FOOD WASTE

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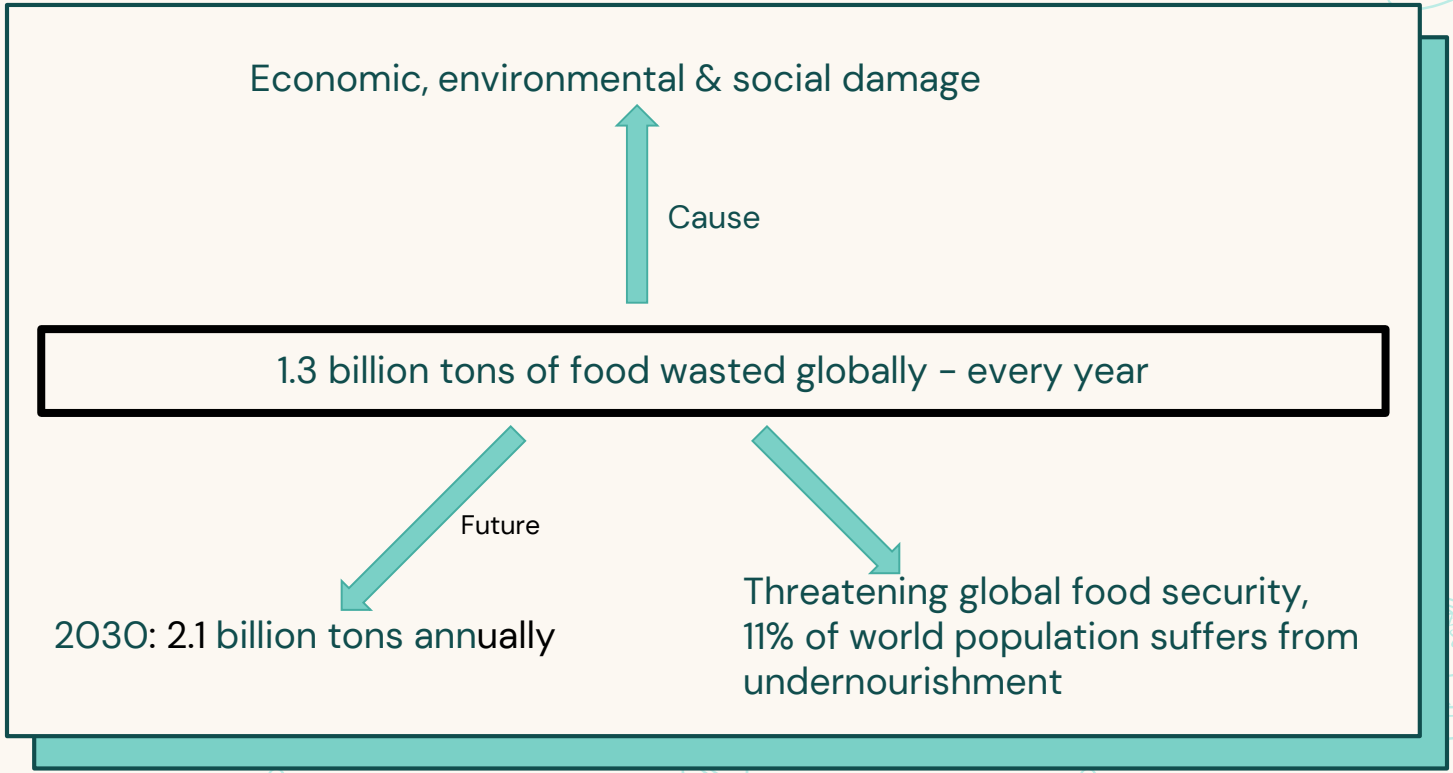
Introduction

Problem



(Principato et al., 2021)(Aydin & Yildirim, 2021)(Oliveira, 2021)

Developed countries - main causes of food waste

food generation & consumer behavior

Consumer behavior - ⅓ total food waste

Changing food waste behavior - significant reduction

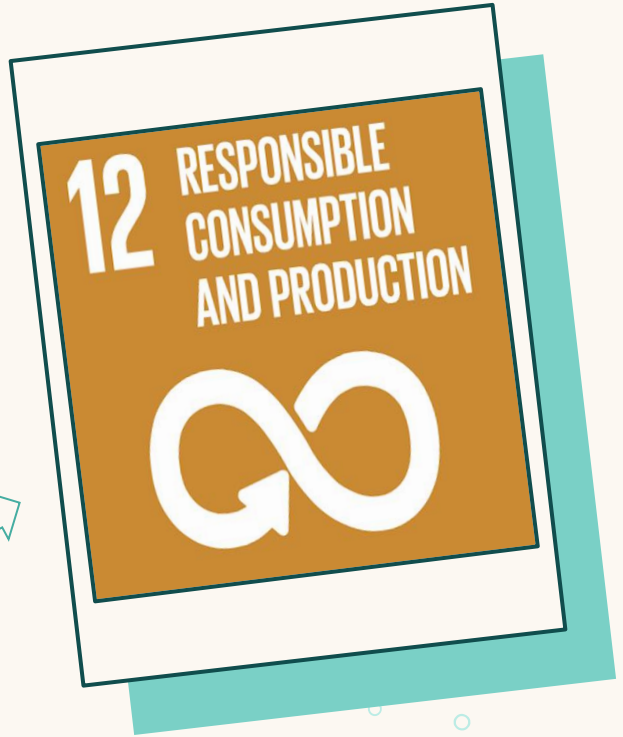
EU level:

2020 - 57 million tonnes
Household - 55% (31 million tonnes)

Target

SDG 12

50% reduction -2030



(Calvo-Porral et al., 2016)(UN, 2015)

Research focus

The Netherlands

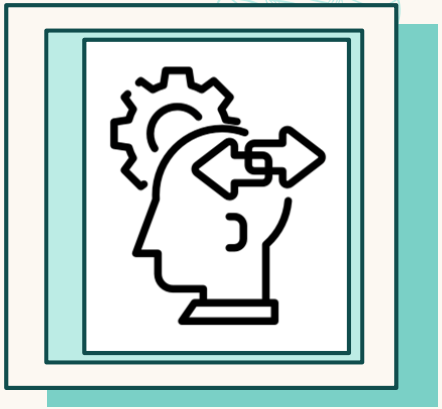
5th in EU - most food waste
Total - 2.8 million tonnes
Households - 1 million tonnes per year

2010: 66.7 kg
2019: 52.1 kg

Household composition

Household level

Family with more children



Behavior

(Statistics Explained, n.d.)(Kansal et al., 2022)
(Voedingscentrum, 2020)

Research question

How is household composition influencing food waste behavior on a consumer level in the Netherlands?

What kind of intervention could change this behavior to promote the reduction of household food waste?

How to evaluate the impact of the intervention?

02

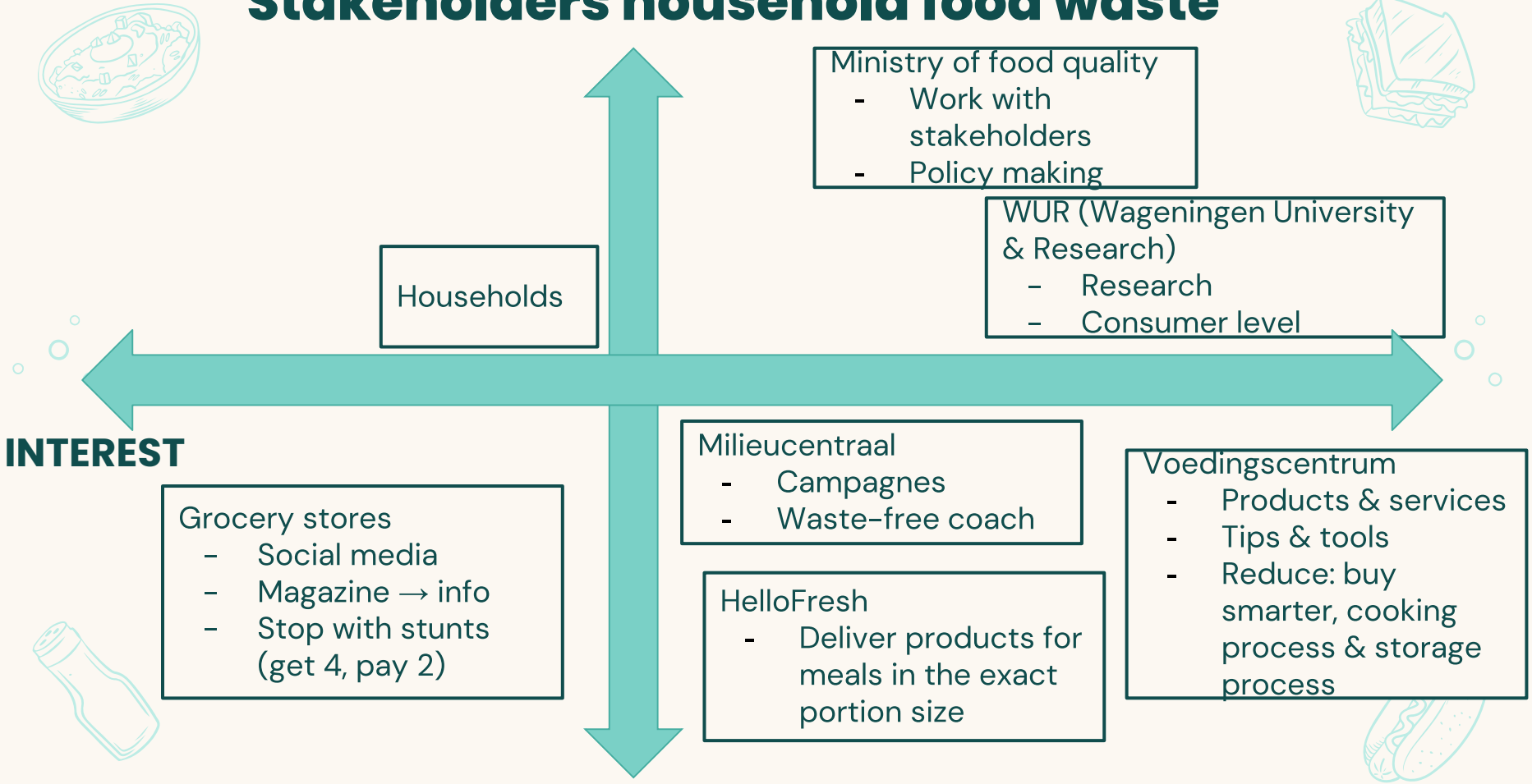
Causes & stakeholders

Household food waste journey

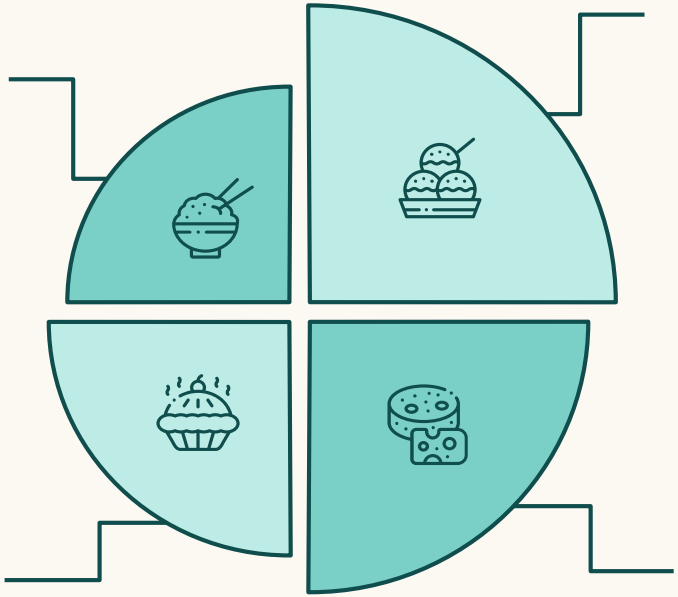
Psychological Factors	Norms	Situational Factors	Demographics and SES factors
• Attitudes • Perceived behavioural control • FW Knowledge • FW involvement • Habits, emotions	• Social norms • Personal norms	• Level of Urbanization • Perception of the amount of litter	• Age • Level of education • Household composition • Gender • Income

Figure 1 - Household wasteful behavior framework. *Note.* Reprinted from The household wasteful behaviour framework: A systematic review of consumer food waste, by Principato et al., (2021), Industrial marketing Management Volume 93, 2021, Pages 641-649, ISSN 0019-8501, https://doi.org/10.1016/j.indmarman.2020.07.010.

Stakeholders household food waste



(Samentegenvoedselverspilling, n.d.)



03

Scenario planning

Driving forces

Climate change

Population growth

Scoping

Micro-level

Uncertainties

Technology

Knowledge

Systematic literature research

Technology

'intervention' AND 'technology' AND 'apps' AND 'reduce food waste' AND 'household composition with children' AND 'Europe'

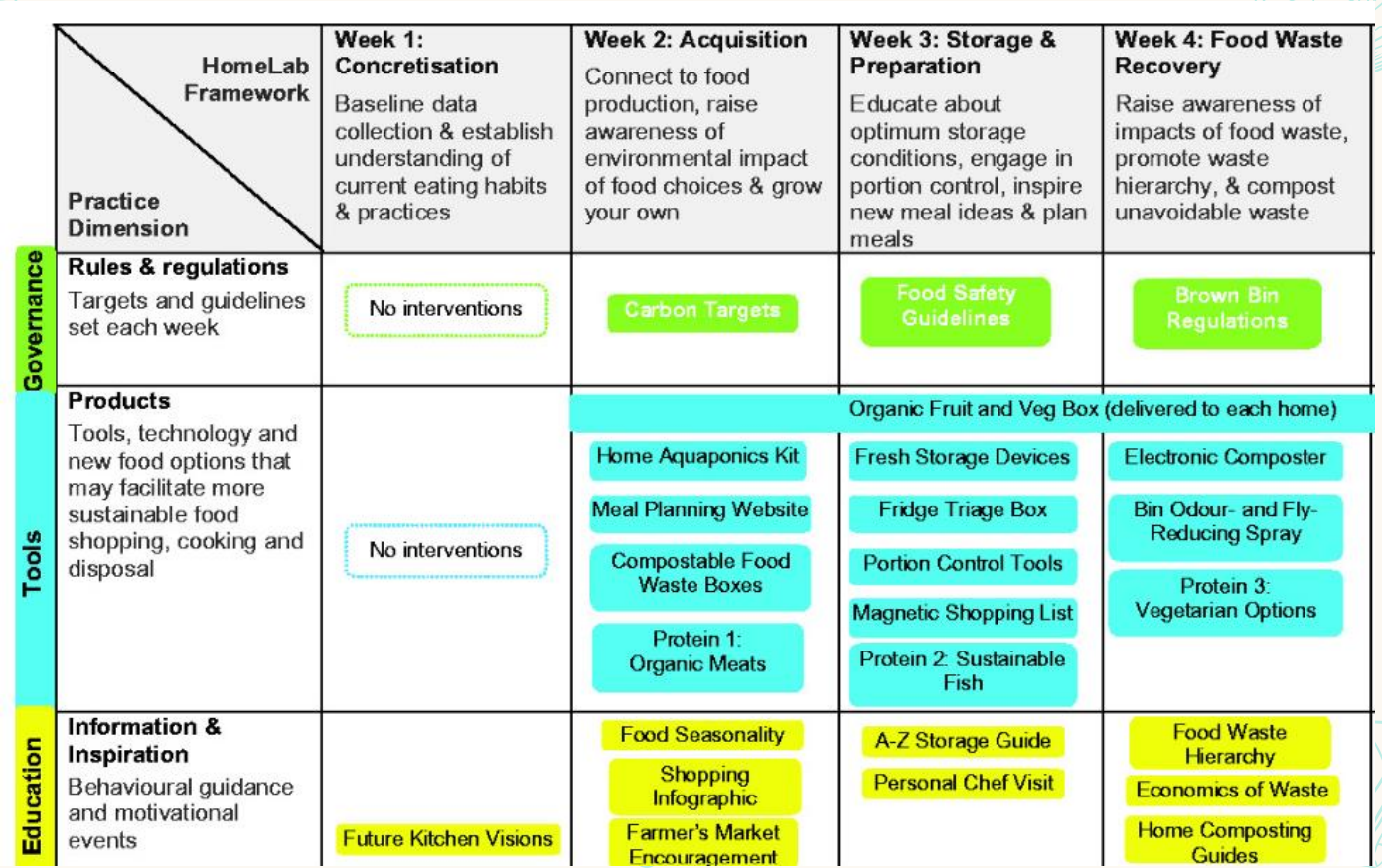
6 studies

Knowledge

'intervention' AND 'knowledge' AND 'skills' AND 'reduce food waste' AND 'household composition' AND 'Europe' ‘food waste’, ‘families’, ‘information-based interventions’

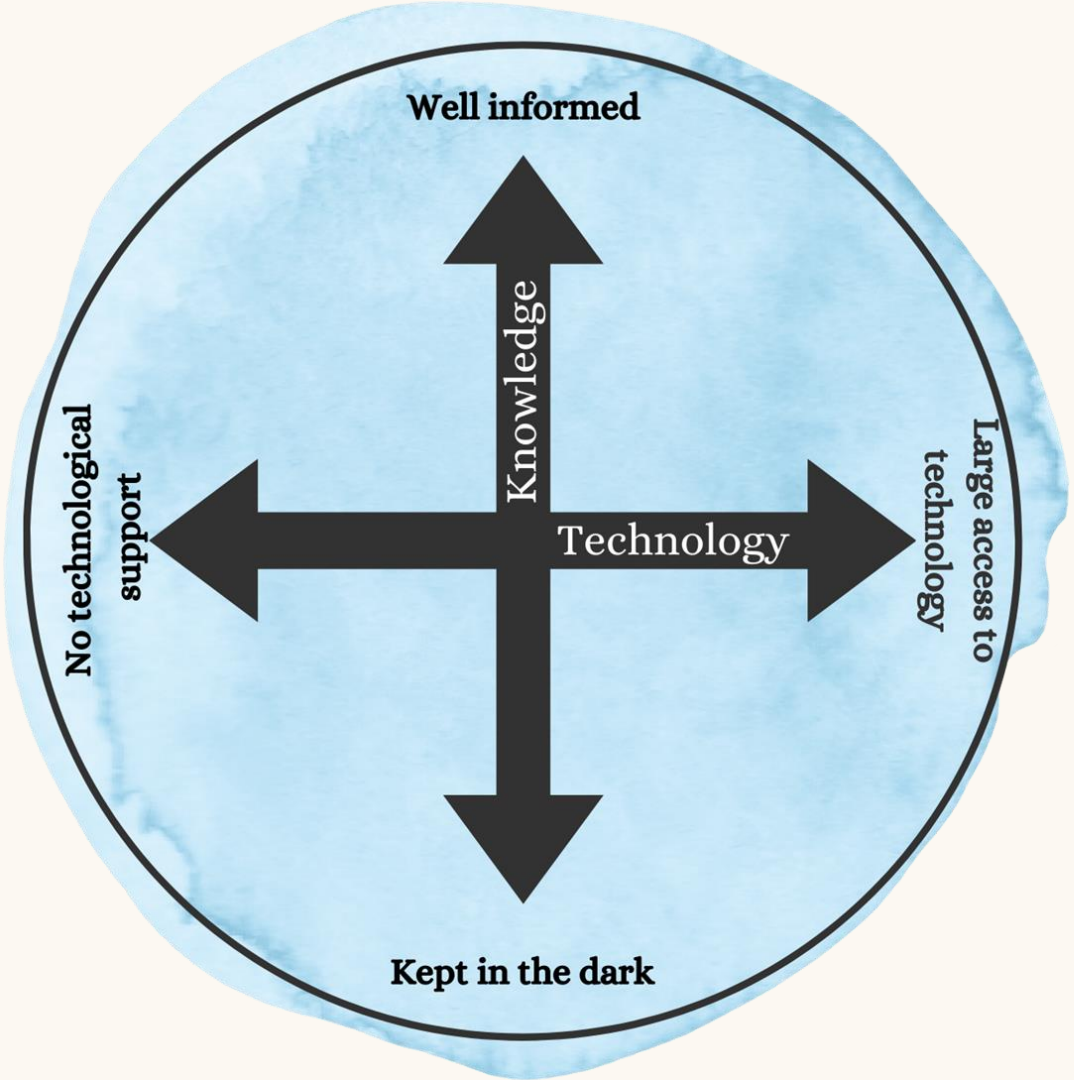
7 studies

Case study

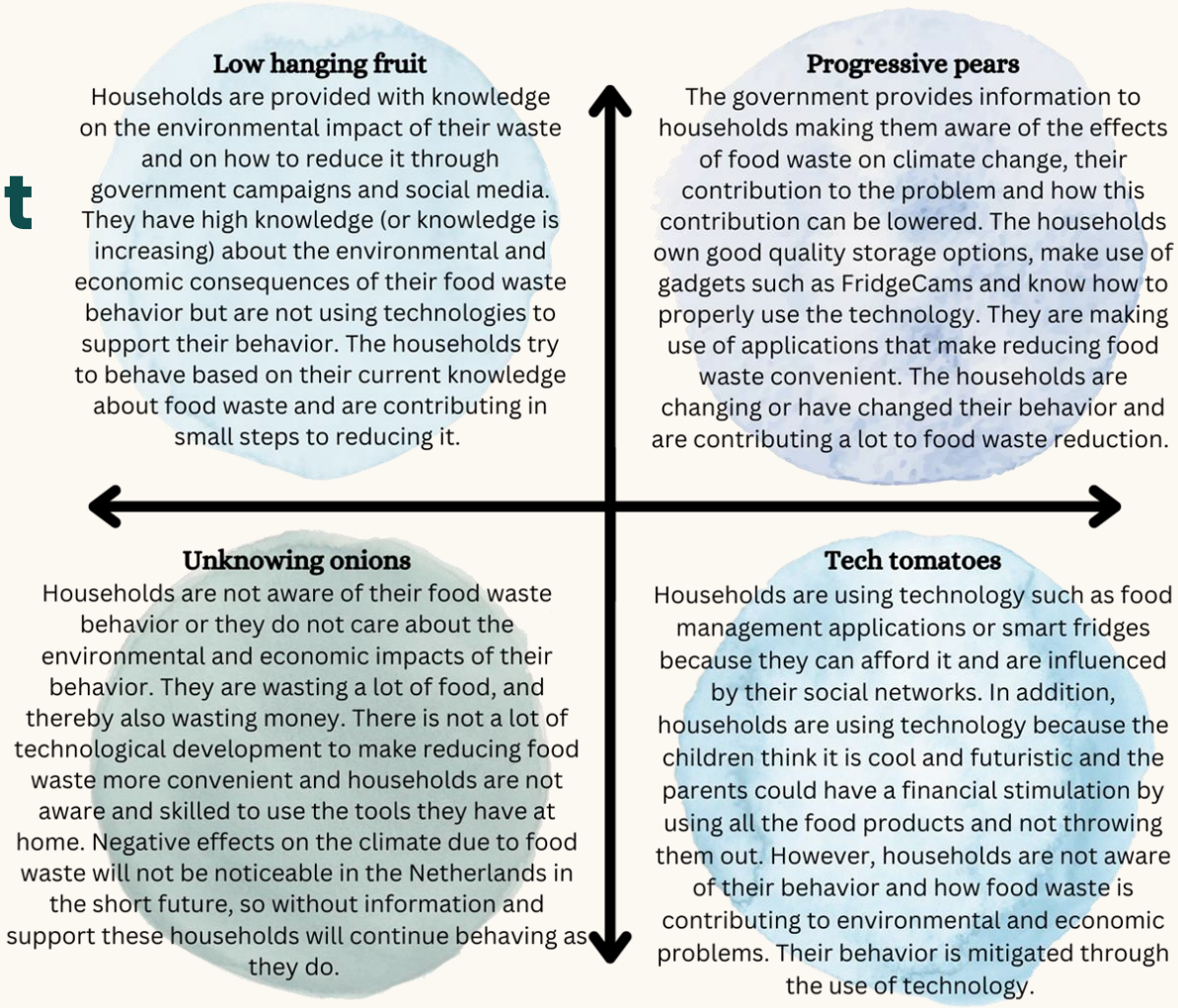


(Devaney et al 2017)

Scenario framework



Scenario development



Analysis of the scenarios

Scenario 1
Low hanging fruit

- High knowledge, low technological support
- No major behavioral changes expected
- Medium impact on food waste reduction
- Providing information is estimated to have medium expenses for the government
- Economic cost is estimated to be moderate
- Low to medium environmental cost
- Some extent contribute to reaching SDG 12.3

Scenario 2
Progressive peers

- High knowledge, high technological support
- Expected change in food waste reduction behavior
- High impact
- Economic costs are expected to be moderate to high
- Environmental cost is expected to be moderate
    - Technological use
- Moderate to high contribution to reaching SDG 12.3

Scenario 3
Tech tomatoes

- Low knowledge, high technological support
- Technology is replacing the uncertainty of knowledge
- Moderate impact on food waste reduction behavior
- Economic cost is estimated to be moderate
  - Use of technology
- Low to medium environmental impact
  - Some reduction of food waste
- Contributes to reaching SDG 12.3

Scenario 4
Unknowing onions

- Low knowledge, low technological support
- No behavioral changes expected
- Low impact on food waste reduction
- Economic cost is estimated to be low to medium
  - No intervention, same behavior
- High environmental cost
  - No reduction in food waste
- No significant contribution to reaching SDG 12.3

Scenario: Progressive pears

High impact towards reducing food waste

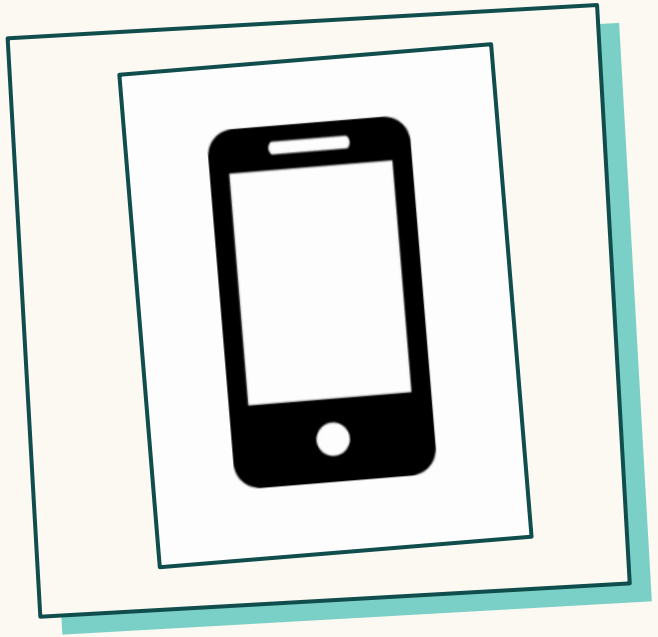
Moderate to high economic costs

Impact on environment dependent on application

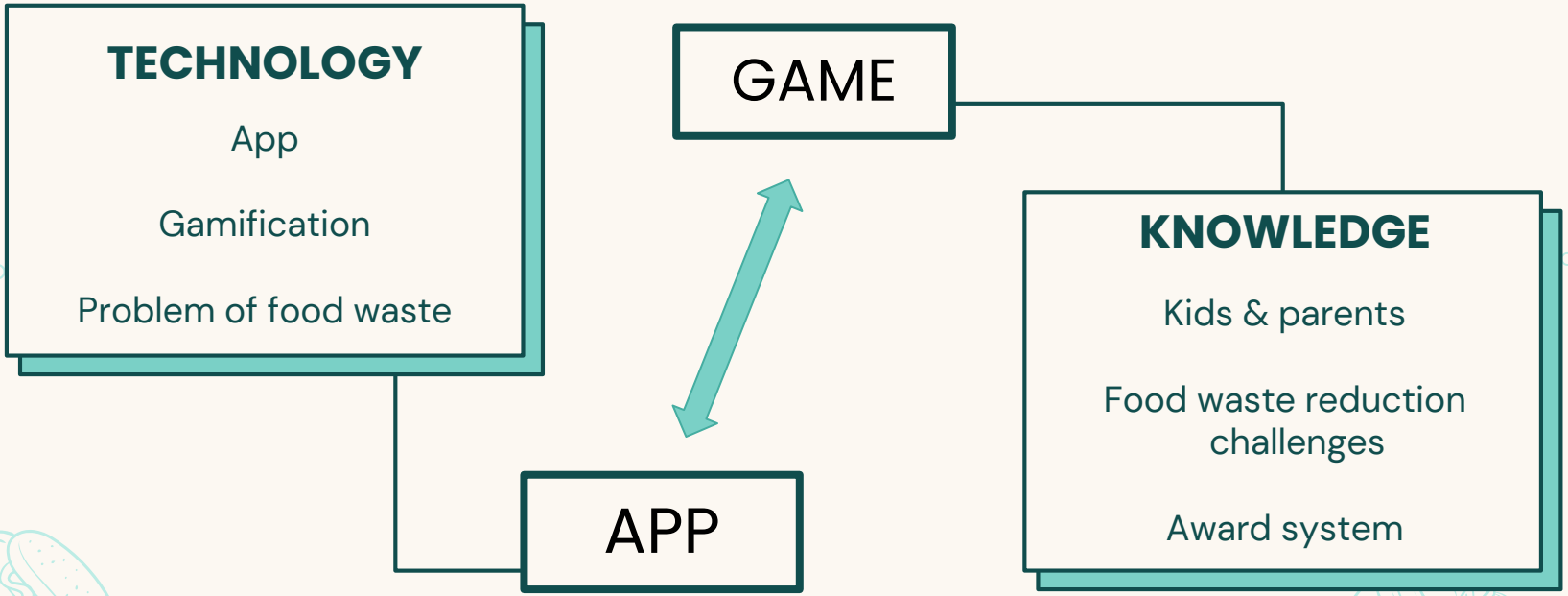
Moderate to high contribution to reaching goal 12.3

04

Recommendation



Combining knowledge and technology!



App - content

CREATE AWARENESS

Games

Reflection feature:
what is the largest food product you have thrown away this week? Was this necessary?

GAMES

Make box with food products that have a shelf life of one week

Cook this recipe with leftovers

Store - what goes in the fridge or in the cabinet?

Quiz - true/false questions

REWARDING SYSTEM

Awards

Collect badges

FOOD AGENDA

Keep track of your expiring food

Limitations

- 2 factors
- Data collection

Future research

- Effect of technology on food waste reduction in the long term (impact)
- Household composition and the difference with children in food waste
- How many children, one or two parent households
- Practical data on the effect of knowledge interventions on food waste reductions
- Waste composition analysis on different behaviour factors

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Questions?