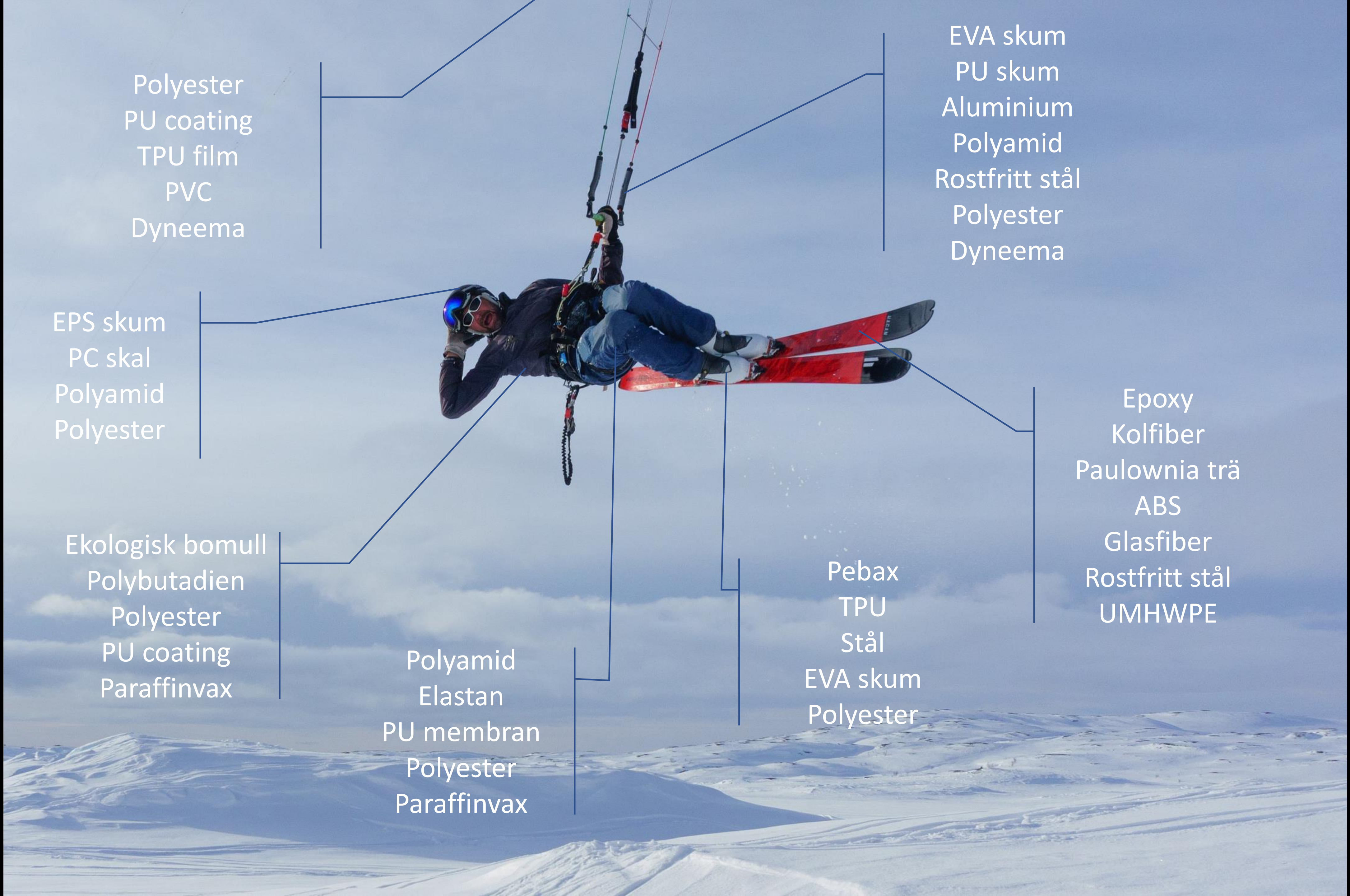
Peak Innovation
TOURISM SPORTS OUTDOOR

Vägar till hållbarhet

Material, innovation, hållbarhet

STII 2018

VINNOVA · Region Jämtland Härjedalen · Mittuniversitetet Mid Sweden University · Peak Region · Östersunds kommun · Åre kommun


Polyester
PU coating
TPU film
PVC
Dyneema
EVA skum
PU skum
Aluminium
Polyamid
Rostfritt stål
Polyester
Dyneema
EPS skum
PC skal
Polyamid
Polyester
Epoxy
Kolfiber
Paulownia trä
ABS
Glasfiber
Rostfritt stål
UMHWPE
Ekologisk bomull
Polybutadien
Polyester
PU coating
Paraffinvax
Pebax
TPU
Stål
EVA skum
Polyester
Polyamid
Elastan
PU membran
Polyester
Paraffinvax


Stötskydd
Isolering
Ventilation
Fukttransport
Snöavvisning
Klar sikt
Imfritt
Ventilation
Vindskydd
Slagseghet
Snöavvisning
Vattenavvisning
Snöavvisning
Ånggenomsläpp
Vindskydd
Isolering
Fukttransport

En hållbar framtid!

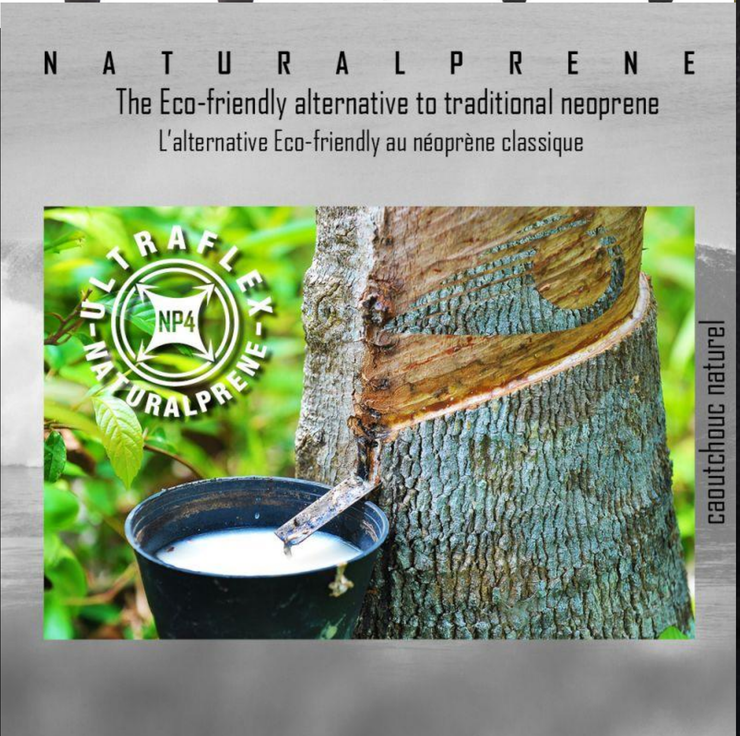
Material från avfall?

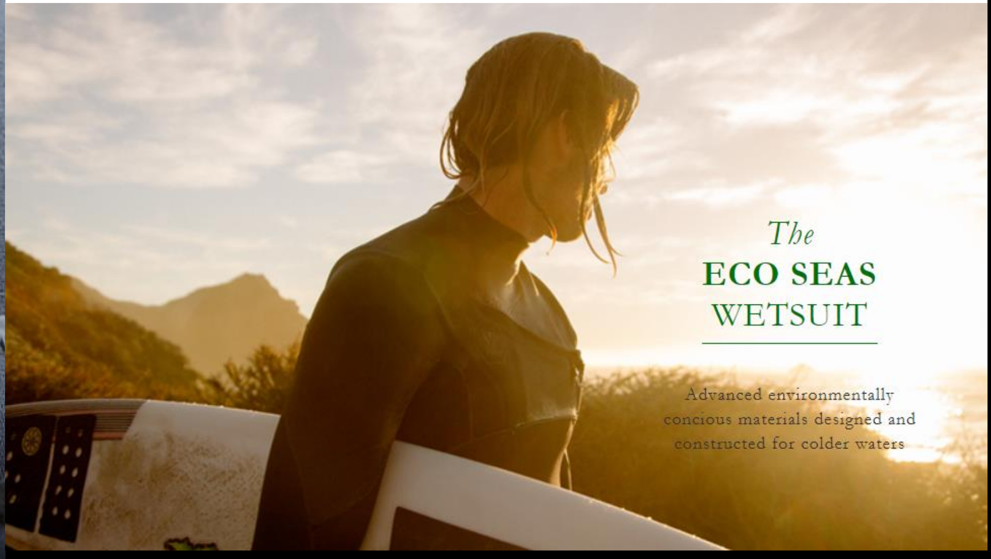
https://www.econyl.com/


NATURALPRENE
ORGANIC WETSUIT
ZIP FREE ENTRY
ULTRAFLEX
NP4
NATURALPRENE
RECYCLED
POLYESTER


BULA


ZERO
PETROL
A NEW ALTERNATIVE TO NEOPRENE
NATURALPRENE
STRETCH TECHNOLOGY
SPRING . SUMMER
17
PRODUIT: OSKANA
PICTURE

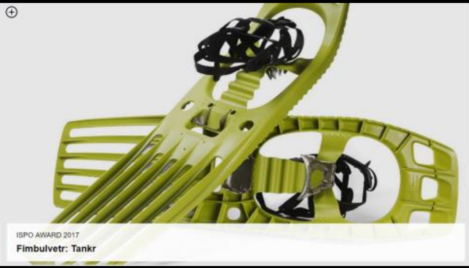

N A T U R A L P R E N E
The Eco-friendly alternative to traditional neoprene
L'alternative Eco-friendly au néoprène classique
ULTRAFLEX
NP4
NATURALPRENE
caoutchouc naturel


The
ECO SEAS
WETSUIT
Advanced environmentally
concious materials designed and
constructed for colder waters

Prisvinnare - hållbarhet

ISPO 2017:

- Tierra – helt förnybara material i en isolerad polyamidjacka
- Fimbulvetr – circulär design i hårdvara
- Nzero – förnybar, biologiskt nedbrytbar, fluorfri skidvalla
- SOA - Fjällräven – en produkt som ”har allt” (Fjällräven Expedition)

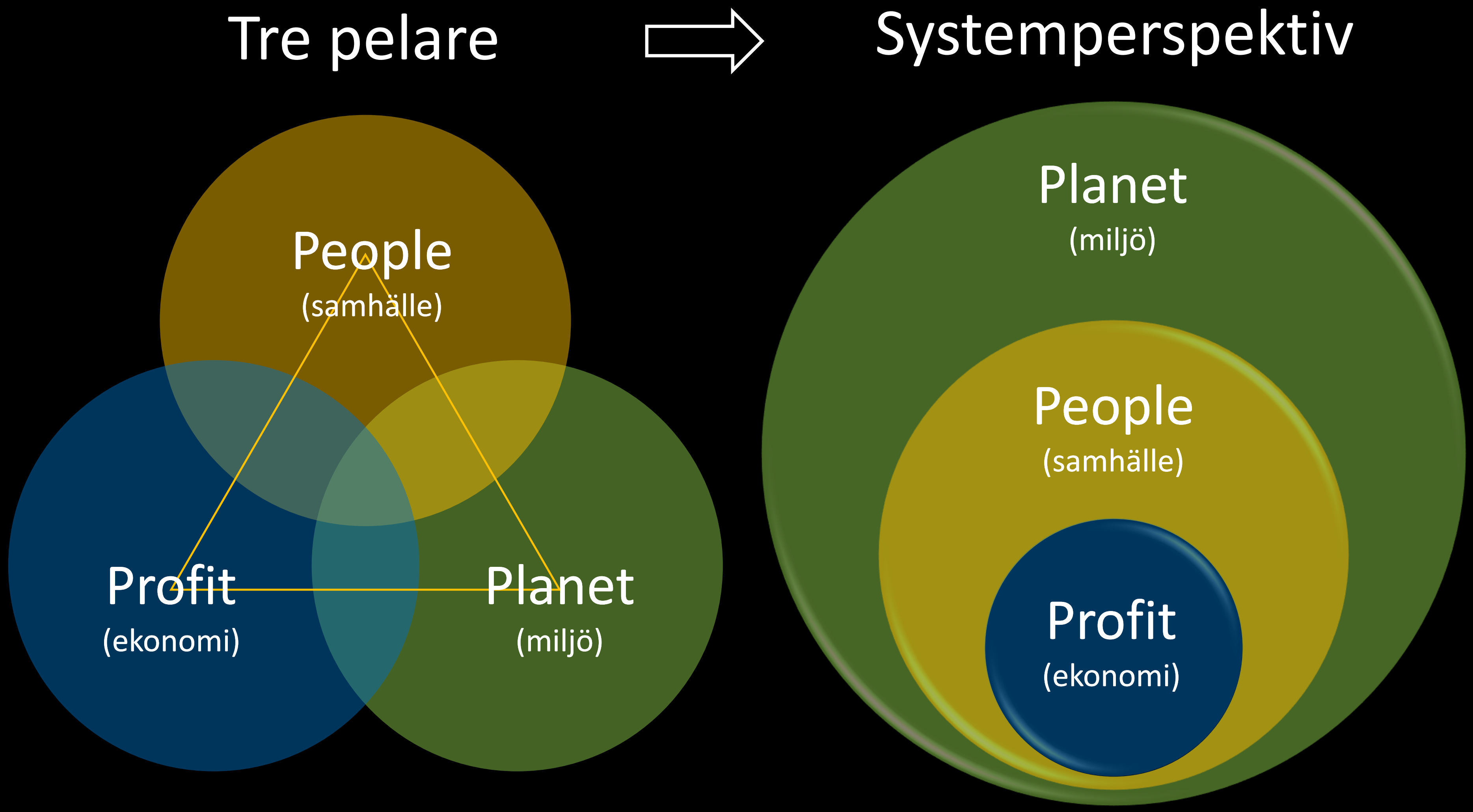


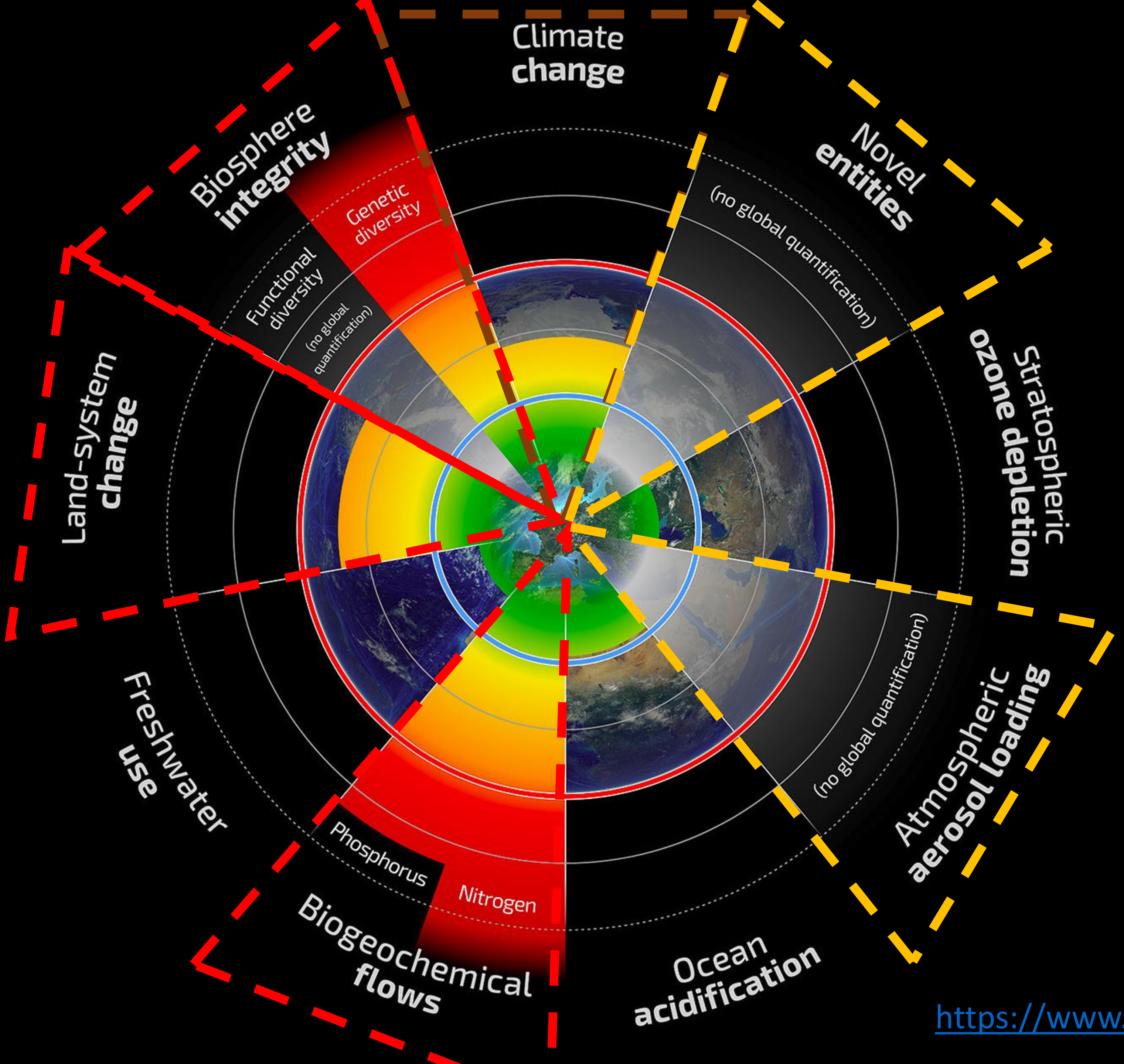
Winners – ISPO 2018

Hållbarhet

De absoluta grunderna

Hållbar utveckling





https://www.stockholmresilience.org/

Agenda 2030 – De Globala Målen

http://www.globalamalen.se/

Att förklara ”hållbarhet”

De fyra hållbarhetsprinciperna

- **Förenklar visions- och målsättning**
- **Ger bra översikt över hållbarhet**
- **Enkla att använda i beslutsfattande i vardagen**

The Natural Step

www.detnaturligasteget.se

Utmaningar

De stora hållbarhetsfrågorna i materialval

Livscykeln - Värdekedjan

	Rå-material	Fibrer	Tyg	Jacka	Försäljning	Användning	EoL
Människor		Fabriksarbetare Designer Textilarbetare	Designer Transportör Textilarbetare	Inköpare Designer Sömmerska	Lagerpersonal Butikspersonal Säljare	Sömmerska Slutkund Kundtjänstpersonal	återvinningsarbetare Transportör Avfallshanterare
Inputs		Kemikalier Vatten Energi	Kemikalier Vatten Energi	Trims Andra material Emballage	Emballage Taggar Kataloger	Vatten Energi Kemikalier	Energi Vatten Kemikalier
Processer		Spinning Texturering Transporter	Vävning Våtprocesser Transporter	Skärning Sömnad Tryck	Säljresor Lagerhantering Transporter	Tvätt Impregnering Reparationer	Materialåtervinning Sortering Transporter
Utsläpp		Förorenat vatten Kemikaliutsläpp Koldioxidutsläpp	Mikroplaster Färgningsvatten Koldioxidutsläpp	Koldioxidutsläpp Kemikalieutsläpp	Mikroplaster Koldioxidutsläpp	Microplaster Tvättvatten Koldioxidutsläpp	Kemikalieläckage Luftföreoreningar

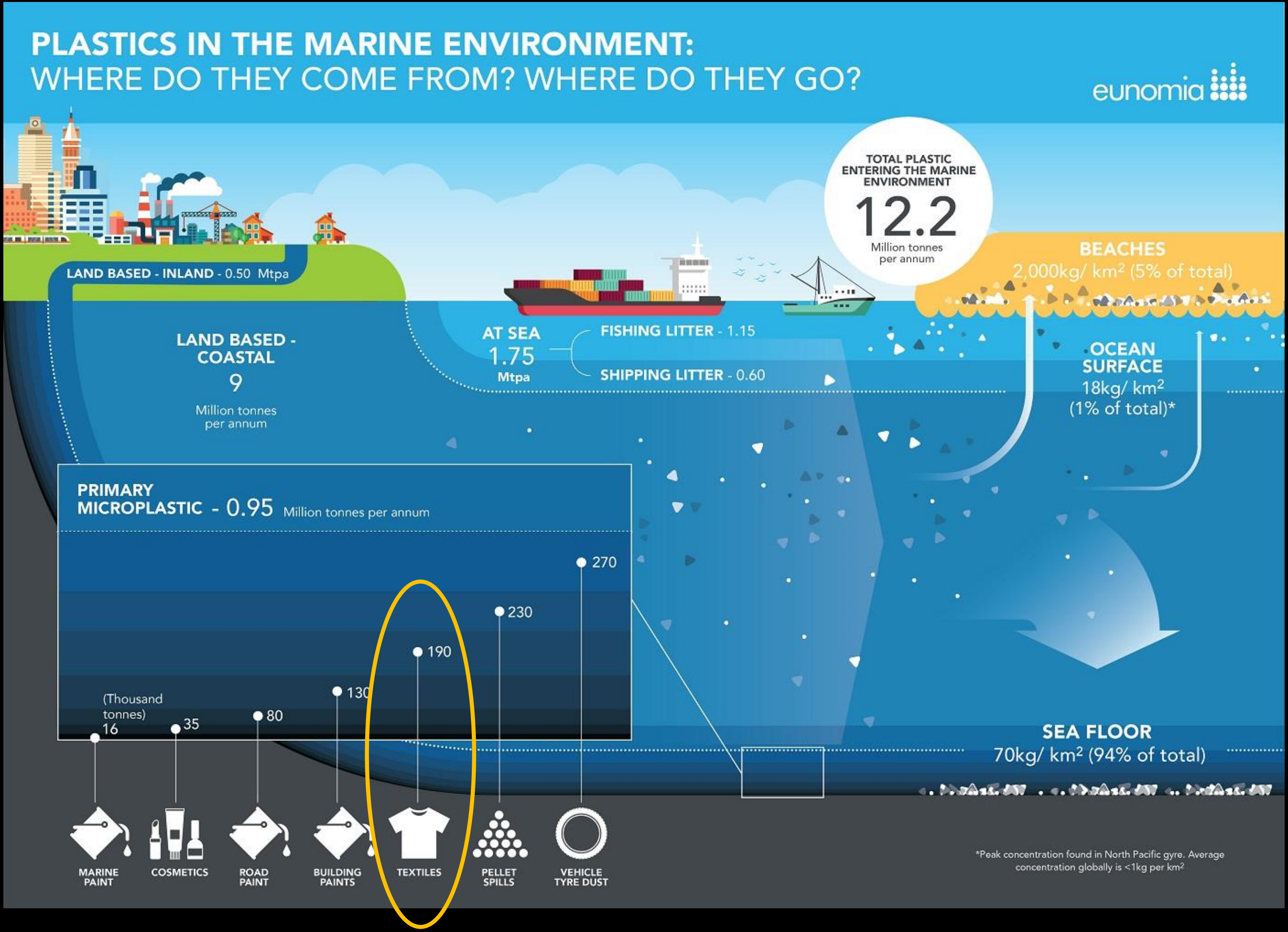
Var står vi idag - Syntetmaterial?

Utmaningar

1. Fossilberoende
2. Mikroplaster
3. Nedbrytbarhet
4. Återvinningsbarhet
5. Kemiskt innehåll
6. Spårbarhet

Möjliga lösningar?

- *Förnybar råvara/energi*
- *Bio/Marin nedbrytning*
- *Nya standarder*
- *Nya cirkulära processer*
- *Grön kemi*
- *Transparens, öppenhet*



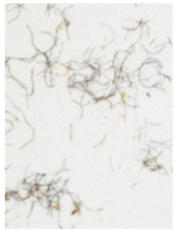
PLASTICS IN THE MARINE ENVIRONMENT:
WHERE DO THEY COME FROM? WHERE DO THEY GO?
eunomia
TOTAL PLASTIC ENTERING THE MARINE ENVIRONMENT
12.2
Million tonnes per annum
LAND BASED - INLAND - 0.50 Mtpa
LAND BASED - COASTAL
9
Million tonnes per annum
AT SEA
1.75
Mtpa
FISHING LITTER - 1.15
SHIPPING LITTER - 0.60
BEACHES
2,000kg/ km² (5% of total)
OCEAN SURFACE
18kg/ km²
(1% of total)*
PRIMARY MICROPLASTIC - 0.95 Million tonnes per annum
(Thousand tonnes)
16
35
80
130
190
230
270
MARINE PAINT
COSMETICS
ROAD PAINT
BUILDING PAINTS
TEXTILES
PELLET SPILLS
VEHICLE TYRE DUST
SEA FLOOR
70kg/ km² (94% of total)
*Peak concentration found in North Pacific gyre. Average concentration globally is <1kg per km²

COMBATING MICROFIBER POLLUTION

The current state of knowledge, research, and actions across sectors to address a growing threat to ocean and human health (Link)

WHAT ARE MICROFIBERS?

Microscopic strands (less than 5mm long) of synthetic and natural textile fibers that are shed during product life cycles and end up in our oceans and other ecosystems.



Source: Patagonia

STATE OF KNOWLEDGE

Microfibers have been found in global oceans, rivers, agricultural soils, marine and freshwater animals, and products sold for human consumption.

Clothing is a prominent source of microfiber pollution, but carpet, upholstery, toiletries, and other products also shed fibers that can enter the environment.

Clothing and other textiles can shed thousands of fibers every wash cycle.

Microfibers have a unique shape and associated chemicals, and can attract pathogens and pollutants throughout their life cycle.

MAJOR KNOWLEDGE GAPS

Which products, materials, manufacturing processes, and life cycle phases contribute the most to microfiber pollution?

How do microfiber emissions to the environment and transport pathways vary around the world?

What effects do microfibers and their associated chemicals have on ecosystem, animal and human health?

Can we design products that don't shed fibers and/or processes to remove microfibers that have already entered the environment?

EMERGING SOLUTIONS & NEXT STEPS

- Several new products aim to capture clothing fibers in the wash.
- Regulators are evaluating options to compel companies to reduce and/or effectively manage microfiber pollution.
- Stakeholders across sectors are increasingly collaborating to better understand and address the problem.

There is a strong need for additional research, testing, and innovation that improves our understanding of microfiber pollution and its impact on human and environmental health. *In October 2017, a group of academic, NGO, corporate and regulatory leaders came together in Santa Barbara, California to discuss ways to accelerate efforts to address this challenge. The roadmap below summarizes priority actions identified by the group.*

MICROFIBER ACTION ROADMAP

(Link)

Priority actions that key stakeholders should take over the next five years to systemically understand and address microfiber pollution, from source to sea

Priority Actions

LED BY ACADEMIA & NGOS

Material Flow Analysis (MFA) and Hotspot Identification

Fate and Transport Assessment

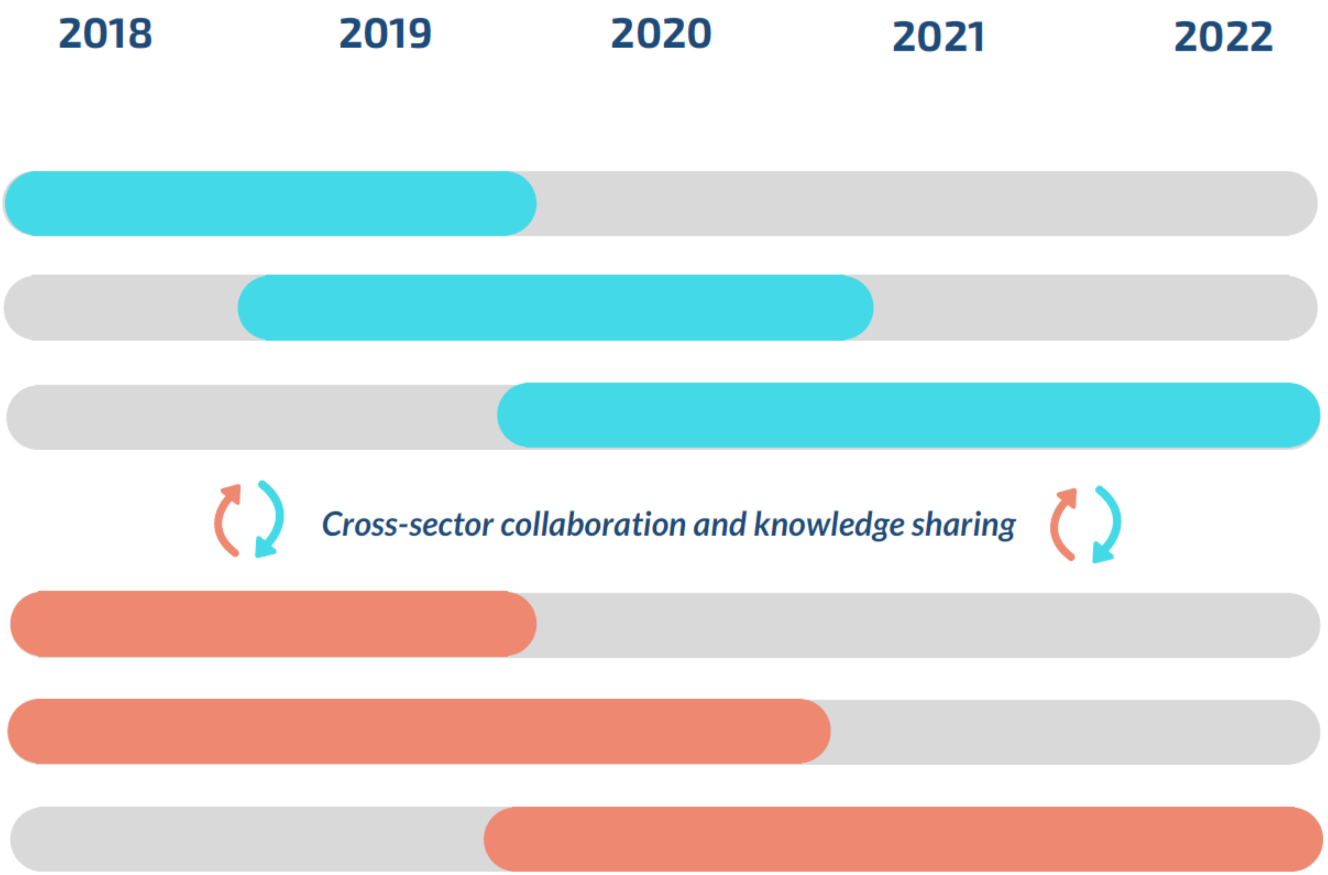
Environmental Risk Assessment

LED BY INDUSTRY

Establish consistent test methodologies for fiber shed rates

Implement best practices shown to reduce supply chain emissions

Design and invest in innovative, science-backed solutions



Learn more: http://bit.ly/microfiberaction

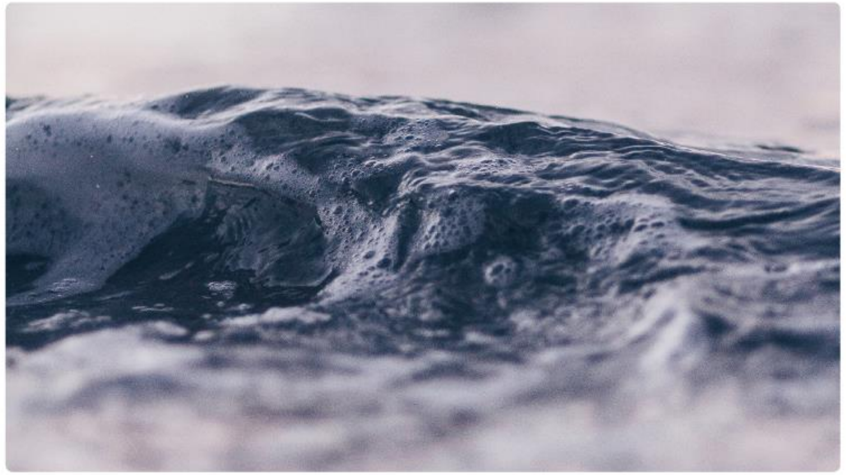
Produced by: Ocean Conservancy, Bren School of Environmental Science & Management, University of California, Santa Barbara, Future 500

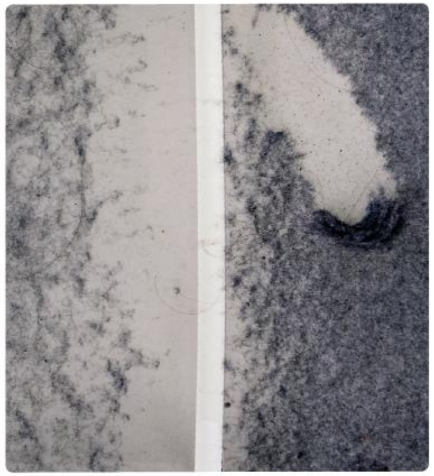
NATUR VÅRDS VERKET

GREEN STRATEGY

Omvärldsbevakning av pågående initiativ inom området mikroplaster kopplat till textil

2018.03.09





Sammanställning utförd av Dr. Anna Brismar,
Green Strategy, på uppdrag av Naturvårdsverket

Kontakt: Joel Svedlund, joel.svedlund@peakinnovation.se

Var står vi idag - Naturmaterial?

Utmaningar

1. Fossilberoende
2. Kemiska behandlingar
3. Övergödande
4. Undanträngande
5. Vattenanvändning
6. Återvinningsbarhet
7. Spårbarhet

Möjliga lösningar?

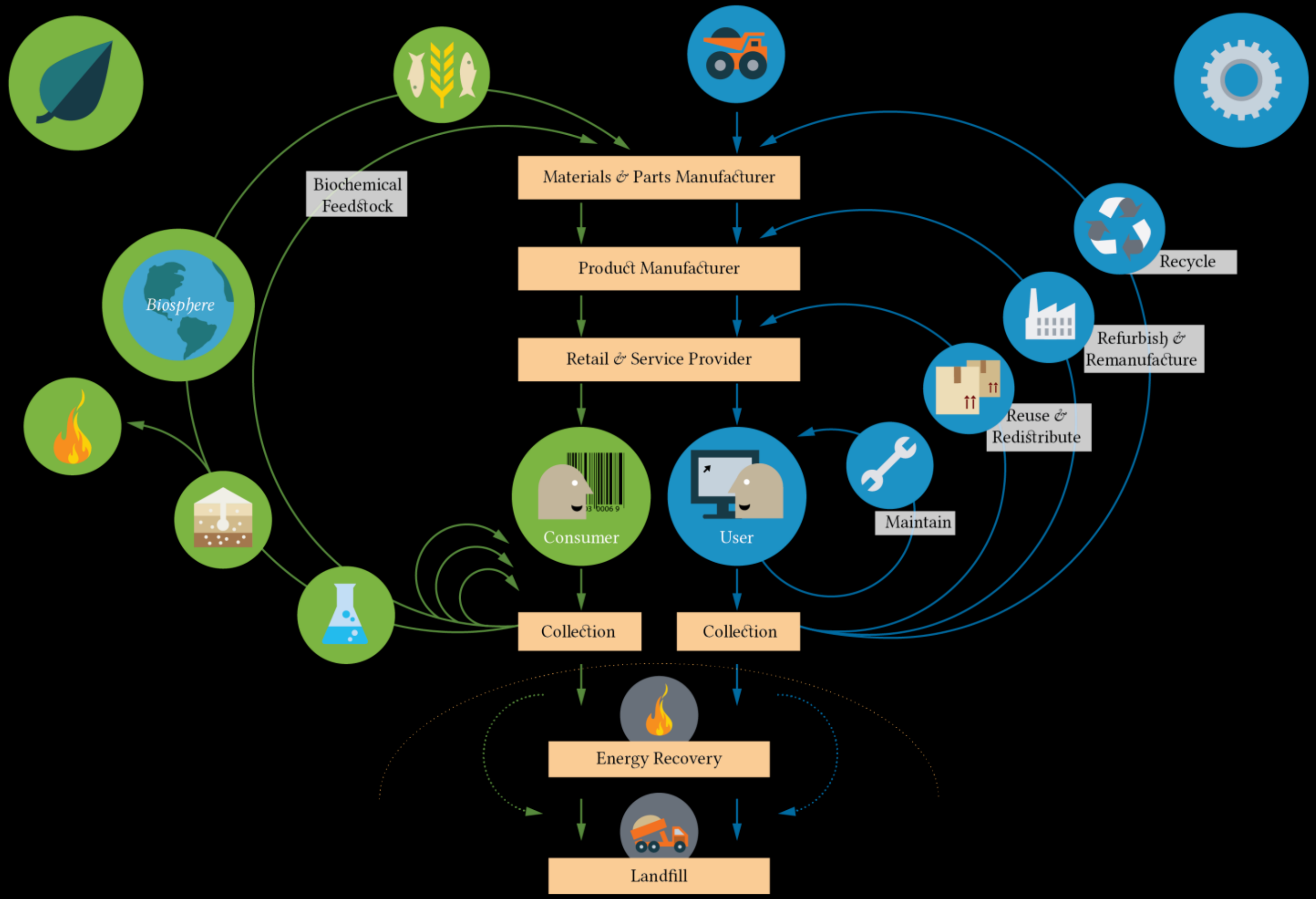
- *Fossilfritt, naturgödsel*
- *Ekologiskt, Grön kemi*
- *Regenerativt jordbruk*
- *Regenerativt jordbruk*
- *Vattenfria processer*
- *Nya cirkulära processer*
- *Transparens, öppenhet*

Cirkulär Ekonomi

En väg mot hållbarhet i industrin

Cirkulär Ekonomi

Slutna kretslopp, Förnyelsebar energi



Avfallstrappan

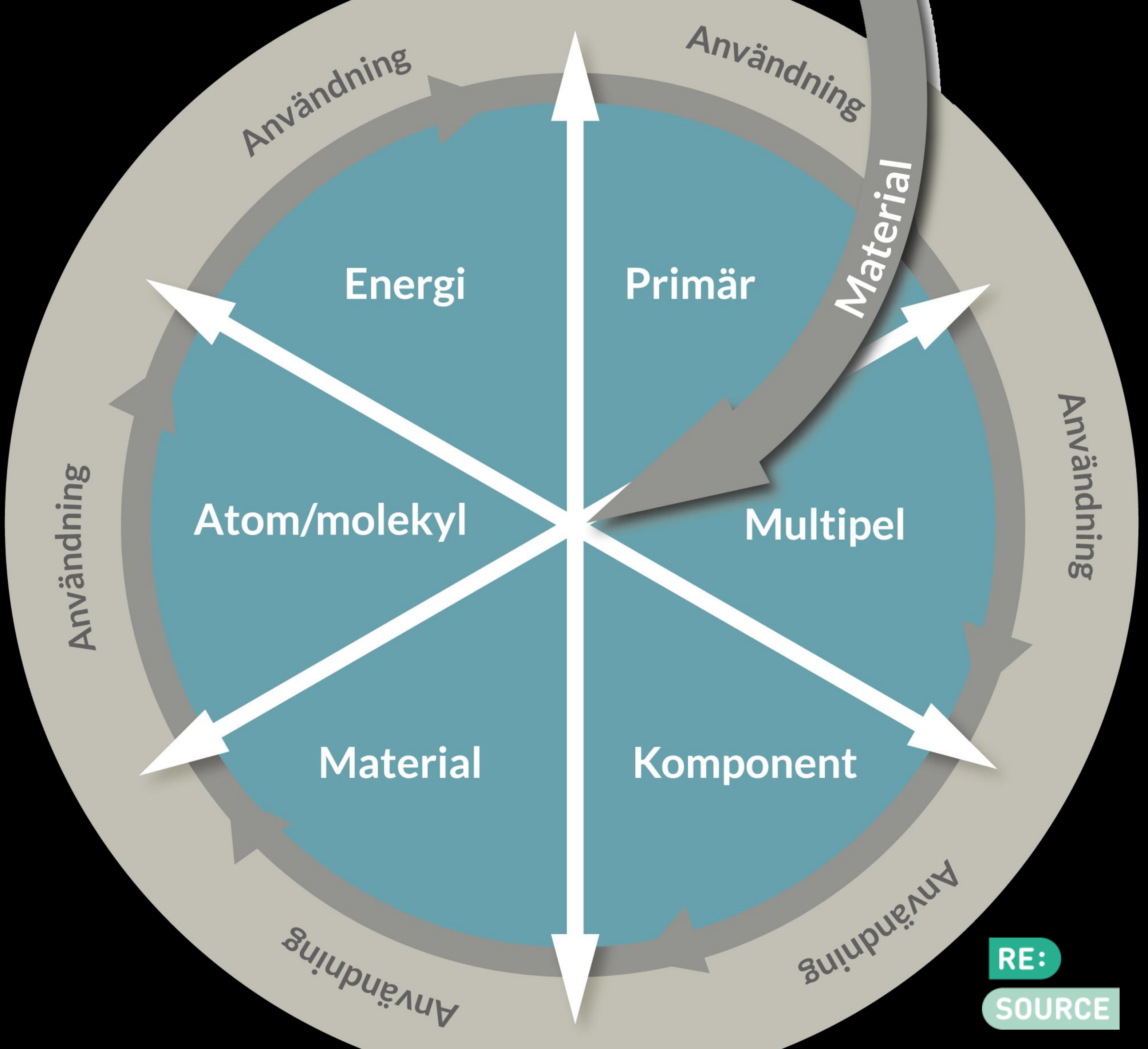
Viktigast i cirkulära materialflöden
(men väldigt förenklad beskrivning)

Fungerande komplettering för biobaserade material

Ej fungerande i cirkulära materialflöden

Materialhjulet

- En modell för analys och planering av materialanvändning
- Fokus på funktion och användning
- Skapad för cirkulära materialflöden



https://resource-sip.se/materialhjulet/

Peak Innovation

TOURISM SPORTS OUTDOOR

Email joel.svedlund@peakinnovation.se
Mobile +46-706-212176
Skype joel.svedlund

EUROPEAN OUTDOOR GROUP

SCANDINAVIAN OUTDOOR GROUP

VINNOVA

REGION JÄMTLAND HÄRJEDALEN

Mittuniversitetet

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ÅRE KOMMUN