

# ACTIONABLE VISION FOR A ZERO FOOD WASTE FUTURE

## Joint Impacts and Pathways from the ZeroW and CHORIZO Projects

Anna George & Lies Messely

ZeroW & CHORIZO Final Conference – 16 September 2025 | Brussels



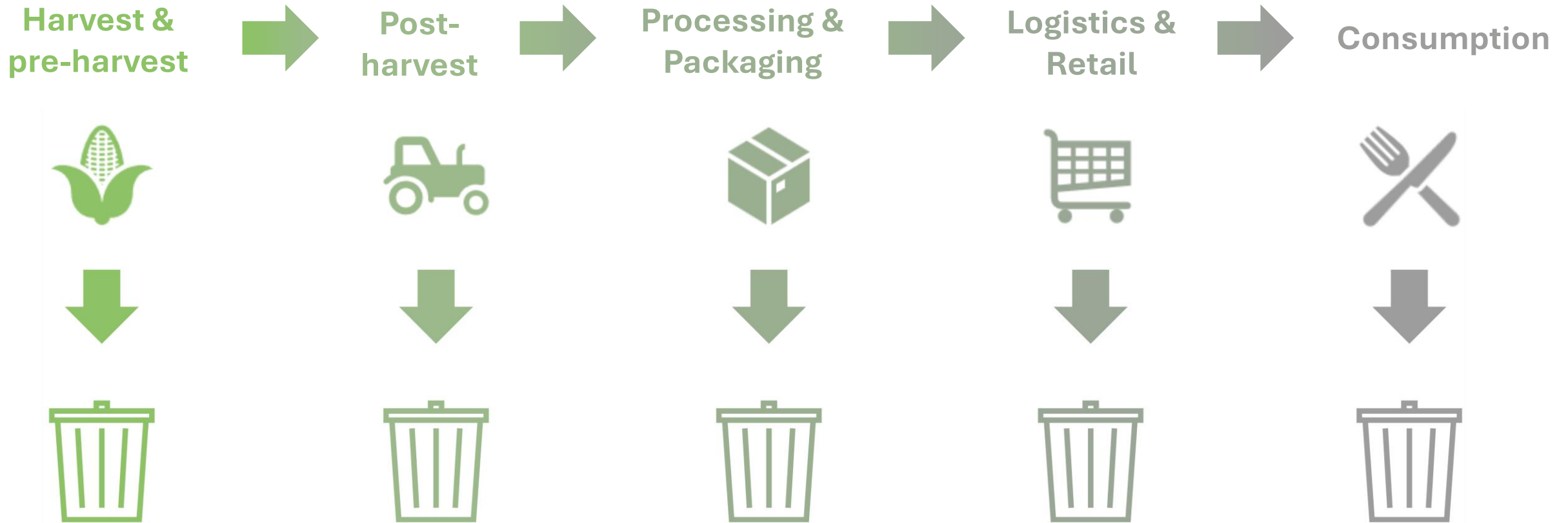
# The Scale of the Food Loss and Waste Challenge

- 
- nearly 59 million tonnes of food waste annually in EU
  - over €132 billion economic losses
  - nearly 10% of global greenhouse gas emissions

© Marek Studzinski



# The Scale of the Food Loss and Waste Challenge





© Vardan Papikyan

# Barriers & lock-ins addressed

**3<sup>rd</sup> GHG  
emitter  
globally<sup>(2)</sup>**

**≈ 20%  
of EU food  
production<sup>(1)</sup>**

**What is the impact  
of existing FLW  
actions?**

'Ugly food'  
identification at a late  
stage

Best-before labels  
not reflecting real food  
condition and its shelf-life

Understanding of packaging as an  
unavoidable secondary waste  
stream rather than an FLW-reducing  
opportunity

**Lock-in  
effects?**

High uncertainty and mismatch  
of food supply & demand in the  
food bank chain

Missing/  
fragmented  
FLW data

Missing economic  
feasibility of alternative FLW  
valorisation process

**Which are the social  
norms responsible for  
FLW ?**

Best-before labels

**How can we change  
social norms?**

Inability to steer consumer  
buying behaviour at the  
moment of purchase

Limited food actor FLW capabilities  
especially in cases of diverse, seasonal  
& disruption-generated food surpluses

*and more...*

# Systemic innovation

← SYSTEM READINESS LEVEL

A	B	C	D	E
ACCEPTANCE	BURGEON	CALIBRATION	DEVELOPMENT	EMERGENCE
<input type="checkbox"/> Critical mass [XX%] of end-users have adopted the innovation. <input type="checkbox"/> ...	<input type="checkbox"/> The innovation has gained a significant user base of [XX%] users. <input type="checkbox"/> ...	<input checked="" type="checkbox"/> Innovation has proven itself viable across [X] practical test applications. <input type="checkbox"/> ...	<input checked="" type="checkbox"/> A functional prototype is ready for first practical testing. All necessary technology needed for implementation has been developed. <input type="checkbox"/> ...	<input checked="" type="checkbox"/> Proof of concept has successfully been shared with stakeholders. <input type="checkbox"/> ...
<input type="checkbox"/> Critical mass [XX%] of end-users consider the innovation a new standard. <input type="checkbox"/> ...	<input type="checkbox"/> The user base across context is sufficient in volume to reach critical mass [XX%]. End-users adopt the innovation across contexts. <input type="checkbox"/> ...	<input type="checkbox"/> [XX%] of end-users show willingness to adopt. The Innovation meets user base needs in different contexts. <input type="checkbox"/> ...	<input checked="" type="checkbox"/> At least [XX%] end-users have indicated willingness to be early adopters. <input type="checkbox"/> ...	<input checked="" type="checkbox"/> end-users' needs have been identified and are addressed. <input type="checkbox"/> ...
<input type="checkbox"/> No government intervention is necessary for continuity. <input type="checkbox"/> ...	<input type="checkbox"/> There are no policy and legal obstacles to large scale implementation. <input type="checkbox"/> ...	<input type="checkbox"/> There are no policy and legal obstacles blocking voluntary adoption. All (legal) qualifications have been attained. <input type="checkbox"/> ...	<input type="checkbox"/> Policy and legal obstacles for practical testing are cleared with authorities. <input type="checkbox"/> ...	<input type="checkbox"/> All policy and legal obstacles have been identified. <input type="checkbox"/> ...
<input type="checkbox"/> Market for the innovation has reached a competitive state [Margins <10%]. <input type="checkbox"/> ...	<input type="checkbox"/> Large-scale production [X units / time] capacity has been reached. <input type="checkbox"/> ...	<input type="checkbox"/> Business case for implementation has proven itself viable without intervention. <input type="checkbox"/> ...	<input checked="" type="checkbox"/> Minimum Viable Product is financially feasible. <input type="checkbox"/> ...	<input checked="" type="checkbox"/> Solution development stage is 100% funded. <input type="checkbox"/> ...
<input type="checkbox"/> Solution is on track to be universally adopted as a sector standard. <input type="checkbox"/> ...	<input type="checkbox"/> Large-scale distribution [X units / time] capacity has been reached. Critical mass [XX%] of sector partners have integrated the innovation <input type="checkbox"/> ...	<input type="checkbox"/> [X Volume] distribution channels have been secured by contract. Sector partners are aware and aligning the launch of the solution. <input type="checkbox"/> ...	<input type="checkbox"/> Sector partners are aware of the innovation and indicated interest. <input type="checkbox"/> ...	<input checked="" type="checkbox"/> Critical stakeholders for prototyping the innovation are willing to participate. <input type="checkbox"/> ...

## INNOVATION DIMENSION

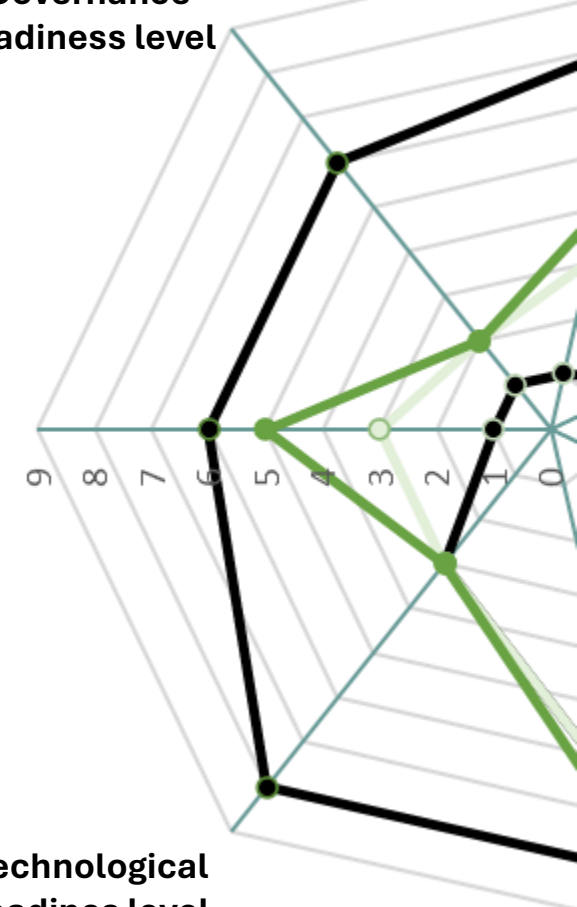
- 
**TECHNOLOGICAL**  
 Product-based innovation
- 
**BEHAVIORAL**  
 Socio-cultural innovation
- 
**GOVERNANCE**  
 Policy-based innovation
- 
**BUSINESS**  
 Economic-based innovation
- 
**ORGANISATIONAL**  
 Collaboration-based innovation
- 
**(CUSTOM)**  
 Context depended there may be additional relevant dimension(s).

Business  
readiness level

Governance  
readiness level

Behavioural  
readiness level

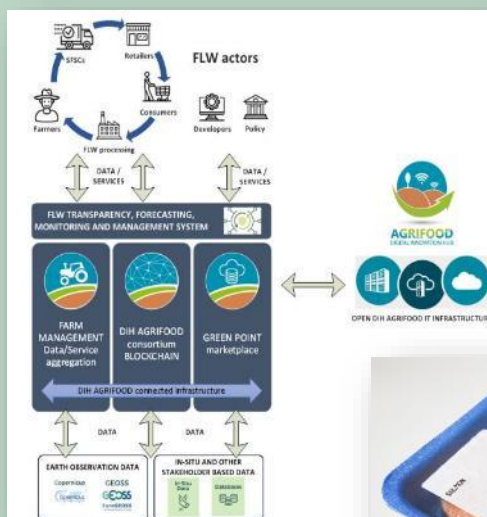
Technological  
readiness level





# ZeroW Systemic Innovations Living Labs

All SILL's solutions will be exploited after the project completion



# Social norms & food waste behaviour





# Case studies

## What are the social norms at play in different settings?

### Case Study 1

Household food waste in and off crisis periods

### Case Study 2

Hospitality food waste

### Case Study 3

Food services food waste

### Case Study 4

School food waste and relation with obesity and malnutrition

### Case Study 5

Food waste in a food bank's mediated supply chain

### Case Study 6

Food waste in relation to date marking and sustainable smart packaging



# Environmental and Societal impact



© Tobias Weinhold



© Juli Kosolapova



# Policy impact

July 2025

## Policy Brief

### Unlocking the scalability of food waste innovations in Europe

Anouk Guillou, Antonio De Carlucio, Daamen Ortega (Safe Food Advocacy Europe (SAFE), Edward Sliwinski (The European Federation of Food Science and Technology EFFoST))

#### Highlights

In order to meet the EU's newly established binding targets on food waste reduction, a comprehensive approach beyond technological innovations is required.

This brief highlights three priority areas:

- 1) making innovation subsidies more accessible and equitable;
- 2) fostering social innovation and behavioural change; and
- 3) enhancing regulatory clarity through harmonised standards and long-term policies.

Together, these steps are essential to unlock the full potential of innovations for a sustainable food system.

#### Background

Reducing Food Loss and Waste (FLW) is key for achieving the European Union's sustainability and food security targets by 2030.

Recent EU legislation introduced binding targets requiring Member States to develop and implement national action plans<sup>1</sup>. However, insights from Horizon 2020 and Horizon Europe projects — [ZeroW](#), [SISTERS](#), and [TITAN](#) — show that technological innovations alone are insufficient.

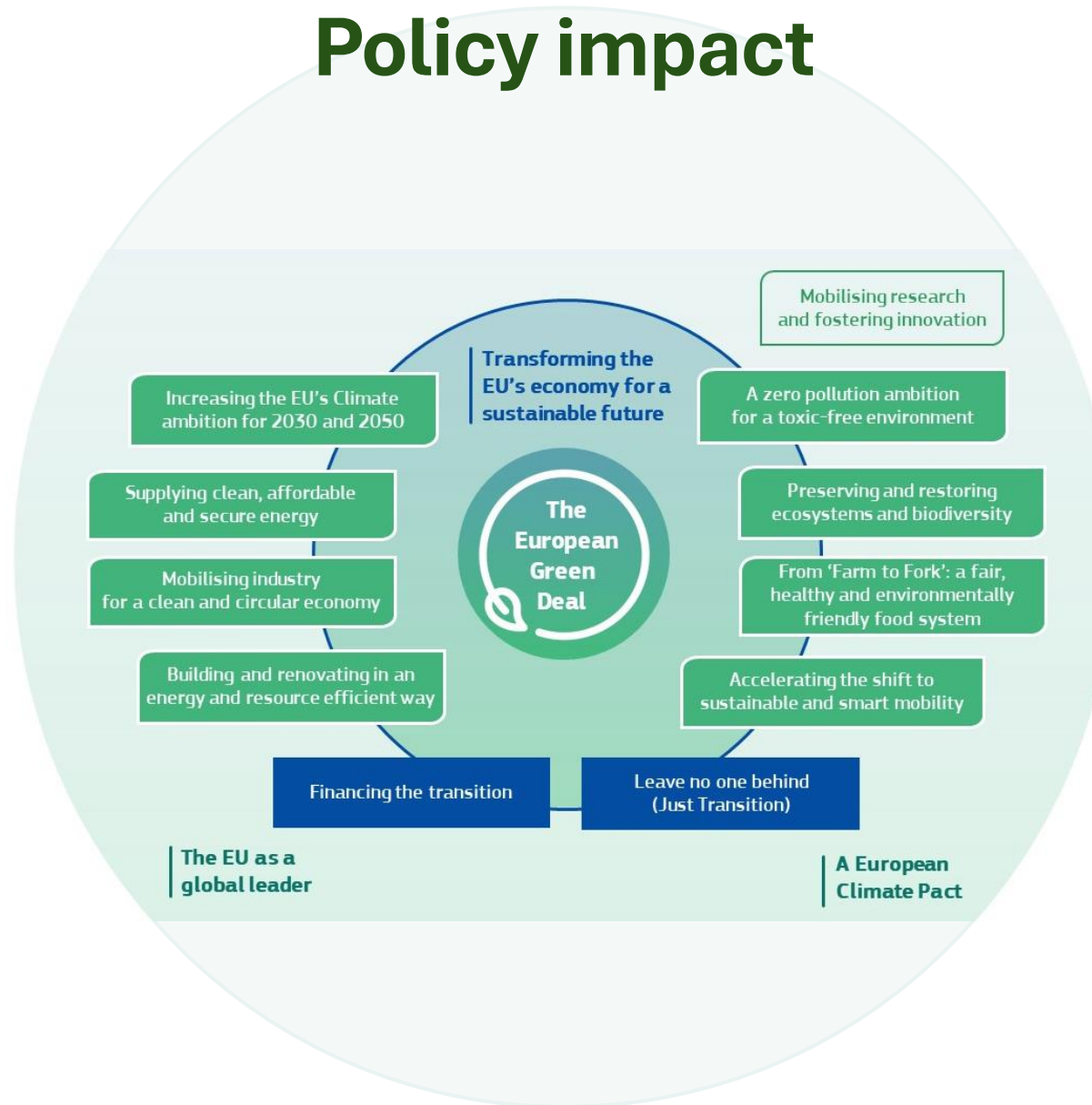
Effective FLW reduction at scale depends on a combination of financial incentives, social innovation, equitable access, behavioural change, and streamlined regulatory frameworks. Without addressing these interconnected factors, even the most promising innovations risk remaining isolated, underutilised, or inaccessible to critical actors in the food system.

© European Union, 2025

This document has been prepared for the European Commission, however it reflects the views only of the authors, and the European Commission shall not be liable for any consequences deriving from the reuse.

All images © European Union, unless otherwise stated. Images source: © MicroOne #305386384, 2020. Source: stock.adobe.com.

Funded by the European Union



## FEEDING PEOPLE, NOT LANDFILLS

Using social norms to tackle food waste in cities

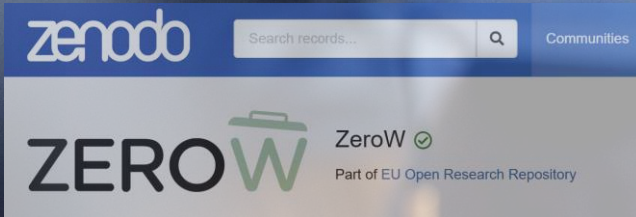
IN PARTNERSHIP WITH



# Scientific impact

## ZeroW

- 11 scientific publications in peer-reviewed journals
- 18 lectures, 600+ students reached
- 40+ post in SoMe, reaching scientific audience of 32,000+



## CHORIZO

- 10 scientific publications in peer-reviewed journals
- Integration of MOA & HUMAT in Agent-Based Modelling
- CHORIZO FLW datahub



# Economic impact

## ZeroW: reducing FLW makes strong economic sense

### Positive cost–benefit ratio

All assessed innovations delivered a positive cost–benefit outcome, showing that the benefits outweighed the costs in every case

### Substantial return on investment

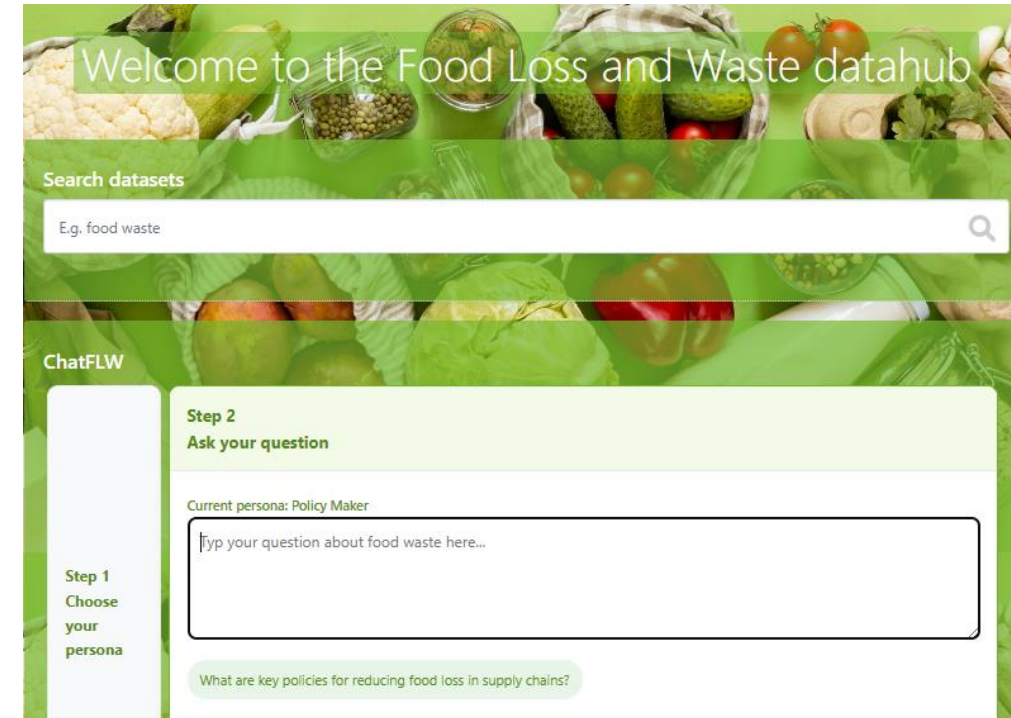
Some innovations already demonstrated potential for strong financial returns, while others showed moderate but positive results with high potential when scaled

### Resilience & competitiveness

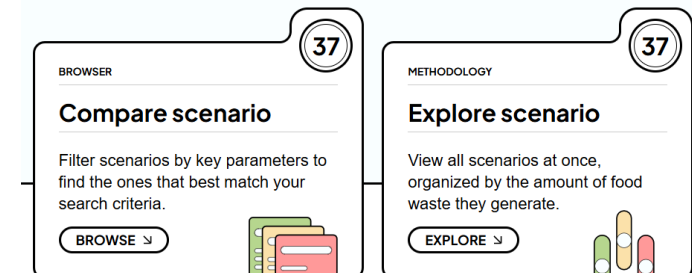
Stakeholders rated the impact on resilience and competitiveness as 4 out of 5, reflecting strong capacity to withstand shocks and adapt effectively

### 700,000+ consumers reached

The SILL results have the potential to directly benefit over 700,000 consumers, demonstrating significant market and societal reach



**Explore how different behaviours and interventions impact food waste.**





# THANK YOU

Explore today's breakout sessions and innovation demos

Engage in discussions and provide your feedback

See the full agenda for topic-specific learning opportunities