

# Designing for sustainability

through systems thinking and behavioral design

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UX Connect June 2022  
Sara Andersson

# This session

15 min MY TAKE on designing for sustainability (ultra short)

50 min YOU TRY some of my methods in groups

20 min YOU PRESENT to each other

5 min WE WRAP IT UP - how was it?

# Briefly about me

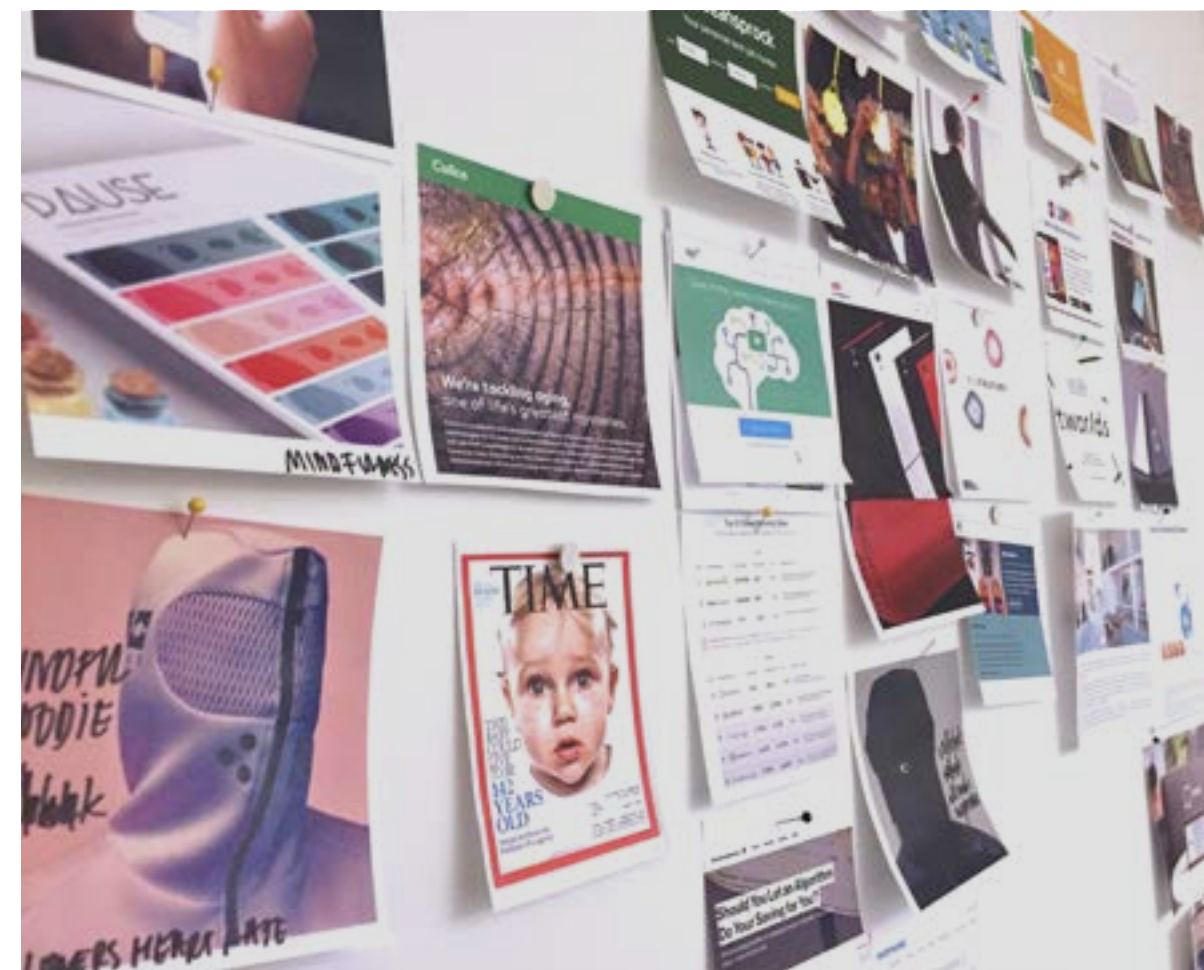
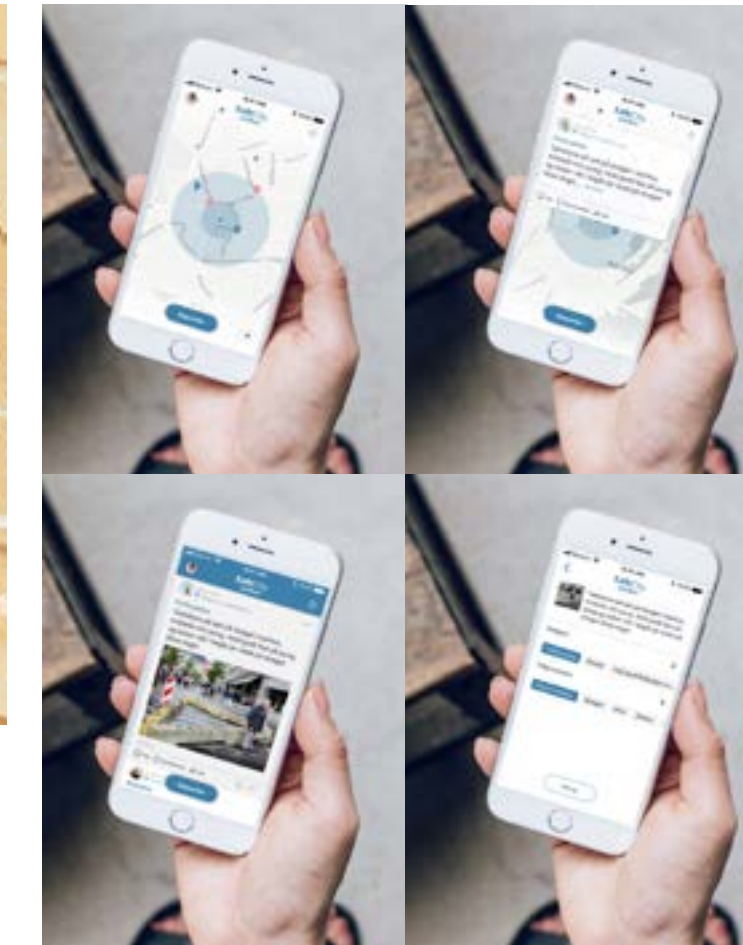
\_Trained as an industrial designer (TU Delft, NL)

\_13 years in design consultancy (product, digital, service, strategy)

\_THISFUTURE

\_Kolding Design School

\_Center for Innovation i Aarhus CFIA / 'Aarhus Transitions', City of Aarhus



**"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."**

-Brundtland Commission, 1987

# 17 sustainable development goals



# Goals related to climate and environment

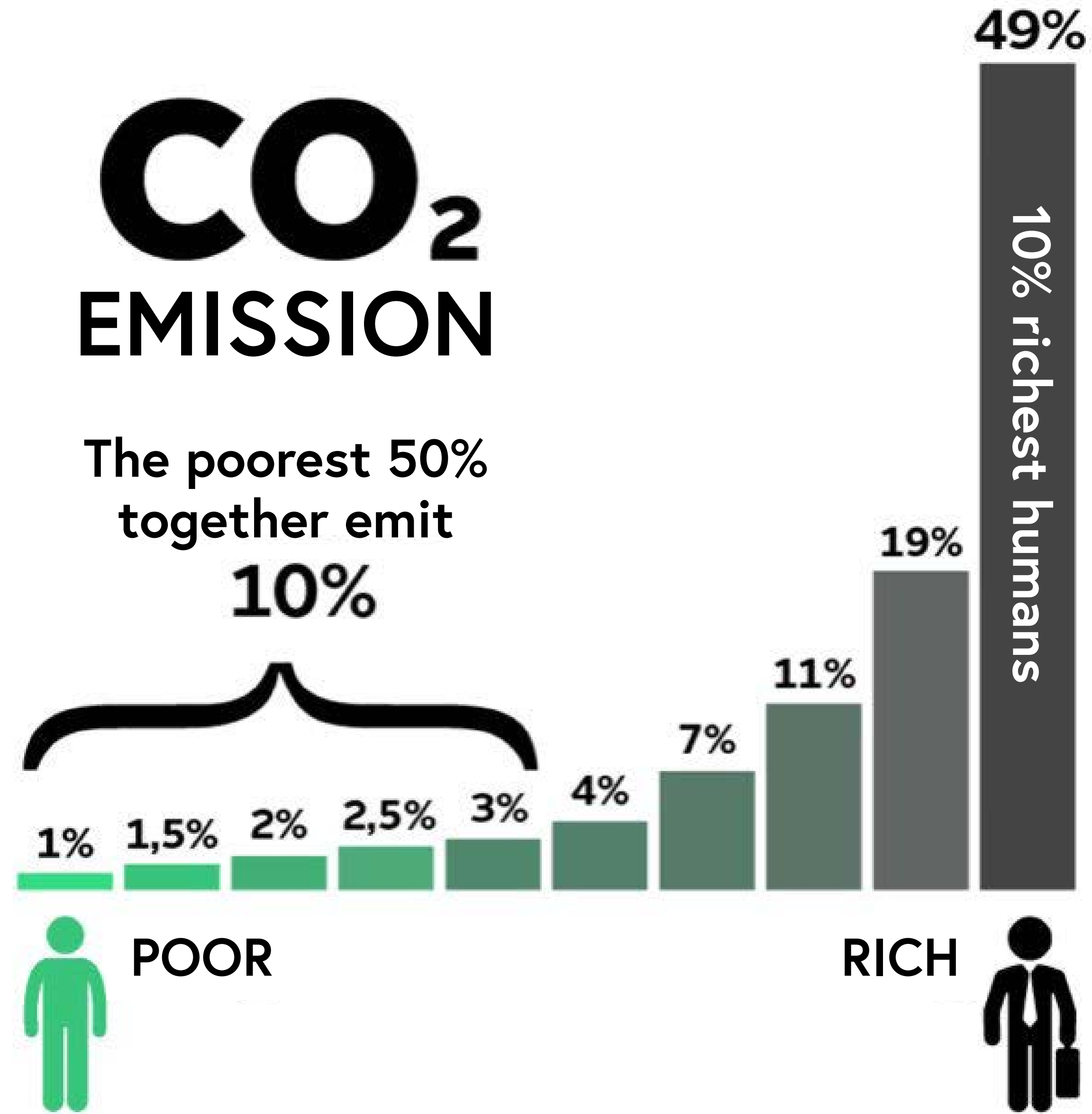


# Goals related to human welfare



# Connecting goal

Kilde: Katherine Richardson, Hvordan skaber vi bæredygtig udvikling for alle?





**HOW MANY PLANETS WOULD  
WE NEED, IF EVERYONE WAS  
TO CONSUME AS WE DO IN  
DENMARK?**





4,2!!!

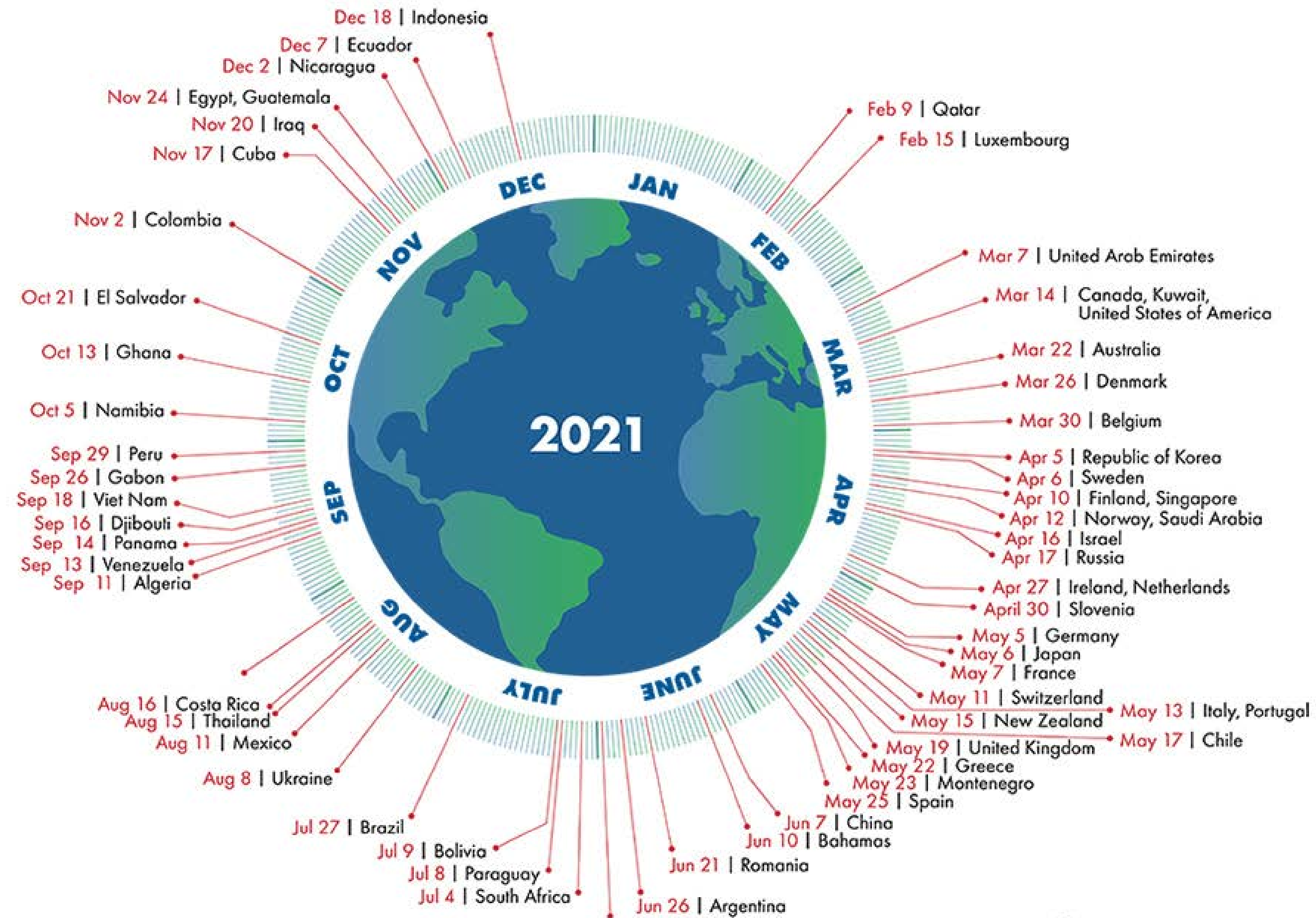




**... AND WE ONLY HAVE 1!**

# Country Overshoot Days 2021

When would Earth Overshoot Day land if the world's population lived like...



GLOBAL  
OVERSHOOT DAY:  
**29 JULI**



Source: National Footprint and Biocapacity Accounts, 2021 Edition  
[data.footprintnetwork.org](http://data.footprintnetwork.org)



# THE GREEN TRANSITION HAS TO BE JUST

Photo by Kelly Sikkema on Unsplash

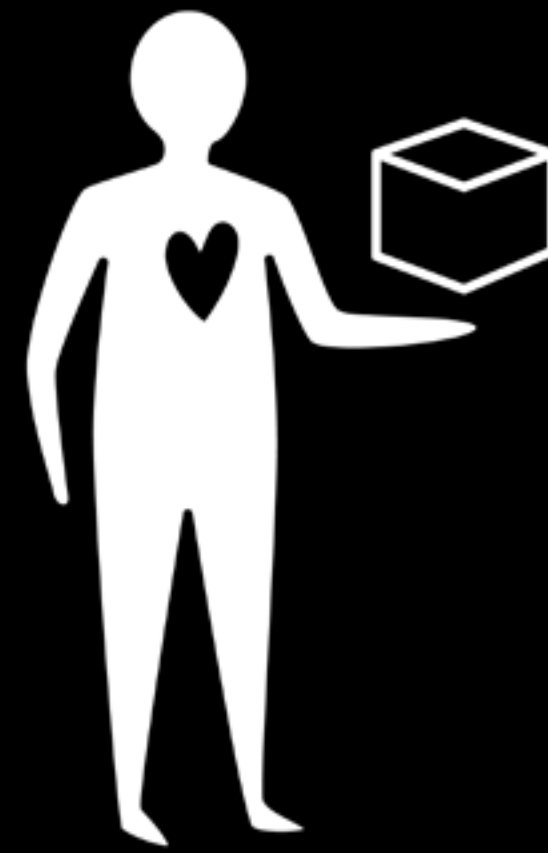
# THE ROLE OF DESIGNERS

PACKAGE DELIVERY COMPANY:  
HOW MIGHT WE ENSURE A BETTER  
HOME DELIVERY EXPERIENCE,  
SO MORE PEOPLE SHOP MORE ONLINE?



4,2 MILLION PEOPLE DIE  
FROM AMBIENT AIR POLLUTION  
EVERY YEAR

- The World Health Organization



©Sara Andersson





THISFUTURE >

A close-up photograph of a tray filled with numerous clear plastic cups containing smoothies. Each cup is topped with fresh fruit, including strawberries, kiwi, and pineapple slices. The cups are arranged in rows, and the background is slightly blurred, emphasizing the foreground cups. The overall lighting is soft and natural.

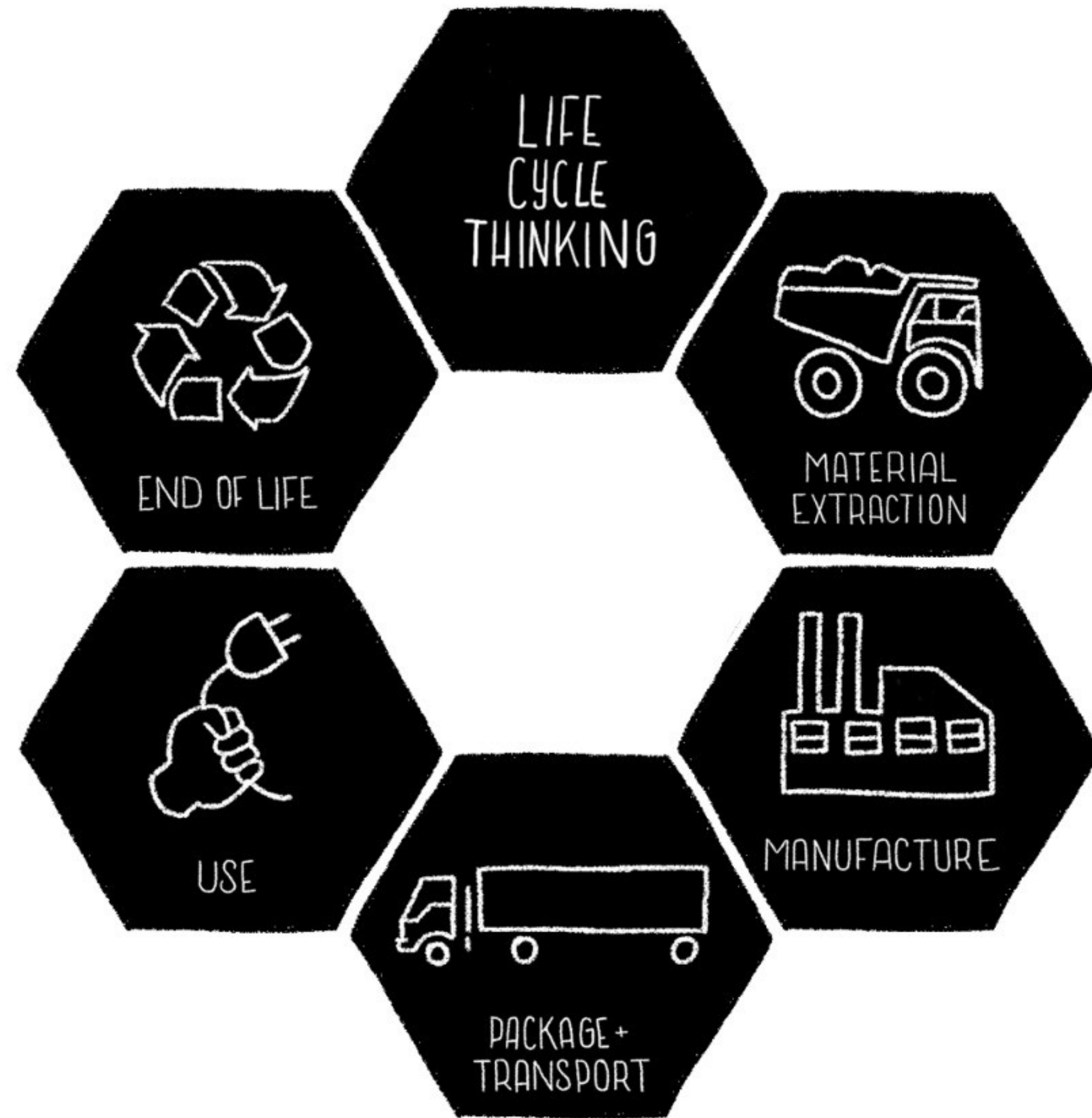
**8 MILLION TONNES OF PLASTIC  
ENTERS OUR OCEANS EVERY YEAR**

- The Ellen MacArthur Foundation

An underwater photograph of a large, spotted shark swimming in the ocean. The shark is the central focus, with its body covered in a pattern of dark spots. Several smaller fish are swimming around it. The water is filled with numerous pieces of plastic trash, including bags and fragments, which are scattered throughout the scene, particularly in the upper half. The overall tone is somber and environmental.

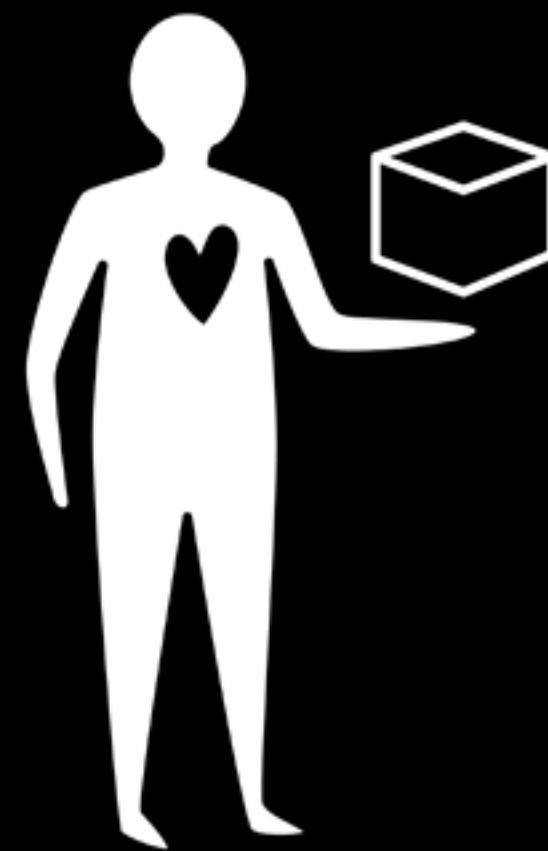
**BY 2050, THERE COULD BE MORE  
PLASTIC THAN FISH IN OUR OCEANS**

- The Ocean Conservancy and McKinsey&Company



**UNAFFORDABLE FOR LOCALS:  
IN MANHATTAN'S LOWER EAST SIDE,  
FULL-TIME AIRBNB LISTINGS EARN  
ON AVERAGE TWO TO THREE TIMES  
THE MEDIAN LONG-TERM RENT.**

- Airbnb and the Rent Gap: Gentrification Through the Sharing Economy  
*David Wachsmuth and Alexander Weisler, 2018*



# HUMAN-CENTERED DESIGN



HUMANITY-CENTERED DESIGN

©Sara Andersson

Photo by Keith Hardy on Unsplash

**AS DESIGNERS, WE ARE GATEKEEPERS**

THISFUTURE >



# Humanity-centered design tools

1. Map the system
2. Spot unintended consequences
3. Use behavioural design
4. Sustainability embedded in the design process



1. Map the system

HOW TO THINK IN SYSTEMS?

# 1. Map the system

"...dividing the cow in half does not give you two smaller cows. You may end up with a lot of hamburger, but the essential nature of "cow"—a living system capable, among other things, of turning grass into milk—then would be lost. This is what we mean when we say a system functions as a "whole". Its behavior depends on its entire structure and not just on adding up the behavior of its different pieces."

*Draper Kauffman, 1980*

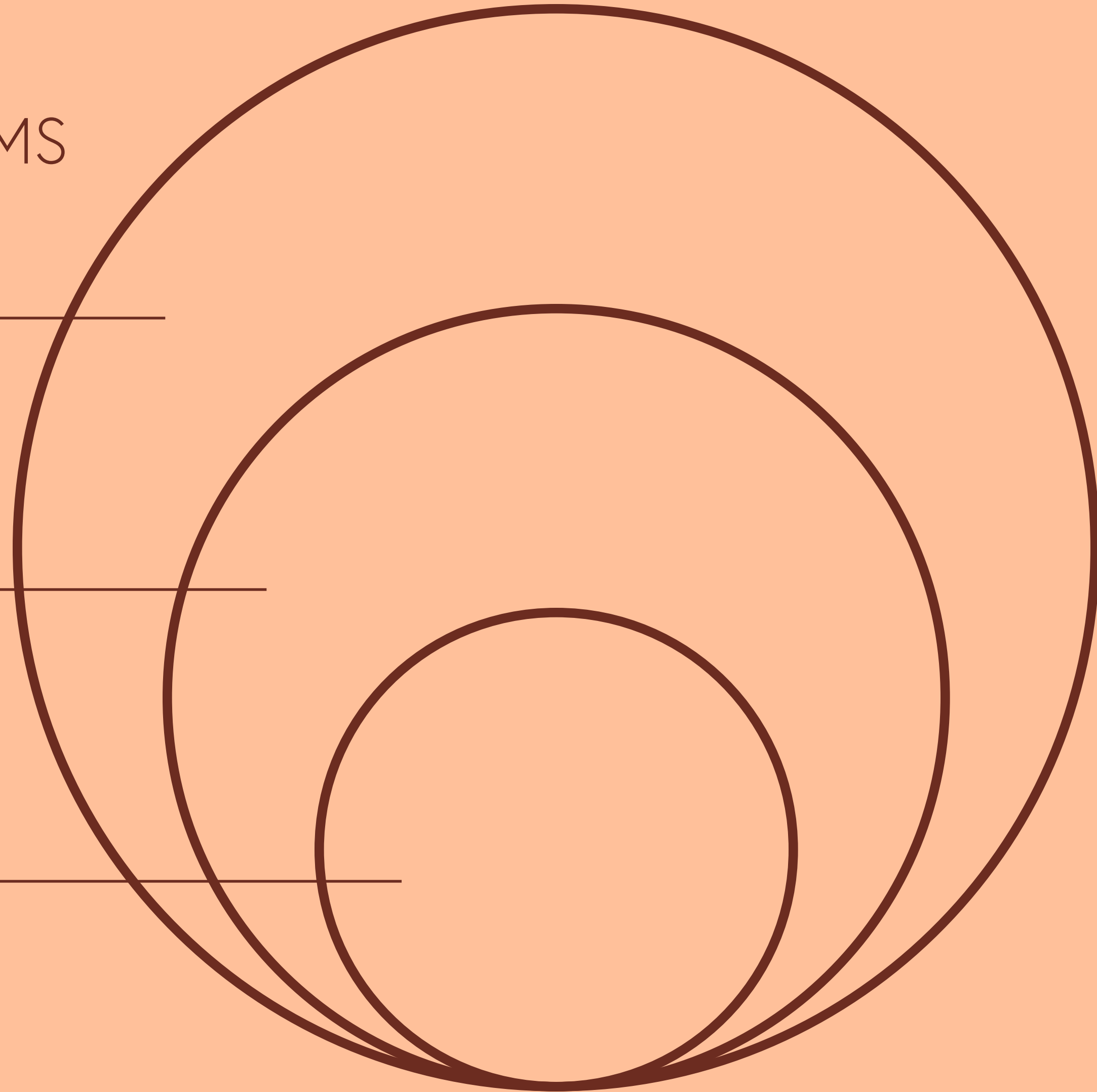
# 1. Map the system

3 INTERCONNECTED SYSTEMS

**ECOLOGICAL SYSTEMS** —————

**INDUSTRIAL SYSTEMS** —————

**HUMAN SYSTEMS** —————



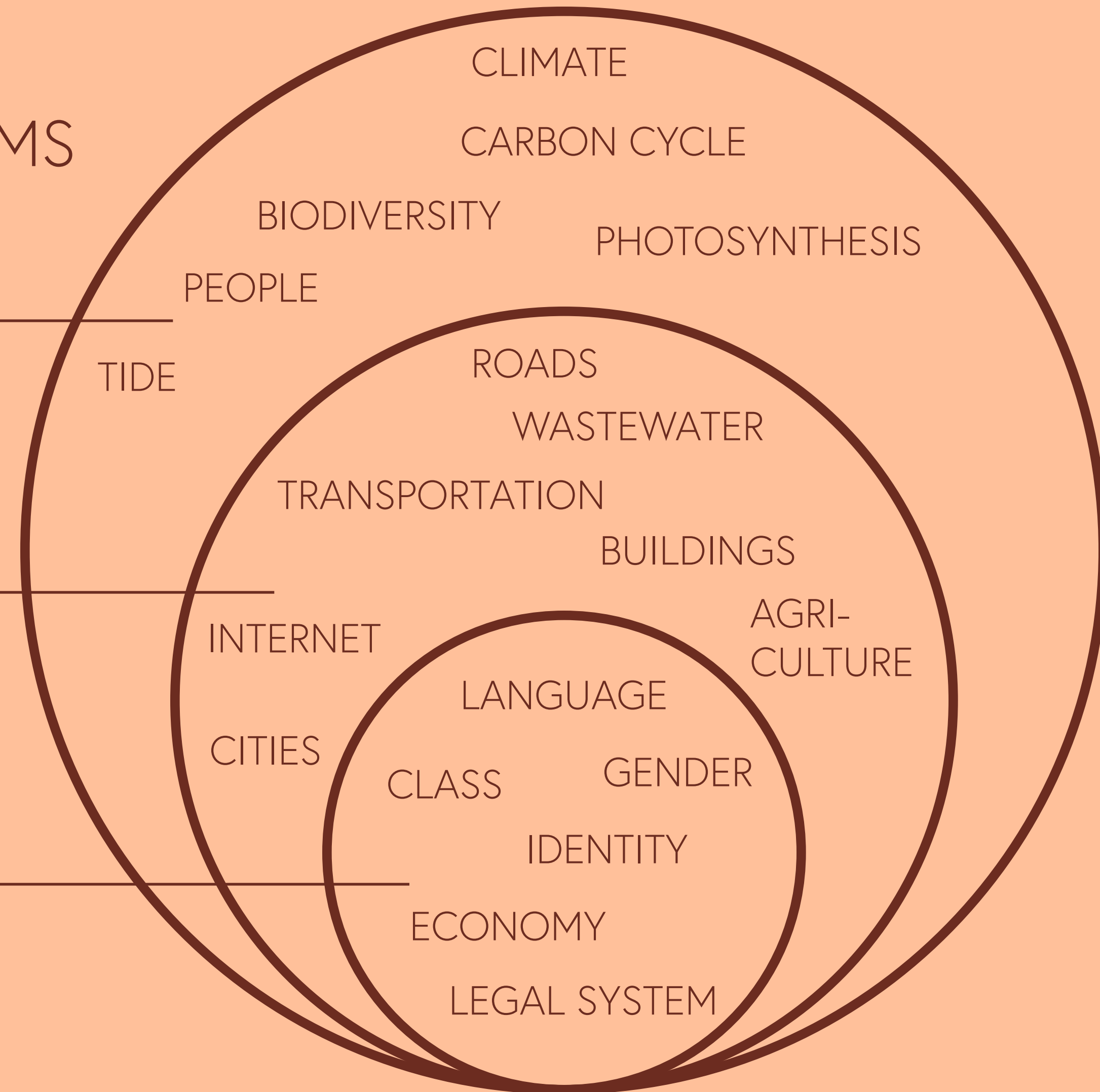
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3 INTERCONNECTED SYSTEMS

**ECOLOGICAL SYSTEMS**

**INDUSTRIAL SYSTEMS**

**HUMAN SYSTEMS**



EASIER E-COMMERCE

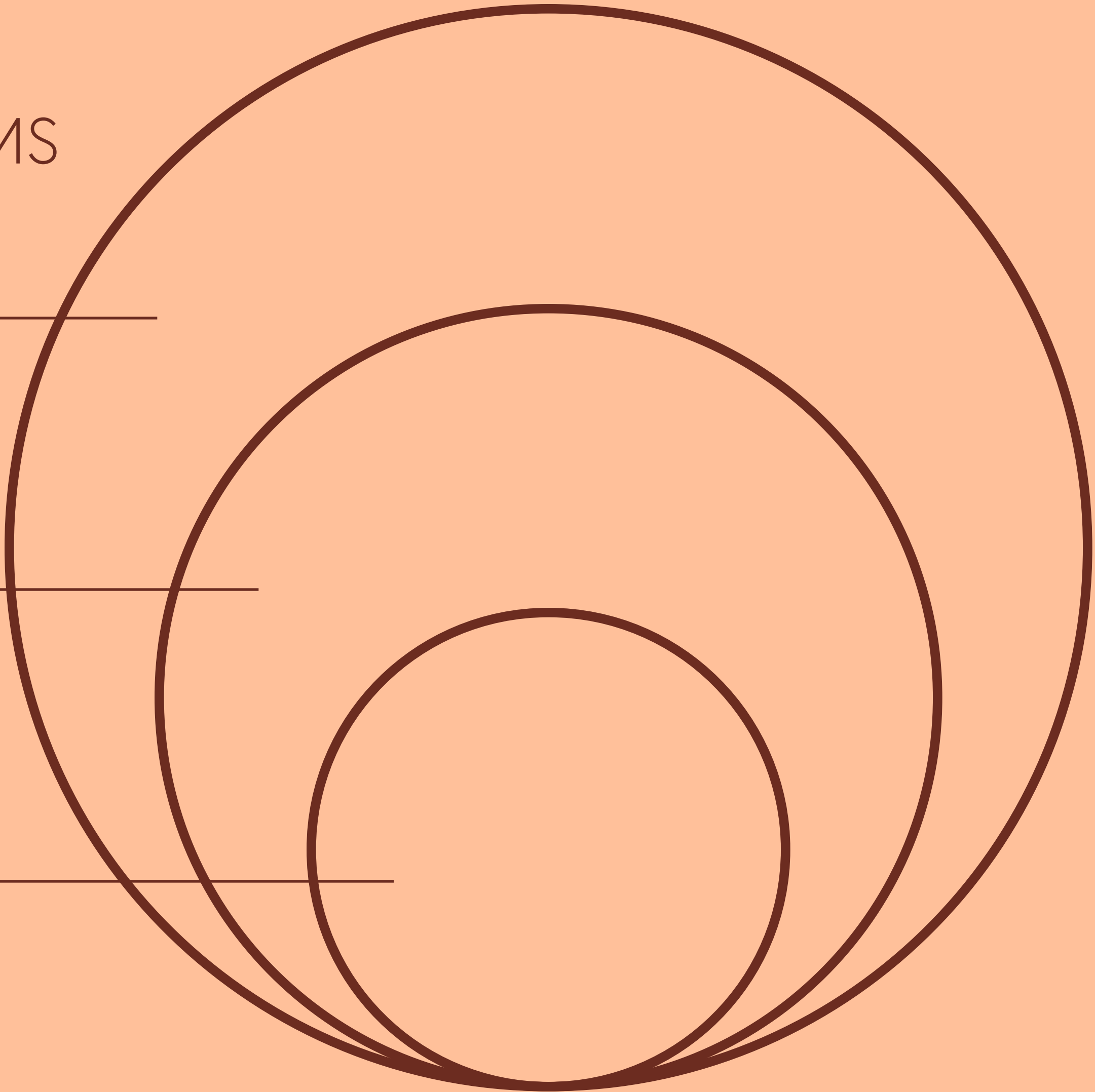
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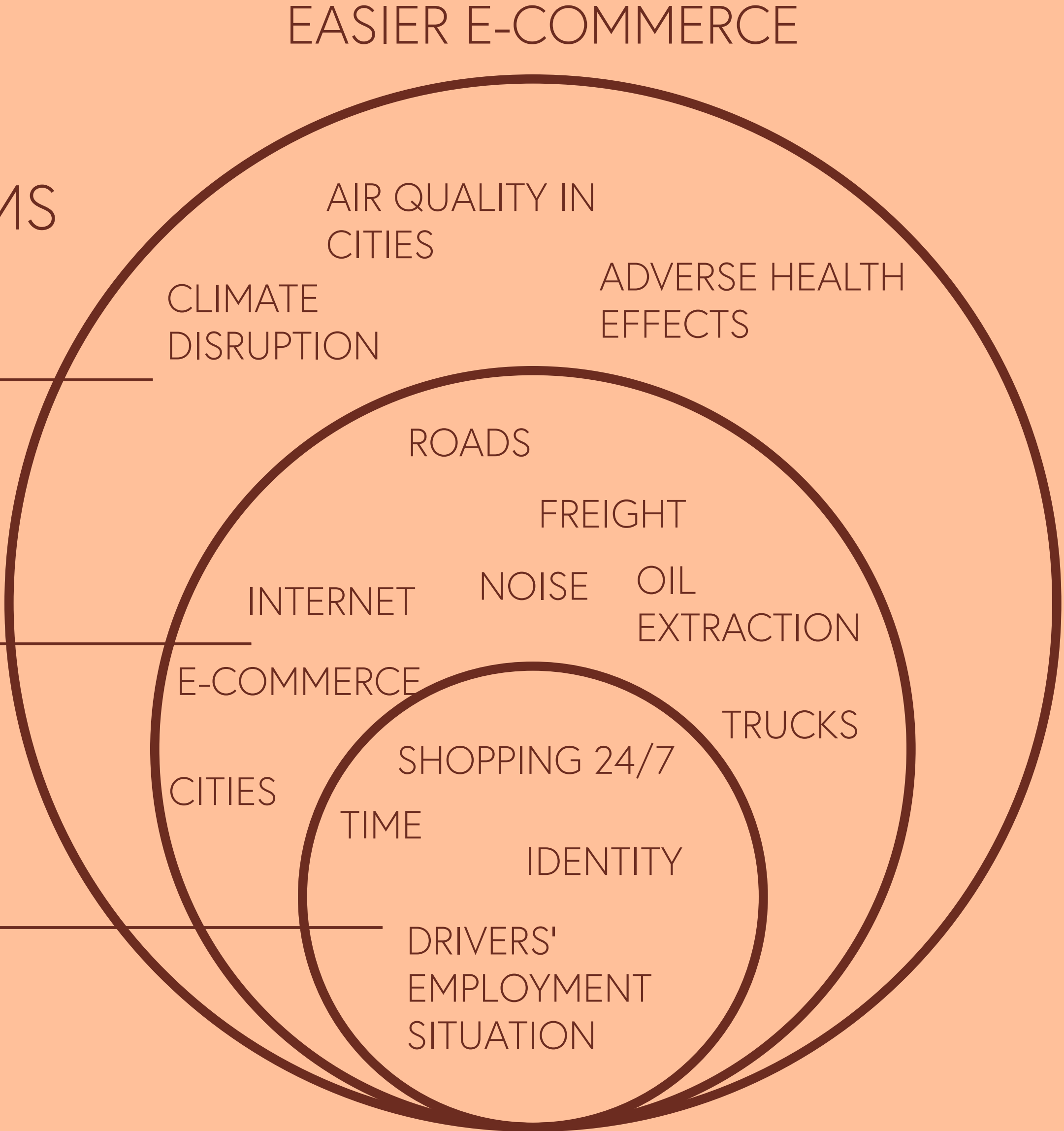
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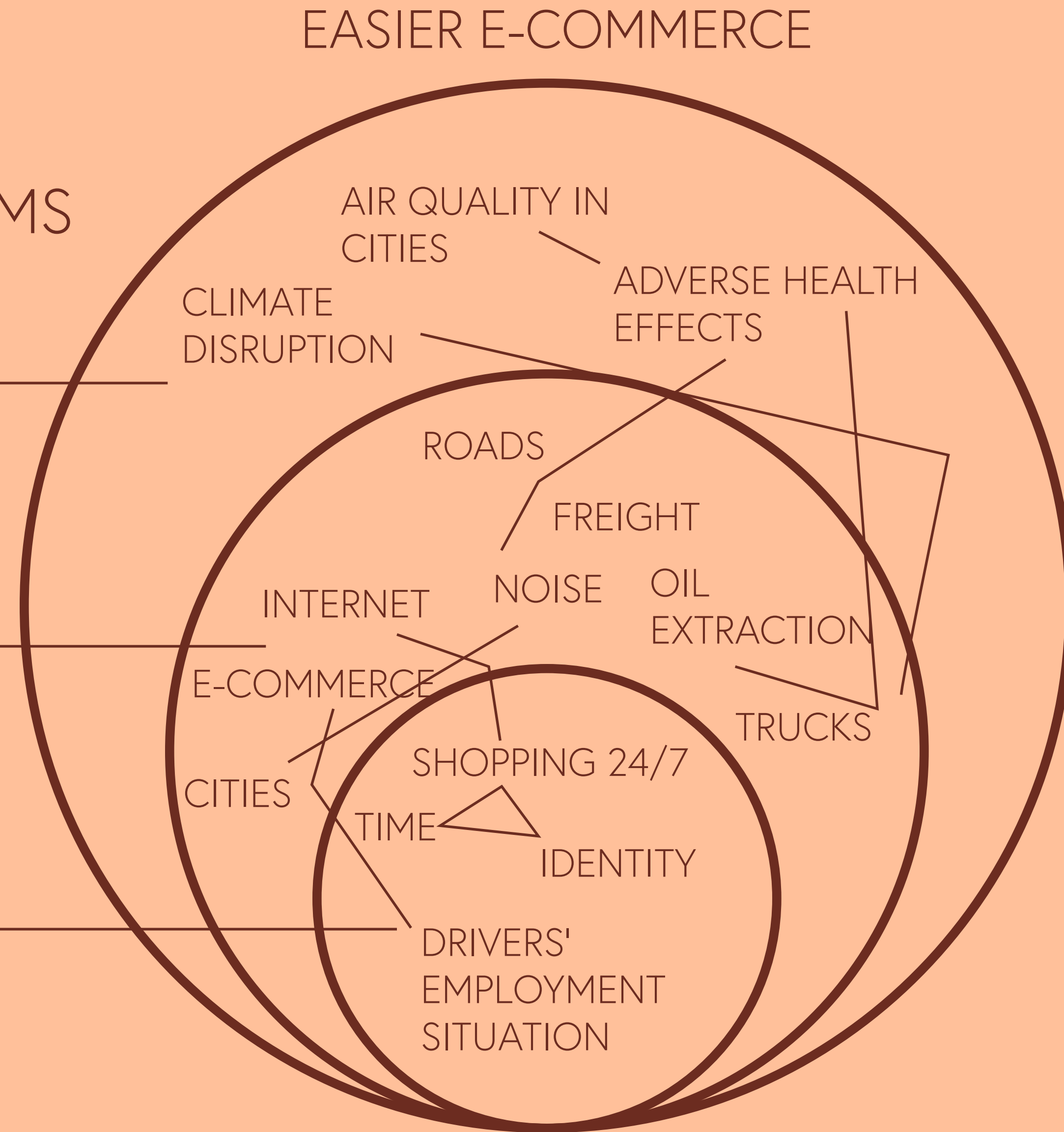
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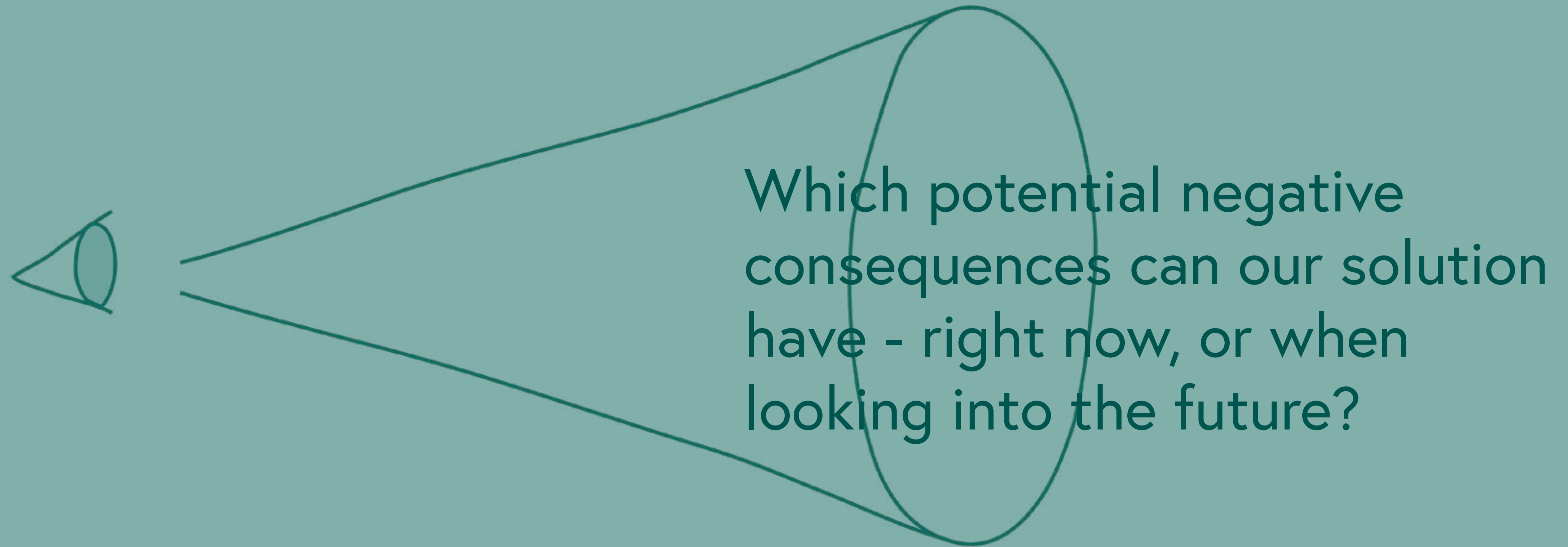
**INDUSTRIAL SYSTEMS**

**HUMAN SYSTEMS**





## 2. Spot unintended consequences



**Humanity-centered design is never done**

### 3. Use behavioural design





**DESIGN SOLUTIONS SO WE  
DON'T HAVE TO CHANGE OUR  
BEHAVIOUR...?**

A man in a high-visibility vest is working on a green artificial turf area around recycling bins on a city sidewalk. The bins are labeled 'GLAS PLAST METAL' and 'PAPIR'. A light blue Mercedes van and a dark SUV are parked nearby. The background shows a brick building with many windows.

... OR DESIGN SOLUTIONS  
THAT INSPIRE NEW, DESIRED  
BEHAVIOURS?

# EXAMPLES OF BEHAVIOURAL DESIGN THAT NUDGED YOU IN A POSITIVE DIRECTION?



### 3. Use behavioural design

- Make it meaningful
- Make it attractive
- Make it social
- Make it easy
- Make it tangible

### 3. Use behavioural design

→ Make it meaningful:

**CREATE AN EXPERIENCE OF OWNERSHIP**



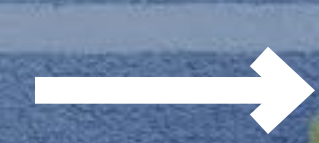
### 3. Use behavioural design

→ Make it attractive  
**MAKE IT FUN AND PLAYFUL**

apps that gamify  
climate smart actions



### 3. Use behavioural design



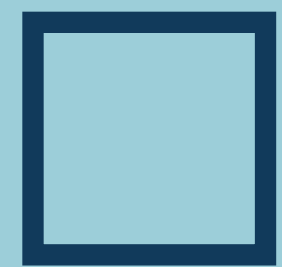
Make it social

**USE SOCIAL PROOF**

### 3. Use behavioural design

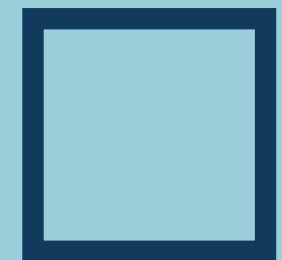
→ Make it easy:

#### STANDARD SETTINGS



CLICK HERE, IF YOU WANT A VEGETARIAN OPTION

VS.



CLICK HERE, IF YOU WANT A MEAT OPTION

### 3. Use behavioural design

→ Make it tangible:

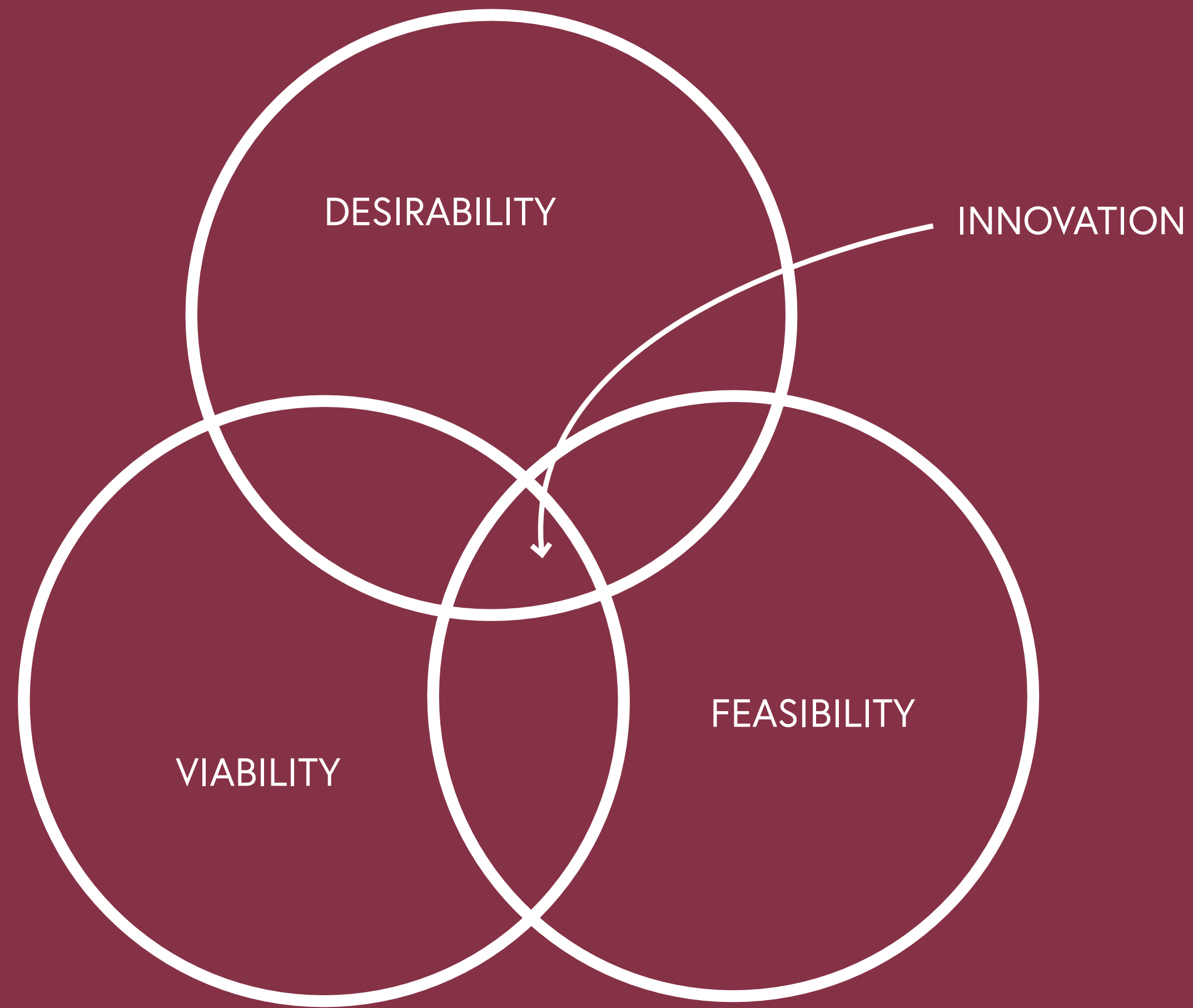
**ADDRESS ALL SENSES**

X-RAY FASHION

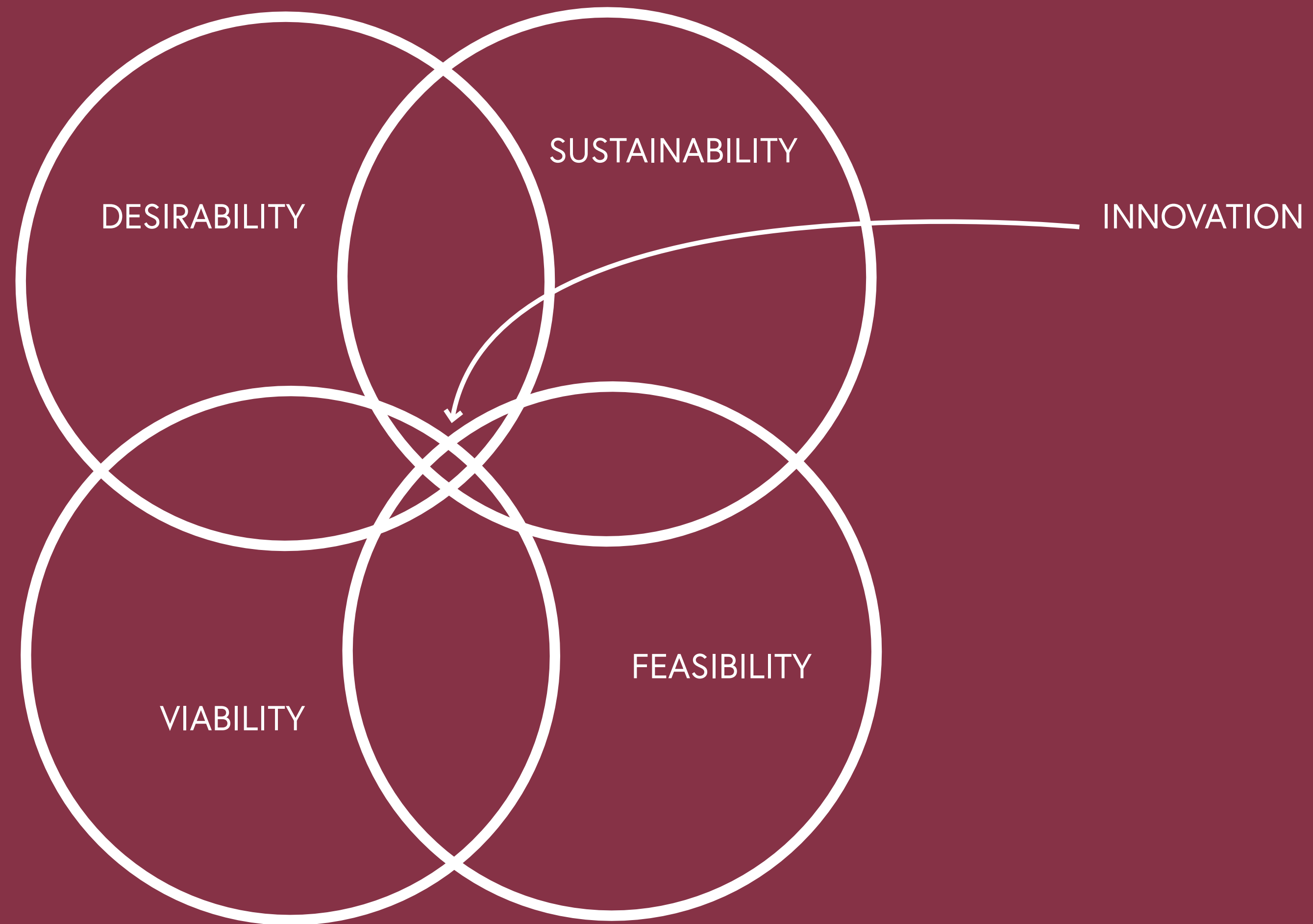


# 4. Sustainability embedded in the design process

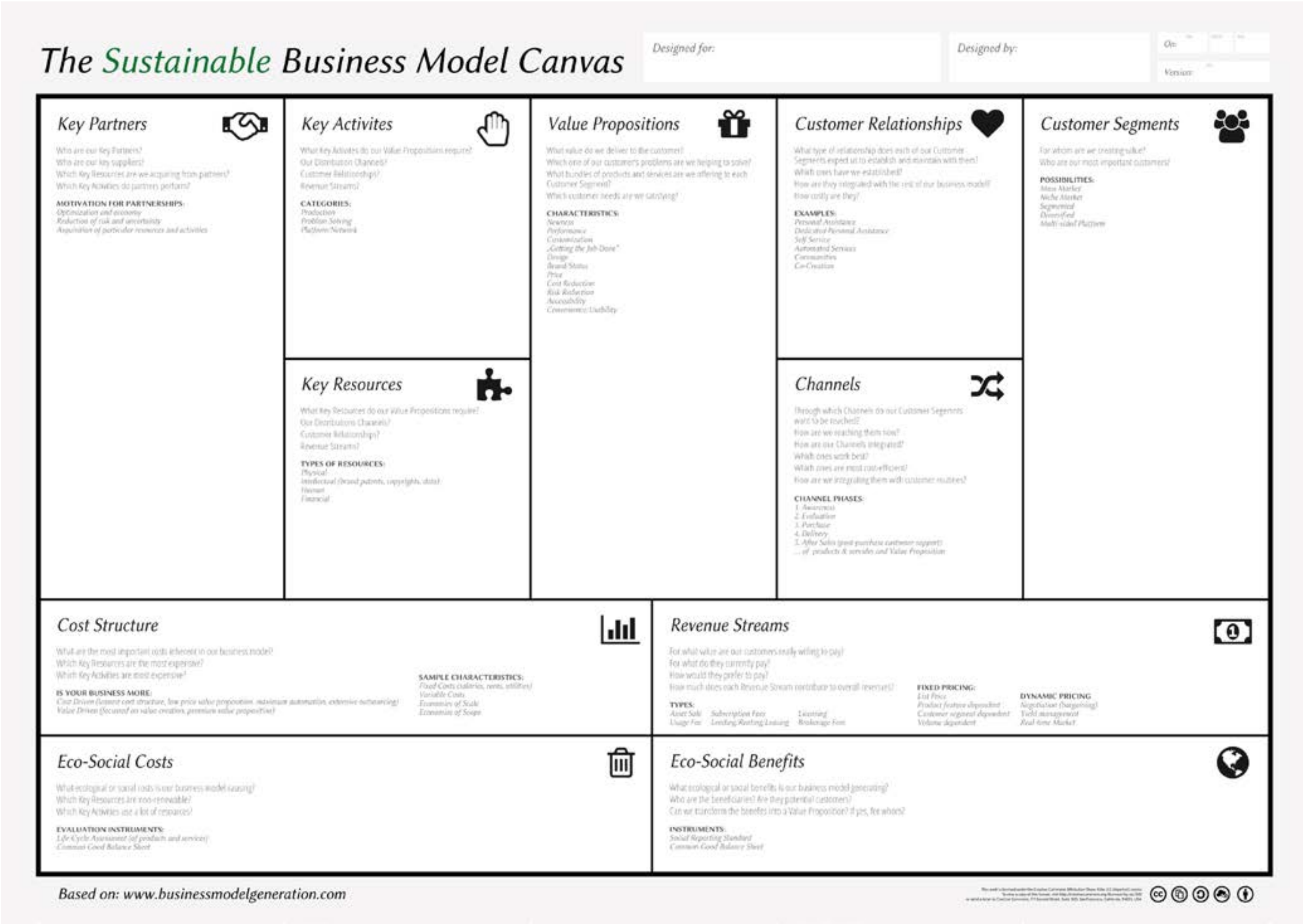
# 4. Sustainability embedded in the design process



# 4. Sustainability embedded in the design process



# 4. Sustainability embedded in the design process





# 4. Sustainability embedded in the design process

**WHO IS IN MY  
TARGET GROUP?**



# 4. Sustainability embedded in the design process

**WHO IS IN MY  
TARGET GROUP?**



**WHO IS NOT IN MY  
TARGET GROUP,  
BUT WILL BE  
AFFECTED?**





NOW, IT'S YOUR TURN :)

# IMAGINE:

YOU ARE A COMPANY ON A MISSION TO HELP CITIES ACHIEVE A LARGE SCALE TRANSPORTATION MODE SHIFT - MOVING THE MASSES FROM FOSSILE FUEL BASED PRIVATE CARS TO MICROMOBILITY.

TODAY, YOU FOCUS ON OFFERING SHARED BICYCLES RENTED THROUGH A STATE-OF-THE ART APP. MOVING FORWARD, YOU WANT TO ENSURE YOU PROVIDE AN OUTSTANDING SERVICE AND USER EXPERIENCE - WHILE ALSO PROVIDING A SOLUTION WITH MEASURABLE SUSTAINABILITY EFFECT.

THEREFOR, YOU'LL NOW:

1. EXPLORE THE SYSTEMS YOUR MICROMOBILITY OFFERING ARE AFFECTING
2. SPOT UNINTENDED CONSEQUENCES
3. IMAGINE A REVISED OR NEW CONCEPT THAT CAN HELP YOU ON YOUR MISSION
4. PRESENT YOUR IDEAS TO EACH OTHER

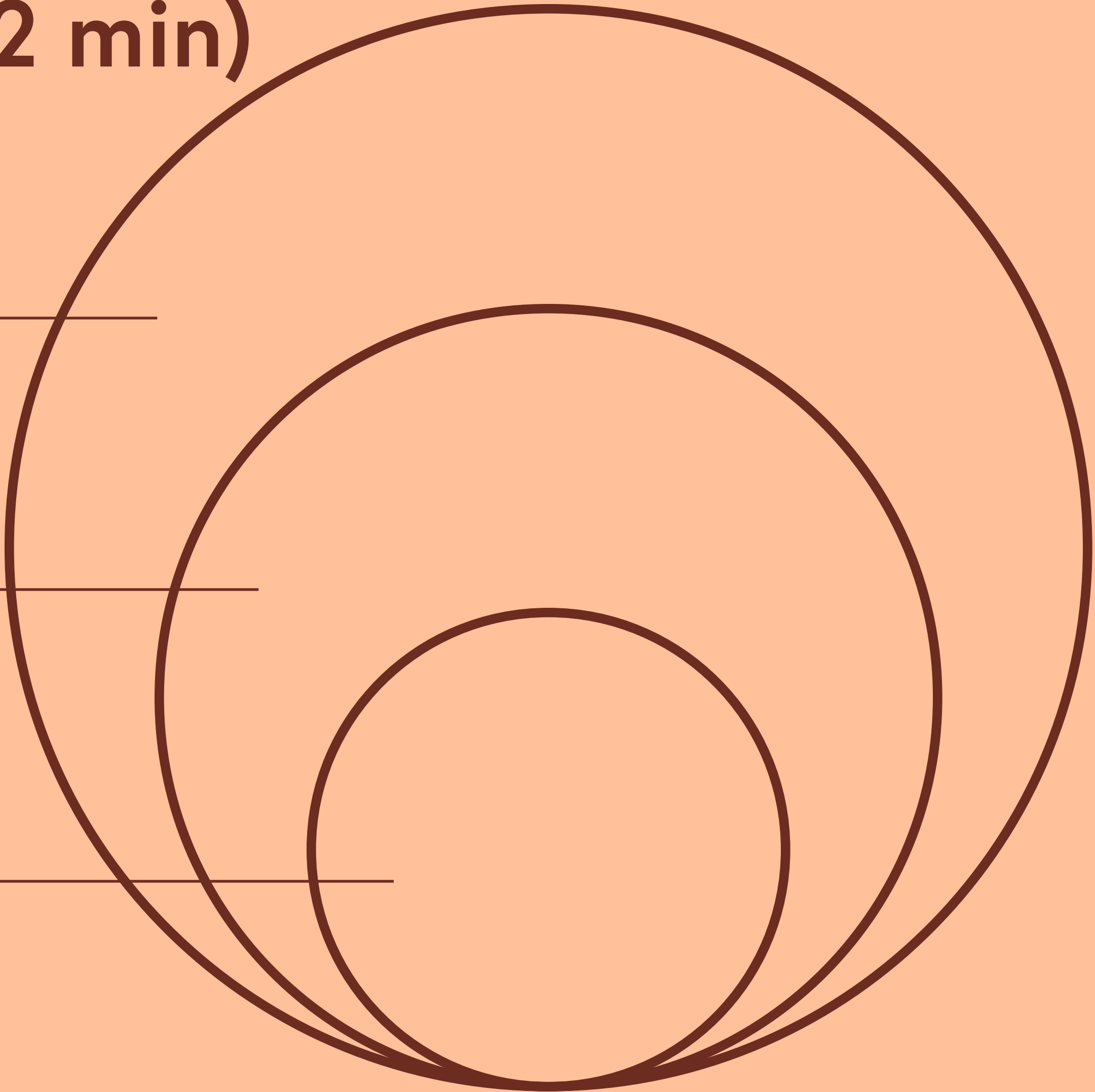
SHARED BIKE OFFERING

# 1. Map the system (12 min)

ECOLOGICAL SYSTEMS

INDUSTRIAL SYSTEMS

HUMAN SYSTEMS



## 2. Spot unintended consequences (8 min)

1.

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2.

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3.

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Challenge your optimism bias:  
Which potential negative consequences can our offering have - right now, or when looking into the future?



(ONE HINT)

### 3. Create ideas for an improved or new offering, addressing one of the unintended consequences (30 min)

- use the green behavioural design actions as inspiration
  - brainstorm on ideas
- 
- detail a selected idea together
  - present the idea on an A3 sheet with:
    - concept name
    - drawing
    - selected unintended consequence



# Design principles for creating green engagement and behaviour

TOOLBOX WORK IN  
PROGRESS - V.1.0  
EXPECTED IN AUTUMN  
2022 - REACH OUT IF  
YOU'RE INTERESTED!

- Make it meaningful (eg create ownership, address values, use cognitive dissonance...)
- Make it attractive (eg make it fun, cheap, healthy, tasteful, beautiful, ...)
- Make it social (eg support communities, use social proof, storytelling, mentors, ...)
- Make it easy (eg use standard settings, simplify, make unwanted behaviour more difficult, ...)
- Make it tangible (eg make it visible, talk to all senses, use emotions, ...)

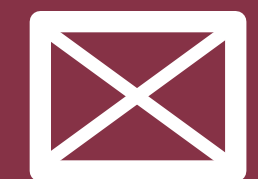
# 4. Present to each other!

# Thanks for today!

I'd love to connect!



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