



## Towards a new zero food waste mindset based on holistic assessment

### [D.5.1] Master Strategic Plan for All Pilots

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## 1. Introduction and scope

ToNoWaste is a project funded by the European Union under the programme Horizon Europe in the topic HORIZON-CL6-2021-FARM2FORK-01-13.

The project starts 01/09/2022 with a project duration of 48 months.

The mission of ToNoWaste is to encourage actors in European food systems, using evidence-based tools and lessons learned, to make better decisions towards more sustainable food production and consumption patterns.

ToNoWaste main objective is to provide farmers, supply chain companies as well as consumers and policymakers with more objective, integrated, and standardized information about the impacts and global co-benefits of their daily actions in terms of food waste. ToNoWaste will inspire them to co-create a portfolio of positively assessed pathways to shift Europe towards a healthier, more resilient, inclusive, and sustainable food production and consumption.

### 1.1 Specific objectives of the project

**(O1)** To Design an open innovation ecosystem that engages European researchers, municipalities, farmers, supply chains and citizens to share open access scientific knowledge about FWPR (Food Waste Prevention and Reduction) and its assessment. (WP1)

ToNoWaste seeks to create synergies with other ongoing actions related to FWPR at EU level staying connected with four H2020 sister projects to reuse data and collaborate in the actions assessment for avoiding duplication.

**(O2)** To unveil what better decision means in the fresh food value chain (FFVC), supporting the FWPR actions with the best impacts for the food system sustainability. (WP1)

ToNoWaste has selected FFVC because Milan urban food policy pact prioritized to make fresh food accessible for all due to its potential to solve dietary-related illnesses (e.g., diabetes, heart disease and cancer). Therefore, O2 will investigate how to make FWPR compatible with FFVC sustainable development with a cost-benefit approach (RO1).

**(O3)** To co-create a new science-based framework (SBF) for evidence-based decision making in food systems. (WP2)

O3 will look for synergies with H2020 sister projects, city councils and JRC to define logical steps for environmental/social/economic holistic impact FWPR assessment (RO2).

**(O4)** To transform the SBF into Quantitative Decision-Making Methods (QDMM) that supports researchers and professionals in decisions related to FWPR in the FFVC. (WP2)

O4 requires the SBF decomposition into specific workflows for the fresh products under study, considering its origin and business processes involved to establish the limits of acceptance/significance for each decision maker (RO3).

**(O5)** To engage more and more FSC actors in the mindset and behavioural shift offering open access to: i) consumer perception of the FWPR problem in fresh food value chain (FFVC) and potential solutions; ii) learning contents, technical guidelines to implement the best practices available - including date marking and smart food packaging, as well as iii) apps that automate the participation and monitoring process for facilitating decision making for supply chain actors (WP4 and WP5).

The behavioural change will be prompt by results of social research (RO4) focused on understanding the consumers' and producers' perception of the problem and the solutions proposed by decision-makers. ToNoWaste will facilitate the co-creation of FWPR guidelines to identify hotspots of problems, plan actions, assess corrective solutions and document improvements. During multi-actor workshops and other networking events, we will validate the tools (PR, DEM) by discussing the practical learnings (KH1) and quantitative data from actions assessment (KH2).

**(O6)** To take advantage of synergies among R&I projects and local/national FWPR actions to co-create specific accounting tools and an integrated platform for assessing the root causes behind FW along the value chain as well as fostering the most beneficial FWPR actions. (WP2 and WP3)

O6 will require the creation of accounting tools for professionals and its integration into an open platform for non-expert users (DEM) to facilitate the decision-making process to all the actors involved in the value chain. DEM will maximize the impact at EU level using open-source technologies as FIWARE.



The previous/current FWPR actions in sister H2020 projects will be compared to detect the best practices that maximise the overall positive impacts.

**(O7)** To foster the organisational change with new coaching services and best practices in FSC. (WP6) O7 is based on the creation of learning contents, training actions and a business coaching service oriented to support entrepreneurs. ToNoWaste will take advantage from current innovation HUBs related to urban FFVC where food companies (mainly SMEs) can co-create more sustainable business models.

**(O8)** To co-create new EU policies considering the diversity on regulatory ecology about FWPR. (WP6) O8 will consider the new accounting and reporting methodology developed for ensuring a deeper integration of sustainability into the corporate governance and regulation of public supporting schemes for innovative businesses (KH4). The project will investigate how to transform the best FWPR actions in terms of KPIs into new standards and labels for fostering the organisational change. The project will use the Covenant of Majors and Milan Urban Food POLICY Pact for the open discussion of the white paper where other agencies like DG AGRI and JRC will be invited.

### 1.2 Scope of the deliverable

The first objective of this Strategic Plan is to give Partners, especially those connected to the city pilots, and follower cities basic instructions about how to prepare themselves for implementing and monitoring the actions. As a second objective, the Strategic Plan will help in the definition of data collection procedures. This will support action owners in all the processes that must be fulfilled to be included in the **ToNoWaste actions database and portfolio of Solutions**. Thirdly the Strategic Plan will support the whole **ToNoWaste Sustainability Assessment Framework** validation process.

According to the Glossary defined inside the ToNoWaste Project (see [https://tonowaste.eu/wp-content/uploads/2023/01/V2.0\\_TONOWASTE-Glossary.pdf](https://tonowaste.eu/wp-content/uploads/2023/01/V2.0_TONOWASTE-Glossary.pdf)) an ACTION/INTERVENTION is defined as: Any activity designed to reduce the amounts of food waste generated at any point of the food supply chain.

The executive organisation of this strategic plan (see Figure 1) is based on a Plan-Do-Check-Act (PDCA) scheme. It is complemented by a process of continuous improvement based on the critical analysis of the plan itself and the implementation of the appropriate corrective measures. It also includes a comprehensive process of monitoring the correct execution of the plan by adapting an internal audit process.

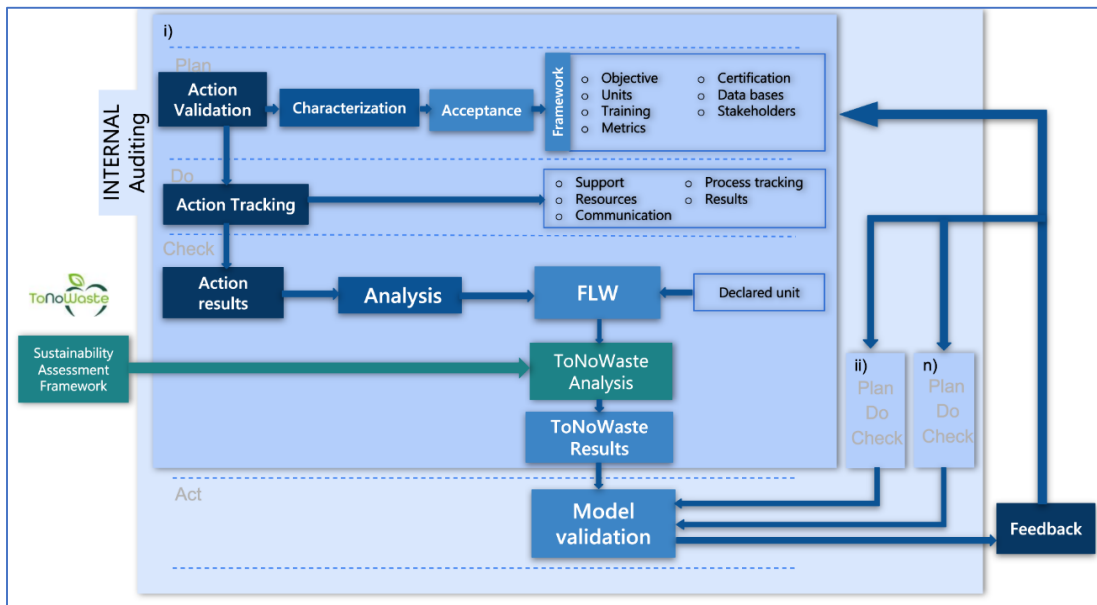


Figure 1. ToNoWaste Sustainability Assessment Model information flow

This Strategic Plan supports the specific procedures developed by WP2, WP3, WP4 and WP6. The operative level will be expanded in the Pilots' Annual Action Plans developed by both pilot cities . Figure 2 shows the connections of the ToNoWaste Sustainability Assessment Model with the Social Change Analysis developed by WP4.

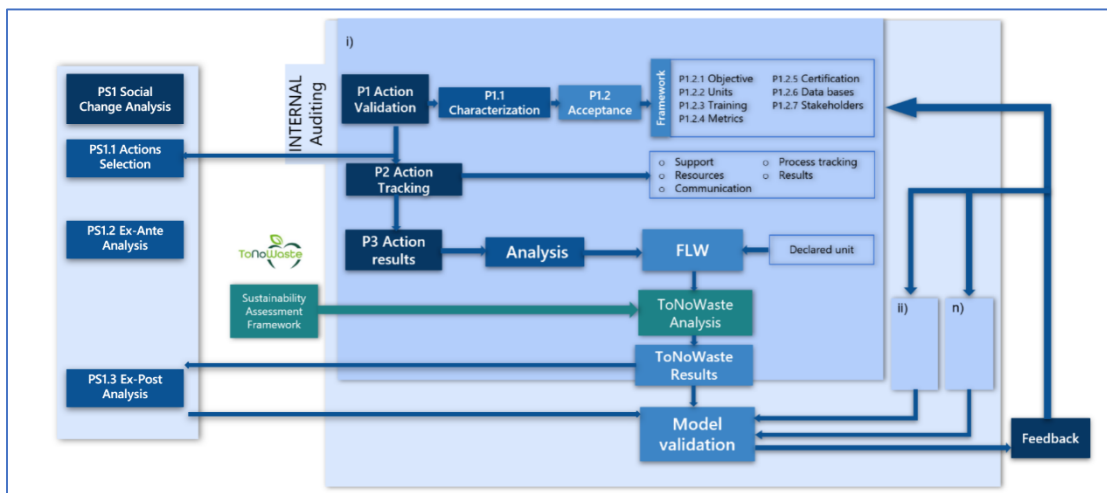


Figure 2. ToNoWaste Sustainability Assessment Model and its connections to Social Change Analysis

## 2. Structure of ToNoWaste Pilots Assessment Strategic Plan

The purpose of the Strategic Plan is to support the structured presentation of a sequentially ordered set of stages, phases and procedures, which form a system oriented towards the execution of an evaluation process. This evaluation process aims to obtain results related to the sustainability of actions aimed at the reduction and/or prevention of food losses and waste.

The ToNoWaste Strategic Plan for the implementation of a portfolio of actions in both pilots' environments, in Austria (Vienna and Graz cities) and in Spain (Valencia city) and in the follower cities (Halandri and Hälsingland) is structured through **three sequentially ordered stages** to be applied to the different ACTIONS proposed by the pilot actors:

- |  |
|--|
| <ol style="list-style-type: none"> <li>1. Analysis of each action</li> <li>2. Evaluation of each action</li> <li>3. Interpretation of the results</li> </ol> |
|--|

### 2.1 Stage 1: Analysis and tracking of the actions

The analysis of the different actions under evaluation is the initial stage of the strategic plan and the start of the process designed for validating the **ToNoWaste Sustainability Assessment Framework**.

It is structured in three phases:

- i. Action validation

- ii. Action tracking
- iii. Collection of results of the action

Under the PDCA scheme, the planning process (PLAN) begins with the first procedures of this first phase: **Validation of the actions** to be part of the **ToNoWaste portfolio of actions**.

### 2.1.1 PHASE I: VALIDATION OF THE ACTION

The action to be evaluated must meet a series of minimum conditions to be integrated into the model. These conditions and their degree of compliance are collected in the validation procedure (P1), which includes the characterization procedure (P1.1) and the acceptance procedure (P1.2).

The information provided in these procedures allows to measure the degree of compliance with the different conditions and characteristics that are being established in task 1.5 (Deliverable 1.3) to consider a **validated action** to be accepted as an **evaluable action**. This means to move from being part of the **ToNoWaste Database** to the **ToNoWaste Portfolio of Solutions**.

### 2.1.2 PHASE II: ACTION TRACKING

Under the PDCA scheme, the DO process begins with the follow-up of the actions. In this sense, the already **validated action** starts its own **execution process**. During this process, the strategic plan accompanies the action through follow-up and support procedures.

### 2.1.3 PHASE III: COLLECTION OF RESULTS OF THE ACTION.

At the end of the estimated period of implementation of the action and with the results of the action already available, the CHECK process starts, and the strategic plan procedures obtain the part of the results necessary for the **evaluation of the action** from a sustainability point of view.

## 2.2 Stage 2: Evaluation

Evaluation is the stage of the strategic plan that brings together the results of the action with the environmental, social and economic impacts associated with the action itself in order to assess them through modelling in the form of a life cycle analysis, according to the **ToNoWaste Analysis Methodology** that makes use of the **Sustainable Assessment Framework**.

The results thus obtained will classify the action according to its degree of sustainability. And allow to ACT accordingly and **validate the ToNoWaste Sustainability Assessment Model**.

## 2.3 Stage 3: Interpretation of the results

The set of actions evaluated, and the associated results obtained will serve for the **self-evaluation of the strategic plan** itself and therefore its validation according to the degree of compliance with its objectives.

The strategic plan is not a mere formal document, it includes the key procedures for the selection of the FLWPR solutions, their tracking and their assessment following the ToNoWaste Sustainability Assessment Framework in each city pilot and in the follower cities. It also describes the support procedures for the success of such tracking and assessment. Consequently, the self-evaluation of the strategic plan itself goes beyond the evaluation of a coordination procedure within the project; it implies



the evaluation of the whole assessment ecosystem, including the assessment framework, the defined procedures, the actors involved and the implemented processes (key and support processes).


Through a process of continuous improvement, the corrective elements will be implemented, guaranteeing that at the conclusion of the project the final product obtained meets the objectives set.

### 3. Procedures

Figure 1 and 2 offer a complete view of the framework where the different procedures (belonging to the three stages) are established and information flows that conform the plan designed to guarantee the validation of the assessment methodology and tools in real environments. These procedures can also be used as a roadmap for the development of the actions and they will be the bases for the two annual action plans that each pilot will define.





	<p align="center"><b>Stage 1_P1. Action Validation</b></p> <p align="center"><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p align="right">Date: January 2024</p>
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### Stage 1\_P1 Action Validation

The procedure P1 “Action Validation” is made up in two procedures: P1.1 “Action Characterization” and P1.2 “Action Acceptance”.

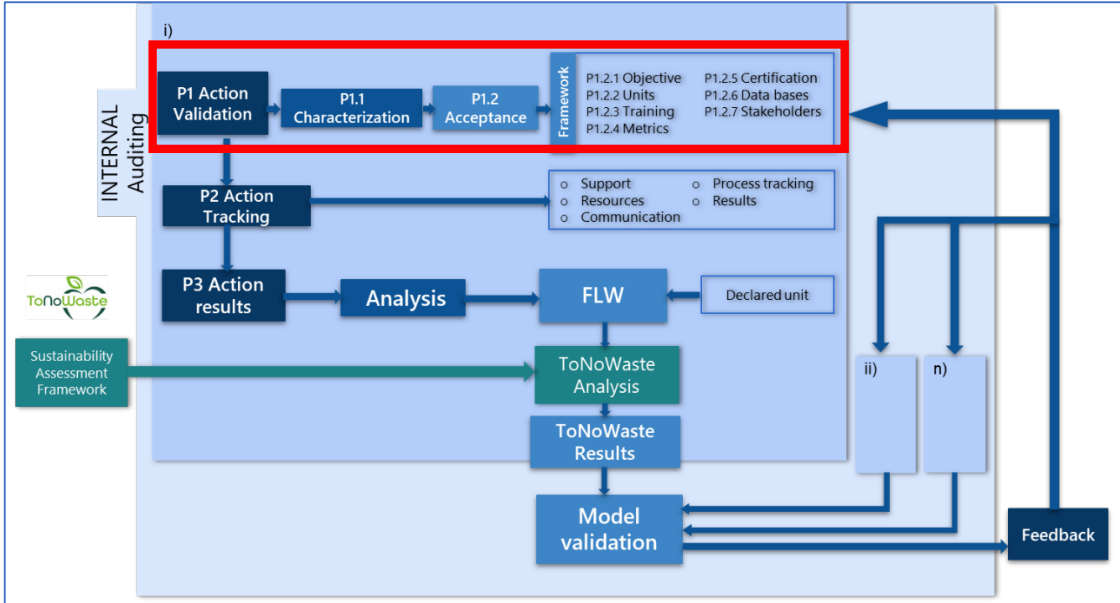



Figure 3. P1 Action Validation inside ToNoWaste Sustainability Assessment Model

	<p><b>Stage 1_P1.1 Action Characterization</b></p> <p><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p>Date: January 2024</p>
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## Stage 1\_P1.1 Action Characterization

Procedure P1 Action Characterization belongs to the stage “PLAN” within the Strategic Plan defined in the task 5.1 (WP5) and D5.1 (Master Strategic Plan for All Pilots) for validating the ToNoWaste Science-Based Sustainability Assessment Framework in each city pilot.

According to the Glossary defined inside the ToNoWaste Project (see [https://tonowaste.eu/wp-content/uploads/2023/01/V2.0\\_TONOWASTE-Glossary.pdf](https://tonowaste.eu/wp-content/uploads/2023/01/V2.0_TONOWASTE-Glossary.pdf)) an **ACTION/INTERVENTION** is defined as: *Any activity designed to reduce the amounts of food waste generated at any point of the food supply chain.*

### Objective

The objective of this procedure is to give partners, especially those connected to the city pilots, basic instructions about how to describe and classify their food losses and waste prevention and reduction (FLWPR) actions, to be included in the *ToNoWaste actions database and portfolio of Solutions*.

### Responsibilities classification

Corresponds to **WP1** to create the database of FLWPR actions. Each action is described following the parameters defined by the partners associated to task 1.3.


### Development

#### Actions’ minimum information requirements to be considered by WP1 task 1.3 in the FWPR database design:

The selection of portfolio of solutions will be carried out within WP1, task 1.5 (Deliverable 1.3). To do that, it is necessary to have the most complete and sharp vision of the actions proposed as FWPR Solutions. Several aspects have been defined to have the best picture of ToNoWaste Actions and are collected in the ToNoWaste Action Characterization Template:


- **Description of the action:** This epigraph should contain enough information about the name of the action and the main activity developed.
- **Level of development of the action** (idea, recently implemented, consolidated action): to know the current level of development of the action it is necessary to have enough information to assess the current action maturity. This information will help in the process of supporting the action’s activities and in the schedule in the assessment.
- **Supply chain stage associated:** Although it is possible that one action affects more than one food supply chain stage, it will be useful for the assessment to know the most affected stage to focus the process.
- **Objectives of the action**, whether they are operationalized under **SMART approach** (specific, measurable, achievable, realistic, time-bound): SMART is an acronym that can be used to guide action goal setting.
  - **Specific** means that the objective of the action should be clear enough to focus the efforts to achieve it. It is important to know who is involved, where is it located or which resources are involved or the boundaries of the action.



	<p style="text-align: center;"><b>Stage 1_P1.1 Action Characterization</b></p> <p style="text-align: center;"><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p style="text-align: right;"><b>Date: January 2024</b></p>
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- **Measurable** means to think about how to address questions such as: how much information and data the action will provide.
  - **Achievable** means that the objectives and activities of the action are reachable during its life.
  - **Realistic and attainable.** ensuring that your goal matters to you, and that it also aligns with other relevant goals.
  - **Time-bound** implies that the action needs a target date to give results, in this case inside the ToNoWaste project life.
- **Link with FLWPR:** it is key to question the existing connections with the food losses and waste prevention or reduction of the proposed action, as is the main objective for ToNoWaste to be sure the Project is assessing the right actions from the very beginning.
  - **Classification** (JRC FLWPR action categories). See definitions in the next section 4.1.4: The Project has as an objective to propose a science-based framework for assessing sustainability of FLWPR actions. In this sense the Joint Research Center is one of the main actors in this research field in Europe. This is why the categorization of actions proposed by JRC allows ToNoWaste to be aligned with the current research developments.
  - **Definition of units for assessing the success of the action:** During the action definition, it is necessary to have a clear picture of the way the achievements of the action will be measured. This item asks about which unit/s will be establish by the action as a measure of this success.
  - **Description of existing training programmes and/or skills:** This aspect tries to capture if the action has already defined and established support mechanisms from a training perspective to ensure that its stakeholders face the action with as much knowledge as possible.
  - **Description of existing metrics:** This aspect refers to the management inside the action of knowledge about outcomes, impacts and other specific information related to prevention and reduction of FLW, social, economic, environmental, etc. results.
  - **Description of monitoring systems implemented for managing the action:** In this aspect, the relevant information is about the use of management tools for tracking progress of on-going actions to support action execution.
  - **Description of existing certification schemes linked to the action:** Although it is not a common procedure for small, it is possible that some of the proposed actions will be using an existing certification scheme like ISO family certification schemes, BRC, EMAS, SA8000, among others. If this happens, it will be useful to have some knowledge about how to avoid duplicities in the information requests.
  - **Stakeholders:** it is a key aspect from the sustainability assessment perspective to have a full and sharp vision about the beneficiaries of the action and other actors engaged.



	<p><b>Stage 1_P1.1 Action Characterization</b></p> <p><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p><b>Date: January 2024</b></p>
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## FLWPR actions classifications: Definitions

This definitions form includes the list of categories for the classification of FLWPR actions considered by ToNoWaste project. It follows the definitions given by the Joint Research Centre (2019)<sup>1</sup>.

Classification of food losses and waste prevention and reduction actions used for ToNoWaste project actions.

According to the JRC (2019), FLWPR actions can be classified within these five categories:

Type	Sub-type
<b>Redistribution</b>	Surplus food redistribution
	Gleaning
	Digital tools for redistribution
<b>Food valorisation</b>	Value added processing
	Animal feed
<b>Consumers behaviour change</b>	Awareness/educational campaign
	Digital tool for behaviour change
	School programs
	Awards
<b>Supply chain efficiency</b>	Process innovation
	Innovation of products - packaging
	Innovation of products - date marking
	Training & guidelines
	Price discount
	Imperfect product sale
	Certification
	Public procurement
	Digital tools for supply chain efficiency
<b>Food waste prevention governance</b>	Voluntary agreement
	Regulatory framework/policy
	National food waste prevention program
	Fiscal incentives

\*the sub-types of actions are just examples and are not considered a comprehensive list of possible prevention actions

Moreover, considering the categories of actions used during the Delphi process carried out in WP1, it is possible to establish the following correspondences:

<sup>1</sup> <https://publications.jrc.ec.europa.eu/repository/handle/JRC118276> Patinha Caldeira, C., De Laurentiis, V. and Sala, S., Assessment of food waste prevention actions, EUR 29901 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-10190-1, doi:10.2760/101025, JRC118276.



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2024**

ends or the classification category assigned)

**JRC**

**Categories worked in the Delphi process (T1.1 and T1.2)**



	<p><b>Stage 1_P1.2 Action Acceptance</b></p> <p><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p><b>Date: January 2024</b></p>
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## Stage 1\_P1.2 Acceptance

Procedure P1.2 Acceptance, focuses on the basic requirements that each FLWPR action should fulfill, to be considered for their inclusion in the portfolio of ToNoWaste actions. Only actions included in this portfolio (Deliverable 1.3 of WP1) will be used for testing ToNoWaste Science Based Assessment Sustainability Assessment Framework in each city pilot.

### Objectives

The main objective of this procedure is to give the partners, specially these connected to the city pilots, basic instructions about how to analyse each food losses and waste prevention and reduction (FLWPR) action, to be included in the ToNoWaste portfolio of actions.

### Responsibilities

Corresponds to **WP1 coordinator** jointly with **ToNoWaste coordinator** to assure the right deployment of this procedure. The final approval of the portfolio of selected actions took place inside task 1.5, WP1, in a participatory and open process.

### Development

These basic instructions have been structured under a **framework with the following components**:

- List of the validation criteria
- Definition of essential criteria vs desirable criteria
- Classification of each criterion as essential or desirable
- Process of analysis of each FLWPR action

#### List of validation criteria


It coincides with the information requirements identified in P1.1 plus one additional criterion to be fulfilled by the analysts:

- Objective
- Units
- Training
- Metrics
- Certification
- Data bases
- Stakeholders

#### Definition of essential criteria vs desirable criteria

Both typologies of criteria are positively considered. Nevertheless, there are some of them that determine the inclusion or exclusion of an action from the portfolio to be assessed within the ToNoWaste project.



	<b>Stage 1_P1.2 Action Acceptance</b> <b>ToNoWaste Master Strategic Plan for All Pilots</b>	<b>Date: January 2024</b>
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Essential	Desirable
Basic requirements.	Optional but positively considered
The criteria classified as essential should present the highest score for the action to be included in the portfolio. Its absence determines the portfolio exclusion of the action.	It is positively assessed that the criteria present the highest score for the action, but its absence does not determine the exclusion of the action in the portfolio.


### Classification of each criterion as essential or desirable

Each validation criteria are considered as essential or desirable, considering the classification of the actions (JRC categories, see D1.1.0).

JRC category	Essential	Desirable
<b>Redistribution</b>	Objective, Units	Training, Metrics, Certification, Data bases, Monitoring schemes, Stakeholders
<b>Consumer behavior change</b>	Objective, Units, Stakeholders	Training, Metrics, Certification, Data bases, Monitoring schemes
<b>Supply chain efficiency</b>	Objective, Units, Metrics	Training, Certification, Data bases, Monitoring schemes, Stakeholders
<b>Food waste prevention governance</b>	Objective, Units, Stakeholders	Training, Metrics, Certification, Data bases, Monitoring schemes
<b>Food valorization</b>	Objective, Units	Training, Metrics, Certification, Data bases, Monitoring schemes, Stakeholders

### Process of analysis of each FLWPR action

Description of the decision-making criteria and process for the inclusion of the action in the portfolio to be assessed during the pilot phase:

	<p align="center"><b>Stage 1_P1.2 Action Acceptance</b></p> <p align="center"><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p align="right"><b>Date: January 2024</b></p>
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- To avoid analyst bias, the analysts follow Roman et al. (1999)<sup>2</sup> methodology. Each action is scrutinized by at least two analysts. In case of discrepancies, a third analyst enters into the process for the final decision.

Both the owner of the action (self-evaluation) and the analyst (external) shall fulfill the SURVEY - ACTION DESCRIPTION AND VALIDATION: (<https://forms.office.com/e/8NPzUtVv8v>).

- The analyst gives its opinion based on the results of the validation framework and proposes the inclusion or exclusion of the action in/from the portfolio.

Description of the analyst profile:

An analyst should have a demonstrable background on ToNoWaste objectives and expected outcomes.

Analyst selection process:

Each ToNoWaste Work Package leaders plus the coordinators of pilots and followers should propose two persons to be part of the pool of analyst, providing the following information (the table is an example):


Analyst Name	Email	Background on ToNoWaste objectives and expected outcomes.

Schedule for the process within ToNoWaste Project:

- On month 12 the analysts have been provided by the WP Leaders and the Pilots and Followers coordinators.
- On the first week of month 13 of the project all the actions have been available to the analysts.
- On the first week of month 13 of the project the analysts' teams were defined.
- The results of the analysis were presented and agreed among the task 1.5, task 5.1, WP1 an WP5 leaders on the last week of month 13.
- Task 1.5 responsible presented a report (draft Deliverable 1.3) to the ToNoWaste Work Package leaders on the monthly meeting of month 14 to be validated.

<sup>2</sup> Roman, R.M., Haybor, S. and Agle, B.R. (1999), "The relationship between social and financial performance", Business and Society, Vol. 38 No. 1, pp. 109-25.



	<p><b>Stage 1_P1.2 Action Acceptance</b></p> <p><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p><b>Date: January 2024</b></p>
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The result of the selection is part of Deliverable D1.3 “Initial portfolio of selected FWPR solutions” in month 15.

The Initial portfolio of selected FWPR solutions was presented to the Open focus group for discussing among the different actors, including external advisors, to validate its suitability.

The following figure shows the scheme of the process of analysis of the FLWPR actions:

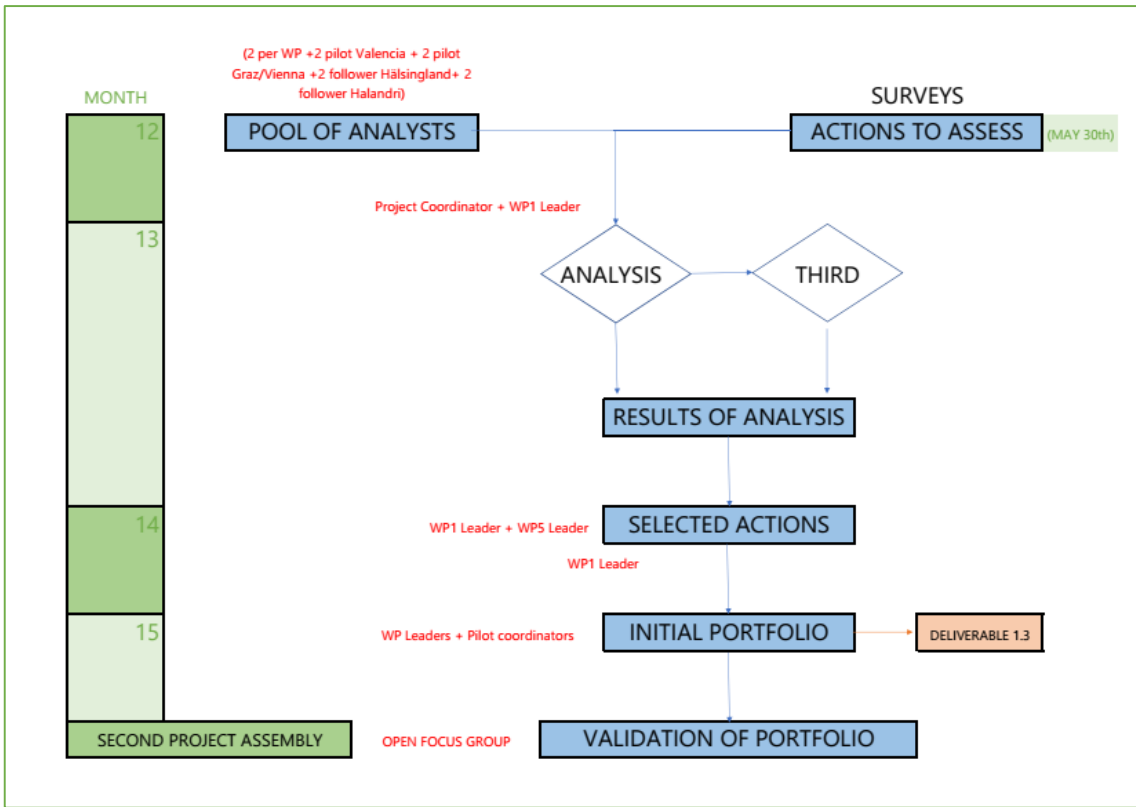



Figure 4: Scheme of the process of analysis of the FLWPR actions

	<b>Stage 1_P2 Action Tracking</b> <b>ToNoWaste Master Strategic Plan for All Pilots</b>	<b>Date: January 2024</b>
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## Stage 1\_P2 Action Tracking

The procedure P2 “Action Tracking” has different sub-processes that have as an ultimate objective the follow-up of the actions. In this sense, the already **validated action** start its own **execution process**.

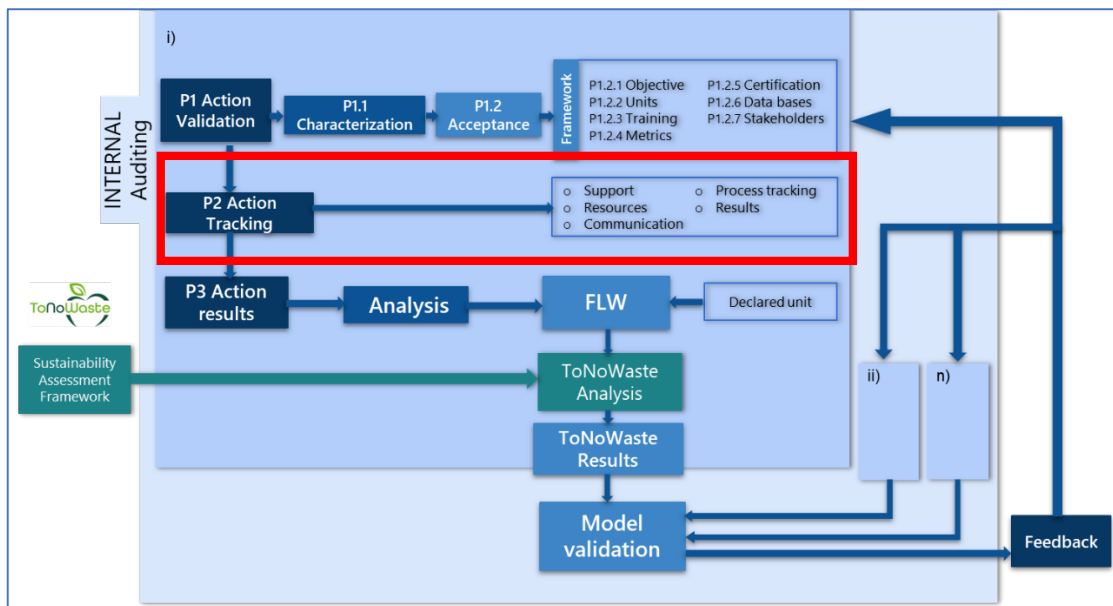


Figure 5. P2 Action Tracking inside ToNoWaste Sustainability Assessment Model

During this process, the strategic plan, jointly with the deployment of the Pilots’ Annual Action Plans, accompany the action through a follow-up and support procedures.

### Objectives


The main objective of this procedure is to give the partners, specially these connected to the city pilots and follower cities, basic instructions about the scope and implications of the tracking process of each FLWPR solution selected within the ToNoWaste portfolio of solutions.

### Responsibilities

Corresponds to **WP5 coordinator and pilots’ coordinators** to assure the right deployment of this procedure.

### Development

This is a process of monitoring and recording information on the action throughout its life, from the beginning to the end of the entire action. It is a system of creating, assigning, and tracking action items. Action items are the small tasks that should be executed to achieve a larger, more complex objective. Creating a list of action items is the best way to assign these responsibilities and track progress. To create effective action items, it is important to define the following four key elements: Who, What, How and When (WWHW)


	<b>Stage 1_P2 Action Tracking</b> <b>ToNoWaste Master Strategic Plan for All Pilots</b>	<b>Date: January 2024</b>
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- **Who?** It is important to define who will be the task owner as they are responsible for the execution of the action item.
- **What?** Any action item needs a description that clearly defines what will be done.
- **How?** Any action item needs a description that clearly defines how it will be deployed.
- **When?** All action items should be time-bound to be effective for task management.

The information that should be provided by the tracking must cover the following aspects:

- **Support:** The action must explicitly show the commitment of the owner of the action, for example, with a statement of support.
- **Resources:** The action must provide full information about the resources needed to deploy the action. The action must identify which resources are already available and which ones are needed to be successful. This is a comprehensive list of human, economic, material and energy resources needed for the implementation of the FLWPR action.
- **Communication:** The action owner must provide full details about the information flows between all actors involved in the action. As an example, to develop an infographic and a flowchart of the action.
- **Process tracking:** Annual Pilots' Action Plans must offer full information about the way the four key aspects "WWHW" will be covered.
- **Results:** Annual Pilots' Action Plans must clearly define the procedures for capturing and documenting the action tracking results and for capturing and offering full information about variables and KPIs selected for assessing the sustainability of the action according to ToNoWaste Sustainability Assessment Framework (see ToNoWaste Deliverable D2.1).



	<b>Stage 1_P3 ToNoWaste</b> <b>Action Results</b> <b>ToNoWaste Master Strategic Plan for All Pilots</b>	<b>Date: January 2024</b>
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## Stage 1\_P3 Action Results

The procedure P3 “Action Results” involves the development of a supervision system for action, **with minimal interference from the sustainability assessment perspective**, to measure action results that could be useful for the ToNoWaste project.

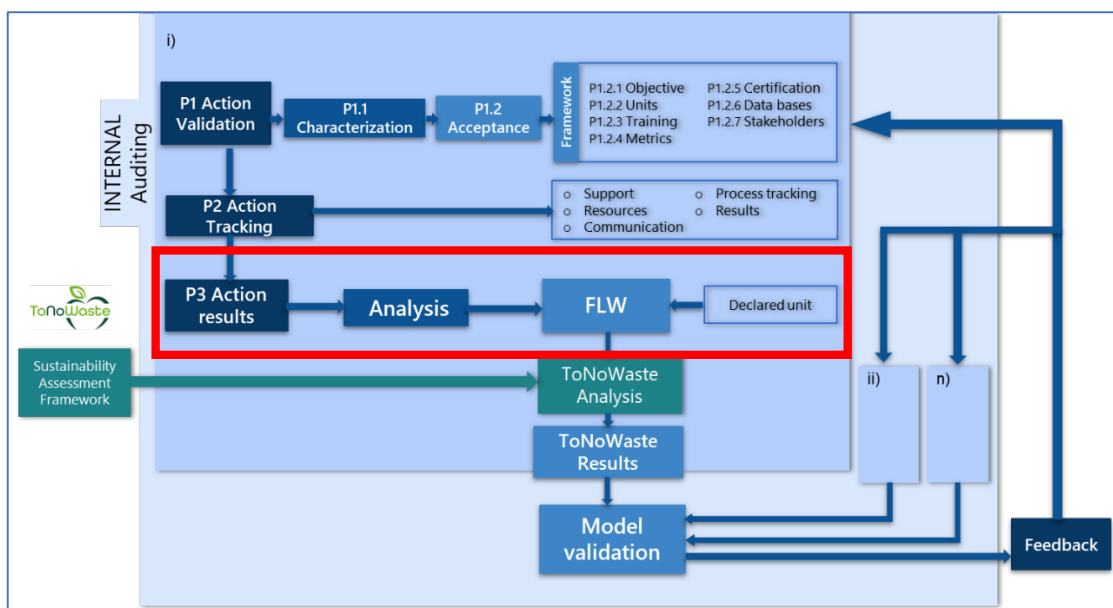


Figure 6. Action Results inside ToNoWaste Sustainability Assessment Model

## Objectives

The main objective of this procedure is to give **basic instructions** for the analysis of the results generated by the FLWPR actions after the action tracking process. It includes all relevant information regarding food losses or waste generated and avoided, that must be consistently presented with the **action declared unit**<sup>3</sup> described in the deliverable D2.1. section 7.2.2.


## Responsibilities

Corresponds to **WP5 coordinator and pilots’ coordinators** to assure the right deployment of this procedure.


## Development

Pilots’ Annual Action Plans must clearly define the procedures for capturing and documenting the full information about variables and KPIs selected for assessing the sustainability of the action (see ToNoWaste Deliverable D2.1) once the action is being tracked within ToNoWaste project.

<sup>3</sup> It is the declared unit of the Life Cycle Assessment. It is the unit per which the results of the LCA are provided, for example, 1 kg. of oranges or a canteen menu composition (in kg of the different components of the menu).

	<p style="text-align: center;"><b>Stage 1_P3 ToNoWaste</b></p> <p style="text-align: center;"><b>Action Results</b></p> <p style="text-align: center;"><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p style="text-align: right;"><b>Date: January 2024</b></p>
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Periodically, in accordance with the milestone schedule reported in the Annual Action Plan, an analysis of the action is carried out by the **ToNoWaste Coordinator**, with the support of Pilot Coordinator and based on ToNoWaste data requirements (see D2.1). The conclusions of the analysis will provide feedback to the owner of the action. Collaboration with the action owner takes place to establish corrective measures, if necessary.

	<p align="center"><b>Stage 2_P1 ToNoWaste</b></p> <p align="center"><b>ToNoWaste Analysis &amp; Results</b></p> <p align="center"><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p align="right">Date: January 2024</p>
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## Stage 2\_P1 ToNoWaste Analysis & Results

Stage 2 within the Master strategic plan for all pilots, involves the evaluation of the FLWPR solutions considering the Sustainability Assessment Framework designed in the Deliverable D1.2 and thoroughly evolved and developed in the deliverable D2.1. This is the stage of the strategic plan that brings together the results of the action with the environmental, social and economic impacts associated with the action itself in order to assess them through modelling in the form of a life cycle analysis, according to the **ToNoWaste Sustainable Assessment Framework**.

It is important to notice that, if a FLWPR action has arrived to this stage, **it has three fundamental basic characteristics** that transform it in an **FLWPR solution**:

- It contributes to prevent or reduce food losses or food waste objectively measured.
- It provides enough raw data for being assessed according to the requirements of ToNoWaste Sustainability assessment framework, as are defined in the deliverable D2.1.
- It allows the traceability of information and its assurance with satisfactory results (consistent with the definition of both processes).

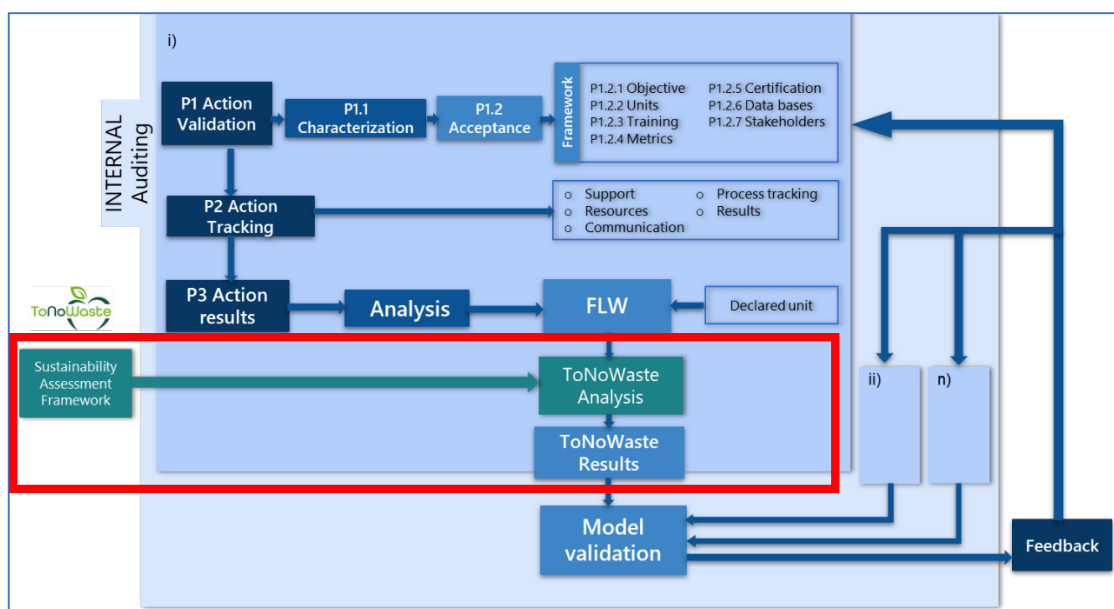



Figure 7. Action Analysis & Results inside ToNoWaste Sustainability Assessment Framework

	<p><b>Stage 2_P1 ToNoWaste</b></p> <p><b>ToNoWaste Analysis &amp; Results</b></p> <p><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p><b>Date: January 2024</b></p>
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## Objectives

The main objective of this procedure is to provide a systematic process for the development of the calculation of the sustainability metrics of the action, according to the guidelines of the ToNoWaste project.

## Responsibilities

Corresponds to **ToNoWaste Coordinator** to assure the right deployment of this procedure.

## Development

The information obtained from the procedure 'Stage 1\_P3 Action Results', is the raw data that feeds the calculation of the **economic, social and environmental footprints** of each FLWPR solution assessed and the identification of the sustainability **hotspots** following the **deliverable D2.1**.

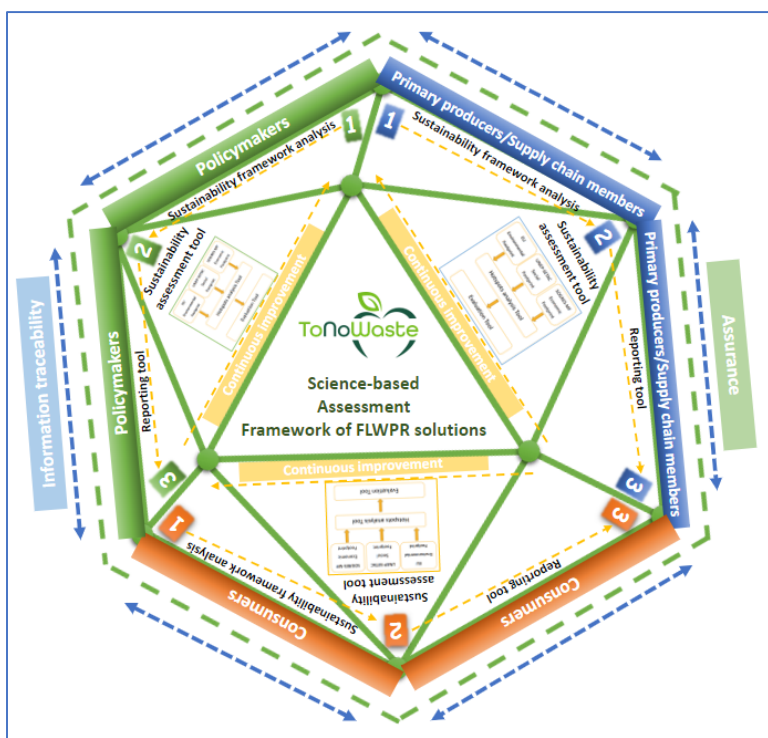




Figure 8. ToNoWaste Sustainability Assessment Framework

After the application of the multicriteria decision-making method defined within WP2, decision-makers will have key information regarding the sustainability of the FLWPR solution, according to the results derived from the Sustainability Assessment Framework proposed by ToNoWaste.

	<p align="center"><b>Stage 2_P1 ToNoWaste</b></p> <p align="center"><b>ToNoWaste Analysis &amp; Results</b></p> <p align="center"><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p align="right"><b>Date: January 2024</b></p>
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In this stage, the sustainability metrics are analyzed, and the evaluation result of the action is obtained. The owner of the action is informed about the sustainability outcome accompanied by pertinent comments and instructions for the continuous improvement. Subsequently, the sustainability results are incorporated into the results database.



	<p align="center"><b>Stage 3_P1 Model Validation</b></p> <p align="center"><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p align="right"><b>Date: January 2024</b></p>
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## Stage 3\_P1 Model Validation

Stage 3 within the Master strategic plan for all pilots, regards the study of the suitability of the assessment system deployed.

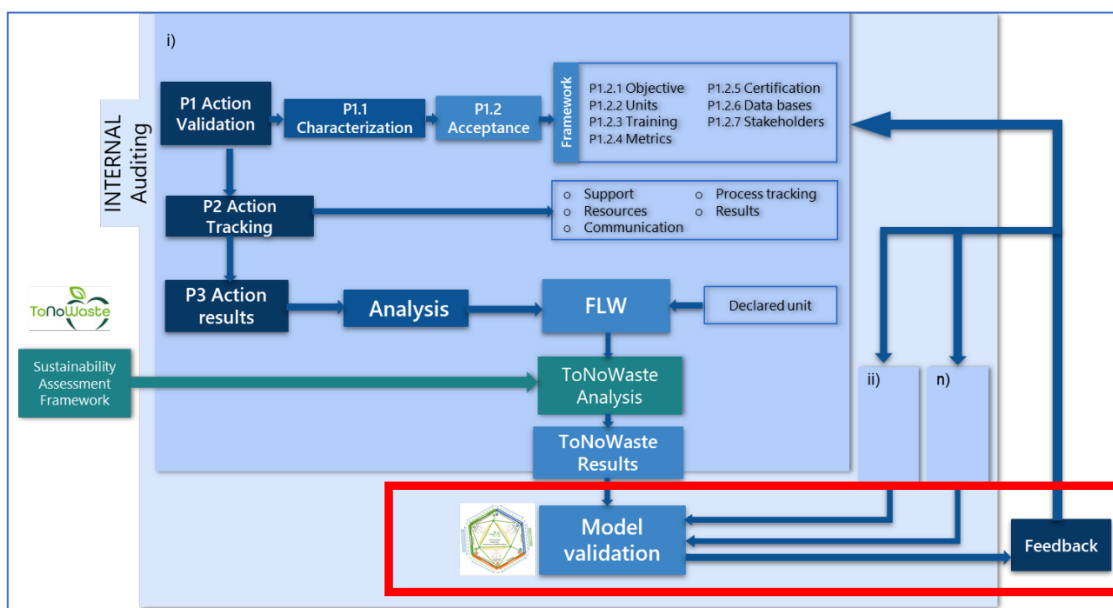


Figure 9. Model validation inside ToNoWaste Sustainability Assessment Framework

### Objectives


From the set of information associated with each evaluated action, the conclusion regarding the validation of the employed method must be drawn, considering:

#### A)

- ToNoWaste Science-Based Assessment Framework of FLWPR solutions in terms of sustainability (Deliverable D2.1).
- The prototype of Mobile and web applications oriented to the citizens' engagement and the massive data acquisition (Deliverable D4.3)

#### B)

- The prototype of independent web applications for big data analysis regarding FLW (Deliverable D3.2)
- The demonstrator: ToNoWaste open access platform for Food waste prevention (Deliverable D3.3).

	<b>Social Procedures_ Social</b>  <b>Change Analysis</b>  <b>ToNoWaste Master Strategic Plan for All Pilots</b>	<b>Date: January 2024</b>
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## Responsibilities

Corresponds to **ToNoWaste Coordinator, together with WP1, WP2, WP3, WP4 and WP5 coordinators** to assure the right deployment of this procedure but considering that is connected to different deliverables which have their own lead beneficiary.


## Development

Considering the list of milestones of the project, the validation process must be developed as follows:

Milestone	WP	Led by	Verification	Due date (month)
1 <sup>st</sup> validation cycle in pilots finished	WP5	STRATECO	Deliverable D5.2	24
2 <sup>nd</sup> validation cycle in pilots finished	WP5	STRATECO	Deliverable D5.4	42
Science-based framework and platform validation is finished	WP5	STRATECO	Deliverable D5.4	42

Validation process is involved in a continuous improvement cycle with the objective of identifying and correcting potential deviations.



	<b>Social Procedures_ Social Change Analysis</b> <b>ToNoWaste Master Strategic Plan for All Pilots</b>	<b>Date: January 2024</b>
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## Social Procedures PS1 Social Change Analysis

Social Change has a preeminent role within ToNoWaste project. Consequently, in addition to highlighting of consumers as relevant decision-makers within the sustainability assessment frameworks or as potential users of the ICT tools developed, it has been included a specific procedure focused on social change analysis.

### Objectives

The objective of this procedure is to integrate the social change analysis in the deployment of FLWPR solutions in the pilot cities and follower cities.

### Responsible

Corresponds to **WP4 Coordinator** to assure the right deployment of this procedure.

### Development


Social Procedures\_ PS1 Social Change Analysis includes three sub-procedures:

- PS1.1. Action selection
- PS1.2 Ex-ante analysis
- PS1.3 Ex-post analysis

#### PS1.1. Action selection

Regarding consumer behaviour change, the actions can also be classified according to the strategies identified in the Behaviour change wheel (see figure 9). These tap into nine different elements, or a combination thereof. At the same time, they enable several dimensions of the COM-B Model (Cane et al., 2012; Michie et al., 2015). The actions selected for the assessment of the consumer behaviour change will aim to cover several combinations of these elements so that we can better understand what dimensions they enable (capability, opportunity and motivation).



	<b>Social Procedures_ Social</b>  <b>Change Analysis</b>  <b>ToNoWaste Master Strategic Plan for All Pilots</b>	<b>Date: January 2024</b>
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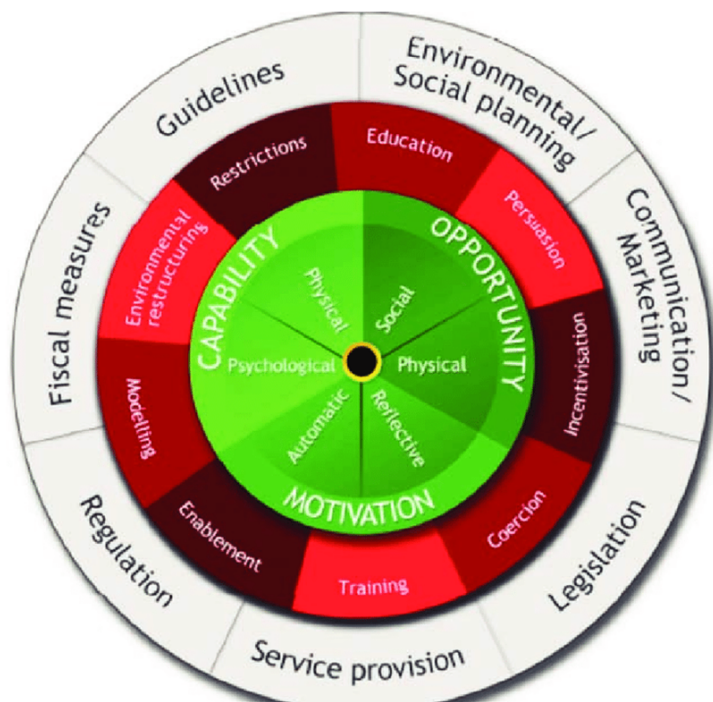


Figure 10. Behaviour Change wheel (REF)

### **PS1.2 and PS1.3 Ex-ante and ex-post analysis**


To evaluate the impact of the different actions with regards to the social part (consumer behaviour change), the reader can be referred to ToNoWaste Deliverable D4.1. But the main and key aspects will be highlighted here.

A selection of around four actions will be made. This selection will be based on a good coverage of the aspects of the behaviour change wheel (figure 9) (e.g. some of them will be more focused on education, some on persuasion, some on environmental enablement...).

For *each* action selected, three<sup>4</sup> groups of consumers will be made:

- A) Control group (these people are recruited in the same area and in the same time frame as those in groups B and C, but do not take part in any action).

<sup>4</sup> The three experimental groups described are the ideal situation, and the action coordinators will aim for such situation. However, the coordination team is aware that such recruitment conditions might not be possible (e.g., due smaller sample sizes available at that moment, or impossibility to engage participants for longer periods of time). In that case the action owners will have discussed with WP4 coordinator for alternative solutions that do not compromise the validation of the data. Should this be the case, efforts will be made to ensure that at least one action has the longitudinal measurements, and at least one the three experimental groups, with the sufficient sample size to be treated with statistical analyses.

	<b>Social Procedures_ Social</b>  <b>Change Analysis</b>  <b>ToNoWaste Master Strategic Plan for All Pilots</b>	<b>Date: January 2024</b>
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- These people fill in an ex-ante and two ex-post surveys. See deliverable 4.1 for details about the ex-ante and ex-post surveys.
- B) This experimental group take part in the action.
  - These people fill in an ex-ante and two ex-post surveys. See deliverable 4.1 for details about the ex-ante and ex-post surveys.
- C) This experimental group take part in the action AND after having completed the first ex-post survey they get information via the app about the results of the action they took part in. The purpose of having this group is to compare the second ex-post survey with group B to see the impact that the information about the results have.
  - These people fill in an ex-ante and two ex-post surveys. See deliverable 4.1 for details about the ex-ante and ex-post surveys.

For the collected data to be treated statistically, the aimed sample size per group is around 50 participants. The WP4 coordinator will have discussed with the action owners tips on how to reach that sample size (for instance by repeating the action) and to discuss alternative ways of treating the data (more descriptively), although this is the least preferred option.

Group	Action	Ex ante survey	1 <sup>st</sup> Ex-post survey	Information On results	2 <sup>nd</sup> Ex-post survey
A (Control)		x	x		x
B	x	x	x		x
C	x	x	x	x	x


*For example, an action is about a cooking workshop.*

*A person, John, has been recruited to be part of the cooking workshop. He will be told to download the app and register to a following profile. He will receive a survey (the ex-ante survey) before the action is scheduled. This survey aims to measure not only his food waste but also information about dimensions in the COM-B model (capabilities, motivations, and opportunities). He will then take part of the action, 1-2 weeks later he will be prompted to fill in the 1<sup>st</sup> ex-post survey, and some weeks later (to be determined depending on the resources and availability of the participants), he will be invited to fill in the 2<sup>nd</sup> (and last) ex-post survey.*


*Another person, Mary, has also been recruited to be part of the cooking workshop. She will follow an identical procedure as John, expect for the fact that between the 1<sup>st</sup> and 2<sup>nd</sup> ex-post surveys, she will be asked to consult the results of the impact of the action she took part in.*

*Betty is a person allocated in the control group. She will be recruited and asked to download the app. She will fill in the three surveys at the same time as John and Mary but will not participate in any action.*

As an incentive to engage with the app and participate, everyone at the end will be able to see into the website of the project, and in the app (D4.3) the results of the project.

	<p align="center"><b>Social Procedures_ Social</b></p> <p align="center"><b>Change Analysis</b></p> <p align="center"><b>ToNoWaste Master Strategic Plan for All Pilots</b></p>	<p align="right"><b>Date: January 2024</b></p>
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As mentioned in D 4.1, the unit of measurement of the food waste, will vary depending on the precise goal of the action. Some might be about salads, whereas others about other fruits or vegetables. That element will be adapted in the app from action to action.

	<b>Annex_Annual Action Plans</b>  <b>Design</b>  <b>ToNoWaste Master Strategic Plan for All Pilots</b>	<b>Date: January 2024</b>
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## Annex\_Annual Action Plans Design

### Objectives

The objective of this procedure is to help Pilots coordination and Action Owners to define Annual Action Plans accordingly with the ToNoWaste requirements.


### Responsible

Corresponds to **WP5 coordinator and pilots' coordinators** to assure the right deployment of this procedure.

### Development


The following table incorporates the minimum information required throughout the annual plans so that their monitoring by action owners enables the correct design of actions, capture of relevant information at the appropriate moment and provide the adequate feedback to the action owners with the accurate information in a timely manner.

STRATEGIC PLAN: support for designing Annual Action Plans				
RESPONSIBILITY				
PH AS E-1	MEASUREMENT AND DIAGNOSIS (EX-ANTE)			
ACTION OWNER	1.1.-	ACTION MODELLING	ACTIONS MUST BE MODELLED ON THE BASIS OF CURRENT SITUATIONS, HIGHLIGHTING THE PROPOSED MODIFICATIONS	<p><b>Example 1:</b> Now I distribute with conventional truck and the ACTION will distribute with a refrigerated truck.</p> <p><b>Example 2:</b> Now Caritas detects a lack of training among Caritas' cooks and Caritas establishes an action that will allow them to train.</p>
ACTION OWNER	1.2.-	QUANTIFICATION	ON THE ACTION MODEL, CURRENT MATERIAL AND	

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			ENERGY FLOWS ARE QUANTIFIED	
ACTION OWNER	1.3.-	IDENTIFICATION OF CRITICAL HOTSPOTS	THE CRITICAL POINTS OF THE CURRENT SITUATION THAT ARE TO BE MODIFIED BY THE PROPOSED ACTION MUST BE DETERMINED BY ANALYSIS	
UJI	1.4.-	SUSTAINABILITY ASSESSMENT SCENARIO 0 (if necessary)	WITH THE ABOVE INFORMATION, THE SUSTAINABILITY ASSESSMENT IS CARRIED OUT IN SCENARIO 0, PRIOR TO THE IMPLEMENTATION OF THE ACTION	In <b>Example 1</b> , we need to assess current sustainability, but in <b>Example 2</b> it is not necessary, as this has no previous impact, the baseline is zero.



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STRATEGIC PLAN: support for designing Annual Action Plans				
RESPONSIBILITY				
	PHASE-2	PREVENTION/REDUCTION ACTION		
ALL			THE PROPOSED ACTION IS SUBJECT TO A PRIOR ASSESSMENT IN ORDER TO DETERMINE ITS FEASIBILITY IN ACCORDANCE WITH PHASE 1 OF THE PROCEDURE	This has already been done: the owners and the analysts have done this work
STR, LNV AND ACTION OWNERS	2.1.-	EVALUATION OF ACTIONS	AN ACTION'S PLAN IS PRESENTED, INCLUDING THE 2 ANNUAL ACTIONS PLANS, WHICH MUST INCORPORATE THE <b>ACTION'S ITEMS:</b> EXECUTION PLAN AND MEASUREMENTS, TIME PLANNING AND MILESTONE CALENDAR	<b>Generic GANTT:</b> monthly based. <b>Annual Action Plans,</b> needs to be as detailed as possible (for example weekly);  In our <b>example 1:</b> Implementation, start-up, first results, purchase of the truck, first measurements...



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ACTION OWNERS, PILOT COORDINATORS, WP5 COORDINATOR AND PROJECT COORDINATOR	2.2	AGREEMENT ON ACTION PLANS	THE ACTION PLAN HAS BEEN DISCUSSED IN THE WP5 GENERAL MEETING AND REQUIRED MODIFICATION HAS BEEN APPLIED	After evaluation of the action and before starting the implementation, there should be an agreement form including all changes and specific requirements between all involved actors.
ACTION OWNER	2.3.-	IMPLEMENTATION AND DEVELOPMENT	THE OWNER OF THE ACTION PROCEEDS TO IMPLEMENT IT UNDER THE AGREED CONDITIONS. REPORTING ON MODIFICATIONS AND DEVIATIONS THROUGHOUT THIS PHASE.	
ACTION OWNER	2.4.-	RESULTS MEASUREMENT	ACCORDING TO THE ESTABLISHED PLAN, THE OWNER OF THE ACTION WILL PROCEED WITH THE PARTIAL AND FINAL MEASUREMENTS IN ACCORDANCE WITH THE APPROVED PLAN	



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STRATEGIC PLAN: support for designing Annual Action Plans				
RESPONSIBILITY				
	PHASE-3	EVALUATION OF THE ACTION		
UJI		3.1.-	ANALYSIS OF THE EVALUATED ACTION	PERIODICALLY, IN ACCORDANCE WITH THE MILESTONE CALENDAR, AN ANALYSIS OF THE ACTION IS CARRIED OUT ACCORDING TO THE DATA OF THE MEASUREMENTS CARRIED OUT <b>WITH PARTIAL REPORTS TO THE OWNER</b> . AT THE END OF THE ACTION, THE ACTION AS A WHOLE IS ANALYSED
UJI		3.2.-	CONCLUSIONS	ON THE BASIS OF THE ABOVE INFORMATION, A DOCUMENT OF PROVISIONAL CONCLUSIONS IS BEING DRAFTED. IT ENGAGES WITH THE OWNER OF THE ACTION TO ESTABLISH CORRECTIVE MEASURES, IF ANY.
ALL		3.3.-	GENERALIZATION OF THE SOLUTION OF THE ACTION	THE POTENTIAL USE OF THE ACTION IN OTHER SYSTEMS IS ASSESSED