

*HORIZON-CL6-2021-CIRCBIO-01
Innovative solutions to over-packaging and single-use plastics, and related
microplastic pollution (IA)*

BUDDIE-PACK

**Business-driven systemic solutions for sustainable plastic packaging reuse
schemes in mass market applications**

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Acronym description

GA	Grant Agreement
WP	Work Package
C&D	Communication and Dissemination Plan
D&E&C	Dissemination, Exploitation and Communication Plan
TRL	Technical Readiness Level
Zenodo	General-purpose open repository developed under the European OpenAIRE program and operated by CERN
Gold OA	Gold Open Access means that authors publish their papers in Open Access Journals which are free to be accessed and read without restrictions.
ExCom	Executive Committee
IPR	Intellectual Property Rights

Executive Summary

Dissemination, exploitation and communication activities represent an essential part of Innovation Actions projects. They ensure that the gained knowledge or exploitable outcomes can benefit to the whole society, while avoiding any duplication of research and development activities.

Buddie-Pack Dissemination Exploitation and Communication Strategy is twofold:

- Project Dissemination and Communication: promoting the project itself, informing about the path for creating awareness and proposing solutions for reuse packaging.
- Buddie-Pack Dissemination and Exploitation Strategy: promoting the solutions and results from the 6 case studies to the different stakeholders' targets.

This strategy will also ensure all possible dissemination, exploitation and communication routes are identified and used throughout the course of the project. Additional routes will potentially be investigated and if found relevant will be integrated in the dissemination, exploitation, and communication road map later.

It is vital that the dissemination, exploitation and communication of the project's achievements should never jeopardise protected intellectual property (e.g. patent, product design) or further industrial application.

In order to address this, before any activity (e.g. publication, presentation, etc.), strict rules of prior notice to all partners will be applied according to EC guidelines and the Buddie-Pack Consortium Agreement.

D8.1. is consisting in a report on the dissemination exploitation and communication strategy including information on products, target groups, exploitation routes for results, levels of dissemination, benefits to end users, dissemination methods/activities, timescales and responsibilities, requirements from the European union, evaluation and criteria for success, list of deliverables, and timeline for dissemination and target groups.

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1. Introduction

BUDDIE-PACK is a circular economy project aiming at implementing a systemic approach for the large-scale deployment of reusable plastic packaging (RPP) based on a multidisciplinary approach combining social, technological, and economic innovations meaning several different target groups for communication, dissemination, and exploitation activities. The project will take advantage of behavioural innovation to promote consumers' acceptance of RPP by analysing drivers and analysing consumers' psychology of reuse. Sound synergies with technological innovations will be developed to manufacture packaging fulfilling the demanding requirements of RPP based on innovative designs and recyclable materials. The project will focus on innovative cleaning solutions to guarantee the safety of consumers against the possible contamination and ageing of RPP during their repeated use, and the durability of the functional properties up to 300 cycles. Viable economic models will ensure the sustainability of the proposed solutions thanks to the profitability of stakeholders throughout the value chain, including solutions based on social & solidarity economy models.

The project outcomes will be demonstrated under the supervision of RPP manufacturers and users, logisticians, cleaning, and recycling experts through 6 mass market business cases in real environment at TRL8. This means dedicated and specific actions and tools for dissemination and exploitation of the results to each target group. An unprecedented cleaning pilot line dedicated to RPP and allowing scale economies will be set up. Policy recommendations and pre-standardisation activities on RPP designs and cleaning protocols will prepare the markets for the mass deployment of RPP. Preventive measures will be put in place to eliminate any release of microplastics during RPP use. The project will allow to decrease significantly each year the production of single-use packaging, reduce the consumption of virgin plastics, of water, avoid CO2 emissions and microplastics leaking in EU seas.

To accompany a such challenging project, dissemination, exploitation, and communication activities must be also challenging by including all actors, stakeholders and wide audience concerned and using the more appropriate tools and actions for each target group.

2. Communication dissemination and exploitation objectives and approach

Project progress will be shared to ensure awareness of the project and its accomplishments with as many relevant and interested stakeholders as possible. The project objectives and results will be shared through:

I. Communication: targets a broad audience, not only specialists in the field. These activities will raise public awareness.

II. Dissemination: targets more experienced audiences, includes scientific and technical results. These activities will feed the work of other actors: packaging producers including small-scale processors, food producers, food retailers, environmental associations, local authorities, citizen associations.

III. Exploitation: the use of results in further research and innovation activities other than those covered by the action concerned, including among other, commercial exploitation such as developing, creating, manufacturing, and marketing a product or process, creating, and providing a service or in standardisation activities.

Communication, dissemination, and exploitation activities have different strategies, as described in Table 1.

COMMUNICATION	DISSEMINATION	EXPLOITATION
Objective		
Reach out to society and show the impact and benefits of EU-funded R&I activities, e.g by addressing and providing possible solutions to fundamental societal challenges.	Transfer knowledge and results with the aim to enable others to use and take up results, thus maximizing the impact of EU-funded research.	Effectively use project results , through scientific, economic, political, or societal exploitation routes aiming to turn R&I actions into concrete value and impact for society.
Focus		
Inform about and promote the project and its results/success.	Describe and ensure results available for others to use - Focus on results only!	Make concrete use of research results (not restricted to commercial use).
Target audience		
Multiple audiences beyond the project’s own community incl. media and the broad public.	Audiences that may take an interest in the potential use of the results (e.g. scientific community, industrial partner, policymakers).	People/organisations including project partners themselves that make concrete use of the project results as well as user groups outside the project.

Table 1 : Communication, dissemination and exploitation in a nutshell (Source : European Commission¹)

The objectives of professional, accurate, and efficient communication/dissemination/exploitation are to:

- **Assure** that BUDDIE-PACK reaches the proper target audiences and that messages are tailored for their needs, e.g., demonstrating the benefits of sustainable plastic packaging reuse.
- **Ensure** that project results and strategies are communicated to regional, national and EU policy makers to have a chance to be taken in account into existing and future legislation at the EU level and in the Member states.
- **Engage** external actors into the project actions e.g., demonstration workshops, training activities, etc. contributing to the best and more appropriate exploitation of the results

¹ European Commission (2020). EU Grants: HORIZON EUROPE Guidance — Social media guide for EU funded R&I projects. https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/agr-contr/general-mga_horizon-atom_en.pdf

- **Maximize** the impact and exploitation of the project outcomes and results and ensure their sustained effect after the project has ended.
 - **Facilitate** cooperation with the projects that have similar scopes and aspirations like the sister project funded under the same topic: R3PACK and the projects belonging to the same cluster supported by Horizon Results Booster Service.
- Other projects and initiatives have been listed in the DoA (see Annex 1). This list will evolve during the duration of the project.
- **Promote** the reputation of the BUDDIE-PACK consortium as well as the expected results in order to maximize their exploitation.

Additionally, this deliverable aims to support partners in:

- **Understanding** and applying dissemination exploitation and communication rules.
- **Improving** the visibility of the project for a better exploitation of the results.
- **Ensuring** good quality project communication materials.
- **Identifying** support from the EU in all material.
- **Branding** at project and local level.
- **Managing** communication to ensure that the above-mentioned objectives are met.

The following sections of the document cover key aspects in the D&E&C plan:

- **What** to disseminate, exploit and communicate (project outcomes and results - section 3 & project key messages-section 4),
- **Who** is the target audience (section 5) for D&C activities as well as for project results.
- **How** communication, dissemination and exploitation will be carried out, routes and channels that will be used (section 6)
- **When** the D&E&C activities will be assessed, monitored, and evaluated (section 7).

A part of this last section (section 7) describing the terms of methodology (activities & tools) used to assess, monitor, and evaluate is also depending on **How**.

Intellectual Property Rights (IPR) management for results is also described under this section.

3. Project outcomes and data collection (WHAT)

3.1 Project outcomes

All project outcomes will acknowledge the support of the European Commission as requested by Article 17 Communication, Dissemination and visibility of the HORIZON EUROPE MODEL GRANT AGREEMENT and follow its principles. Unless it goes against their legitimate interests, each beneficiary must disseminate its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium). This does not change the obligation to protect results in Article 16. The confidentiality and security obligations and the obligations to protect personal data in Article 15, all of which still apply. The process of dissemination can be found in more detail (e.g. time schedule for prior notice and partner's approval) in the signed Consortium Agreement.

All the results (data) will be recorded according to the rules of the DMP (Data Management Plan – D9.3). The main tool associated to the DMP are consisting in several excel files gathering all the data

produced during the project and describing the exploitation routes applied for all sorts of data/results recorded. Depending on WP9 (Management issues) these excel files gathering all the data will be updated every year regarding the new and different exploitation routes adopted for all the data and results. These different excel files are accessible in the Sharepoint and must be updated regularly (every 4 months) by all the partners.

3.2 Description of the tools (excel files) available for the collection of the results

Two different kinds of results to be outcome of Buddie-Pack must be considered:

1. Expected results described in the DoA associated to Key Performance Indicators gathered in the following excel file accessible in the Sharepoint. The main results of the project are summarized in the Table 3 (Exploitation Plan for Other Results) after and the exploitation table is below (Table 2 : Exploitation Plan of the results):

D8.1 : Dissemination, Exploitation and Communication plan

Exploitation of results							
Result	Title	Result property	Co-Ownership	More precision about result property especially when no existing ownership agreement is still existing -Future plans	Type of result	High potential	Steps undertaken towards exploitation
R1	Product Vytal design	Collective property - Joined ownership agreement already described in the Consortium agreement	Vytal, ECHO, IPC	Accordingly of the rules of CA and GA	DSG: design (new or improved)	High technologic, business or economic potential	Pilot, demonstration or testing
R2	Product Ausolan 1 portion design	Collective property - Joined ownership agreement already described in the Consortium agreement	Ausolan, ECHO, IPC	Accordingly of the rules of CA and GA	DSG: design (new or improved)	High technologic, business or economic potential	Pilot, demonstration or testing
R3	Product Ausolan 8 portions design	Collective property - Joined ownership agreement already described in the Consortium agreement	Ausolan, ECHO, IPC	Accordingly of the rules of CA and GA	DSG: design (new or improved)	High technologic, business or economic potential	Pilot, demonstration or testing
R4	Vytal molds (Specifications, tool desing, mold)	Collective property - Joined ownership agreement already described in the Consortium agreement	Knauf, IPC	Accordingly of the rules of CA and GA	PROD: product (new or improved)	High technologic, business or economic potential	Pilot, demonstration or testing
R5	Ausolan 1 portion molds (specifications, tool desing, mold)	Individual property - existing ownership agreement	IPC	Accordingly of the rules of CA and GA	PROD: product (new or improved)	High technologic, business or economic potential	Pilot, demonstration or testing
R6	Ausolan 8 portion molds (specifications, tool desing, mold)	Collective property - Joined ownership agreement already described in the Consortium agreement	Knauf, IPC	Accordingly of the rules of CA and GA	PROD: product (new or improved)	High technologic, business or economic potential	Pilot, demonstration or testing
R7	Tooling prototyping	Collective property - Joined ownership agreement already described in the Consortium agreement	Knauf, IPC	Accordingly of the rules of CA and GA	PROD: product (new or improved)	N/A	Feasibility study
(*) Please use one line per target group for each Result							
<div style="display: flex; justify-content: space-between;"> cell with scroll-down menu cell without scroll-down menu </div>							

Market maturity	Category of result	Target group (*)	Tools used to reach the target group	More precision about the tool/method used, if possible	Period of exploitation Starting date	Period of exploitation End date (if the period is limited)	Exploitation after the end of the project	First benefits recorded for the target group	More precision/description about the first benefits	Future benefits expected for the target group, if possible	More precision/description about the future benefits
emerging: growing demand, scarce supply	Prototype	industry / business partners									
emerging: growing demand, scarce supply	Prototype	industry / business partners									
emerging: growing demand, scarce supply	Prototype	industry / business partners									
emerging: growing demand, scarce supply	Prototype	industry / business partners									
emerging: growing demand, scarce supply	Prototype	industry / business partners									
emerging: growing demand, scarce supply	Prototype	industry / business partners									
	Prototype	industry / business partners									

Table 2 : Exploitation Plan of the results

This table with open and closed questions allows to get a complete and detailed information about exploitation routes adopted for each result.

2. Other results that are not mentioned in the DoA

These results are either unexpected or not considered in the DoA.

All of them are described in the following table (Table 3: Exploitation Plan for Other Results):

Buddie-Pack							
Other results							
Type of result	Description	If the result is needed to validate the conclusions of a publication, briefly describe the provisions whereby you intend to make your output available, either in digital or physical form	Type of Persistent Identifier, PID	Insert PID reference (if available)	Insert PID reference of the publication	URL to repository landing page for the result service/webpage hosting the result (if available)	What license is the result licensed under?

Table 3: Exploitation Plan for Other Results

This table is the same as the table required by EC in the participant portal to collect “Other results”. It will facilitate reporting for the next reporting periods.
 Results and “Other results” can include production of standards as well as datasets. For these two categories of results a specific table is available in the Sharepoint to be fulfilled by the partners to describe the standards produced and their application as well as the datasets and their use.



Buddie-Pack					
Standardization activities					
Lead/Partner	Standardization activity	Short description of the activities and reference to the relevant group	Types of standardization bodies involved	Names of standardization bodies involved	Standard references (if any)
	cell with scroll-down menu				
	cell without scroll-down menu (please detail your answer)				

Table 4: Exploitation of standardization activities

Buddie-Pack									
Datasets									
Type of PID (*)	Description of Dataset (*)	PID (*)	Does the data underpin a publication (*)	PID of the publication	URL to repository	Is this dataset available in open access? (*)	If data is needed to validate conclusions of a scientific publication, describe the provisions whereby you intend to make it available	Please elaborate	Is the metadata of deposited data accessible through open access? (*)
(*) mandatory fields									
	cell with scroll-down menu								
	cell without scroll-down menu								

Table 5: Exploitation of datasets

These two last tables devoted to the recording, description and exploitation of standards and datasets are in accordance with the tables proposed by EC in the participant portal for the reporting. They will be used for the next reporting periods.

Regarding exploitation issues, information related to IPR (Intellectual Property Rights) are important to consider for all the results of the project. In that sense, a table available in the Sharepoint and to be completed by all consortium members has been produced.

Buddie-Pack				
Intellectual Property Right IPR				
Partner	Type of IP Right	IPR confidential	Application title	Embargo end date
	cell with scroll-down menu			
	cell without scroll-down menu (please detail your answer)			

Table 6 : Management of IPR for results

3.3 Key results

BUDDIE-PACK will deliver 3 key results:

1. A public set of design rules considering the uses and stakeholders needs from 6 targeted mass market applications, representative of the overall market requirements,
2. 6 business-driven models for reusable plastic packaging validated and demonstrated at TRL8, promoting common items and replicability levers to other countries and applications. See table below (Table 7: Dissemination table based on TRL levels). To guarantee the adoption of the innovations and strategies defined within BUDDIE-PACK, all developments will be supported with pre-normative and policy actions in several European countries.

As it is shown in table below (Table 7: Dissemination table based on TRL levels) a major part of innovations to be produced which will be disseminated and exploited have a TRL 8, as it is requested for Innovation Actions (IA). As a reminder, TRL 8 means that the real complete system/product is qualified after testing and demonstrating. The next step is placing the service/product on the market.

Innovations	TRL start	TRL end
Novel combinations of materials to boost RPP and plastic packaging circularity	Existing materials are designed for SUP applications. TRL5 to 7 solutions (additives, coatings, resins) exist but their combinations must be evaluated to meet RPP needs.	Selected combinations of materials will be made to be evaluated as complete systems for 6 applications tested at large scale (TRL8). All solutions will be recyclable either through traditional household waste streams or specific collection & sorting schemes, depending on national or local regulations.
Manufacturing of RPP (injection molding, extrusion, thermoforming)	Manufacturing processes are all known at industrial scale but tooling modification and parameter adjustment bring them down to TRL6 (prototyping/small series production).	TRL8. Packaging units will be produced at semi-industrial speed (>50 units/h) in pilot production lines in KNAUF, SK and IPC premises.
Recyclable high barrier flexible materials for Bag-in-box and lids	High gas barrier monomaterial PE- and PP-based films have been developed by multianolayering up to TRL6 (H2020 CIMPA project) (throughput 15 kg/h).	The films will be produced at TRL 8 (75 kg/h) for applications as lids or gas barrier materials for BiBs.
Cleaning and decontamination of reusable packaging	Current washing machines are small and handle a small range of shapes. We will carry out tests at TRL6 with more versatile systems and integrating control systems.	TRL8. MTS will host 1 versatile automated cleaning line integrating cleaning/ decontamination and quality control technologies.
Methodology to assess the release of microplastics during the usage of RPP	Standardized methods for characterizing microplastics are still under development (TRL4).	A TRL6 test bench mimicking real service conditions of RPP (repeated cleaning + heating/cooling + abrasion) and enabling the collection of microplastics will be set up.

E-Nose for contaminants detection	Plasmion's SICRIT® technology runs in semi-automated environments (TRL6) for food safety, aroma sensing, cosmetics.	The technology will be integrated in the TRL8 fully automated pilot line for cleaning and safety/quality control.
Reusable packaging use	RPP is known and established in reduced markets. Lack of regulation for its implementation in B2C markets (TRL5).	TRL8. RPP will have its design and full use cycle validated and qualified in public design rules and pre-normative dossiers.
Consumers' behavior change	TRL6. USFD has performed analyses on small panels of consumers about prototypes of reusable packaging.	TRL8. Drivers to foster consumers' change will be qualified following business cases.
Business models adapted to reusable packaging	The technological maturity of business models varies from TRL5 (testing in applications different from RPP) to TRL7 (e.g. VYTAL's QR code-based model).	TRL8. Each market application will see an updated business model combining social and technological innovations ensuring profitability all along the value chain.

Table 7: Dissemination table based on TRL levels

For all technical work packages, objectives and deliverables are associated to expected outcomes that will be disseminated to different target groups and exploited via actions and tools defined in the dissemination and exploitation strategy set up in the project.

For each of these technical work packages, objectives and deliverables associated to expected outcomes and impacts are reminded in Annex 1.

To be more concise, the main important expected results of Buddie-Pack to be communicated, disseminated, and exploited can be summarized under 14 Results in the table below (Table 8: Summary of expected results associated to categories and type of results from Buddie-Pack)

These 14 expected results can be classified under categories or type of results proposed on the participant portal for reporting.

EXPECTED RESULTS	Type of result
R1: Design rules for reusable packaging across 6 case studies	PO - Policy recommendation, awareness
R2: Engagement of stakeholders in multidisciplinary workshops	EVNT - Event (conference, seminar, workshop)
R3: Guidelines on design rules to minimize concerns from consumers	PO - Policy recommendation, awareness
R4: Educational and strategic resources for businesses to develop reuse systems	LEARN - Learning and training (training modules, curricula)
R5: Sustainable materials, tooling, and manufacturing processes for reusable packaging	METH - Method, material, technology

R6: Recycles approval for reusable packages & Social and Solidarity Economy-based close loop recycling	SERV - Service (new or improved)
R7: Profitable business models for replication of the business cases	BUS - Business model (new or improved)
R8: Cost benefit analysis for optimal alternative/new value chains	BUS - Business model (new or improved)
R9: Cleaning/decontamination technology development and piloting	METH - Method, material, technology
R10: Assessment and mitigation of risks linked to microplastics and consumers' safety	METH - Method, material, technology
R11: Large scale demonstration of reusable packaging across key segments (trays for fresh food, meat pack, BiB beverages and personal care products, fresh meals, cosmetics)	PROC - Industrial process (new or improved)
R12: LCA, LCCA, circularity assessment	METH - Method, material, technology
R13: Guidelines for standardization (CWA) of reusable packages and cleaning protocols	METH - Method, material, technology
R14: Policy briefs and recommendations	PO - Policy recommendation, awareness

Table 8: Summary of expected results associated to categories and type of results from Buddie-Pack

A plan of exploitation is proposed for each of these 14 key results in the following parts of the deliverable (WHO, HOW and WHEN).

4. Key project messages (WHAT)

In order to better communicate, disseminate and exploit project results and to have more impact towards categories of stakeholders or actors like consumers and wider audience having not a scientific background and special knowledge about the thematic of the project, the use of key messages is important and recommended.

The communication actions will send the following simple, understandable, and general key messages (i) Design functional Reusable Plastic Packaging (RPP) and reuse systems for a variety of applications and business (from primary packaging for cosmetic or food to secondary packaging, B2B, B2C), (ii) Ensure RPP safety (iii) Offer economically viable reuse systems for all stakeholders along the value chain.

For dissemination actions the project's key messages are assertive, clear, and concise statements about overall project **objectives and results**. The goal is for the target audience to remember and react to these messages. Key messages, therefore, need to be tailored to the audience they intend to reach both in content and in method of delivery. At this starting point of the project, three categories of key messages (sections 4.1, 4.2 and 4.3 below) have been identified, and for each category a certain number of key messages have been developed (16 key messages in total).

These messages must also promote the results in the view of maximizing their exploitation and replicability in other contexts, sectors and Countries using different legislation, regulation and policy rules.

For exploitation actions the 14 results summarized in the table 8 will be exploited with the support of the Plan of Exploitation to be fulfilled in the Sharepoint by all partners (Table 2).

For each result the different questions WHAT, WHO, HOW and WHEN will be answered. The different steps of the plan of exploitation are detailed and provided in the D&E&C plan in the following parts. (WHAT, WHO, HOW, WHEN).

4.1 Developing technological solutions for the design and manufacture of packaging with the appropriate functional properties required for reuse

1. Innovative formulations of commodity polymers (PP, PE, PET) but also technical materials (Tritan, bio-based polymers) that can withstand the requirements of reuse will be used (e.g. microwaving, dimensional stability ...)
2. Surface treatment methods and coatings will be used to increase mechanical properties together with providing a durable aesthetics (anti-scratch, anti-stain properties).
3. A set of design rules for reusable packaging will be delivered to companies and academics. The rules will include recommendations for the adjustment of tooling and manufacturing parameters suitable

for the production of reusable packaging (injection molding, extrusion, thermoforming, use of polymer molds).

4. All packaging will be recyclable according to existing certifications (e.g. Recyclclass) and circular economy models developed in the project (e.g. through social and solidarity economy (SSE) channels).

4.2 Understanding consumers' expectations with regards to RPP, what they find acceptable, and assessing drivers and barriers to behaviour change (e.g. commitment to return the packaging, accepting already used packaging ...)

5. Socio-economic and societal barriers and drivers will be analysed along with consumers and environmental needs to assess engagement from all stakeholders along the value chain and define priorities for making RPP societally and economically sustainable.

6. The psychology of reuse will be analysed to choose economic-technical solutions that are likely to be accepted by consumers.

4.3 Developing sustainable business-driven strategies offering profitable economic models to RPP

7. The most adapted business models in reusability will be analysed and assessed to ensure profitability for all stakeholders along the value chain in B2C and B2B, using a price-per-cycle metric.

8. Novel value chains (incl. materials providers, packaging manufacturers, brand owners, retailers, logistics coordinators, recyclers) will be examined to propose innovative circular business models for RPP.

9. Logistics models for packaging management after use (collection, transport, cleaning including filtering of microplastics from outlet wastewater) will be developed.

10. Economic drivers to boost the replication of the BUDDIE-PACK circular models at EU scale will be identified and analysed. EU and National specificities will be considered.

11. The role of SSE in circular economy models will be assessed in particular for the closed-loop recycling of end-of-life RPP that may not be compatible with existing recycling infrastructures.

4.4 Ensuring safety, risk management, and reduce microplastics release in the environment

Consumer's safety along the multiple packaging reuse cycles will be critical for food/cosmetics packaging.

12. Disinfection products, procedures and equipment will be developed/adjusted to achieve efficient removal of:

- Common food components (proteins, fats, sugars, dyes, allergens, etc.) and detergent/disinfectant residues (quaternary ammonia, surfactants, sequestrants).
- Bacteria or fungi.

Cleaning wastewater will be treated by bioremediation to prevent any negativities on water resources.

13. Challenge tests will be set to evaluate the absorption of chemical contaminants in plastic that could occur during the multiple uses of RPP. Migration assessment will assess potential contaminants release towards food/cosmetics and make sure that the threshold of toxicological concern (TTC) is not reached.

14. Hygiene conditions and contaminants on RPP quality (aesthetics, olfactory ...) will be evaluated.

15. Warning procedure based on a sniffing technology (detecting remaining odours or chemical contaminants) and visual control (detecting aesthetics abnormalities: colours, dimensional ...) will be developed.

16. The potential release of microplastics possibly occurring during the multiple use of the packaging will be evaluated through dedicated test benches mimicking real conditions. Solutions and recommendations to prevent the release of microplastics will be proposed whenever necessary.

The project key messages may evolve as the project progresses. Importantly, each of these messages will be individualised for the target group it aims to reach as shown in the draft example in the table 9 below (Table 9: Example of individualizing a message by target group). The same message may be targeted to more than one group and may be sent more than once during the project lifetime.

An example is provided in the table below: All packaging will be recyclable according to existing certifications (e.g. Recyclclass) and circular economy models developed in the project (e.g. through social and solidarity economy (SSE) channels”.

Target Group	Message	Dissemination channels
Actors	(1) All packaging will be recyclable according to existing certifications (e.g. Recyclclass) and circular economy models developed in the project. BUDDIE-PACK can help you develop new recyclable packaging.	Training sessions, guidelines
Stakeholders	(2) BUDDIE-PACK will provide information about new recyclable packaging to be used and accepted by the consumers. Technical information, comparison with classic packaging	Social media, Website, Newsletters
Wider audience	(3) BUDDIE-PACK will provide information about new recyclable packaging to be used and accepted by the consumers. General and practical information	Social media, YouTube video

Table 9: Example of individualizing a message by target group.

5. Key target groups for D&E&C activities (WHO)

5.1 Definition of target groups

To maximise project impact, BUDDIE-PACK partners will invest in disseminating, communicating, and preparing the exploitation of results. Through wide engagement and interaction with various value chain groups, different target audiences will be addressed to achieve maximum impact. The groups and ways to reach them have been defined as follows:

- **Actors:** including those typically less involved in research and innovation programs, such as, consumers, packaging producers, food processors (mainly SMEs), traders, and retailers.
- **Stakeholders:** including environmental and social non-governmental organisations as well as public authorities, local authorities and, opinion leaders, regulators, journalists, and students.
- **Wider audience:** including policy makers and administration, retail, and the bigger food industry, citizens, equipment providers (including SMEs), and other potential technology users, research and scientific organisations, including scientific experts in related fields of research.

The table below (Table 10: Main hurdles for innovative results and outcomes to be adopted by key target groups) is pointing out the main difficulties for results and outcomes from the business cases to be adopted by the different targets of stakeholders.

Stakeholders' categories	Main difficulty to overcome through business models development and refinement in value chain
Brand owners manufacturers	Making reusable packaging necessarily means making it more durable through more resistant materials, surface treatment preventing a too quick degradation or abrasion... and is not optimized towards profitability, often leading to extra costs for brand owner / retailers
Retailer and food services	The inner logistics (in the retailer shop/consumption place) is made more difficult to manage the return of used packaging.
Consumers	Higher packaging prices compared to single use packaging, means the consumer is likely to pay a higher price (inducing less sales for the retailer and the brand-owners).
Suppliers	The lack of nearby companies specialized in cleaning implies higher costs of supply of used packaging.
Sorting companies and Recyclers for end-of-life	There are many different reusable design and tracing methods on the market, thus adding complexity and costs. If recycled in current recycling cycles, reusable packaging ends up with other packaging streams, further contaminating the reusable packaging. Besides, recycling.

Table 10 : Main hurdles for innovative results and outcomes to be adopted by key target groups

For each category of targeted stakeholders' different tools will be used and different actions will be undertaken.

The table 11 below (Table 11 : Difference of D&E&C activities planned for each target group) shows the difference of D&E&C activities undertaken depending on the target groups identified.

Target Group	Activities
Universities and technical centers	Presentation in Conferences and meetings, publication in open-access peer- reviewed journals to share BUDDIE-

	PACK results to the scientific community
Plastic manufacturers	Promotion of BUDDIE-PACK results and methodology for reusable packaging manufacturing to ensure their uptake by the industry
Retailers	Promotion of BUDDIE-PACK results for reusable packaging to ensure their involvement for promoting and facilitating adoption by packaging users
Brand owners	Presentation of RPP to promote their up- take by brand-owners
Standard bodies	Presentation of report on pre-normalization related to RPP

Table 11 : Difference of D&E&C activities planned for each target group

5.2 Target groups for exploitation

Regarding exploitation activities, for each of the 14 results identified in the DoA and described in the previous section (WHAT), target groups for exploitation will be identified. A pre-identification has been done in the following table (Table 12: Identification of target groups for exploitation of the results) but it will be completed and adjusted if necessary during the whole duration of the project.

Target group	Results
industry / business partners	R1, R2, R4,R5, R6, R7, R8, R9, R10, R11, R12, R13
innovators	R2, R4, R5, R7, R8, R9, R11, R12, R13
EU institutions	R2, R6, R12, R14
national authorities	R2, R3, R6, R10, R12, R14
regional authorities	R2, R3, R6, R10, R12, R14
local authorities	R2, R3, R6, R10, R12, R14
civil society	R2, R3, R6, R10, R11, R12, R14
citizens	R2, R3, R6, R11, R12
research communities	R2, R7, R9, R10, R11, R12, R13, R14
specific end user communities	R2, R4, R5, R6, R11, R12, R13
international organisation (UN body, OECD, etc.)	R2, R12, R14
investors	R2, R7, R8, R11, R12, R13, R14

Table 12: Identification of target groups for exploitation of the results

5.3 Benefits and progresses

For each result associated to a specific target group, the feature of the benefit or progress will be recorded.

In that sense, five categories of benefits will be considered:

1. Skills & knowledge
2. Technical
3. Economical
4. Social

5. Environmental

For example, for R11: Large scale demonstration of reusable packaging across key segments (trays for fresh food, meat pack, BiB beverages and personal care products, fresh meals, cosmetics) benefits and progresses are specified for each associated target group in the following table (Table 13: Benefits and progresses for the target groups identified for the exploitation of Result 11)

Result	Benefits and progresses				
	Skills & knowledge	Technical	Economical	Social	Environmental
R11: Large scale demonstration of reusable packaging across key segments (trays for fresh food, meat pack, BiB beverages and personal care products, fresh meals, cosmetics)	Researchers, specific end-user communities, innovators	Industry, innovators	Business partners, investors	Citizens	Civil society

Table 13: Benefits and progresses for the target groups identified for the exploitation of Result 11

These benefits and progresses can be direct but also indirect especially after a certain duration of time. Distinction between direct and indirect benefits and progresses will be considered and specified for each result and all target groups associated.

5.4 Collaboration with other projects

Collaboration with other related thematic projects is also foreseen. Especially, BUDDIE-PACK has established collaboration with first the sister project R3Pack funded under the same topic and second with projects dealing with the same thematic and belonging to the same cluster (MERLIN cluster) supported by Horizon Results Booster Service (Solrec2, CIMPA, CIRCULAR FoodPack, REMADYL and BUDDIE-PACK). This collaboration will consist mainly in information exchange between the projects via:

- Organisation and participation in common events (workshops, infodays...)
- Preparation of common D&E&C tools (leaflets, posters...)
- Redaction of common publications or articles (scientific publications, articles in specialized magazines and newspapers...)

Annex 2 presents the initial list of projects (from DoA) connected to Buddie-Pack and representing a priority target for D&E&C activities. This list will be updated during the whole duration of BUDDIE-PACK.

6. Planned D&E&C tools and activities (HOW)

The tools including the visual identity and the virtual performance of BUDDIE-PACK are described in D8.2 (Communication material).

Only activities and measures are described in D8.1.

Main measures of Dissemination, Exploitation and Communication belonging to the D&E&C strategy of Buddie-Pack for the promotion of the results and achievement of the impacts are listed and introduced in the table 14 below (Table 14: Main measures of Dissemination, Exploitation and Communication (D&E&C))

SPECIFIC NEEDS	D&E&C MEASURES
<p>Regulations are putting value chains under pressure Sustainability agendas set ambitious mandatory targets for recyclable or reusable packaging by 2030. Subsequent national regulations push supermarkets and brand-owners to loose goods sales (20% of surfaces in France) and packaging reuse (10% of the packaging market in France, mandatory reusable packaging in Germany for take-away food and drinks).</p> <p>Plastic remains a necessary functional material for packaging, moving from single use is necessary Weight, mechanical resistance and cost remain key market drivers for the packaging sector. The incomparable capacity of plastic to fit any shape and design makes brand-owners keep using plastic packaging. However, reusable flexible and semi-rigid packaging are still technical challenges to overcome. Resistance to contaminants migration and multiple washings to maintain quality and consumers' safety is key in the market adoption.</p> <p>Social and economic innovations are fundamental to foster the market adoption of reusable packaging Brand-owners will move to reusable packaging only if consumers are willing to adopt a plastic container that others have used, to pay for it, and to return it back. It is necessary to change their behaviour through messaging and an adapted language. Reusable packaging must be economically sustainable for every stakeholder along the value chain, meaning to go from a cost per unit to a cost per cycle metric.</p>	<p>Analyses of consumers behaviour with resulting messaging, together with the presentation of adapted business models will be published in peer-reviewed journals to show to economic stakeholders the validity of this work and convince them about the market adoption of reusable packaging. White papers will be published and targeted at consumers associations to involve them BUDDIE-PACK's market access strategy towards end-users.</p> <p>Design rules resulting from the manufacturing and demonstration of reusable packaging will be disseminated through fairs, white papers and peer-reviewed journals after patents where relevant notably for key technological advances (coatings, materials formulation update...).</p> <p>The cleaning pilot line will be exploited though developing cleaning lines throughout Europe following the market uptake of reusable plastic packaging, with dissemination towards end-users.</p> <p>The pre-normative dossier will be shared with stakeholders. File to be published (even in draft versions) on project website and linked to a conversation stream for open review by stakeholders</p> <p>EFSA pre-dossier for the closed loop recycling of food contact RPP</p> <p>Large scale Business cases will be showcased across different EU regions (FR, DE, ES, I) and beyond (Asia or Africa)</p> <p>Business cases will lead to reusable packaging products to be commercialised</p>

Table 14: Main measures of Dissemination, Exploitation and Communication (D&E&C)

Depending on each target group, D&E&C activities are developed and detailed in terms of publications articles to be produced as well as conferences and meetings to be attended in order to contribute to the expected results (see table 15 below).

Target	Activities	Envisioned Media / Mean of action / Resources	Expected results
Universities and technical centres	Presentation in Conferences and meetings, publication in open-access peer-reviewed journals to share BUDDIE- PACK results to the scientific community	<p><u>Main OA Journals:</u> Resources, Conservation and Recycling– Elsevier Environ. Impact Assess. – Elsevier J. Pol. Sci. – Wiley Recycling Magazine - Polymer Testing - Materials Chemistry and Physics - Advanced Manufacturing: Polymer and Composites Science – Psychological Science, Implementation Science</p> <p><u>Main Conferences / meetings:</u> Plastics Recycling Show Europe; World Congress and Expo on Recycling; AMI Chemical Recycling; Plastic Free World Conference & Expo; CONAMA; AMI Multilayer Packaging; Circular Plastics Alliance working groups meetings IFAT; Pollutec; RWM; Ecomondo trade shows.</p>	Uptake of developed technologies and solution by the scientific community. Design and development of: (i) new material and technologies for reusable packaging. (ii) new strategies and Business plan for reuse systems.
Plastic manufacturer	Promotion of BUDDIE-PACK results and methodology for reusable packaging manufacturing to ensure their uptake by the industry.	<p><u>Clusters:</u> Circular Plastics (HRB), PROPLAST (IT), Packaging Valley (DE), AVEP (ES), POLYMERIS (FR)... <u>Professional assoc.:</u> EUROPEN, FLEXPACK, EUROPEAN PLASTIC CONVERTER, EIPA, AIPIA, PACKNET...</p> <p><u>Fairs, congresses and meetings:</u> K-Show, PRE annual meeting, Plastics Recycling Show Europe, World Congress and Expo on Recycling (Essen 2023), Sustainability in Packaging Europe (Barcelona 2023), Equiplast, Assises nationales des déchets, ADEME</p>	Support from and partnership with manufacturer; reuse of designed methodologies by the industry; leverage effect to contact standardization committee
Brand owner	Presentation of RPP to promote their up- take by brand-owners	Stakeholder mapping. Organisation of workshops. SAB	
Standard bodies	Presentation of report on prenormalization related to RPP	AIMPLAS is member of UNE/CTN 53 / SC 4 Packaging and UNE/CTN 323 Circular Economy	Revision of the document

Table 15 : C&D activities detailed for main target groups to reach expected results

For each of the 14 results identified and the associated key targets in the previous sections (WHAT, WHO), different ways and tools of Dissemination & Exploitation & Communication activities will be used.

Main ways and tools to reach the target groups are:

- event
- exhibition
- interview
- media article
- newsletter
- press release
- print material
- social media
- TV/Radio campaign
- other

For each pair (Risk, Target group) ways and tools of D&E&C will be identified.

For example, for R11: Large scale demonstration of reusable packaging across key segments (trays for fresh food, meat pack, BiB beverages and personal care products, fresh meals, cosmetics and for all associated target groups, the D&E&C tools have been identified in the following table (table 16):

	Tools used to reach key targets							
Result	Industry	Business partners	Innovators	Researchers	Specific end-users Communities	Civil society	Citizens	Investors
R11: Large scale demonstration of reusable packaging across key segments (trays for fresh food, meat pack, BiB beverages and personal care products, fresh meals, cosmetics)	Events, exhibitions, press releases, newsletters, print material, interviews	Events, exhibitions, interviews	Events, exhibitions, press releases, print material, interviews	Events, exhibitions, press releases, newsletters, print material	Social media, media articles, interviews	Social media, media articles, TV/ radio campaigns	Social media, media articles	Events, exhibitions

Table 16: Tools used to reach the different target groups identified for exploitation of Result 11

6.1 Publications, articles, and media dissemination

6.1.1 News for the written media, radio, and TV

Press releases and briefings for the electronic and print media will be prepared (ACTIA leads), with special attention at the project start, midterm and end but also coinciding with other noteworthy project activities and milestones.

The aim of the Press releases is to attract favourable media attention and provide publicity for the project and its events.

The first Press releases on the project's launch was published on 29/09/2022 introducing its topic, objectives, challenges, and consortium partners (Figure 8). The Press release was released in English versions as well as translated in the partners' languages (German, French, Spanish, Dutch) to have a broader and local impact. The Press release is available on Buddie-Pack Sharepoint and also distributed by individual partners through their companies' websites or their networks/newsletter.

English version

[Launch of the Horizon Europe BUDDIE-PACK project on reusable plastic packaging](#)

The European project BUDDIE-PACK, funded by the new Horizon Europe programme, was launched on 21 and 22 September in Oyonnax (France). Coordinated by the Industrial Technical Centre for Plastics and Composites (IPC), this project brings together 19 partners from 6 different countries and will take place over a period of three and a half years with a budget of nearly 7 million euros.

This circular economy project is aiming at implementing a systemic approach for the large-scale deployment of reusable plastic packaging (RPP) based on a multidisciplinary approach combining social, technological and economic innovations. The project will take advantage of behavioural innovation to promote consumers' acceptance of RPP by analysing drivers and analysing consumers' psychology of reuse. Sound synergies with technological innovations will be developed to manufacture packaging fulfilling the demanding requirements of RPP based on innovative designs and recyclable materials. The project will focus on innovative cleaning solutions to guarantee the safety of consumers against the possible contamination and ageing of RPP during their repeated use, and the durability of their functional properties to avoid food spoilage. Buddie-pack will dramatically cut down the production of single-use plastic packaging, reduce water and energy consumption, and avoid the release of microplastics into the oceans.

Viable economic models will ensure the sustainability of the proposed solutions thanks to the profitability of stakeholders throughout the value chain, including solutions based on social & solidarity economy models.

The 19 partners :

- o IPC (FR), project coordinator
- o Trivéo (FR)
- o ACTIA (FR)
- o CTCPA (FR)
- o LNE (FR)
- o Technological University of the Shannon (IE)
- o AIMPLAS (ES)
- o Searious Business BV (NL)
- o Vytal Global GMBH (DE)
- o Eternity Systems (FR)
- o Uzaje (FR)
- o Betelgeux SL (ES)
- o Plasmion GMBH (DE)
- o Knauf Industries Gestion (FR)
- o Auzo Lagun S. Coop (ES)
- o Dawn Meats Group (IE)
- o Plasticos Vicent SLU (ES)
- o Echo Brand Design LTD (IK)
- o The University of Sheffield (UK)

Figure 1: First press release about Buddie-Pack launch

A Social media posts timeline will be produced for each year during the whole duration of the project - the timeline for 2023 is available in the Sharepoint.

SOCIAL NETWORK	DATE (DAY/MONT H/YEAR)	PARTNER (responsible of content)	TYPE OF CONTENT	SUBJECT	TEXT of the post	LINK	REMARKS (specific images, etc)
WEEK 7: WEDNESDAY							
INSTAGRAM	15/02/2023	ACTIA	ORGANISED CONTENT STORY	General presentation of the project	Idem LinkedIn post	https://www.instagram.com/p/Corg9OyLZo0/?utm_source=ig_web_copy_link	
		ACTIA		General presentation of the project	Instagram post added in the story		
LINKEDIN		ACTIA	ORGANISED CONTENT	General presentation of the project	Welcome to the LinkedIn page of the BUDDIE-PACK project! BUDDIE-PACK stands for Business-driven systemic solutions for sustainable plastic packaging reuse schemes in mass market applications. The European project BUDDIE-PACK, funded by the new Horizon Europe programme, is coordinated by the Industrial Technical Centre for Plastics and Composites (IPC - France) and brings together 19 partners from 6 different countries. It will take place over a period of three and a half years with a budget of nearly 7 million euros. This circular economy project is aiming at implementing a systemic approach for the large-scale deployment of reusable plastic packaging (RPP) based on a multidisciplinary approach combining social, technological and economic innovations. Keep in touch with us and you will learn more about the specific objectives of the project and the partners in the coming days and weeks 😊	https://www.linkedin.com/posts/buddie-pack-reusable-plastic-packaging_circulareconomy-plasticpackaging-reuse-activity-7031568703057981440-jDzJ?utm_source=share&utm_medium=member_desktop	
WEEK 8: MONDAY							
TWITTER	20/02/2023	ACTIA	ORGANISED CONTENT	General presentation of the project	Welcome to the Twitter page of the BUDDIE-PACK project! BUDDIE-PACK stands for Business-driven systemic solutions for sustainable plastic packaging reuse schemes in mass market applications. It will take place over a period of 3,5 years with a budget of nearly 7 million euros. The European project BUDDIE-PACK, funded by the new Horizon Europe programme, is coordinated by the Industrial Technical Centre for Plastics and Composites (IPC - France) and brings together 19 partners from 6 different countries. Keep in touch with us 😊	https://twitter.com/pack_buddie/status/1627766337157177344	

Figure 2: Social media posts timeline for 2023

6.1.2 Newsletters

ACTIA with the support of IPC will prepare a Newsletter (2 times/year) for external actors that will include project news, results, and activities. The electronic newsletter will have a mail format (<https://mailchimp.com>) and will include sections such as the coordinator's corner, news from WPs/Business Cases, events/training and news from the sister project (R3PACK) and the projects belonging to the same cluster supported by Horizon Results Booster Service. Project partners will contribute to the newsletter content and the newsletter will be distributed as widely as possible.

6.1.3 Scientific papers and publications in technical magazines

Project results disseminated through scientific publications will be decided in conformity with the intellectual property, confidentiality, and publication provisions of the Consortium Agreement. The ExCom will develop a publication plan in the coming months to identify the key publications that will emerge from the project and decide which ones will be published using Gold OA. Publishers will be selected from those who both respect authors' interests and accept open access publications (with or without embargo) once the co-authors have been authorised to publish by the project partners. The open access repository used is Zenodo, granting access to publications and metadata in a standard format including information requested by the European Commission. See and refer to the BUDDIE-PACK Data Management Plan (DMP) connected (Deliverable 9.3).

6.1.4 Policy briefs

The production of policy briefs by the partners under the responsibility of ACTIA will be incited during the whole duration of the project. They will be targeting i) EC officers related to research and innovation, sciences, and policymakers. ii) national officers; and iii) regional officers/local authorities with recommendations in the respective languages of the project partners, who will ensure their dissemination. Based on project outcomes, the main project results will be presented as well as the implications of the key findings for the sector.

6.2 Events

During the whole duration of BUDDIE-PACK, identification of existing events and workshops in which the project can disseminate results will be proposed by the partners (special excel sheet in the SharePoint to be fulfilled by all the partners) and confirmed during ExCom meetings.

D8.1 : Dissemination and communication plan

Status	PARTNER	NAME OF THE EVENT	DATE OF EVENT	EXHIBITION, FAIR, BIG CONFERENCE	PLACE	CONTEXT		GEOGRAPHICAL COVERAGE	MAIN AUDIENCE	WAY OF PARTICIPATION	OPPORTUNITY FOR INTRODUCING BUDDIE-PACK	CONTACT IN YOUR ORGANISATION
	select from list		at least month and	type		Short description of the event and link to website	link	European, international	select from list	Short description of your participation (visitor,	Your opinion about interest for the project, best way of participation &	Name, function, email address, mobile
Done	IPC	Le défi des emballages de demain: les dernières recherches et	31/01/2023	Webinar	online	French Webinar about the future of packaging. It was the opportunity for IPC to present the European project it is involved in, including BUDDIE-	emballages de demain: les dernières recherches et innovations	National	Packaging industry	Speaker, 10 minutes to present BUDDIE-PACK	presentation (FR) available on SharePoint	marie-alix.berthet@ct-ipc.com
Missed		7th European Food &	15/02/2023		Antwerp							
Selected	IPC	Innovation Forum 4	15/03/2023	Fair	Brussels		https://h2020inn	European		Speaker	session on the funded projects' results (20 projects confirmed so far) and a get together closing the day including the opportunity to present demonstrators	

Figure 3: identification of existing events and workshops in which the project can disseminate results

As mentioned in the table of Figure 3 (above), until now, three events have been identified as interesting for Buddie-Pack presentation.

6.2.1 Project dissemination events at European and international level

ACTIA will take the lead in organising minimum two workshops during meetings of European/ International initiatives or during fairs and events. These workshops will focus on the main results, from which recommendations will be argued, and will include, if possible, a demonstration of the new packaging developed in BUDDIE-PACK.

6.2.2 National demonstration events

The national events will include training workshops (see 6.2.4) organised by ACTIA in collaboration with the 6 Business Cases leaders. Previously to the organisation of these demonstration events and during the lifetime of the project, each Business Case in collaboration with the national partners will have the opportunity to organize workshops, conferences, events, introducing the project as well as the main results in national languages. Ideally, minimum two conferences should be organised for stakeholders in national languages to communicate and transfer the project results.

6.2.3 Fairs, professional meetings, and conferences

Scientific and professional-oriented events including fairs, professional meetings and conferences will be identified by the partners and mentioned in the excel sheet mentioned in 6.2.1 and attended by the consortium partners to present BUDDIE-PACK goals, ongoing work, and results with the aim to attract stakeholders and to reach the targeted audience. Project leaflets will be distributed, and posters will be used in these events.

6.2.4 Training activities

These activities will allow to disseminate the results of the project by providing new knowledge and know how (theoretical and practical) to different targets groups. Training activities will target mainly actors like packaging producers, equipment providers, packaging users but also widen audience like scientist, policy makers, environmental agencies concerned by packaging reuse, sustainability, recyclability, and circularity.

- Co-organisation of on-field training workshops and demonstration, feeding and valuing Business driven cases results – for each business-driven case demonstration will be combined with a workshop, in priority at National level and involving local partners of the project. See 6.2.2.
- Via webinars and gathering local members across a pre-defined topic of broad interest with a limited number of presentations by leading experts. Every quarter from M6 to M42.

6.3 Partners' dissemination channels

As a best practice, all partners will take advantage of their own dissemination channels for communication and dissemination of project activities and results: website, mailing lists, newsletters, social media, events, etc.

As examples: i) project logo and web link will be located with good visibility on partner websites; ii) partners will announce and disseminate project newsletters through their dissemination channels; iii) partners will like and repost project SoMe posts.

7. Intellectual Property Rights (IPR) and period of exploitation (WHEN)

For all of the fourteen results mentioned in the previous sections, information concerning the period of exploitation will be provided especially if exploitation will start during and/or after the end of the project.

An important matter to consider for each of the results is the Intellectual Property Rights.

For each result the following opportunities will be considered:

- Individual property : existing ownership agreement
- Individual property : no existing ownership agreement already established
- collective property: Joined ownership agreement already described in the Consortium Agreement
- collective property: Joined ownership agreement not described in the Consortium Agreement

More precision about result property especially when no existing ownership agreement is still existing - Future plans.

8. Monitoring, evaluation, and reporting (HOW and WHEN)

8.1 Monitoring D&E&C activities

All BUDDIE-PACK partners will be involved in all D&E&C activities both by contributing to the different materials support production as well as their promotion at National and European level to the different targeted stakeholders and beneficiaries.

With the aim of monitoring all D&E&C activities, ACTIA will contribute to fulfil the dissemination reporting table/template available in the Sharepoint by contacting/reminding all partners to update it every three months.

DATE OF ACTIVITY	LEAD	TYPE OF ACTIVITY	TITLE OF THE ACTIVITY	PLACE	GEOGRAPHICAL COVERAGE	MAIN AUDIENCE	NUMBER OF PERSONS	OTHER AUDIENCE	NUMBER OF PERSONS	OTHER AUDIENCE (2)	NUMBER OF PERSONS	LINK TO WEBSITE/ DOCUMENT	NUMBER OF DISTRIBUTED LEAFLETS	POSTER /ROLL-UP	COMMENTS
at least month and year	select from list	select from list	Put the title and very short description of the activity	City + country	select from list	select from list		select from list		select from list				Yes/no	
06.10.2022	Plasmion	Twitter, LinkedIn	SO PROUD TO BE A PART OF THIS AMAZING PROJECT! --> Short		International					General public		https://www.linkedin.com/feed/update/			
oct-22	Eternity Systems	Press release													
nov-22	IPC	ence (participa)	ECOMONDO - EU projects cluster meeting organized by European	Rimini (Italy)	European							https://en.ecomondo.com/events/progra			
Sept-Oct-22	CTCPA	-reviewed pu	Développement et déploiement de solutions d'emballages plastiques adaptés au réemploi pour les entreprises agro-	France	National	od professional									
	IPC														
19/01/2023	Auzo Lagun	Press release	Ausolan se suma a un proyecto para reutilizar envases de plástico	Spain	National	od professional						https://www.indisa.es/canal-			
20/01/2023	Auzo Lagun	Press release	Ausolan se suma a un proyecto para reutilizar envases de plástico	Spain	Local/regional	General public						https://www.elkarbi.de.com/es/groups/b			
31/01/2023	IPC	Event, other	ges de demain: les dernières reche	France (online)	National	Packaging industry						https://offres.ct-ipc.com/fr/inscriptio			

Figure 4: Reporting table/template available in the SharePoint for recording D&E&C activities

For exploitation activities, all tables to be fulfilled in the Sharepoint for reporting have been explained and detailed previously in the section 3. Project outcomes (WHAT).

8.2 Evaluation

To track progress and assess performance of D&E&C activities, a set of evaluation methods was identified (see Table 17 below). These evaluation methods will enable the team to manage possible deviations in this initial strategy and make any needed updates in a timely manner. The D&E&C Plan will be reviewed at least yearly to update evaluation methods and adjust the plan as needed. As such, it will be a living document, adapted along with the progress of the project.

Actions / Tools	Objective	Description (including evaluation methods if applicable)
Communication material	Catch the interest of stakeholders at events	Design the logo, a brochure, single page flyers, infographics, and posters. Available at M6
Project website	Present the project issues, concept, and pilot lines to a large audience. Updates.	Main landing page for the project. Will include space for academics, companies' associations and NGOs. Available at M6. <i>Evaluation through Google analytics: Unique visitors (1500 / 3000 at M18 / M42); Page views (2000 / 5000 at M18 / M42)</i>
Media engagement	Promote coverage of the project by media	Creation of a journalist database. Provision of content and invitations to cover the project. From M6 to M42.
Content creation	Raise awareness about project milestones, results and methodology	Press releases, interviews with BUDDIE-PACK professional. Every quarter from M6 to M42. Video in design motion (M18) <i>Evaluation : number of video views (500 / 1000 at M30 / M42)</i>
Webinars and training	Facilitate informal and formal discussion in the community	Gathering local members across a pre-defined topic of broad interest with a limited number of presentations by leading experts. Every quarter from M6 to M42.
Social campaigns media	Engage society at large and networking.	YouTube, Twitter and LinkedIn will be actively used. From M6 to M42. <i>Evaluation : Twitter analytics (Followers : 100 / 500 at M18 / M42); LinkedIn analytics (Page followers : 100 / 200 at M18/M42)</i>
Project events	Project presentation to targeted audience	Presentation of results in key sectoral events and during clustering activities; notably through National demonstration events. 2 workshops will be organized in the context of European/international events/conferences
EC Communication channels	Promote awareness on an EC funded project, foster dialogue around reuse in large audience.	Use of CORDIS News, CORDIS Wire, European Commission's newsletters, EC's event pages, the Europa website, In Euro News TV program "Futuris" the EU interactive platform. From M6 to M42.
e-Newsletter	Inform a community on topic related to reuse	Broadcasting of media and important news, dedicated articles promoting latest innovations from the community. <i>Evaluation : Mailchimp: Number of subscribers (100 / 200 at M18 / M42)</i>
Partners' communication channel	Promote project awareness in partners' audience	Promotion of BUDDIE-PACK through websites, press releases to general and local media, social media posts (Twitter, Facebook, LinkedIn), podcasts, blog posts, events, listings and bulletins.

Table 17: For each dissemination, exploitation and communication action associated to a tool to be used, associated objective and description including evaluation process are described

ACTIA will make a point regularly about D&E&C activities performance during ExCom meetings and General Assemblies.

ACTIA will contribute to the technical reporting to be performed during the 3 reporting periods of the project (M18, M30, M42) by describing the progress of D&E&C activities as well as the adjustments done when necessary.

9. Annexes

- Annex 1: Description of each work package: objectives and deliverables associated to expected outcomes
- Annex 2: Projects connected with BUDDIE-PACK

Annex 1: Description of each work package: objectives and deliverables associated to expected outcomes

WP1 – Specifications and design rules for RPP in the EU policy framework

Objectives

To gather relevant information on barriers and opportunities of reusable packaging and their specifications from the relevant stakeholders. To propose policy recommendations that support the development and the uptake of reusable packaging and that are needed to unfold their full potential in the context of the existing policy framework covering the different steps of the industrial value and applied to the most relevant EU policies.

To define the technical and socio-economic specifications of reusable packaging and establish relevant sustainable strategies. To deliver guidance on the design of sustainable reusable packaging.

Deliverables associated to expected outcomes

D1.1: Report on legislative policy and socio-economic framework (barriers and opportunities) for reusable packaging (IPC, R, PU, M12)

Linked to T1.1. Analysis of external constraints & opportunities performed at both EU and national levels

D1.2: Set of recommendations to tackle stakeholders industrial and economic needs and constraints along the value chain (SB, R, PU, M6)

Linked to T1.2. Identification of recent developments in market pressures and consequences. Draft of recommendations covering needs & constraints of the industrial value chain

D1.3: Technical and economic specifications of reusable plastic packaging (AUSOLAN, R, PU, M9)

Linked to T1.3 Specifications of functional properties, technical & economic requirements in the sectors covered by the project.

D1.4: Design rules of the demonstration packaging (ECHO, Other, PU, M24)

Linked to T1.4.1 Definition of a set of criteria (design rules) for packaging design at every touchpoint.

D1.5: Guidance for the design of reusable packaging (ECHO, Other, PU, M36)

Linked to T1.4.2 Design guidance and recommendations based on WP6 results to feed policy briefings

WP2 – Social and behavioural innovation for reusable plastic packaging

Objectives

WP2 will combine behavioural science and research into social practice to investigate how consumers interact with the reusable packaging, systems, and models considered within the BUDDIE-PACK

proposal. These insights will then be used to identify strategies for promoting reuse by individuals and organisations.

Deliverables associated to expected outcomes

D2.1 A report describing how consumers interact with reuse systems, including how aspects of contamination influence engagement (USFD, R, PU, M24).

Linked to T2.1. In-depth analysis of how consumers interact with the reuse systems to be developed in BUDDIE-PACK

D2.2 Guidelines, based on the work conducted within Task 2.2 and directed to WP1, for the design of packaging to minimise concerns about contamination (USFD, R, PU, M24).

Linked to T2.2. Report on psychology of reuse, specifically, the extent to which concerns with respect to contamination shape consumer behaviour

D2.3 Guide on promoting RPP systems for business (USFD, Oth, PU, M40).

Linked to T6.3 Guide to promote RPP system based on approaches to the design of behavioural interventions evaluated in controlled trials within business cases (WP6).

D2.4 A set of online resources (downloadable marketing materials) for businesses implementing or developing a reuse system (USFD, Oth. PU, M40).

Linked to T6.3 Description of resources available for businesses to successfully implement reuse systems for plastic packaging in different applications and contexts.

WP3 – Materials and processes for the manufacturing of reusable plastic packaging

Objectives

WP3 will result in technical solutions necessary for the manufacture of reusable plastic packaging with the required functional properties. Innovative solutions (coatings, new formulations and materials) will be developed in order to provide packaging with the desired properties. Tooling and process parameters will be adjusted for injection molding, thermoforming and extrusion in order to achieve demanding performances (zero-defect, cost-efficiency) for the full range of products demonstrated in the project. The recyclability of end-of-life reusable packaging will be validated. The use of recycled materials for identical applications (e.g. reusable packaging in contact with food) will be obtained thanks to innovative recycling solutions.

Deliverables associated to expected outcomes

D3.1. Report on new functional material for reusable packaging (TUS, R, PU, M24)

Linked to T3.1. Characterization report of the functional materials developed.

D3.2. Production of reusable packaging following sets of design rules (AIMPLAS, Oth, PU, M30)
Linked to T3.2. Report on the manufacturing of reusable packaging with high performances at pilot scale production

D3.3. Report on recyclability & integration of recycled content at pilot and industrial scale (AIMPLAS, R, PU, M30)

Linked to T3.3. Report on the assessment of the recyclability of the reusable packaging developed

D3.4 Closed loop recycling scheme for RPP (in line with ongoing revision of Directive 282/2008) (IPC, Oth, PU, M30)

Linked to T3.3. Specifications of a closed loop recycling scheme that enables recycled materials from reusable food packaging to be applied in new food contact applications. The deliverable will follow the rules from the final revision of Directive 282/2008 (it will be available when T3.3 will start).

WP4 – Sustainable business-driven strategies

Objectives

Developing new business models to ensure the economic and financial viability of reused packaging. Helping companies to switch to reuse by promoting the new business models. Define how to replicate the business models in other countries and in a broader scope than for demonstrated business cases.

Deliverables associated to expected outcomes

D4.1. Report on Cost-benefit analysis throughout the cycle of reusability (ECHO, R, PU, M24 final)
Linked to T4.1. Cost-benefit analysis throughout the cycle of reusability for each targeted market application, based on inputs from task 1.4 and market analysis

D4.2. Report on the Set-up of alternative value chain for reuse (SB, R, PU, M30)

Linked to T4.2. Report on alternative value chains for targeted market applications based on the journey analysis from task 1.4, and after an analysis of needs from interested companies and partners in logistics / cleaning / sorting / recycling.

D4.3. Refined business model for the 6 reusable packaging studied in BUDDIE-PACK (SB, R, PU, M36)

Linked to T4.3. Specific business models for each targeted market application, using a canvas methodology to sum up the vital elements, ensuring revenue streams and assessing cost structures for all stakeholders in the value chain

D4.4. Recommendations for the replicability of the established business models (SB, R, PU, M42)

Linked to T4.4. Recommendations in terms of geographic scope in Europe to replicate business models based on the demonstrations carried out in WP6 and the developed business models from task 4.3.

WP5 – Quality and safety

Objectives

To develop the approach for risk assessment and management of reusable packaging after use. The functional properties and safety (presence of contaminants, chemical migration, microorganisms...) of reusable packaging will be assessed after multiple cycles of reuse/cleaning. Microplastic release will be quantified throughout the life cycle. Cleaning technologies will be optimised and integrated in a cleaning pilot line which will demonstrate the capacity of packaging developed in WP3 and tested in WP5 to remain functional after at least 20 cycles of reuse up to 300 cycles.

Deliverables associated to expected outcomes

D5.1. Decontamination equipment and technologies (design and specifications) (BET, R, PU, 24)

Linked to T5.1. Report on the combination of cleaning technologies to achieve a 90% decrease of initial contamination for each targeted business case, and for their integration on the cleaning pilot line (task 5.5)

D5.2. Post use functional properties of RPP with materials database. (IPC, R, PU, M30)

Linked to T5.2. Report on functional properties validation to ensure packaging quality and specifications of best cleaning techniques and tools

D5.3. Report on migration modelling, contaminants absorption, barrier properties evaluations (ACTIA, R, PU, M30)

Linked to T5.3. Report on migration properties of unaged and aged packaging, assessment of potential absorption of contaminants and barrier properties

D5.4. Database of microplastic properties and relationship modelling vs microplastic release. (ACTIA, R, PU, M30)

Linked to T5.4. Report on a methodology to identify, quantify and characterize the potential release of microplastics during usage and washing

D5.5. Pilot line for cleaning of reusable packaging (MTS, DEM, SEN, M30)

Linked to T5.5 Industrial washing line adapted to primary containers of multi-forms and multi-materials to the project, allowing integration of technologies developed in the project

WP6 – Large scale demonstration

Objectives

To test the RPP designs and materials, business models, consumer acceptance and safety control for each packaging category at large scale. The assessment of each use case will also feed WP1 (task 1.4)

for the final set of design rules at the project end (what must be the design of reusable packaging for each packaging category).

Deliverables associated to expected outcomes

D6.1. Report about the demonstration results for business case on catering trays (AUSOLAN, R, PU, M42).

Linked to T6.1. Report on the assessment of the demonstration results on catering trays

D6.2. Report about the demonstration results for business case on takeaway trays (VYTAL, R, PU, M42).

Linked to T6.2. Report on the assessment of the demonstration results on takeaway trays

D6.3. Report about the demonstration results for business case on meat packaging (DM, R, PU, M42).

Linked to T6.3. Report on the assessment of the demonstration results on meat packaging

WP7 – Circular economy – Economic, social and environmental impact assessment

Objectives

To specify the overall scope of the assessment for the quantification of the project impact, and the related methodology. To carry out for each business case a two-step economic, social and environmental impact assessment (early stage screening followed by full assessment). To propose 'simple' circularity indicators as proxy for environmental impact of reusable packaging, considering the potential release of MP by reusable packaging. To support environment, social and economic performance improvements in WPs 2 to 5.

Deliverables associated to expected outcomes

D7.1 Definition of goal & scope, assessment methodology (IPC, R, PU, M6)

Linked to T7.1. Specification report of the economic, social and environmental impact assessment

D7.2 LCIA, LCCA and SIA screening, data gaps (USFD, R, PU, M18)

Linked to T7.2., T7.3 and T7.4. Screening LCA, LCCA and SIA using preliminary project data, databases, literature, and expert knowledge

D7.3 Set of 'simple' circularity indicators as proxy for environmental impact of reusable packaging, considering the potential release of MP by reusable packaging (IPC, Other, PU M36)

Linked to T7.5. 'Simple' circularity indicators to consider in environmental impact assessments the impact of potential MP release during the usage of reusable plastic packaging

D7.4 Full circularity, economic and social assessment of the project business cases (IPC, Other, PU, M42)

Linked to T7.5. Full and in-depth environmental, economic and social life cycle impact assessment for each use case.

WP8 – Pre-normative studies and exploitation

Objectives

- Monitor and assess standardization, certification and technical specifications requirements
- Identify market and business opportunities
- Develop a strategy for the integration of the technology to the market

Deliverables associated to expected outcomes

D8.4 - Report on the IPR strategy – (ACTIA, R, SEN, M42)

Linked to T8.3. Report on the IPR strategy of the project, exploitable project results, implementation of knowledge protection, (co-)ownerships of project results, exploitation strategies.

D8.5 - Input on market watch information – (ACTIA, R, PU, M36)

Linked to T8.3. Report on market watch data from market surveys, participations in workshops, clustering activities.

D8.6 – Final outreach event including policy briefs to DG GROW, RTD and SANTE – (ACTIA, Oth, PU, M42)

Linked to T8.1., T8.2. and T8.3. Final event focusing on the results of the demonstration phase. Concomitant publication of policy briefs.

Annex 2: Projects connected with BUDDIE-PACK

Project / Partners; AP	Dates	Project aim	Relation to BUDDIE-PACK Objectives
REACT / France (ERDF) / IPC	2018-2022	Processing of nano-multilayered films made of PLA-based formulations	Expertise to support the development of PE/EVOH and PE/PA film (Obj 1)
MULTICYCLE (H2020SPIRE)/ AIMPLAS	2018-2021	Advanced and sustainable recycling processes and value chains for plastic-based multi-materials.	Decontamination of multi-materials and upcycling by melt compounding to improve final properties (Obj 4)
MyPACK (H2020) / ACTIA	2017-2021	Help sustainable food packaging technologies to reach or to extend their market	The guidelines to select the best market for a new technology and to ensure the best commercial development (Obj 3)
Microplast (FR) / ACTIA		Evaluation of sampling and characterization methods for polymer particles spread in marine environment.	Expertise concerning the characterization of microplastic release (Obj 5)
SuperPE (FR) / IPC	2019-2023	Decontamination and food-contact recycling of household PE films.	Expertise on food-contact plastic packaging and on possible contaminants found on packaging. (Obj 5)
Many Happy Returns (UK) /USFD	2020-2022	Identifying/enabling in different contexts the best packaging reuse models	Analysis of reuse models for packaging and studies of consumer behaviour. (Obj2)
Plastics:Redefining Single-use UK (USFD)		Multidisciplinary research project on identifying ways to reduce reliance on SUP	Multidisciplinary approach considering the whole value chain, including business models and consumer behaviour (Obj 3)
PRESERVE (H2020) / AIMPLAS	2021-2025	Improving recyclability of bio-based plastic packaging and textiles with bio-based coatings and ensuring upcycling into new packaging.	Methods for improving recyclability, for food-contact packaging, implementation of recyclability protocols.(Obj 1)
CIMPA (H2020) / IPC, AIMPLAS	2021-2024	Innovative sorting and recycling multilayers packaging films.	Recycling of single use thermo-sealable films on trays and recycling of multilayer materials used in Bag-in-Boxes (Obj 1)
PerPETual (IE) /TUS	2021-2024	Innovative solutions allowing the permanent recycling of PET	Improvement the recyclability of PET packaging and increase the number of recycling cycles (Obj 1)
BioICEP (TUS)	2020-2023	Bio-innovation of the circular economy of plastic	Strategies to enzymatically recycle difficult to recycle plastics (Obj 1)