SAMEN TEGEN VOEDSELVERSPILLING | IntelligentFood Coöperatie UA | WIJ LEIDEN VAKMENSEN OP Erkend leerbedrijf

Waste, our new gold

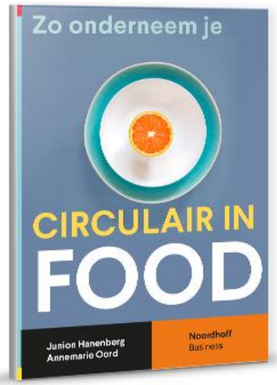
Sustainable Business Innovation

Junion Hanenberg

IntelligentFood

- Lecturer Marketing at Rotterdam Business School
- CEO/Founder IntelligentFood
- I combat food waste

www.kerstpakketmeteengoedverhaal.nl



https://www.youtube.com/watch?v=-OPEGVKzK0o&t

WIN EURO 250 WITH YOUR TEAM

The 4 principles of the Circular Economy

1. Waste = food
2. Energy from Renewable Resources
3. Think in Systems
4. Resilience through diversity

The definition of waste

More circular

1 Refuse	Refuse materials that are harmful to the environment
2 Redesign	Redesign products so that they last and can be repaired
3 Replace	Replace technical materials with restorative renewable materials
4 Rethink	Intensify product use by (e.g. sharing products)
5 Reduce	Increase efficiency of product manufacturing by using fewer resources and materials
6 Reuse	Reuse of discarded product, that is still in good shape, by another customer
7 Repair	Repair defective product and maintain its functionality
8 Refurbish	Restore an old product and bring it up to date
9 Remanufacture	Use parts of a discarded product in a new product with the same function
10 Repurpose	Use parts, or the discarded product in a product with a different function
11 Recycle	Process materials of the product at material level (same or lower)
12 Recover	Incineration of material with energy recovery

More linear

Assignment: Search what R-strategy is used -10 min-

KLIPPAN

Fairphone

STUDENT FURNITURE HOLLAND

Das Werk Haus

In Cologne

Assignment: Search what R-strategy is used -10 min-

KLIPPAN

Repurpose

Fairphone

Redesign

STUDENT FURNITURE HOLLAND

Rethink

Das Werk Haus

In Cologne

Remanufacture

Refuse

Reduce

Redesign & Replace

Assignment: Search for an example for each R

More circular

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More linear

Examples

Redesign

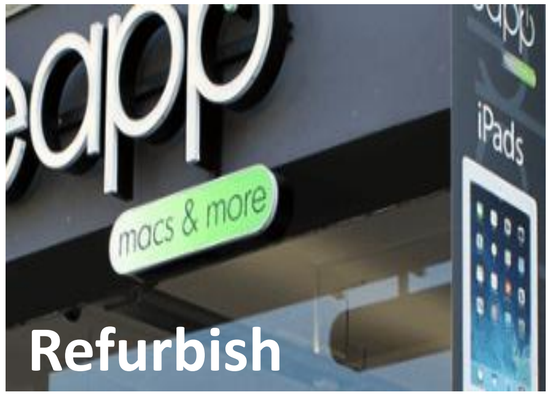
Replace

Rethink

Reduce (Interface)

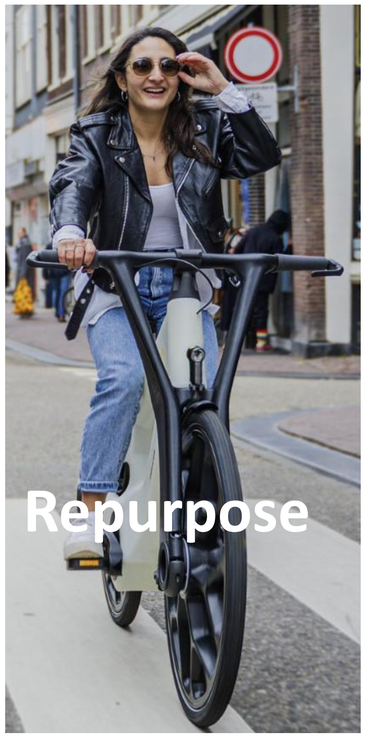
Reuse

Repair



Refurbish

Remanufacture



Repurpose

Recycle

Recover

Definition of food waste

food waste hierarchy

Based on SDG #12.3: Reduce food waste with 50% by 2030

01. Prevention

02. Use for human food

03. Conversion to human food

04. Use in animal feed

05. Raw materials for industry

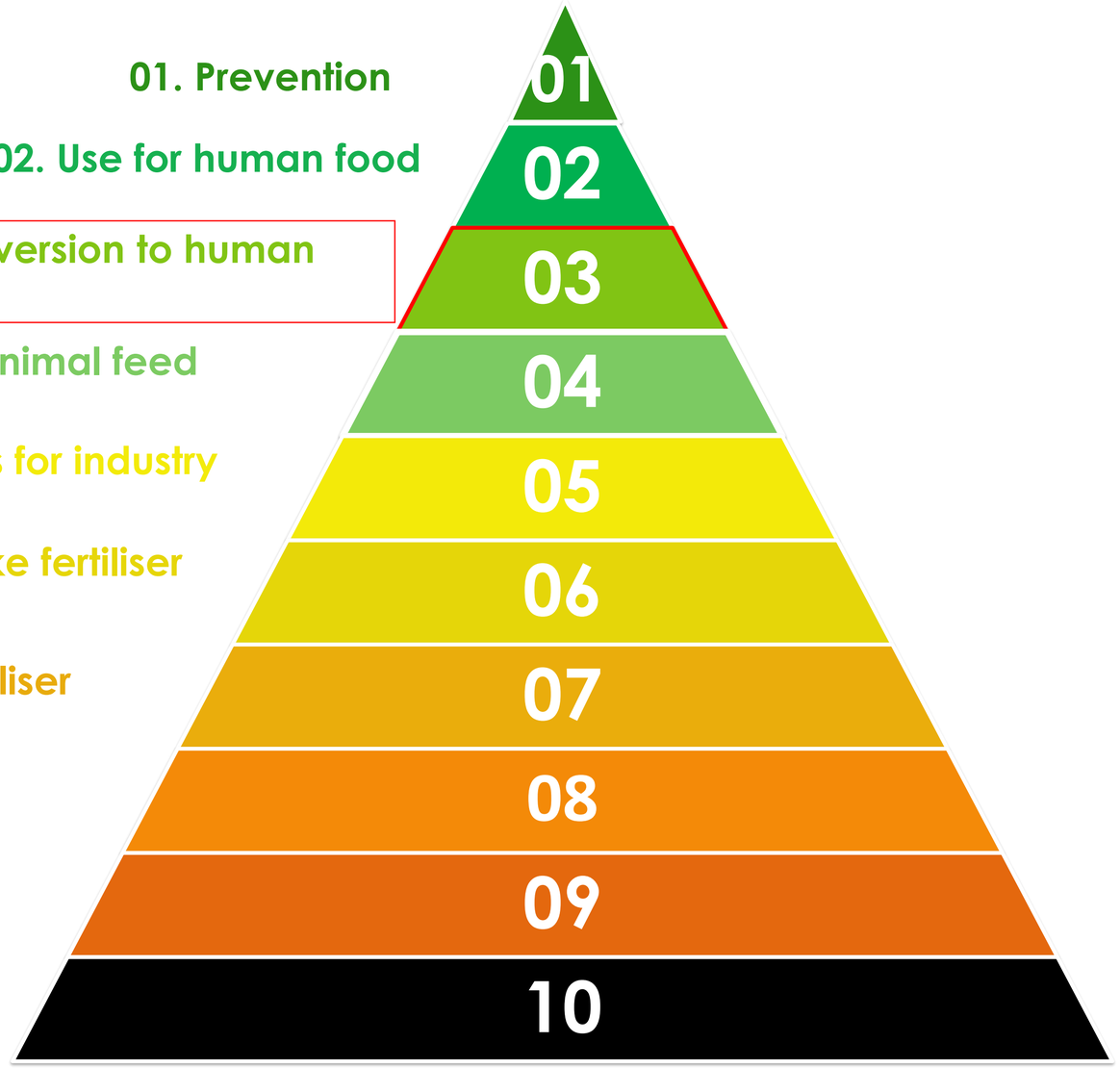
06. Processing to make fertiliser for cofermentation

07. Processing to make fertiliser through composting

08. Use for sustainable energy

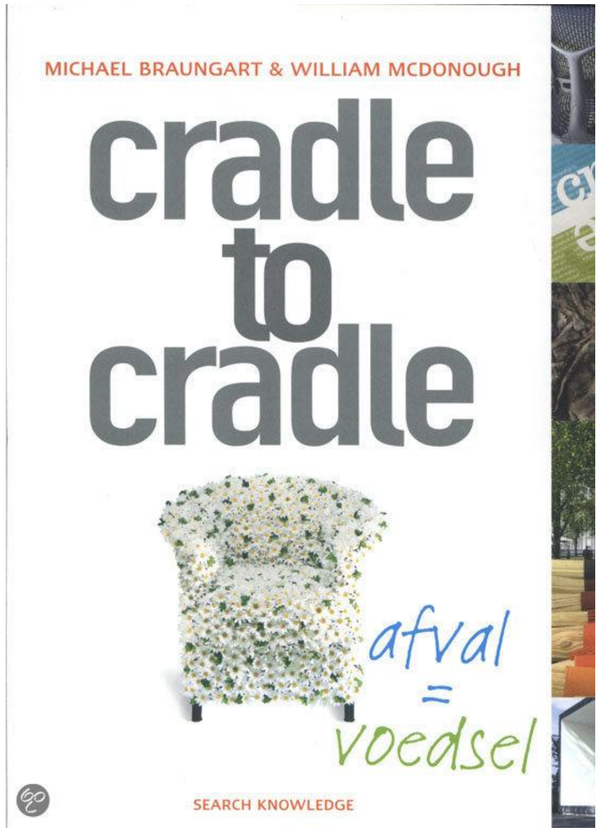
09. Burning as waste

10. Dumping

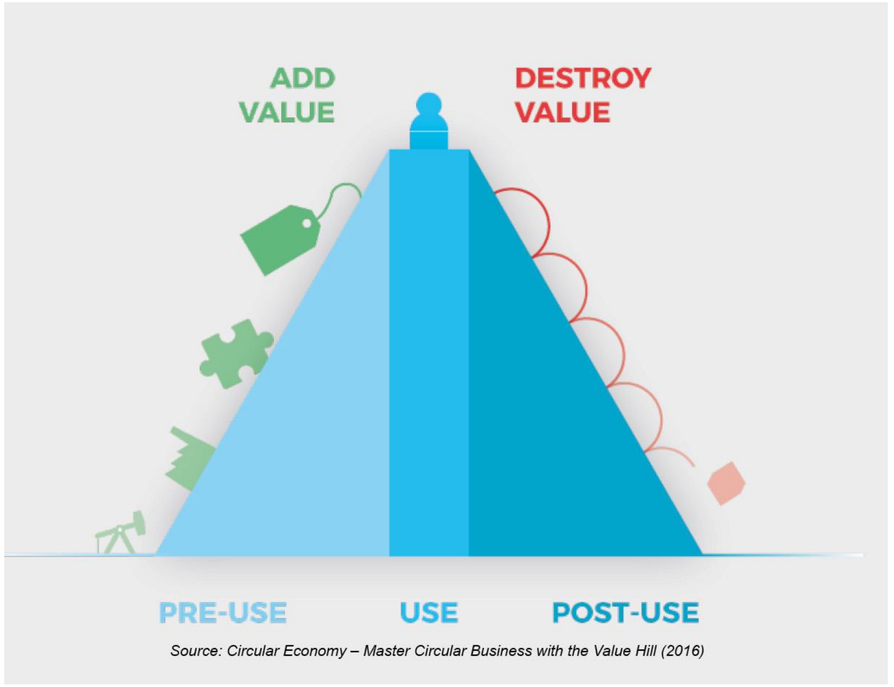


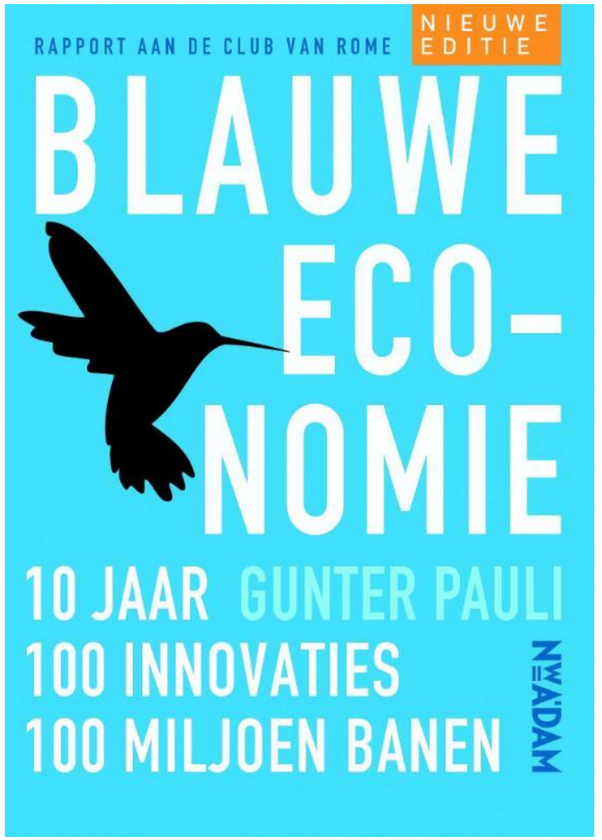
Food Waste Hierarchy (Moerman)

Braungart & McDonough vs. Gunter Pauli



2002



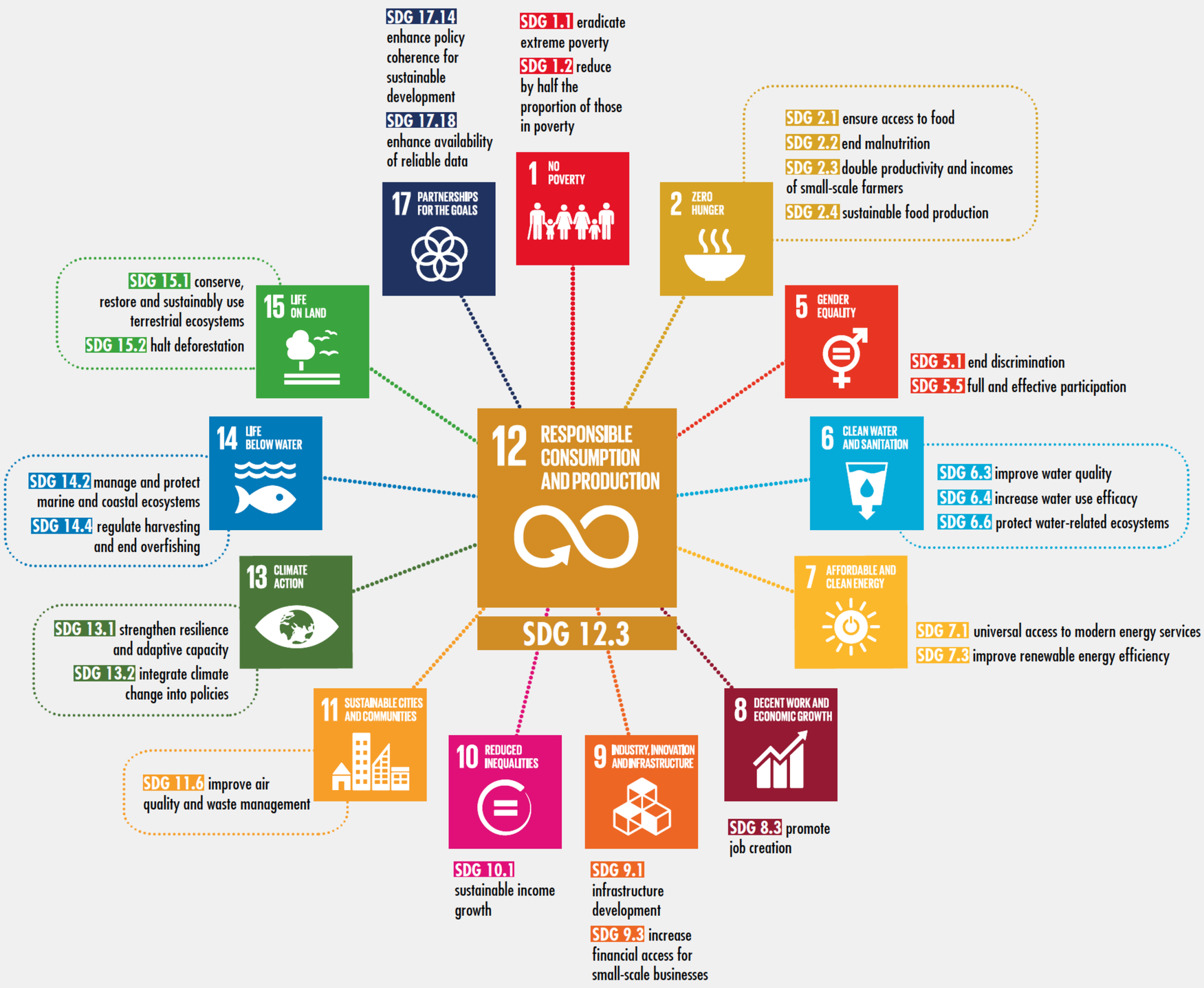


2012

17 SDG's of the UN

Sustainable Development Goals

- **SDG 1**: With food waste, we can feed all third-world countries.
- **SDG 13**: Combat climate change by reducing greenhouse gases by 1/3.
- **SDG 6**: 1500 liters of water are needed for 100 grams of meat.
  85% of the water footprint = agriculture, 5% is used by people, 10% in industry (paper, furniture, etc.).
- **SDG 7**: 30% of energy is used in food systems.
- **SDG 15**: 80% of agricultural land is used for meat, dairy, and eggs. However, this is only a small part of our food (WWF).



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17 SDG's of the UN

Sustainable Development Goals

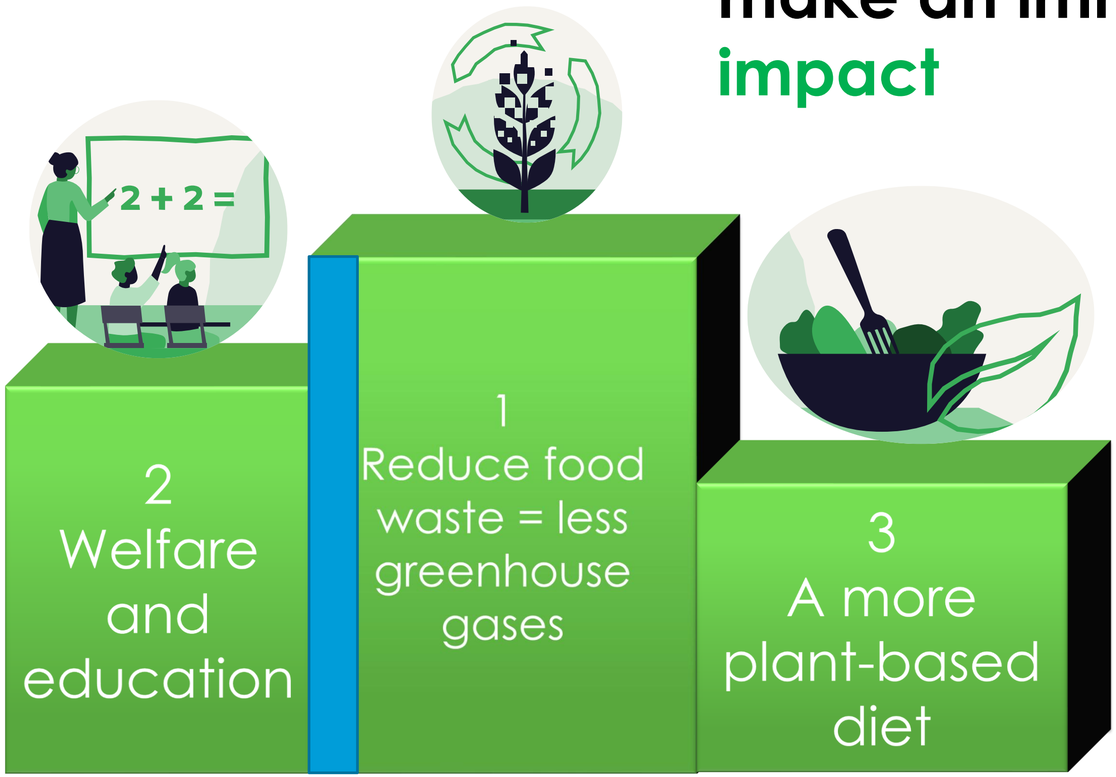
- How many loaves of bread are thrown away in the Netherlands every day?
- How much food is thrown away per year in the Netherlands?

- Look this up for your own country.

Why food waste?

By addressing foodwaste, we make an immediate positive impact

Top 3 solutions against climate change worldwide*



15% direct emissions from the chain

85% indirect emissions

Production-distribution-consumption

Through less deforestation and more biodiversity

*To limit global warming to 2 degrees by 2100

Samen Tegen Voedselverspilling
Source: Project Drawdown, (2021).

Education

Culture

Food waste

Worldwide problem

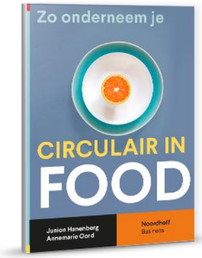
With a circular economy, we can fulfil people’s needs with just 70% of the materials we currently use—within the safe limits of the planet.
[The Circularity Gap Report 2023]

Why is the next movie being shown?

*To limit global warming to 2 degrees by 2100

The pencil

Reasons why we need to work together | Understanding the world



Solutions
Working together

Everyone in the food system should participate directly to make a positive impact

Public organizations

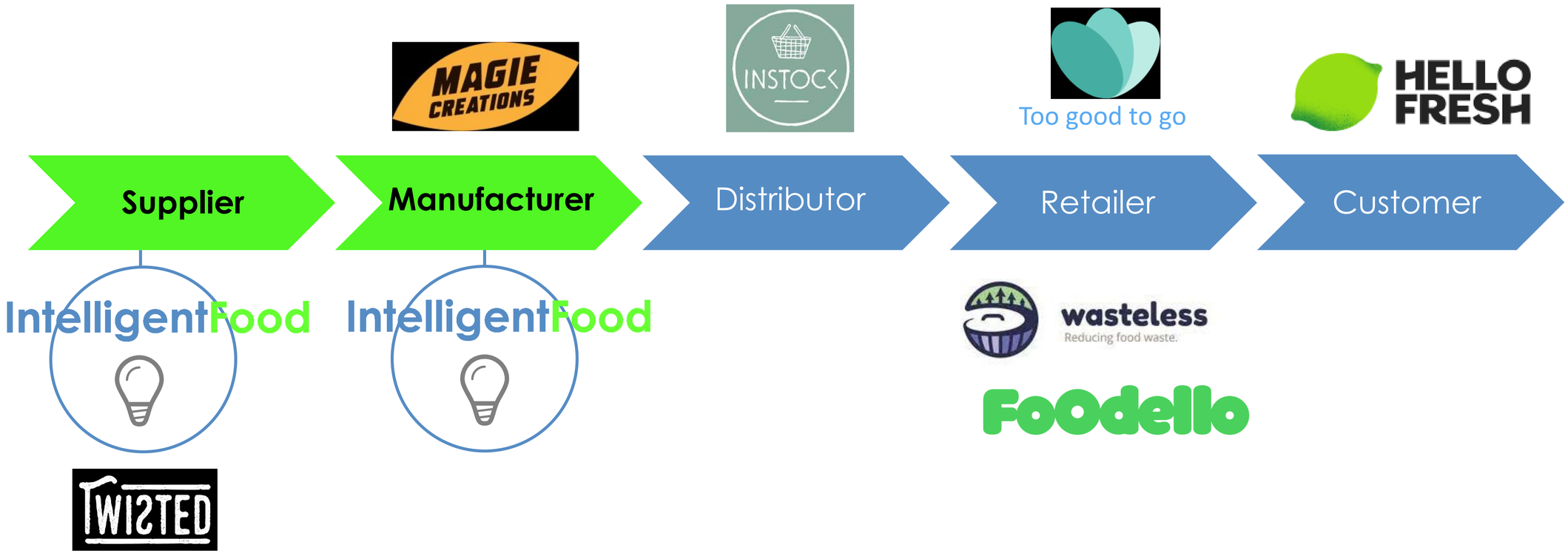
Education

Consumers

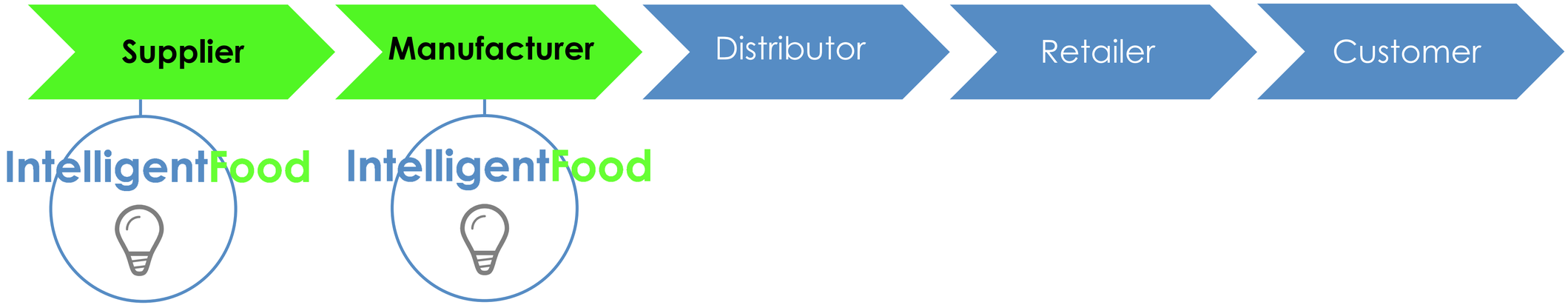
Businesses across the food chain

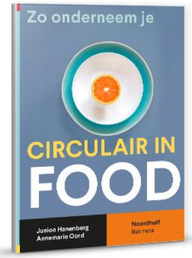
Samen Tegen Voedselverspilling
Source: Project Drawdown, (2021).

Some solutions in the food production chain



Our focus
manufacturer and supplier?



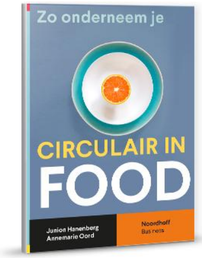


Our focus
manufacturer and supplier?

- Conversion to human food
- Food production/manufacturing industry

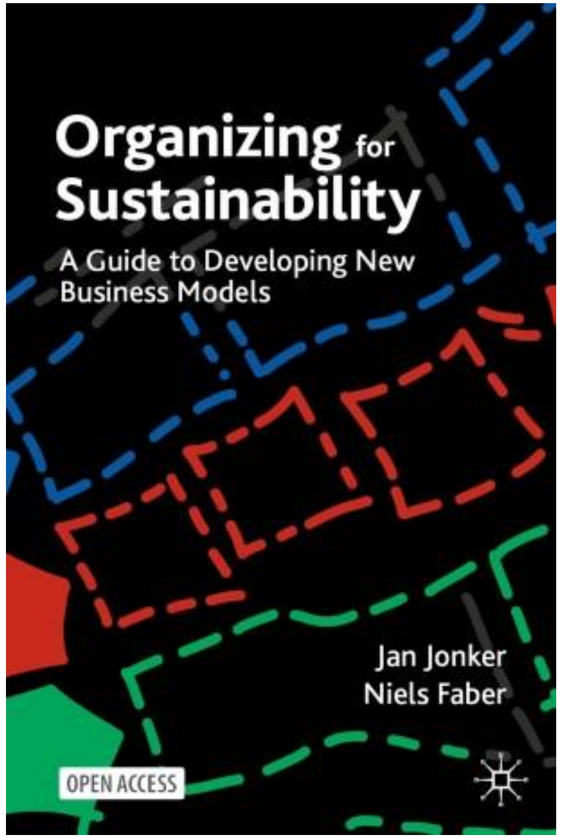
Supplier → **Manufacturer**

- More impact (bulk)
- No fine-grained distribution needed compared to consumers
- Cleaner residual streams
- Residual streams with more value
- Easier to scale



Open assignment

Read more on how we do it



Design phase

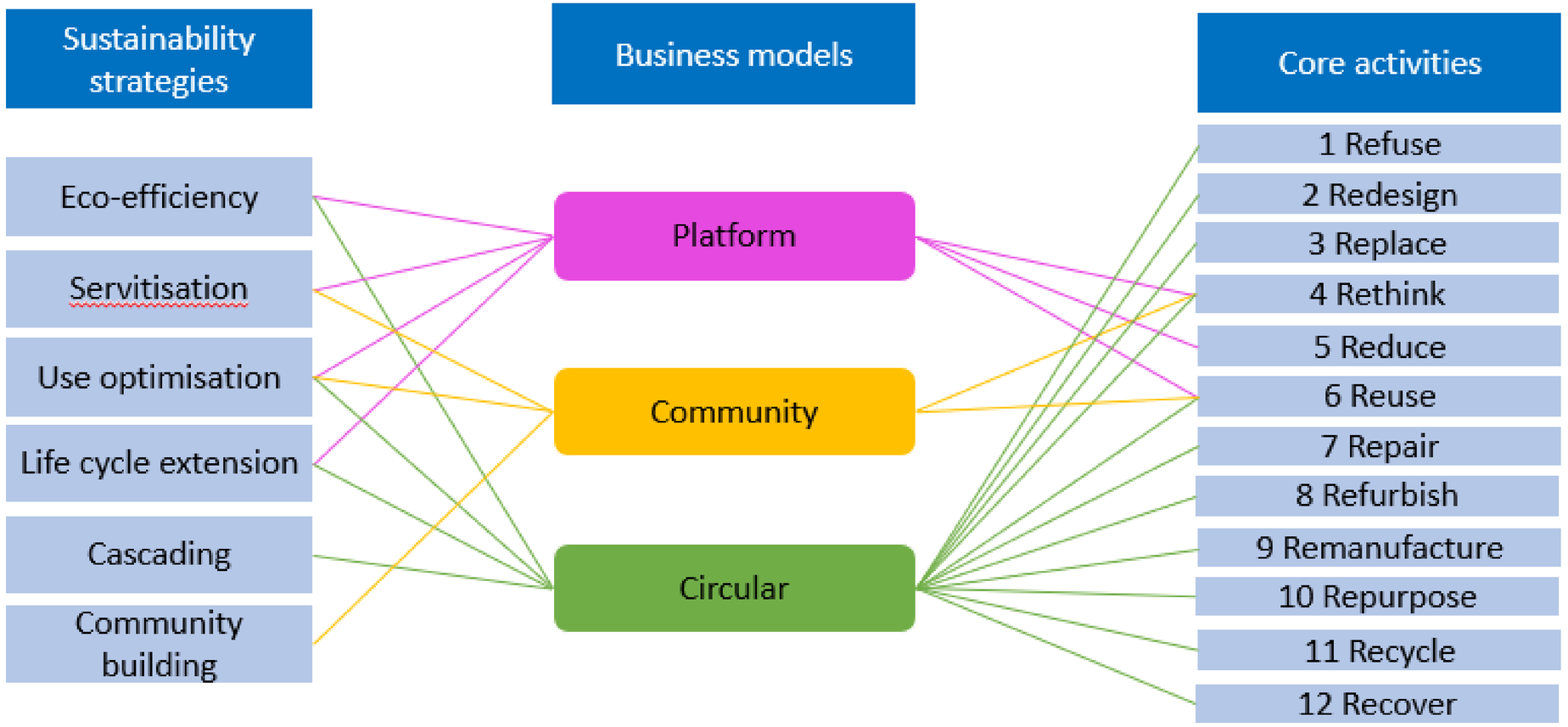
Type of business model

Parties involved

Strategy

Core activities

Choosing core activities



03

Source: Jonker & Faber, 2020

Design phase

Type of business model

Parties involved

Strategy

Eco efficiency

- Reducing of material and energy during the entire lifespan of a product, while increasing output with less input
- Often used to reduce negative impacts (e.g. waste, pollution, waste)
- The strategy lowers the ecological footprint, while doing the same things.
- **Doing the same, but better!**

Design phase

Type of business model

Parties involved

Strategy

Servitisation strategy

Product as a service

- Also referred to as Product as a Service (PAAS models)
- Marketing of a function, instead of selling the product itself
- This strategy can lead to dematerialization, in other words lower the need of new products

Forms of servitisation

1. Product oriented strategy
   - Selling a product with a maintenance package (all types of accessories that fit a specific (reasonable cheap) product (e.g. printers)
2. User oriented service strategy
   - Using idle capacity
   - Supplier remains the owner, while the customer uses the product for the duration of the contract (lease contracts of cars, etc.)
3. Performance oriented service strategy
   - Supplier sells a particular performance, for which the customer pays (e.g. lumen of Philips

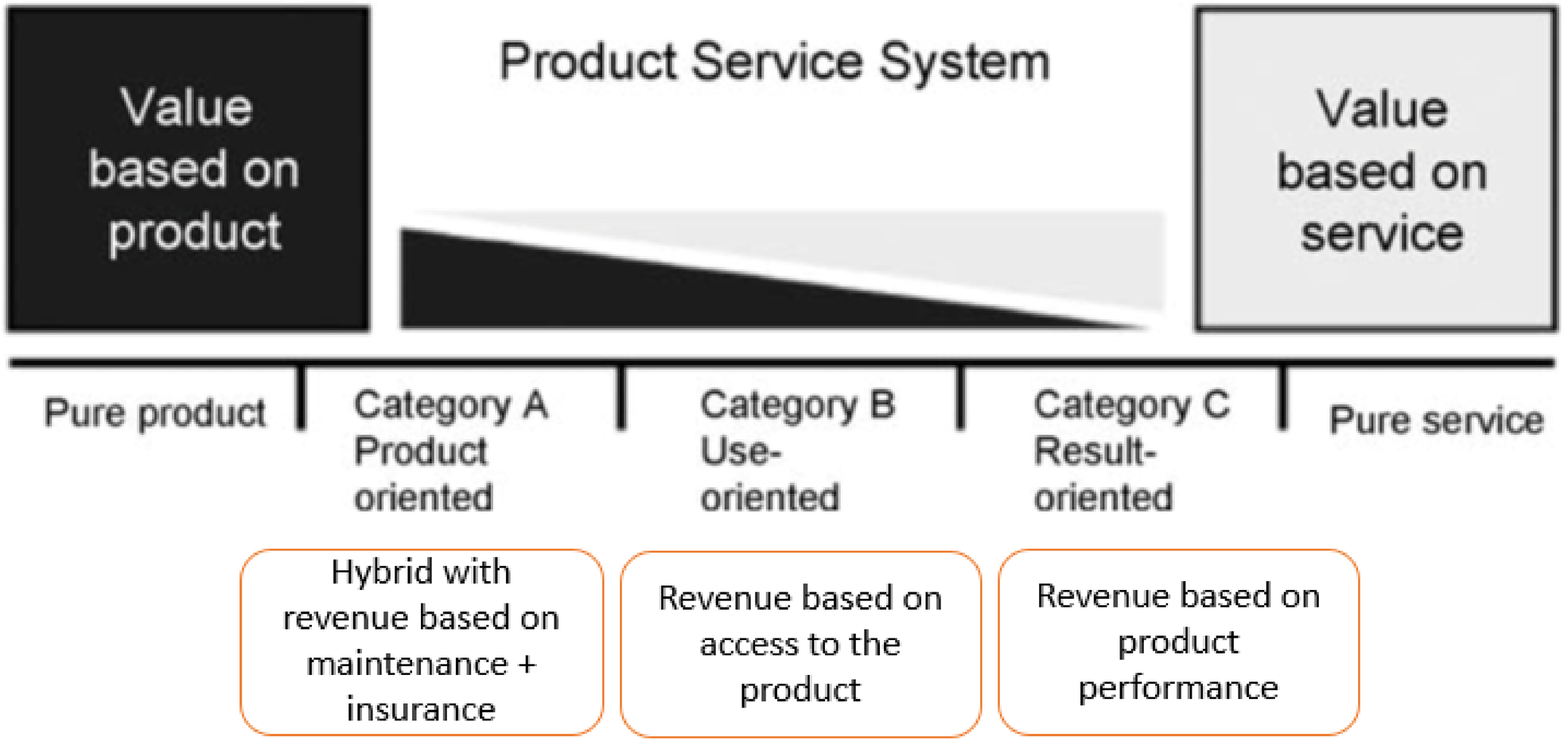
Design phase

Type of business model

Parties involved

Strategy

Servitisation strategy



Source: Datta & Roy, 2010, p. 144

Design phase

Type of business model

Parties involved

Strategy

Usage optimisation strategy

- Making idle capacity available. For example, on average a car is only used 10% of the time.
- Strategy makes often used of a platform to increase usage optimization
- Examples are the MRI machine that is shared among hospitals, Felyx and BlaBlaCar.
- The ecological value is debatable, the intense usage of products increases wear and tear.
- Social value is obtained by making these products available for those with a smaller wallet.

Design phase

Type of business model

Parties involved

Strategy

Life time extension strategy

- Essence is to extend the lifetime of the value of a product and its components.
- At the core is product design for life cycle extension and repair.
- Is seen as the central strategy of coming to a circular economy.

Source: www.fairphone.com

Design phase

Type of business model

Parties involved

Strategy

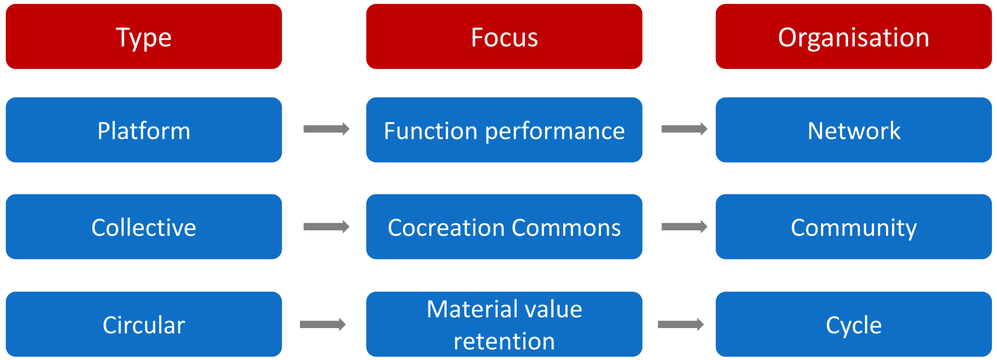
Cascading strategy

- Developing a loop with several parties, with the intention to retain the materials at the highest possible level.
- Conversion:
  - Sludge into biogas
- Substitution:
  - Plastic waste used in bicycle paths

Design phase

Type of business model

Platform business models

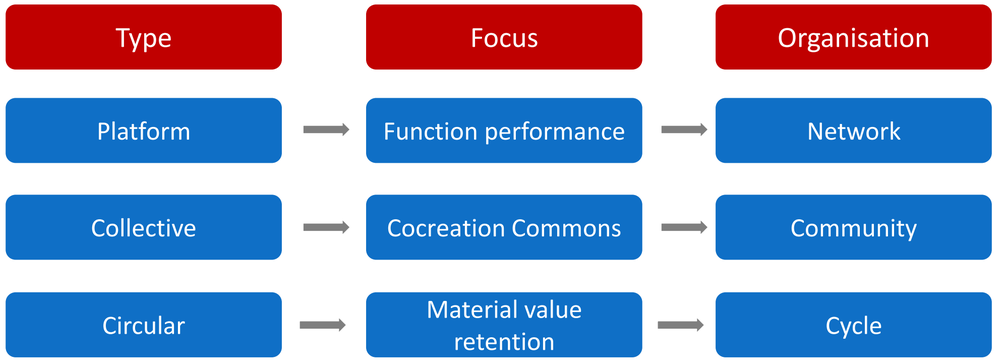


- Logic of value creation
  - Brokering of available idle capacity
  - Value creation by facilitating the transaction between those with capacity and those in need of it
  - Digitalisation and crypto technology enable the development of this model
  - Transactions could be bilateral, or multilateral
  - Examples:
    - Excess materialsexchange (http://excessmaterialsexchange.com)
    - Oogstkaart (https://www.oogstkaart.nl)
    - Peerby, Marketplace (marktplaats), ebay, BlablaCar, Floow2, AirBNB

Design phase

Type of business model

Community based business models

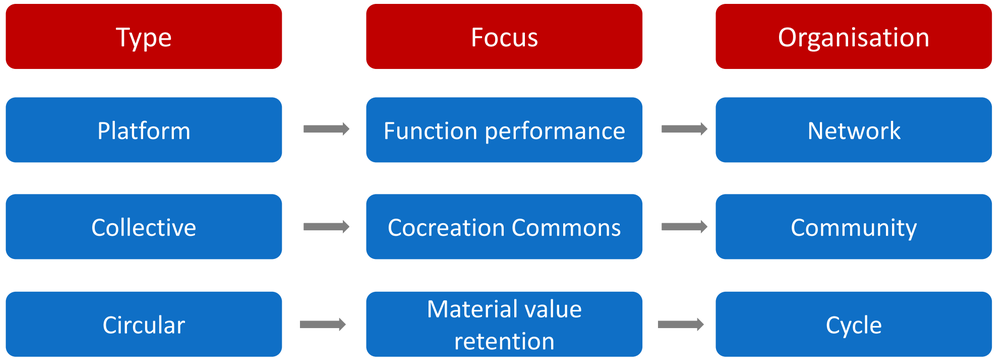


- Logic of value creation
  - A growing number of people is willing to invest in their own neighborhood, if this results in tangible benefits.
  - This is also referred to as “the commons” defined as a set of shared resource(s) material and non-material, maintained or co-created by a community and governed by the same community’s norms and rules (Restakis, 2017).
  - Based on principles of:
    - Joint investment (time, money, energy, waste, mobility)
    - Sharing of results (e.g. power, food, money)
    - Multiple value creation
  - Examples include power, food, mobility
    - Windpower Nijmegen

Design phase

Type of business model

Circular business models



- Logic of value creation
  - Value creation by **closing material loops** in order to reduce resource usage, waste and maximise product lifetimes.
  - Most material loops require the involvement of **more stakeholders**
  - Because of quality loss of the materials itself, the challenge is to **replace virgin** materials with renewable materials. Other circular activities involve **repair** and **maintenance** in order to extend the **life-time of products.**
  - Closing the loop fully, is a challenge.

  - Examples:
    - Rotterzwam (https://www.bluecity.nl/organisatie/rotterzwam/)
    - Peelpioneers.nl (https://peelpioneers.nl)
    - Gunter Pauli (https://www.theblueeconomy.org/en/)

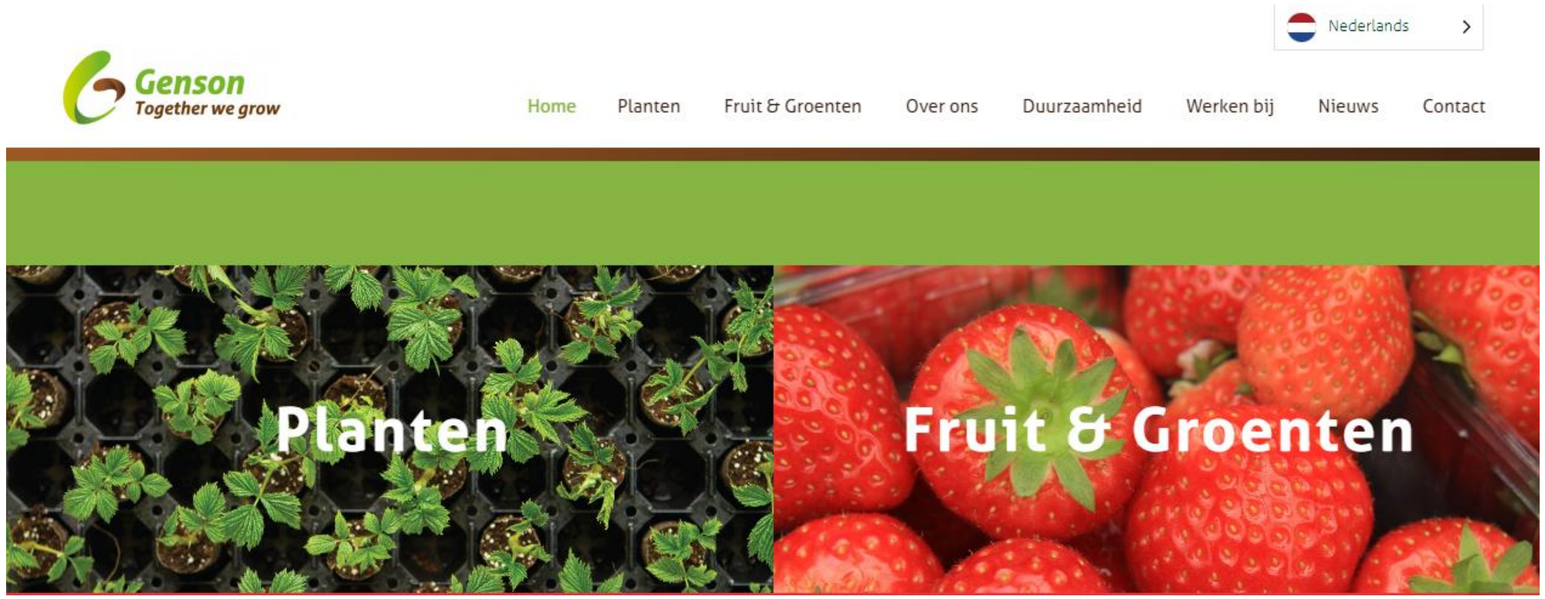
Which model are we applying in this project?

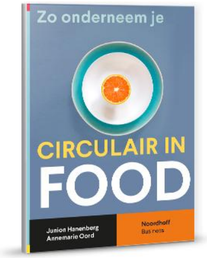
Platform business models

Community based business models

Circular business models

Product innovation hub
organise it outside the daily business





Product innovation hub
organise it outside the daily business

FOOD FELLOWS
- veggies for foodies -

GEZOND & MAKKELIJK | SAMEN TEGEN VERSPILLING! | NIEUWSGIERIG | RECEPTEN

ONTDEK ONZE PRODUCTEN

Assignment
25min.

Read the document. Summarize it and discuss how you might apply it in your team

Read more on how we do it

https://www.intelligentfood.nl/wat-zegt-de-literatuur

The next step
Scaling up ideas

- 70%-90% consumer product introductions fail after 2 years
- Product development costly
- Product development takes time

THE END

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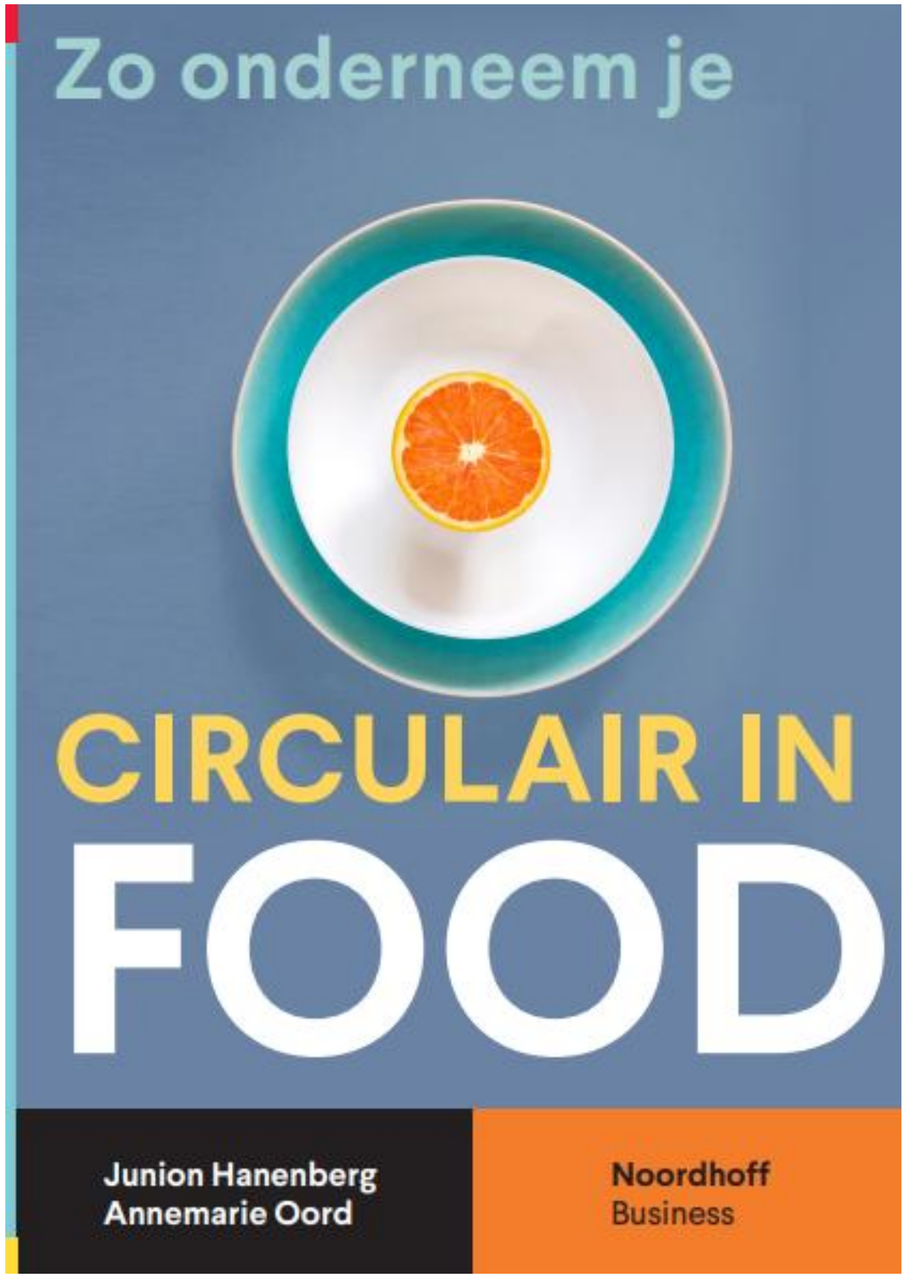

Junion Hanenberg

Annemarie Oord