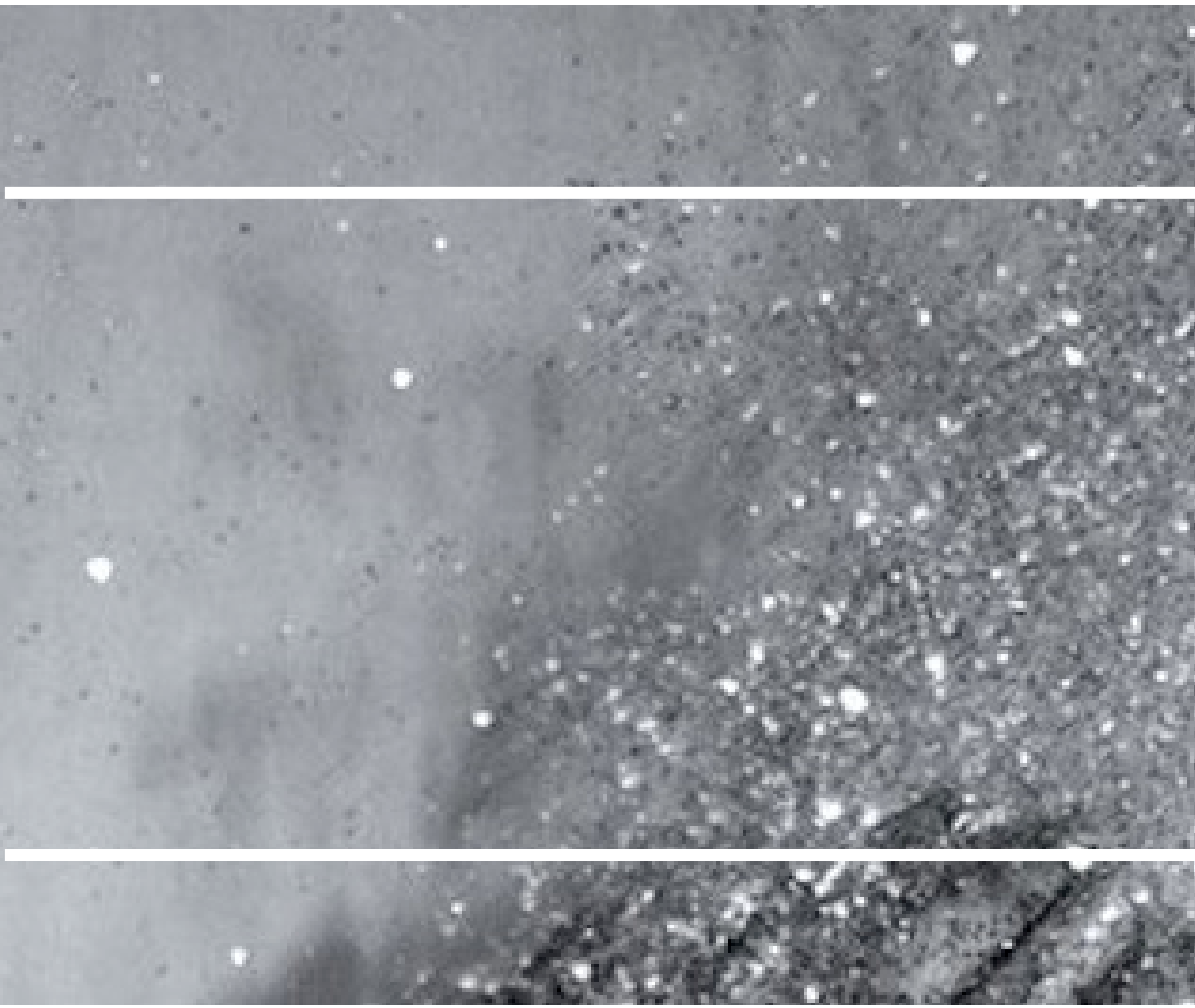
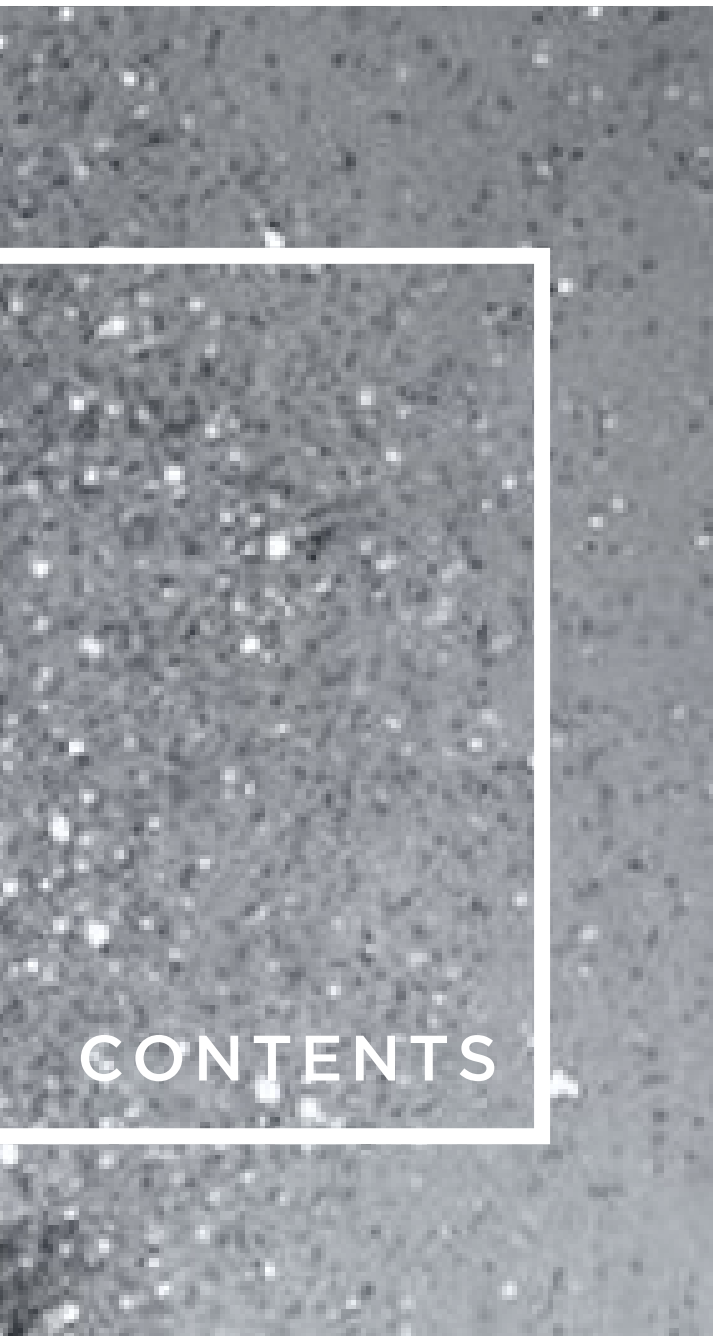
CIRCULAR DESIGN STRATEGIES
CASE STUDY FOR ADIDAS





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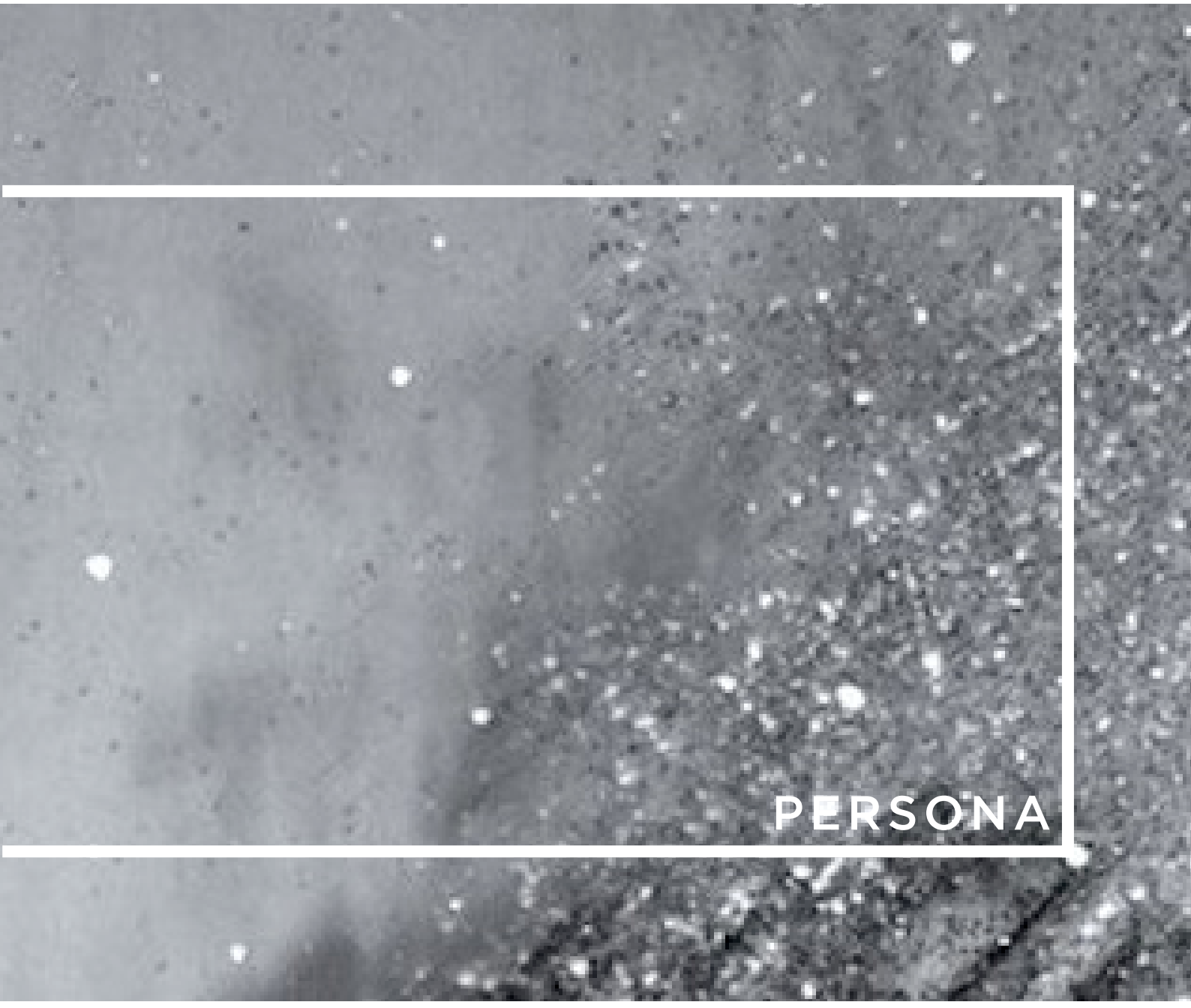
EXECUTIVE SUMMARY

In the face of today's resource scarcity, the fashion industry is in dire need for a change - adopting a circular system is the only way forward. In stark contrast to the current linear system, it is a model that enables resources to be celebrated and optimized to their full ability and while it aims in prolonging use life, it instills value throughout. However, at present, we are still faced with multiple problems that restrict cyclability. A majority of the problem currently lies within the design of products, and their lack of environmental intelligence together with technology limitations that currently do not allow materials to be recycled through a straightforward process, for example blended fibers are unable to be treated through recycling processes. Ultimately, due to the lack of thought behind products beyond point of sale, we are currently deemed with a larger footprint than necessary.

In dealing with these main barriers and problems, we believe that working within a cradle-to-cradle model is the perfect frame to structure into. The school of thought focuses on ways to celebrate the materials to their utmost ability, in order to maximize their use and resource value. While keeping the current issues in mind, cradle-to-cradle encourages to design according to the end-of-life, of said material, envisioning their future lives from the outset, hence celebrating it to its utmost ability. Our main goal in dealing with the current problems that cyclability faces is through the two main cycles, defined by the model as the "Biological Cycle" or the "Technical Cycle". By means of accommodating for these cycles, where the materials in the end are regarded to as valuable nutrients, our ultimate aim is to strategize for longevity through the design and services system strategies. These will simply work in order to make the cyclability process as smooth as possible, while also providing consumers the opportunity to collaborate within the whole process, and ultimately be active players within the cyclability itself.

By designing for these two distinct cradle-to-cradle cycles individually, the end-of-life recovery process of materials therefore, becomes much more straightforward. In order to address this, we will be focusing on four main design strategies known as 'layering', 'monomateriality', 'disassembly' and 'personalization'. All are very interconnected and fully support each other in order to achieve the end goal. When referring to 'layering' this will be the main point of aesthetic, designing each garment using different layers to accommodate for the functionality. These layers will all be assigned a 100% monomaterial and will also be able to be disassembled - all three strategies therefore fully support each other in order to achieve the longevity and smooth cyclability, within the current barriers. The disassembly also gives the consumer the opportunity to achieve a more personalized garment, giving the flexibility to change each layer according to their specifications.

When referring to the service system strategies, our main focus is channeled through our circular packaging system that allows consumers to engage in multiple opportunities of returning the said resource. By dealing with the layers individually, the packaging system intends to provide the consumer with the options to either exchange an unwanted layer, to repair a layer, to remanufacture it for upcylcing opportunities or to recycle it into a new product. Either way, all opportunities enable us, together with the consumers, to be in control of the resource, hence, its end of life.


PERSONA

+ LIVES IN BERLIN
+ MARRIED WITH CHILDEREN
+ TRAINER
+ OUTDOORS PERSON
+ REQUIRES DETOX FROM CITY LIFE
+ DAY INTO NIGHT FLEXIBILITY
+ MEDIUM PERFORMANCE
+ DAILY FUNTIONALITY
+ MOVEMENT & FLEXIBILITY
+MODE OF TRANSPORT: BICYCLE

MORNING

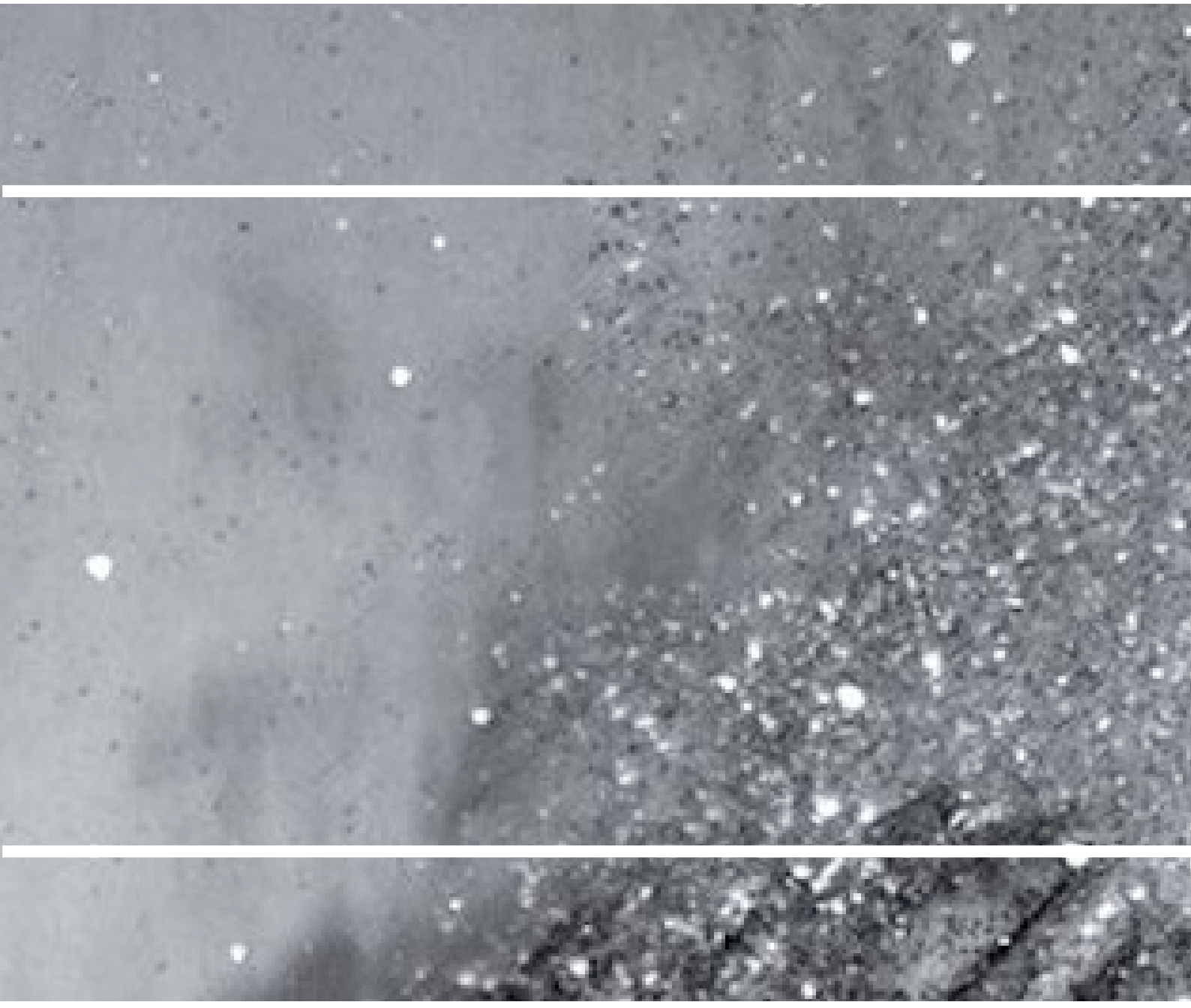
- EARLY MORNING RUN
- PREP KIDS FOR SCHOOL
- CYCLE KIDS TO SCHOOL
- STOPS FOR A GREEN JUICE
- CLASS @ THE GYM
- PRIVATE SESSION @ GYM

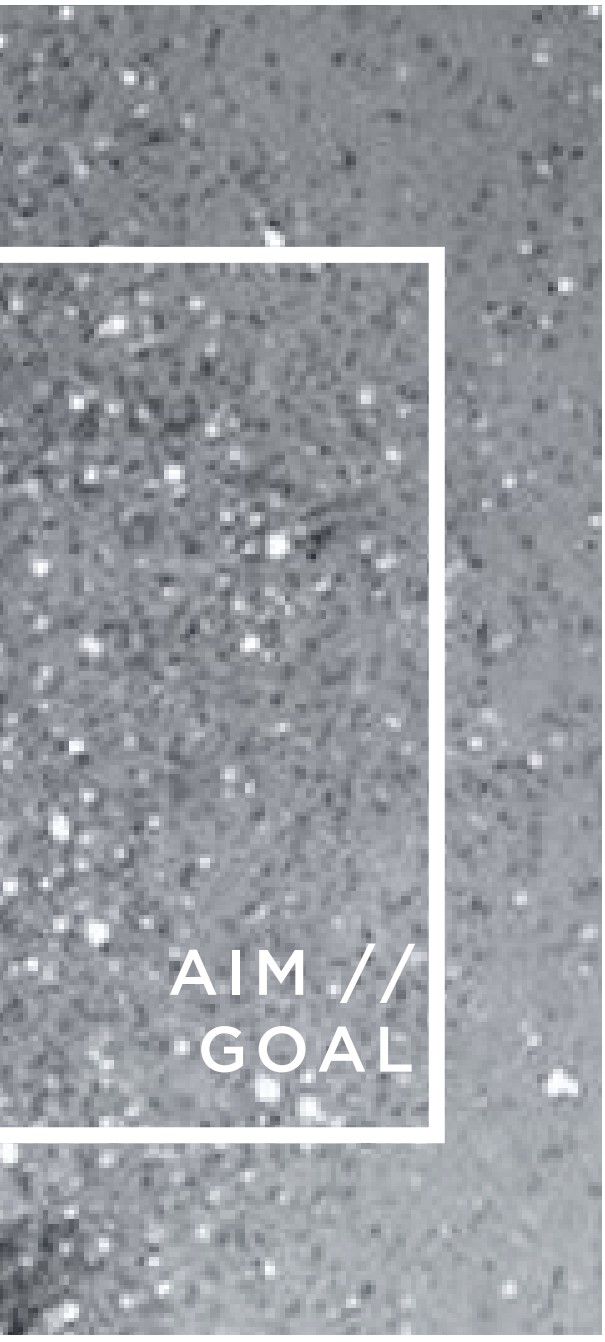
AFTERNOON

- LUNCH MEETING
- ADMINISTRATION WORK
- OUTDOOR PRIVATE SESSION
- CLASS @GYM
- SCHOOL PICKUP

EVENING

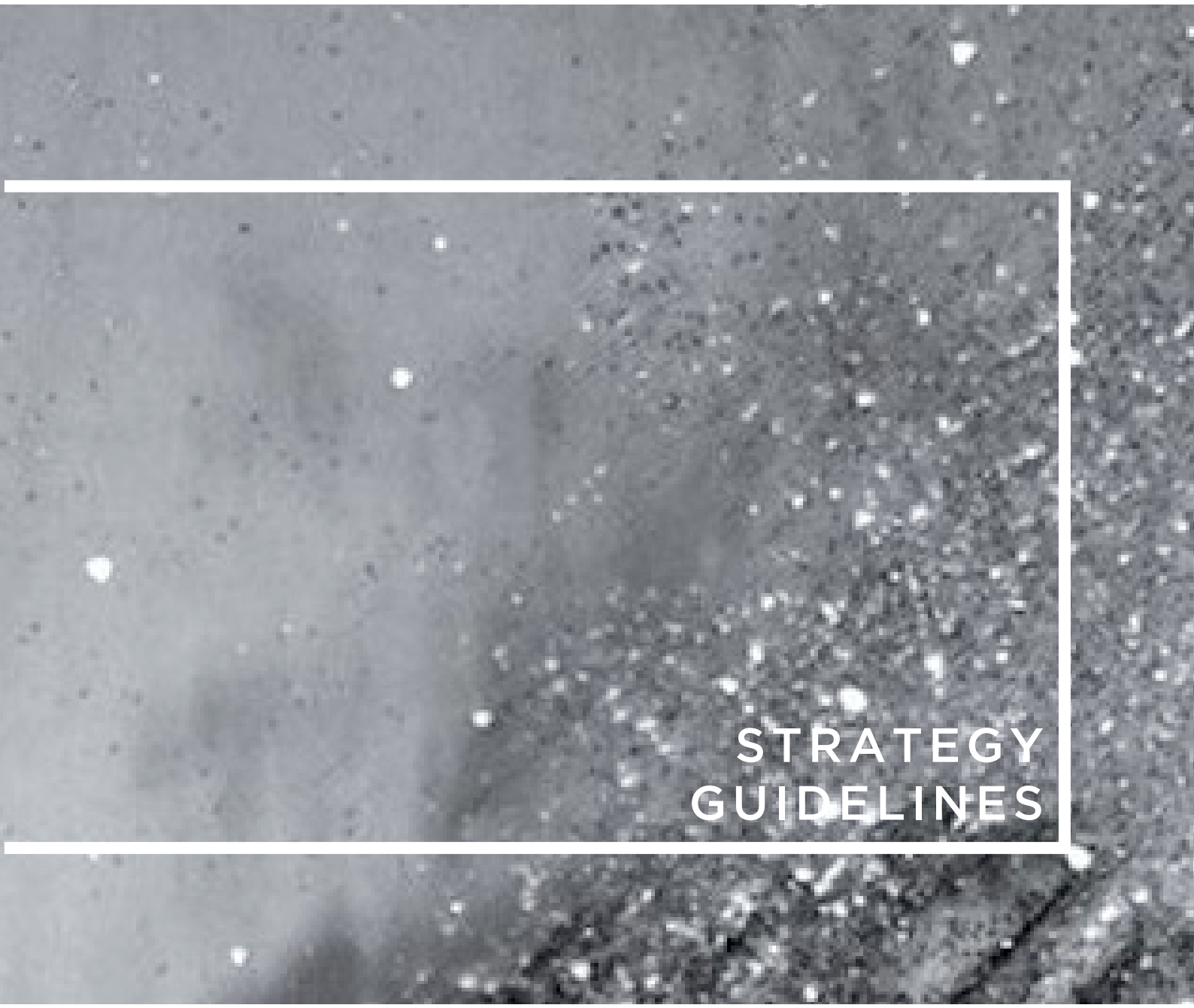
- CLASS @GYM
- CLASS @ CLIENT HOME
- BACK HOME



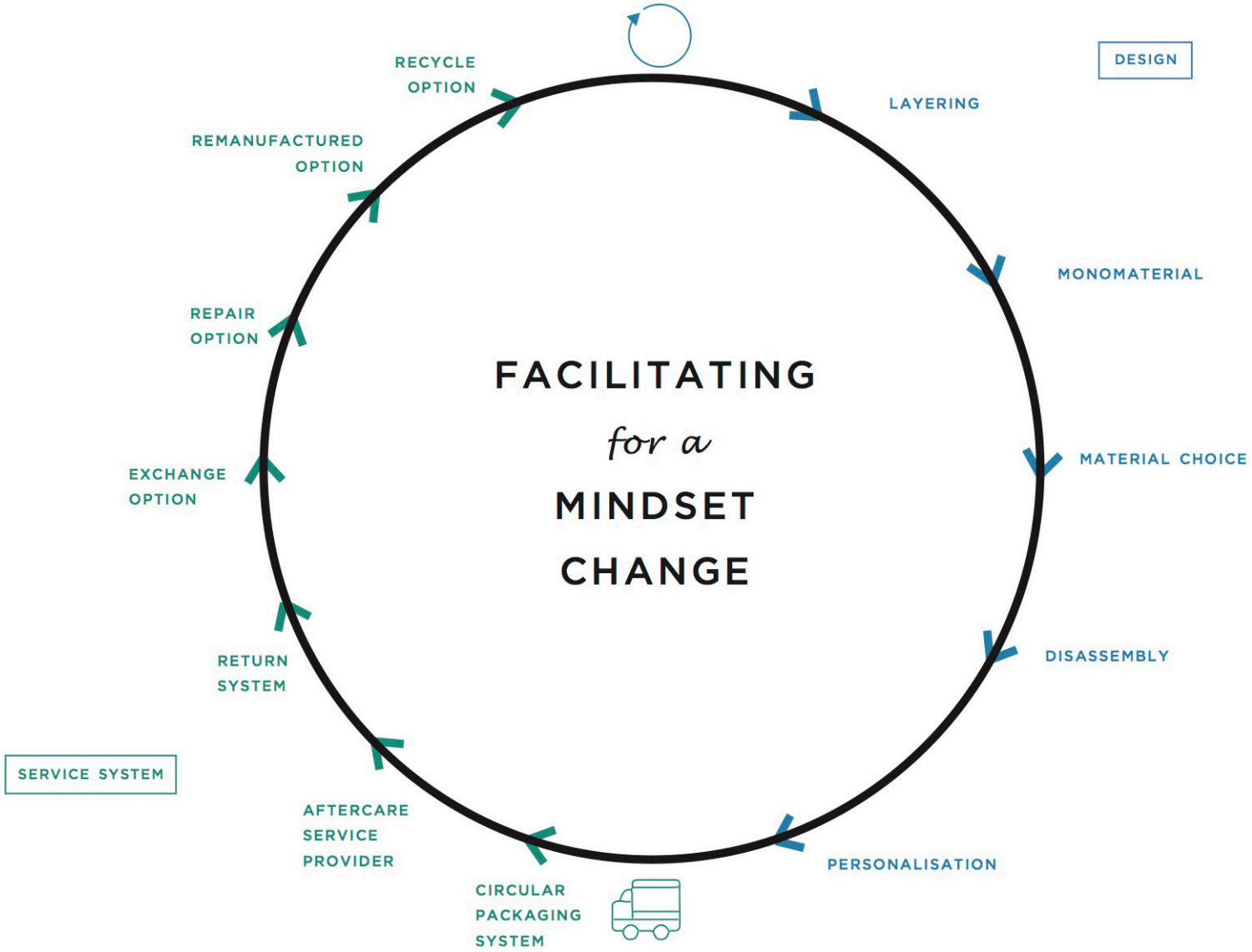


AIM // GOAL

TO CELEBRATE MATERIAL FLOW, THROUGH OUR DESIGN AND SERVICE SYSTEM STRATEGIES - WITHOUT COMPROMISING QUALITY AND NCE OF GARMENTS & BY PROVIDING EASY COLLABORATIVE CONSUMPTION.



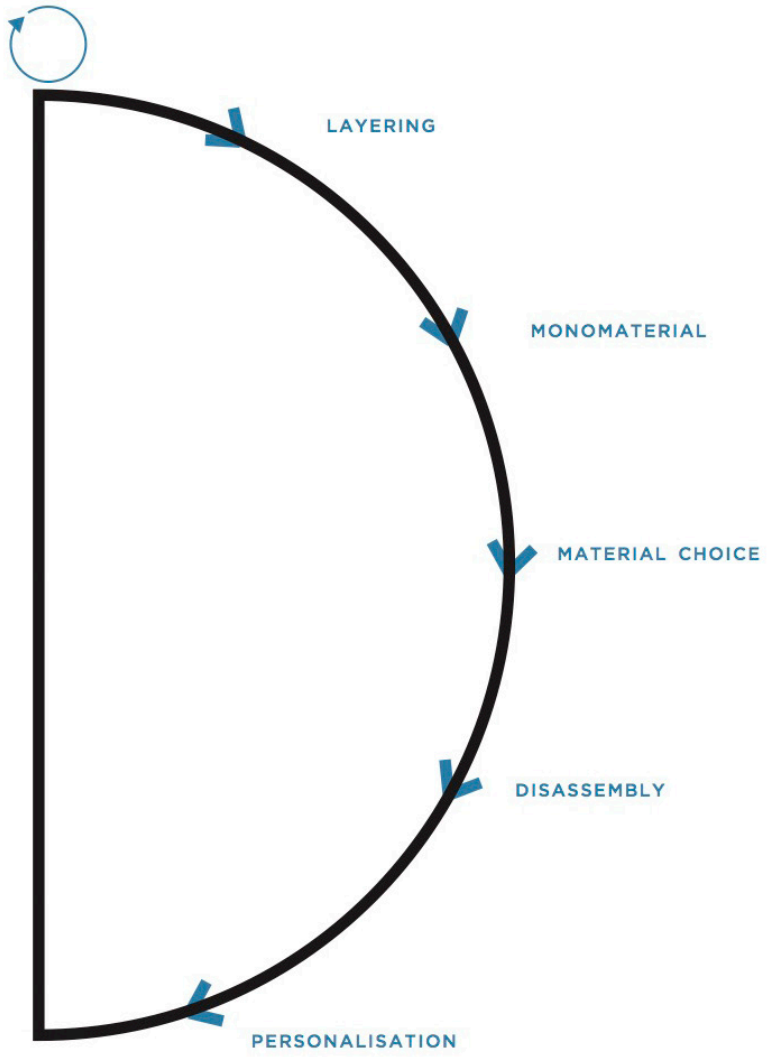
STRATEGY GUIDELINES


FACILITATING
for a
MINDSET
CHANGE
DESIGN
LAYERING
MONOMATERIAL
MATERIAL CHOICE
DISASSEMBLY
PERSONALISATION
CIRCULAR PACKAGING SYSTEM
AFTERCARE SERVICE PROVIDER
SERVICE SYSTEM
RETURN SYSTEM
EXCHANGE OPTION
REPAIR OPTION
REMANUFACTURED OPTION
RECYCLE OPTION

DESIGN STRATEGIES

USER CENTRED NEEDS (PERFORMANCE):

At the centre of design thinking we begin by first focusing on the consumer - factoring in the use and care of the designed products. Not only will this support for a clear communications approach to the consumer, but also more importantly, it will enable you to understand on how to implement the strategies in the most effective way. For the sake of this report, when considering sports-wear, for example, we are fully aware that function-ality is a key priority in satisfying the consumer. We are also aware that the use of the garments, are of a high demand as they are required on a daily ba-sis, which subsequently results into intensive after care processes. On top of this, the daily use and their ac-tivities also account for faster wear and tear, causing the quality of fibres to diminish faster than necessary.



LAYERING

The layer performance is translated from the user needs. By considering layers as a strategy within the designs, it creates a wide range of opportunities that support every part of the cycle and ensures the smoothest flow possible. Firstly, it aims in giving the opportunity of longevity as each layer will fully support its own function, allowing it to be used and cared for separately. When considering use scenarios of the garments, we established that a sweat absorption function is vital and is subject to more wear and tear; therefore this layer will stand-alone. Each outfit must be regulated to the maximum of four layers and the minimum of two, whereby all layers must be functional together, but could also function with fewer layers or separately.

MONOMATERIALITY

With the ability to singularly handle the layers, we are able to implement monomateriality to each layer, deriving it according to its material functionality and performance need. This enables a full recyclability of each layer, as the different fibres will not be mixed. Our system gives room for more creative freedom as best materials for certain performance needs can be used within the outfit. However it is crucial to keep each fibre unique to it's allocated layer, in order to assure for the best cyclability. This applies to all trimmings, finishes and fabrics, where designers must also refer to solutions that use fewer resources, produce less waste and protects the utilizers' health. This system would be helpful also during the sorting process in the after life cycle of the garment.

MATERIAL CONSIDERATION WITHIN MONOMATERIALITY

For example, when referring to an athleisure collection the preferred material is post-consumer recycled synthetics (technical cycle), as it allows for the best performance when considering their training purposes while simultaneously cutting down the need for virgin plastic. We will also consider a small percentage (maximum 20 %) of natural fibres (biocycle) in order to achieve the required performance needs of another particular layer. As for finishings and logo implantations we will consider laser technology, which has been proven to have successful mono-compatibility, as it that doesn't involve any glue, stitching, print pastes, or chemicals. The changeable parts allows the consumer to personalize them according to color preferences

TECHNICAL CYCLE

The focus of the collection should be mainly based on recycled Polyester (rPES) made from PET (Poly Ethylene Terephthalate) bottles. While rPES has the same important traits as virgin polyester that are needed for performance wear, such as durability, quick dry, easy-to-wash and shape maintenance, it additionally saves energy during the fibre manufacture process. So long as the layering strategy previously mentioned is honored to its full ability, all these fantastic properties will not be impaired when recycled. Designers are not allowed to use any harmful substances such as PFC or PFOA in coatings or the fibre itself. When it comes to recycling rPES, we currently have two options, mechanical or chemical, of which mechanical is the preferred choice for the collection. The mechanical recycling process effects the color choices of the garments from a designer perspective since the garments are sorted to colors and shreded according to shades.

Due to its material properties polyester is very popular within sportswear garments, however it has recently been highlighted, by more conscious consumers, its large link to environmental problems specifically caused by the synthetic microfibres. Microfibres are small fibres that break off from a synthetic fabric into tiny fragmented pieces. Amongst other reasons, this process most knowingly takes place during the washing phase of the garment, hence they end up in the oceans - and while this gradual pollution occurs, it is nonetheless poisoning our seas and consequently humans. Fibre loss is not completely inevitable, however, well considered material choice during the design process and its ability to stand as a 100% monomaterial will help in reducing microfibres from shedding off the fabric. It is recommended to use rPES in a high fibre quality, which means using long filament fibres in order to enhance longevity. Precision of manufacturing, through new garment cutting technology such as ultrasonic cutting machines also helps reducing microfibres from shedding off. Later, on page 16, we will explain how the care phase and take back system play a big role towards the decreasing of microfibre pollution.

Recycled Nylon from industrial fishing nets is a second synthetic fibre within the technical cycle that may be used for some layers within the collection, dueto its good recyclability and performance properties.

BIOLOGICAL CYCLE

Here, we refer to materials that are valued as nutrients for the biosphere (compost) or to materials that can be recycled and contribute towards a new product, avoiding virgin excretion. It is essential that the fibres are not blended with any synthetic fibres.

Recycled and recyclable wool, which may be blended with silk or tencel to improve the fabrics durability and moisture-wicking properties, can be used for some pieces of the collection if required, especially for pieces that need elasticity. Wool is a natural performance material, with the ability to keep the person cool in hot scenarios and warm in cold conditions. The fibre is also odour resistant and can be aired instead of washed after the workout.

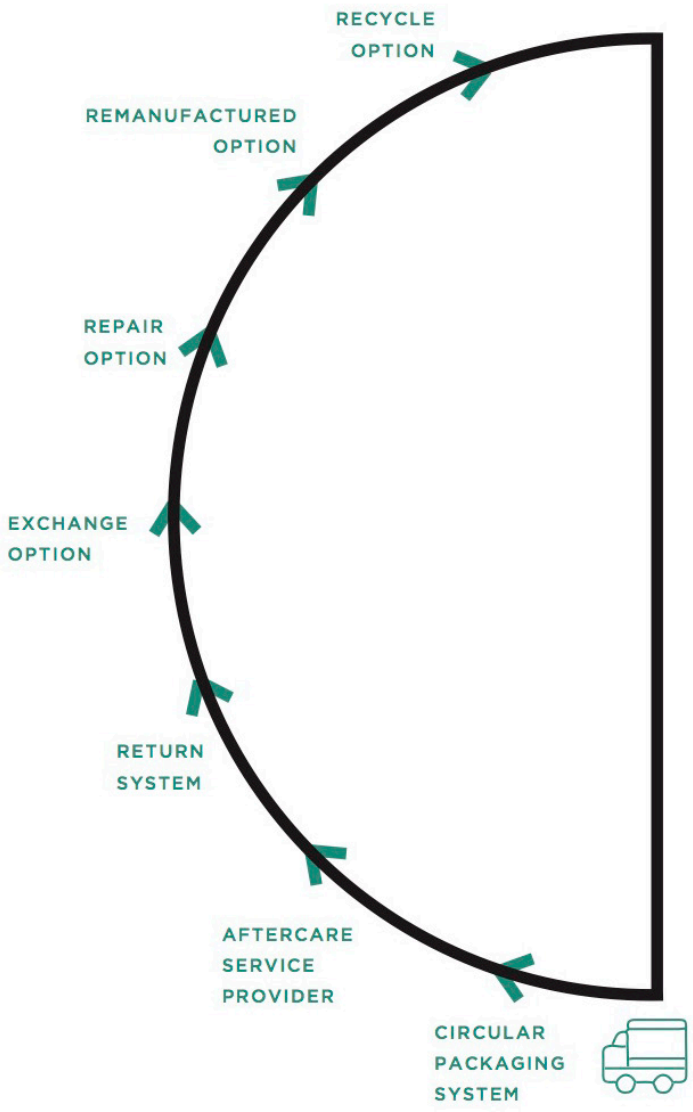
Elastane or Lycra is not allowed to be included at all, in the collection, due to the fact that it currently cannot be recycled, nor can its fibres be separated. Therefore elasticity has to be considered carefully during the design process, aiming to achieved it in different ways. For example, as previously mentioned, through material choice, through special techniques of wool knits, and/or through mechanical stretch - a special micro-pleating process at finishing stage of the fabric. Elasticity may also be achieved, through a redesign and rethinking of pattern making, for example, by considering and draping around the natural movement of the body during the workout.

DISASSEMBLY

Finally, in order to support all of the above, we will focus on adopting a disassembly strategy, enabled by the designed layers. When implementing disassembly, the product is destined for more longevity, seeing as its design allows access to the appropriate parts that will need an end-of-life solution. Disassembly of the 100% monomaterial layers allows for each layer to be handled singularly when dealing with the return and recycle phase, which will be introduced within the service systems on page 16.

We will refer to two types of layers to always keep in mind, allowing for best performance within itself: 'Shell Layer' & 'Soft Layer'.

The 'Shell Layer' will be regarded as the longer lasting layer that which its functions and fibres are less prone to fast wear and tear, and are therefore naturally more destined to a longer use life. For example, when regarding athleisure wear, this can be implemented in the outer layer of a running jacket, as its use is during the activity rather than throughout the whole day while training indoors. The 'Soft Layer', on the other hand, will be regarded as the layers that are naturally more susceptible to wear and tear, layers that perhaps need more after care handling or are used in more strenuous activities and the fibres are exposed to more damage. For example, allocating a soft layer to a sweat absorbent bottom layer as it is more likely to be washed on a more frequent basis.



SERVICE SYSTEM STRATEGIES

In order to support the recovery of resource, to keep the cycle flowing, it is crucial to set easy service systems in place. In communicating these strategies, our aim is to encourage consumers to engage with more mindful consumption behaviors. We will provide them with a collaborative consumption system, that allows them easier and more opportunities to elongate the life of their garments. By means of the design strategies, the opportunities that lie within our service systems are therefore wider, seeing that each layer can be dealt with on an individual basis. Layer/s have the opportunity to either be repaired, utilized for upcycling opportunities, or coul be safely returned to its cycle, acting as the perfect nutrient.

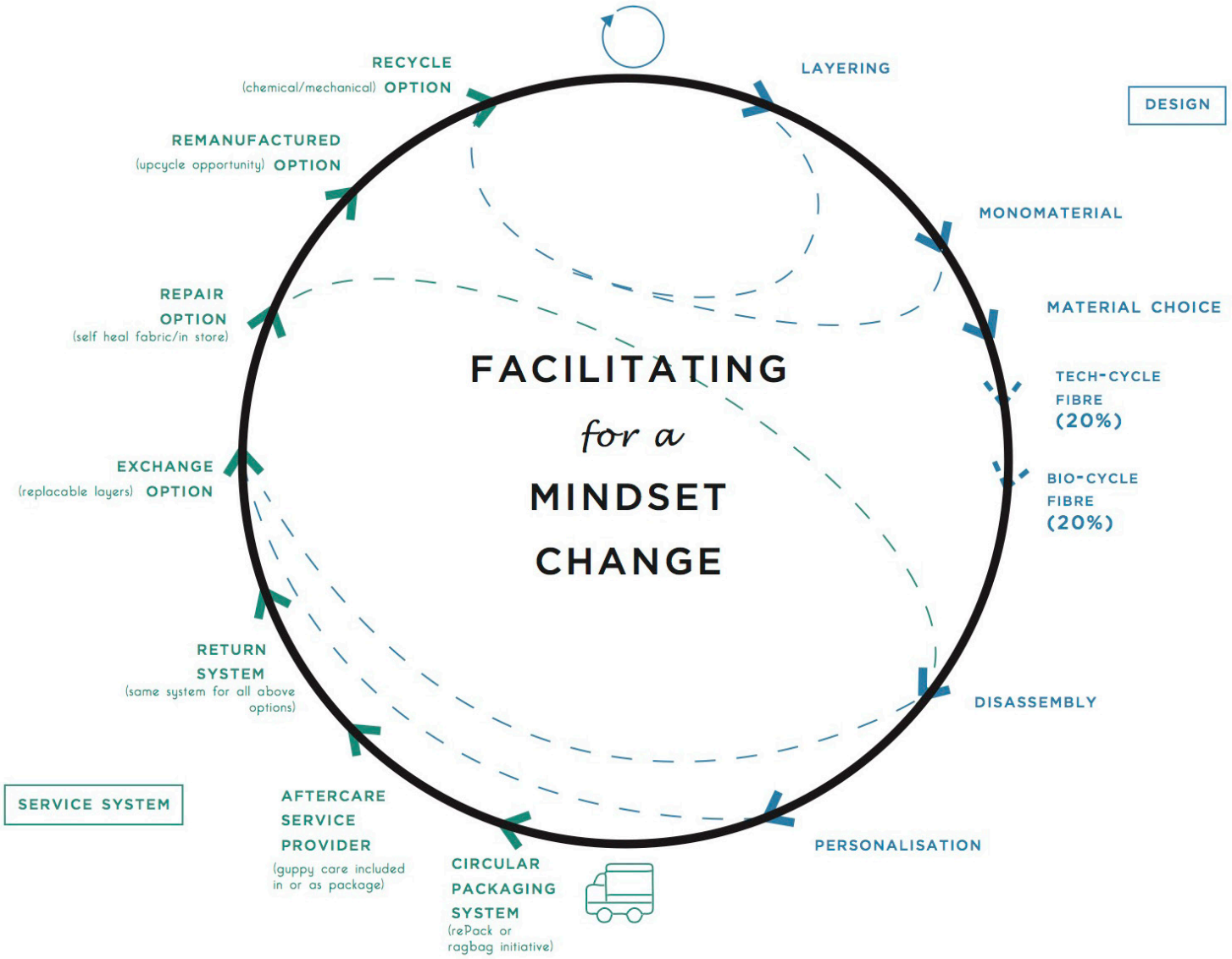
RETURN SYSTEM

Using a circular packing system, like RePack, for example - a return system that offers consumers a reward when the packaging is returned. In this case, we will be using the circular packaging system as a tool and form of communications that enables the collaboration needed from consumers when returning the said resource/s, aiming to encourage consumers to be more involved providing incentives that work in their favor too! It will act as a platform for all service systems that we will offer, allowing consumers to return the appropriate layer/s, according to the preference of return option, that they will always benefit from.

Firstly they will have the option of exchanging a layer/s for a new an improved one, this will not only help us to gain the resource back, but it also adds a dimension of personalization, aiming to create a closer connection with our consumer. They will also have the option to repair layer/s of their choice, supported through the design strategies; this also helps to create a more emotional attachment towards ones possessions. Through the system, they will also have the opportunity of returning in order to contribute to up cycling, which we refer to as remanufacture, whereby it enables us to give the material a new functioning life, if possible. Lastly this all contribute towards recyclability maintainance. Again, through our design strategies, the aim is to be able to have the freedom to fit within any of these services.

CARE AND USE

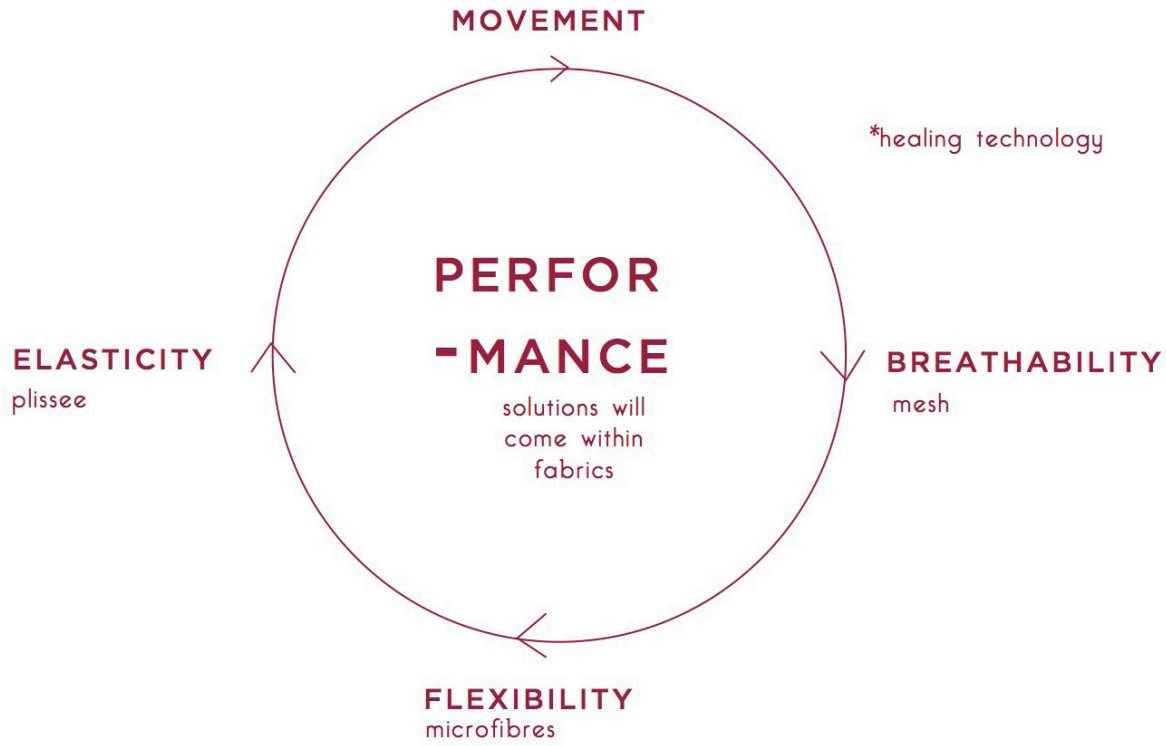
As we have previously mentioned, our consumer user needs are a vital contribution towards establishing our strategies. so, with this in mind, it is important to also find a way to help tackle care and use of products. As discussed earlier, microfiber pollution has proved to be a definite problem. While factoring it in during the design stage, we will also greatly consider it within our service systems. Currently, sewage treatment plants cannot effectively filter out these microfibers - therefore we will use this as our point of strategy. Within our packaging system, consumers would receive a washing bag, with every purchase made. These are designed to capture the microfibers, and prevent water contamination. A good example it the guppy bag.

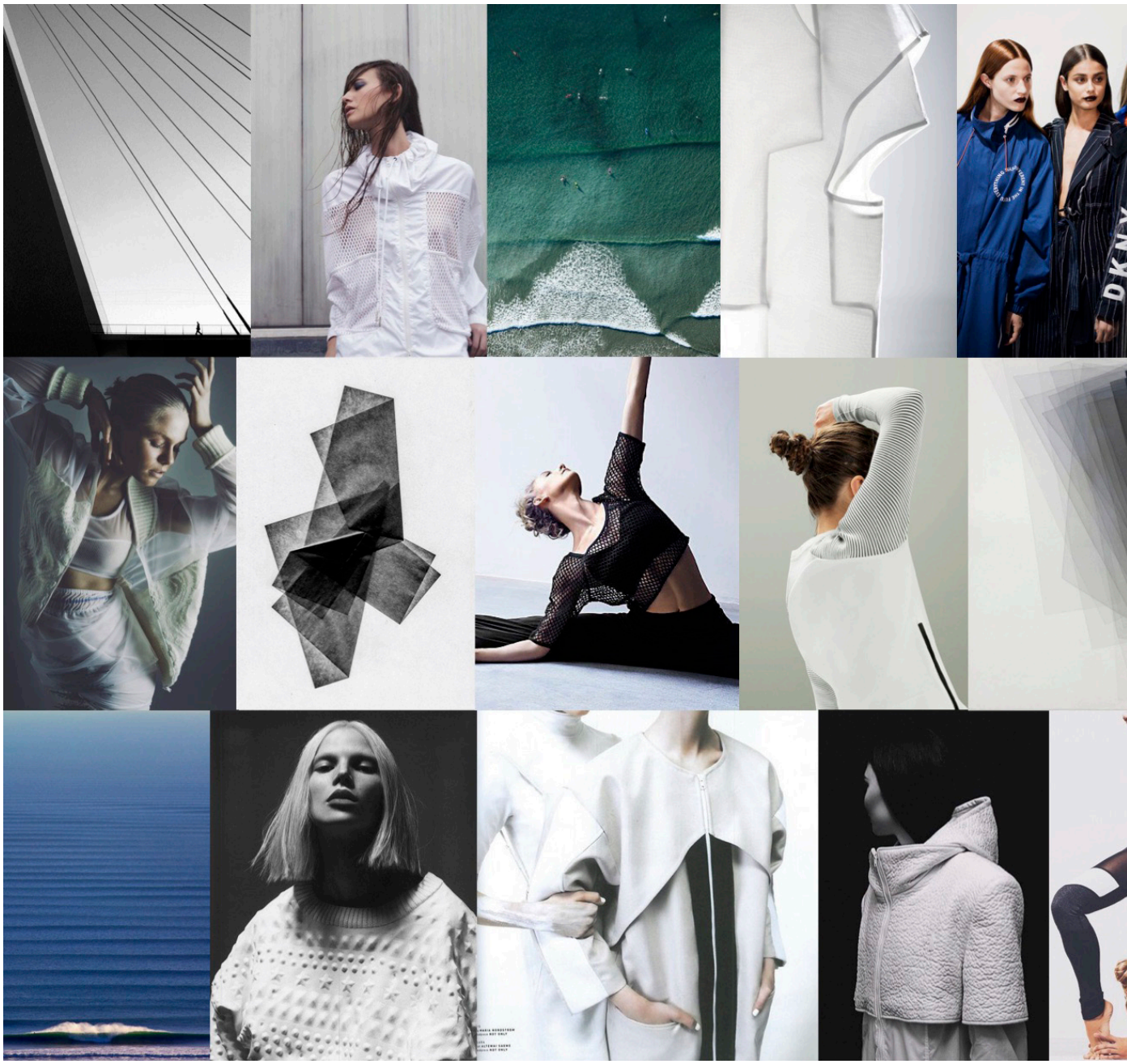

RECYCLE
(chemical/mechanical) OPTION
LAYERING
DESIGN
REMANUFACTURED
(upcycle opportunity) OPTION
MONOMATERIAL
REPAIR
OPTION
(self heal fabric/in store)
MATERIAL CHOICE
TECH-CYCLE
FIBRE
(20%)
FACILITATING
for a
MINDSET
CHANGE
EXCHANGE
(replacable layers) OPTION
BIO-CYCLE
FIBRE
(20%)
RETURN
SYSTEM
(same system for all above
options)
DISASSEMBLY
SERVICE SYSTEM
AFTERCARE
SERVICE
PROVIDER
(guppy care included
in or as package)
PERSONALISATION
CIRCULAR
PACKAGING
SYSTEM
(rePack or
ragbag initiative)

DESIGN PRINCIPLES

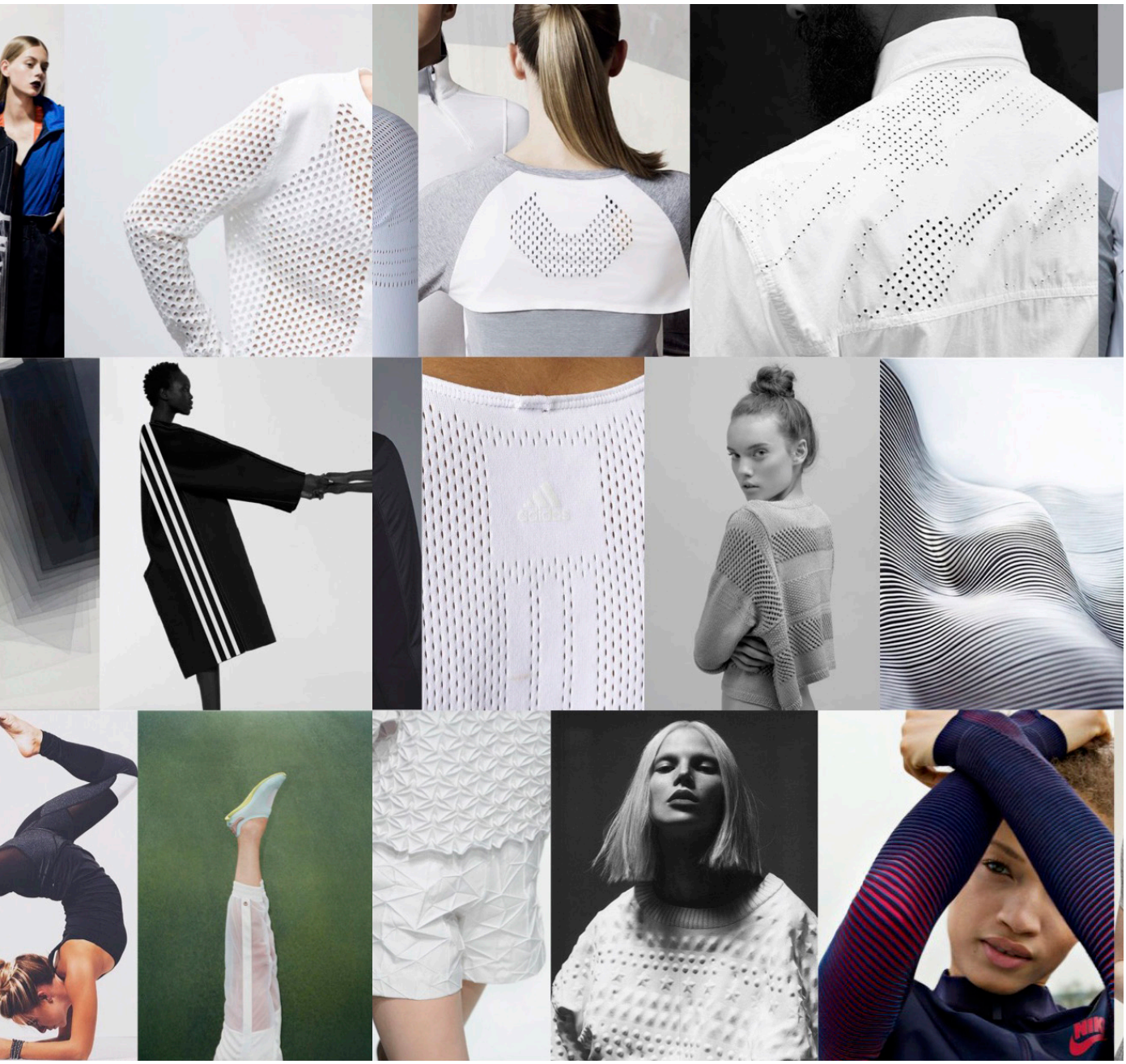
*tapping into existing opportunities + design soultion

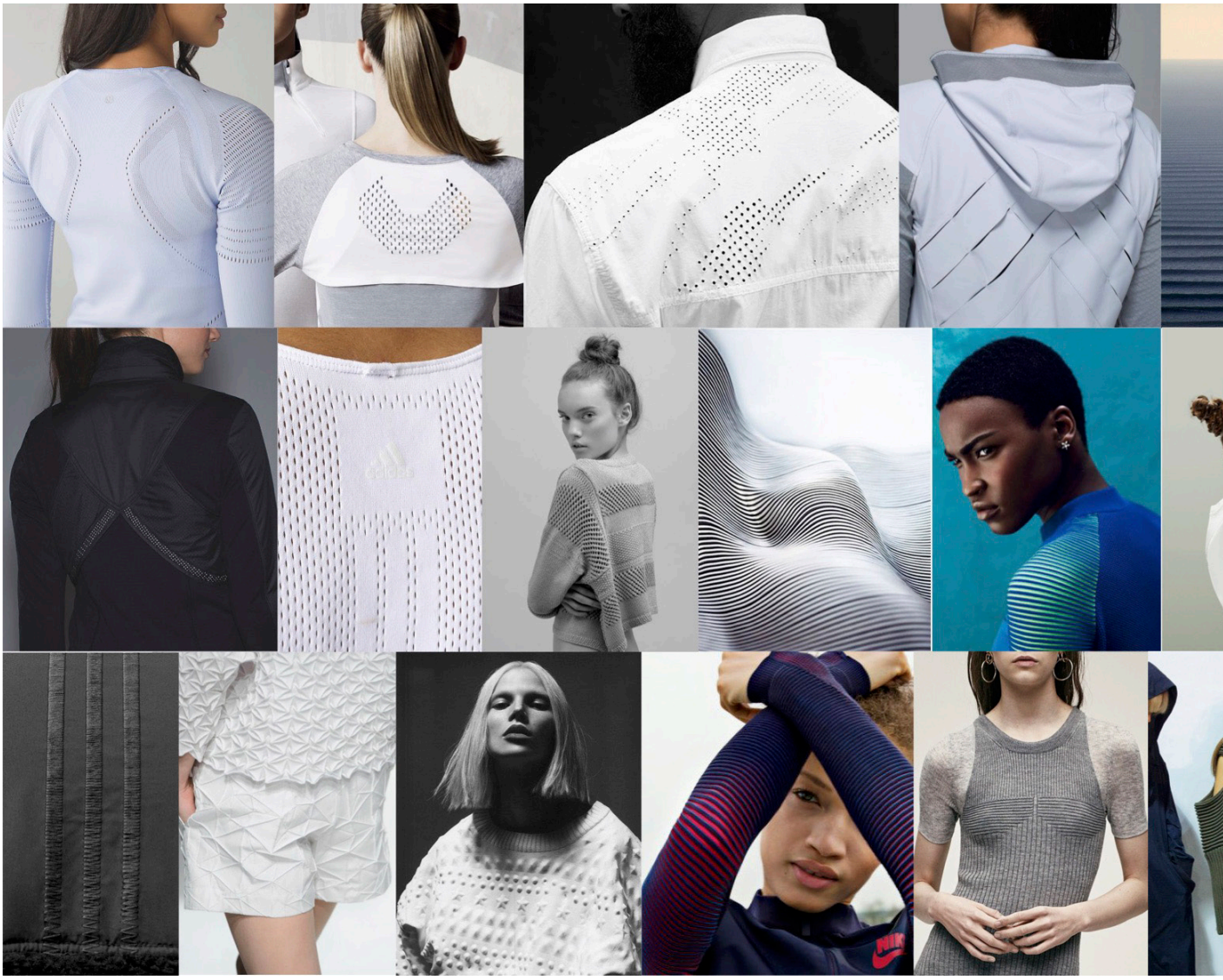
(refer to 'Asset Opportunities')





MOOD BOARD





MOOD BOARD

MARKETING STRATEGIES

+ connecting community in Berlin:
  - adidas running groups
  - marathons
  - adidas playgrounds, Berlin

+working with brand embassadors

+ecnourage consumers for return opportunities (added incentives // loyalty card)

+collaborations (parley)

+remaking old designs (easy consumer relation)

+certifications / labels

+versitility / multifunctionality of product (USP)

ADIDAS ASSET OPPORTUNITIES

PRODUCTION MANAGEMENT

+low waste design strategy

+better cotton innitative

+recycled PET & nylon (parley)

+recycled polystrene (shoe heal cap)

+drydye technology

+no dye technology

TOXICITY MANAGEMENT

+no PVC use

+minimizing use of harmful solvents

+micro fibre awareness & research

+aiming towards zero emissions

CIRCULAR MANAGEMENT

+management worker project

+production transparency engagement

+aiming towards circular insentives (sports infinity)

+life cycle assesment program

+in store take back system

JULY 2017

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