Circular Textiles Infrastructure

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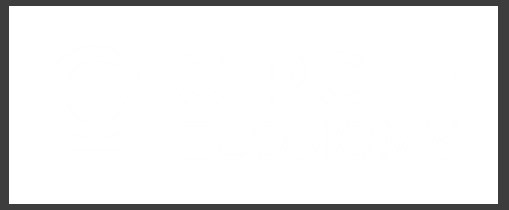
Project Manager - Circle Economy
07 June 2017



PRACTICAL, SCALABLE

Circular Textiles

A Circular Textiles Industry is a **system where products are** consistently made, used, collected and **reintroduced into the supply chain** as raw materials.

This system **effectively cycles textile** products, fabrics and fibers through multiple, connected loops **within and across industries.**

NWE

Europe + US

Annual Tonnes Textile Excess

Sources: EPA, Eurostat, Friends of the Earth report

Recycle 1 KG textile and save

Source: Bureau of International Recycling

Recycle all PCT excess in NWE

Sources: Bureau of International Recycling, EPA, Eurostat, Friends of the Earth report

Reaching the Limit

By 2030…

- World population expected to exceed **8.5 billion people**

- Global garment production to **increase by 63%**

Sources: Boston Consulting Group / Global Fashion Agenda

TAKE MAKE DISPOSE

Increased Focus

- **2013** - Rana Plaza, 1138 killed
- **2015** – UN's Sustainable Development Goals (SDGs)
- **2017** - European Commission Sustainable Garment Document

Sources: European Commission, Ecotextile News

Challenges

To Circularity

- Disconnected Efforts
- Lack of Infrastructure

© National Railway Museum, UK

HOW to Accelerate Circular Textiles

Develop

Develop a circular infrastructure fiber to fiber or ”High Value” recycling technologies can plug into.

Collaborate

Co-create and share insights and industry statistics that will lead to more profitable recycling.

BUY

Buy recycled textiles to increase demand.

Take Back

AWESOME! …Now what?

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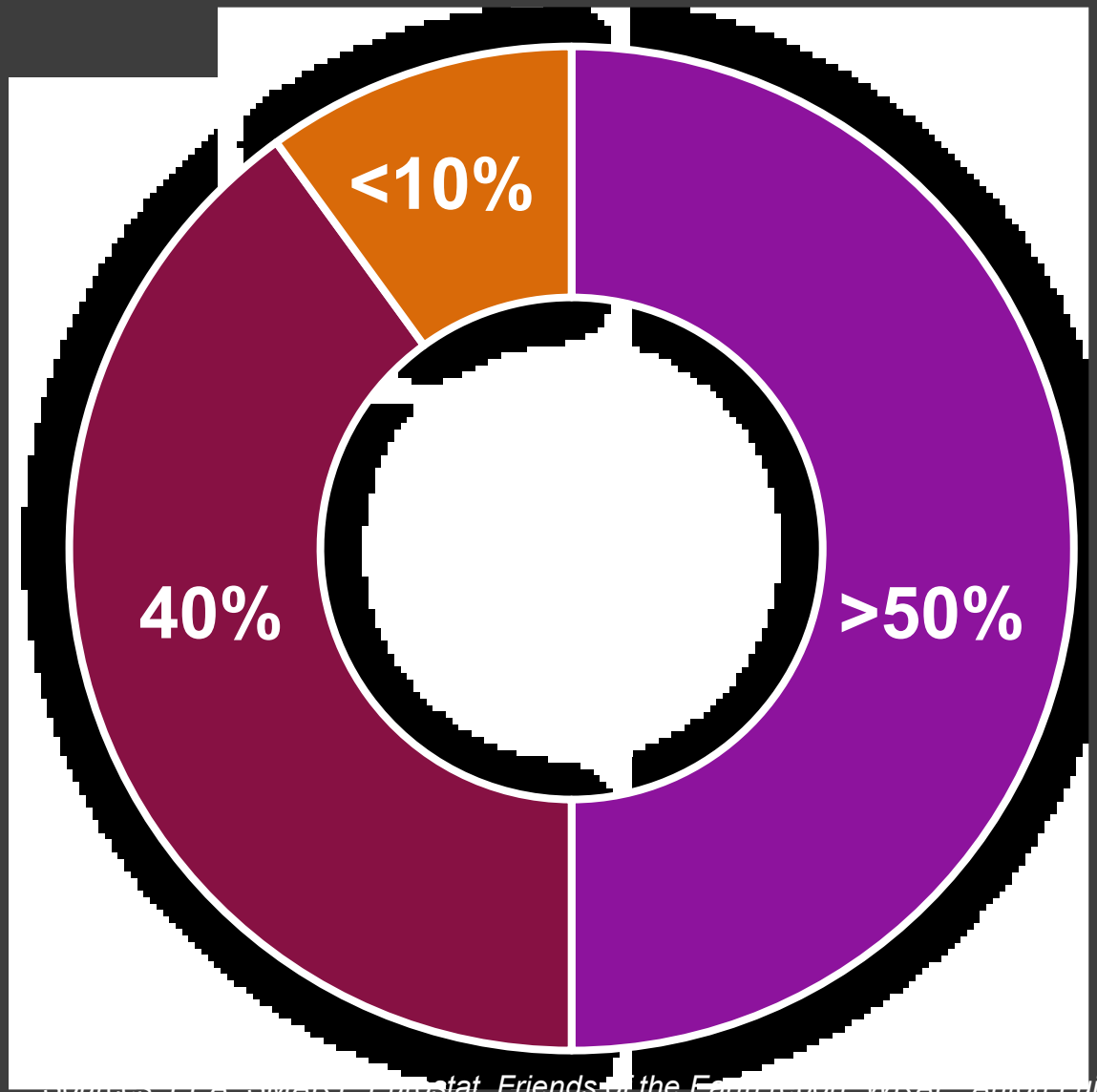
What happens to them?



Sources: EPA, SMART, Eurostat, Friends of the Earth report, WRAP, Anton Eaike

Rough Estimate for US + EU

Reusable

Downcycled or recycled*

Landfill or incineration

**Widely agreed the total % of high value recycling is very small.*

Take Back

Today's System Includes:

- Collection + sorting
- Multiple end markets for the rewearables
- Limited end markets for downcycling + recycling

Take Back

Today's System Lacks:

- Precise sorting for high value recycling feedstocks
- Efficient feedstock sourcing for high value recyclers
- Strong end markets for recycled textiles

Take Back

Today's System Relies On:

- Resale of rewearable items
  - *Without this, it is not profitable*

Take Back

Changing Ratios:

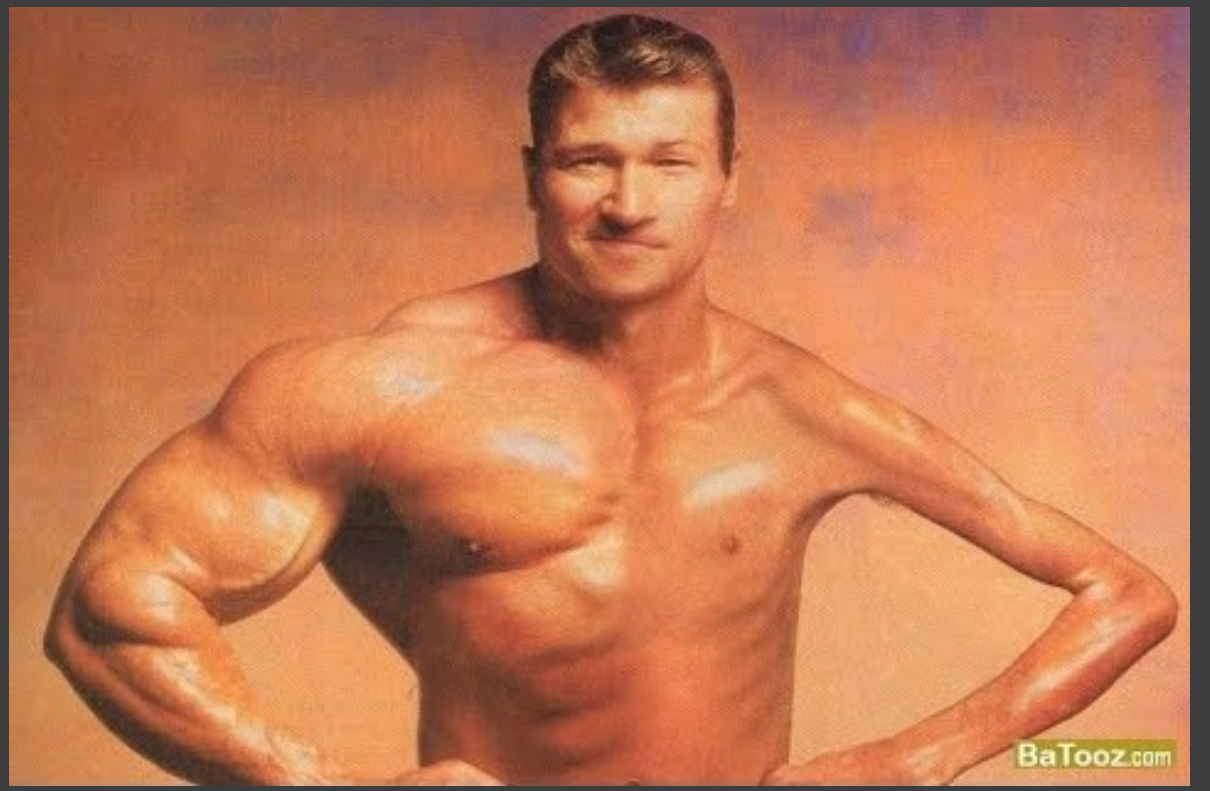
- Less rewearable quality
- More recycling quality

Risks:

- *System is less profitable and less stable*
- *Slower progress toward circularity*
- *Delayed price parity between recycled and virgin textiles*

Take Back

Balance Is Critical…



- Increase collection
- Contribute to circular textile infrastructure + tech development
- Create market pull: Buy recycled

Fibersort

Project Duration: Sept. 2016 – Sept. 2019

Project History

- **Textiles 4 Textiles (T4T): 2010 - 2014**
- *Proof of concept for auto-sorting technologies*

- **Textile Sorting Project: 2014 - 2016**
- *Market research toward optimization*

- **Fibersort Project: 2016 - 2019**
- *Technology commercialization and uptake*

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EUROPEAN UNION
North-West Europe
Fibersort
European Regional Development Fund

Project Partners

worn again

valvan baling systems

smart fiber sorting

procotex
SA CORPORATION NV

CIRCLE ECONOMY

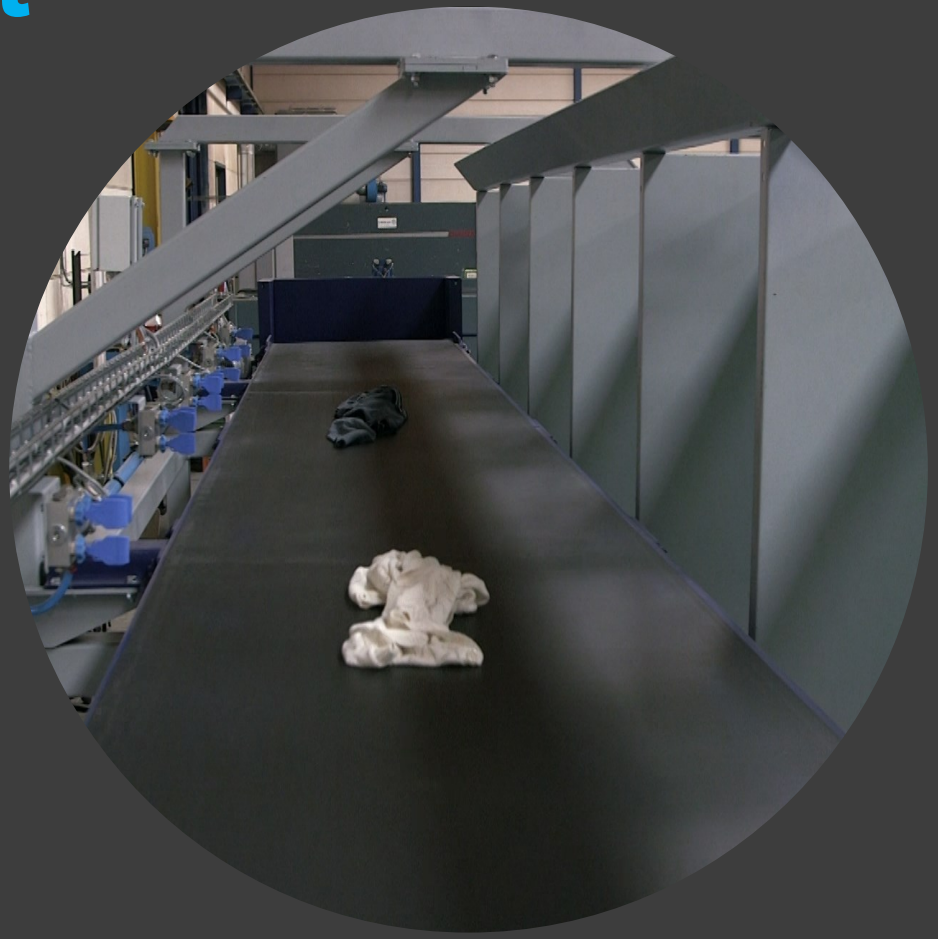
Leger des Heils ReShare kledinghergebruik

WIELAND TEXTILES
FIRST IN SECOND HAND CLOTHING

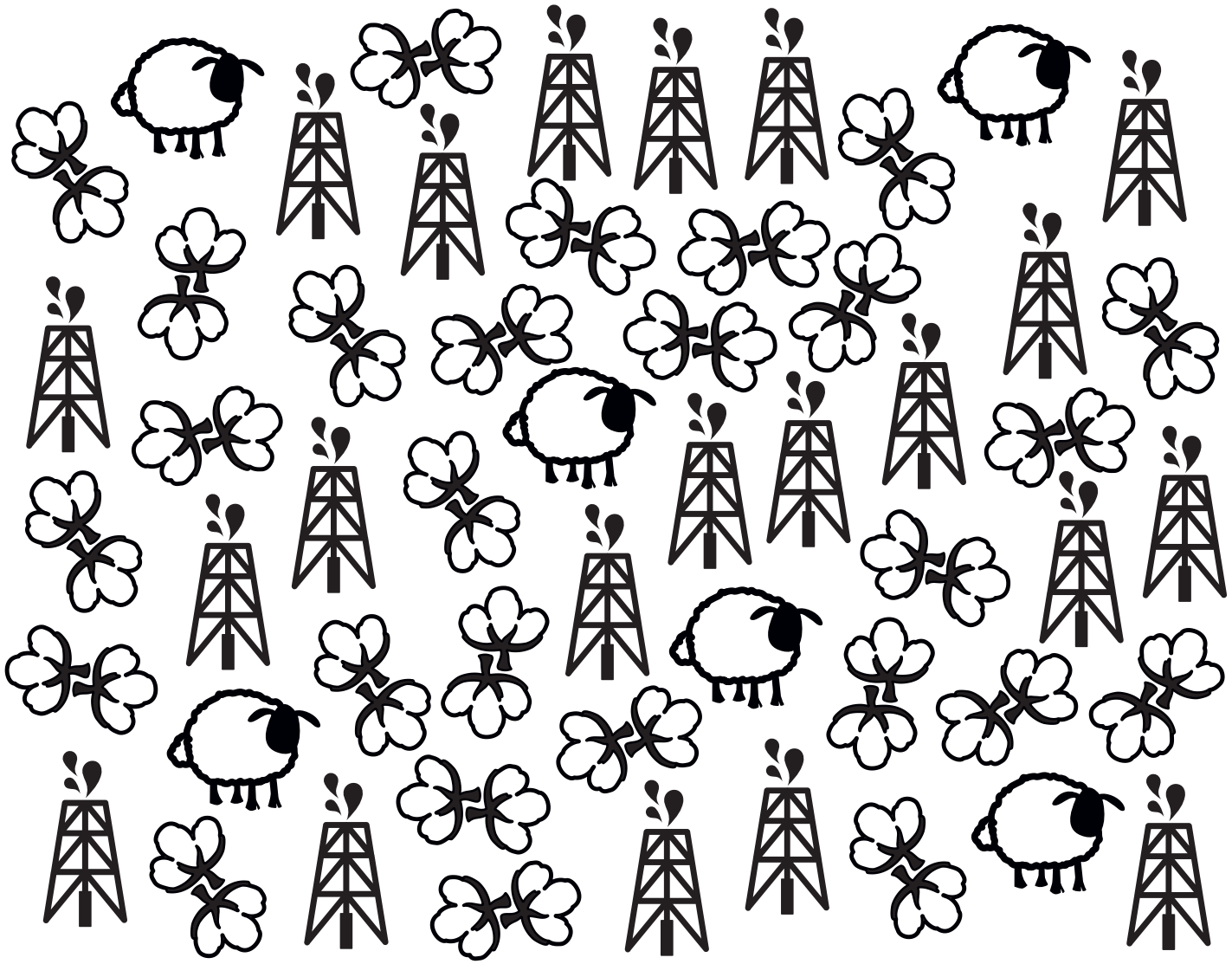
Fibersort Project

The Machine

Automatically sorts large volumes of finished textile products by composition



The Fibersort Machine



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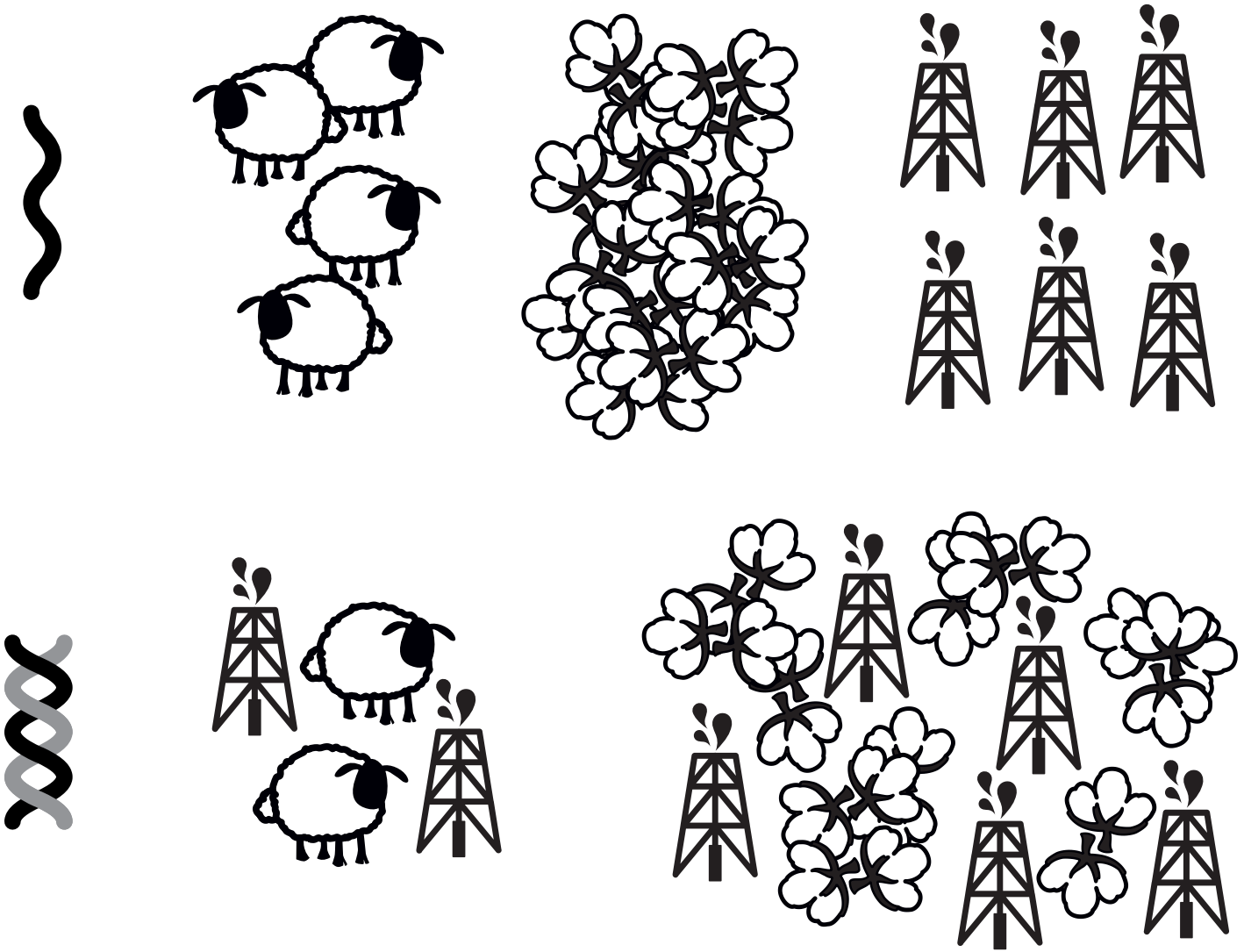
The Fibersort Machine



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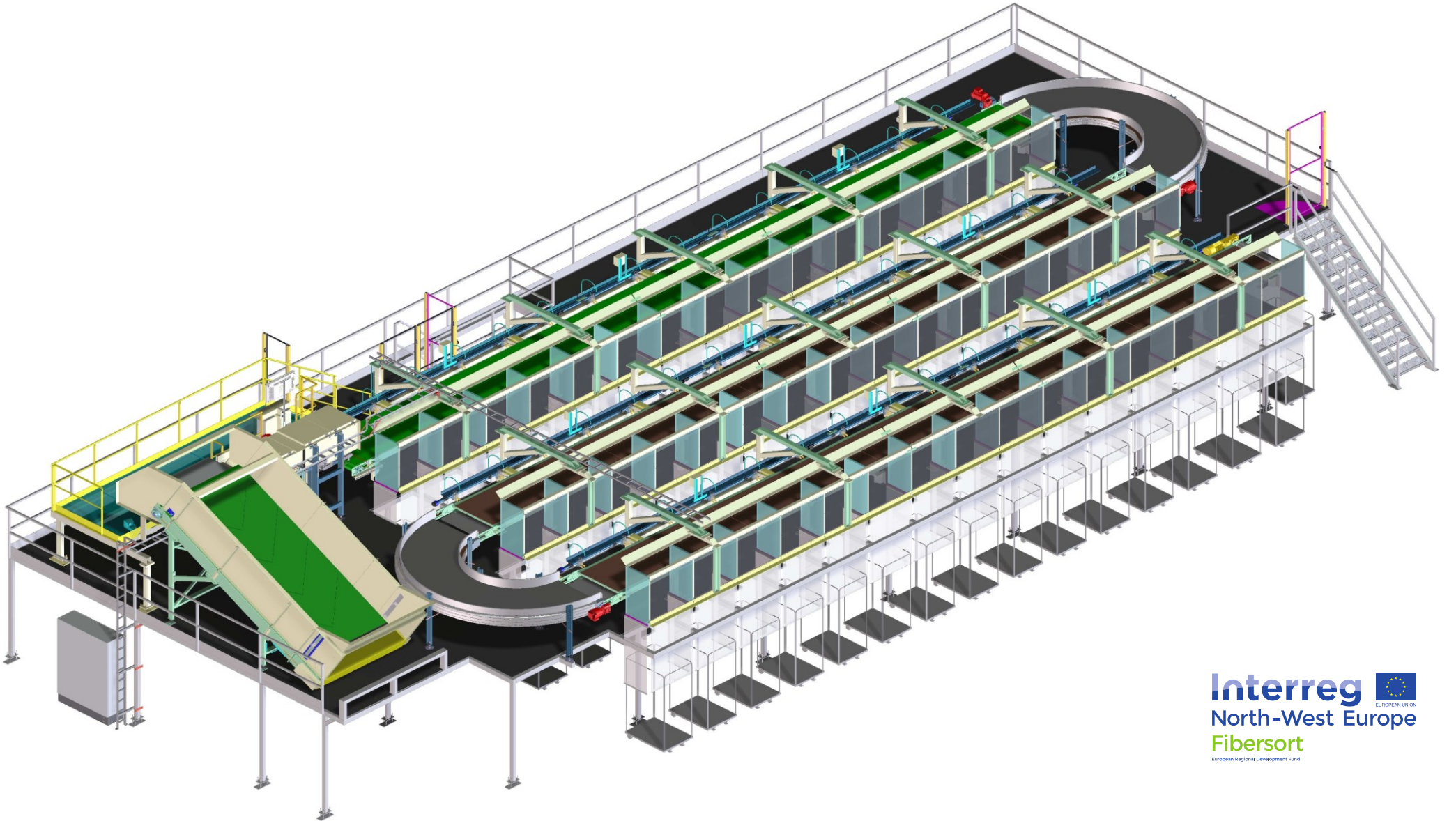
The Fibersort Machine



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Fibersort Project

The Reports

- Collaboration
- Data + Insights
- Industry Guides

The Fibersort Reports

Engage: Profitable Sorting

- Recommended feedstock grades and availability
- Macro trends influencing second hand industry
- Barriers, needs, and factors influencing auto-sortation
- Policy analysis + recommendations

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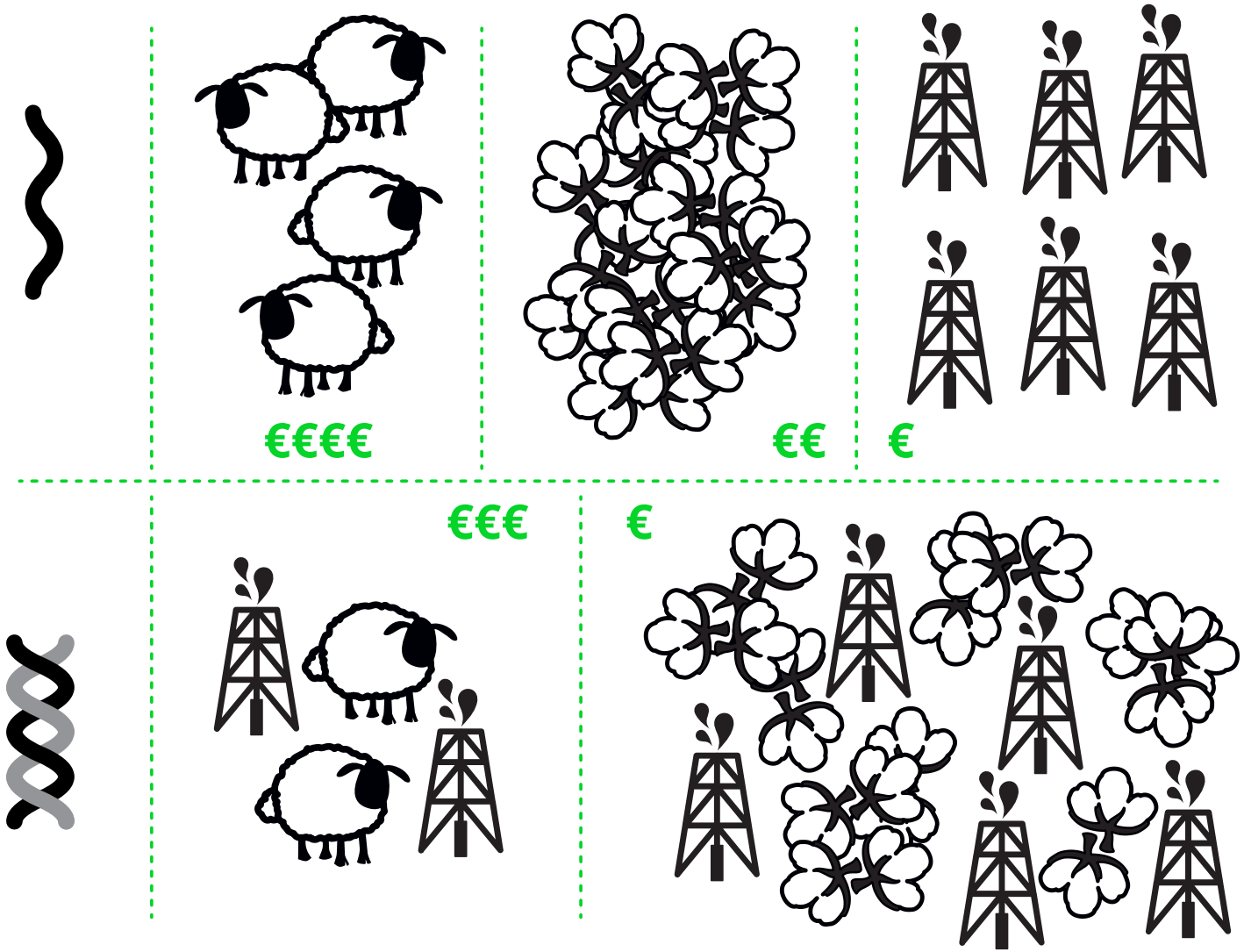
The Fibersort Reports



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Fibersort Project

Market Pull

- Collaboration
- Data + Insights
- Industry Guides

Market Pull

Engage: Increase Demand

- Map price, performance, and product expectations
- Business models and end markets for recycled fibers
- Share insights and recommendations
- Engage brands and retailers to choose recycled textiles

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Fibersort Timelines

- **Now**
  - *Demo plant build out*
  - *Onboarding research collaborators*
  - *Forming stakeholder feedback groups*
- **July 2017** – Machine testing begins
- **Q4 2017** – Initial machine report
- **2018 – 2019** – Ongoing testing, feedback, and reporting
- **Sept. 2019** – Final project symposium

Fibersort Project

Success

- Stronger Infrastructure
- Access to Know How
- Increased Demand

Circle Market
Digital Trading

Connects the supply and demand of excess textiles through an online platform

Circle Market

Background

- Circle Economy project
- Funded by Adessium Foundation
- MVP tested in Q4 2016 - Q1 2017
- Currently developing for Beta

Better Connections

- Enable more textile recycling
  - *Pre-consumer, post-consumer, post-industrial materials*
  - *Standard, transparent system*

Digital Platform

- Efficient supply networks
  - *Multiple materials types*
  - *Range of sellers and buyers*
  - *Global reach*

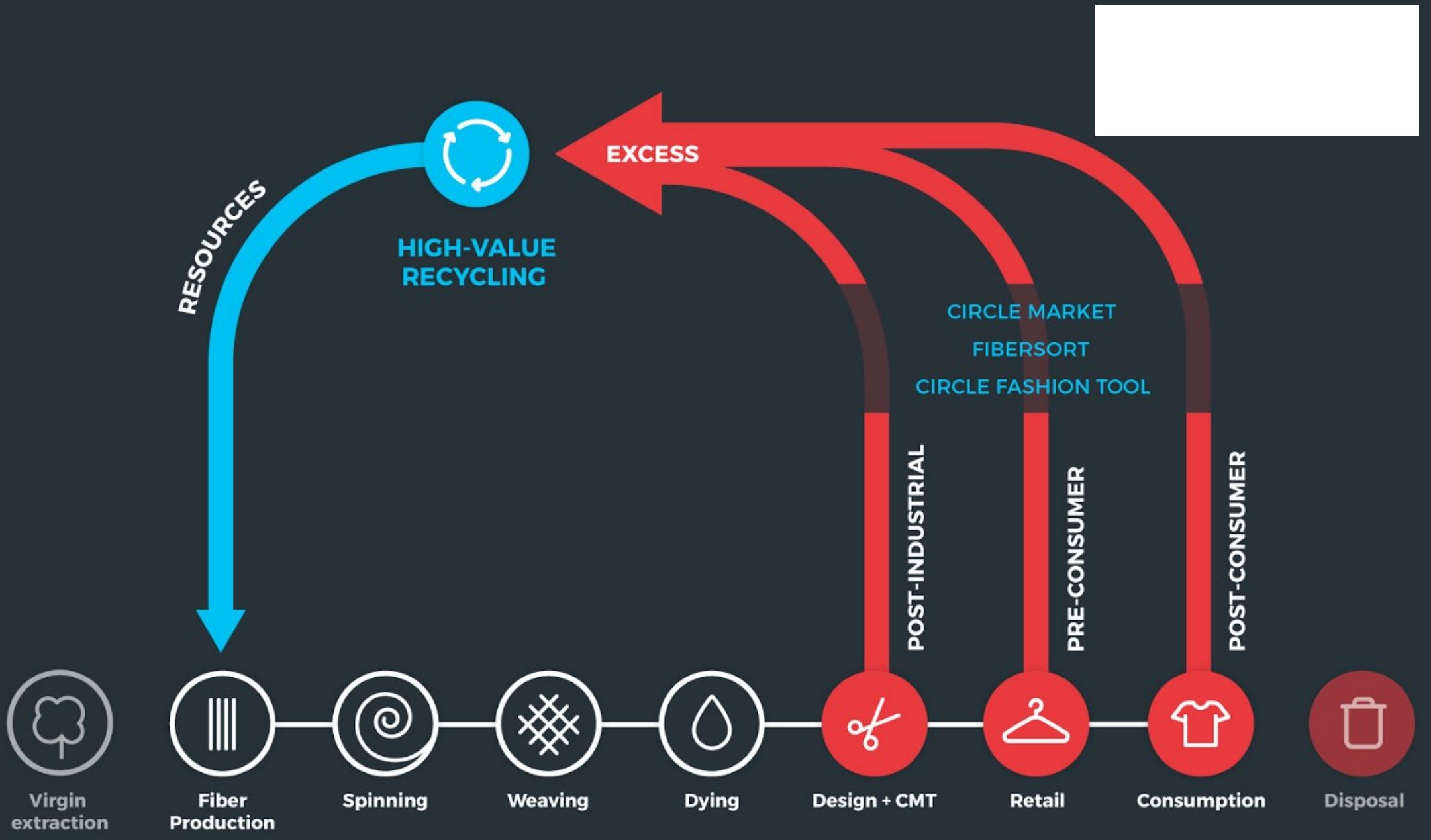
Circle Market

Engage: Materials Insights

- Contribute to materials mapping
  - *What materials do you have?*
  - *How much do you have?*
  - *Where are they?*
  - *What should, can, and can't you do with them?*

Circle Market Timelines

- **Now**
  - *Collecting strategic materials information*
  - *Analyzing reuse + recycling opportunities*
  - *Building Beta platform*
- **Q1 2018** – Beta launch
  - *Live sampling and trading*
- **Q2-Q4 2018** – Ongoing development and expansion
  - *Service providers, features, regions*


RESOURCES
HIGH-VALUE RECYCLING
EXCESS
CIRCLE MARKET
FIBERSORT
CIRCLE FASHION TOOL
POST-INDUSTRIAL
PRE-CONSUMER
POST-CONSUMER
Virgin extraction
Fiber Production
Spinning
Weaving
Dying
Design + CMT
Retail
Consumption
Disposal

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