

ROSETTA

Reducing food waste due to marketing standards through alternative market access

D2.3 Trade-offs Assessment

TEAGASC

30/06/2025



Funded by
the European Union

Project Information

Programme:	Horizon Europe
Topic:	HORIZON-CL6-2023-FARM2FORK-01-14
Type of action:	Horizon - RIA
Project number:	101136427
Start date:	01 January 2024
Duration:	36 months
Coordinator:	Q-PLAN INTERNATIONAL ADVISORS PC

Document Information

Title:	D2.3 Trade-offs Assessment
Work Package:	WP2 Analysis of business potential for suboptimal foods that do not meet marketing standards but are safe to eat
Task:	T2.3 Assessment of trade-offs between food waste reduction objectives of the identified models and objectives pursued by marketing standards
Authors (Organisation):	<p>Main authors: Estela Maria Hoffmann (TEAGASC), Maeve Henchion (TEAGASC)</p> <p>Contributors: Eirini Efthymiadou (Q-PLAN), Evangelos Genitsaris (Q-PLAN); Dimitra Kyriakopoulou (Q-PLAN); George Tsalis (CBS); Zoe Johns (AUA); Michalis Vassou (WR); Letizia Piras (PEDAL); Stelios Tsafarakis (TUC); Katerina Makri (UNIVIE); Evangelia Samara (DRAXIS); Beatriz Aguado (ECF); Knud Hjortlund Hansen (FBCD), Anne McLeman (FBCD), Anders Skeem (FBCD); Leif Jørgensen (Naturmaelk), Tommy Lehmann Nielsen (Naturmaelk), Nikka Jørgensen (Naturmaelk), Nelly Riggelsen (Naturmaelk); Katarzyna Kowalska (UNIMOS), Anna Bialik (UNIMOS), Julia Kosikowska (UNIMOS), Tomasz Bober (UNIMOS); Michalis Tzagkarakis (CHALK); Anna Bialik (MOCH); Cecilia D'Acunto (SAFE); Lluís Puig (FRESHIS), Jaime Beltran (FRESHIS).</p>
Reviewers:	Zoe Johns (AUA), Margot Vanhecke (AUA), Eva Skourtanioti (DRAXIS)
Date:	30/06/2025

Dissemination Level

PU:	Public, fully open	X
SEN:	Sensitive, limited under the conditions of the Grant Agreement	

Document History

Version	Date	Changes	Responsible partner
0.1	06/06/2025	Full draft deliverable	TEAGASC
0.2	12/06/2025	Quality review	AUA
0.3	12/06/2025	Quality review	DRAXIS
0.4	25/06/2025	Final deliverable	TEAGASC
1.0	30/06/2025	Final quality check and submission to EC	Q-PLAN

LEGAL NOTICE

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

©ROSETTA Consortium, 2025

Reproduction is authorised provided the source is acknowledged.

Table of Contents

EXECUTIVE SUMMARY	5
1. INTRODUCTION	6
2. METHODOLOGY	7
2.1 LITERATURE REVIEW	7
2.1.1 <i>Trade-offs</i>	8
2.1.2 <i>Economic, Social and Environmental Pillars</i>	8
2.1.3 <i>Marketing standards' objectives</i>	9
2.2 IDENTIFICATION OF THE TRADE-OFFS	10
2.3 VALIDATION DURING THE CO-CREATION WORKSHOP	11
2.4 DATA ANALYSIS	12
3.1 CEREAL – POLAND	15
3.1.1 <i>Redistribution for processing – Bakery products</i>	15
3.1.2 <i>Social – Distribution of upcycled bakery products</i>	18
3.1.3 <i>Preventive – Promote upcycled products</i>	20
3.1.4 <i>Redistribution for processing – Protein bars</i>	22
3.2 DAIRY – DENMARK	25
3.2.1 <i>Preventive - Shelf-life allocation</i>	25
3.2.2 <i>Preventive – Recipe sharing</i>	27
3.3 FRUITS AND VEGETABLES – IRELAND	29
3.3.1 <i>Preventive – Consumer behaviour and education</i>	29
3.3.2 <i>Redistribution for processing – Imperfect food into value-added products</i>	33
3.4 FRUITS AND VEGETABLES – SPAIN	38
3.4.1 <i>Redistribution for processing - Value-added product transformation</i>	38
3.5 FRUITS AND VEGETABLES – GREECE	42
3.5.1 <i>Preventive – Pricing-discount model</i>	42
3.5.2 <i>Social - Food redistribution</i>	45
3.6 MEAT – GREECE	47
3.6.1 <i>Preventive – Mobile application</i>	47
4. CONCLUSION	49

Table of Figures

<i>Figure 1: Example of the Identification of the Trade-offs</i>	11
--	----

List of Tables

<i>Table 1: Action points Task 2.3</i>	7
<i>Table 2: Trade-off Identification Template</i>	10
<i>Table 3: Alternative Marketing Models by Use Case (commodity and country)</i>	11
<i>Table 4: Results from co-creation workshop</i>	13
<i>Table 5: Redistribution for processing – Bakery products</i>	17
<i>Table 6: Social - Distribution of upcycled bakery products</i>	19
<i>Table 7: Preventive - Promote upcycled products</i>	21
<i>Table 8: Redistribution for processing – Protein Bars</i>	23
<i>Table 9: Preventive - Shelf-life allocation</i>	26
<i>Table 10: Preventive – Safe Use of Dairy</i>	28
<i>Table 11: Preventive – Consumer behaviour and education</i>	31
<i>Table 12: Redistribution for processing - Imperfect food into value-added products</i>	35
<i>Table 13: Redistribution for processing – Value-Added Product Transformation</i>	40
<i>Table 14: Preventive – Pricing-Discout Model</i>	43
<i>Table 15: Social - Food Redistribution</i>	46
<i>Table 16: Preventive – Mobile Application</i>	48

Executive Summary

The ROSETTA project aims to reduce and prevent food waste by improving access to foods that do not meet marketing standards. Task 2.3 assessed the waste reduction goals of 12 alternative marketing models developed in Task 2.2 and to compare them with the objectives of existing marketing standards to identify compromises or trade-offs, and to evaluate economic, environmental, and social impacts.

The proposed alternative marketing models are categorised across three main dimensions: preventative, redistribution for processing, and social. These models will be implemented across the five use case MIP partners, focusing on four key food commodity groups: cereals, dairy, fruits and vegetables, and meat. The application of the models is as follows:

- Cereals (Poland): Four models will be tested—one focused on preventative measures, another one on social intervention, and two on redistribution for processing.
- Dairy (Denmark): Two models will be applied, covering preventative measures.
- Fruits and Vegetables (Ireland): Two models will be tested—preventative measure and redistribution for processing.
- Fruits and Vegetables (Spain): A single model focusing on redistribution for processing will be implemented.
- Fruits and Vegetables (Greece): Two models will be applied—one targeting social intervention and the other focusing on preventative measures.
- Meat (Greece): One model will be applied focusing on a preventive measure.

To assess potential trade-offs, the methodology includes a literature review to define trade-offs and relevant concepts; a systematic identification and documentation of trade-offs across the use cases; validation of findings during five stakeholder co-creation workshops; and comparative analysis with the objectives of marketing standards.

Trade-offs were assessed across economic, environmental, and social pillars. This approach enabled a comprehensive analysis of each model's alignment with current marketing standards.

1. Introduction

In the context of ROSETTA, we understand *trade-offs* as situations where something negative is accepted in order to gain something positive. One example of a trade-off is when regulations that prioritise food safety inadvertently led to increased food waste. Businesses often hesitate to donate surplus food due to concerns about liability if the donated food causes food safety and health issues¹. This creates a trade-off between maintaining food safety standards and reducing food waste.

The assessment of trade-offs between food waste reduction objectives and the objectives pursued by marketing standards is the aim of Task 2.3 and is reported here. Drawing on 12 marketing models identified in Task 2.2, this task compares the waste reduction objectives of each marketing model for the four food commodities that are addressed in ROSETTA (cereals, dairy, fruits and vegetables and meat), with the objectives of the marketing standards: to facilitate trade within the supply chain, ensure that products meet consumer expectations, provide quality products and accurate information, and support a sustainable food system. The analysis aims to identify and evaluate any compromises that may have to be made as a result of trade-offs, as well as their economic, environmental, and social impacts. The alternative marketing models address three key categories: preventative, redistribution for processing, and social.

In Poland, the cereals sector will test four models: one focused on preventative measures, another on social intervention, and two on redistribution for processing. In Denmark, the dairy sector will apply two models, both addressing preventative measures. In Ireland, two models will be tested in the fruits and vegetables sector—one focused on a preventative measure and another on redistribution for processing. Spain will implement a single model in the fruits and vegetables sector, focusing on redistribution for processing. In Greece, the fruits and vegetables sector will apply two models: one targeting social intervention and the other focused on a preventative measure. Additionally, in the Greek meat sector, one model will be applied, addressing a preventative measure.

To achieve the objectives of the task, the methodology employed included a comprehensive literature review, an assessment of the trade-offs associated with each marketing model in each MIP use case, a validation workshop to confirm these trade-offs, and a final comparison between the trade-offs and the objectives of existing marketing standards. The subsequent sections present the methodology, the results, and the conclusion.

¹ Patel, S., Dora, M., Hahladakis, J. N., & Iacovidou, E. (2021). Opportunities, challenges and trade-offs with decreasing avoidable food waste in the UK. *Waste Management & Research*, 39(3), 473-488.

2. Methodology

To achieve the aims of the task, the methodology was organised into four main components: (a) Literature review; (b) Identification and assessment of the trade-offs; (c) Validation during the co-creation workshop; and (d) Data analysis. The detailed action points of the task can be visualised in Table 1. Teagasc had overall responsibility for leading the task.

Table 1: Action points Task 2.3

	Action Point	Who	By when
1	Meeting with all project partners to discuss task methodology	TEAGASC	5 th September 2024
2	Project partners' feedback on trade-off assessment and methodology	All partners	12 th September 2024
3	Literature review developed by task leader	TEAGASC	30 th October 2024
4	Completion of Alternative Marketing Models by Task 2.2 leader	TUC	30 th November 2024
5	Identification of trade-offs for each Alternative Marketing Model	Use Case MIP Partners	28 th February 2024
6	Validation of trade-offs for each Alternative Marketing Model during Co-creation Workshops	Use Case MIP Partners	31 th March 2025
7	Completion of data analysis and finalisation of Deliverable 2.3	TEAGASC	30 th June 2025

2.1 Literature review

The literature review aimed to address three key topics: establish a definition of trade-offs for the purposes of the task and overall project, the explanation of the economic, social, and environmental pillar, and clarify the objectives of marketing standards. The review was conducted between October 2024 and April 2025. Relevant databases and results from previous deliverables were consulted to highlight the key issues and concepts and to ensure alignment with the overall perspective of the project.

2.1.1 Trade-offs

According to the literature review, trade-offs are “situations when a sacrifice is made in one area to obtain benefits in another ... [whereby] it is usually impossible to optimize them, all at once”². Trade-off are described as a situation where something negative is accepted to gain something positive³. For example, food safety regulations may discourage businesses from donating surplus products due to liability concerns, potentially increasing food waste. This creates a trade-off between maintaining food safety standards and reducing food waste. Another example of a trade-off is when retailers may adopt cosmetic quality standards beyond legal requirements to satisfy consumers, which can result in greater waste due to discarded yet edible products.

Trade-offs are limitations that lead firms to narrow their attention to a smaller set of objectives⁴. They are dynamic and cannot be eliminated but attempts can be made to manage them. One method for improving manufacturing trade-offs involves identifying the actual trade-offs and ranking their priority, followed by defining an improvement approach⁵.

The literature also frames trade-offs in terms of competition, as they involve making decisions under resource constraints between competing outcomes. Some examples from the literature include aiming to reduce emissions versus reducing water usage or responding to the needs of the local community versus to consumers globally⁶. This competition could generate a tension, which is defined as a dynamic relationship that involves both competition and complementarity. This means that the trade-off (‘win–lose’) is an outcome of the root tension⁶. In other words, a trade-off involves a decision that may favour one aspect at the expense of another. Within the supply chain, the relationships between stakeholders and their decisions can directly influence one another.

When addressing food waste, it is crucial to recognise the trade-offs that can arise between benefits for one stakeholder and costs for another. For instance, stricter retailer standards may reduce consumer-level waste but increase losses or costs for upstream producers unable to meet enhanced requirements.

Within the ROSETTA framework, trade-offs arise when stakeholders are required to prioritise decision variables—such as those explored in the alternative marketing models—according to the objective of reducing or preventing food waste. These trade-offs involve balancing actions that may have both positive and negative impacts across economic, social, and environmental dimensions. Therefore, innovative approaches are necessary to align food waste reduction efforts with marketing standards, thus striving to effectively manage potential trade-offs.

2.1.2 Economic, Social and Environmental Pillars

Considering the definition of trade-offs and the economic, social and environmental pillars approach, some initial examples can illustrate their dynamics:

² Haffar, M., & Searcy, C. (2017). Classification of trade-offs encountered in the practice of corporate sustainability. *Journal of business ethics*, 140, 495-522.

³ Patel, S., Dora, M., Hahladakis, J. N., & Iacovidou, E. (2021). Opportunities, challenges and trade-offs with decreasing avoidable food waste in the UK. *Waste Management & Research*, 39(3), 473-488.

⁴ da Silveira, G. J. (2005). Improving trade-offs in manufacturing: Method and illustration. *International Journal of Production Economics*, 95(1), 27-38

⁵ Da Silveira, G., & Slack, N. (2001). Exploring the trade-off concept. *International Journal of Operations & Production Management*, 21(7), 949-964.

⁶ Hahn, T., Figge, F., Pinkse, J., & Preuss, L. (2010). Editorial tradeoffs in corporate sustainability: You can't have your cake and eat it. *Business Strategy and the Environment*, 19(4), 217-229.

- Economic-Social: Efforts to engage consumers and encourage sustainable behaviour may require significant upfront investment, with uncertain financial returns, especially if price-sensitive consumers are not willing to invest in sustainability.
- Economic-Environmental: Economic growth through sponsorships and event fees might involve higher resource consumption and waste production, which could undermine some environmental gains.
- Social-Environmental: While social benefits such as community engagement and enhanced consumer behaviour can lead to a positive environmental impact, a lack of accessibility and inclusiveness in these initiatives may leave some groups behind.

The alternative marketing models identified in Task 2.2 are analysed in this report to identify impacts across and within the three pillars. The ultimate aim is to support effective management of trade-offs to prevent them from undermining sustainability objectives.

2.1.3 Marketing standards' objectives

The objectives of marketing standards are to: (a) improve economic conditions for the production and marketing of agricultural and food products (i.e., levelling the playing field/ facilitating trade); (b) improve the quality of products in the interests of producers, traders and consumers; (c) take account of the expectations of consumers to receive adequate and transparent product information; and (d) enable the market to be easily supplied with products of a standardised and satisfactory quality⁷.

Within the EU, marketing standards consist of “rules aimed to ensure that the single market is supplied with standardised quality agricultural products that meet consumer expectations”⁸. They can vary by product and sector, focusing on technical product specifications and specific terms to establish uniform trade characteristics. They can reduce risks, enhance trust, and promote predictability.

In 2023, the European Commission published a report aimed at reviewing EU marketing standards for agricultural products, with the goal of ensuring the uptake and supply of sustainable products. The revision of EU marketing standards is aligned with and complementary to other initiatives under the European Green Deal, which seeks to enhance the sustainability of food systems⁹.

Based on the literature review presented in previous deliverables of the ROSETTA project¹⁰, the objectives of marketing standards are classified into five categories: a) Product profitability and market access; b) Product quality; c) Consumer protection and awareness; d) Market efficiency and supply consistency; e) Sustainable food system.

⁷ EU Commission (2020): Commission Staff Working Document – Evaluation of Marketing Standards (contained in the CMO Regulation, the ‘Breakfast Directives’ and CMO secondary legislation), Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020SC0230>

⁸ EU Commission (2020): Commission Staff Working Document – Evaluation of Marketing Standards (contained in the CMO Regulation, the ‘Breakfast Directives’ and CMO secondary legislation), Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020SC0230>

⁹ EU Commission (2023): Commission Staff Working Document, Impact Assessment Report – *Revision of EU Marketing Standards for Agricultural Products to Ensure the Uptake and Supply of Sustainable Products*, Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52023SC0097>

¹⁰ ROSETTA Project (2024). *Deliverable 1.2: Analysis of EU, international and national marketing standards*. University of Vienna [Unpublished deliverable]. European Union’s Horizon Europe Research and Innovation Programme.

2.2 Identification of the trade-offs

The alternative marketing models were developed by the Task 2.2 leader, Technical University of Crete (TUC). The models are divided into three categories, according to the Project Grant Agreement¹¹: Social; Preventive; Re-distribution for processing. After receiving the marketing models for each MIP use case, TEAGASC created an Excel table to capture information such as the type of solution based on these categories, the alternative marketing model, the impact of each model across economic, social, and environmental dimensions, and the stakeholders affected. Once the tables were structured, the process of identifying the impacts and trade-offs for each alternative marketing model was carried out in collaboration with the MIP use case partners. Each MIP partner – Poland (cereals), Denmark (dairy), Ireland (fruits and vegetables), Spain (fruits and vegetables), and Greece (meat and fruits and vegetables) – completed the table by identifying the impacts and trade-offs across the three dimensions: economic, social, and environmental. Table 2 presents the template completed by the MIP partners.

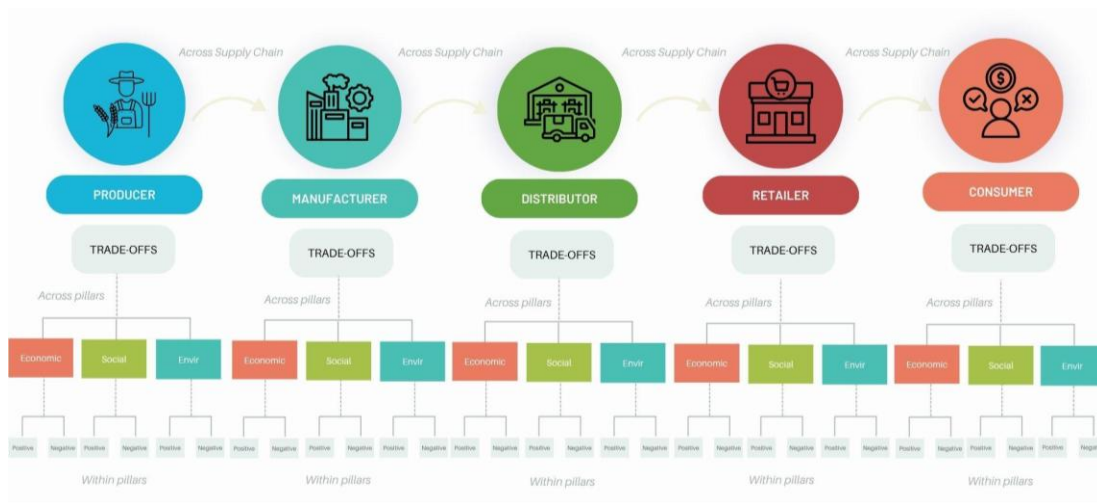
Table 2: Trade-off Identification Template

Type of solution	Alternative marketing model	Trade-offs/ Impacts	Impact Positive/Negative	Stakeholder impacted	Food commodity
Social Practices/ Interventions		Economic			
		Social			
		Environmental			
Preventive measures		Economic			
		Social			
		Environmental			
Re-distribution		Economic			
		Social			
		Environmental			

The table aimed to provide information not only on what trade-offs exist, but also where they occur and who is affected. The analysis of the trade-offs considered the trade-offs across the supply chain and across and within sustainability pillars. Figure 1 illustrates this conceptually for one category of marketing model.

¹¹ European Commission. (2023). Grant agreement Project: 101136427 — ROSETTA — HORIZON-CL6-2023-FARM2FORK-01. European Commission.

Figure 1: Example of the Identification of the Trade-offs



2.3 Validation during the co-creation workshop

The preliminary trade-offs and impacts developed by the use case partners were validated during a co-creation workshop, titled “Validating Trade-offs in Alternative Marketing Models”. These stakeholder workshops were held by each MIP use case partner in March 2025. In addition to the validation exercises, the workshop focused on the co-definition and selection of food waste reduction solutions and alternative marketing models.

As the leader of Task 2.3, TEAGASC developed comprehensive guidelines for the trade-off validation which was the focus of Session 3. Additionally, spreadsheets were prepared for each food commodity, incorporating the trade-offs and impacts that had been previously identified. Session 3 was designed to last 60 minutes and followed a structured agenda covering three main components: Introduction to the activity and overview of trade-offs; Assessment of trade-offs; and Group discussion.

Workshop participants included MIP members or representatives from each use case, as well as key stakeholders from across the food supply chain. These included farmers, distributors, manufacturers, retailers, food service providers, consumers, policymakers, and other relevant organisations.

The use case partners validated the trade-offs and impacts based on the alternative marketing models they intend to implement in future ROSETTA project activities. Poland has the highest number of pilots, applying four alternative marketing models. Greece follows with three models—one focusing on meat and two on fruits and vegetables. Denmark and Ireland each have two models, while Spain will test one alternative marketing model (Table 3).

Table 3: Alternative Marketing Models by Use Case (commodity and country)

Food commodity	Use case partner	Alternative marketing models
Cereals	Poland	Four models will be tested—one on preventative measures, one on social interventions and two on redistribution for processing
Dairy	Denmark	Two models will be applied, covering preventative measures.
Fruits and Vegetables	Ireland	Two models will be tested—preventative measures and redistribution for processing
Fruits and Vegetables	Spain	A single model focusing on redistribution for processing will be implemented
Fruits and Vegetables	Greece	Two models will be applied—one targeting social practices and interventions, and the other focusing on preventative measures
Meat		One model will be applied focusing on preventive measure

The results of the workshop sessions indicated whether participants agreed or disagreed with the draft trade-offs and impacts, with additional comments and suggestions provided during the discussion. Following the workshop, each MIP use case partner submitted the results from Session 3 to TEAGASC for further analysis.

2.4 Data analysis

In total, 12 spreadsheets – one from each alternative marketing model from Table 3, were analysed between April and May 2025 by the task leader, TEAGASC. The spreadsheets were reviewed in terms of the number of agreements and disagreements for each trade-off and impact, as well as the comments provided for each one. The same analysis was conducted for all five use case MIPs and their associated marketing models.

Based on the understanding of trade-offs as the need to compromise in one domain to realise benefits in another and considering that the alternative marketing models offers a benefit, the negative impacts were classified as trade-offs. The positive impacts, on the other hand, were classified as aligned with the objectives of the marketing standards. Therefore, if the impact is negative, it represents a trade-off; if positive, it indicates alignment¹².

The impacts were validated based on the number of votes each received during the workshop, in terms of agreement and disagreement. The options with the most agreement and those that had equal numbers of agreements and disagreements were retained in our data. The options with the most disagreement were removed.

The final step of the data analysis involved comparing the validated trade-offs with the objectives of the marketing standards. The analysis was guided by the five categories of marketing standard objectives: (a) product profitability and market access, (b) product quality, (c) consumer protection and awareness, (d) market efficiency and supply consistency, and e) sustainable food system. Each trade-off was assessed to identify which of the objectives it aligned with, and the findings were reviewed and confirmed by each use case partner.

¹² The term 'positive impact' is also used in the report to refer to aligned impacts.

3. Trade-offs

During the co-creation workshop, the five use case MIPs validated the trade-offs and impacts for each alternative marketing model. The validation occurred through votes on agreement and disagreement. Options with the highest agreement or balanced votes were retained, while those with the most disagreement were excluded. Table 4 presents the number of trade-offs validated for each alternative marketing model across the three pillars—economic, social, and environmental—as well as the number of trade-offs that were not validated.

Table 4: Results from co-creation workshop

Food Commodity and Use Case	Alternative Marketing Model	Number of Identified Trade-Offs and Impacts		Total Validated	Total Not Validated
Cereals/Poland	Redistribution for processing	Economic	2	2	-
		Social	2	2	-
		Environmental	2	2	-
		Total	6	6	-
	Social	Economic	2	2	-
		Social	2	2	-
		Environmental	2	2	-
		Total	6	6	-
	Preventive	Economic	3	3	-
		Social	2	2	-
		Environmental	2	1	1
		Total	7	6	1
	Redistribution for processing	Economic	6	6	-
		Social	5	5	-
		Environmental	5	5	-
		Total	16	16	-
Dairy/Denmark	Preventive I	Economic	2*	2	-
		Social	2	2	-
		Environmental	3	2	1
		Total	7	6	-

Food Commodity and Use Case	Alternative Marketing Model	Number of Identified Trade-Offs and Impacts		Total Validated	Total Not Validated
Dairy/Denmark	Preventive II	Economic	2	1	1
		Social	2*	2	-
		Environmental	1	1	-
		Total	5	4	1
Fruits and Vegetables/Ireland	Preventive	Economic	4*	4	-
		Social	4*	4	-
		Environmental	4	4	-
		Total	12	12	-
	Redistribution for processing	Economic	9	9	-
		Social	8	8	-
		Environmental	5	5	-
		Total	22	22	-
Fruits and Vegetables/Spain	Redistribution for processing	Economic	7	7	-
		Social	6	6	-
		Environmental	6	6	-
		Total	19	19	-
Fruits and Vegetables/Greece	Preventive	Economic	6	6	-
		Social	3	3	-
		Environmental	2	2	-
		Total	11	11	-
	Social	Economic	6	6	-
		Social	2	2	-
		Environmental	1	1	-
		Total	9	9	-
Meat/Greece	Preventive	Economic	7	6	1
		Social	2	2	-
		Environmental	3	2	1
		Total	12	10	2

*Trade-off added by the participants.

The following sessions present the trade-offs for each food commodity according to MIP and compares them to the objectives of the marketing standards.

3.1 Cereal – Poland

The alternative marketing models assessed for Poland include one measure that is primarily classified as redistribution for processing, one preventive, and one social. According to the Project Grant Agreement:

“This use case MIP will focus on cereals - paying special attention to bran-based, fibre-rich, whole-grain options with functional properties - that do not meet marketing standards, mainly arising from not complying with specific quality specifications (such as level of gluten, shape, colour, weight, among others). The process of co-defining and pilot testing alternative marketing channels and models, where suboptimal foods belonging to the above category are safe to eat, will be coordinated using the cluster network approach. It will focus on the following solutions: a) preparation and consumption of cereal-based meals that address special dietary needs (vegetarian, vegan, celiac disease, gluten sensitivity, oversensitivity to legumes, etc.) and are served in catered events, consumed at restaurants or delivered to consumers (dietary catering in boxes), in collaboration with a foodservice (HoReCa) entity, b) preparation of healthy and nutritious meals, baked goods, bakery products, breakfast cereals and alternative snack options (cereal bars, energy bars, trail mix), in collaboration with a civil society organisation, working with refugees from Ukraine, vulnerable families, children and seniors. The preparation of meals will be done in collaboration with higher vocational schools, agri-food universities and other interested supply chain actors, as part of their traineeships and academic activities. Digital grain passport based on blockchain, and other new and deep technologies will be codesigned to contribute to the development of smart digital supply chains, transparency and traceability. This approach will support better adjustment of the grain offers to market demand to decrease losses, as well as better distribution of profit, cost, and risk across the grain supply chain. Additionally, an online digital market exchange platform (marketplace), supporting the shift from analogue, fragmented and restricted offline grains trade market to digital, united, and unlimited global online food exchange, will be collectively explored and analysed as a novel way to prevent/reduce food waste due to marketing standards”.

3.1.1 Redistribution for processing – Bakery products

The alternative marketing model provided by Task 2.2 specified that food waste would be reduced by creating fibre-enriched bakery products with extended shelf life and promoting them through innovative communication campaigns (Table 5). Two impacts were identified for each pillar—economic, social, and environmental—presenting a balanced mix of positive and negative effects. Regarding the marketing standards objectives, product profitability and market access face the most challenges, with two trade-offs each. Additionally, one trade-off was classified under the sustainable food system and one under consumer protection and awareness. In contrast, the sustainable food system shows more positive impacts, with three aligned impacts identified.

According to the workshop participants, the new product aligns with the premium “sustainable food” trend and could justify higher pricing, particularly in health-conscious and urban markets—potentially mitigating negative impacts. However, participants also expressed concerns about the costs associated with this marketing model. Nonetheless, they suggested that the idea could potentially qualify for sustainability-focused grants or R&D funding. Alternative funding sources, such as the EU Green Deal and Horizon Europe, could help offset upfront R&D costs. Additionally, it was suggested that it would be important to explore strategic partnerships with research institutions and for companies to consider piloting with a limited range

of stock keeping units (SKUs). Employing lean marketing techniques—such as content marketing and influencer seeding—could also help reduce campaign costs during early stages.

The workshop participants suggested that educational campaigns could position a brand associated with the product as a pioneer in circular food innovation, which is especially appealing to Generation Z and Millennials. Storytelling approaches—such as “from waste to wellness”—could foster emotional connections with consumers and build long-term brand loyalty. They also suggested that a gradual product introduction using mixed assortments (e.g., classic and upcycled options) could help ease the transition for more conservative consumers. In-store tastings, community events, and influencer testimonials could further reduce scepticism and build trust.

On the environmental front, participants affirmed that is crucial to communicate clear lifecycle assessment (LCA) data to support environmental claims and avoid perceptions of greenwashing. This model supports circular economy goals and enhances ESG credentials. Adopting energy-efficient production methods and renewable energy sources during the production process could help offset the energy required for processing. Carbon offset initiatives and eco-labelling could also be used to transparently address any environmental trade-offs.

Table 5: Redistribution for processing – Bakery products

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted
Redistribution for processing Reduce food waste by creating fibre-enriched bakery products with extended shelf life and promoting them through innovative communication campaigns	<ul style="list-style-type: none"> Product profitability and market access Sustainable food system 	Economic	Potential increase in revenue from higher-value, innovative products that appeal to environmentally conscious consumers	Aligned	Producers, Retailers, Consumer
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		Initial R&D and marketing campaign costs may strain resources, especially if uptake is slow or inconsistent	Trade-off	Producers, Retailers
	<ul style="list-style-type: none"> Consumer protection and awareness Sustainable food system 	Social	Improves consumer awareness and acceptance of upcycled food products, fostering sustainable consumption patterns	Aligned	Retailers, Consumer
	<ul style="list-style-type: none"> Consumer protection and awareness Product profitability and market access Product quality 		Potential resistance from traditional consumers unfamiliar with upcycled products, requiring long-term education campaigns	Trade-off	Retailers
	<ul style="list-style-type: none"> Sustainable food system Product quality Market efficiency and supply consistency 	Environmental	Reduction in food waste by reusing by-products to create bakery items with extended shelf life.	Aligned	All Value Chain Actors
	<ul style="list-style-type: none"> Sustainable food system Market efficiency and supply consistency 		Additional energy inputs required for upcycling processes could offset some environmental benefits if not managed efficiently	Trade-off	Producers

3.1.2 Social – Distribution of upcycled bakery products

This alternative marketing model aims to distribute upcycled bakery products to vulnerable groups through partnerships with social organisations, while also collecting feedback from recipients (Table 6).

An equal number of impacts were identified for the economic, social, and environmental pillars for this marketing model, with one trade-off and one positive impact identified for each. The objectives of marketing standards have been identified, with the sustainable food systems showing the most positive impact, having three aligned impacts. Market efficiency and supply consistency is present in two trade-offs while for consumer protection and awareness, and product profitability and market access one trade-off was identified (Table 6).

Comments about the model during the workshop confirm that it could enhance the corporate social responsibility (CSR) profile of a company producing such products, which can strengthen brand equity and attract impact investors or ESG-aligned funding. Additionally, participants affirmed that some regions may offer potential tax incentives or subsidies for donating food to social organisations.

Workshop participants discussed the economic impacts of the model. To manage costs, they suggested that the alternative marketing model could use existing distribution networks, for example, by combining deliveries with other shipments. They also advised that a company should start with pilot projects in selected areas to improve logistics and work with local NGOs that already have distribution systems, which could help reduce delays. Formalising partnerships through MOUs could make coordination easier and reduce paperwork.

Regarding the social aspect, the workshop participants considered that the model helps promote inclusivity and care, strengthens community ties, and humanises the brand. They suggested that feedback from recipients could be used to improve products and social impact stories.

The environmental impact was also discussed. Participants indicated that the model offers a valuable contribution to the circular economy by combining waste reduction with social benefits. They noted that it supports food rescue as part of sustainable business practices. They also suggested some strategies to reduce environmental impact include using route optimisation software or electric vehicles to lower the carbon footprint. Additionally, using dry or shelf-stable products could reduce energy costs associated with cold storage.

Table 6: Social - Distribution of upcycled bakery products

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted
Social Distribute upcycled bakery products to vulnerable groups via partnerships with social organizations, with feedback collected from recipients	<ul style="list-style-type: none"> Sustainable food system 	Economic	Low-cost redistribution of upcycled products that might otherwise go to waste; builds goodwill and potential partnerships	Aligned	Consumer, Social Organisation, Food Banks
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		Additional costs for logistics, storage, and collaboration with social partners may outweigh direct economic benefits	Trade-off	Producers
	<ul style="list-style-type: none"> Consumer protection and awareness Sustainable food system 	Social	Provides access to nutritious products for vulnerable groups, reducing food insecurity and promoting social equity	Aligned	Food Banks, Producer
	<ul style="list-style-type: none"> Market efficiency and supply consistency Product profitability and market access 		Logistical challenges and limited resources may delay implementation, reducing short-term social impact	Trade-off	All Supply Chain
	<ul style="list-style-type: none"> Sustainable food system Market efficiency and supply consistency 	Environmental	Mitigates waste by redirecting surplus food to those in need	Aligned	NGOs, Food Banks, Communities
	<ul style="list-style-type: none"> Sustainable food system Market efficiency and supply consistency 		Increased transport and storage needs may contribute to greenhouse gas emissions unless optimized	Trade-off	All Supply Chain

3.1.3 Preventive – Promote upcycled products

Influence consumer behaviour through messaging that highlights the benefits of upcycled products, combined with incentives like discounts for survey participation (Table 7).

Three impacts have been identified for the economic pillar: two trade-offs and one aligned with marketing standards objectives. The social pillar has two impacts (one trade-off and one positive impact), and the environmental has one positive impact. Overall, the model offers benefits across the three pillars, however, the economic pillar shows more trade-offs than positive impacts, indicating challenges in meeting marketing standards.

Three trade-offs affect product profitability and market access objective, highlighting some challenges. Consumer protection and awareness has two trade-offs and two positive impacts, presenting both benefits and obstacles. The sustainable food system has two positive impacts, showing compatibility with the model.

During the workshop, participants suggested several strategies to improve the marketing model. For marketing, they discussed ideas with different goals. For example, smart targeting using digital ads or loyalty programmes can increase return on investment (ROI) and conversion rates. Survey participation offers two benefits: gathering consumer data and increasing engagement, which can help shape future strategies. A/B testing different messages (such as health, sustainability, or innovation) can improve results and reduce wasted spending. Another idea was to use gamification or reward programmes to make behavioural change more fun and long-lasting.

According to them, the message should present upcycled products as everyday climate action, with slogans like “small steps, big impact”. To reduce scepticism, certifications (such as an upcycled food label), transparent sourcing, and behind-the-scenes stories can be used. Discounts should be carefully planned, for example, linked to first-time purchases or product bundles, to avoid harming profit margins.

Participants also said the marketing model could be a useful educational tool, especially when combined with school campaigns or social media influencers. It could also use social proof, by showing community involvement or user-generated content.

The environmental aspect was also discussed. Participants stressed the importance of linking individual choices to wider change through circular economy ideas. They agreed it is important to reduce the environmental impact by using digital surveys and online incentives like e-coupons. Measuring the campaign’s environmental impact is key to making sure it fits with green branding and to make improvements when needed.

Table 7: Preventive - Promote upcycled products

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted
Preventive Influence consumer behaviour through messaging that highlights the benefits of upcycled products, combined with incentives like discounts for survey participation	<ul style="list-style-type: none"> Product profitability and market access 	Economic	Enhances market penetration for upcycled products, leading to higher sales over time. Discounts may incentivize trial purchases	Aligned	Consumer, Producers, Retailers
	<ul style="list-style-type: none"> Product profitability and market access 		Discounting may reduce profit margins in the short term	Trade-off	Producers, Retailers
	<ul style="list-style-type: none"> Consumer protection and awareness Product profitability and market access 		The effectiveness of messaging strategies is uncertain	Trade-off	
	<ul style="list-style-type: none"> Consumer protection and awareness Sustainable food system 	Social	Promotes long-term behavioural changes in consumer purchasing habits, fostering a waste-conscious culture	Aligned	Communities, Consumer
	<ul style="list-style-type: none"> Consumer protection and awareness Product profitability and market access Product quality 		Consumer scepticism or lack of awareness may limit immediate behavioural shifts, requiring intensive outreach efforts	Trade-off	All Supply Chain
	<ul style="list-style-type: none"> Sustainable food system Consumer protection and awareness 	Environmental	Encourages adoption of sustainable products, reducing food waste and promoting circular economy principles	Aligned	Communities, Consumer, NGOs

3.1.4 Redistribution for processing – Protein bars

The marketing model will produce protein bars using cereals, bran, and apple pomace. Surplus cereals and apple pomace— by-product of juice production—will be utilised to create nutritious, high-protein snack bars, reducing food waste and offering a sustainable, value-added product (Table 8).

The impacts on each pillar were assessed by the workshop participants. The economic pillar demonstrates a balanced number of trade-offs and aligned impacts with the objectives of marketing standards. Both the social and environmental pillars share the same distribution: two trade-offs and three positive impacts each.

Product profitability and market access are associated with five trade-offs and three aligned impacts. The marketing standard objective related to sustainable food system is the most positively influenced by the model, with nine aligned impacts and only one trade-off. Consumer protection and awareness show three aligned impacts and three trade-offs. Market efficiency and supply consistency also reflect positive outcomes, with two aligned impacts and one trade-off—similar to product quality.

Participants believe that the alternative marketing model is a smart solution and can be positioned as a functional food. It would enable the product to tap into the growing interest in wellness, fitness, and sustainability, appealing to both health-conscious and environmentally aware consumers. However, it is advisable to begin with small-scale, modular production or contract manufacturing to validate consumer demand and minimise initial capital expenditure. Introductory tastings in schools, gyms, or community centres could help raise awareness and build consumer trust.

In addition, they affirmed that the model offers benefits for the local community. Co-branding with local juice or cereal producers could not only reduce sourcing costs but also enhance traceability and strengthen storytelling around provenance. Emphasising local sourcing and job creation can contribute to regional development and foster trust within the community. A strong promotional campaign will be essential, supported by transparency, certifications, and a clear “from orchard to bar” narrative to counter any consumer scepticism regarding the use of pomace.

Participants also discussed the product quality and environmental pillar. To address the short shelf life of apple pomace, they pointed out that techniques such as drying, fermentation, or blending with low-moisture ingredients should be explored. These methods can extend usability without the need for energy-intensive refrigeration. The use of eco-friendly packaging will further align the product with environmental values and help mitigate the carbon footprint associated with production and transport. The model addresses two major food waste streams—cereal surplus and juice industry by-products—making it a compelling example of circular economy principles in practice. Furthermore, the participants mentioned that conducting life cycle assessment (LCA) studies to demonstrate reductions in carbon emissions and landfill waste will be vital for reinforcing the model’s environmental credentials and supporting future funding or partnership opportunities within the B2B sector.

Table 8: Redistribution for processing – Protein Bars

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted
Redistribution for processing Production of Protein Bars from Cereals, barn and Apple Pomace. Utilize surplus cereals and apple pomace (a by-product of juice production) to create nutritious, high-protein snack bars, reducing food waste and offering a sustainable, value-added product	<ul style="list-style-type: none"> Product profitability and market access Sustainable food system 	Economic	Adds value to two low-cost by-products (cereals and apple pomace), increasing profitability	Aligned	Producer, Consumer, Retailers, Local Communities
	<ul style="list-style-type: none"> Product profitability and market access Product quality Consumer protection and awareness 		Creates a premium product targeting health-conscious and sustainability-focused consumers	Aligned	
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency Sustainable food system 		Potential for cost-effective sourcing from local producers of cereals and juice processors	Aligned	
	<ul style="list-style-type: none"> Product profitability and market access 	Economic	Initial investment in product development, equipment, and certifications (e.g., for organic or sustainable claims)	Trade-off	All Supply Chain
	<ul style="list-style-type: none"> Product quality Product profitability and market access Consumer protection and awareness 		Uncertainty in consumer adoption, especially if taste or quality perceptions are not met	Trade-off	
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		Logistics and storage costs for sourcing and processing apple pomace, which has a short shelf life	Trade-off	
	<ul style="list-style-type: none"> Product quality Consumer protection and awareness Sustainable food system 		Social	Provides a nutritious, affordable snack option with potential benefits for health-conscious and low-income consumers	
	<ul style="list-style-type: none"> Market efficiency and supply consistency Sustainable food system 	Strengthens local supply chains and creates jobs in cereal recovery, pomace processing, and protein bar production		Aligned	

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted
<p>Redistribution for processing</p> <p>Production of Protein Bars from Cereals, barn and Apple Pomace. Utilize surplus cereals and apple pomace (a by-product of juice production) to create nutritious, high-protein snack bars, reducing food waste and offering a sustainable, value-added product</p>	<ul style="list-style-type: none"> ● Consumer protection and awareness ● Sustainable food system 	Social	<p>Raises awareness about sustainable consumption and reducing food waste</p>	<p>Aligned</p>	<p>Consumer, Communities</p>
	<ul style="list-style-type: none"> ● Consumer protection and awareness ● Product profitability and market access 		<p>Consumer scepticism about using apple pomace as an ingredient may require intensive marketing and education efforts</p>	<p>Trade-off</p>	<p>All Supply Chain</p>
	<ul style="list-style-type: none"> ● Sustainable food system 	Environmental	<p>Reduces food waste by upcycling apple pomace and surplus cereals that would otherwise be discarded</p>	<p>Aligned</p>	<p>All Supply Chain</p>
	<ul style="list-style-type: none"> ● Sustainable food system 		<p>Minimizes environmental impact by leveraging local by-products, lowering emissions associated with waste disposal</p>	<p>Aligned</p>	
	<ul style="list-style-type: none"> ● Sustainable food system 		<p>Encourages circular economy practices in both cereal and juice supply chains</p>	<p>Aligned</p>	
	<ul style="list-style-type: none"> ● Sustainable food system 		<p>Transport and storage of wet apple pomace may require additional energy inputs or preservation methods, potentially offsetting some environmental gains</p>	<p>Trade-off</p>	
	<ul style="list-style-type: none"> ● Sustainable food system 		<p>Energy use in protein bar production (e.g., drying, processing) could contribute to emissions unless renewable energy sources are used</p>	<p>Trade-off</p>	
	<ul style="list-style-type: none"> ● Sustainable food system 				

3.2 Dairy – Denmark

The alternative marketing models assessed for Denmark include two measures that are primarily classified as preventative. According to the Project Grant Agreement:

“This use case MIP will focus on dairy, which is one of the food categories with the highest wastage overall, with consumers making up to 64% of the total. Industry figures suggest that as much as 20% of all dairy products are lost or wasted along the entire food chain, as dairy has a particular challenge because products are typically highly perishable. The dairy use case MIP will therefore co-define, pilot test and optimise a number of waste reduction solutions for dairy products, namely: a) review portion size and design to avoid wastage at consumer level, b) test options to extend the “use by” date or qualify the message to encourage consumers to use milk which is past the use by date, but still good, c) test consumer reactions to information on effective storage of milk, and optimal refrigerator temperatures to assess the reduction of dairy waste, and d) run campaigns providing recipes for dairy products with low shelf life remaining”.

3.2.1 Preventive - Shelf-life allocation

The alternative marketing model aims to analyse the distribution of shelf-life across the dairy supply chain to identify inefficiencies leading to waste. This intervention maps how shelf-life is allocated among the actors of the supply chain, in order to assess waste at each stage. By collecting data from supply chain actors, critical waste points can be identified to improve allocation strategies and reduce dairy product waste (Table 9).

This model presents three trade-offs under the economic pillar and one under the social pillar. The environmental pillar shows two aligned impacts with marketing standards objectives.

About marketing standards objectives, product profitability and market access, as well as market efficiency and supply consistency, each have two trade-offs and one aligned impact. The sustainable food system objective is positively impacted, with three aligned impacts identified. Product quality shows a mixed result, with one positive and one negative impact.

According to the participants, a significant amount of data is already being collected by some wholesalers, so they do not anticipate significantly higher costs. However, if substantial changes to systems or procedures are required, this would incur additional expenditure. Competition among wholesalers is extremely tough, leaving little financial flexibility for major alterations.

Environmental issues were also raised. Whilst the approach may help reduce overall food waste, care must be taken to avoid merely shifting waste from the dairy or wholesaler to the end user, such as kitchens or hospitals. They also affirmed that energy demand is not expected to increase—on the contrary, it may even be reduced if we are able to optimise the number of days that products need to be stored.

Table 9: Preventive - Shelf-life allocation

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted
<p>Shelf-life Allocation and Waste Reduction Mapping</p> <p>Analyzing the distribution of shelf-life across the dairy supply chain to identify inefficiencies leading to waste. This intervention maps how shelf-life is allocated among the actors of the supply chain, aiming to assess waste at each stage. By collecting data from supply chain actors, critical waste points can be identified to improve allocation strategies and reduce dairy product waste</p>	<ul style="list-style-type: none"> Product profitability and market access 	Economic	Minimize costs when/if unsold dairy is reduced	Aligned	All actors of the value chain
	<ul style="list-style-type: none"> Product profitability and market access 		Initial costs for data collection and system adjustments	Trade-off	All actors of the value chain
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		Possible resistance from businesses due to operational changes	Trade-off	All actors of the value chain
	<ul style="list-style-type: none"> Sustainable food system 	Social	Increased awareness and engagement from food service operators on waste reduction	Aligned	Consumer facing value chain actors
	<ul style="list-style-type: none"> Product quality Market efficiency and supply consistency 		Possible need for additional staff training and adaptation to new shelf-life practices	Trade-off	Consumer facing value chain actors
	<ul style="list-style-type: none"> Sustainable food system Market efficiency and supply consistency Product quality 	Environmenta I	Reduction in overall dairy waste due to optimized shelf-life management	Aligned	All actors of the value chain - Consumers
	<ul style="list-style-type: none"> Sustainable food system 		Minimized disposal of unsold dairy products leading to lower GHG emissions	Aligned	All

3.2.2 Preventive – Recipe sharing

This alternative marketing model aims to test options to extend the “use by” date or qualify the message to encourage consumers to use crème fraiche & yoghurt products which are near or past the use by date, but still safe to consume. This will be achieved by running targeted campaigns and providing recipes for dairy products with a short remaining shelf life, that support consumer awareness and encourage behavioural change (Table 10).

There is one trade-off under the economic pillar and two positive impacts under the social pillar. The environmental pillar shows one positive impact, meaning it aligns with the marketing standards objectives.

In terms of marketing standards objectives, one trade-off was identified for product profitability and market access. Market efficiency and supply consistency, consumer protection and awareness, and the sustainable food system each show two positive impacts. Product quality has one positive impact.

The workshop participants emphasised that encouraging consumers to use leftovers and overripe foods—through recipe suggestions and tools like the EatBy app—can reduce waste and support environmental goals. According to them, this approach goes beyond economic benefits, helping consumers make better use of near-expiry products. Some customers actively seek out date-labelled items, so grouping these products together can make a meaningful difference.

Table 10: Preventive – Safe Use of Dairy

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted
Preventive Test options to extend the “use by” date or qualify the message to encourage consumers to use crème fraiche & yoghurt products, which are near or past the use by date, but still safe to consume. This will be achieved by running targeted campaigns and providing recipes for dairy products with a short remaining shelf life, that support consumer awareness and encourage behavioural change	<ul style="list-style-type: none"> Product profitability and market access 	Economic	Costs for content creation and marketing	Trade-off	Retailers
	<ul style="list-style-type: none"> Consumer protection and awareness Sustainable food system 	Social	Promotion of a sense of community engagement and collaboration	Aligned	Consumers
	<ul style="list-style-type: none"> Product quality Consumer protection and awareness Market efficiency and supply consistency 		Many people are able to buy high-quality products when they are discounted due to date or short shelf life	Aligned	Consumers
	<ul style="list-style-type: none"> Sustainable food system Market efficiency and supply consistency 	Environmental	Potentially dairy waste reduction due to creative usage	Aligned	All

3.3 Fruits and Vegetables – Ireland

The alternative marketing models assessed for Ireland include one measure primarily classified as preventative and another as redistribution for processing. This classification is based on the project Grant Agreement:

“This use case will focus on the “Vegetables of Gold” (Glasraí Ór) concept, highlighting the “treasure” that exists within vegetables that are out of “cosmetic” specs. It will test and validate a product range that draws on business models from Short Food Supply Chains (e.g. box schemes, community supported agriculture), concepts relating to supply chain collaboration (between primary producers, processors and retailers/food service) and sustainability objectives in the horticultural supply chain in Ireland. It will develop, produce on a pilot scale, and validate a branded processed range that might vary from week to week, depending on what will be out of specs. By using relatively simple food processing techniques (drying, cooking, blending), it will produce tasty and nutritious products that are sold in a range of retail and food service outlets. TEAGASC horticultural development department and the facilities of TEAGASC Prepared Consumer Foods Centre (test kitchens, sensory suite etc.) will be involved in the process, also bringing together horticultural & packaging experts, retailers specialising in fruit & vegetables, and a farmers’ market and food service outlet, also engaging with local enterprise and LEADER companies. In addition, other marketing channels will be explored, such as culinary events or other food-related local events, that will demonstrate how food prepared by using out of specs fruit & vegetables can still be safe, nutritious and tasty. The behaviour of the attendees will be monitored during specific demonstration missions, organised by chefs or other stakeholders in the food value chain”.

3.3.1 Preventive – Consumer behaviour and education

The alternative marketing model provided by Task 2.2 specifies the preventive measure as: “preventing the early discarding of food through education, practical solutions, and community engagement via culinary festivals, local food events, social media, community partnerships, and media outreach”. The aim is to empower consumers to make sustainable food choices by reducing food waste, promoting healthy eating, and supporting local economies through education, practical solutions, and community engagement.

Table 11 presents the validated trade-offs for this alternative marketing model and identifies the corresponding marketing standard objectives. The results show four impacts under the economic and social pillars, with one trade-off in each, and the positive impacts of the measures complementing the marketing standards objectives in the others. For the environmental pillar, two trade-offs were identified out of three, potentially highlighting a greater challenge for the measure when seeking to align with the marketing standard's objective of a sustainable food system, market efficiency, and supply consistency.

The marketing standards objectives identified include product profitability and market access, consumer protection and awareness, market efficiency and supply consistency, and sustainable food system. Despite some negative impacts, most of the impacts are positive and suggest a promising solution. Consumer protection and awareness is the most relevant marketing standard objective addressed by the preventive alternative marketing model, with three positive impacts and one negative. Both product profitability and market access, and market efficiency and supply consistency recorded two positive impacts and one negative, while sustainable food system showed an equal number of positive and negative impacts.

Workshop participants emphasised that effectively addressing food waste through this preventive measure requires a focus on consumer behaviour, including the distinction between supermarket waste and household waste. In their view, education is crucial, and messages must be tailored to the consumers, particularly in

encouraging shopping habits that reduce environmental impact—such as shopping more frequently—while ensuring that overbuying is avoided. Materials to promote the education campaign should prioritise digital solutions, and when printed, they should be compostable or degradable.

As reported by the participants, coordination, incentives, and a strong emphasis on valuing food are key to reducing waste. They also believe that local cooperatives and competitive strategies are needed to empower producers, alongside funding and coordination from relevant agencies to support these efforts. As they noted, promoting local produce over imports can help reduce food mileage, while seasonal campaigns like 'Eat in Season' can lower storage costs—exemplified by initiatives such as those undertaken by Bord Bia – the Irish food marketing board.

Table 11: Preventive – Consumer behaviour and education

Alternative marketing model	Marketing standards' objectives	Trade-offs		Impact	Stakeholder impacted
Preventive Preventing the early discarding of food through education, practical solutions, and community engagement via culinary festivals, local food events, social media, community partnerships, and media outreach	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 	Economic	Could drive higher sales for sustainable food products and create opportunities for local food and alternative markets for producers (long term)	Aligned	Producers, Manufacturers, Distributors, Retailers
	<ul style="list-style-type: none"> Product profitability and market access 		The actions taken will generate positive financial returns	Aligned	Retailer, Producers, Manufacturers
	<ul style="list-style-type: none"> Consumer protection and awareness 		Consumers could save money by adopting good practices to prevent food waste (long term)	Aligned	Consumers
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		Devalue primary produce	Trade-off	Producers
	<ul style="list-style-type: none"> Consumer protection and awareness 	Social	Building understanding about nutrition and food waste	Aligned	Consumers (potential future impact for policymakers and other stakeholders)
	<ul style="list-style-type: none"> Sustainable food system 		Food waste reduction (long term)	Aligned	All supply chain
	<ul style="list-style-type: none"> Consumer protection and awareness 		Not all communities might have equal access/structure to these events or resources (e.g., people in remote areas or with lower incomes may be excluded from the benefits of culinary festivals and workshops)	Trade-off	Consumers
	<ul style="list-style-type: none"> Consumer protection and awareness 		Introduction of new products to groups that don't eat (a lot of) fruits and vegetables	Aligned	Consumers
	<ul style="list-style-type: none"> Sustainable food system 	Environmental	The material and resources used to create and publicise the educational campaign could lead environmental damages, such as waste from printed materials and the carbon footprint of organizing and attending physical events	Trade-off	All supply chain

Alternative marketing model	Marketing standards' objectives	Trade-offs		Impact	Stakeholder impacted
<p>Preventive</p> <p>Preventing the early discarding of food through education, practical solutions, and community engagement via culinary festivals, local food events, social media, community partnerships, and media outreach</p>	<ul style="list-style-type: none"> • Sustainable food system 	<p>Environmental</p>	<p>Transporting food and materials to culinary festivals and local events could create emissions, particularly if not well-coordinated with local supply chains or if not utilising sustainable transportation options</p>	<p>Trade-off</p>	<p>All supply chain</p>
	<ul style="list-style-type: none"> • Market efficiency and supply consistency • Sustainable food system 		<p>Through community partnerships and support for local food markets, the initiative encourages local sourcing, reducing transportation emissions, and supporting environmentally friendly farming practices</p>	<p>Aligned</p>	<p>All supply chain</p>

3.3.2 Redistribution for processing – Imperfect food into value-added products

The second alternative marketing model to be tested in Ireland is the redistribution and re-use of suboptimal produce, by processing cosmetically imperfect items into value-added products such as juices, jams, and snacks. This model enhances the marketability and shelf life of suboptimal produce, offering a sustainable and profitable solution to food waste (Table 12).

The results reveal nine trade-offs and aligned impacts under the economic pillar, eight under the social pillar, and five under the environmental pillar. Specifically, the economic pillar presents six trade-offs and three aligned impacts, the social pillar has five trade-offs and three aligned impacts, and the environmental pillar has two trade-offs and three aligned impacts.

Overall, the alternative marketing model involves twenty-two trade-offs and impacts aligned with marketing standards objectives, of which thirteen are trade-offs and nine are positive impacts. This suggests a complex solution, requiring careful consideration of the trade-offs and a strategic approach to mitigate negative impacts while maximising the benefits.

The marketing standards objectives, identified through the trade-offs and aligned impacts, include product profitability and market access, market efficiency and supply consistency, product quality, and a sustainable food system. These objectives may be either positively or negatively impacted by the proposed alternative marketing model.

Product profitability and market access is the marketing standard objective most affected by this solution, with six negative impacts identified. Market efficiency follows with four negative impacts. In contrast, the sustainable food system shows the most positive outcome, with five positive impacts identified. Product quality has two positive impacts aligned with marketing standards objectives.

Despite the number of trade-offs, the participants highlight the potential of this strategy and ways to address the possible negative impacts. As they noted, the use of fruits and vegetables that fall outside conventional aesthetic standards for the development of new food products presents both opportunities and challenges. The viability of such initiatives depends heavily on pricing structures, target markets, and consumer interest. While the impact may be limited in terms of replacing "perfect" products, the potential to reduce food waste, stimulate innovation, and promote sustainability is considerable—provided that market conditions and public policies are supportive.

The participants also pointed out the critical factor of pricing. Products such as jams or processed juices may become more affordable and convenient after transformation but could require subsidies or effective marketing strategies to reach lower-income consumers. The perceived value must be sufficient to justify the use of off-spec ingredients, especially in markets with strong competition from established brands.

Based on their feedback, consumer education and cultural repositioning are essential, as consumers have historically been conditioned to expect visually flawless produce. Well-targeted educational initiatives and marketing campaigns can help to shift this perception, highlighting the nutritional and environmental benefits of such products.

From a sustainability perspective, they believe utilising these foods can contribute to reducing greenhouse gas emissions associated with food waste. However, according to the participants, it is important to ensure that adopted solutions do not lead to unintended negative externalities, such as increased transport requirements or logistical complexity. Integration with existing supply chains and the mitigation of logistical costs are key considerations.

Attention must also be paid to food safety and legal compliance, particularly in food processing. While the risks are not necessarily greater, control and traceability remain crucial.

In terms of public policy, the participants said that it is essential that governments recognise the economic and environmental benefits of these practices—potentially by offering subsidies or incentives to businesses that invest in this model. This can help balance the economic costs with long-term benefits, such as meeting sustainability targets and improving farmers' wellbeing.

Finally, as mentioned by the participants, although the direct impact of these actions may be limited in some cases, the indirect benefits—such as raising awareness, encouraging the consumption of fruits and vegetables, and strengthening local supply chains—may be significant and should be taken into account in the overall assessment of the initiative.

Table 12: Redistribution for processing - Imperfect food into value-added products

Alternative Marketing Model	Marketing standards' objectives	Trade-offs		Impact	Stakeholder Impacted
Redistribution for processing Processing cosmetically imperfect items into value-added products such as juices, jams, and snacks. This model increases the marketability and shelf life of suboptimal produce, offering a sustainable and profitable solution to food waste	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 	Economic	It creates new revenue streams by transforming surplus produce into marketable products, increasing profitability for farmers and food processors	Aligned	Farmers, Manufacturers
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		The products must compete with established brands/product lines, which may have lower costs and greater market influence. They must adapt their business model and marketing strategy, and invest in people, processes, and equipment. This requires significant upfront investment	Trade-off	Manufacturers
	<ul style="list-style-type: none"> Product quality 		Consumers interested in sustainability and natural foods can access alternative, high-quality products	Aligned	Consumers
	<ul style="list-style-type: none"> Product profitability and market access 		Price-sensitive customers may not be willing to pay a premium for these products	Trade-off	Manufacturers, Retailers, Consumers
	<ul style="list-style-type: none"> Market efficiency and supply consistency Sustainable food system 		Processing imperfect food also requires processing perfect food, which may not be ideal	Trade-off	Farmers, Manufacturers
	<ul style="list-style-type: none"> Product profitability and market access 		Investing in equipment with seasonal use may not be a wise spending	Trade-off	Manufacturers
	<ul style="list-style-type: none"> Product profitability and market access 		The costs of producing, distributing, selling could be higher than disposal as waste	Trade-off	Processors

Alternative Marketing Model	Marketing standards' objectives	Trade-offs		Impact	Stakeholder Impacted
<p>Redistribution for processing</p> <p>Processing cosmetically imperfect items into value-added products such as juices, jams, and snacks. This model increases the marketability and shelf life of suboptimal produce, offering a sustainable and profitable solution to food waste</p>	<ul style="list-style-type: none"> Market efficiency and supply consistency 	Economic	Companies that use food waste as a source for composting, anaerobic digestion (AD) or animal feed, will lose this resource	Trade-off	Composting and anaerobic digestion (AD) companies
	<ul style="list-style-type: none"> Product profitability and market access 		More jobs may be generated in food processing, logistics, and marketing	Aligned	All supply chain
	<ul style="list-style-type: none"> Consumer protection and awareness Market efficiency and supply consistency 		Food safety risks during processing	Trade-off	Manufacturers
	<ul style="list-style-type: none"> Consumer protection and awareness Sustainable food system 		Increased consumer awareness and encourages consumer behavioural change (long term)	Aligned	Consumers
	<ul style="list-style-type: none"> Product profitability and market access 	Social	While targeting environmentally conscious consumers, the model may not be affordable or accessible to lower-income groups	Trade-off	Consumers
	<ul style="list-style-type: none"> Product profitability and market access 		Encouraging consumers to adopt waste-reducing behaviours takes time and effort, requiring sustained investment in awareness campaigns	Trade-off	Manufacturers, Retailers
	<ul style="list-style-type: none"> Sustainable food system 		Local economic growth is supported through collaboration with farmers and fosters a sense of community around food sustainability	Aligned	All supply chain
	<ul style="list-style-type: none"> Consumer protection and awareness 		Processing raw materials into convenient products can sometimes result in nutritional loss and consumer misunderstanding	Trade-off	Consumers

Alternative Marketing Model	Marketing standards' objectives	Trade-offs		Impact	Stakeholder Impacted
Redistribution for the processing Processing cosmetically imperfect items into value-added products such as juices, jams, and snacks. This model increases the marketability and shelf life of suboptimal produce, offering a sustainable and profitable solution to food waste	<ul style="list-style-type: none"> Sustainable food system 	Social	Due to environmental factors, businesses are under pressure to adapt and change	Trade-off	Processors, Retailers
	<ul style="list-style-type: none"> Product quality 		Public health improvement through nutritious dietary choices	Aligned	Consumers
	<ul style="list-style-type: none"> Sustainable food system 	Environmental	Increased energy consumption for food storage, processing, and packaging, along with higher water usage	Trade-off	All supply chain
	<ul style="list-style-type: none"> Sustainable food system 		Food waste reduction through processing imperfect foods	Aligned	All supply chain
	<ul style="list-style-type: none"> Sustainable food system 		Promotion of sustainable farming practices	Aligned	Farmers, manufacturers
	<ul style="list-style-type: none"> Sustainable food system 		Moving produce from farms to processing centres and then to retailers or consumers increases transportation-related emissions	Trade-off	All supply chain
	<ul style="list-style-type: none"> Sustainable food system 		Resource conservation and lower greenhouse gas emissions	Aligned	All supply chain

3.4 Fruits and Vegetables – Spain

The alternative marketing model assessed for Spain includes the redistribution for processing. According to Task 2.2 the model definition is: “Value-Added Product Transformation Model. Processing cosmetically imperfect items into value-added products such as juices, jams, and snacks. This model increases the marketability and shelf life of suboptimal produce, offering a sustainable and profitable solution to food waste. It involves close collaboration with farmers and processors to convert rejected produce into consumer-accepted products”. It is aligned with the project Grant Agreement:

“This use case MIP will focus on the Short Food Supply Chain (SFSC) model of online retail of fresh fruit & vegetables that are directly sourced from the producers, enhancing and highlighting e-retail partnership with local producers. Facing around 10% of food waste due to marketing standards at the retail stage, a number of strategic actions will be validated and optimised aiming to reduce food waste to 2%. Edible products that are being rejected by marketing standards are categorised into three different types: a) non-visually appealing fruit & vegetables, b) those with bumps on their peels, or c) products close to the “best before” date. The solutions to be validated and optimised include: a) imperfect fruits that are blended with chocolate to launch a new product (i.e. chocolate with strawberries or framboise), b) vegetables such as tomato that are not ready to be marketed and are turned into soup, c) oranges that are smaller or dirty as a source of orange juice, d) packs with imperfect vegetables (pumpkins, zucchini, etc.) to produce soups and cream. These alternative products will be promoted and sold via e-commerce website and mobile application.”

3.4.1 Redistribution for processing - Value-added product transformation

The results for the Spanish alternative marketing model reveal seven impacts within the economic pillar, of which four align with marketing standards objectives and three are trade-offs. In the social pillar, six impacts were identified, with an equal distribution of three aligning with marketing standards aims and three as trade-offs. The environmental pillar also shows an equal number of aligned impacts and trade-offs. Overall, this model presents a relatively balanced number of positive and negative impacts, with ten positive impacts (aligned with marketing standards objectives) and nine negative (trade-offs) (Table 13).

Regarding the marketing standards objectives, product profitability and market access, sustainable food system, market efficiency and supply consistency, and product quality were identified across all pillars—economic, social, and environmental. The sustainable food system is the most prominent objective in this model, with five positive impacts and four trade-offs. Product profitability has eight impacts, with a balance of positive and negative effects. Market efficiency and supply chain consistency also have an equal number of impacts, three positives and three negatives. Consumer protection is represented by three positive impacts aligned with marketing standards and two trade-offs. Product quality shows one trade-off and one positive impact. Overall, the model highlights a balanced mix of benefits and compromises, indicating that achieving these marketing goals requires careful management of both positive impacts and trade-offs.

The participants highlighted the challenges of this model in relation to the three pillars. For the economic pillar, they emphasised that, although raw materials are low-cost, the expenses related to machinery, packaging, and staff training represent significant barriers and are among the biggest challenges for small farmers. Cooperative models, public subsidies, and shared-use facilities were identified as feasible solutions to address these issues, according to them.

Participants also noted that while sustainability opens doors to new market niches, pricing remains a sensitive concern. Ideas such as offering tiered pricing, community discounts, or linking products to social programmes

and school feeding initiatives emerged. For them, it is crucial to promote consumer education and employ various strategies, such as engaging campaigns with influencers or chefs, to normalise the acceptance of suboptimal products. However, they believe that while awareness can shift societal norms, miscommunication or a lack of transparency may harm consumer trust and slow adoption. To mitigate this, transparency and clear labelling are essential.

The social potential of the model was also discussed. The participants stressed the need for public policies and infrastructure to ensure inclusive access. Proposals included mobile processing units and shared platforms.

Regarding the environmental pillar, participants recognised food waste reduction and increased energy use in processing as key trade-offs. Suggestions to mitigate the impact included the use of renewable energy sources and more energy-efficient equipment. Additionally, in their view, extending shelf life through packaging was seen as important, with an emphasis on biodegradable or compostable options. While food spoilage may be reduced, the environmental cost of packaging materials—especially non-recyclable ones—can be high. Participants proposed local processing hubs and better route planning to reduce emissions, along with collaboration with local food cooperatives to shorten transport distances.

Table 13: Redistribution for processing – Value-Added Product Transformation

Alternative Marketing Model	Marketing standards' objectives	Impact		Stakeholder Impacted		
Redistribution for processing Processing cosmetically imperfect items into value-added products such as juices, jams, and snacks. This model increases the marketability and shelf life of suboptimal produce, offering a sustainable and profitable solution to food waste. It involves close collaboration with farmers and processors to convert rejected produce into consumer-accepted products	<ul style="list-style-type: none"> Product Profitability and market access Sustainable food system 	Economic	Reduced raw material costs: The model benefits from cheaper raw materials (imperfect produce)	Aligned	Small and medium producers, food processors, logistics coordinators	
	<ul style="list-style-type: none"> Product Profitability and market access Market efficiency and supply consistency 		Higher processing costs: It requires more intensive processing, hygiene standards, and quality control to convert these into value-added products	Trade-off	Small and medium producers, food processors, logistics coordinators	
	<ul style="list-style-type: none"> Product Profitability and market access 		Smaller profit margins: Sustainable products often sell at lower margins to remain competitive	Trade-off	Marketing teams, brand managers, financial planners, retail partners	
	<ul style="list-style-type: none"> Product Profitability and market access 		Profit per unit may decrease, but potential for long-term brand value, customer loyalty, and market expansion increases	Aligned	Marketing teams, brand managers, financial planners, retail partners	
	<ul style="list-style-type: none"> Product profitability and market access Consumer protection and awareness 		Market differentiation: they help carve a unique space in the market by appealing to eco-conscious consumers	Aligned	Marketing teams, brand managers, financial planners, retail partners	
	<ul style="list-style-type: none"> Product Profitability and market access Market efficiency and supply consistency 		Investment in Equipment and Training: Upfront capital investment is required for specialized processing equipment and staff training	Trade-off	Producers, cooperatives, technology providers, training institutions.	
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		Long-Term Operational Efficiency: Upfront capital investment is required for specialized processing equipment and staff training. This cost could be a hurdle but leads to gains in efficiency and scalability over time	Aligned	Producers, cooperatives, technology providers, training institutions.	
	<ul style="list-style-type: none"> Sustainable food system 		Social	Empowering local communities: The model fosters local job creation and empowers farmers by valorising their produce	Aligned	Smallholder farmers, rural communities, cooperatives
	<ul style="list-style-type: none"> Market efficiency and supply consistency Product profitability and market access 			Risk of inequitable access: Access to processing facilities and markets may be unevenly distributed, favouring larger or more connected producers	Trade-off	Smallholder farmers, rural communities, cooperatives

Alternative Marketing Model	Marketing standards' objectives	Impact		Stakeholder Impacted	
Redistribution for processing Processing cosmetically imperfect items into value-added products such as juices, jams, and snacks. This model increases the marketability and shelf life of suboptimal produce, offering a sustainable and profitable solution to food waste. It involves close collaboration with farmers and processors to convert rejected produce into consumer-accepted products	<ul style="list-style-type: none"> Consumer protection and awareness Sustainable food system 	Social	Consumer Awareness building: Educating consumers on the value of upcycled products can foster responsible consumption	Aligned	Consumers, marketing professionals, advocacy organizations
	<ul style="list-style-type: none"> Consumer protection and awareness 		Risk of misunderstanding suboptimal products: There's a risk that some consumers might misunderstand upcycled products as "lower quality" or "unsafe"	Trade-off	Consumers, marketing professionals, advocacy organizations
	<ul style="list-style-type: none"> Product quality Consumer protection and awareness 		Healthier Food options: These products often use fewer additives and preserve more nutrients, offering a healthier option	Aligned	Low-income consumers, public health institutions, social inclusion advocates.
	<ul style="list-style-type: none"> Consumer protection and awareness Sustainable food system 		Potential price accessibility issues: The added processing costs may lead to prices that are not affordable for low-income groups	Trade-off	Low-income consumers, public health institutions, social inclusion advocates.
	<ul style="list-style-type: none"> Sustainable food system Market efficiency and supply consistency 	Environmental	Food waste reduction: The model diverts imperfect produce from landfill, significantly reducing food waste	Aligned	Food processors, energy providers, environmental regulators
	<ul style="list-style-type: none"> Sustainable food system 		Increased energy use in processing: The transformation process (e.g., cooking, drying, refrigeration) can lead to higher energy consumption compared to selling raw products	Trade-off	Food processors, energy providers, environmental regulators
	<ul style="list-style-type: none"> Market efficiency and supply consistency Product quality 		Shelf-Life extension via packaging: Extended shelf-life through improved packaging helps reduce spoilage and product returns	Aligned	Packaging manufacturers, retailers, waste management systems, environmental NGOs
	<ul style="list-style-type: none"> Sustainable food system Product quality 		Packaging waste: The use of plastics or composite materials can increase packaging waste and environmental burden	Trade-off	Packaging manufacturers, retailers, waste management systems, environmental NGOs
	<ul style="list-style-type: none"> Sustainable food system 		Support for sustainable agriculture: By creating demand for suboptimal produce, the model incentivizes sustainable farming practices	Aligned	Farmers, logistics providers, rural infrastructure planners
	<ul style="list-style-type: none"> Sustainable food system 		Transportation emissions: Transporting produce to centralized processing facilities can increase emissions, especially in rural areas with poor logistics	Trade-off	Farmers, logistics providers, rural infrastructure planners

3.5 Fruits and Vegetables – Greece

The alternative marketing models assessed for Greece regarding fruits and vegetables include one measure primarily classified as preventative and another as redistribution for processing. The Grant Agreement establishes:

“This use case MIP will focus on two types of food commodities that do not meet marketing standards, mainly arising from consumer expectations and their behaviour at the retail stage: a) fruit & vegetables with minor defects that are not sold by the retailer, and b) meat that is approaching the “use by” date with a very high probability of not being sold by the retailer, as consumers prefer a fresher product that is usually available on the shelf. An alternative marketing channel and model will be co-defined, pilot-tested and optimised, focusing on the social innovation approach, where suboptimal foods that belong to the above categories, but are safe to eat, are delivered to social kitchens to be immediately cooked and consumed by people who cannot afford to buy the food. In addition, specific parameters of an existing mobile application will be modified and fine-tuned to monitor the actions of consumers who are advised on how to store and use the food already bought, to prevent it from reaching a suboptimal or even an “unsafe to eat” stage and then being wasted by the consumer”.

3.5.1 Preventive – Pricing-discount model

The pricing-discount model for reducing food waste will offer discounts on cosmetically imperfect foods to attract price-sensitive customers or on foods nearing their expiration date that would otherwise be discarded.

As shown in Table 14, a total of eleven trade-offs and impacts were validated: seven aligned and three trade-offs. For the economic pillar, six trade-offs and impacts were identified, with three being trade-offs and three being positive impacts, in line with marketing standards objectives. For the social pillar, the participants validated one trade-off and two positive impacts. In the environmental pillar, two positive impacts were recognized.

The analysis of the proposed strategy for reducing food waste reveals various impacts across key marketing standards objectives. In the product profitability and market access category, six trade-offs and impacts were identified, with three being aligned with the objectives and three classified as trade-offs, reflecting negative effects. For market efficiency and supply consistency, five trade-offs and impacts were validated, four of which are aligned with the objectives, and one is a trade-off. The sustainable food system category showed a strong alignment, with all seven impacts being fully aligned with the objectives of marketing standards. In the consumer protection and awareness category, four impacts were assessed, with two aligned with the objectives and two as trade-offs, indicating some negative effects. This classification highlights the complexities of the strategy, balancing positive outcomes with trade-offs, particularly in relation to the broader goals of reducing food waste and improving sustainability.

The participants discussed the potential loss in profits from selling more nearly expired food at a discount. They were concerned that this might encourage customers to wait for discounts and harm the store’s image by making products seem less fresh. They also noted that suboptimal food sold at a discount could be seen as lower in value or quality.

Additionally, considering the environmental pillar, they emphasized that addressing ESG (Environmental, Social, and Governance) criteria can lead to improvements across all dimensions — environmental, economic, and social.

Table 14: Preventive – Pricing-Discount Model

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted
<p style="text-align: center;">Preventive</p> <p style="text-align: center;">Offering discounts on cosmetically imperfect foods to attract price-sensitive customers or on foods nearing their expiration date that would otherwise be discarded</p>	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency Sustainable food system 	Economic	Increased revenue from selling products that otherwise would go to donation or even waste	Aligned	Retailers
	<ul style="list-style-type: none"> Product profitability and market access 		Higher operational costs for marketing campaigns and discount program logistics requiring investment	Trade-off	Retailers
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency Sustainable food system 		More affordable purchasing options for economically vulnerable customers	Aligned	Consumers
	<ul style="list-style-type: none"> Sustainable food system Product profitability and market access Consumer protection and awareness 		Providing access to environmentally friendly consumption options for environmentally conscious, aware, and sensitive individuals (broadening and engaging special segments of the customer base)	Aligned	Retailers
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		Potential loss in profits from increase in nearly expired food sold at discount due to indirectly educating people to wait for discounts	Trade-off	Retailers
	<ul style="list-style-type: none"> Product quality Consumer protection and awareness Product profitability and market access 		This could damage the grocery store's overall image and create an impression that their products aren't fresh	Trade-off	Retailers

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted
	<ul style="list-style-type: none"> Market efficiency and supply consistency Sustainable food system Consumer protection and awareness 	Social	Access of low-income consumers to nutritious, budget-friendly food (inclusiveness dimension)	Aligned	Consumers
	<ul style="list-style-type: none"> Consumer protection and awareness Sustainable food system 		If sold at a discount, suboptimal food may be perceived as lower in value or quality	Trade-off	Consumers
	<ul style="list-style-type: none"> Product profitability and market access Consumer protection and awareness Sustainable food system 		Educating and raising awareness about the need to consume safe suboptimal food	Aligned	Consumers
	<ul style="list-style-type: none"> Sustainable food system Market efficiency and supply consistency 	Environmental	Potential food waste reduction as suboptimal food is sold rather than discarded	Aligned	Retailers
	<ul style="list-style-type: none"> Sustainable food system 		Improve score in ESG KPIs for sustainability	Aligned	Retailers

3.5.2 Social - Food redistribution

According to Task 2.2, this alternative marketing model redistributes food by establishing partnerships between businesses and NGOs, using digital platforms to connect donors with charities, and through municipal-led programmes. The aim is to redistribute surplus food to those in need, reducing both waste and hunger. Corporate social responsibility initiatives, often encouraged by tax benefits or regulations, also promote food donation. Volunteer-driven food banks and student-led projects support these efforts, creating a comprehensive approach to food recovery and distribution.

The model presented in Table 15 identifies six impacts on the economic pillar, with an equal number of trade-offs and positive impacts. For the social pillar, one positive impact was identified, while for the environmental pillar, there was one trade-off and one positive impact.

Regarding marketing standards objectives, product profitability and market access showed three trade-offs and two positive impacts. Market efficiency and supply consistency had three trade-offs and one positive impact. The sustainable food system was the most frequently mentioned objective and showed the greatest positive impact, with five positive impacts and two trade-offs. Product quality was also mentioned, but only in one trade-off. Therefore, there is a balance between benefits and challenges across different objectives. The sustainable food system stands out as the objective with the most frequent mentions and the strongest positive effects, indicating it is a key focus area.

Similar to the first business model analysed, participants fully agreed on the trade-offs and impacts identified. However, the first trade-off — “Potential reduction in profits” — generated the most debate, dividing participant’s opinion during the co-creation workshop. Some participants saw food donations as a reduction in profits, believing these products could have been sold instead. Others considered the products unsellable and viewed the donation as a form of social intervention, which they did not see as a loss of profit.

Table 15: Social - Food Redistribution

Alternative Marketing Model	Marketing Standards' Objectives	Impact			Stakeholder Impacted	
<p style="text-align: center;">Social</p> <p>Social interventions like partnerships between businesses and NGOs, digital platforms connecting donors with charities, and municipal-led programs redistribute surplus food to those in need, reducing waste and hunger. Corporate social responsibility initiatives, often incentivized by tax benefits or mandates, further drive food donation. Volunteer-driven food banks and student-led initiatives complement these efforts, creating a comprehensive approach to food recovery and distribution</p>	<ul style="list-style-type: none"> Product profitability and market access 	Economic	Potential reduction in profits	Trade-off	Retailers; wholesalers	
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		Additional costs for management and logistics	Trade-off	Retailers; wholesalers	
	<ul style="list-style-type: none"> Product profitability and market access Sustainable food system Product profitability and market access Sustainable food system 		Potential tax benefits mitigating the profit reduction	Aligned	Retailers	
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency Sustainable food system 		Potential increase in revenue from attracting more customers because the brand image is enhanced through a socially responsible strategy	Aligned	Retailers	
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency Sustainable food system 		There is a risk of unnecessary food waste if employees incorrectly classify food items as suboptimal in an attempt to increase the amount available for social distribution. This could lead to disposing of food that is actually still suitable for regular sale	Trade-off	Retailers	
	<ul style="list-style-type: none"> Sustainable food system 	Improve score in ESG KPIs for sustainability	Aligned	Retailers		
	<ul style="list-style-type: none"> Sustainable food system Sustainable food system Market efficiency and supply consistency 	Social	Provide food to vulnerable people	Aligned	NGOs; Individuals facing food insecurity	
	<ul style="list-style-type: none"> Sustainable food system 		Potential food waste reduction	Aligned	Retailers; Wholesalers	
		<ul style="list-style-type: none"> Sustainable food system 	Environmental	Potential higher energy consumption and carbon emissions due to logistics for further transportation and storage	Trade-off	Retailers; wholesalers; NGOs; Society (with regard to the externalities)

3.6 Meat – Greece

The use case in Greece will also apply an alternative marketing model for the food commodity meat. This model will focus on preventive measures.

3.6.1 Preventive – Mobile application

The aim of this alternative marketing model is to use mobile applications to help consumers track their food inventory, monitor expiration dates, and suggest recipes for using suboptimal foods.

Table 16 presents the information for this model. The economic pillar was the most impacted, with seven impacts identified—four trade-offs and three aligned with marketing standards objectives. Both the social and environmental pillars had two aligned impacts each. In total, eleven impacts were validated.

Two impacts identified earlier caused discussion and differing opinions and were not confirmed by the workshop participants: “Consumers may develop a habit of relying on the app to notify them of expiry dates, potentially delaying action until the last moment. Also, the app’s cost for retailers may be unjustified or unnecessary.”; and “Environmental impact of the app’s operation.”

The marketing standard objective most frequently identified was the sustainable food system, with five positive impacts and one trade-off. Consumer protection and awareness also featured prominently, with four positive impacts and two trade-offs. Product profitability requires attention, as three trade-offs and one aligned impact were identified. Product quality and market efficiency and supply chain consistency each had one aligned impact.

Table 16: Preventive – Mobile Application

Alternative Marketing Model	Marketing Standards' Objectives	Trade-offs	Impact	Stakeholder Impacted			
<p>Preventive</p> <p>Mobile applications helping consumers track food inventory, monitor expiration dates, and suggest recipes for using suboptimal foods</p>	<ul style="list-style-type: none"> Consumer protection and awareness Sustainable food system 	Economic	Consumers spend less by being more conscious to not buy excess food and prevent food spoilage	Aligned	Consumers		
	<ul style="list-style-type: none"> Product profitability and market access 		Increased costs for app development and maintenance	Trade-off	Retailers		
	<ul style="list-style-type: none"> Product profitability and market access 		Increased costs for content (recipes, etc.)	Trade-off	Retailers		
	<ul style="list-style-type: none"> Sustainable food system Consumer protection and awareness 		Consumers spend less by being more conscious to not buy excess food and prevent food spoilage, which could potentially reduce sales	Trade-off	Retailers		
	<ul style="list-style-type: none"> Product profitability and market access 		Consumers save money by avoiding excess food purchases and spoilage, helping reduce the environmental impact of food production	Aligned	Society		
	<ul style="list-style-type: none"> Product profitability and market access Market efficiency and supply consistency 		Cultivating consumer loyalty	Aligned	Retailers		
	<ul style="list-style-type: none"> Sustainable food system Consumer protection and awareness 		Social	Increased environmental awareness	Aligned	Consumers	
	<ul style="list-style-type: none"> Consumer protection and awareness Product quality 			Improving consumers trust	Aligned	Retailers	
	<ul style="list-style-type: none"> Sustainable food system Market efficiency and supply consistency 			Environmental	Potential food waste reduction	Aligned	Consumers
	<ul style="list-style-type: none"> Sustainable food system 				Improve score in ESG KPIs for sustainability	Aligned	Retailers

4. Conclusion

In total, twelve alternative marketing models were analysed across four different food commodity groups—cereals, dairy, fruit and vegetables, and meat—within the ROSETTA project. These models represent a diverse set of approaches, encompassing preventative actions, redistribution for processing, and socially oriented practices. Each model was assessed in the context of the five MIP use case partners, ensuring relevance to local supply chain dynamics and food waste challenges.

Task 2.3 provided a detailed evaluation of how the impacts of these models align with or diverge from the objectives existing marketing standards, with particular attention paid to potential trade-offs. By assessing economic, environmental, and social impacts, the analysis offered a comprehensive understanding of the broader implications of implementing alternative marketing models.

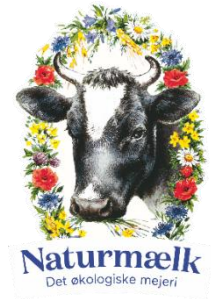
The findings confirm that while trade-offs exist in relation to each marketing standard objective across economic, social and/or environmental impacts, many of the proposed models can deliver clear benefits—particularly in terms of waste reduction, product profitability, and consumer awareness—contributing to a more sustainable food system. Furthermore, the methodology employed, which included literature review, co-creation workshops, and comparative analysis, proved effective in identifying and validating these impacts.

ROSETTA

Reducing food waste due to marketing standards through alternative market access

GA 101136427

Partners



Visit: www.rosetta-project.eu
Contact us: info@rosetta-project.eu
Follow us: ROSETTA Project EU

