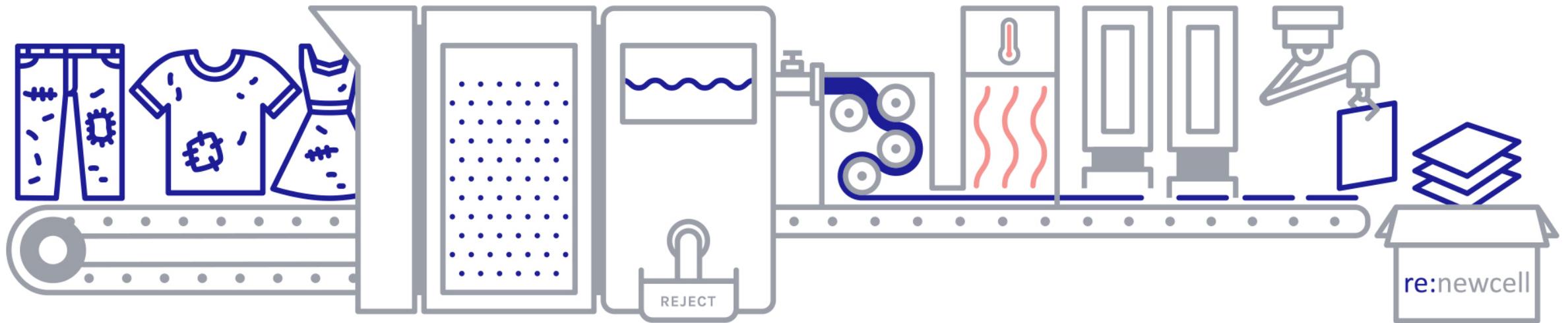




We close the loop



Our process



1. We receive textiles with high cellulosic content (cotton and viscose).
2. The textiles are shredded, de-buttoned, de-zipped, de-colored and turned into a slurry.
3. Contaminants and other non-cellulosic content are separated from the slurry.
4. The slurry is dried to produce a pure, natural re:newcell pulp, which is packaged into bales and fed into the textile production cycle.

Our Kristinehamn plant

- 7 000 metric tons
- 25 employees
- Research & development

re:newcell

re:newcell Pulp

- Circular (textile to textile recycling)
- Biodegradable (pure cellulose)
- High quality (top fiber properties)
- Scalable (first plant built)



Upcycling can improve fiber quality

Fiber made from re:newcell pulp performs better than lyocell in several dimensions.

Staple fiber properties

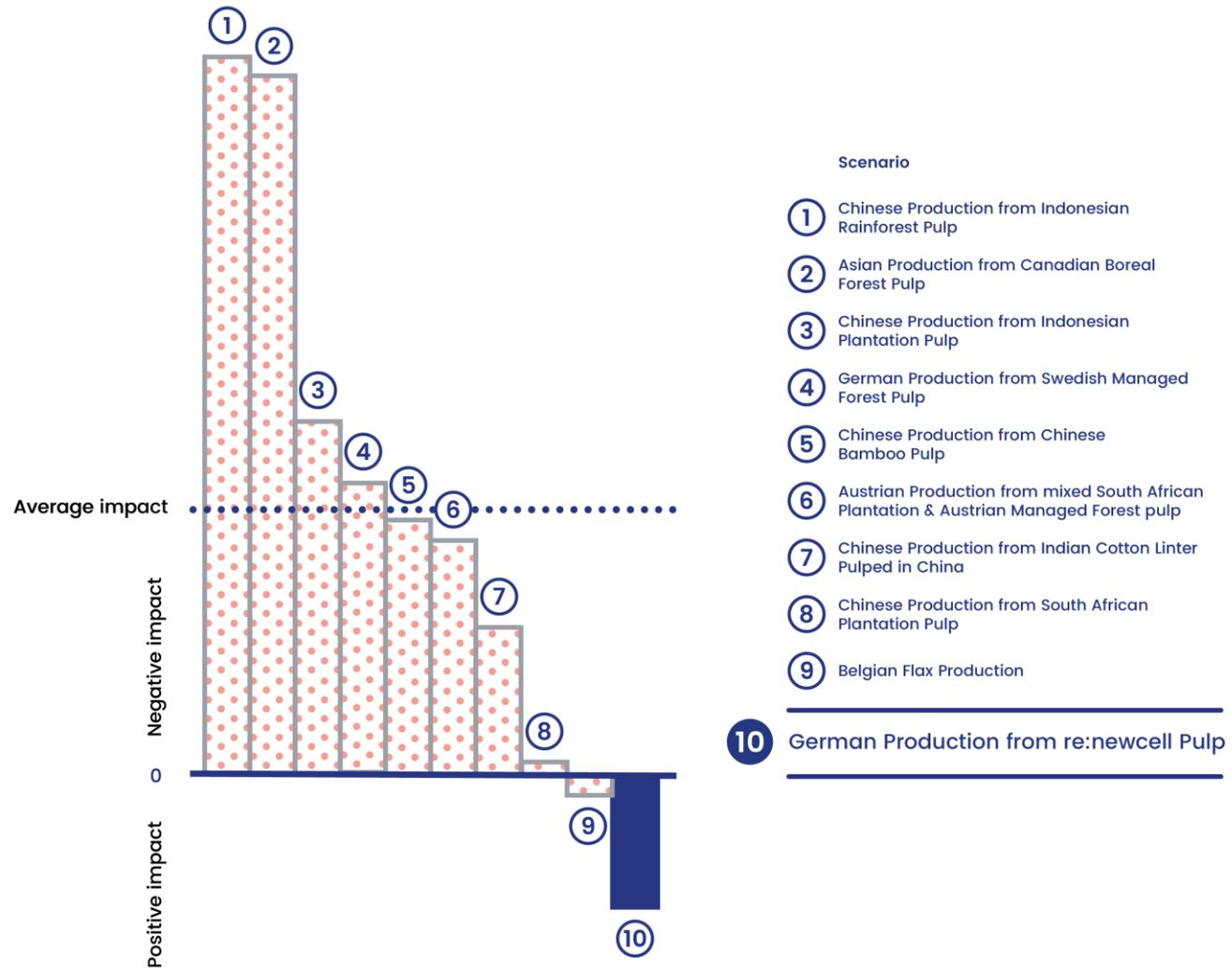
	re:newcell pulp	Birch/ re:newcell mix	Lyocell market leader reference
Fineness [dtex]	1,65	1,65	1,32
Tenacity, dry [cN/tex]	46,9	54,7	39,9
Elong at break [%]	11,3	13,4	13,4
E-modulus [N/tex]	8,3	10,6	7,0

Björquist S, Aronsson J, Henriksson G and Persson A. Textile qualities of regenerated cellulose fibers from cotton waste pulp. *Textile Research Journal* 2017

<https://doi.org/10.1177/0040517517723021>

...and reverse the climate damage

Fibers made from re:newcell pulp have a substantial **positive** net global climate change impact.

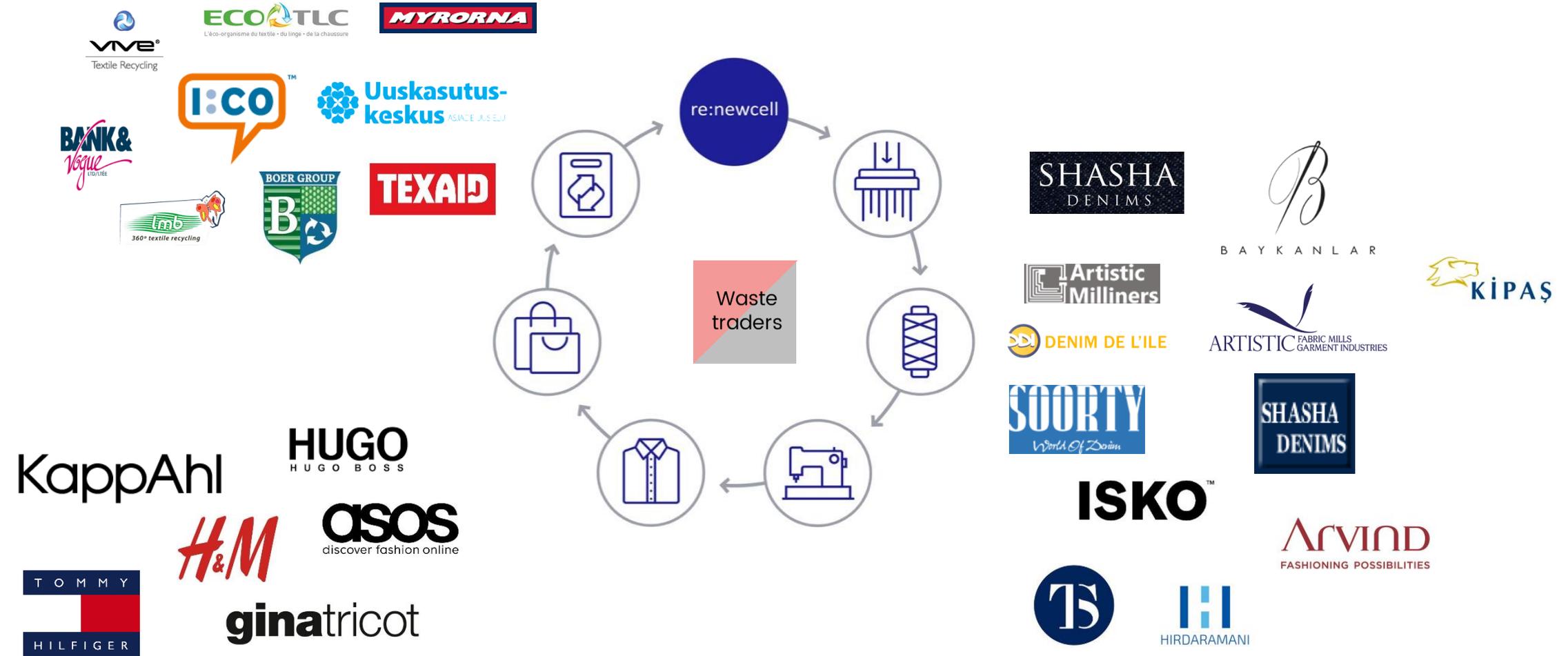


The chart shows net global climate change impact in ten different fiber production scenarios

Source: SCS Global Services Report

”Life Cycle Assessment Comparing Ten Sources of Manmade Cellulose Fiber”

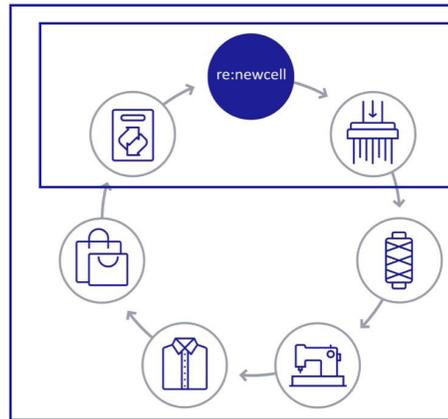
Generic sourcing landscape



Different forms of cooperation

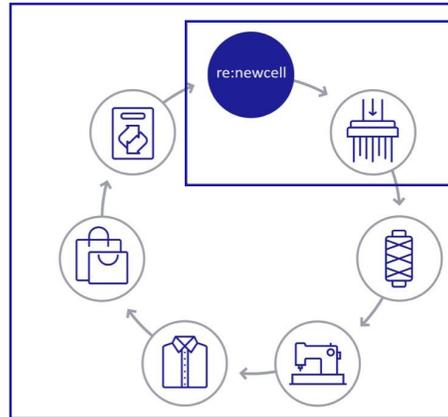
Forms of cooperation

1. Closed loop partnership
2. Open loop partnership
3. Recycling partnership



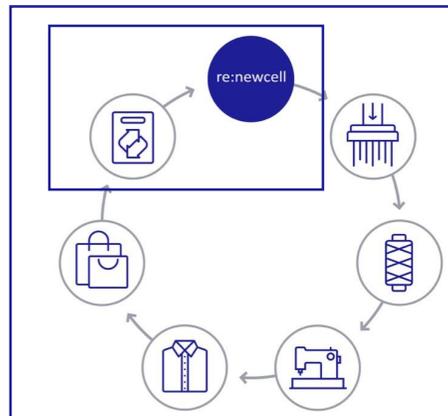
1. Closed loop partnership

Customer tailored loop where the fashion brand has a take back program and can supply pre- and/or post-consumer cotton textile waste. Re:newcell upcycles the textile material into dissolving pulp, which can be turned into fibers through selected fiber spinners. These fibers are then supplied to yarn, textile and clothes manufacturers through the brand's preferred value chain. Re:newcell supplies the brand with relevant LCA or footprint data, which can be used for internal and external purposes. A truly circular approach.



2. Open loop partnership

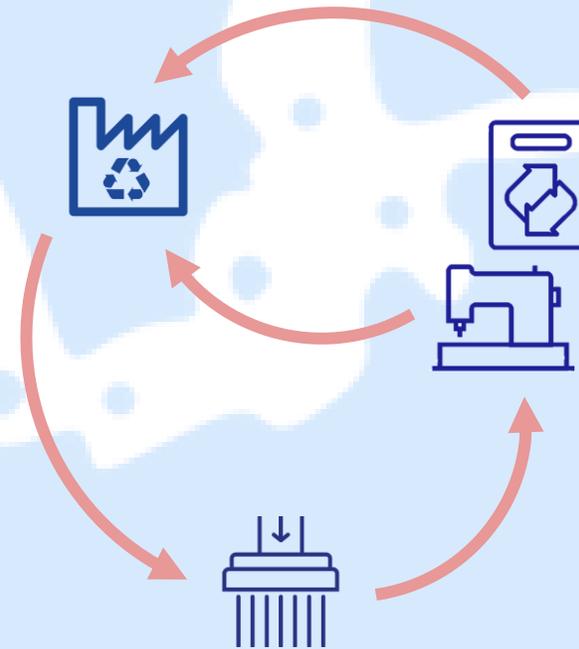
A circular approach where the fashion brand relies on textile waste coming from re:newcell's other qualified sources. Re:newcell upcycles the textile waste into dissolving pulp, which can be turned fibers through fiber spinners. These fibers are then supplied to yarn, textile and clothes manufacturers through the brand's preferred value chain. Re:newcell supplies the brand with relevant LCA or footprint data, which can be used for internal and external purposes. Creating a circular collection.



3. Recycling partnership

Re:newcell offers a premium upcycling solution with outstanding sustainability credentials. Pre and/or post-consumer cotton textile waste can be sent to re:newcell, who then upcycles the textile material into dissolving pulp with a low impact environmental footprint. The supplier of the incoming waste receives relevant credentials and certificates, which can be used for internal and external purposes. Creating a circular flow.

A Northern European loop for circular fashion?



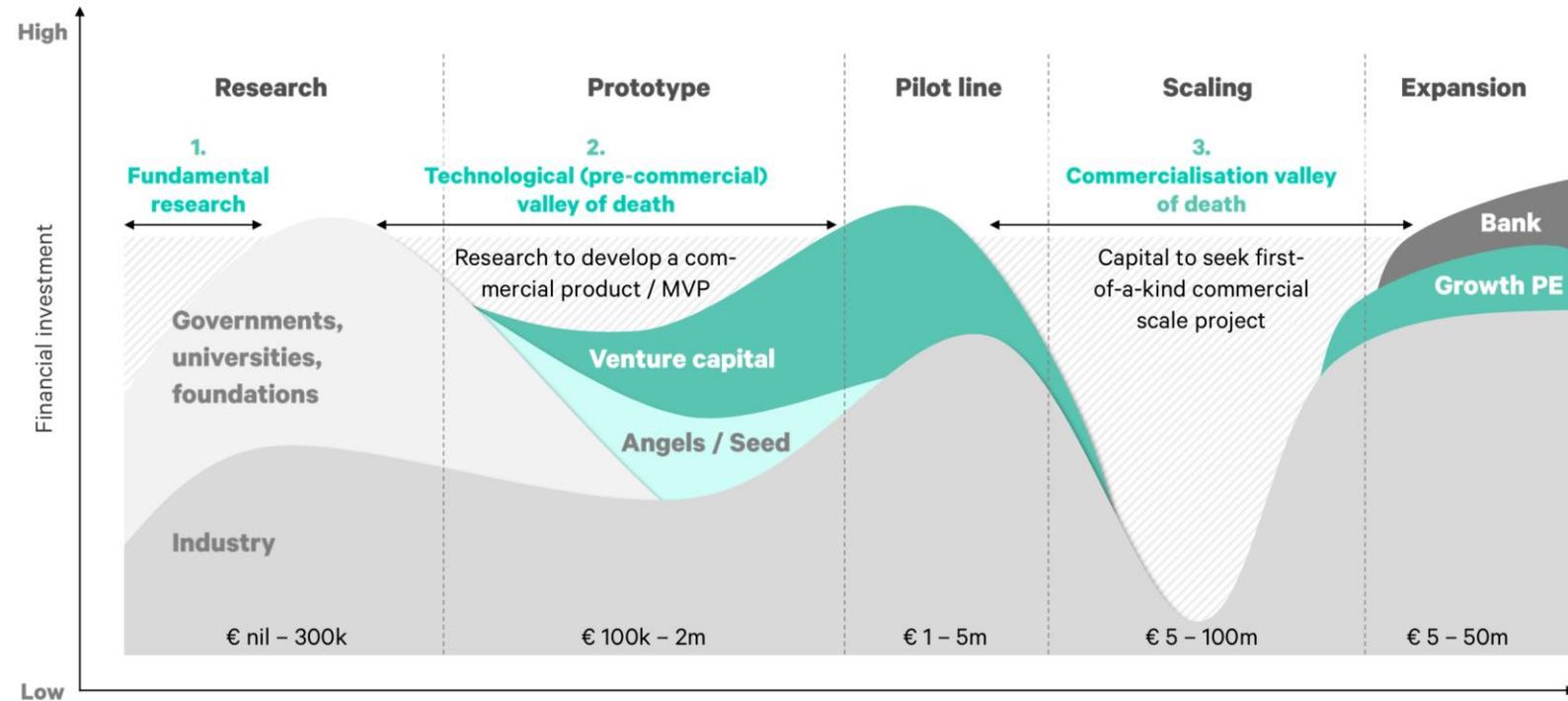
Challenge: Consistency

The supply of waste is heterogeneous by definition, while fiber producers value consistency above everything else.



Challenge: Finance

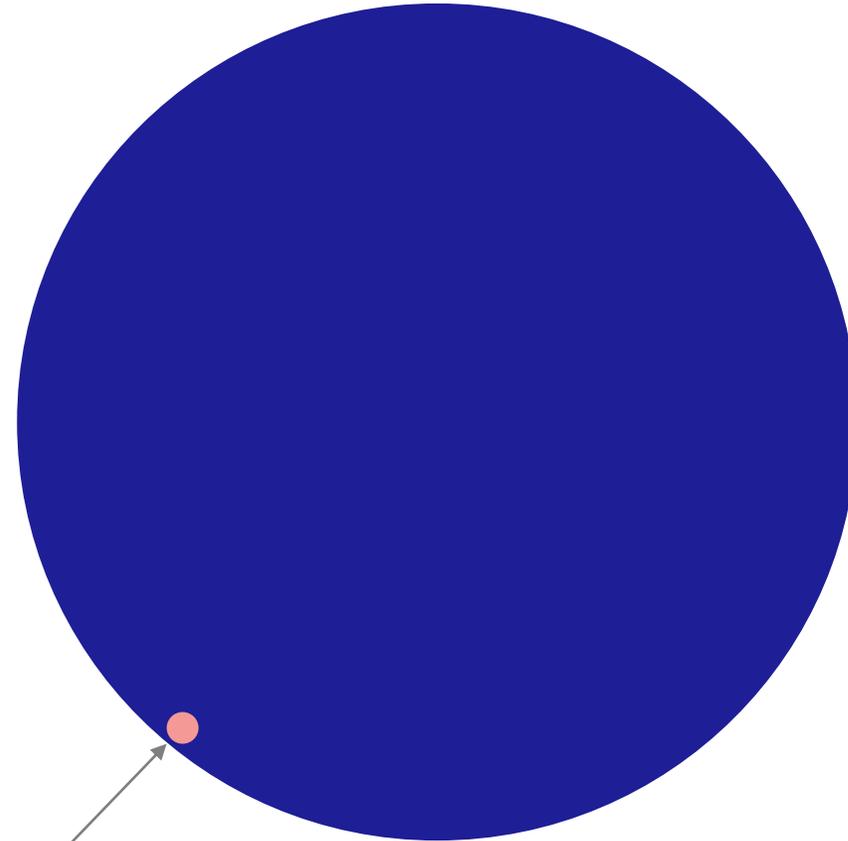
In Europe, investment in scaling is not as available as in the US or China. Building and scaling this kind of innovation is capital intensive and requires a long financial runway.



Challenge: Volume

With a small production capacity, fiber spinners can be hesitant to accept a novel feedstock into large production lines.

Fiber spinner demand



Kristinehamn plant capacity

Scaling up



North America



Europe



Middle East



South Asia



East Asia



South East Asia

Can we have your jeans, please?

Initially we prefer to recycle cotton, especially denim jeans. They are:

- Easy to sort (*everyone can spot a pair of blue jeans*).
- They usually are close to 100% cotton.





**Recycling clothes
finally works.**