

A vertical image on the left side of the slide showing a large industrial facility, possibly a steel mill or refinery, with massive pipes and structures. A massive fire is erupting from one of the pipes, with thick black smoke and bright orange flames billowing out. Sparks are flying from the base of the fire. The scene is set at night or in low light, with the fire being the primary light source.

# DESIGN FOR SUSTAINABILITY

Pádraig Murphy | Logitech

Apr 2024



What would you suggest

Make the company more sustainable

What would you suggest

- Office air conditioning
- Employee airmiles
- Canteen food waste
- Warehouse refrigeration
- Product life cycles

What would you suggest

Office air conditioning  
Employee airmiles  
Canteen food waste  
Warehouse refrigeration  
Product life cycles

based on almost any measure of  
environmental impact



Sustainable Products

I've got the answer!

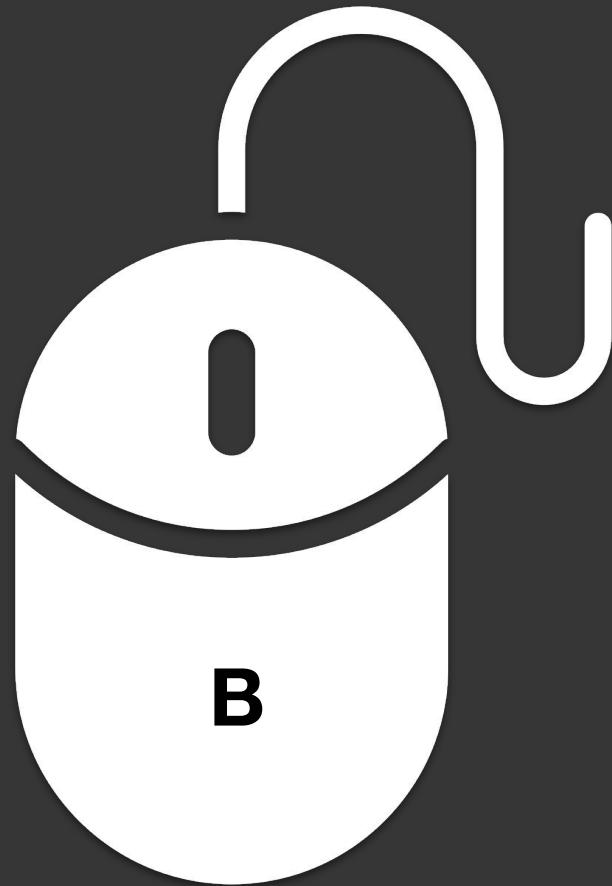
You might think that's the hard part done

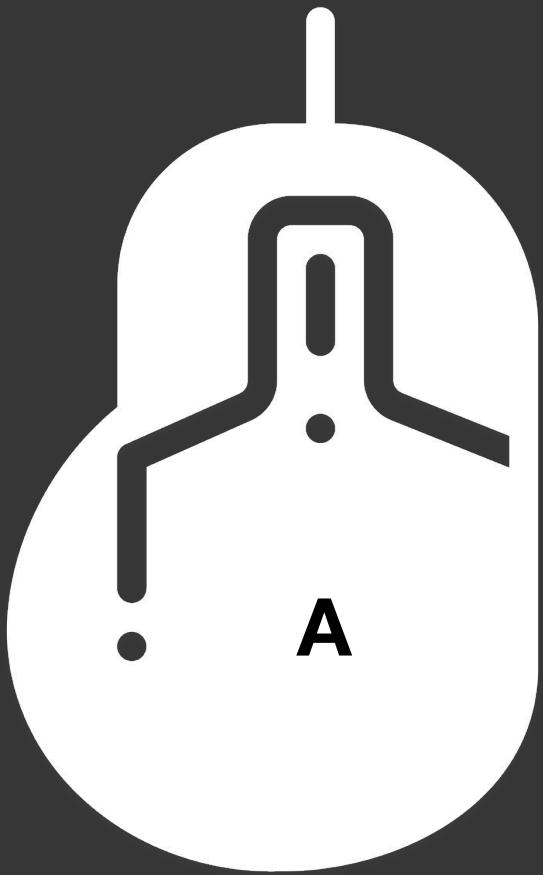
We know what it takes for a product to be desired.

We take cost very seriously.

We track and measure schedules very accurately.

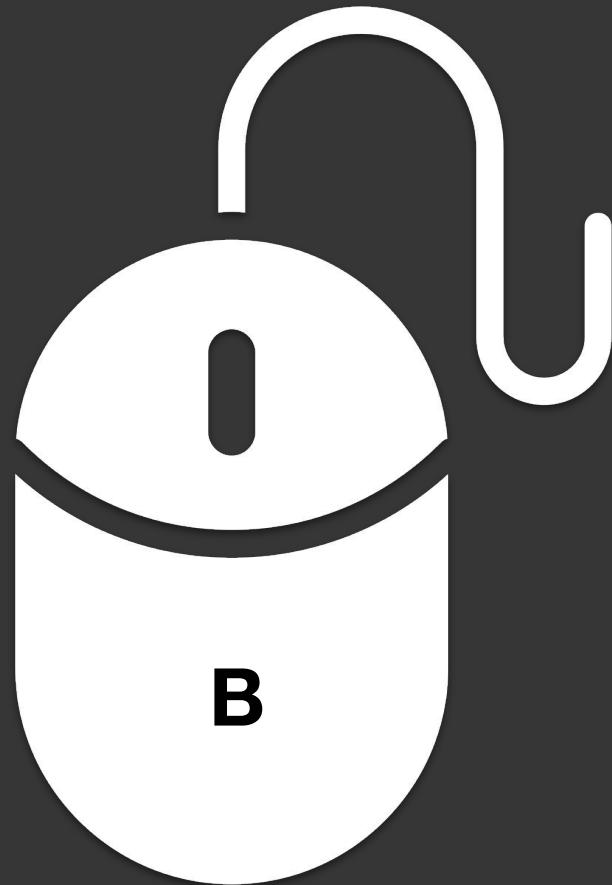
How should we define a product's sustainability?

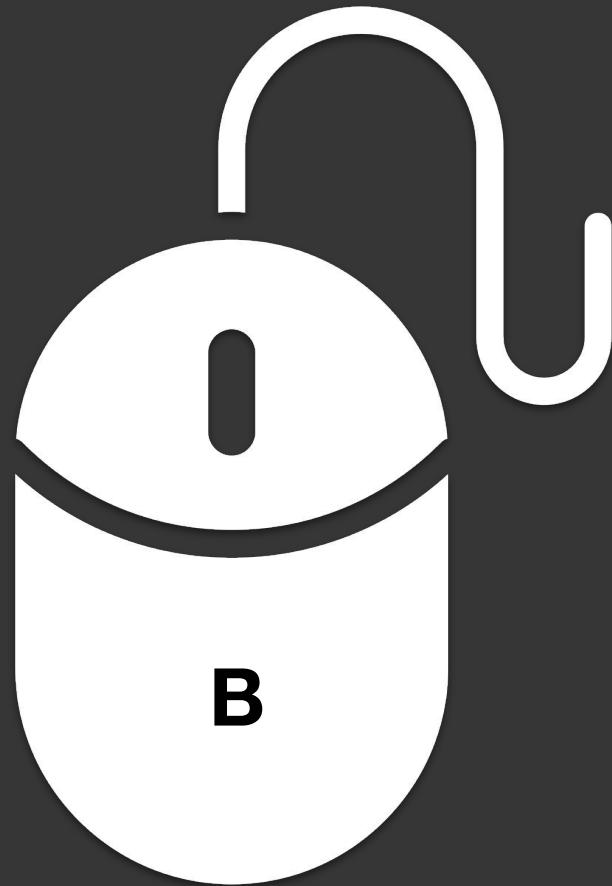
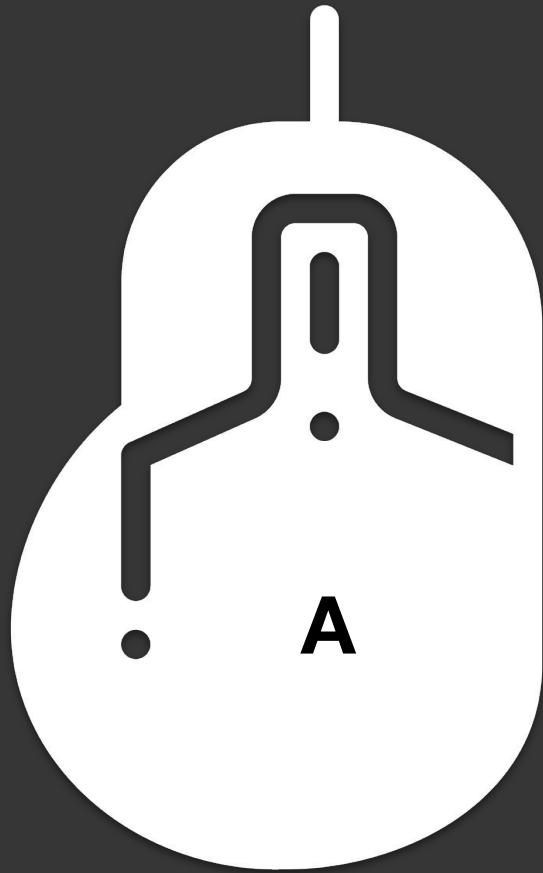


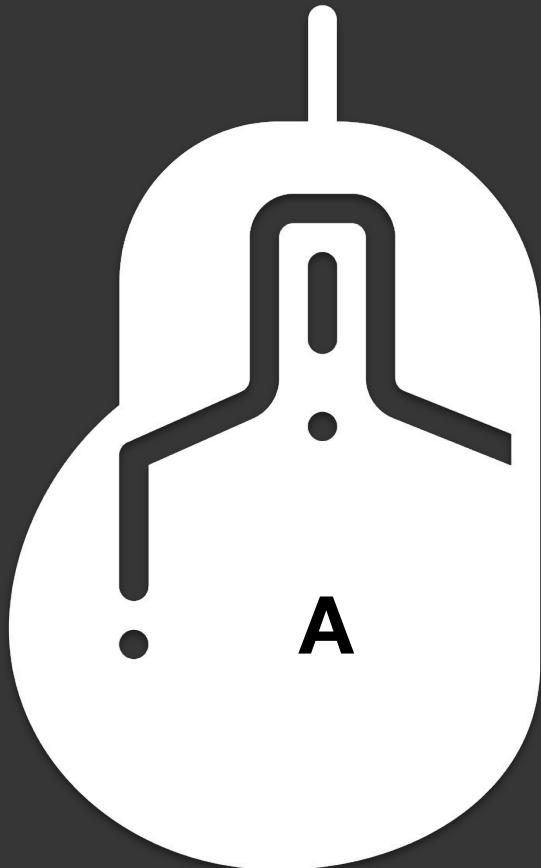


Carbon Footprint 8 kgCO2e  
Virgin aluminium Chassis  
300 grams in weight  
Two week battery life  
Complex electronics  
Upgradable & Repairable

Carbon Footprint 3.97 kg/CO2e  
Glass fibre reinforced plastic  
150 grams in weight  
Two month battery life  
Simple electronics



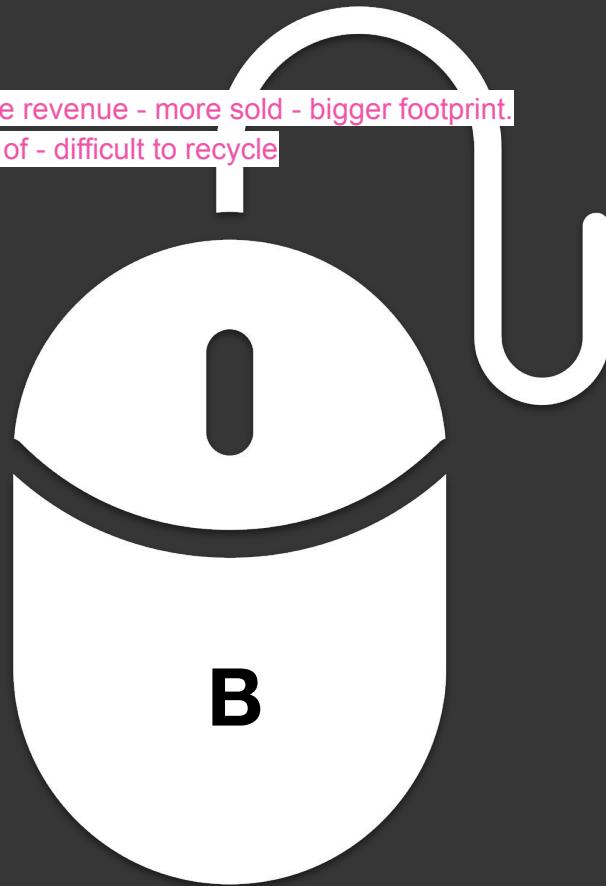




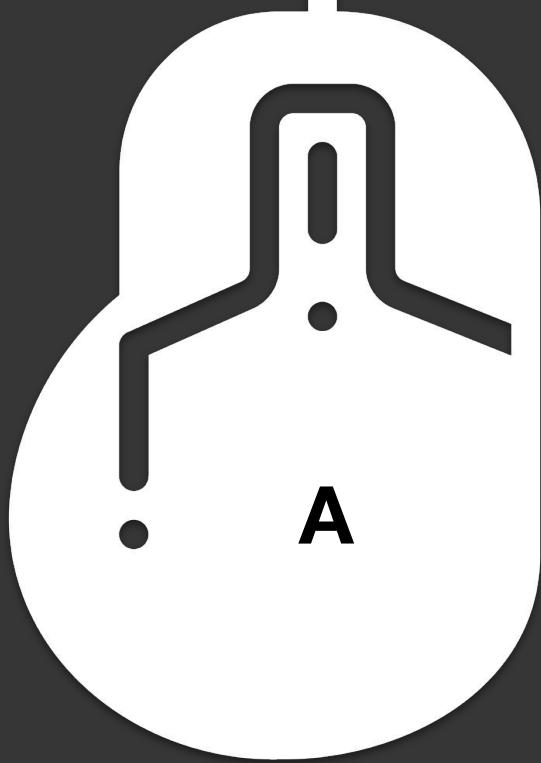
very efficient

low cost - same revenue - more sold - bigger footprint.

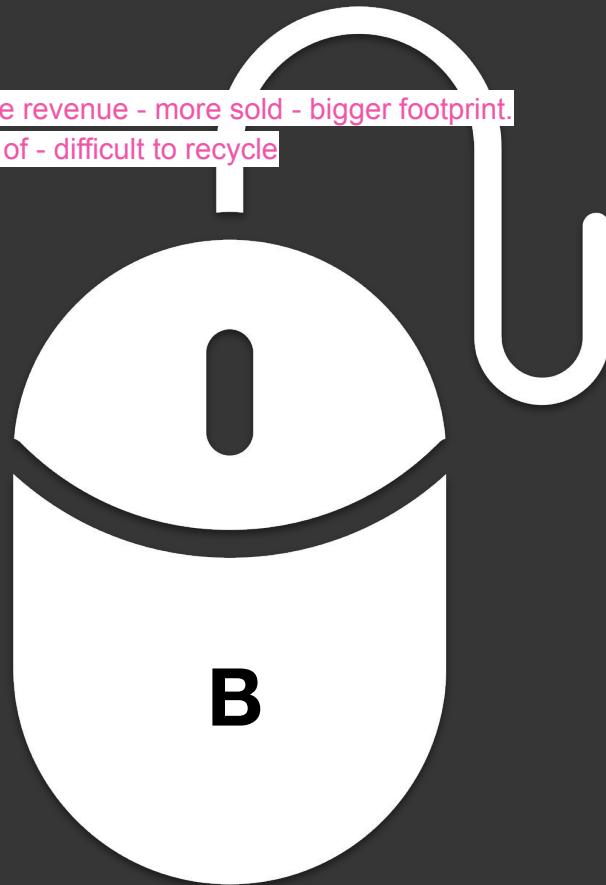
More disposed of - difficult to recycle



high energy intensity - a higher carbon footprint,  
Longevity - slower refresh - less products are made  
If replaced without reuse - highly inefficient



very efficient  
low cost - same revenue - more sold - bigger footprint.  
More disposed of - difficult to recycle



The answer bosses hate

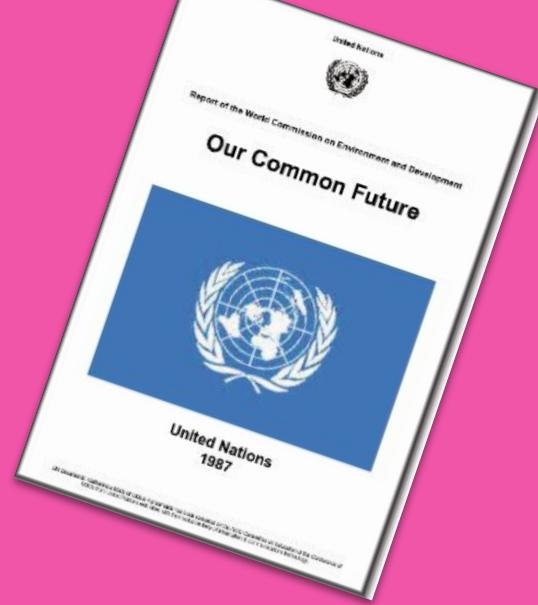
It depends

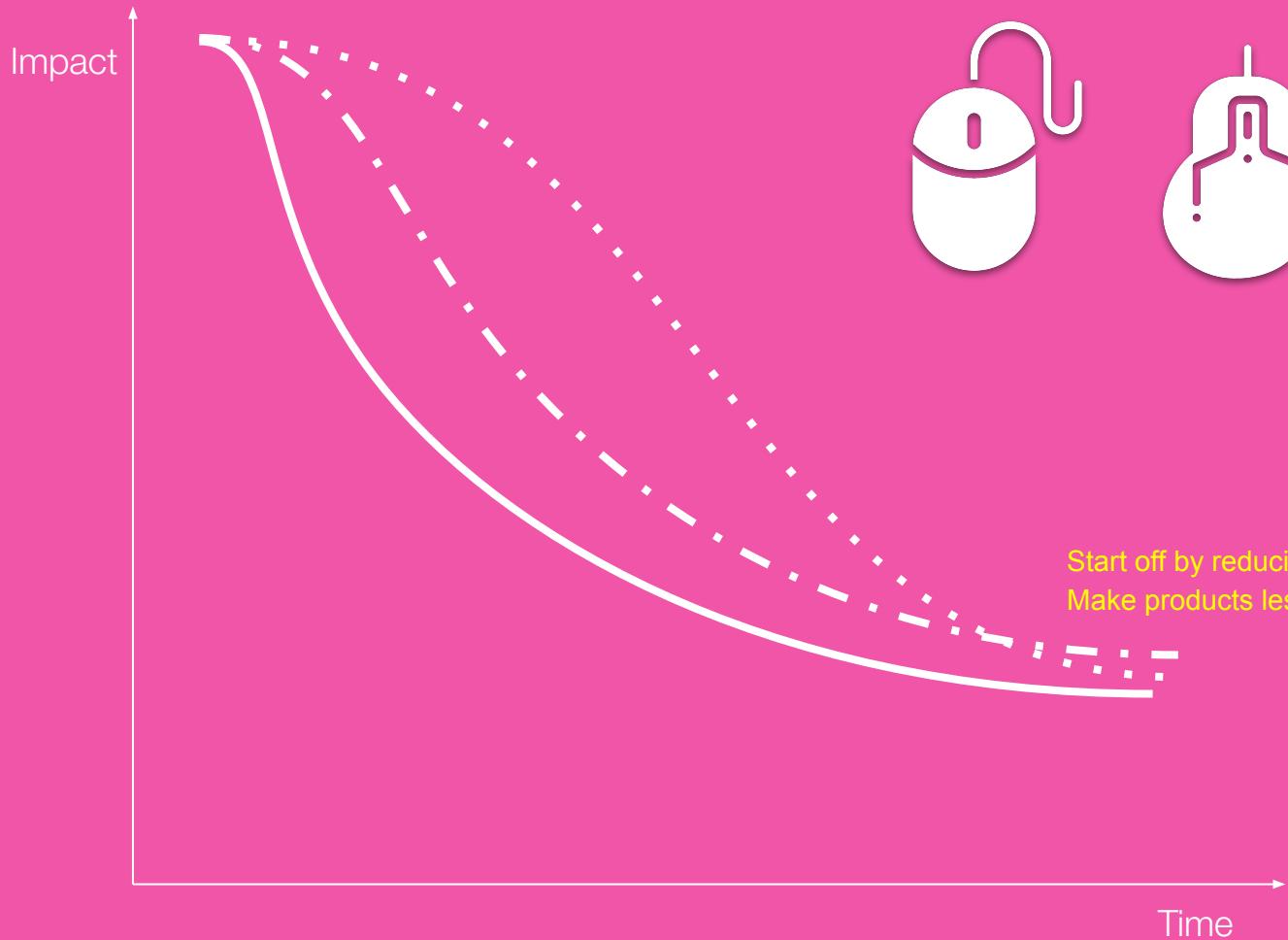
We need to be careful talking about  
sustainable consumer electronics  
products

Product System

Its an ethical framework

*“Meet the needs of the present  
without compromising  
the ability of future generations  
to meet their own needs.”*





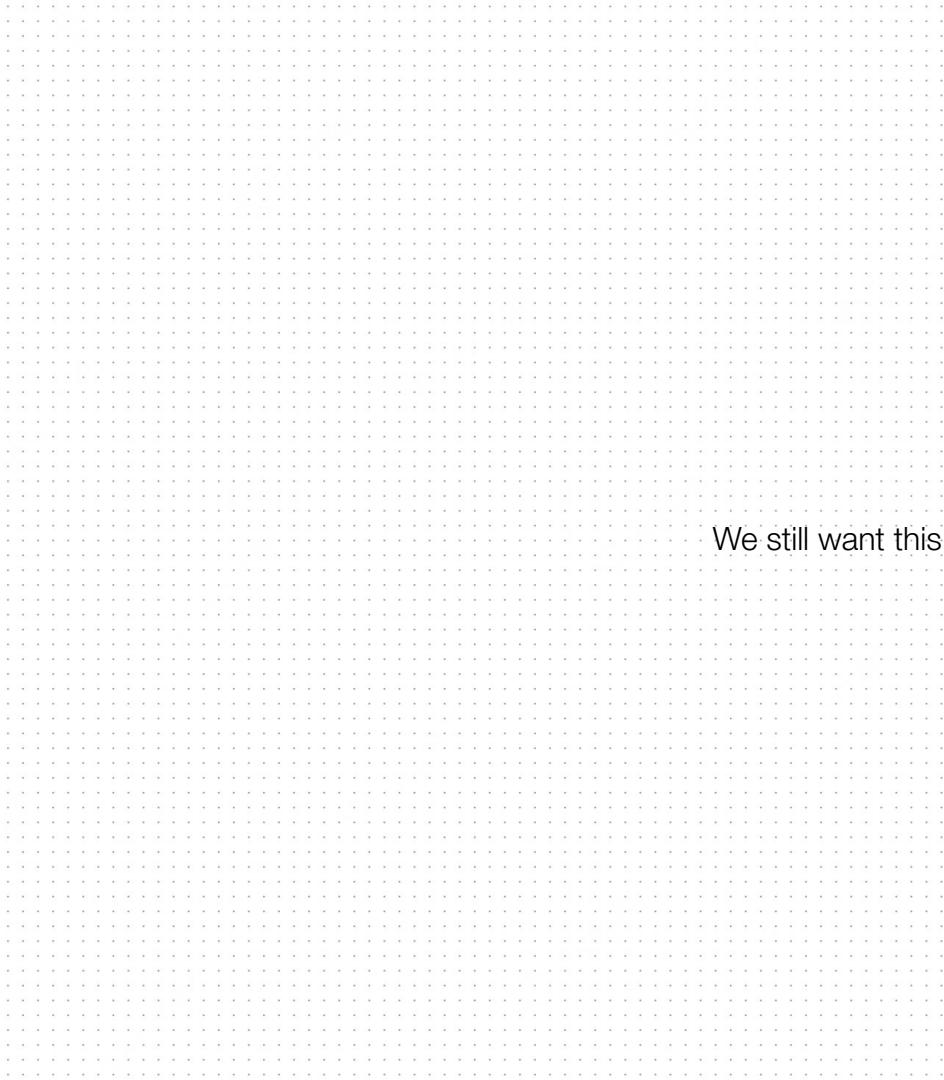
# Logitech FY23 ~~Sustainability~~ Impact Report

set targets and track progress transparently



13 x sustainability reports





We still want this



HELP ALL PEOPLE PURSUE THEIR PASSIONS...  
IN A WAY THAT IS GOOD FOR THE PLANET



extract



make



ship



use



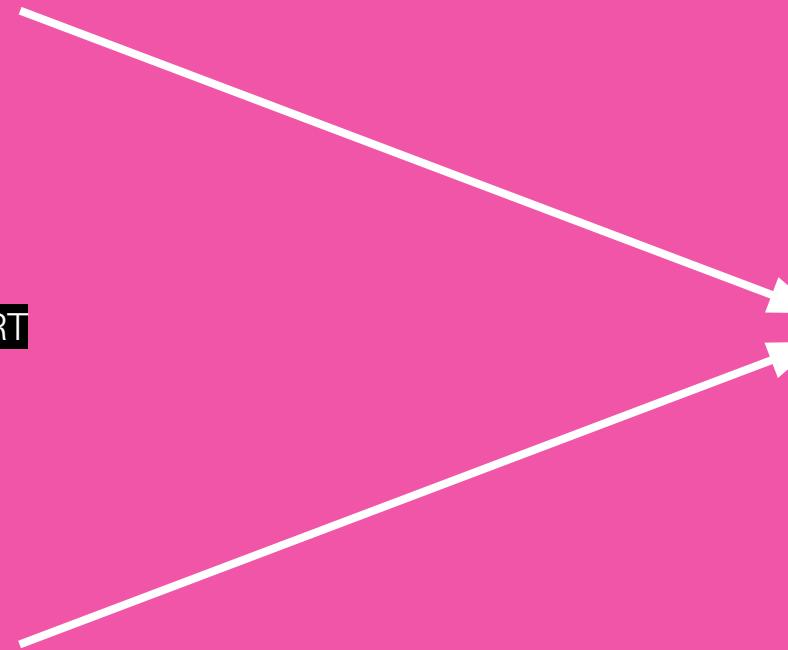
review

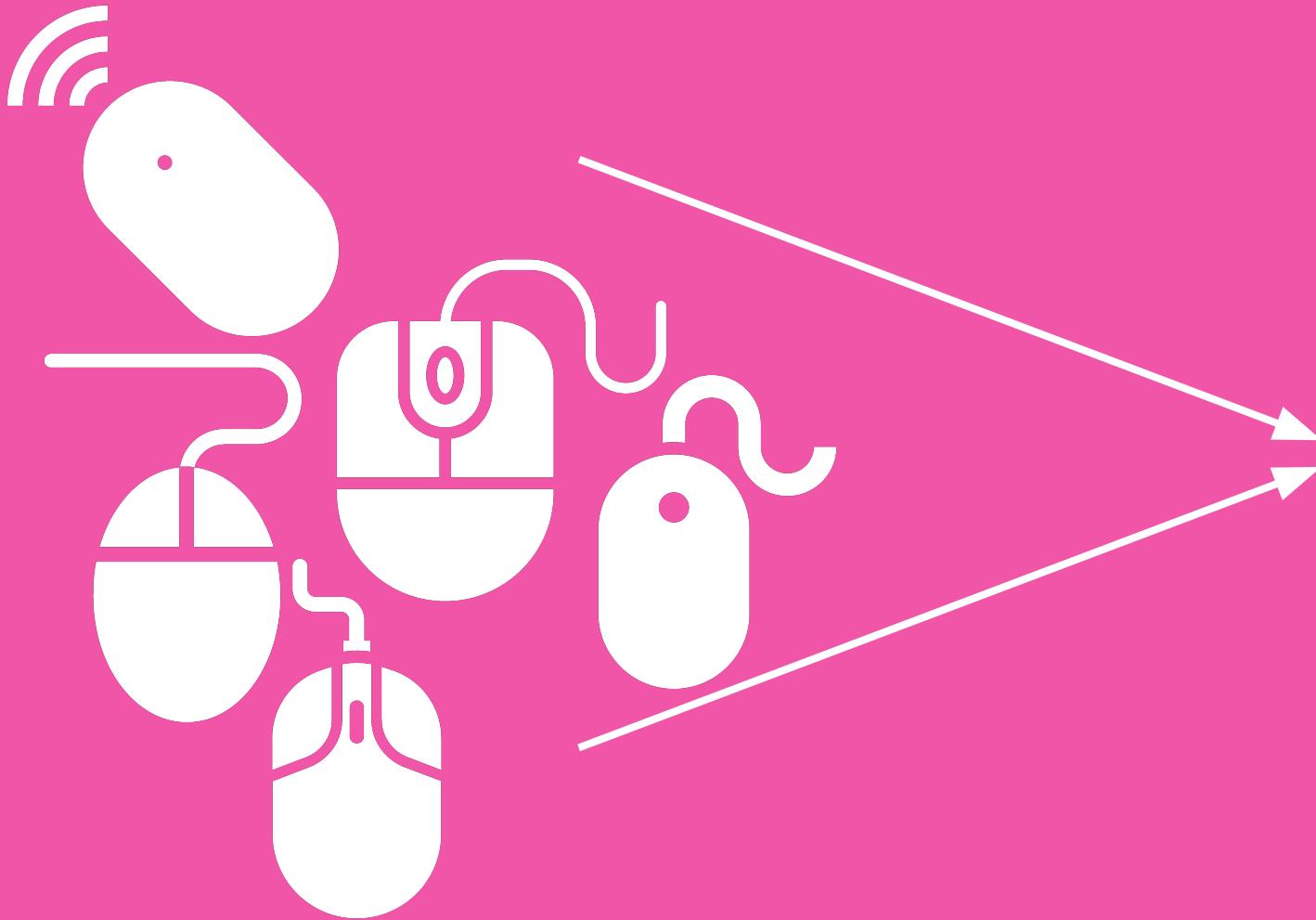


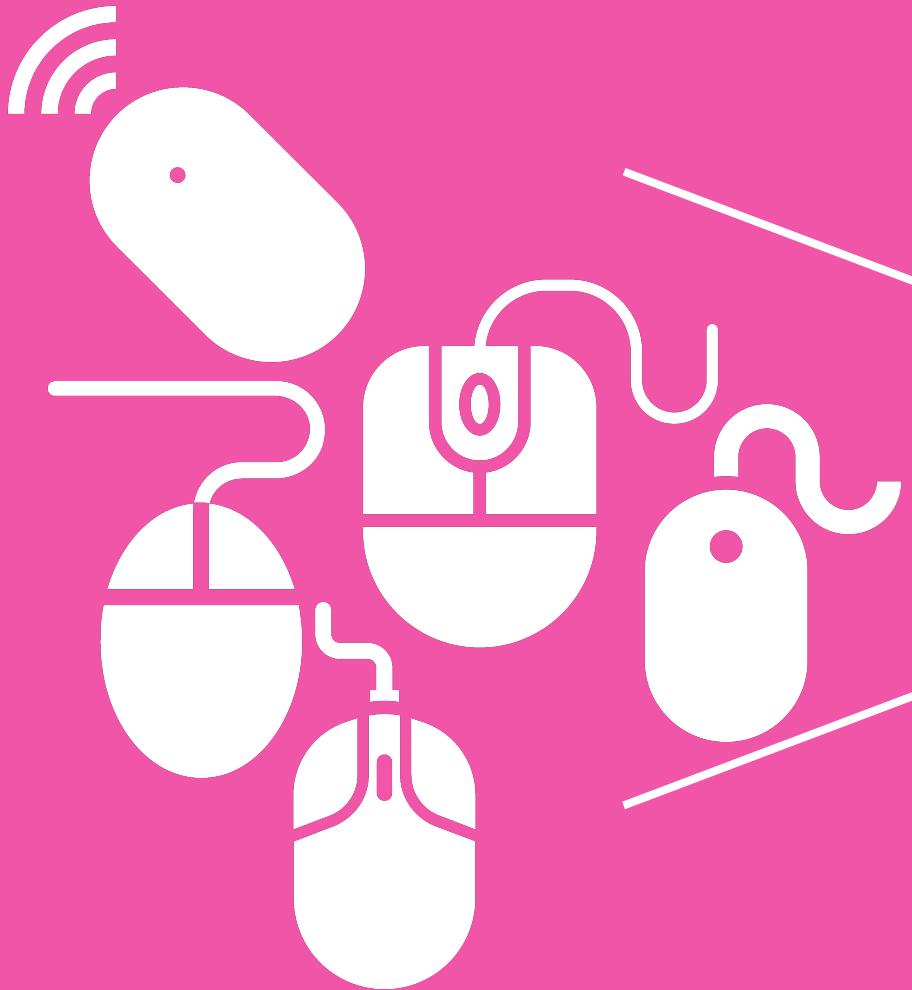
Any questions so far?.....

START

END



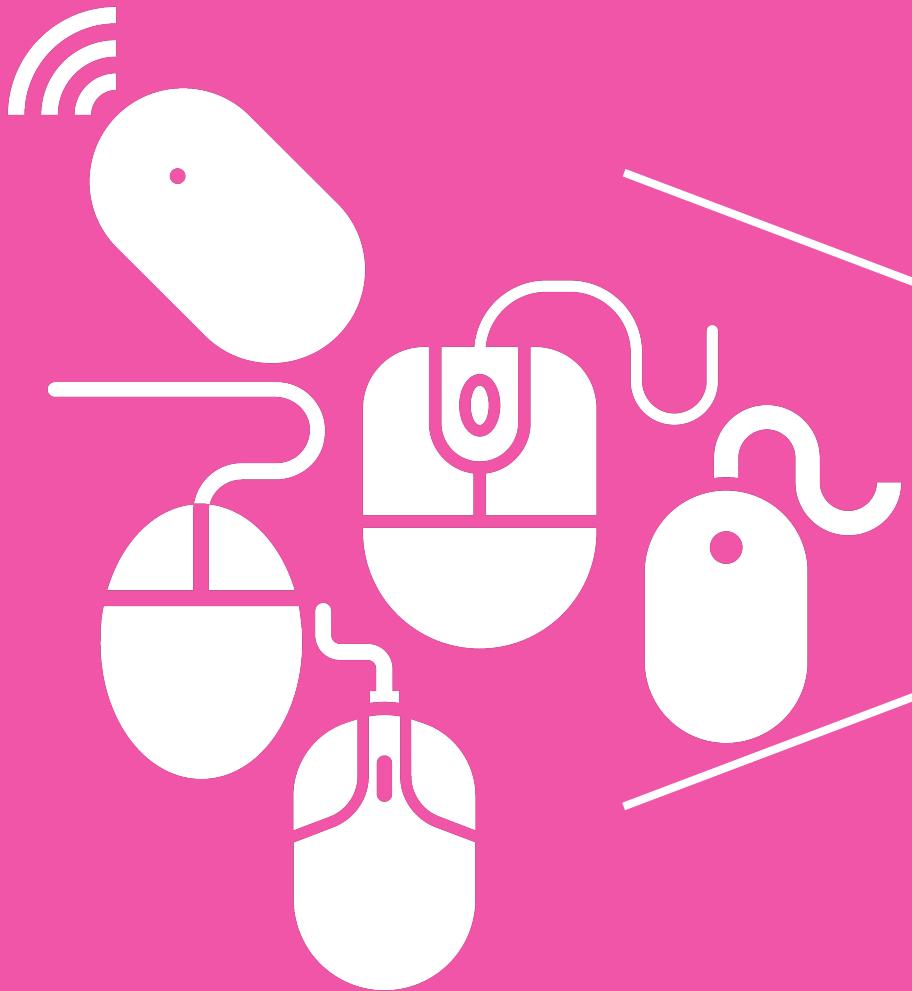




Iterations &  
Decisions

SWEETSPOT

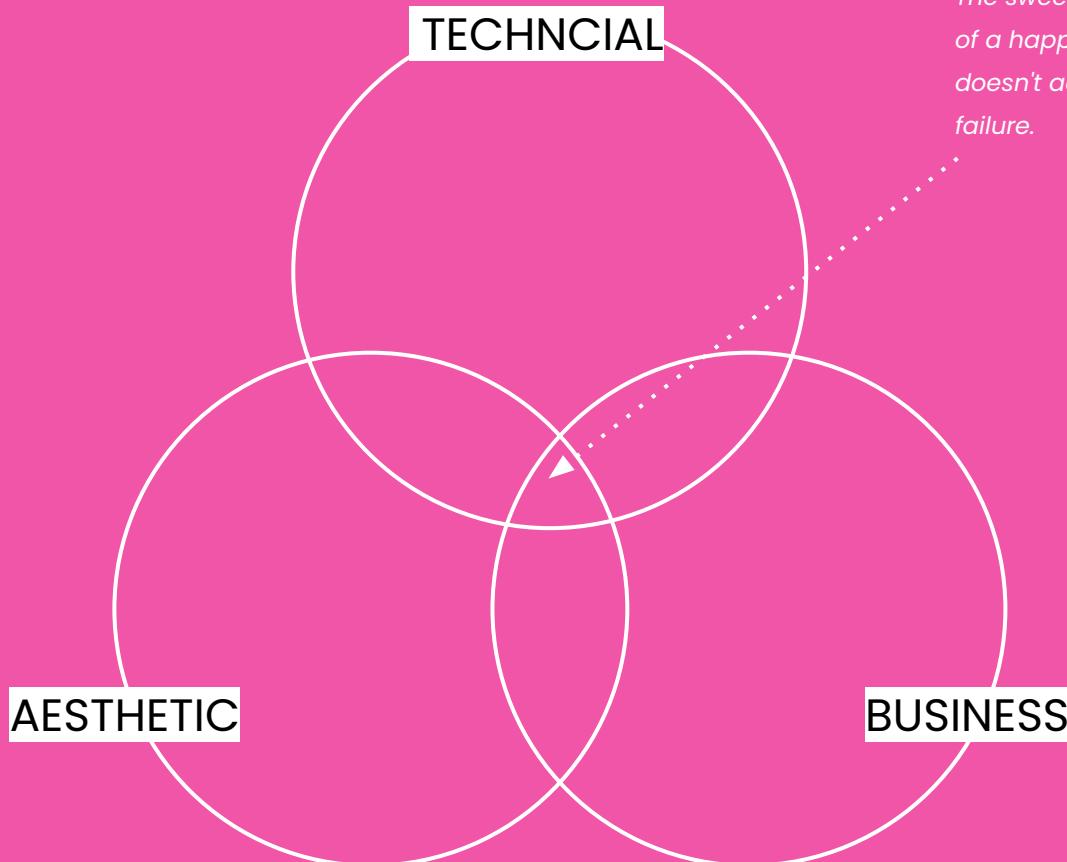
Balance of Cost,  
performance, desirability,  
technical risk,



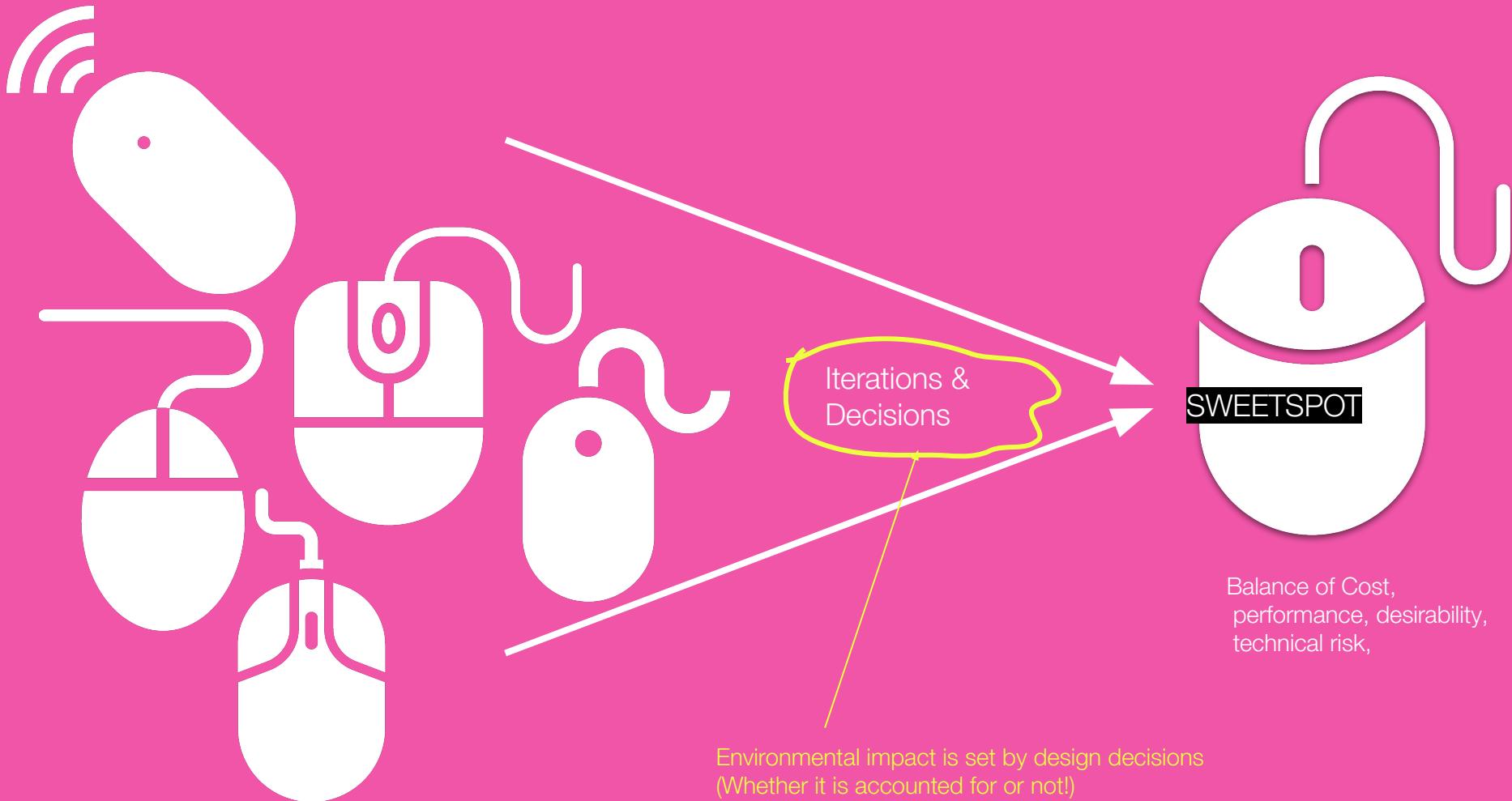
Iterations &  
Decisions

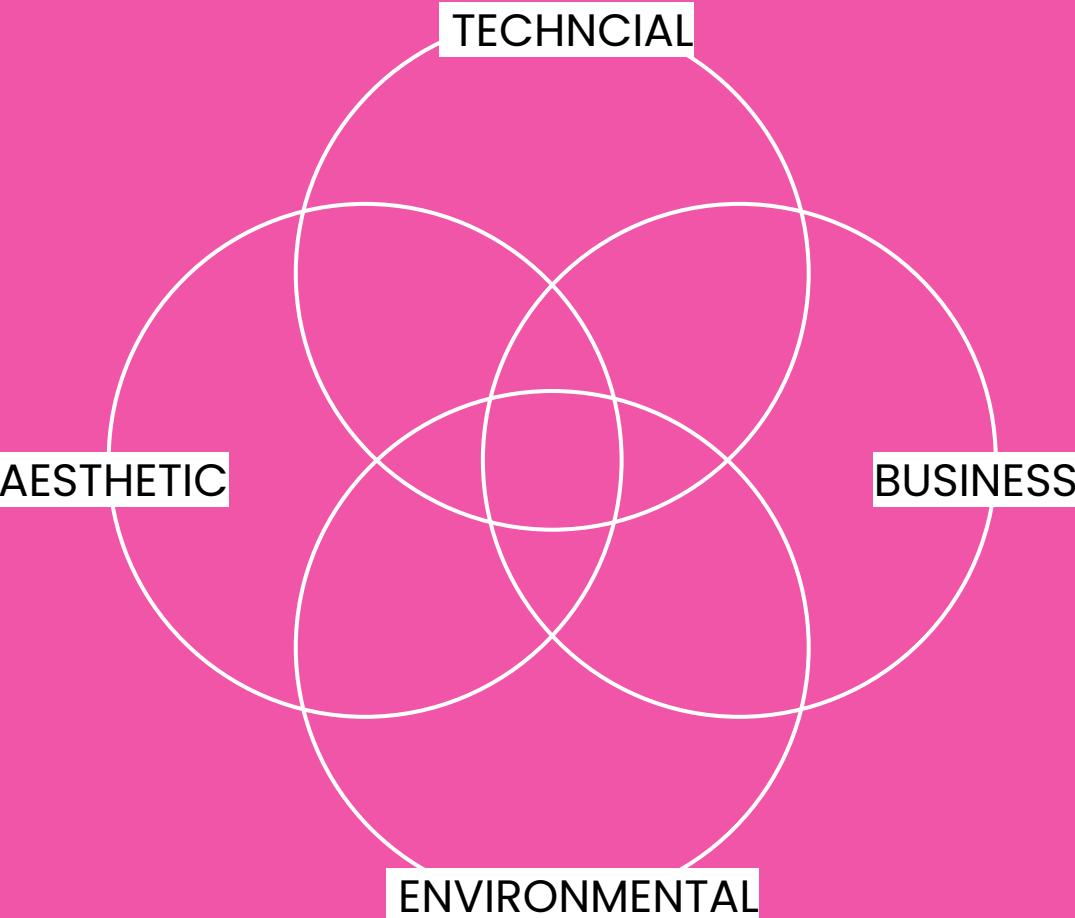
**SWEETSPOT**

Balance of Cost,  
performance, desirability,  
technical risk,



*The sweet spot is often represented by the idea of a happy user in the centre - if the product doesn't address user needs everything else is a failure.*





TECHNCIAL

AESTHETIC

BUSINESS

ENVIRONMENTAL

What are you actually doing when you design?





Recycling is more efficient than making new material, but it still produces CO<sub>2</sub>



The amount of CO<sub>2</sub> produced by using our products is very small



Shipping from the factory to the user is a major source of CO<sub>2</sub>



Most of our CO<sub>2</sub> comes from material sourcing and part manufacture

produces enough

logitech

CO<sub>2</sub>

to fill

this stairwell

every

13

seconds

...that is about the amount of time it will take you to get to the top...



How do I design for sustainability ? Make better design decisions!



## Indicators

Carbon  
Toxicity  
Circularity  
Water  
Social  
Biodiversity

What are you actually doing when you design?

ID

CMF DESIGN

UX

CMF ENGINEERING

DfS

ME /OST

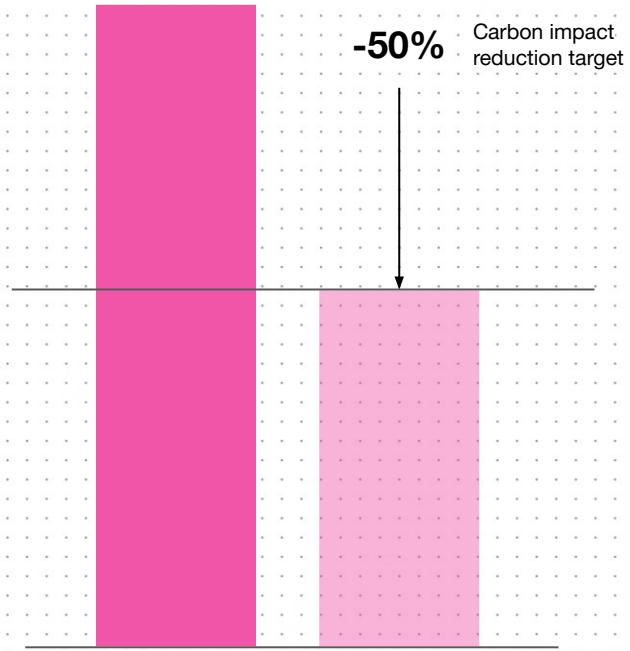
EE /AE

SOFTWARE

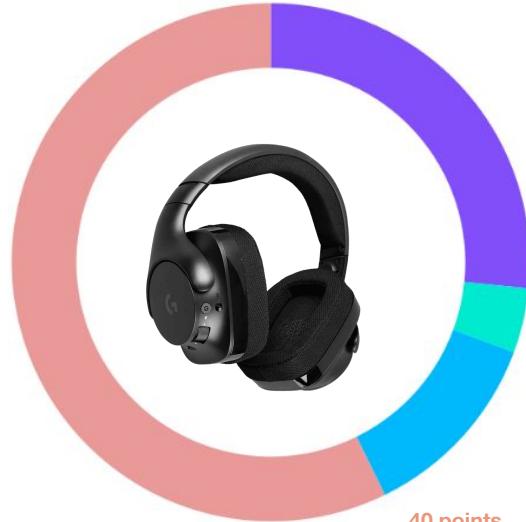
PACKAGING

MARKETING /CI

## CARBON



## CIRCULARITY



- Design for Longevity
- Design for Reuse
- Design for Recycling
- Remaining Circularit Potential



Impact estimate must be at least **50% lower** than the G553 baseline proxy model.



Must have a **Circularity Index** of at least **0.45**.

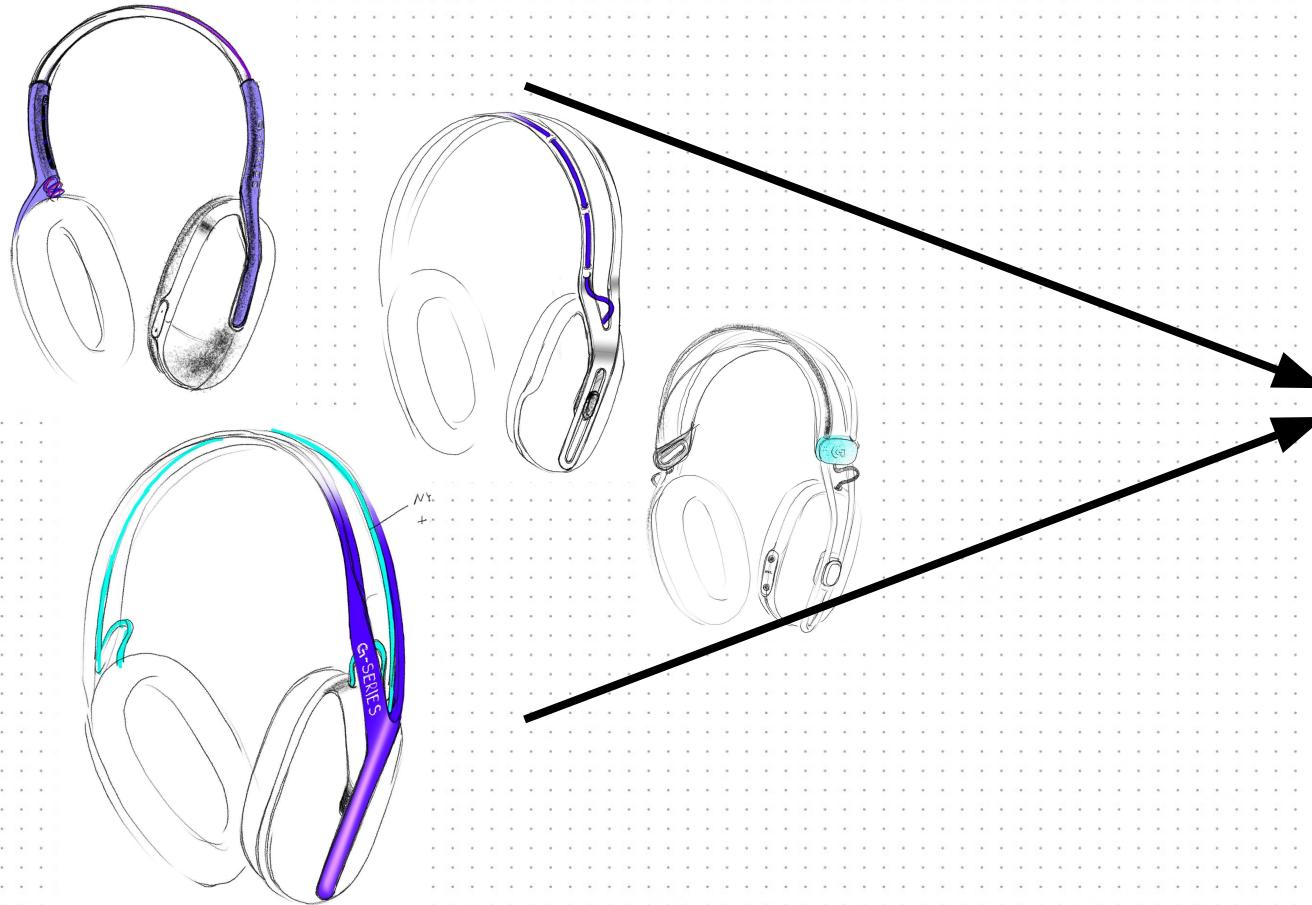
Setting targets

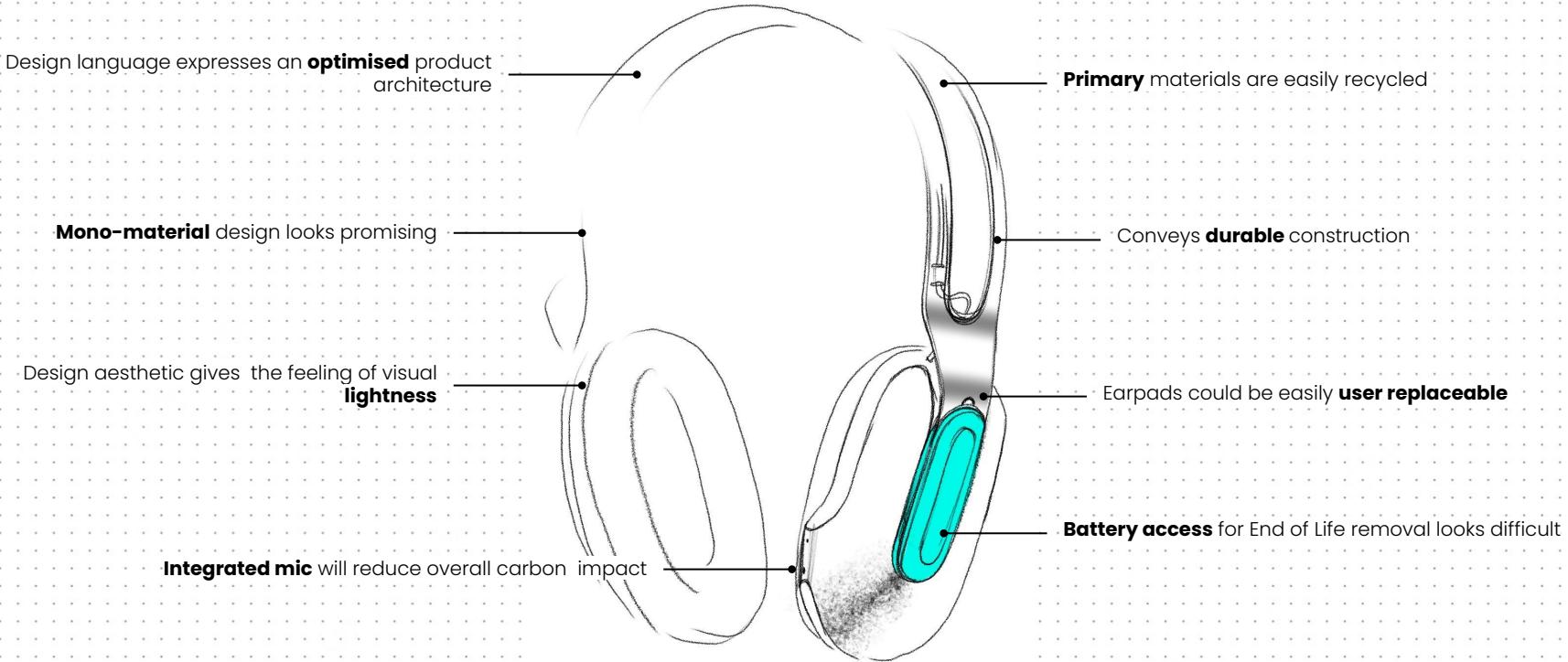
BETTER MATERIALS  
EFFICIENT DISTRIBUTION  
LOW IMPACT PACKAGING  
OPTIMISED ARCHITECTURE  
EFFICIENT MANUFACTURING  
LOW IMPACT COMPONENTS  
MINIMISE USE PHASE ENERGY

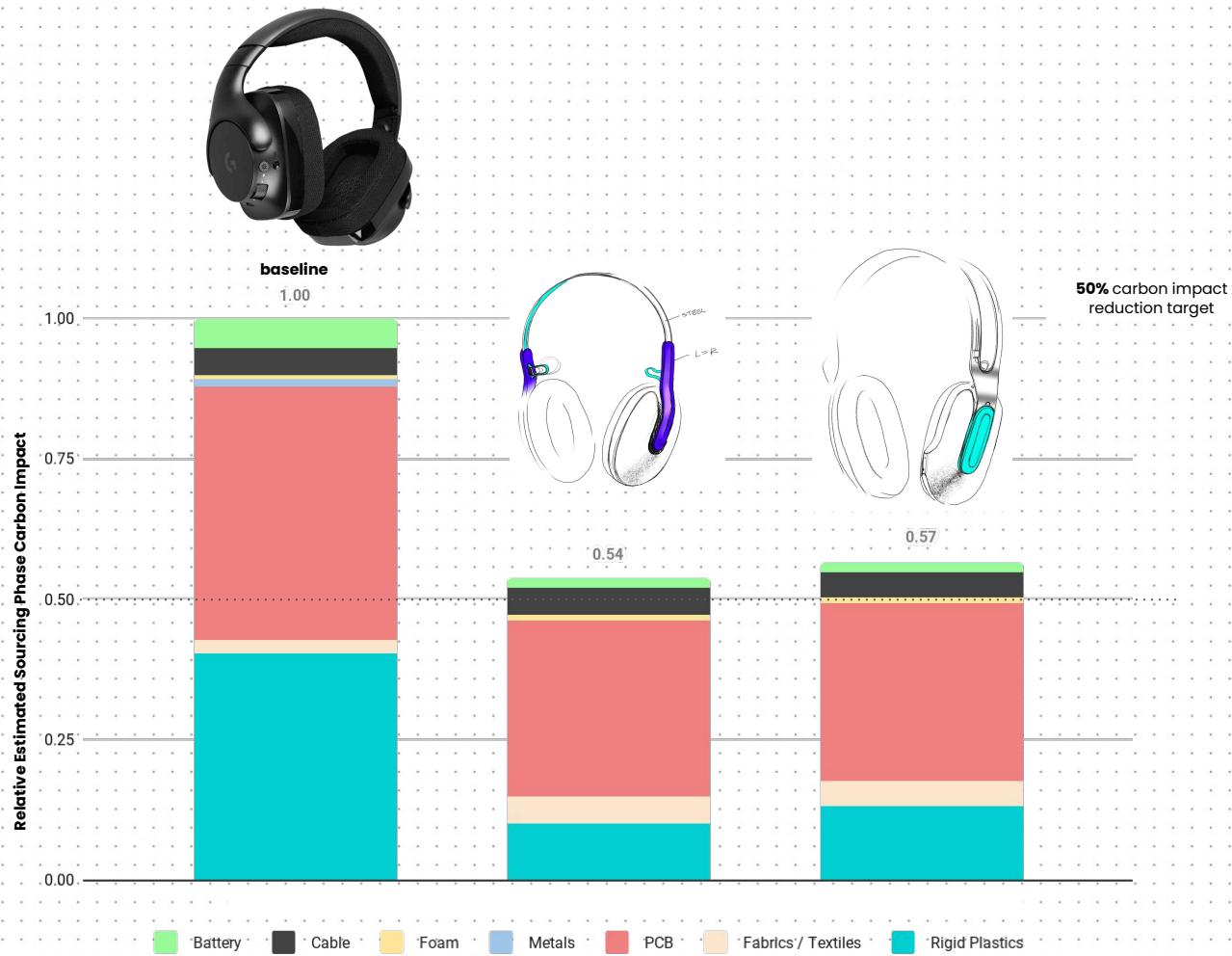
RECYCLABILITY  
RIGHT TO REPAIR  
CLOSE THE LOOP  
BEYOND HARDWARE  
PRODUCTS THAT LAST  
EMOTIONAL DURABILITY  
SOURCING TRANSPARENCY

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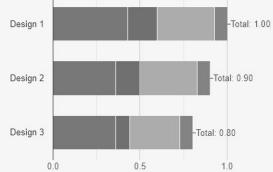
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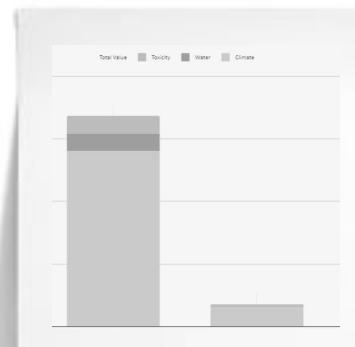
## CARBON IMPACT ASSESSMENT TOOL



## CIRCULARITY ASSESSMENT TOOL

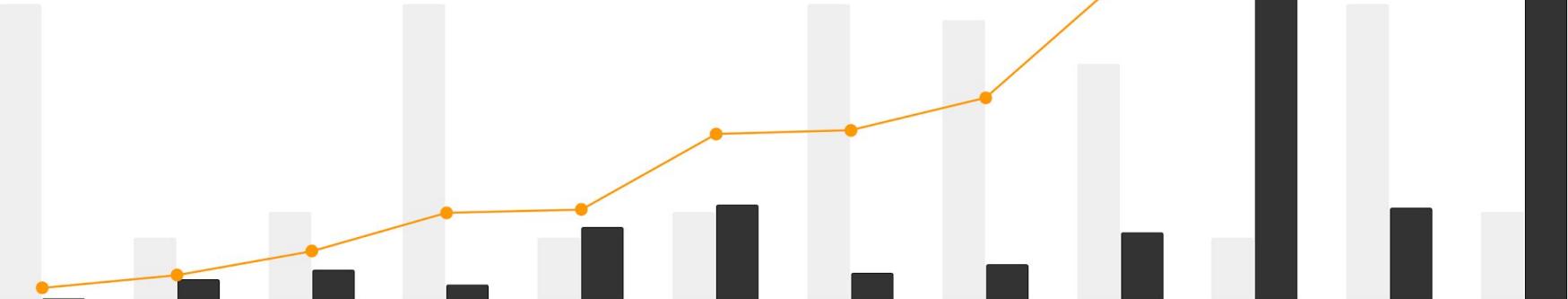
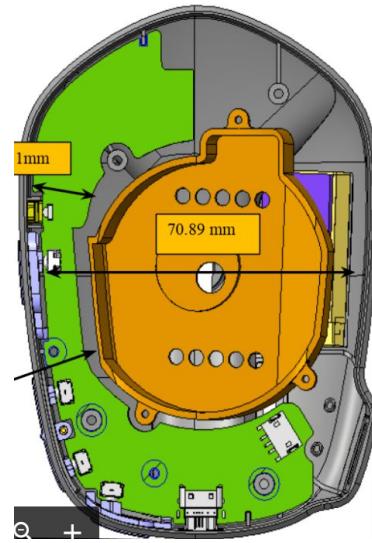
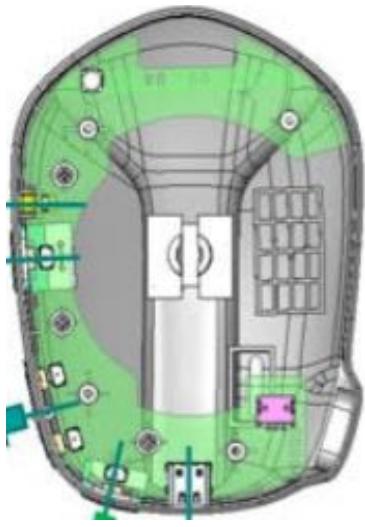


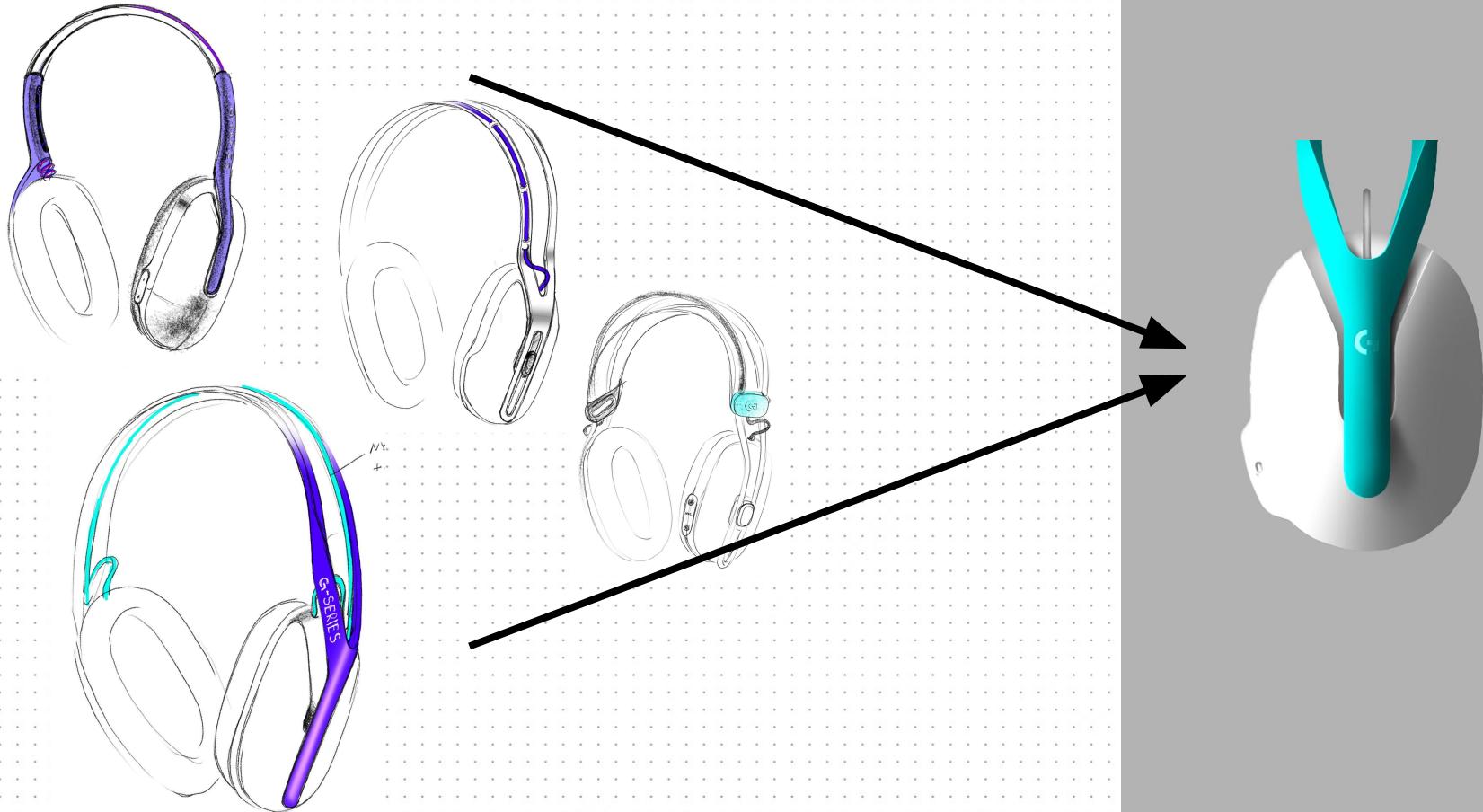
## PACKAGING ASSESSMENT TOOL



## MATERIAL IMPACT DATABASE







# 40%

Lower carbon impact than  
Carmen (G533)



# >240

tCO<sub>2</sub>e

**Reduction** per 100,000 units sold

## OPTIMISED ARCHITECTURE

lightest ever gaming headset (at the time of launch), using less material and fewer components than almost any other Logitech headset. This 'optimised architecture' approach is central to the G435's significantly reduced carbon footprint compared to the G533. The reduced weight also helps to ensure a more comfortable gaming experience for the user.



## BETTER MATERIALS

The G435 is built using recycled materials wherever possible, helping to significantly reduce the product's carbon footprint and giving the materials of older consumer electronics a second life. The G435 uses a minimum of 22% certified post-consumer recycled plastic by weight, leading to the avoidance of an estimated 8 tCO<sub>2</sub>e per 100,000 units (compared to the use of virgin ABS plastic).



## LOWER IMPACT COMPONENTS

### EFFICIENT PCB DESIGN

The earcup of the G345 has been designed to ensure that less material is wasted in the production of the product's printed circuit board.

### VIRTUAL BOOM ARM

The G345 features built-in dual beamforming mics with several benefits over a traditional boom mic including reduced weight, improved reliability and reduced material consumption of both product and packaging.



## RECYCLABILITY

The G435 is built using fewer types of materials and fewer different components than other headsets, significantly improving the end-of-life recyclability of the product compared to the G533



## LOW IMPACT PACKAGING

The G435's packaging has been designed to minimise weight by reducing the overall size of the box and by printing the user manual directly on the box to save paper.



## POSITIVE CONTRIBUTION

### BRAILLE MARKINGS

The G435 features braille markings to indicate left and right ear cup.

### INCLUSIVE HEADBAND FIT

The headband design of the G435 has been designed for the widest possible range of head sizes.



