CHORIZO: **C**hanging practices and **H**abits through **O**pen, **R**esponsible, and social **I**nnovation towards Zer**O** food waste

CHORIZO'S INNOVATIVE MODELLING APPROACH

TO UNDERSTAND THE ROLE OF MOTIVATION, ABILITY, AND OPPORTUNITY IN FOOD WASTE RELATED BEHAVIOURS

The CHORIZO project has identified 395 prevention and reduction measures (these can be found here > deliverable 1.2.). These actions cover initiatives from the initial primary production stage all the way to the end-user. The CHORIZO project is taking it a step further, however, by improving the understanding of how social norms influence behaviour related to food loss and waste (FLW) generation among many other initiatives tackling the food waste problem.

Social norms are rules and expectations that are socially enforced. The CHORIZO project wants to improve the understanding of the social norms that affect food waste behaviours. In order to do that, the project is conducting a comprehensive analysis and constructing a behavioural intervention model with various target groups.

At this point of the project (month 13, over a total of 36 months), CHORIZO partners have created a conceptual framework for behavioural change (can be found here > deliverable 3.1) to apply in its' further work. This framework first outlines the complexity of social systems - and food systems more specifically – and the methods available to investigate them; it provides an operational definition of social norms and presents two different theoretical frameworks investigate food waste behaviours, namely the MOA and the HUMAT frameworks.

THE COMPLEXITY OF BEHAVIOURS

> Social norms are rules/guides for actions, and by "action" is meant human behaviour. Social norms can be prescriptive (should), proscriptive (shouldn't) or permissible (can, action is acceptable but not obligatory).

Food waste is the result of multiple and interconnected behaviours taking place at different moments and stages of the food supply chain.
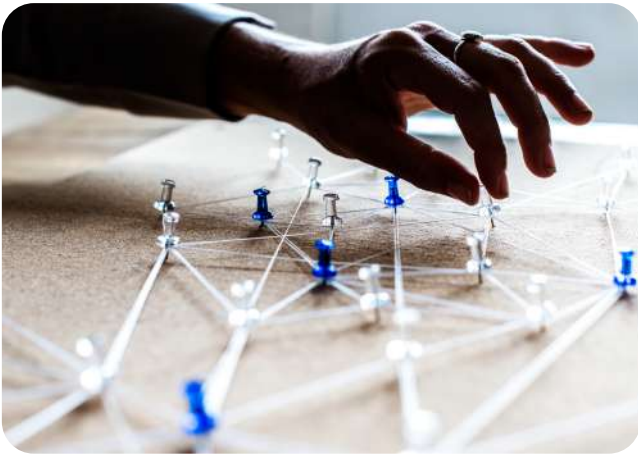
The study of a society requires understanding the nature of individuals and the dynamic interactions that shape social behaviour. Individuals possess diverse preferences, values, abilities, and resources, and are engaged in activities such as imitation, socialization, and trade.

While individuals are "complicated", the society they form is "complex": we may not only consider the behaviours of the individuals within it but also their interactions and thus the collective behaviour of the system.

To study this complexity, computer simulations have proven to be an effective tool. Through Agent-based modelling (ABM), we expect to improve our understanding about the interaction between individual and collective behaviours, and thus about social norms. The behaviour of different food chain actors of the food system can be modelled to examine the issue of food waste.

Theoretical frameworks, such as Motivation-Opportunity-Ability (MOA) and HUMAT, provide the essential components required for compiling the simulations.

Want to learn more about the two theoretical frameworks to model food system dynamics? Check out the Chorizo conceptual behaviour change framework here!

MOA AND HUMAT FRAMEWORKS

The Motivations-Opportunity-Ability (MOA) framework considers food waste as an unintended consequence of decisions and behaviours driven both by interal (individual) and external (social and societal) factors.[1]

MOTIVATION

represents the intentions of one or more individuals to carry out a set of actions. In this specific case, influenced by the awareness about the problem and the consciousness about global impacts related to food waste.

OPORTUNITY

is defined as the possibility of one or more individuals in accessing external material and non-material resources such as time, technology, and infrastructures. This can include physical access to food production, distribution, and consumption, and more in general the access to food services.

ABILITY

represents the capacity of each individual in dealing with any matter. In this case with the creation, management, and reduction of food waste.

1.Vittuari et al. 2023. "How to Reduce Consumer Food Waste at Household Level: A Literature Review on Drivers and Levers for Behavioural Change."
https://doi.org/10.1016/J.SPC.2023.03.023

Consumers Food Waste Model

[2]

HUMAT is a dynamic model that explores human behaviour and adaptation to both social and non-social cues. The model aims to understand why people make decisions by analysing the set of their individual motives. Whenever a certain decision could satisfy some motives but not others, the person will experience a dissonance, and when this dissonance between motives becomes large, a "dilemma" will occur.

The model will then detect how people can interact with others either to persuade them or to learn from their experiences. Although there are strong similarities between these theories, they also present differences.

To simplify, while the MOA framework provides a detailed snapshot of the drivers behind a decision, the HUMAT model is a dynamic process that follows the persons' actions and strategies post-decision.

POTENTIAL SCENARIOS

Potential scenarios were designed by CHORIZO partners to exploit the modelling design. Among others, as an example, four potential scenarios are described below:

Social norms and children food waste

Households are a key target to understand how social norms and social interactions relate to food waste production. In particular, a potential scenario could explore how individuals' roles as good food providers influence their decisions related to food consumption, cooking, and sharing within a household. This scenario could explore whether this propensity may lead to more abundant or diverse meals and how this role affects relationships and perceptions within the household context.

2. Geffen, Lisanne van, Erica van Herpen, Hans van Trijp, Tom Quested, Raquel Diaz-Ruiz, Hilke Bos-Brouwers, Bojana Bajzelj, and Katalin Ujhelyi. 2016. "Causes & Determinants of Consumers Food Waste A Theoretical Framework Acknowledgments & Disclaimer."

When food is purchased or cooked, this scenario can help to provide insights as to how much there is an expectation to please, show care, and if guilt has a role, and thus affect food waste-related choices made by individuals.

Social norms and children food waste

Children also can represent another type of actor that could be affected by peculiar drivers regarding food waste.

Children develop in a social context and the interactions with their families, peers, and the school learning environment are crucial for their growth and highly influence their food waste and dietary decisions. This scenario could highlight how food waste related actions are influenced by peer pressure with regards to the social acceptance of eating different dishes, stigmatization or fear.

Social norms and out-of home food waste

Considering other segments and actors of the food supply chain, the role of communication about food waste and the form of serving could be explored in relation to food waste generation out of home, as well as the interaction between employees and consumers behaviour and business practices. Also here, the role of fear, guilt, sense of stigmatization can be explored and compared to the role of positive feelings of caring and belonging in shaping food-related behaviours in out-of-home contexts.

Social acceptance of pre-ordering or repurposing ingredients in different forms and at different stages of shelf-life could be explored in relation to food waste generation. Indeed, date marking is often confusing to users and misinterpretations can lead to food disposal earlier than necessary. In relation to social norms, date marking habits perceptions and expectations can influence the decision to consume or waste food.

Social norms and food donations

In a food banks' mediated supply chain, food banks play a key role between corporate actors, other NGOs and consumers, requiring the capability of effectively mediating the different food chain actors' motivations and behaviours exploiting the potential of social norms. Understanding what drivers/social norms influence companies in choosing to donate food is vital to move forward with more efficient food bank approaches.

These potential scenarios will be further developed as information and analysis coming from primary data collection **will provide new evidence.**