A GARMENT'S LIFECYCLE

REDRESS
DESIGN AWARD

A GARMENT'S LIFECYCLE

INTRODUCTION TO GARMENT LIFECYCLE

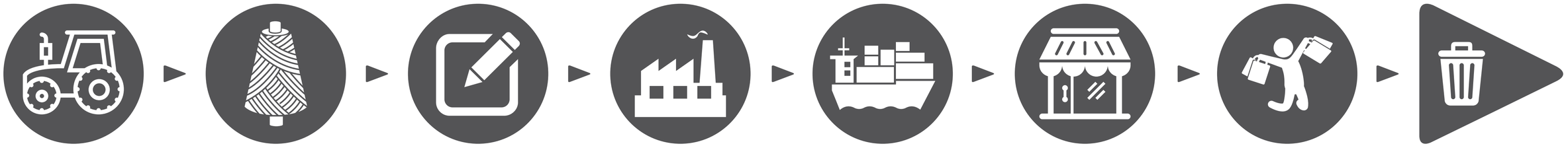
A GARMENT LIFECYCLE: CRADLE-TO-GRAVE DESIGN

RAW MATERIAL EXTRACTION
Synthetics, Farming and Harvesting

DESIGN
Sketching, Pattern Making, Sampling and Sourcing

TRANSPORTATION

CONSUMER USE
Washing, Drying and Ironing



TEXTILE PRODUCTION
Spinning, Weaving, Bleaching and Dyeing

GARMENT MANUFACTURING
Cutting, Sewing, Finishing and Accessories

RETAIL
Packaging, Point-of-sale signage and Merchandising

DISPOSAL

A GARMENT LIFECYCLE: CRADLE-TO-CRADLE DESIGN

Slideshow #T1LC-02

ASSESSING ENVIRONMENTAL IMPACTS

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Source:
Network for Business Sustainability (2013), 93 Per Cent of Your Supply Chain is Invisible
http://nbs.net/knowledge/93-of-your-supply-chain-is-invisible

A GARMENT'S LIFECYCLE

INTRODUCTION TO TEXTILE WASTE

Slideshow #T1LC-04-1

ANNUAL PRODUCTION OF TEXTILE WASTE IN CHINA

> 20m tonnes

Source:
CBG (2016), 中国废旧纺织品回收利用情况分析
http://free.chinabaogao.com/gonggongfuwu/201601/01142322032016.html

1.13m tonnes

END-OF-LIFE CLOTHING ARE NO LONGER WANTED BY UK CONSUMERS EACH YEAR

|

350k tonnes = £140m

ARE SENT TO LANDFILL

Source:
WRAP (2012), Valuing Our Clothes
http://www.wrap.org.uk/sites/files/wrap/VoC%20FINAL%20online%202012%2007%2011.pdf

IN THE EUROPEAN UNION

9.4bn tonnes

OF TEXTILE WASTE ARE EITHER LANDFILLED OR INCINERATED EACH YEAR

Source:
LIFE ECAP (2015), European Sustainable Clothing Action Plan
http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=5307&docType=pdf

Slideshow #T1LC-04-3

PRE-CONSUMER WASTE

is made up of manufacturing waste that has not reached the consumer.

POST-CONSUMER WASTE

is waste collected after the consumer has disposed of it.

WHAT ARE THE ISSUES SURROUNDING TEXTILE WASTE?

REDRESSDESIGNAWARD.COM

Slideshow #T1LC-04-6

PRE-PRODUCTION

Ordering an extra 10-20% of fabric than is needed is common practice in the fashion industry.

Source:
Maker's Row (2015), Manufacturing Your First Collection? https://makersrow.com/blog/2015/03/manufacturing-your-first-collection-here-are-5-things-to-save-you-time-money/

MANUFACTURING

A large amount of textile waste is generated during the manufacturing stage, averaging at 25% of the fabrics and fibres used in production, but this figure can reach as high as 47%

Source:
Reverse Resources The potential of remanufacturing
reverseresources.net/about/remanufacturing

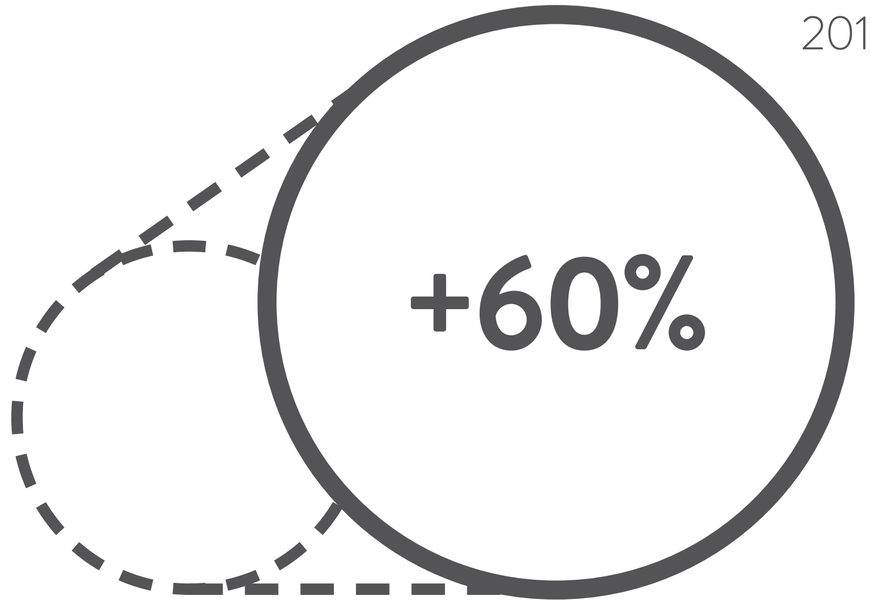
Slideshow #T1LC-04-8

POST-MANUFACTURING

Overorders of fabrics are sometimes sold to third parties, put into storage, discarded or even destroyed.

Slideshow #T1LC-04-9

AVERAGE CONSUMER CONSUMPTION OF CLOTHING



WHAT ARE THE ISSUES SURROUNDING TEXTILE WASTE?

REDRESSDESIGNAWARD.COM

Source:
McKinsey & Company (2016),
Style that's sustainable: A new fast-fashion formula

Slideshow #T1LC-04-10

TEXTILE WASTE:

ALMOST

100%

REUSABLE OR RECYCLABLE

WHAT ARE THE ISSUES SURROUNDING TEXTILE WASTE?

REDRESSDESIGNAWARD.COM

Source:
Secondary Materials and Recycled Textiles Association, Media Kit
https://www.smartasn.org/SMARTASN/assets/File/resources/SMART_PressKitOnline.pdf

Around 80% of a product's environmental impact is locked in at design stage.

Source:
WRAP (n.d.), WRAP and the circular economy
http://www.wrap.org.uk/content/wrap-and-circular-economy

A GARMENT'S LIFECYCLE

CASE STUDIES

Image credit: Freitag

Slideshow #T1LC-06-1

A GARMENT'S LIFECYCLE CASE STUDY 1: FREITAG

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Image credit: Freitag

Slideshow #T1LC-06-2

A GARMENT'S LIFECYCLE CASE STUDY 1: FREITAG

REDRESSDESIGNAWARD.COM

RESOURCES

Because F-ABRIC is made of bast fibers and modal, it is very easy on the soil – and needs much less water than other, more typical raw materials.

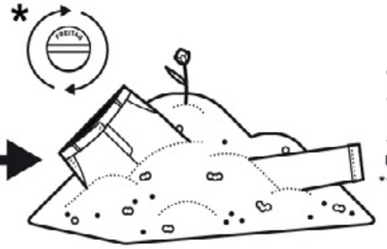
MATERIALS

And it is not just the raw materials for F-ABRIC that come from Europe – it is produced on the continent as well. The result is that F-ABRIC's transport distances are much shorter than commonly used textiles.

PRODUCTS

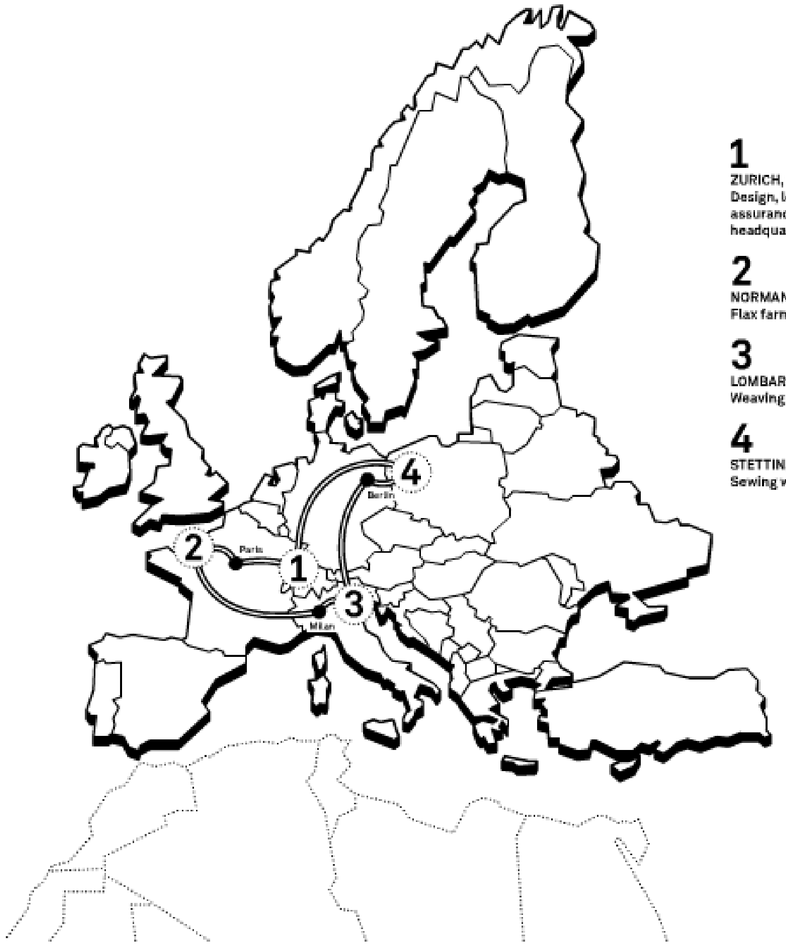
The design and development of the products are carried out by FREITAG, and all of the products are put through their performance and style paces by the F-Crew in Zurich Oerlikon.

COMPOST



When they have finally worn out after many years of faithful service, all F-ABRIC products will biodegrade completely within a few months in an ordinary home or garden compost.

*The exception: The ever reusable F-button.



1
ZURICH, SWITZERLAND
Design, logistics and quality assurance in the FREITAG headquarters

2
NORMANDY, FRANCE
Flax farming and processing

3
LOMBARDY, ITALY
Weaving mill

4
STETTIN, POLAND
Sewing workshop

DISTANCE FROM THE FIBER TO THE PRODUCT

F-ABRIC WORKPANT: less than 5,000 km

CONVENTIONAL JEANS: around 40,000 km

Image credit: Freitag

Slideshow #T1LC-06-3

Image credit: Freitag

Slideshow #T1LC-06-4

Image credit: Levi Strauss & Co.

Slideshow #T1LC-07-1

A GARMENT'S LIFECYCLE CASE STUDY 2: LEVI'S

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Image credit: Levi Strauss & Co.

Slideshow #T1LC-07-2

A GARMENT'S LIFECYCLE CASE STUDY 2: LEVI'S

REDRESSDESIGNAWARD.COM

LEVI'S® 501® JEAN LIFECYCLE IMPACT

The entire lifecycle of **one pair** of Levi's® 501® jeans equates to:

Climate Change:
33.4 kg CO_2-e...

- 69 miles driven by the average US car
- 246 hours of TV on a plasma big-screen

Water Consumed:
3,781 liters...

3 days worth of one US household's total water needs

Eutrophication:
48.9 g PO_4-e...

The total amount of phosphorous found in 1,700 tomatoes

Land Occupation:
12 m^2/year...

Seven people standing with arms outstretched, fingertips touching, would form one side of a square this size

Image credit: Levi Strauss & Co.

Slideshow #T1LC-07-3

Image credit: Patagonia

Slideshow #T1LC-08-1

A GARMENT'S LIFECYCLE CASE STUDY 3: PATAGONIA

REDRESSDESIGNAWARD.COM

THE FOOTPRINT CHRONICLES

Image credit: Patagonia

Slideshow #TFLC-08-2

A GARMENT'S LIFECYCLE CASE STUDY 3: PATAGONIA

REDRESSDESIGNAWARD.COM

The Footprint Chronicles®

We promote fair labor practices, safe working conditions and environmental responsibility throughout the Patagonia supply chain.
Below are the suppliers that impact the Patagonia Men's Lightweight Synchilla® Snap-T® Hoody

View our supply chain

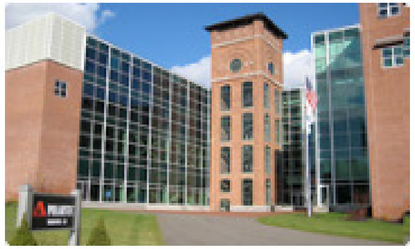
NovaLink Inc.

Apparel Manufacturer
A Patagonia supplier since: 1996

Located in Mexico, near the southern border of Texas, NovaLink is a sewing factory that produces lightweight fleece and midweight baselayer garments for us. They are one of the few factories we work with that has a designated manager for social responsibility and provides benefits beyond what the law requires, like free child care, continuing education and health screenings. They also have a recycling program in place, where fabric scraps from pattern cutting are collected and sent to an outside vendor to be converted into post-industrial recycled fibers.

Polartec, LLC

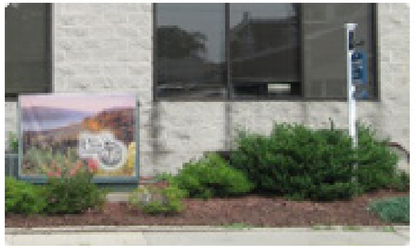
Fabric Manufacturer
A Patagonia supplier since: 1981



In 1981, we worked with Polartec to co-develop our Synchilla® fleece. Now more than 30 years later, they still create many of our technical fleece and knit baselayer fabrics. They were an early adopter of recycled polyester technology, and their extensive use of recycled fibers has helped us balance environmental responsibility and innovative performance in our most technical materials. They were also the first supplier in the U.S. to produce bluesign® approved fabrics. Since 2008, they have invested almost $2.4 million into energy conservation technology that has reduced their carbon footprint by 13% and their electricity consumption by 24%.

Deer Creek Fabrics

Fabric Supplier
A Patagonia supplier since: 1978



Based in Connecticut, Deer Creek has been supplying us with our mesh and fleece pocket fabrics for more than 30 years. Though they do not make fabrics, Deer Creek works with fabric manufacturers, dye houses and textile finishers to coordinate the various steps of fabric production and supply us with materials that best meet our needs. To support job creation and stimulation of the retreating U.S. textile industry, we like to source domestically whenever possible. This makes Deer Creek an excellent partner for us since all the manufacturing they coordinate - the yarn spinners, fabric knitters, dyers and finishers - happens here in the U.S.

Image credit: Patagonia

Slideshow #T1LC-08-3

BETTER THAN NEW

Image credit: Patagonia

Slideshow #T1LC-08-4

A GARMENT'S LIFECYCLE CASE STUDY 3: PATAGONIA

REDRESSDESIGNAWARD.COM

Image credit: Patagonia

Slideshow #T1LC-08-5

A GARMENT'S LIFECYCLE

EXERCISES & PROJECT BRIEFS

A GARMENT LIFECYCLE - CRADLE-TO-GRAVE DESIGN

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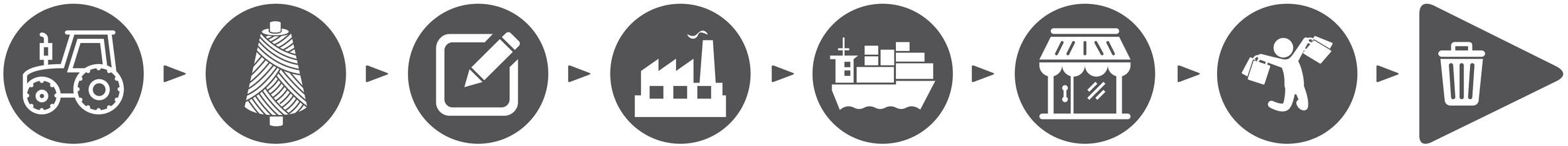

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A GARMENT'S LIFECYCLE EXERCISE 1:
IMPACT OF A GARMENT ALONG ITS LIFECYCLE
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ASSESSING IMPACT THROUGH CARE LABELS

Questions to discuss:

- What materials is the garment made of?
- What natural resources and manufacturing processes are needed to produce the fibres? What could have been the negative environmental impacts associated with production?
- Could this garment be recycled into new fibres? Where do you think the garment will end up?
- Where was the garment made? How many locations do you think the garment and its materials visited before it was purchased? What could have been the impacts from transportation?
- What natural resources and products are needed to launder the garment? How is the garment supposed to be laundered and dried? What are the negative environmental impacts associated with this?

Jeans

- 15oz denim
- 100% cotton
- 8 metal rivets
- 4 metal buttons

Questions

- How could these jeans be disassembled?
- How could the denim be reused?
- What are the options for reusing all the trims?
- What needs to be considered at the design stage to enable closed loop?

Image credit: French Connection

(specifications does not reflect the actual product)

Slideshow/Exercise Sheet #T1LC-11

Summer Shirt

- 100% linen
- Wash at 40 degrees
- Use mild detergent
- Dry flat
- Fairtrade

T-Shirt

- 80% polyester
- 20% cotton
- Wash on warm water
- Only use non -chlorine bleach
- Cannot be ironed at high temperature
- No tumble dry

Image credit: J.Crew, Zara

(specifications does not reflect the actual product)

Slideshow/Exercise Sheet #T1LC-12-1

A GARMENT'S LIFECYCLE PROJECT BRIEF 2:
ASSESSMENT OF TEXTILES
REDRESSDESIGNAWARD.COM

Floral Dress

- 100% lyocell
- GOTS certified organic dyes
- Cold wash on gentle cycle
- Use mild detergent
- Line dry

Party Dress

- 100% rayon
- Hand wash in cold water
- Use mild detergent
- No bleach
- Dry flat
- Can be dry cleaned

Image credit: J.Crew, Iro Valencia

(specifications does not reflect the actual product)

Slideshow/Exercise Sheet #T1LC-12-2

A GARMENT'S LIFECYCLE PROJECT BRIEF 2:
ASSESSMENT OF TEXTILES
REDRESSDESIGNAWARD.COM

Fleece Jersey

- 100% recycled polyester
- Wash warm
- Use mild detergent
- Do not use softener

Image credit: Patagonia

(specifications does not reflect the actual product)

Slideshow/Exercise Sheet #T1LC-12-3

A GARMENT'S LIFECYCLE PROJECT BRIEF 2:
ASSESSMENT OF TEXTILES
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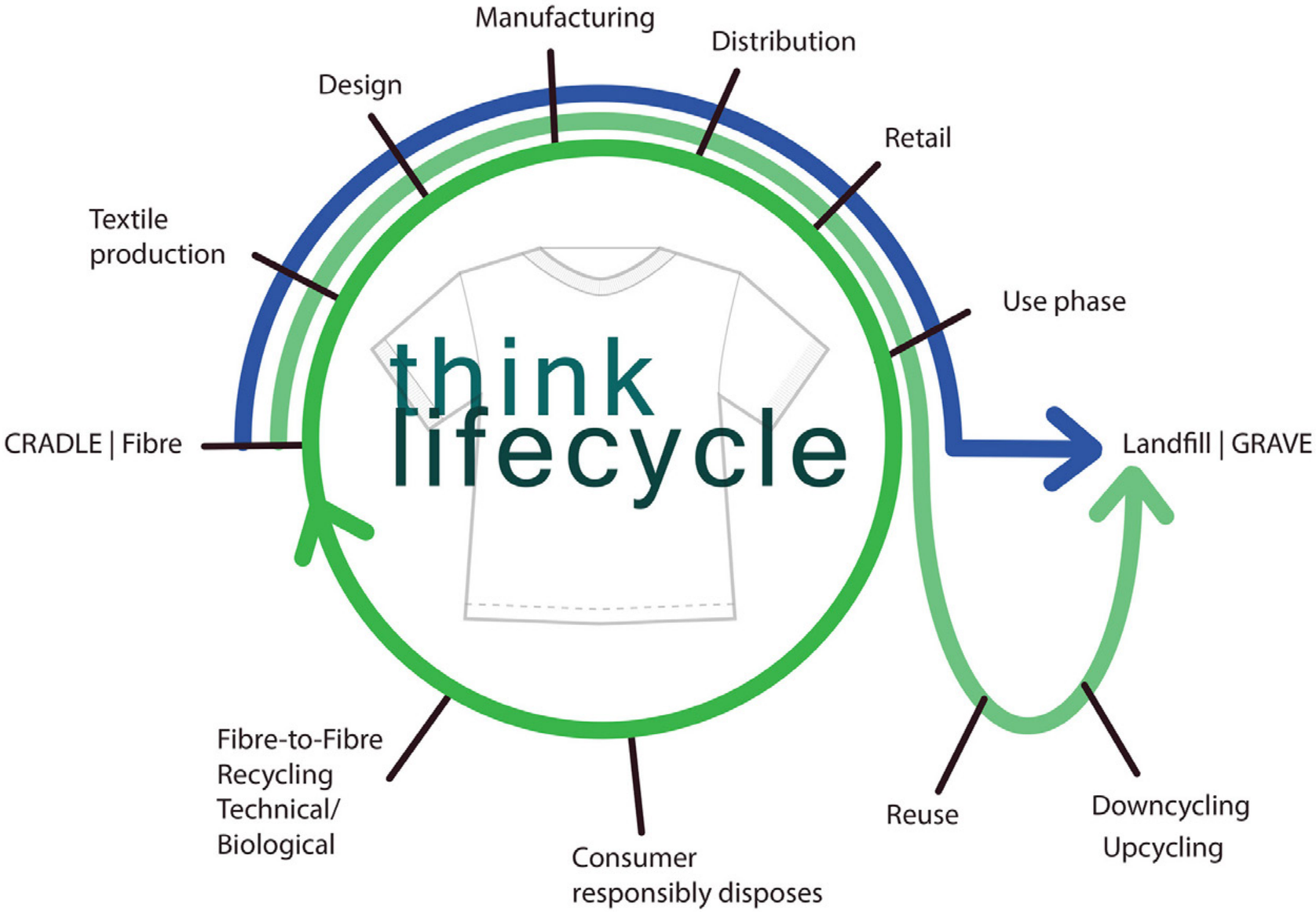

Image credit: Alice Payne

Slideshow #T1LC-13

A GARMENT'S LIFECYCLE PROJECT BRIEF 5:
PLANNING FOR END-OF-LIFE
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