



DESIGN FOR SUSTAINABILITY

WORKING GROUP

talking with **Adrian Segens**



Cambridge Design Partnership

Strategic partner in
product development.

Engineering complex products built
to perform, scale and compete

Cambridge, UK • Raleigh, USA

200+
innovation experts

100%
employee owned

Healthcare

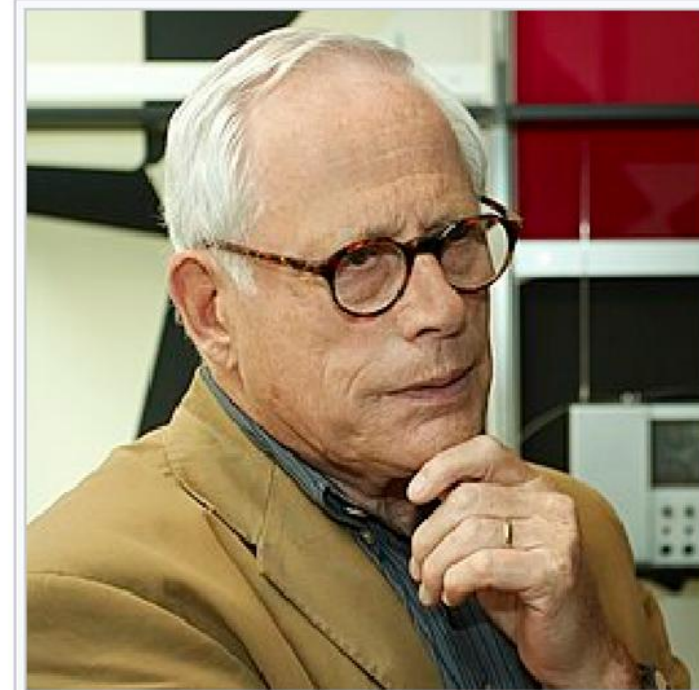
Consumer

Industrial



Dieter Rams

Dieter Rams (born 20 May 1932) is a German designer who is most closely associated with the consumer products company **Braun**, the furniture company **Vitsoe**, and the functionalist school of industrial design. His unobtrusive approach and belief in "less, but better" design has influenced the practice of design, as well as 20th century aesthetics and culture.



Dieter Rams



Sustainable & Circular Design



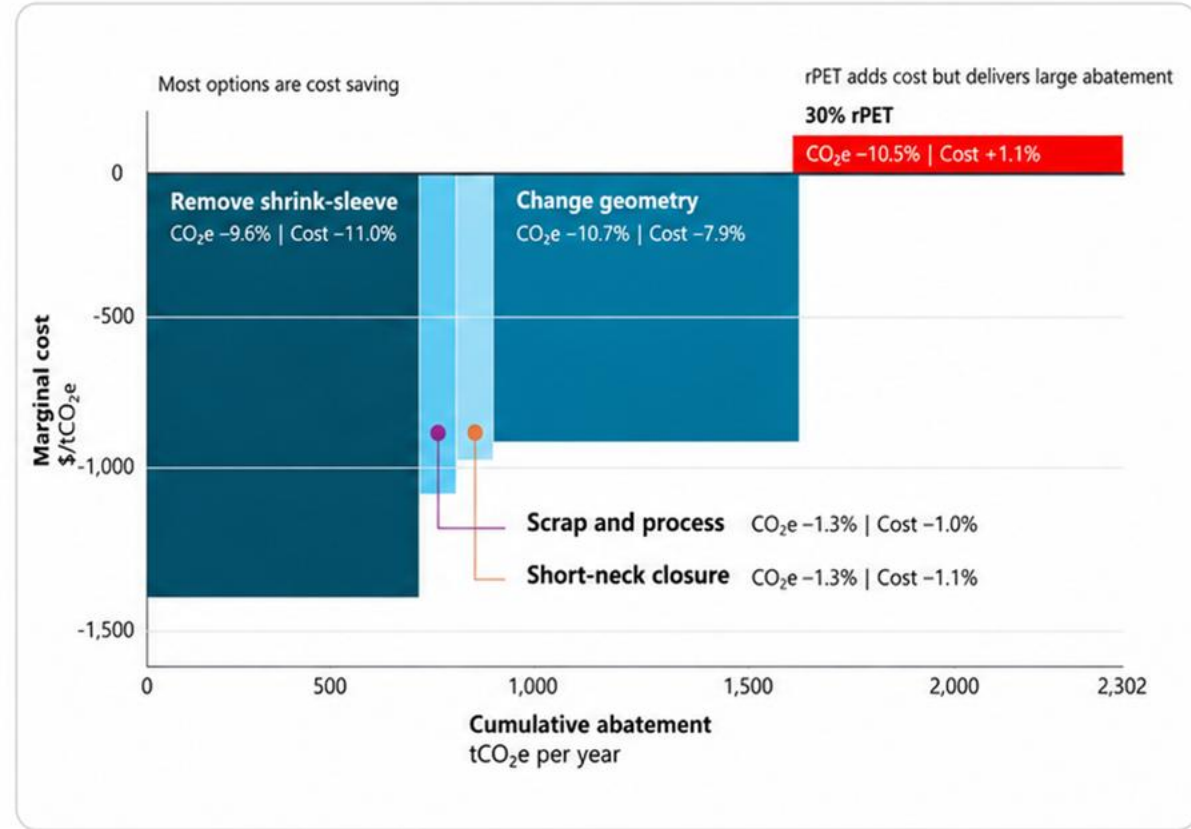
Lifecycle thinking, engineered for scale



CAMBRIDGE
DESIGN
PARTNERSHIP

Sustainability Cleansheeting

Cost and carbon in one view



Sustainable packaging

Design levers



Circular strategy

10 Rs

CIRCULAR ECONOMY

SHORT LOOPS

Design phase



R0

Refuse

Avoid unnecessary products and materials



R1

Rethink

Redesign how value is delivered and used



R2

Reduce

Use fewer materials and less energy

MEDIUM LOOPS

Use phase



R3

Reuse

Use again for the same purpose



R4

Repair

Maintain and fix products for longer use



R5

Refurbish

Restore products to good working condition



R6

Remanufacture

Rebuild using recovered parts and components



R7

Repurpose

Use products or parts for a new function

LONG LOOPS

End-of-life phase



R8

Recycle

Reprocess materials into new raw material



R9

Recover

Recover energy or residual value from waste

LINEAR ECONOMY



Landfill or Incineration

Value lost



Businesses: Moving to a Product Service System

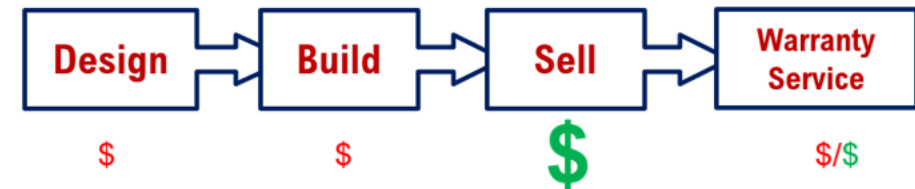
Product Service System: combines products and services to create value for customers.

For customers:

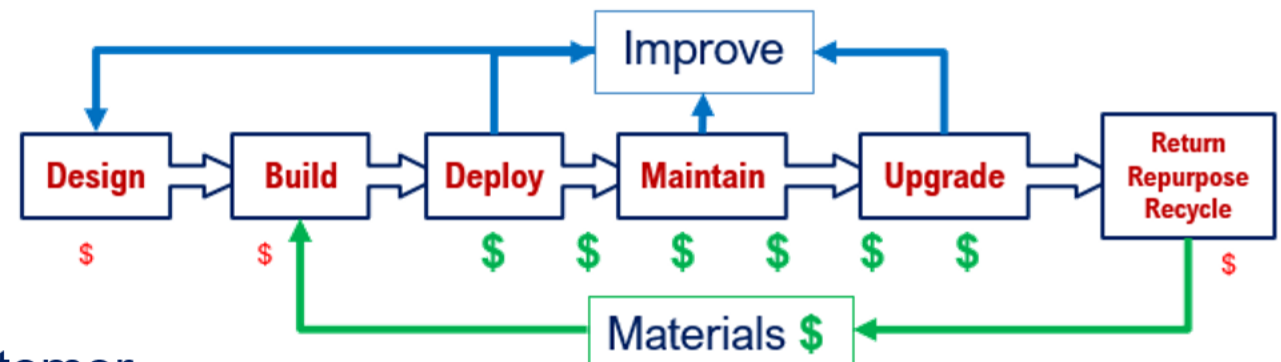
- From CAPEX to OPEX

For manufacturers:

- **Full control** of the product lifecycle
- Circular Loops **reduce costs**
The battle for batteries in Automotive
- **Direct connect** to the customer
Updates and Upgrades
- **Guaranteed flow** of income per **loyal** customer



Traditional linear approach



Product Service System

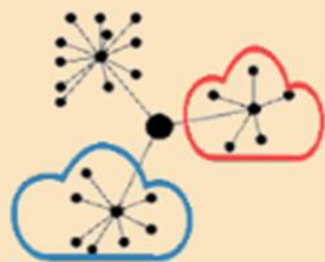


TacIT

The Know-How to Know Now



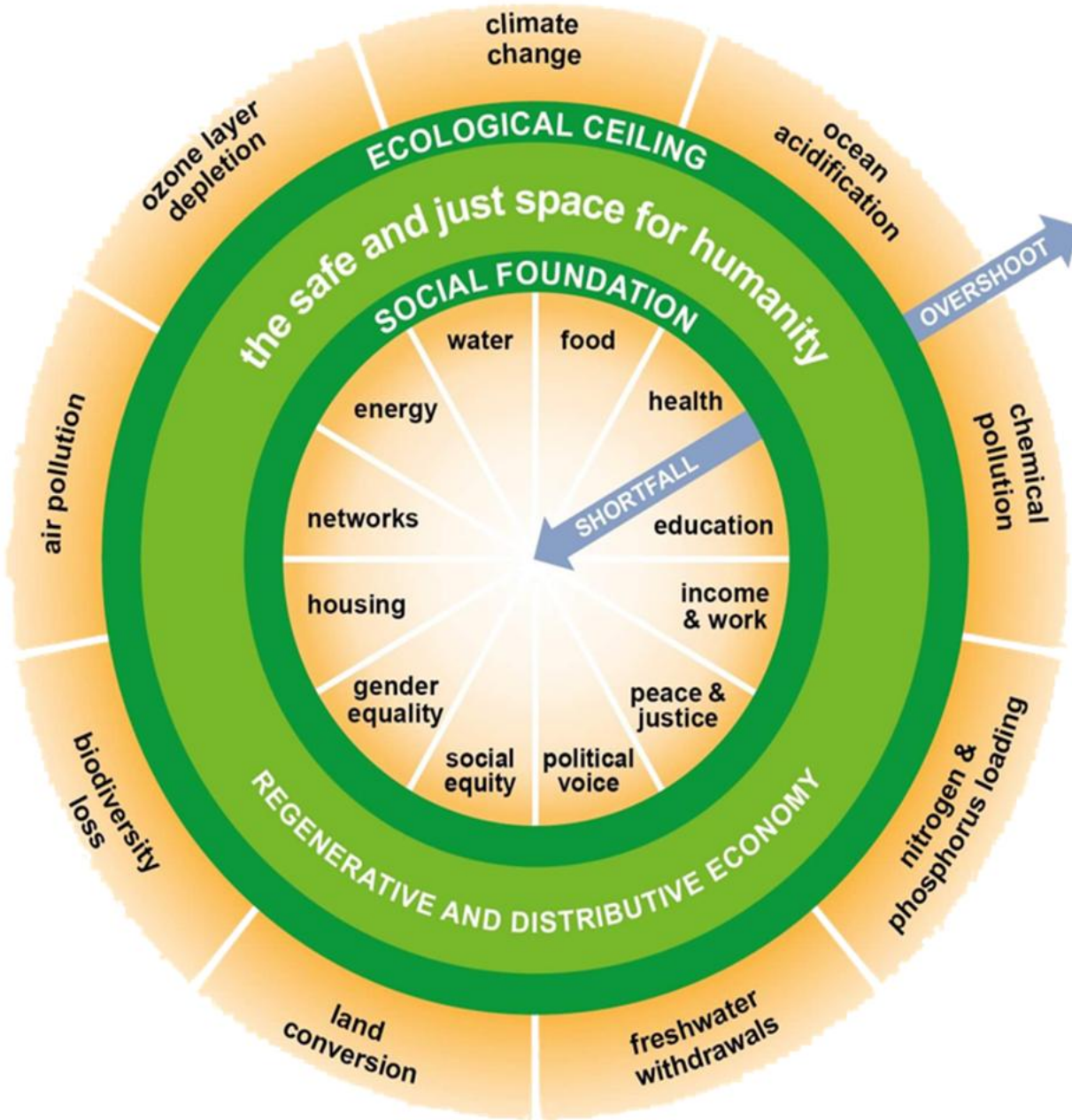
Real-time



Model-Based

New Economical Models

the end of continuous growth



www.kateraworth.com/doughnut

You'll own nothing, and you'll be happy

2016

WORLD
ECONOMIC
FORUM

**“Saving the climate
does involve huge
change, but it might
make us happier at
the same time.”**

Ida Auken
Danish Member of Parliament, Global
Future Council on Cities and
Urbanization



More interesting content:

- **The WEF's Circular Car Initiative as a great vision of what a circular future looks like.**

A paper is essential reading whether you are in automotive or not:

<https://www.weforum.org/publications/raising-ambitions-a-new-roadmap-for-the-automotive-circular-economy/>

- **The European Joint Research Center on PaaS:**

<https://publications.jrc.ec.europa.eu/repository/handle/JRC143813>

- **More about Dieter Rams:**

<https://archive.org/details/rams-2018-documentary-1080p>