



Transforming EU food systems with innovative strategies for sustainable packaging

WP₁ – Set-up of MAGNO for sustainable and smart solutions on packaging

D1.2 – Integrated project delivery

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2	Holistic And Ontological Solutions For Sustainability	HOLOSS	PT
3	Fraunhofer Gesellschaft Zur Forderung Der Angewandten Forschung Ev	FHF	DE
4	Asociacion Empresarial De Investigacion Centro Tecnologico Del Calzado Y Del Plastico De La Region De Murcia	CETEC	ES
5	Dnv Business Assurance Italy Srl	DNV	IT
6	Senior Europa Sociedad Limitada	KVC	ES
7	European Plastics Converters Eupc Aisbl	EUPC	BE
7.1	Polymer Comply Europe	PCEU	BE
8	Iris Technology Solutions, Sociedad Limitada	IRIS	ES
9	University Of Balamand	UOB	LB
10	Institut National Des Sciences Et Technologies De La Mer	INSTM	TN
10.1	University Of Sousse	UOS	TN



Executive Summary

This deliverable is the result of the activities conducted during task T1.2 - Working framework, requirements definition and team alignment of the first work package of MAGNO, which has the aim to produce a properly working framework for the project.

During the task, several working groups (WG) were established to properly define each of the roles and responsibilities of partners in MAGNO and optimize the execution of the project.

Furthermore, the main stages of the food packaging value chain have been outlined based on references from recent literature, including the results from other European-funded projects, scientific publications, and international reports. Complementing it, a brief discussion on the types of actors and their involvement across the food packaging value chain has been included in the deliverable, although a full discussion and their links with the value chain will be included in future deliverables of the project.

Lastly, a workflow diagram has been generated for each WG, which connects the information and interdependencies between inputs and outputs of each task, including the submission dates of deliverables, thereby contributing to the improvement of the project's organization and the achievement of its objectives.

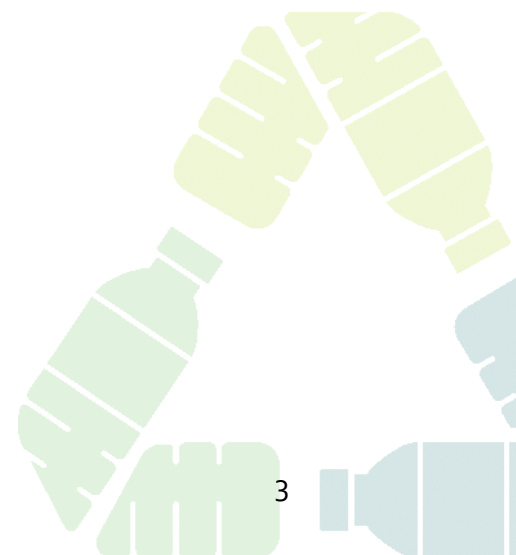
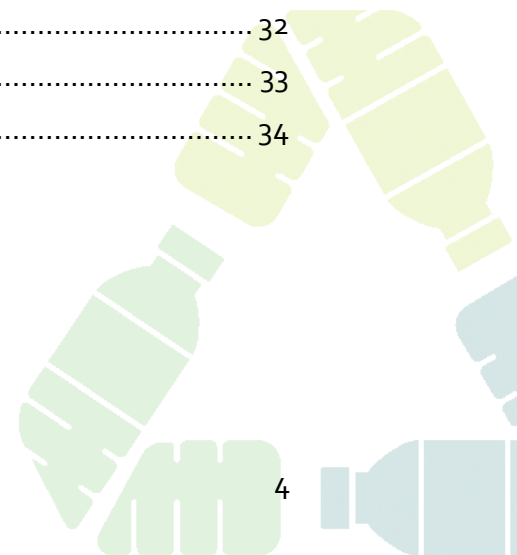


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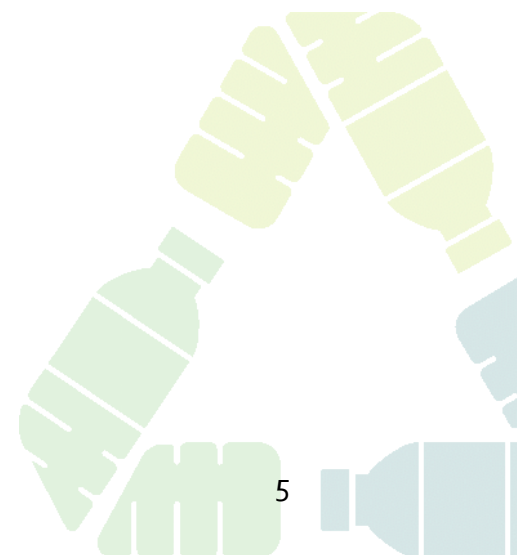
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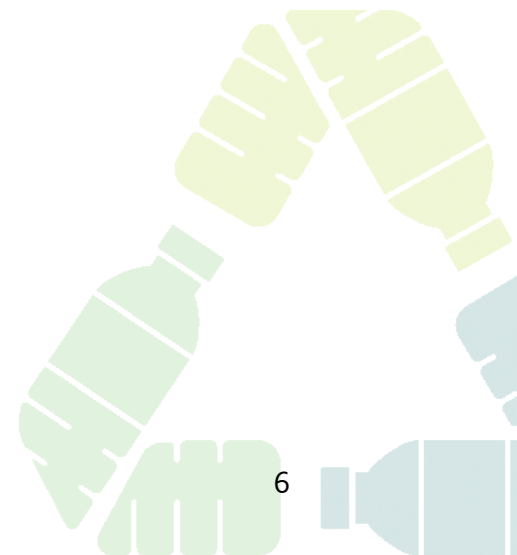
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Abbreviations

DX.Y	Deliverable number “Y” located in WP “X”
GA	Grant Agreement
IPD	Integrated Project Delivery
KPI	Key Performance Indicator
LCA	Life Cycle Assessment
LCC	Life Cycle Costing
MXX	Month “XX” of the project execution
TX.Y	Task number “Y” located in WP “X”
WG	Working Group
WP	Work Package

1. Introduction

1.1 Purpose of the document

The aim of this document is to outline the team alignment and the overarching responsibilities among the partners in the MAGNO project through the implementation of an Integrated Project Delivery (IPD) approach. This approach will provide the necessary operational framework for each working group (WG) to successfully meet the goals of MAGNO.

Accordingly, this document encapsulates all pertinent activities linked to **Task 1.3 - Working framework, requirements definition and team alignment** included in Work Package (WP) 1 “Set-up of MAGNO for sustainable and smart solutions on packaging”. IDE is the primary contributor for this document.

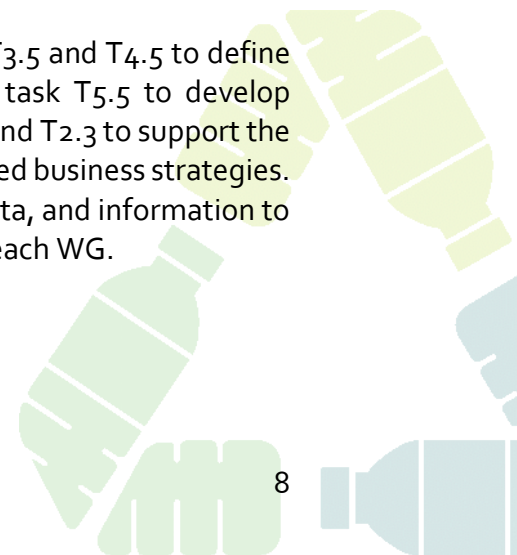
1.2 Objectives

Given the complex nature of projects that involve multiple partners with different areas of expertise, conventional project delivery methods often do not meet expectations in terms of results or timeliness. In contrast, and IPD approach address these challenges by enhancing the involvement of all consortium partners, fostering collaborative teams that share goals, information flows, and risks, demanding a high level of engagement and coordination at all project phases, particularly during the initial stages of the project when informed decisions are crucial.

As specified in the Grant Agreement (GA) of the project, the goal of the task associated to this deliverable is *“to establish an effective working framework that defines a collaborative alliance between working groups (also called Integrated Project Delivery), which assigns partner participation and responsibilities for each WP and which optimises project results based on quality and time”*.

To meet this goal, the framework will be developed in cooperation with all partners, detailing the alignment between all the WGS and the responsibilities shared among them, concerning the distribution of information among the project members, aimed at fostering widespread sharing and cooperation. Additionally, the food packaging value chain and the entities involved in each of the stages will be outlined.

This information will be employed by each WG, mainly in task T3.5 and T4.5 to define packaging production and usage for optimised strategies, in task T5.5 to develop circular solutions for food packaging value chains, in tasks T2.2 and T2.3 to support the research in packaging sector, and in task T6.2 to develop optimised business strategies. Lastly, each WG will include a flowchart detailing the actions, data, and information to outline the roles of each party and to optimize the efficiency of each WG.



2. Project Delivery Method

In this section of the document, the basis for the operational framework will be developed detailing all the following elements:

- I. Relationships between Work Packages (WPs) and Working Groups (WGs) as described by the duties and responsibilities assigned to each WG, alongside the activities outlined within each WP.
- II. Definition of the current actors and steps of the food packaging value chain. Complementary to the definition of the current linear food packaging value chain, in deliverable **D1.3 - Key Performance Indicators** a more detailed definition of circular approaches for food packaging is presented.

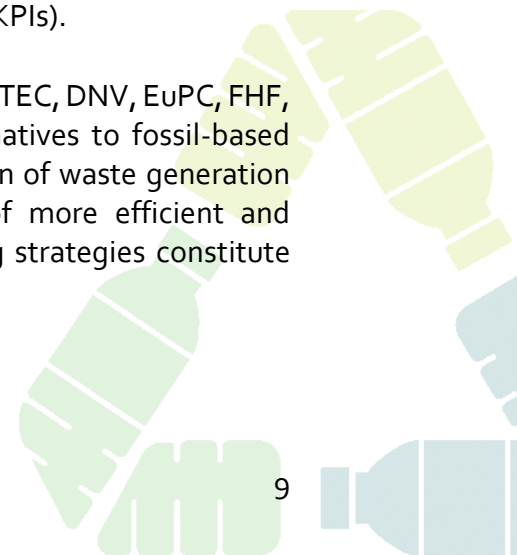
Following the establishment of these elements, the next section will outline the information workflow for each Work Package (WP), detailing the flows of materials and information (inputs and outputs) and identifying the Working Groups (WGs) involved.

2.1 Identification of relationships between work packages and working groups

2.1.1 Summary of each working group roles and responsibilities

Given the shared areas of expertise and overlapping responsibilities among certain partners within this consortium for each Work Package (WP), eight Working Groups (WG) have been established to manage and conduct the tasks and handle the data derived from them as efficiently as possible. The following list describes members comprising these working groups in alphabetic order and their primary roles and responsibilities:

- **WG1: Sustainable Analysis**, whose members are CETEC, DNV, EuPC, FHF, HOLOSS, IDE, KVC, PCEU and UOB. Their main activities include an update of the state of art for packaging in the food system, performing a life-cycle analysis (LCA), life-cycle costing (LCC) and social life-cycle analysis (S-LCA), and the definition and validation of key performance indicators (KPIs).
- **WG2: Packaging manufactures**, whose members are CETEC, DNV, EuPC, FHF, PCEU. The study of different raw materials and alternatives to fossil-based materials, design options, production lines and reduction of waste generation through manufacture, as well as the development of more efficient and environmentally friendly food packaging manufacturing strategies constitute their principal concerns.



- **WG3: Packaging usage**, whose participants are CETEC, DNV, EuPC, FHF, INSTM, PCEU, UOB and UOS. Their key areas of focus are the identification and classification of health and environmentally harmful materials used in the food packaging sector, a study of the pollution impact of those, the definition of novel storage solutions, the establishment of the future of standards and legislation for food packaging sector, and the generation of a roadmaps to prevent and reduce the use of plastic.
- **WG4: Packaging end of life**, whose members are CETEC, EuPC, FHF, HOLOSS, INSTM, PCEU, UOB and UOS. The identification of best food packaging system strategies to lessen pollution and enhance the sustainability of the sector, the presentation of various end-of-life alternatives for packaging plastic and the generation of new circular approaches to improve the food system represent their main priorities.
- **WG5: Information communication technology (ICT)**, whose members are CETEC, DNV, EuPC, FHF, IDE, IRIS, KVC and PCEU. Their primary activities include the creation of a digital twin of the food packaging ecosystem that can predict the future effects when the design, production, usage, and recycling strategies are modified, as well as the development of a web platform adapting citizen science tools.
- **WG6: Business strategies**, whose participants are CETEC, DNV, EuPC, FHF, HOLOSS, KVC and PCEU. Their chief objectives are identification of consumer needs and perceptions based on the current food packaging approach, including a market analysis, an update of the key exploitable results, and the generation of both a series of business and exploitation strategies to optimise the food packaging sector, and an action plan to increase consumer awareness in order to reduce wastage.
- **WG7: Communication, exploitation, and social activities**, whose members are CETEC, DNV, EuPC, FHF, HOLOSS, IDE, INSTM, IRIS, KVC, PCEU, UOB and UOS. This working group's key responsibilities include the exploitation of the results whilst also enhancing the impact, the distribution of project outcomes among the main target groups, multi-actors and the broader stakeholder community, while facilitating knowledge transfer, fostering community engagement and acceptance and optimizing exploitation opportunities, and the replicability of strategies defined to 6 European and international case-studies.
- **WG8: Project management**, whose members are FHF and IDE. Their main activities include the project coordination and management (including the administrative and financial management), the project monitoring and quality control, as well as the scientific and technical coordination, which comprises

monitoring and controlling the scientific and technical development of the project.

Although MAGNO adopts an integrated project delivery methodology where all partners participate in the development of most activities, each role or responsibility within the project will always have a designated lead beneficiary. Moreover, some partners will act as lead beneficiaries across multiple WGs, as demonstrated by the distribution of staff efforts.

It is crucial for the consortium to clearly define and accurately detail the interdependencies among the project’s responsibilities, the WPs, and deliverables. The table below summarizes these responsibilities, their respective lead beneficiaries, and the WPs that include the relevant tasks:

Table 1. Summary of WGs roles, responsibilities, and relationships with each WPs and tasks.

WG	Main responsibilities and lead beneficiary	Relationships	
		WP	Tasks
WG1	Update of the state of art for packaging in the food system [CETEC]	WP1	T1.5
	Definition and validation of KPIs [HOLOSS]		T1.4
	LCA, LCC and S-LCA methodologies [HOLOSS]	WP5	T5.4
WG2	Study of raw materials and alternatives to fossil-based materials, design options, production lines and waste management of packaging production [CETEC, FHF]	WP3	T3.1, T3.2, T3.3, T3.4
	Development of efficient and environmentally friendly strategies [CETEC]		T3.5
WG3	Identification and classification of health and environmentally harmful materials and study of the pollution impact of those [UOB]	WP4	T4.1, T4.2
	Definition of novel storage solutions [DNV]		T4.3
	Establishment of the future standards and legislation for food packaging sector [EUPC]		T4.4
	Generation of a series of roadmaps to prevent and reduce the use of plastics [UOB]		T4.5
WG4	Identification of best food packaging system strategies to lessen pollution and enhance sustainability [EUPC]	WP5	T5.1
	End-of-life alternatives for packaging plastic [CETEC]		T5.2, T5.3
	Generation of new circular approaches [HOLOSS]		T5.5
WG5	Data Management Plan [IDE]	WP2	T2.1
	AI to support research in packaging sector [IDE]		T2.2

WG	Main responsibilities and lead beneficiary	Relationships	
		WP	Tasks
	Scientific search and food actors in the packaging value chain [DNV]		T2.3
	Database creation [IRIS]		T2.4
	Development of the digital twin [IDE]		T2.5
	Virtual plastic packaging strategies and business validation [IDE]		T2.6
	Development of a web platform [IRIS]		T6.4
WG6	Identification of consumer needs and perceptions [EUPC]	WP6	T6.1, T6.2, T6.3
	Market analysis and optimised business strategies [KVC]		
	Action plan to increase consumer awareness to reduce waste [KVC]		
WG7	Dissemination and Communication plan, channels and activities [KVC]	WP7	T7.1, T7.2, T7.4
	Exploitation strategies [DNV]		T7.3
	Synergies with other HE funded projects [KVC]		T7.6
	Gender Dimension [HOLOSS]		T7.5
	Replicability of strategies to European and international case-studies [IDE]		T6.5
WG8	Project coordination and management [IDE]	WP1	T1.1
	Scientific and technical coordination [FHF]		T1.2
	Working framework, requirements definition and team alignment [IDE]		T1.3

2.1.2. Description of relationships and dependencies among WP and WG

This part will not detail each activity and task within the project, as those are described in the GA in detail. Rather, it will outline how each WP depends on the tasks carried out by each WG member and will also explain the flow of information between them.

2.1.2.1. WP1 – Set-up of MAGNO for sustainable and smart solutions on packaging

Table 2. Summary of tasks, lead beneficiaries, duration, deliverables, and milestones for WP1.

Tasks	Duration	Related deliverables	Related milestones
Task 1.1: Project Coordination and Management [IDE]	M01 – M42	D1.1	N°1: Project holistic alignment
Subtask 1.1.1: Administrative and financial management [IDE]	M01 – M42		

Tasks	Duration	Related deliverables	Related milestones
Subtask 1.1.2: Project monitoring and quality control [IDE]	M01 – M42		
Task 1.2: Scientific & Technical Coordination [FHF]	M01 – M42	-	-
Task 1.3: Working framework, requirements definition and team alignment [IDE]	M01 – M05	D1.2	N°1: Project holistic alignment
Task 1.4: KPI validation and detailed definition [HOLOSS]	M01 – M05	D1.3	-
Task 1.5: Updates on current scenarios and current trends for plastic packaging [CETEC]	M01 – M12	D1.4	N°5: Journal publication of review papers

2.1.2.2. WP2 – Ecosystem Digital Twin as an assistance tool for novel strategies

Table 3. Summary of tasks, lead beneficiaries, duration, deliverables, and milestones for WP2.

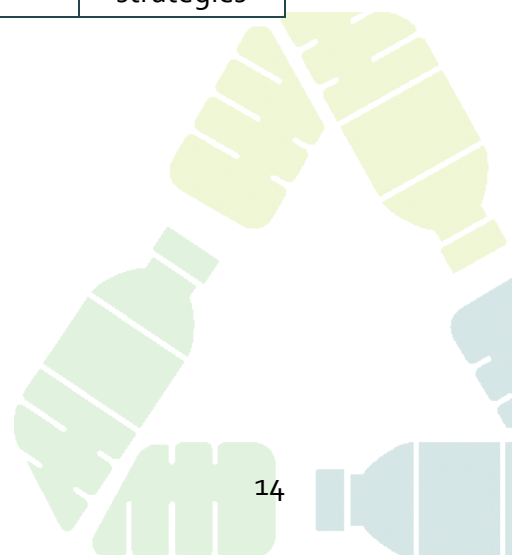
Tasks	Duration	Related deliverables	Related milestones
Task 2.1: Open science and Data Management Plan [IDE]	M01 – M40	D2.1 – D2.3	-
Task 2.2: Artificial intelligence to support research in packaging sector [IDE]	M06 – M24	D2.5	-
Task 2.3: Scientific search and food actors in the packaging value chain [DNV]	M01 – M24	D2.4	N°3: List of food multi-actors participating in MAGNO
Task 2.4: Database creation and data fusion [IRIS]	M13 – M24	D2.5	N°6: Database for the digital twin

Tasks	Duration	Related deliverables	Related milestones
Task 2.5: Digital twin creation and food multi-actor validation [IDE]	M13 – M31	D2.6	N°8: Ecosystem Digital Twin beta version
Task 2.6: Virtual plastic packaging strategies and business validation [IDE]	M31 – M42	D2.7	-

2.1.2.3. WP3 – Packaging manufacturing practices

Table 4. Summary of tasks, lead beneficiaries, duration, deliverables, and milestones for WP3

Tasks	Duration	Related deliverables	Related milestones
Task 3.1: Raw materials and alternatives to fossil-based materials [CETEC]	M01 – M18	D3.1	N°7: Review of current and future raw materials for Packaging industry
Task 3.2: Future material design trends for packaging [FHF]	M07 – M24		
Task 3.3: Manufacturing routes for conventional and new packaging products [CETEC]	M13 – M30	D3.2	-
Task 3.4: Waste management for packaging production [CETEC]	M07 – M36		-
Task 3.5: Packaging production for optimised strategies [CETEC]	M25 – M40	D3.3	N°14: First drafts on MAGNO strategies



2.1.2.4. *WP4 – Packaging use in the food system*

Table 5. Summary of tasks, lead beneficiaries, duration, deliverables, and milestones for WP4

Tasks	Duration	Related deliverables	Related milestones
Task 4.1: Health and safety issues of the current packaging industry [UOB]	M01 – M24	D4.1	-
Subtask 4.1.1: Chemical and microplastics sources	M01 – M24		
Subtask 4.1.2: Chemical and microplastics health issues	M01 – M24		
Task 4.2: Ecosystem impact and litter effects [UOB]	M01 – M24		-
Task 4.3: Novel storage solutions for packers, warehouses, and retailers [DNV]	M18 – M36	D4.2	-
Task 4.4: Standard and EU legislations adapted to new times [EUPC]	M18 – M36	D4.3	N°9: First draft on new Standards and EU legislation
Task 4.5: Packaging usage for optimised strategies [UOB]	M25 – M40	D4.4	N°14: First drafts on MAGNO strategies

2.1.2.5. *WP5 – Sustainability and end of life options*

Table 6. Summary of tasks, lead beneficiaries, duration, deliverables, and milestones for WP5

Tasks	Duration	Related deliverables	Related milestones
Task 5.1: Packaging waste collection and sorting [EUPC]	M01 – M24	D5.1	-
Task 5.2: Mechanical recycling and alternatives [CETEC]	M13 – M30	D5.2	-
Task 5.3: Chemical recycling and sustainability [CETEC]	M13 – M30		-

Tasks	Duration	Related deliverables	Related milestones
Task 5.4: LCA, LCC and S-LCA of current linear value chain and its transformation to circular [HOLOSS]	M13 – M42	D5.3	N°11: End of Life MAGNO evaluation
Task 5.5: Circular approaches for food packaging value chains [HOLOSS]	M25 – M40	D5.4	N°14: First drafts on MAGNO strategies

2.1.2.5. WP6 – Consumer acceptance and Innovative circular business model

Table 7. Summary of tasks, lead beneficiaries, duration, deliverables, and milestones for WP6

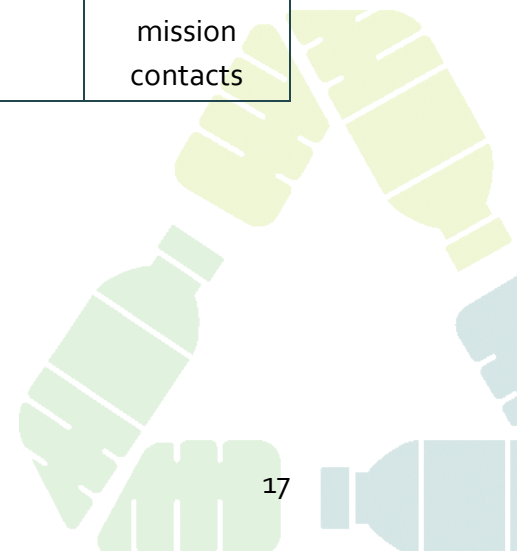
Tasks	Duration	Related deliverables	Related milestones
Task 6.1: Product quality and consumer perception [EUPC]	M01 – M36		
Subtask 6.1.1: Product quality and consumer perception [EUPC]	M01 – M24	D6.1, D6.6	-
Subtask 6.1.2: Consumer and sustainability improvement [HOLOSS]	M13 – M36		
Task 6.2: Market and Business Analysis [KVC]	M01 – M40	D6.2 – D6.5	N°14: First drafts on MAGNO strategies
Subtask 6.2.1: Market Analysis and Circular Business approaches [KVC]	M01 – M36		
Subtask 6.2.2: Optimised business strategies [KVC]	M01 – M42		
Task 6.3: Waste reduction and waste management [KVC]	M13 – M36	D6.6	-
Task 6.4: MAGNO web platform for consumer acceptance and citizen tools [IRIS]	M25 – M42	D6.7	N°10: MAGNO web platform for consumer acceptance

Tasks	Duration	Related deliverables	Related milestones
Task 6.5: Replicability to European and international case-studies [IDE]	M25 – M42	D6.8	-

2.1.2.7. WP7 – Dissemination, Communication and Exploitation

Table 8. Summary of tasks, lead beneficiaries, duration, deliverables, and milestones for WP7

Tasks	Duration	Related deliverables	Related milestones
Task 7.1: Communication and Dissemination Plan [KVC]	M01 – M42	D7.1 – D7.3	-
Task 7.2: Dissemination Materials and Channels [KVC]	M01 – M42	D7.4 – D7.6	N°2 Website launch
Task 7.3: Exploitation strategies for multi-actors in the food system [DNV]	M13 – M42	D7.8	N°12: Optimal routes for the exploitation plan
Task 7.4: Communication and Dissemination Activities [KVC]	M01 – M42	D7.7, D7.8	N°13: Cluster and networking activities
Task 7.5: Gender Dimension [HOLOSS]	M01 – M42	D7.9, D7.10	-
Task 7.6: Synergies with other HE funded projects [KVC]	M25 – M42	D7.8	N°4: Project synergies and EU mission contacts



3. Food packaging value chain definition

This section of the document is dedicated to describing the main elements of the food packaging value from the raw materials production towards the End-of-life of packaging based on the existing scientific and technical literature available. A more in detail analysis of the value chain and potential circular approaches for food packaging are included will be included in later deliverables of the project.

Furthermore, the identification of the main actors involved in the food packaging value chain is included to illustrate the main types of stakeholders which the solutions developed within MAGNO are aimed at.

3.1 Stages of the food packaging value chain

The following list describes the main elements of the current food packaging value chain common across all types of food packaging [1] - [9]:

- **Raw Materials Production:** This stage involves the production of raw materials, including polymers, paper, and glass, which will be processed at a later stage in the value chain to produce the packaging.
- **Packaging Manufacture and Design:** After the raw materials for packaging manufacturing are produced, they are processed onto the final packaging product in accordance with the design specifications for the application.
- **Food packaging:** this stage is the actual process of enclosing food in their respective packaging prior to being distributed.
- **Packaging distribution:** is the logistical process of transporting packaged food from the packaging site to various distribution points (such as warehouses and retailers) or directly to consumers.
- **Packaging usage:** refers to how consumers or end-users interact with the packaging (e.g., disposal) as well as its functionality in preserving the quality and freshness of the food products throughout their intended shelf life.
- **Packaging End-Of-Life:** finally, the end-of-life of packaging refers to the process on who the material used for packaging is reused, disposed of (e.g. landfill or incineration), collected, sorted, recycled, or composted in the case of bio-degradable polymers.

While the same elements are common across the reports cited in this document, there are slight differences in their classification, such as dividing “Packaging Manufacture and Design” into “Packaging Manufacture” and “Packaging Design”, although all the stages of the value chain are considered in the reports cited and the differences are only in nomenclature.

Finally, the preliminary circular approach developed within MAGNO for the food packaging value chain is included in the contents of **deliverable D1.3 - Key Performance Indicators**.

3.2 Identification of actors

The following list comprises of the main categories of actors involved in the food packaging value chain obtained through the classification among the present literature [1], [8], [10] - [12].

Although many types of actors have a greater involvement in specific stages (e.g., packaging converters and recyclers are more involved in the packaging end-of-life), their involvement in other stages of the value chain has been possible through the innovation present in the industry [10]:

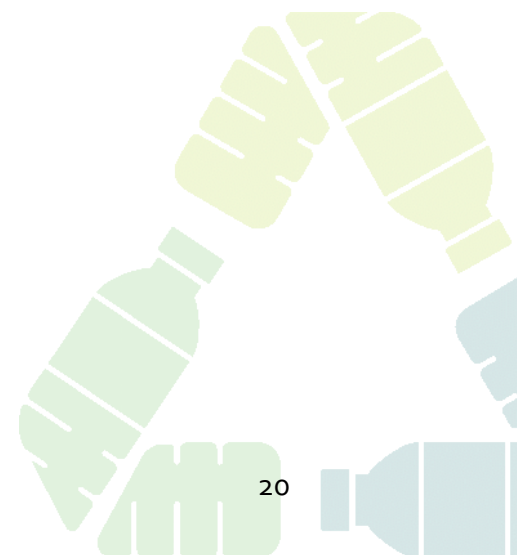
- **Researchers:** researchers participate in the development of new materials and designs that improve the functionality, sustainability, and safety of food packaging, as the studying of the environmental impacts and consumer behaviour linked to food packaging. They are involved across the whole value chain.
- **Producers of packaging materials:** this type of actors englobes companies or manufacturers that specialize in creating the raw materials and components used to make packaging products. Their main involvement is in the raw material production and the packaging manufacturing and design.
- **Packaging manufacturers:** these companies are the ones who utilize raw materials to produce packaging products such as boxes, bottles, cans, etc. for the purpose of both protecting and marketing food products. Their main involvement is in the packaging manufacturing and design and the food packaging stages.
- **Logistics companies:** this type of actor main activities is the transport of food packaged products from factories to retail companies and/or consumers. Their main involvement is on the packaging distribution stage.
- **Food packers, wholesalers, and retailers:** food packers are entities involved in the process of packaging food products, ensuring that food is properly sealed or



wrapped in their packaging, while wholesalers and retailers are involved in selling food products to consumers at the point of sale. Their main involvement is in the food packaging and packaging distribution respectively.

- **Consumers:** consumers are the end-users who purchase, consume food products, and discard the packaging associated with it. Their main involvement is in the packaging usage.
- **Packaging converters and recyclers:** these actors are involved on the recovery and processing of used packaging goods to create new products or raw materials through the wastes generated along the value chain. Their main involvement is in the packaging end-of-life stage.
- **Local and regional authorities:** these actors are governmental bodies responsible for ensuring public health safety, while also regulating and supervising the compliance of food packaging standards and waste management within their jurisdiction. They are involved across the whole value chain due to their regulatory responsibilities.

Similar to the stages of the food packaging value chain, there are minor discrepancies between the classification and nomenclature criteria used for actors involved in the value chain, however, their roles and activities remain consistent across all literature. The list included here aims to give an easy-to-understand classification, in later documents of the project the classification will be further detailed.



4. Workflow information for each WG

After establishing the participation and responsibilities of all partners in each WP, along with the identification of the steps of the food packaging value chain and the actors involved therein, the workflow details for each WG will be elaborated. This will include a series of flowcharts, one for each WG, outlining the interfaces with other WGs, tasks and responsibilities, deliverables, deadlines, and both material and information flows. These flowcharts will collectively illustrate the complete operational framework.

The following figure describes the relationship between tasks, deliverables, main general information flows and due dates for the execution of the project:

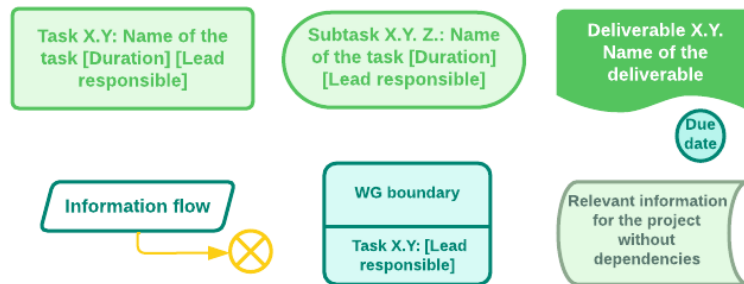


Figure 1. Workflow diagrams legend

4.1 Workflow information for WG1 – Sustainable Analysis

On one hand, CETEC will lead the research among consortium partners to update the state of the art of scenarios and trends for plastic packaging in T1.5. This activity will lead to the submission of deliverable D1.4 in M12, which will support WG2, WG3, WG4 and WG6. In particular, updates regarding sustainability and circularity will contribute to the LCA analysis performed in T5.4.

Meanwhile, HOLOSS will perform the activities focused on KPIs definition, resulting in the submission of the deliverable D1.3 in M05, which will serve as input in the LCA analysis, as well as in tasks T2.2, T2.3, T2.4, T3.5, T4.5, T5.5 and T6.2. As stated before, deliverables D1.3 and D1.4, along with industrial data from packaging manufacture, use and recycling from WG2, WG3 and WG4, and results from T2.5 related to European and international scenarios will include the information required by HOLOSS to carry out

the LCA, LCC and S-LCA analysis during T5.4. This information will result in the publication of deliverable D5.3 in M42.

The diagram below outlines the workflow for this WG:

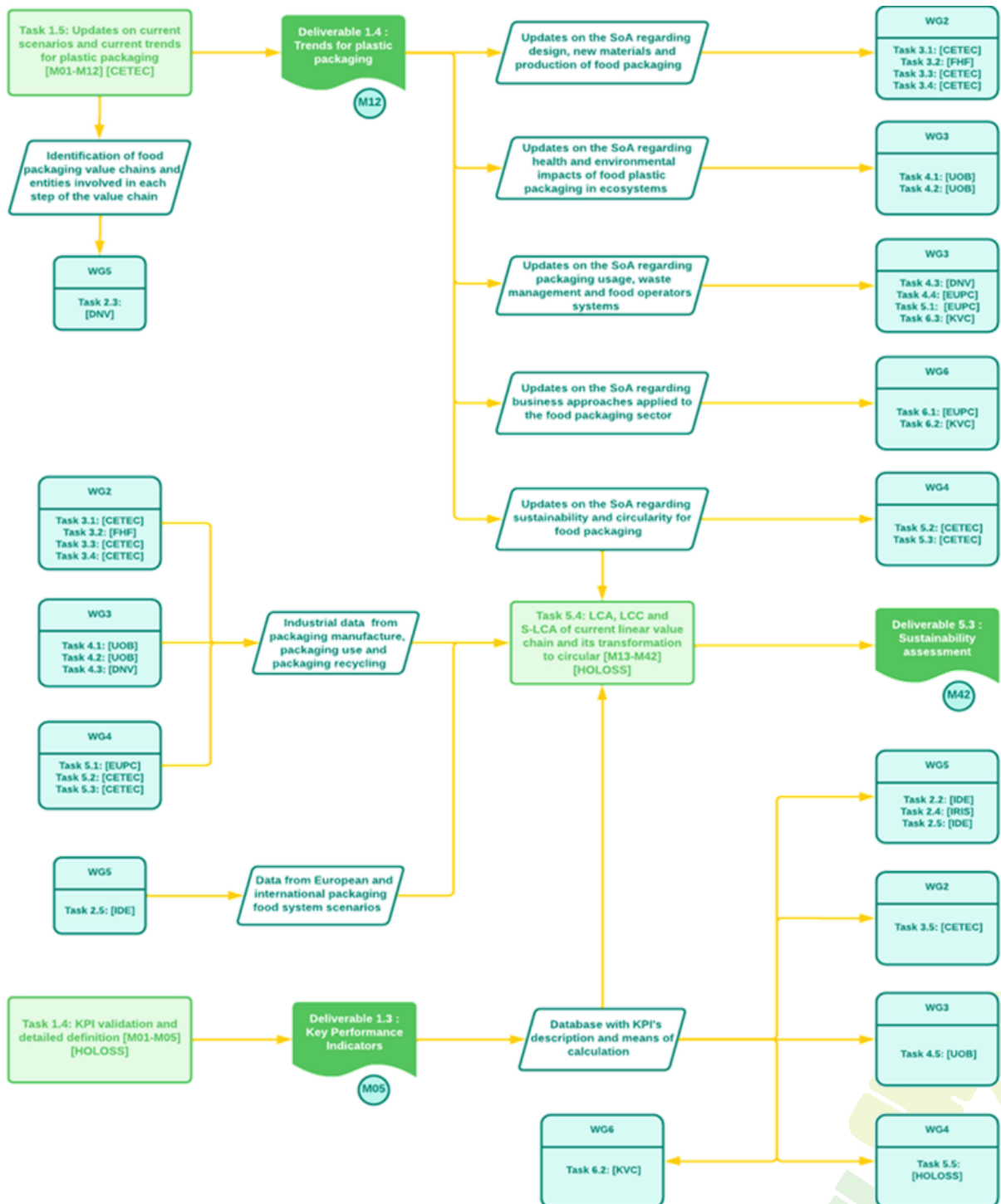


Figure 2. Workflow diagrams for WG1: Sustainable Analysis

4.2 Workflow information for WG2 – Packaging manufacture

CETEC will accomplish an analysis of raw materials in T_{3.1}, which results will help FHF in the development of tasks T_{3.2} (study of future material design trends), T_{3.3} (examination of production paths for novel packaging) and T_{3.4} (analysis of packaging production waste management). The outcomes of T_{3.1} and 3.2 will feed deliverable D_{3.1} submitted in M₂₄, useful in the generation of regulations for food packaging in T_{4.4} by EuPC. In addition, T_{3.2} and T_{3.3} findings will be used to directly feed T_{3.4}, whose completion by CETEC will facilitate the submission of the deliverable 3.2 in M₃₆.

Furthermore, information derived from T_{3.1}, T_{3.2}, T_{3.3} and T_{3.4} will be utilized in T_{3.5} by CETEC to develop a series of strategies aimed at enhancing packaging production. For doing so, CETEC will base on the requirements defined in T_{1.3} and on the KPIs defined in T_{1.4}. The outcomes of the deliverable associated with this task (D_{3.3}) will be used as inputs to be evaluated in T_{2.6} for establishing the final MAGNO project strategies. The diagram below outlines the workflow for this Working Group:

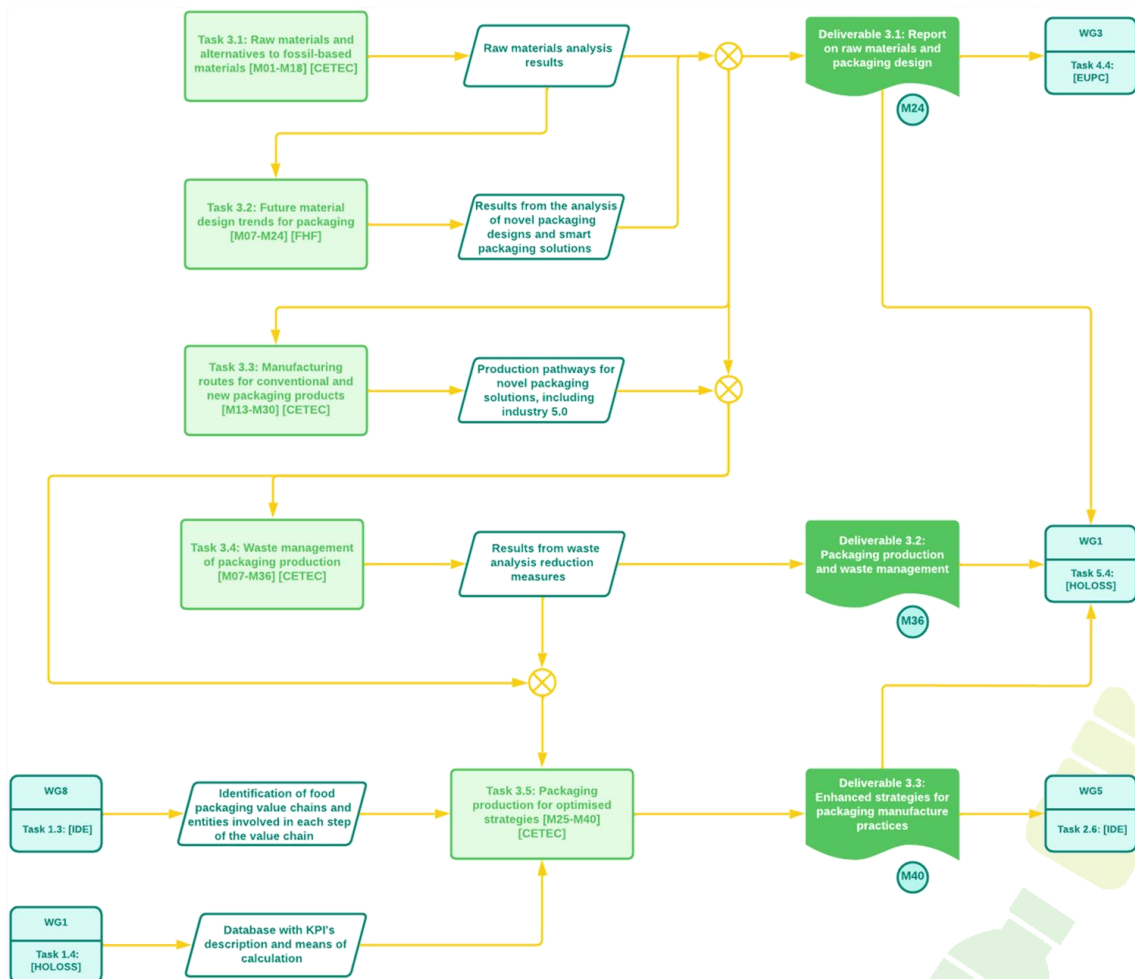


Figure 3. Workflow diagrams for WG2: Packaging manufacture

4.3 Workflow information for WG3 – Packaging usage

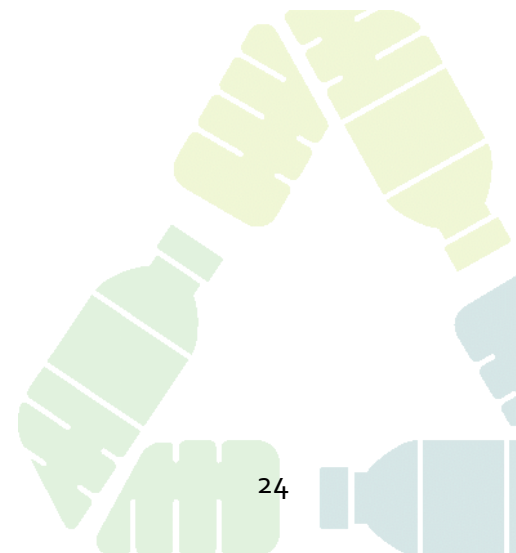
In task 4.1, UOB will lead an analysis of health and safety impacts of the current packaging industry, using the updates from the study carried out by themselves under T1.5 by CETEC's leadership. This, in conjunction with an evaluation of ecosystem impact and litter effects by UOB, INSTM and UOS will serve for publishing the deliverable D4.1 in M24.

Moreover, these results will be added to the research of novel storage solutions made in T4.3 by DNV to obtain improvements for packers, warehouses, and retailers, so deliverable D4.2, including this analysis is submitted in M36.

Meanwhile, EuPC will analyse regulations for food packaging in order to support actors such as operators and SMEs to meet the requirements of the EU and provide feedback in order to shape the current standards and regulations to adapt for the current times. To do so, EuPC will require results from the analysis of raw materials and packaging design alternatives (from T3.1 and T3.2, respectively), as well as relevant data from entities of the food packaging sector (defined in T2.3). The analysis performed in this task will be present in deliverable D4.3 (whose deadline is M36).

In addition, all the information regarding health and environmental impacts, improvements for packers, warehouses, and retailers, as well as standards and legislations, will be gathered in order to generate a series of roadmaps for the packaging industry to reduce the use of plastic, performed in T4.5 by UOB. Again, requirements defined in T1.3 and KPIs defined in T1.4 will be considered. Lastly, these improved strategies, outlined in the deliverable D4.4, will be used as inputs to be evaluated in T2.6 for establishing the final MAGNO project strategies.

The diagram below outlines the workflow for this Working Group:



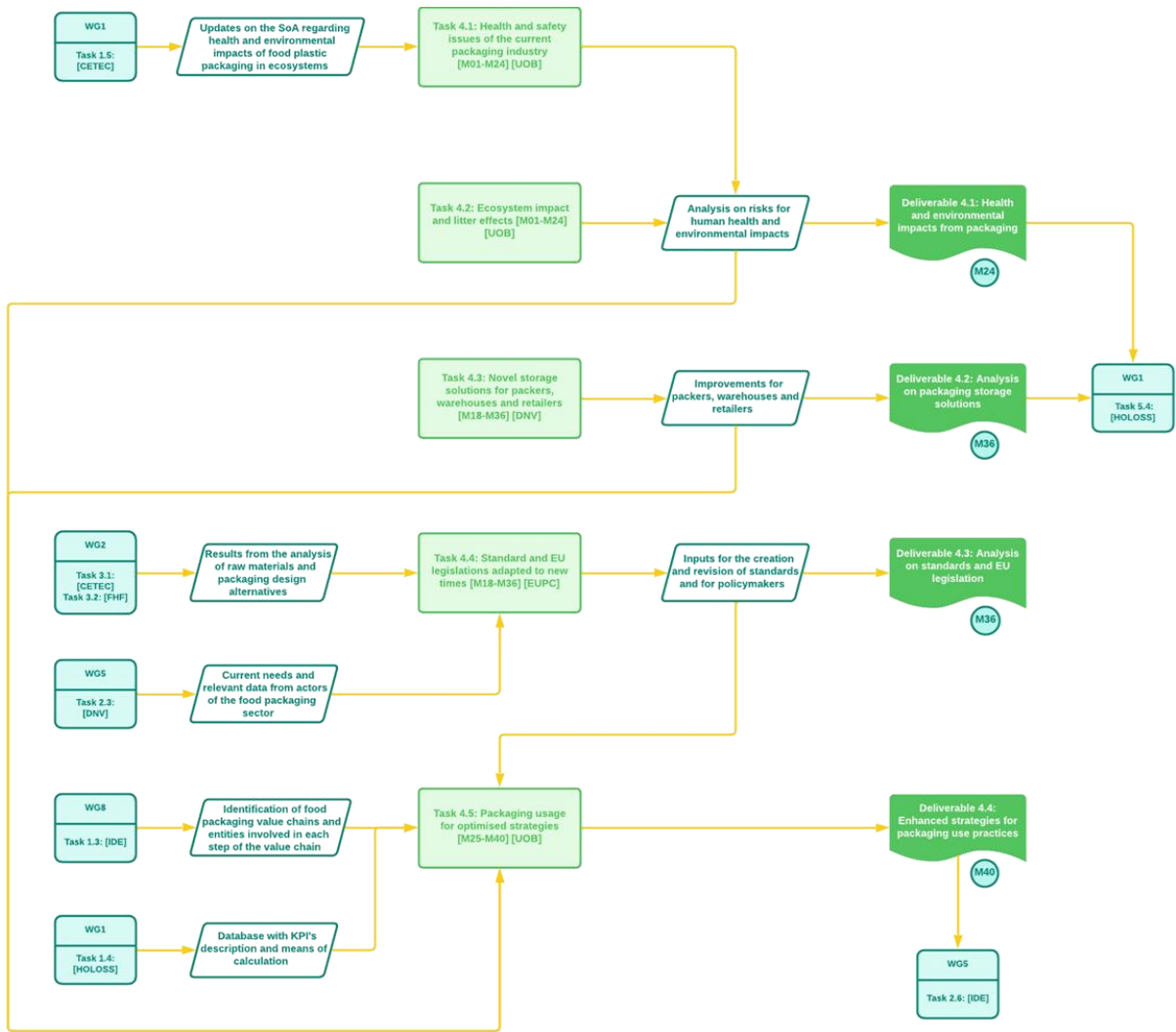
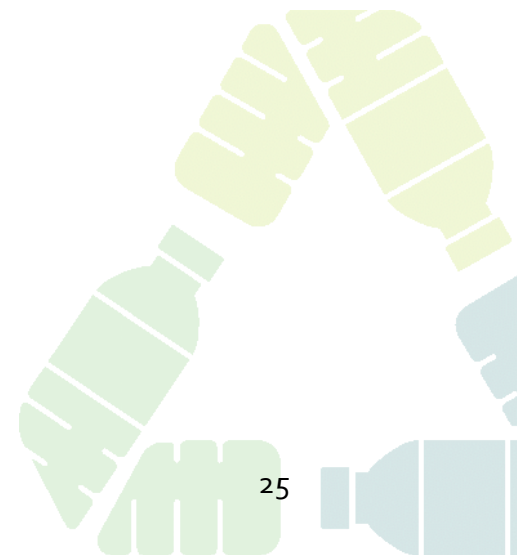


Figure 4. Workflow diagrams for WG3: Packaging usage



4.4. Workflow information for WG4 – Packaging end of life

Firstly, in T5.1, EuPC will perform an investigation into the current status of collection and sorting of plastic packaging waste, with the main focus on improving the management of waste at a consumer level, including households, businesses, and industries. Results from it will be reported in D5.1 (with submission deadline in M24). On the other hand, CETEC will conduct analyses of mechanical and chemical recycling in tasks T5.2 and T5.3, respectively, which will feed the deliverable D5.2 (M30).

Furthermore, the outcomes from T5.1, T5.2, T5.3 and T5.4 (relative to LCA analysis) will be used to develop ideas on how future food packaging systems should evolve towards circularity in task T5.5. To achieve this, HOLOSS will rely on the requirements outlined in T1.3 and on the KPIs established in T1.4. Finally, these strategies, detailed in deliverable D5.4, will serve as inputs to be assessed in T2.6 for the formulation of the final MAGNO project strategies.

The diagram below outlines the workflow for this Working Group:

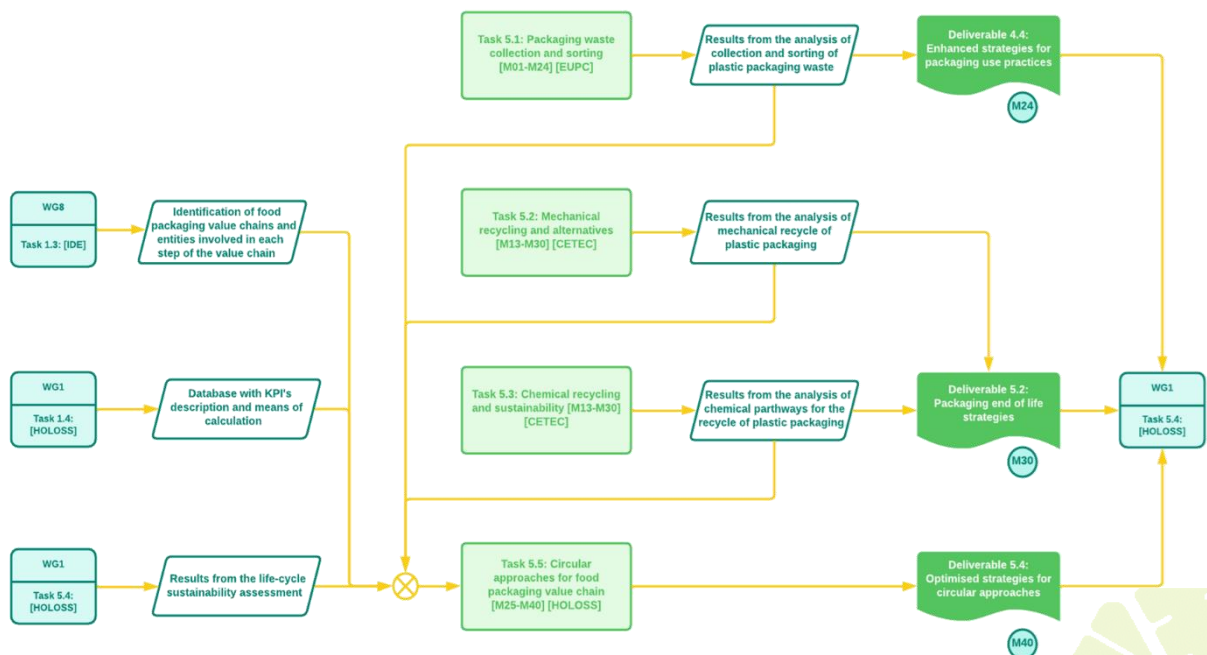


Figure 5. Workflow diagrams for WG4: Packaging end-of-life

4.5. Workflow information for WG5 – Information and Communication Technologies

In task T2.1, IDE will prepare a Data Management Plan (DMP), whose first version will be ready by Mo6 in the first submission of the respective deliverable and will be updated in M24 and M40. This document will detail the management of data of the project, including the results for the MAGNO digital twin and consumer platform.

Meanwhile, IDE will also develop Artificial Intelligence algorithms in task T2.2 to enhance research in the packaging industry. Additionally, in task T2.3, DNV will perform a scientific search, aimed at gathering data from real actors involved in the packaging value chain (identified in tasks T1.3 and T1.5) by contacting the distribution list and setting up bilateral meetings. The results of this task will feed the deliverable D2.4 (whose submission deadline is M24).

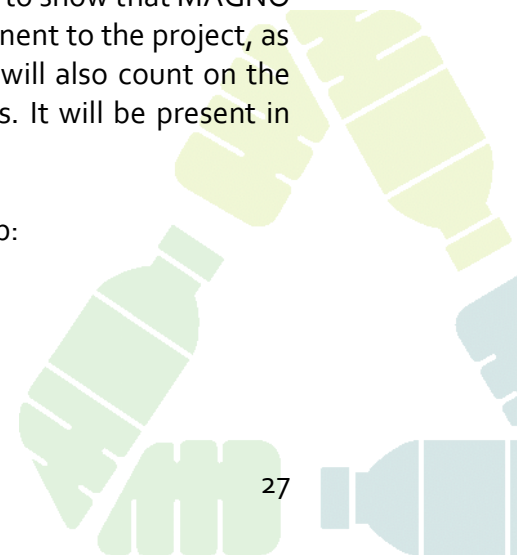
Besides, IRIS will create a data model in task T2.4 with the insight of tasks T2.2 and T2.3. This consists of two subtasks: the database creation and the data fusion and pre-processing, and it leads to the publication of deliverable D2.5 in M24.

On the other hand, in task T2.5, IDE will perform the creation of the Ecosystem Digital Twin, which will have as input the database created in T2.4 and information from across all other technical tasks in WP3 to WP6. This task will feed the deliverable D2.6, and the data from European and international scenarios of the food packaging systems will be employed in T5.4 by HOLOSS.

Moreover, IDE will develop in T2.6 a series of plastic packaging strategies for the MAGNO project. For doing so, the previously defined strategies for manufacturing, usage, circular approaches and business, coming from T3.5, T4.5, T5.5 and T6.2, respectively, will be evaluated and pooled in order to select the best strategies. This will be reported in deliverable D2.7 (M42). It will also be utilized in T6.5 for analysing the potential for replication of these strategies across various countries.

Lastly, task T6.4 will lie in the development of MAGNO web platform by IRIS. It will also have as inputs the strategies defined in T3.5, T4.5, T5.5 and T6.2 to show that MAGNO solutions are environmentally friendly and to present news pertinent to the project, as well as associated with other EU initiatives. The web platform will also count on the updated status of the project and its success in relation to KPIs. It will be present in deliverable D6.7 (M42).

The diagram below outlines the workflow for this Working Group:



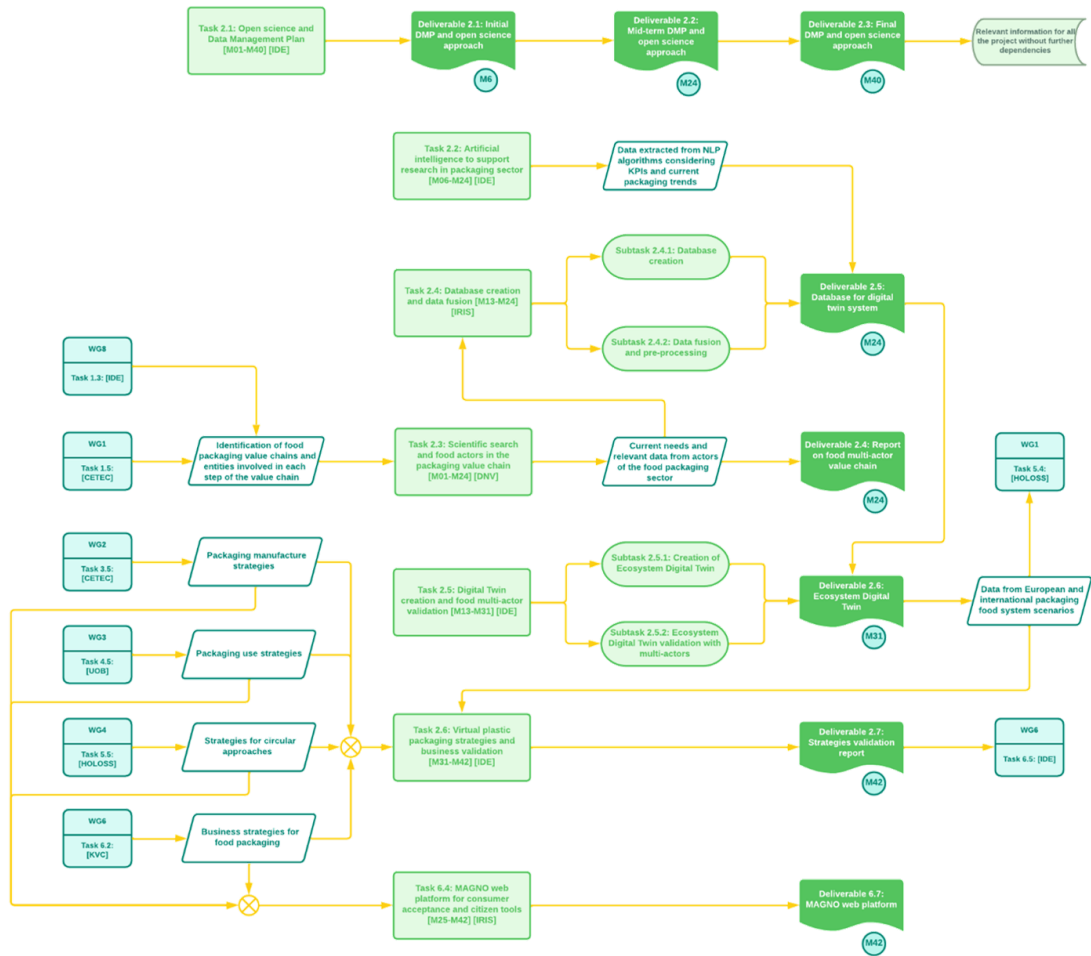
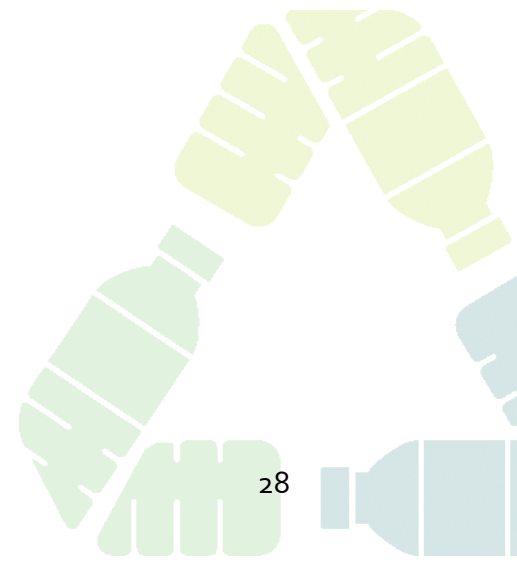


Figure 6. Workflow diagrams for WG5 - Information and Communication Technologies

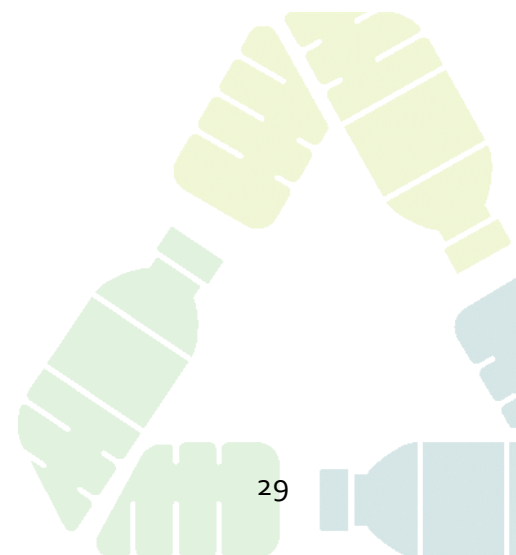


4.6. Workflow information for WG6 – Business strategies and consumer perception

EuPC will work closely with HOLOSS in the development of task T6.1 to gain a deeper understanding of the consumer, raise their awareness of the sustainability issues present in the current system, as well as motivate them to choose more sustainable options, for which four workshops will be organised by HOLOSS. This task will directly feed D6.1 about consumer preferences regarding packaging sector (M24).

At the same time, KVC will conduct a market and business analysis in T6.2. It will be divided into two subtasks. Subtask ST6.2.1, dedicated to conducting studies of the market landscape, will be detailed in three market analysis deliverable reports D6.2, D6.3 and D6.5 in Mo6, M24 and M40, respectively. Subtask ST6.2.1, on the other hand, consists of defining optimised business strategies to develop concepts for a future food packaging system. To accomplish this, KVC will depend on the requirements specified in T1.3 and the KPIs defined in T1.4. Ultimately, these strategies, outlined in deliverable D6.5 (M40), will be used as inputs for evaluation in T2.6 to develop the final MAGNO project strategies.

Finally, in task T6.3, KVC will also delineate an action plan to enhance consumer awareness and encourage a behavioural change regarding waste management. This information, along with the one coming from ST6.1.2, will directly feed deliverable D6.6 (M36), and in turn, will aid in the definition of business strategies in ST6.2.2. The diagram below outlines the workflow for this Working Group:



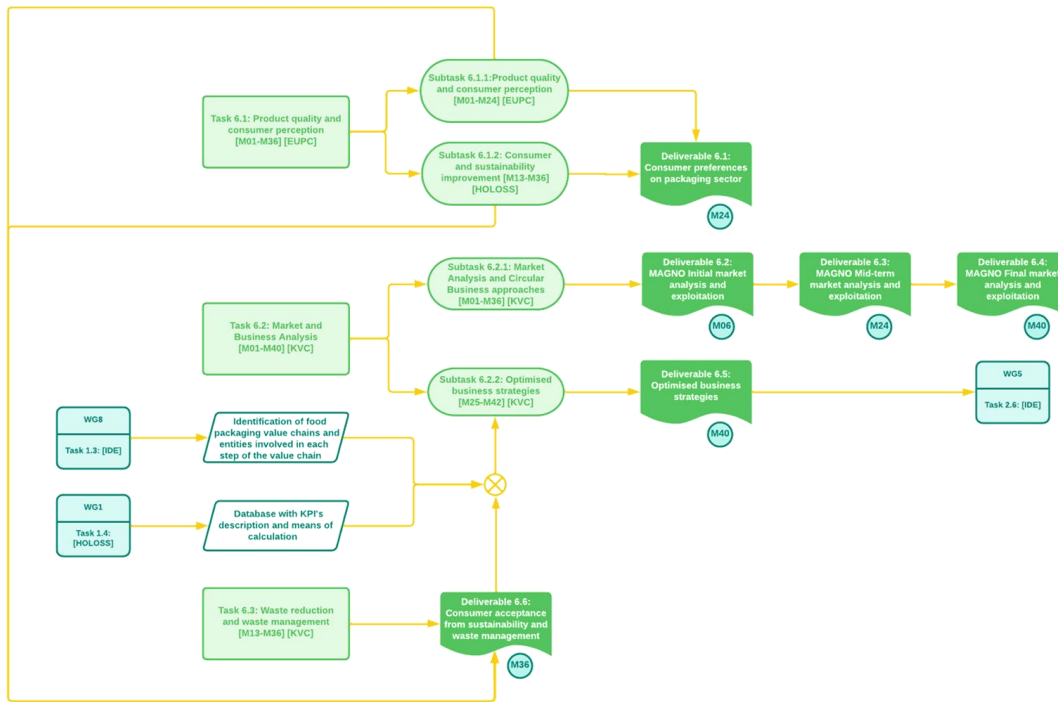


Figure 7. Workflow diagrams for WG6 - Business strategies and consumer perception

4.7. Workflow information for WG7 – Communication, exploitation, and social activities

Throughout the entire duration of the project, a Communication and Dissemination Plan will be conducted in T7.1 by KVC, starting with initial desk research and followed by continuous contributions from food sector actors and consortium members. An initial version of the plan and two successive updates will be submitted by Mo6, M24, M42 in deliverables D7.1, D7.2 and D7.3, respectively.

In the meantime, in T7.2, KVC will also create the dissemination materials and channels, developing a compelling and effective visual identity for MAGNO, which will help communicate its message to key stakeholders, food multi-actors, and the broader public. These materials and channels will be reported in D7.4 by M12, and two practice abstracts will be published in deliverables D7.5 and D7.6 (M13 and M41).

Furthermore, KVC will conduct communication and dissemination activities during the execution of the project, aimed at guaranteeing precise communication of the project and its developments at local, national, and EU levels, and reporting them in D7.7 (M36). Besides, these results, in conjunction with the ones coming from tasks T7.3 and T7.6, related to exploitation strategies and synergies with other HE funded projects, respectively, will aid in the development of deliverable D7.8 of the final PEDR results (M42).

HOLOSS will accomplish task T7.3 related to Gender Dimension across the whole project and will expound the results of it in initial and final gender dimension reports: D7.9 and D7.10 (M18 and M40). Lastly, in task T6.5, IDE will perform the replicability of plastic packaging strategies outlined in T2.6 in 6 case-studies. It will also have as input the Ecosystem Digital Twin developed in T2.5 in order to examine all available value chain options. This will result in the publication of deliverable D6.8 in M42.

Note that the information originating from all these tasks will be relevant for the execution of the entire project, regardless of the absence of further dependencies. The diagram below outlines the workflow for this Working Group:

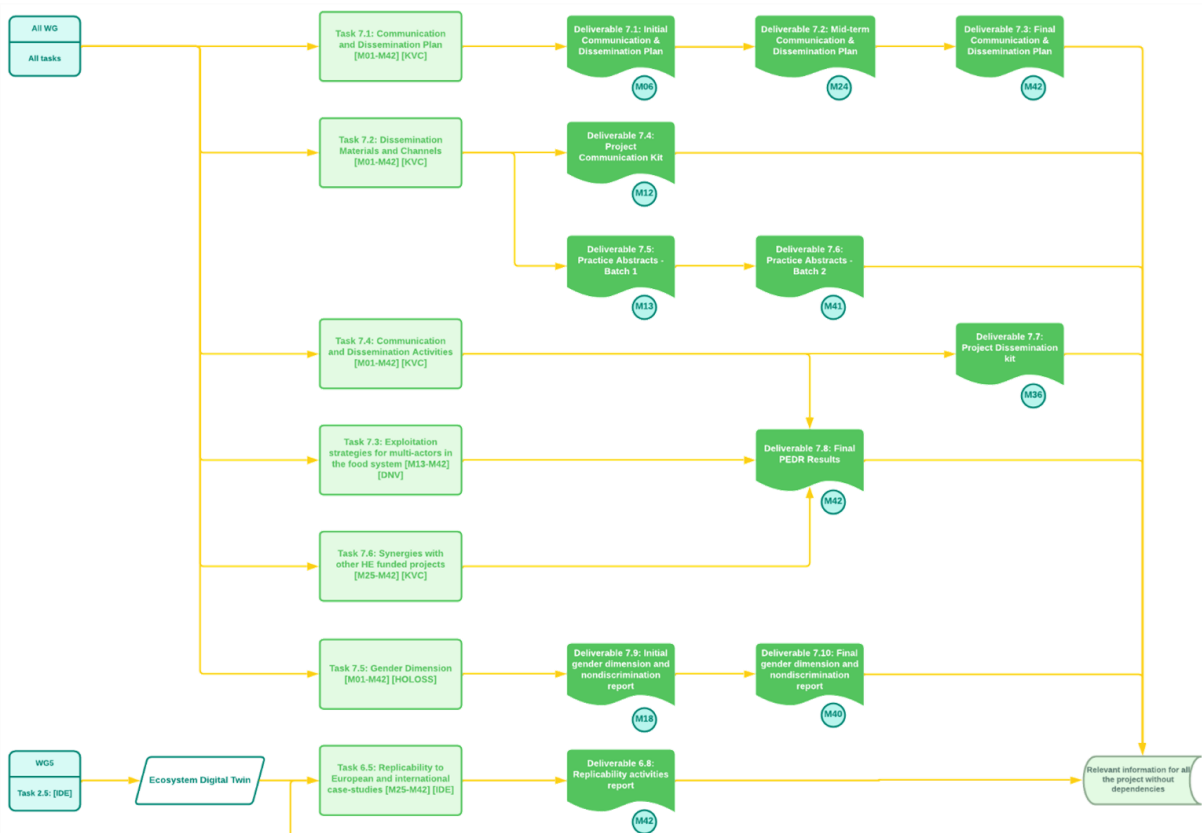
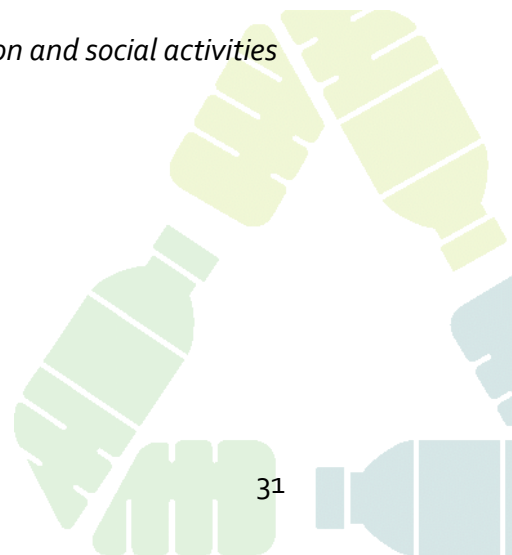


Figure 8. Workflow diagrams for WG7 - Communication, exploitation and social activities



4.8. Workflow information for WG8 – Project management

This Working Group is dedicated to guaranteeing the correct execution of the project. For doing so, in task T1.1, IDE will conduct an administrative and financial management, as well as project monitoring and quality assurance from start to finish of the project. Information regarding the approach for conducting all these activities will be present in the Project Management Plan (deliverable D1.1) in Mo4. during the entire project, FHF will lead a scientific and technical coordination in T1.2, encompassing the oversight and regulation of the project’s scientific and technical evolution.

On the other hand, in T1.3, IDE will create an efficient operational framework that sets up a cooperative partnership among working groups, which will allocate partner roles and responsibilities for each WP. It will be reported in this deliverable (D1.2). Besides, the value chains and actors engaged in each step identified will be utilized in tasks T2.2 and T2.3 to aid research in the packaging sector, in T3.5, T4.5 to determine packaging production and usage for optimized strategies, in T5.5 to devise circular solutions, and in T6.2 to assemble optimized business strategies.

The diagram below outlines the workflow for this Working Group:

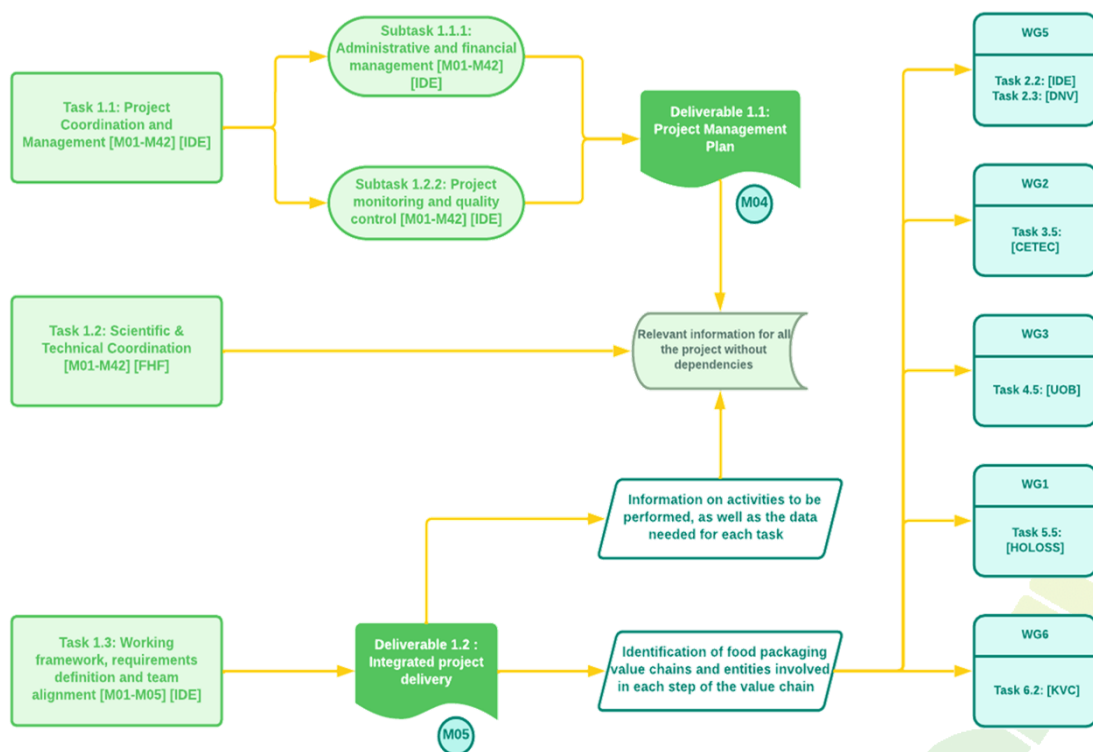


Figure 9. Workflow diagrams for WG8 - Project Management

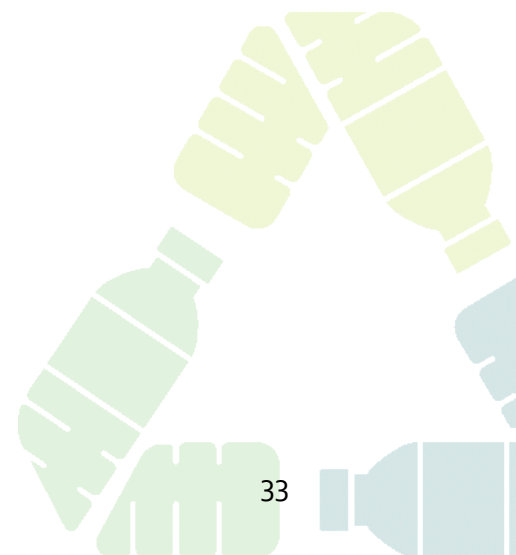
5. Conclusions

Following the completion of the task linked to this document **T1.3 - Working framework, requirements definition and team alignment**, a working framework has been established suited to the scope of the project MAGNO. With the participation of all partners, the roles and responsibilities of each member of the consortium in the WP have been extended from the information contained in the GA.

These roles have been classified among several WGs, each of them having a clear definition regarding the tasks to be developed within the project, with some partners participating in various WG due to their expertise and the interdisciplinarity needed to perform specific activities.

Furthermore, the identification of the main types of actors involved across each step of the food packaging value chain has been performed to lay the foundations for the activities and work developed in later stages of the project. One of the main findings during this process is that although most publications, reports and roadmaps classify actors and stages of the food packaging value chain under the same general categories, there are slight differences between the nomenclature and classification criteria.

Finally, a diagram has been created for each WG that illustrates the workflow and information shared among the project's tasks. This diagram is accessible to the entire consortium for consultation, allowing them to better understand the interdependence of material and information between tasks along the WPs, further optimizing the organization of the project and improving the results in quality and time.



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