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D4PACK

REPORT ON RESULTS OF THE TRANSNATIONAL COLLABORATIVE ENVIRONMENT DEVELOPED AND TESTED

D4PACK – Deliverable 2.2.1

Version 1

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REPORT ON RESULTS OF THE TRANSNATIONAL COLLABORATIVE ENVIRONMENT DEVELOPED AND TESTED

D4PACK

PROJECT TITLE	Support the transition of the Central Europe food industry Towards Next-Gen Packaging models
PROJECT CODE AND ACRONYM	D4PACK - CE020082
DELIVERABLE TITLE AND NUMBER	Deliverable 2.2.1 – Report on results of the transnational collaborative environment developed and tested
ACTIVITY TITLE AND NUMBER	Activity 2.2 – Pilot action to test the transnational collaborative environment enabling packaging transition
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1. Introduction

1.1. Specific objectives of the deliverable

This deliverable presents the results of the transnational collaborative environment developed and tested within WP2 of the D4PACK project. It summarises the procedures, outcomes and insights generated through the Phase 1 pilot actions involving SMEs across Central Europe, and it outlines how these findings shaped the methodological and technological foundations for the Phase 2 pilot expansions and the development of the Early Guidance Tool (EGeT). The report reflects coordinated work carried out by technology transfer executors, business-support partners, SMEs and external experts to validate the Technology Transfer Service (TTS) model and assess the feasibility of sustainable packaging transitions in real industrial settings.

The objectives of this deliverable are to:

- document how the transnational collaborative environment was established and tested;
- present results and insights generated during Phase 1 pilot actions;
- analyse cross-country collaboration dynamics between partners, experts and SMEs;
- show how the results feed directly into the development of WP2.3 and WP2.4 (EGeT);
- identify opportunities, barriers and drivers for sustainable packaging transition in the agri-food sector;
- summarise communication activities associated with the pilot actions.

1.2. Link between the deliverable and the project's objectives and work packages

Deliverable 2.2.1 plays a central role in the implementation of the D4PACK project, as it validates the D4PACK model through the testing of the Technology Transfer Service (TTS) model, which represents the core operational element of the project. By directly involving agri-food SMEs through structured interviews and data collection activities, the deliverable enables a thorough understanding of the main technical, economic and organizational barriers that SMEs face when adopting sustainable and next-generation packaging solutions.

The evidence gathered from SMEs is systematically integrated into the TTS framework and scientifically validated through the involvement of research and technology partners (COBRO-LIT; CBHU; PROMA; CEVI). In this way, Deliverable 2.2.1 substantially contributes to the overall project objective of supporting Central Europe agri-food industries in their transition towards sustainable packaging solutions that are not only environmentally sound, but also technically feasible and economically viable for SMEs. This objective is pursued through the development of the EGeT Tool and holistic Technology Transfer Services tailored to the real needs and constraints of companies.

More specifically, Deliverable 2.2.1 represents a key milestone in the achievement of the specific objective addressed by WP2, *"Development and testing of a new Technology Transfer Service to enable agri-food companies to efficiently choose suitable alternative packaging solutions"*. The deliverable documents the results of the testing phase and demonstrates the applicability of the TTS model in real contexts.

From an operational perspective, Deliverable 2.2.1 directly supports the implementation of several WP2 activities. First, the development and validation of the Innovation Risk Assessment framework contributes to Activity 2.3 by enabling the structured assessment of environmental, technical and economic aspects related to next-generation packaging solutions identified for each pilot company. The framework allows

risks and opportunities to be evaluated in a coherent and comparable way across different territorial and production contexts.

Furthermore, the deliverable contributes to Activity 2.4 by providing operational guidelines, data sets, decision-making parameters and risk assessment criteria crucial for the second phase of the Pilot Action and the development of the TTS. These elements are essential to transform the tested methodology into a transferable and scalable service.

Finally, Deliverable 2.2.1 also contributes to WP3, and in particular to Activity 3.2, *"Scale down the D4PACK open innovation concept within regional and national policies"*. By offering first-hand evidence on SMEs' needs, bottlenecks and innovation constraints, the deliverable provides a solid knowledge base for policy learning and strategy development. This evidence will support the definition of Joint Strategy aimed at guiding regional and national authorities in designing financial instruments and policy measures that effectively enhance SMEs' innovation capacity in the context of sustainable and technological transitions.

2. Methodology

2.1. Description of the methodology used to gather data and develop the deliverable

The methodology adopted to gather data and develop Deliverable 2.2.1 combined preparatory analytical work, in-depth interviews, structured online sessions and iterative refinement of tools and methodologies. This integrated approach ensured that the deliverable was robust, evidence-based and fully aligned with the project's objectives and operational needs.

The activities leading to the development of the deliverable were structured into five main phases, allowing a progressive consolidation of data, validation of assumptions and continuous adjustment of the Technology Transfer Service (TTS).

Selection of SMEs

Most of the SMEs involved in the pilot activities were identified through the in-depth interviews carried out within Activity 1.1, in line with the original project design. These interviews provided a comprehensive understanding of company-specific challenges related to packaging transition, confirmed the companies' interest and readiness to participate in further project stages, and generated valuable insights into sectoral trends, regulatory constraints and technological limitations.

The in-depth interview process functioned both as a needs analysis and as a pre-selection mechanism. Only SMEs demonstrating a clear motivation to engage in packaging innovation, the presence of concrete packaging-related challenges and a sufficient level of technical and organisational capacity were invited to participate in the WP2 pilot activities. This approach ensured the selection of companies whose cases could meaningfully test the D4PACK methodology and contribute to the effective development and validation of the TTS.

The selected companies were chosen to represent the three target sectors addressed by the D4PACK project (dairy, meat, and fruit & vegetables), while also respecting criteria related to company size, market reach and production scale. Attention was given to the selection of companies showing explicit sustainability ambitions, even when such ambitions were accompanied by recognised technical, economic or organisational challenges.

In the end, 13 companies were selected: 12 SMEs and 1 big company, which presented the same issues and support needs as the smaller enterprises.

The development and refinement of the questionnaire

The data collection process started with the design of a preliminary questionnaire aimed at collecting essential background information on the selected SMEs prior to the interview phase. This short questionnaire focused on the company's production profile, current packaging formats, sustainability objectives and main operational constraints. Collecting this information in advance enabled project partners to better prepare the interviews, identify a representative product for analysis and anticipate potential technical, environmental or regulatory issues.

The core data-gathering activity was based on the Packaging Needs Assessment Questionnaire, developed collaboratively by project partners through several iterative cycles. Initial versions of the questionnaire were deliberately open-ended, with the objective of capturing a wide spectrum of packaging challenges across different sectors and territorial contexts. As the interview process advanced, recurring patterns and common issues emerged, allowing the questionnaire to be progressively refined.

Key improvements included the clarification and reformulation of ambiguous questions, the transformation of several open questions into structured or closed formats, the integration of functional, environmental and economic criteria required for the logic of the EGeT tool, and a clearer focus on the selection of one representative product per company. This iterative refinement process ensured that the collected data became increasingly standardised, comparable and directly usable for both the development of the Innovation Risk Assessment framework and the subsequent algorithmic modelling.

Design and implementation of interviews

The interviews were designed and implemented following a harmonised agenda shared among all project partners, in order to ensure analytical consistency and comparability of results across countries and sectors. Each interview session typically lasted between two and three hours and was conducted in an online format, allowing the direct involvement of technical, managerial and sustainability-related profiles from the participating SMEs.

The interview structure was articulated into four main components: an introductory section presenting the D4PACK project and the objectives of the pilot action; a joint discussion of the information collected through the preliminary questionnaire; the completion of the full Packaging Needs Assessment Questionnaire; and the execution of the Innovation Risk Assessment, covering economic, environmental, operational, regulatory and technical dimensions.

To ensure depth of analysis and consistency across cases, each interview focused on one representative product selected jointly with the company. This approach enabled a detailed assessment of shelf-life requirements, production and processing constraints, existing and alternative packaging formats, material properties and logistics implications. At the same time, the structured interview design supported the progressive transformation of qualitative feedback into quantified and structured decision variables, which were subsequently integrated into the development and testing of the Technology Transfer Service and the EGeT tool.

Validation and iterative improvement of the methodology

The interview process was conceived not only as a data-collection activity, but also as a dynamic mechanism for validating and progressively refining the D4PACK methodology. The direct interaction with SMEs during the pilot sessions generated continuous feedback that was systematically analysed and incorporated into the methodological framework.

In particular, insights emerging from the interviews allowed:

- identification of questions requiring clarification, reformulation or restructuring to improve comprehensibility and consistency;
- validation of whether the defined innovation risk assessment categories effectively reflected real SME decision-making processes;
- test of the practicality and analytical effectiveness of focusing the assessment on a single representative product per company;
- observation of operational and technological constraints relevant to packaging transition, such as machinery compatibility, sealing performance and logistics robustness;
- progressive translation of qualitative insights provided by SMEs into structured and coded parameters suitable for integration into matching and decision-support algorithms.

This iterative feedback loop enabled the continuous refinement of questionnaires, assessment frameworks and analytical tools throughout the implementation phase, ensuring that the resulting methodology was both scientifically sound and closely aligned with the operational reality of agri-food SMEs.

Expansion of packaging solution taxonomy

At the initial stage of the project, the packaging roadmap included approximately 60 packaging types, identified through sectoral mapping activities and preliminary desk research. However, insights emerging from the pilot interviews, combined with the technical expertise of project partners in materials science, recyclability and market dynamics, highlighted the need for a more granular and comprehensive classification of packaging solutions.

As a result, the partnership significantly expanded the packaging taxonomy, increasing the catalogue to approximately 180 packaging subtypes. This expansion was designed to better reflect the complexity and diversity of real packaging options available to agri-food SMEs, including:

- the actual diversity of packaging formats currently used across the three target sectors;
- emerging mono-material and recyclable solutions, such as BOPE, mono-PP and recyclable PE-based structures;
- paper- and fibre-based packaging systems combined with functional protective coatings;
- composite and multi-material structures that are still present on the market and remain relevant for transition and decision-planning processes.

Each packaging subtype was systematically mapped according to a set of functional, environmental, technological and logistics-related attributes. These attributes were then embedded into the logic of the EGeT matching algorithm, enabling structured comparison between packaging requirements and available solutions.

This expansion of the packaging solution taxonomy substantially enhanced the predictive accuracy and decision-support capacity of the EGeT tool, strengthening its ability to guide SMEs towards technically feasible, sustainable and context-appropriate packaging options.

3. Description of the activity undertaken

3.1. Overview of activities carried out to produce the deliverable

The activities leading to the production of Deliverable 2.2.1 were organised as a structured workflow combining preparatory scientific work, coordinated pilot implementation and transnational synthesis and reporting. This approach ensured that the deliverable did not merely document pilot actions, but translated

empirical evidence into a consolidated analytical output and contributed to the validation of the D4PACK Technology Transfer Service (TTS) framework.

Preparatory activities

Before the start of the pilot sessions, partners carried out an extensive preparatory phase focused on the scientific structuring of the assessment framework. This work focused on the finalisation of the Packaging Needs Assessment Questionnaire and the Innovation Risk Assessment framework, ensuring that questions, indicators and response scales were coherent across sectors and countries

During this phase, particular attention was given to aligning qualitative questions with variables that could later be structured and coded, defining consistent categories and indicators across sectors and countries, and ensuring coherence between functional, environmental, economic and regulatory dimensions. The questionnaires were specifically designed to support both expert-based assessment and algorithmic processing within the EGeT tool, ensuring that pilot data would be directly usable for TTS validation.

Once the group of pilot companies was confirmed, partners initiated direct contact with each company to exchange introductory information, clarify the scope of the pilot and support the identification of a representative product. This preparatory interaction ensured that SMEs were adequately informed and that the pilot sessions could focus on technically and strategically relevant cases.

Implementation of pilot sessions

Each company participated in an online pilot meeting, typically lasting between two and three hours. The sessions followed a harmonised agenda shared among all partners to ensure consistency and comparability across countries. Each meeting started with a joint validation of the information provided in advance and the confirmation of the selected reference product, which served as the analytical focus of the session.

The pilot meetings guided SMEs through a detailed exploration of their production context, existing packaging systems and operational constraints. Focusing on a single product enabled an in-depth assessment of shelf-life requirements, processing conditions, packaging formats, material properties and logistics implications, while keeping the discussion closely aligned with the companies' real decision-making processes.

During the sessions, partners collected structured and qualitative information on functional requirements, production processes, sustainability ambitions, material expectations and logistical limitations. The interactive discussions also allowed the exploration of potential alternative packaging pathways compatible with each company's technological conditions and market context. These exchanges were instrumental in identifying decision parameters, threshold values and non-negotiable performance requirements to be integrated into the TTS logic.

The second part of each pilot session was dedicated to the structured assessment of innovation risks. SMEs were guided through a systematic reflection on economic, environmental, technological, regulatory and operational risks associated with packaging transition. This activity provided essential insights into how SMEs prioritise risks, where uncertainties arise and which areas require external guidance or support.

Validation, feedback and reporting

Following each pilot session, partners documented the outcomes using shared reporting templates and consolidated the results at transnational level. The individual reports were then shared with the SMEs participating in Phase 1 of the pilot activities, enabling a feedback loop that allowed companies to verify the accuracy of the collected information and reflect on the proposed analyses. This step strengthened the reliability of the data and reinforced the collaborative nature of the transnational pilot environment.

The cross-national comparison of pilot cases made it possible to identify recurring barriers, sector-specific needs and differences in SMEs' readiness levels. Through collaborative exchanges, partners aligned interpretations, discussed complex cases and validated emerging patterns across territories. This collective analysis directly contributed to the validation of the TTS framework, confirming its applicability across different sectors and national contexts.

The consolidated evidence generated through the pilot activities formed the analytical basis for the expansion of the packaging solution taxonomy, the refinement of decision criteria and the further development of the EGeT tool. The activity concluded with dedicated internal synthesis meetings, during which partners jointly interpreted the results, reviewed inconsistencies and structured the findings into a coherent analytical narrative. This synthesis work culminated in the drafting of Deliverable 2.2.1, which documents the results of the pilot phase and provides evidence of the functioning and robustness of the transnational collaborative environment developed within the D4PACK project.

3.2. Involvement of partners and participating organizations

Partners and relevant stakeholders were directly involved in the activities leading to the definition of this Deliverable. They worked in a transnational collaborative environment based on a clear division of roles and a strong complementarity of expertise. This structure enabled the integration of scientific, technological, regulatory and business-oriented perspectives into a single, coherent TTS framework.

Research and technology partners played a central role in assessing the technical feasibility of alternative packaging solutions. LIT contributed its expertise on next-generation packaging materials, with a specific focus on material performance, recyclability and barrier properties. CBHU provided in-depth knowledge on processing constraints, machinery compatibility and the practical implications of introducing fibre-based and bioplastic packaging pathways within existing production lines. PROMA complemented this technical assessment by delivering technology foresight activities, regulatory intelligence and support in the development of algorithmic rules, ensuring alignment between technological options, regulatory compliance and future market trends.

Business support organisations acted as key intermediaries between the technical partners and the agri-food companies. CEVI, FFDI, CCIS-CAFE and INNOSKART were responsible for the identification, recruitment and coordination of SMEs, as well as for facilitating the interaction between companies and technical experts throughout the pilot activities. Their role was essential in translating SMEs' needs, constraints and expectations into actionable inputs for the assessment framework and in ensuring effective engagement during the pilot sessions.

The development of the Innovation Risk Assessment framework and the logic underpinning the EGeT tool was further supported by PwC, which contributed methodological expertise in innovation risk analysis and decision-support modelling. This contribution ensured that economic, organisational and strategic risks were consistently integrated alongside technical and environmental dimensions.

The collaborative environment also directly involved 13 companies, including 12 SMEs and one large enterprise, representing different technological maturity levels, production scales and product categories across the agri-food sector. Their active participation was instrumental in grounding the methodology in real industrial contexts and in validating the applicability of the TTS framework across diverse operational settings.

Overall, this division of responsibilities and continuous interaction among partners and companies ensured a high level of complementarity and enabled effective transnational knowledge transfer.

4. Results

The pilot actions implemented across thirteen agri-food companies generated a coherent, comparable and evidence-based set of results, confirming the effective functioning of the transnational collaborative environment developed within the D4PACK project. The presented results reflect both the direct outputs of the pilot activities and the analytical outcomes derived from their cross-sectoral and transnational consolidation.

4.1. Summary of achieved results

The pilot action implemented within Activity 2.2 generated a set of concrete and structured results that provide a comprehensive picture of the current state, constraints and opportunities for sustainable packaging transition among agri-food SMEs in Central Europe.

First, the pilot activities enabled a detailed and systematic mapping of existing packaging solutions adopted by the 13 participating companies. This mapping covered key technical and operational aspects, including barrier and shelf-life requirements, machinery compatibility, production constraints, logistics conditions and sustainability-related limitations. The resulting overview provides a robust baseline for understanding how packaging choices are shaped by both product-specific and organisational factors.

Second, the analysis highlighted a set of recurring sustainability priorities shared by SMEs across countries and sectors. In particular, there was a strong and consistent interest in recyclable mono-material packaging structures, such as PE, PP, BOPE and rPET, perceived as the most viable options for balancing environmental performance, regulatory compliance and operational feasibility. Compostable and fibre-based solutions emerged as complementary pathways, considered selectively and primarily in cases where functional requirements and market positioning allow their effective adoption.

Based on the integration of technical assessments and SMEs' sustainability ambitions, the pilot actions resulted in the identification of two to three conceptual alternative packaging pathways for each participating company. These pathways were not intended as prescriptive solutions, but as structured scenarios that balance functional feasibility, production constraints and environmental objectives, supporting informed decision-making rather than one-size-fits-all recommendations.

In parallel, the pilot phase produced a consolidated picture of common systemic barriers affecting packaging transition. Across the participating SMEs, recurring challenges included limited investment capacity, uncertainty related to evolving regulatory frameworks and the need to comply with stringent food safety and quality requirements. These barriers were observed to significantly influence both the pace and the scope of packaging innovation, particularly for small and medium-sized enterprises.

Finally, the activities generated a structured dataset capturing SMEs' perceptions of innovation risks across economic, environmental, technical, operational and regulatory dimensions. This dataset provides insight into how companies prioritise risks, where uncertainty is concentrated and which areas require targeted support through Technology Transfer Services.

4.2. Description of the outputs generated and resulting outcomes

Outputs

The primary outputs produced through the pilot activities include:

- completed Packaging Needs Assessment Questionnaires for each participating company, capturing structured information on products, packaging systems, functional requirements, sustainability objectives and operational constraints;

- detailed interview reports documenting the discussions held during the pilot sessions, including technical assessments, identified challenges and explored alternative packaging pathways;
- company-specific innovation risk assessment reports, consolidating SMEs' perceptions of economic, environmental, technical, operational and regulatory risks associated with packaging transition.

These outputs represent standardised and comparable documentation generated across all pilot cases and countries. They constitute the core evidence base used to validate the Technology Transfer Service (TTS) framework and to support the development and calibration of the EGeT decision-support logic.

Outcomes

Building on these primary outputs, the subsequent analysis revealed a number of consistent cross-sectoral patterns that represent key outcomes of the transnational collaborative environment tested within the D4PACK project.

Across the three target sectors, distinct packaging priorities emerged in relation to product characteristics and supply-chain conditions. Dairy companies prioritised high-barrier recyclable film structures, such as mono-PP and BOPE/EVOH solutions, while consistently highlighting mechanical robustness and sealing reliability as critical requirements, particularly in the context of extended logistics chains.

Fruit and vegetable processors focused primarily on moisture management, seal integrity and the preservation of visual freshness. Depending on shelf-life requirements and market positioning, the range of explored alternatives included recyclable mono-PE films as well as cellulose-based or PLA-based structures, confirming the need for flexible decision pathways rather than uniform solutions. In dairy companies producing chilled desserts and fresh cheeses, interviews confirmed that the main limiting factors for packaging transition were oxygen barrier performance, seal integrity and compatibility with existing filling lines. Several SMEs explicitly indicated that even when recyclable mono-material solutions were available on the market, uncertainty regarding sealing reliability and shelf-life stability prevented immediate adoption.

Meat processors experienced the most pronounced trade-offs between sustainability ambitions and functional constraints. While companies expressed a strong intention to reduce plastic use, this objective was systematically balanced against non-negotiable requirements related to hygiene, leakage prevention, food safety and brand presentation. In this context, recyclable mono-PE solutions and coated paper-based structures emerged as directionally relevant options, although their applicability remains highly case-specific. Moreover, pilot interviews highlighted a strong tension between sustainability ambitions and non-negotiable hygiene requirements. SMEs repeatedly pointed out that leakage prevention and mechanical robustness during transport were prioritised over material reduction, especially for MAP and vacuum-packed products. As a result, mono-PE structures with enhanced barrier layers were perceived as the most realistic transition option.

Fruit and vegetable processors showed greater openness to fibre-based and compostable materials; however, moisture management and visual product quality emerged as critical constraints. Several companies reported failed trials with paper-based solutions due to condensation issues and seal instability.

Beyond sector-specific patterns, SMEs provided in-depth qualitative insights highlighting:

- the perceived trade-off between sustainability claims and functional performance;
- retailer-driven constraints, such as standardised crate systems and mandatory recyclability requirements;
- the increasing importance of transparent and credible communication on end-of-life pathways, including recycling, composting and biodegradation;

- uncertainty and confusion generated by divergent national regulations and heterogeneous Extended Producer Responsibility (EPR) fee structures.

4.3. Expected impact of the results on achieving project objectives

The consolidated results of the pilot actions provide a strong contribution to the achievement of the overall objectives of the D4PACK project, by translating methodological concepts into validated, evidence-based outcomes grounded in real SME contexts.

First, the results offer concrete real-world evidence supporting the validity of the methodological assumptions underpinning the transnational collaborative environment developed within D4PACK. The interaction between technical partners, and SMEs confirmed that a structured, guided and collaborative approach is both feasible and effective in addressing the complexity of packaging transition decisions.

Second, the evidence collected through the pilot activities directly informed the construction and refinement of the expanded packaging taxonomy, comprising approximately 180 packaging subtypes, as well as the definition of the associated matching rules embedded in the EGeT decision-support tool. This ensures that the tool reflects actual market options, operational constraints and sector-specific requirements rather than theoretical or idealised solutions.

The results further confirm that agri-food SMEs require a structured, science-based and user-friendly Technology Transfer Service to support decision-making related to sustainable packaging. The pilot demonstrated that companies are willing and able to engage with multi-criteria assessment frameworks when these are clearly structured, practically oriented and aligned with their operational realities.

In this respect, the pilot activities showed that multi-criteria innovation risk evaluation is not only feasible but also perceived as valuable by SMEs. The structured assessment of economic, environmental, technical, operational and regulatory risks helped companies to better articulate uncertainties, prioritise decision factors and identify areas where external expertise is needed.

Finally, the results highlighted specific areas where decision-support tools must actively support SMEs by addressing common misconceptions (such as the perceived equivalence between compostable and recyclable solutions), realistically accounting for shelf-life and food safety constraints, and providing clearer guidance on regulatory compliance and Extended Producer Responsibility requirements.

Overall, the results demonstrate that the D4PACK model addresses a critical gap in the current innovation landscape. Most SMEs lack the internal resources and expertise to evaluate packaging transitions in a holistic and forward-looking manner. The structured, transnational and collaborative approach tested through the pilot actions provides an efficient mechanism to accelerate informed decision-making, reduce innovation risks and align sustainability ambitions with technical feasibility and regulatory realities, thereby directly contributing to the achievement of D4PACK's strategic objectives.

These sector-specific insights directly influenced the definition of matching rules and exclusion criteria within the EGeT tool. In particular, barrier performance, sealing reliability and machinery compatibility were encoded as critical decision thresholds, preventing the over-recommendation of theoretically sustainable but operationally unfeasible packaging solutions.

5. Data analisys and conclusion

5.1. Detailed analysis of collected data and information

Comparative analysis across pilot cases revealed a high level of consistency in SME priorities, regardless of country. More than two-thirds of interviewed companies identified machinery compatibility and sealing

performance as higher-risk factors than material availability itself. The analysis of data collected through the pilot actions reveals a high degree of coherence across countries, sectors and company profiles. Despite differences in company size, production scale and product categories, SMEs consistently expressed similar priorities and constraints, indicating the presence of common structural challenges in the agri-food packaging transition.

Across all pilot cases, SMEs showed a strong commitment to improving the sustainability of their packaging solutions. This commitment was primarily expressed through a preference for recyclable mono-material structures, a desire to reduce overall environmental impact and increasing pressure from retailers and regulatory developments to align with future recycling systems. At the same time, companies consistently stressed that sustainability objectives cannot be pursued independently of functional performance. Barrier properties, mechanical resistance, sealability and compatibility with existing machinery emerged as non-negotiable requirements shaping packaging decisions.

A comparative analysis across sectors confirmed that functional constraints remain the primary limiting factor in adopting more sustainable packaging. Dairy and meat processors face particularly strict requirements related to oxygen and moisture barriers, hygiene, leakage prevention and robustness during transport, which significantly narrow the range of technically feasible alternatives. Fruit and vegetable processors demonstrated comparatively greater flexibility, yet remained highly sensitive to moisture management and shelf-life preservation, especially for fresh and minimally processed products.

Regulatory aspects emerged as a major area of uncertainty across all pilot sessions. SMEs frequently reported difficulties in interpreting evolving EU legislation, understanding the implications of recyclability claims and assessing compliance of food-contact materials. Most companies rely heavily on supplier-provided information and declarations, while lacking the internal technical capacity to independently evaluate end-of-life scenarios, recycling compatibility or Extended Producer Responsibility implications.

The analysis of innovation risk perception revealed an apparent mismatch between perceived and actual long-term risks. Quantitative risk-assessment data indicated that SMEs tend to prioritise economic and operational risks—such as machinery investments, production downtime and material costs—over environmental and regulatory risks. However, qualitative discussions highlighted that environmental compliance and regulatory misalignment often represent more critical long-term risks, which are underestimated due to their complexity and the absence of clear, accessible guidance.

Taken together, the dataset provides a comprehensive picture of SME motivations, constraints and expectations. The analysis confirms the need for a structured decision-support system capable of integrating functional, environmental, economic and regulatory criteria into a single, transparent and accessible evaluation process.

5.2. Interpretation of results in relation to the initial objectives

The results of the pilot actions strongly support the initial objectives of the activity and validate the methodological approach adopted within project implementation. The transnational collaborative environment demonstrated its ability to collect consistent, comparable and methodologically robust data across diverse SMEs, sectors and national contexts.

The interview process confirmed both the relevance of the assessment questions and the necessity of progressively transforming qualitative inputs into structured parameters compatible with the logic of the EGeT decision-support tool. This evolution was essential to ensure that the collected information could be systematically analysed, compared and translated into actionable guidance.

The diversity of packaging systems, constraints and decision contexts encountered during the pilot phase provided the empirical foundation required to significantly expand the packaging taxonomy, increasing it

from approximately 60 to 180 packaging subtypes. This expansion reflects real-life market conditions and supports more accurate matching between product requirements and potential packaging solutions.

Furthermore, the analysis of SME risk perceptions directly informed the development and validation of the Innovation Risk Assessment framework. The results confirmed the relevance of the proposed risk categories and highlighted where Technology Transfer Services can most effectively support companies, particularly in areas related to regulatory interpretation, environmental performance assessment and long-term strategic planning.

Overall, the findings demonstrate that the project's methodological approach is sound, transferable and firmly grounded in SME realities. The pilot actions delivered precisely the type of evidence required to refine the tools under development and ensure their alignment with market needs and operational constraints. The results indicate that the main barrier to sustainable packaging transition is not a lack of alternative materials, but the absence of structured tools capable of translating functional and regulatory constraints into realistic decision pathways for SMEs.

5.3. Key conclusions drawn from the results

The analysis leads to several clear conclusions which both validate the D4PACK model and provides guidance for the implementation of future project activities.

First, the pilot action highlighted that SMEs are committed to sustainable packaging but lack structured tools to guide decisions: their ambitions are high, but internal technical capacity and regulatory clarity remain limited.

Second, functional constraints remain the main barriers to change, as concerns about shelf-life, barrier performance and machinery compatibility determine what is realistically feasible for agri-food SMEs in their transition towards sustainable packaging.

Moreover, across all sectors, agri-food companies view recyclable mono-materials as the dominant transition direction, as mono-PE, mono-PP, BOPE/EVOH or rPET are perceived as the most promising pathways.

Another relevant conclusion is that regulatory uncertainty and inconsistent recycling systems create significant confusion among SMEs that often rely on incomplete or conflicting information and overestimate supplier declarations. Another element that should not be underestimated is the issue of export management, therefore territorial regulations and end-of-life management, which changes regulations and provisions based on the state/region/municipality, constraining the redesign of the packaging produced.

Finally, the activity proved that a structured, data-driven tool like EGeT is essential for SMEs, as it allows them to receive an integrated assessments combining functional, environmental and regulatory perspectives.

Overall, the conclusions confirm that the activity has generated the practical, evidence-based insights needed to develop the next steps of D4PACK, including finalisation of the risk framework, refinement of packaging recommendations and integration into the EGeT tool.

The pilot confirmed that without a guided, risk-based assessment framework such as EGeT, SMEs tend to rely on intuition, supplier-driven choices or incomplete sustainability claims.

6. Communication activities

6.1. Objectives of communication activities

The communication activities implemented within the scope of Deliverable 2.2.1 were designed to support the dissemination and exploitation of the pilot results and to reinforce the transnational dimension of the D4PACK project. In particular, communication aimed to:

- disseminate the results of the pilot actions to agri-food SMEs, policy makers and industry stakeholders;
- increase awareness and visibility of next-generation and sustainable packaging solutions;
- support cross-border learning and knowledge exchange among stakeholders operating in different regional and national contexts;
- prepare target audiences for the wider roll-out of Phase 2 pilot activities and the future use of the EGeT decision-support tool.

6.2. Tools and channels used

During the reporting period, a combination of digital communication tools and partner-led dissemination channels was used to share information on the implementation of pilot actions, the progress of WP2 and the emerging results.

Project website as a central information hub

The project website, including the Interreg Central Europe platform and partner landing pages, served as the main reference point for project-related information. Partners regularly contributed with content for the website, including:

- announcements on the launch of pilot actions (June–July 2025);
- short summaries describing the first interviews conducted with SMEs across pilot regions;
- updates on the development and testing of the EGeT tool;
- visual materials prepared by partners to illustrate preliminary findings and methodological aspects.

These updates contributed to increasing visibility among SMEs not directly involved in Phase 1, while targeting potential participants for Phase 2 pilot activities.

Social media outreach

Social media channels, such as LinkedIn and Facebook, were used by partners such as LIT, INNOSKART, CCIS-CAFE and FFDI to amplify project messages and reach professional audiences. In particular, a LinkedIn page of the project was created to facilitate the sharing of experiences and lessons learned.

Communication activities included:

- posts announcing SME recruitment and pilot milestones;
- thematic updates highlighting sustainability challenges in project-relevant sectors (dairy, meat and fruit and vegetables);
- references to the role of decision-support tools in addressing packaging transition complexity.

These actions helped maintain continuous engagement with stakeholders and reinforced the project's visibility within professional networks.

Article in sector-oriented communication channels

A short article presenting the pilot actions and their rationale was prepared and disseminated through partner networks and included in a specialised newsletter targeting the packaging and agri-food sectors. The article focused on:

- the motivation behind the pilot actions;
- typical challenges faced by SMEs, including logistics, regulatory uncertainty and recyclability requirements;
- the added value of transnational collaboration within the D4PACK project.

Distribution of visual factsheets and pilot summaries

Partners also developed concise visual materials summarising the pilot actions, including:

- an overview of the pilot objectives and activities;
- expectations and benefits for participating SMEs;
- examples of alternative packaging pathways explored during the pilot phase.

These materials were shared digitally with SMEs and stakeholders, particularly in the context of recruitment and awareness-raising activities for Phase 2.

6.3. Events and workshops to disseminate results

During the definition of the deliverable, dissemination activities were also integrated into selected events and workshops engaging SMEs and stakeholders from the wider agri-food and packaging ecosystem.

Project partners participated in several sector-oriented conferences and professional events, where they presented the D4PACK methodology and shared early insights from the pilot actions. Examples include:

- sustainability and circular economy conferences, where LIT presented trends related to mono-material packaging solutions;
- regional innovation events, where INNOSKART highlighted the importance of structured decision-support tools for SMEs;
- packaging innovation sessions, where partners referred to early lessons learned regarding innovation risk assessment and recyclability.

In addition, cluster organisations and chambers of commerce organised small-scale local awareness-raising sessions targeting SMEs. These sessions introduced:

- the objectives and approach of the D4PACK project;
- lessons learned from the first group of pilot companies;
- common packaging-related barriers, such as modified atmosphere packaging shelf-life, logistics robustness and sealing incompatibilities;
- opportunities for SMEs to participate in the next phase of pilot activities.

Overall, these communication and dissemination actions contributed to building awareness, strengthening stakeholder engagement and creating favourable conditions for the wider deployment of D4PACK activities in subsequent reporting periods.

7. Next step and reccomentations

7.1. Planned actions for follow-up on the deliverable

The results of Deliverable 2.2.1 provide a solid foundation for the continuation and scaling-up of D4PACK activities in subsequent project phases. Building on the validated methodology and the tested transnational collaborative environment, the following actions are planned:

- expansion of pilot testing activities to approximately 60 agri-food SMEs across five Central European countries within Phase 2 of the project. This expansion will allow the validation of the Technology Transfer Service across a wider range of company profiles, products and national contexts.
- integration pilot data into the EGeT tool architecture, ensuring that the empirical evidence collected during the initial testing phase directly informs the refinement of the matching logic, decision parameters and user pathways of the tool.
- development of company-specific Sustainability Reports, with an orientation towards Environmental Product Declarations (EPD), within Activity 2.3. These reports will translate the outcomes of the assessment into concrete, company-level sustainability documentation supporting strategic and operational decision-making.
- production of communication and training materials, including short video tutorials and testimonial content, to showcase SME experiences, lessons learned and practical insights emerging from the pilot actions. These materials will support knowledge transfer and facilitate engagement in Phase 2.
- integration of the results of Deliverable 2.2.1 into Activity 3.2, *"Scale down the D4PACK open innovation concept within regional and national policies"*. The empirical evidence generated through the pilot actions will be used to inform policy-oriented analyses and provide regional and national authorities with concrete insights into SMEs' needs, constraints and support requirements in relation to sustainable packaging transition.

Together, these actions aim to consolidate the achieved results, ensure their effective operationalisation and strengthen the link between technological innovation, SME support and policy development.

7.2. Recommendations for implementation or future activities

- Increase harmonisation of data structures to support algorithm scalability.
- Strengthen regulatory intelligence components within EGeT due to rapidly changing EU rules.
- Enhance SME-facing materials explaining recyclability, EPR obligations and end-of-life scenarios.
- Maintain strong cross-country collaboration for Phase 2 to ensure consistent interpretation of technical criteria.

Based on the evidence and lessons learned from the pilot actions, a set of recommendations can be formulated to guide the implementation of future activities and developments of the D4PACK approach:

- further harmonise data structures and assessment frameworks to support the scalability of the EGeT algorithm and ensure consistency across an increasing number of SMEs and territorial contexts;
- strengthen the regulatory intelligence component of the Technology Transfer Service, given the rapidly evolving EU legislative landscape related to packaging, recyclability and Extended Producer

Responsibility. Clear and up-to-date regulatory guidance is critical to reducing uncertainty among SMEs;

- enhance SME-facing explanatory materials, particularly those addressing recyclability concepts, EPR obligations and end-of-life scenarios, in order to reduce misconceptions and support informed decision-making;
- maintain and reinforce strong cross-country collaboration during Phase 2, ensuring consistent interpretation of technical criteria, assessment results and risk indicators, and preserving the transnational added value demonstrated during Phase 1.

Overall, these recommendations aim to maximise the impact, transferability and long-term sustainability of the D4PACK Technology Transfer Service, supporting agri-food SMEs in navigating the complex transition towards next-generation and sustainable packaging solutions.

8. Annexes

- Final Pilot questionnaire template
- Table of SMEs + sectors + packaging cases (anonimised)
- 3 reports (anonimised)
- Examples of packaging alternatives and rationale

PACKAGING NEEDS ASSESSMENT QUESTIONNAIRE

Target group: Food sector SMEs (meat, dairy, fruits & vegetables)

1. PRODUCTION PROFILE

1.1. Type of product (select one):

☐ Meat and meat products
☐ Dairy (milk, cheese, yogurt, etc.)
☐ Fruits and vegetables

1.2. Product condition (select all that apply):

☐ Fresh
☐ Frozen
☐ Processed (e.g., pasteurized, fermented)

1.3. Physical state of product:

☐ Solid
☐ Semi-liquid
☐ Liquid

2. FUNCTIONAL REQUIREMENTS FOR PACKAGING

Please select all that are important for your packaging:

☐ Moisture protection (hydrophobic)
☐ Grease/oil resistance (oleophobic)
☐ Oxygen barrier
☐ High temperature resistance (e.g., for reheating)
☐ Low temperature resistance (e.g., freezing)
☐ Printability / visual attractiveness
☐ Easy to open / close
☐ Recyclability
☐ Biodegradability / compostability
☐ Microbiological cleanliness
☐ Tamper-evident protection
☐ Sterility maintenance over a defined period

3. ENVIRONMENTAL PRIORITIES (“ECO” PREFERENCES)

Select up to 3 environmental attributes that are most important to you:

☐ Biodegradable
☐ Compostable
☐ Recyclable

☐ Contains recycled content
☐ Reusable
☐ Fit packaging (no excess space/air)
☐ Made from renewable materials
☐ Low carbon footprint
☐ Eco-design compliant

4. TECHNICAL PACKAGING REQUIREMENTS

4.1. Shape of the packaging:
☐ Regular
☐ Irregular

4.2. Rigidity of the packaging:
☐ Flexible
☐ Rigid

4.3. Preferred material type:
☐ Paper
☐ Plastic
☐ Glass
☐ Metal
☐ Composite (e.g., paper + plastic)

4.4. Is your packaging process automated?
☐ Yes
☐ No
☐ I don't know

4.5. Environmental factors your packaging must resist (select all that apply):
☐ Moisture
☐ Oxygen
☐ UV light
☐ Fats/oils
☐ High temperatures
☐ Low temperatures

4.6. Desired shelf life of the packaging:
☐ Short-term (up to a few days)
☐ Medium-term (up to a few weeks)
☐ Long-term (months or more)

4.7. Type of closure:
☐ Heat-sealed
☐ Screw cap
☐ Snap closure
☐ Other (e.g., clips, magnets)

4.8. Resealable packaging needed?
☐ Yes
☐ No
☐ Not applicable

4.9. Preferred delivery form of packaging materials:
☐ Rolls (for packing machines)
☐ Pre-formed units (e.g., boxes, bottles)
☐ Flat-packed / collapsible
☐ Other

Risk Assessment Questionnaire

Select, for each question, one answer.

Economic Driver:

1. To what extent has the adoption of a new packaging solution been integrated into the company's strategic plans, such as the industrial plan, sustainability strategy, or market expansion initiatives?

- It is fully integrated into official strategic plans (**Low Risk**).
- It is considered in strategic plans but not formally documented (**Medium Risk**).
- It has not yet been integrated into strategic plans (**High Risk**).

2. Has the Company carried out any preliminary economic evaluation to assess the potential financial impact of adopting an innovative packaging solution (e.g. general business plan, market research, competitors benchmarking, ect.)?

- Yes, with cost-benefit analysis and scenario simulations (**Low Risk**).
- Not yet, but will do in order to decide what packaging solution to implement (**Medium Risk**).
- No economic evaluation will be performed (**High Risk**)

3. Has the company identified how it would finance the adoption of a new sustainable packaging solution, considering both internal resources and external funding opportunities (e.g. grants, subsidized loans, partnerships)?

- Yes, we have already identified the funding sources and estimated the available budget (**Low Risk**).

- We have considered the investment but are still exploring funding options (**Medium Risk**).
- We have not yet evaluated how the investment would be financed (**High Risk**).

4. How much does the cost of the actual packaging averagely impact the selling price of your product(s)?

- The packaging cost has a low impact on profitability (it represents less than 5% of the total product cost); the product maintains healthy margins (**Low Risk**).
- Packaging cost moderately affects profitability (it accounts for approximately 5–15% of the total product cost); any increase would need to be carefully assessed (**Medium Risk**).
- Packaging cost has a significant impact (it represents more than 15% of the total product cost); even small increases could compromise product profitability (**High Risk**).

Environmental and social sustainability:

5. Does the company have personnel or dedicated roles responsible for Environmental and Social Sustainability topics (e.g. ESG manager, sustainability officer, or delegated internal function)?

- Yes, there is a dedicated role or team formally assigned to ESG or sustainability responsibilities (**Low Risk**).
- No dedicated role, but ESG/sustainability tasks are managed by existing staff on a part-time or informal basis (**Medium Risk**).
- No one in the company is currently responsible for environmental or social sustainability topics (**High Risk**).

6. Is the introduction of sustainable packaging seen as a lever for corporate reputation and brand awareness?

- Yes, sustainable packaging is considered a strategic lever to strengthen the company's reputation and is actively integrated into marketing and communication plans (**Low Risk**).
- Sustainable packaging is mainly seen as a compliance or operational matter, with little or no attention to its potential impact on corporate image and brand positioning (**Medium Risk**).
- There is little or no awareness of sustainability issues, and the potential reputational benefits of adopting sustainable packaging are not considered (**High Risk**).

7. Has the company defined metrics to monitor the environmental or social performance of its packaging (e.g. % recyclable material, CO_2 savings, ethical sourcing)?

- Yes, key sustainability indicators are tracked (**Low Risk**).
- Some indicators are considered but not yet formalized (**Medium Risk**).
- No monitoring activities are currently in place (**High Risk**).

8. Has the company assessed the sustainability practices of packaging suppliers (e.g. environmental certifications, ethical standards, local sourcing)?

- Yes, we apply ESG criteria in supplier selection (**Low Risk**)
- Some informal assessments exist (**Medium Risk**)
- No sustainability checks are made on suppliers (**High Risk**).

Packaging efficiency and quality

9. Does the company have personnel or dedicated roles responsible for monitoring the packaging quality (e.g. quality manager)?

- Yes, there is a dedicated role or team formally assigned to packaging quality responsibilities (**Low Risk**).
- No dedicated role, but packaging quality tasks are managed by existing staff on a part-time or informal basis (**Medium Risk**).
- No one in the company is currently responsible for packaging quality topics (**High Risk**).

10. How important is the packaging (perceived quality, customization, etc.) in the brand indentity?

- Packaging is primarily functional; its main role is to protect and display the product, with minimal attention to branding elements (**Low Risk**).
- Packaging is moderately important; it presents the product while incorporating basic branding elements (e.g., logo, colors, slogan) (**Medium Risk**).
- Packaging plays a key strategic role; it is designed primarily to showcase the brand identity, values, and emotional positioning, even over the visibility of the product itself (**High Risk**).

11. How important is extending the shelf life of products in the company's packaging strategy?

- Not important (**Low Risk**).
- Moderately important (**Medium Risk**).
- Very important (**High Risk**).

12. How versatile does the company need its packaging to be to accommodate different product types?

- Not versatile (**Low Risk**).
- Moderately versatile (**Medium Risk**).
- Highly versatile (**High Risk**).

13. Has the company specific quality standards required for new packaging materials (e.g., durability, integrity)?

- No specific quality standards required (**Low Risk**).
- Only few technical quality standards required (**Medium Risk**).
- Yes, moderate list of specific technical standards required (**High Risk**).

Regulatory compliance

14. Does the company have dedicated staff for compliance with packaging and food safety regulations?

- Yes, fully covered internally (**Low Risk**).
- Yes, but only partially or through consultants (**Medium Risk**).
- No, currently unmanaged (**High Risk**).

15. Does the company regularly monitor regulatory changes (national and EU level) that could impact packaging materials, formats, or labelling?

- Yes, regulatory monitoring is systematic and integrated into company procedures, with regular updates and adjustments to packaging operations (**Low Risk**).
- Regulatory monitoring is occasional or informal; adjustments are made when major changes are identified but without a structured approach (**Medium Risk**).
- No structured regulatory monitoring is carried out; adaptations are reactive and only triggered after external alerts or issues arise (**High Risk**).

16. Does the company regularly verify suppliers' compliance with local material, labour and traceability standards?

- Yes, with a systematic procedure and formal documentation (**Low Risk**).
- Partially, not with a systematic approach (**Medium Risk**).
- No formal checks in place (**High Risk**).

Technical feasibility

17. How flexible are the company's production lines to accommodate new packaging technologies?

- High flexibility, no or small upgrades needed (**Low Risk**).
- Moderate flexibility, moderate upgrades needed (**Medium Risk**).
- Limited flexibility, severe upgrades needed (**High Risk**).

18. Has the Company evaluated how the adoption of a new packaging solution could impact the logistics performance (e.g., transport efficiency, storage requirements, distribution costs)?

- Yes, a structured evaluation has been carried out, considering transport, storage, and distribution implications of the new packaging (**Low Risk**).
- Partial or informal evaluation has been conducted; some aspects have been considered, but without a complete or systematic analysis (**Medium Risk**).
- No specific evaluation has been conducted regarding the impact of the new packaging solution on logistics performance (**High Risk**).

19. Does the company have the ability to put in place remediative action in case of malfunctions to the packaging production lines?

- Yes, the Company has an internal technical intervention team (**Low Risk**).
- Yes, through a combination of internal technical resources (for small malfunctions) and external suppliers (for relevant malfunctions) (**Medium Risk**).
- Yes, but through external suppliers only (**High Risk**).

20. Does the Company have the capability and resources to plan and deliver staff training in case a new packaging solution is introduced?

- Yes, the Company already has internal processes and resources ready to support staff training if a new packaging solution is adopted (**Low Risk**).

- Training could be organized if needed, but resources or processes are currently limited or would require ad-hoc adjustments (**Medium Risk**).
- The Company has no defined capability or resources to manage staff training in case of adoption of new packaging solutions (**High Risk**).

D4PACK Pilot Action Phase 1

Anonymised SME Packaging Cases – Cross-sector Overview

SME	Country	Sector	Focus product	Core packaging challenge	Current packaging format	Tested / proposed packaging direction
SME 1	Hungary	Meat	Fresh poultry cuts	Puncture resistance vs recyclability	PA/PE vacuum film	Recyclable mono-material PE/PP vacuum films; rPE-based multilayers
SME 2	Czech Republic	Meat	Processed meat products	Minimal packaging with food safety	Shrink foil + paper + plastic bag	Coated paper flow-wrap; mono-PE pouches (MAP-ready)
SME 3	Czech Republic	Meat	Fresh meat portions	Short shelf life & leakage prevention	Vacuum packaging	Paper-based flow wrap with bio-coating; recyclable PE pouches
SME 4	Italy	Meat	Fresh meat products	Transition from composite films	PA/PE vacuum packaging	Mono-material vacuum films; MAP half-tube solutions
SME 5	Czech Republic	Dairy	White cheese	Composite-material fees & recyclability	PA/PE/EVOH thermoforming (MAP & vacuum)	BOPE with EVOH; simplified PE/EVOH structures; cellulose-based solutions
SME 6	Hungary	Dairy	Dairy desserts (take-away)	Liquid barrier + sustainability + printability	Plastic cups & lids + cling film	Paper cups with dispersion barrier; PLA cups; rPET cups
SME 7	Slovenia	Dairy	Milk & dairy products	Visual appeal vs regulatory pressure	Multilayer barrier films	Mono-material recyclable films; tray-based MAP formats
SME 8	Hungary	Fruit & Vegetables	Fresh-cut vegetables	Seal integrity & short shelf life	PA/PE vacuum bags (manual)	Recyclable mono-PE vacuum films; mono-PA + EVOH; PLA pouches
SME 9	Italy	Fruit & Vegetables	Fresh produce	Consumer perception of vacuum packs	Vacuum bags	High-barrier recyclable films; improved sealing reliability

SME	Country	Sector	Focus product	Core packaging challenge	Current packaging format	Tested / proposed packaging direction
SME 10	Czech Republic	Fruit & Vegetables	Preserved vegetables (jars)	Long shelf life & sterility	Glass jars	Lightweight PCR glass; aluminium cans; non-BPA steel cans
SME 11	Hungary	Fruit & Vegetables	Processed vegetables	Cost pressure & transparency	Glass jars	Lightweight glass optimisation; alternative metal packaging
SME 12	Czech Republic	Meat	Heat-treated meat	Branding with minimal plastic	Plastic shrink + paper	Molded fiber trays + cellulose films; coated paper wraps
SME 13	Czech Republic	Dairy	Export dairy products	Shelf life (60–80 days) & MAP compatibility	Composite barrier films	Mono-material BOPE; recyclable PE/EVOH films

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SUSTAINABLE PACKAGING PILOT REPORT

Phase 1

Company	Company 1 (Anonymised)
Country	Slovenia
Sector	Meat
Report Date	12.09.2025
Prepared by	Cevi Srl - Confindustria Verona (IT) CBHU Campden BRI Hungary Ltd (HU) L-LIT Lukasiewicz Research Network – Lódz Institute of Technology (PL) PricewaterhouseCoopers Business Services Srl (IT) PROMA-PACK Ltd - UCIMA (IT)

1. Project Scope and Objectives

This report has been developed as part of the D4PACK Pilot Action – Phase 1, following the online company interview held on July 10, 2025. The aim is to assess company's current packaging practices, sustainability priorities, and technical limitations in order to propose alternative packaging solutions for a selected product.

As a participant in the pilot action, the company will receive:

- A tailored selection of three alternative packaging solutions
- A sustainability briefing aligned with the company's goals and standards, including the potential to develop an Environmental Product Declaration (EPD)

2. Company Profile

Company 1 (Anonymised) is a Slovenian small- to medium-sized enterprise engaged in meat production and operating as part of a larger corporate group. The company cultivates wheat, corn, and other grains to supply feed for its own livestock, which includes pigs and cattle.

Approximately 70 percent of its sales are directed to the B2C market (primarily supermarkets and other retailers), while the remaining 30 percent serve B2B customers such as butchers and small food manufacturers.

Key retail partners include major supermarket chains such as Lidl and Aldi, both of which impose strict requirements regarding food safety, product quality, and environmentally responsible packaging solutions.

3. Current Packaging Overview

Company 1 (Anonymised) utilizes several types of packaging, including plastic trays, carton or IFCO boxes, and shrink films made from materials such as PP, PE/PA, and aluminum. While R-PET has been considered as an alternative, the company is especially interested in reducing PET/PP composite trays and shifting to mono-material PP trays. The primary concern raised by the company is the PA/PE-based film used for roll salami packaging. This product has a 90-day shelf life and must be kept at approximately 3°C throughout the supply chain.

4. Focus Product

Packaging Challenge: whole salami sausages.

Critical packaging requirements include preventing contamination and ensuring food safety, strict temperature control—since the salami is cooked, then chilled and kept refrigerated—and strong branding and shelf appeal for sale under Lidl, Aldi, or the company's own brand. The typical shelf life of the product in its current packaging is approximately 90 days.

Pic. 1 salami sausages in a flowpack packaging

5. Production Line Compatibility

Company 1 (Anonymised) operates a variety of packaging machines with differing levels of automation. While some of these machines are highly adaptable, allowing integration of new packaging solutions with minimal modification, others may require adjustments to accommodate changes. The company benefits from both internal and external technical support for machinery maintenance, which ensures flexibility in implementing packaging upgrades. This adaptability supports the introduction of more sustainable materials, including those requiring minor line reconfigurations, without significant disruption to production.

6. Certifications and Sustainability Commitment

Company 1 (Anonymised) holds IFS Food certification.

7. Key Packaging Requirments

The company's key concern is the packaging of roll salami, which uses PA/PE film. It must ensure high oxygen and moisture barrier, maintain product quality during the 90-day shelf life, and withstand refrigerated conditions (~3 °C). The casing must also be black due to national regulations. Any alternative should meet food safety standards, be compatible with existing lines, and support the company's sustainability goals.

Area	Requirement
Barrier Properties	High oxygen and moisture barrier required, especially for vacuum-packed salami (PA/PE film); EVOH layers also considered for trays.
Shelf Life	Must maintain ~90-day shelf life for whole salami; packaging must be stable at ~3°C throughout the supply chain.
Retail Preferences	Black-colored casings are mandatory (by national regulation); Lidl and Aldi require recyclable and certified packaging materials.
Sustainability	Reduction of PET/PP composites; preference for recyclable mono-materials (e.g., rPET, rPE/rPA); interest in compostable options for local B2C lines.
Consumer Expectations	Emphasis on brand image, printability, and eco-labeling; compostable or recyclable materials expected to appeal to premium product buyers.
Machinery Compatibility	Current lines compatible with PA/PE and thermoformed trays; rPET trays and mono-material films must be adaptable to existing equipment.

8. Proposed Alternative Packaging Solutions

1. High-barrier mono-material PA/PE with recycled content (rPA/rPE)

Replacement for the current PA/PE salami casing.

- Maintains a 90-day shelf life and strong sealing at 3 °C while introducing recycled content in line with upcoming EU requirements.
- Benefits: Meets the legally required black colour, can be used on existing lines with minimal changes, and reduces the carbon footprint.

2. rPET mono-material trays with EVOH barrier

Replacement for current PET/PP composite trays with a lighter, fully recyclable option.

- rPET is already under consideration, and the EVOH layer provides a high level of oxygen protection.
- Benefits: 100 % recyclable in the PET stream, compliant with major retail standards (Lidl, Aldi), and suitable for packaging portioned meat.

3. Compostable or fully recyclable cellulose-based films with barrier coating

For selected products with shorter supply chains.

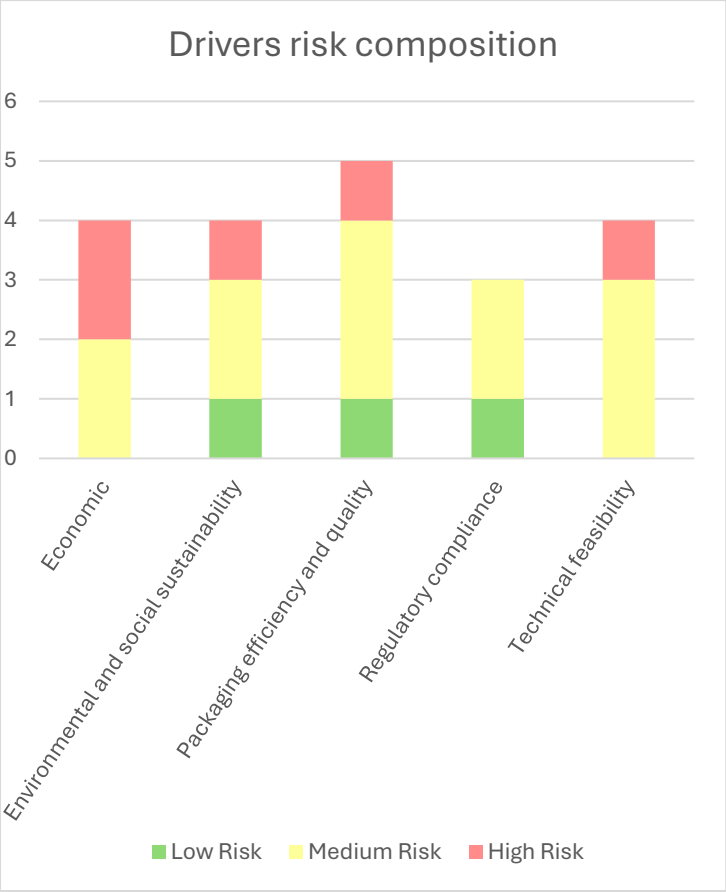
- Higher biodegradability for premium or local B2C lines while maintaining moisture and oxygen barriers.
- Benefits: Enhances eco-friendly brand image, provides strong marketing appeal, and allows black coloration in line with regulations.

Summary table

Solution	*Sustainability Profile*	*Moisture Retention*	*Shelf-Life Performance*	*Marketing Friendly (Printability)*	*Recyclable / Compostable*
High-barrier mono-material PA/PE with recycled content (rPA/rPE)	Contains recycled polyamide/polyethylene; meets upcoming EU recycled-content targets	High	High (maintains ~90-day shelf life)	Yes	Recyclable in mixed-polyolefin streams
rPET mono-material trays with EVOH barrier	Made from post-consumer recycled PET; lightweight and fully recyclable in PET stream	High	High	Yes	Fully recyclable in standard PET recycling
Compostable/recyclable cellulose-based film with barrier	Renewable, home/industrial compostable; lower carbon footprint for premium/local products	Moderate to High	Moderate	Yes	Compostable (home & industrial, EN 13432)

9. Risk Assessment – Dashboard Summary

This section contains the risk assessment summary, which gives an overview of the Company risk profile to a possible new packaging implementation, regardless of the possible packaging alternatives considered.



Radar Chart - Overview of Risk Levels
This chart provides a synthetic representation of the average risk level for each driver (Economic, Environmental & Social, Packaging Quality and Efficiency, Regulatory, Technical Feasibility).

- The underlying methodology is based on converting questionnaire responses into numerical scores (**1 = low risk, 2 = medium risk, 3 = high risk**) and calculating the **average score** for each driver.
- In the chart, this average is **translated into the distance from the center**: the further a driver extends outward, the higher the associated risk level.
- The **color gradient** supports interpretation: **green = low risk**, **yellow = medium risk**, **red = high risk**.

Bar Chart - Breakdown of Risk Levels
This chart provides a detailed view of the risk composition for each driver.

- For each driver, the total number of questionnaire responses has been calculated.
- These responses have then been classified according to the associated risk level (**low, medium, high**).
- Each bar therefore represents the distribution of responses across risk levels within the individual driver.
- While the radar chart offers a **synthetic overview**, the bar chart enables a more precise analysis of the **distribution of risk**.

10. Risk Assessment - Packaging related questionnaire

Driver	Question #1	Answer
Economic	To what extent has the adoption of a new packaging solution been integrated into the company's strategic plans, such as the industrial plan, sustainability strategy, or market expansion initiatives?	It is considered in strategic plans but not formally documented.

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback

As the solution under evaluation falls into a low cost category, the absence of formal planning references may have limited operational consequences, but it can still reduce visibility on how the solution connects to broader company goals.

Even lower-cost initiatives can play a role in brand positioning, efficiency, or environmental efforts. Without at least minimal coordination with other projects or timelines, these potential benefits may be harder to capture or assess.

Recommendation

Although the investment is limited, it is still helpful to briefly outline the packaging adoption plan to make sure it aligns with ongoing projects.

Even a one-page summary or internal note can help track objectives and avoid missed opportunities for integration with sustainability or process improvement goals.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback

Considering that the solution is associated with a medium cost profile, its informal inclusion in company planning may limit the ability to fully align the initiative with other ongoing efforts.

Medium-cost solutions typically require coordination across budgeting, scheduling, and resource allocation. When not clearly referenced in internal planning tools or timelines, there's a greater chance of misalignment, overlap, or delays—especially in environments with multiple priorities.

This could make it harder to understand how the solution contributes to strategic goals, such as sustainability, competitiveness, or cost optimization.

Recommendation

To improve internal coordination, the company should document the planned adoption of the packaging solution, even in a simplified format, integrating it into any strategic plan (if present).

Medium-cost initiatives often compete with other operational priorities; having a written reference allows the team to align timing, roles, and budget expectations, reducing friction during execution.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback

Considering that the solution is associated with a medium cost profile, its informal inclusion in company planning may limit the ability to fully align the initiative with other ongoing efforts.
Medium-cost solutions typically require coordination across budgeting, scheduling, and resource allocation. When not clearly referenced in internal planning tools or timelines, there's a greater chance of misalignment, overlap, or delays—especially in environments with multiple priorities.
This could make it harder to understand how the solution contributes to strategic goals, such as sustainability, competitiveness, or cost optimization.

Recommendation

To improve internal coordination, the company should document the planned adoption of the packaging solution, even in a simplified format, integrating it into any strategic plan (if present).
Medium-cost initiatives often compete with other operational priorities; having a written reference allows the team to align timing, roles, and budget expectations, reducing friction during execution.

Driver	Question #2	Answer
Economic	Has the Company carried out any preliminary economic evaluation to assess the potential financial impact of adopting an innovative packaging solution (e.g. general business plan, market research, competitors benchmarking, ect.)?	No economic evaluation will be performed.

Answer Risk Level:High

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback

As the solution under evaluation falls within a low cost profile, the absence of an economic evaluation may seem low risk, but still introduces uncertainty.
Even for lower-cost packaging, without a basic cost-benefit reflection, the company might select an option that doesn't align well with operational needs, supplier constraints, or future scalability.
This may result in missed value or minor inefficiencies that accumulate over time.

Recommendation

Even for low-cost packaging, taking time to roughly estimate total costs and expected benefits is recommended.
This doesn't require a complex model—basic figures based on supplier quotes or internal experience can help validate that the choice makes sense in the long run.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
Considering that the solution corresponds to a medium cost profile, not conducting an economic evaluation limits the company's ability to compare options and assess financial feasibility.
Medium-cost solutions may seem manageable, but without a basic analysis, key factors such as cost-effectiveness, operational impact, or long-term savings potential can be easily overlooked.
This lack of clarity increases the likelihood of choosing a solution that underdelivers or causes hidden inefficiencies during implementation.

Recommendation
It is advisable to perform a simple financial assessment to compare packaging options and understand the total cost over time.
This helps ensure the company selects a solution that offers the best value and avoids surprises during implementation or scaling.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
Considering that the solution corresponds to a medium cost profile, not conducting an economic evaluation limits the company's ability to compare options and assess financial feasibility.
Medium-cost solutions may seem manageable, but without a basic analysis, key factors such as cost-effectiveness, operational impact, or long-term savings potential can be easily overlooked.
This lack of clarity increases the likelihood of choosing a solution that underdelivers or causes hidden inefficiencies during implementation.

Recommendation
It is advisable to perform a simple financial assessment to compare packaging options and understand the total cost over time.
This helps ensure the company selects a solution that offers the best value and avoids surprises during implementation or scaling.

Driver	Question #3	Answer

Economic	Has the company identified how it would finance the adoption of a new sustainable packaging solution, considering both internal resources and external funding opportunities (e.g. grants, subsidized loans, partnerships)?	We have considered the investment but are still exploring funding options.

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback

As the solution under evaluation is associated with a low cost profile, the lack of a defined financing strategy presents a limited financial risk, but still introduces uncertainty in terms of timing and prioritization.

Even for lower-cost solutions, the absence of a clear plan may cause minor delays or limit the ability to act when the opportunity arises—especially if internal resources are tight or external funding becomes available unexpectedly.

This can reduce the company's flexibility in implementing the change efficiently.

Recommendation

Even for a low-cost solution, it is recommended to confirm how the investment will be covered—whether through existing budget lines or minor reallocations.

This clarity helps avoid small but unnecessary delays, and positions the company to take immediate action if funding becomes available through external channels.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback

Considering that the solution falls within a medium cost category, the lack of a finalized financing plan presents a moderate but meaningful risk to project timing and stability.

While medium-cost investments are more manageable, they still require coordination between funding availability and operational planning.

Without clarity on how the solution will be financed, internal resource planning may be affected, and decision-making may be delayed, especially if multiple initiatives are competing for funds.

Recommendation

To support timely implementation, the company should define how the solution will be funded, combining internal assessments with external opportunities if needed.

Even moderate investments can create bottlenecks if funding is uncertain or spread across different budgets.

A short internal discussion or plan can help align priorities and resource availability.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback

Considering that the solution falls within a medium cost category, the lack of a finalized financing plan presents a moderate but meaningful risk to project timing and stability.
While medium-cost investments are more manageable, they still require coordination between funding availability and operational planning.
Without clarity on how the solution will be financed, internal resource planning may be affected, and decision-making may be delayed, especially if multiple initiatives are competing for funds.

Recommendation
To support timely implementation, the company should define how the solution will be funded, combining internal assessments with external opportunities if needed.
Even moderate investments can create bottlenecks if funding is uncertain or spread across different budgets.
A short internal discussion or plan can help align priorities and resource availability.

Driver	Question #4	Answer
Economic	How much does the cost of the actual packaging averagely impact the selling price of your product(s)?	Packaging cost has a significant impact (it represents more than 15% of the total product cost); even small increases could compromise product profitability.

Answer Risk Level: High

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
As the solution under evaluation falls within a low cost profile, the financial impact is less severe, but the high existing cost of packaging means that any change must be evaluated carefully.
Even small increases can amplify an already heavy cost burden, particularly if they affect multiple product types or production batches.
This context calls for extra attention to ensure that the new solution adds value without eroding margins further.

Recommendation
Even if the new solution is low-cost, it is advisable to review how it will influence overall packaging expenses, especially when applied across multiple products or batches.
This ensures the change does not unintentionally worsen an already sensitive cost area.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback

Considering that the solution corresponds to a medium cost profile, and packaging already has a major impact on product costs, even moderate increases may put pressure on margins.
While the investment may be manageable, it could limit the company's ability to absorb future cost changes, negotiate pricing, or maintain market positioning.
This increases the importance of assessing how cost variations could affect overall profitability.

Recommendation
Before moving forward, the company should simulate the effect of the new packaging on unit cost and margins, especially for high-volume products.
This helps verify that the solution fits within acceptable profitability thresholds and allows time to explore adjustments in production or pricing if needed.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
Considering that the solution corresponds to a medium cost profile, and packaging already has a major impact on product costs, even moderate increases may put pressure on margins.
While the investment may be manageable, it could limit the company's ability to absorb future cost changes, negotiate pricing, or maintain market positioning.
This increases the importance of assessing how cost variations could affect overall profitability.

Recommendation
Before moving forward, the company should simulate the effect of the new packaging on unit cost and margins, especially for high-volume products.
This helps verify that the solution fits within acceptable profitability thresholds and allows time to explore adjustments in production or pricing if needed.

Driver	Question #5	Answer

Environmental and social sustainability	Does the company have personnel or dedicated roles responsible for Environmental and Social Sustainability topics (e.g. ESG manager, sustainability officer, or delegated internal function)?	No one in the company is currently responsible for environmental or social sustainability topics.

Answer Risk Level: High

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
The solution presents a solid sustainability profile, but the absence of internal accountability significantly limits the company's ability to oversee its implementation. Without a designated role, opportunities to engage with suppliers, validate claims, or track compliance may be lost, reducing the potential benefits of an otherwise high-performing solution.

Recommendation
To ensure proper integration of a sustainable solution, the company should designate at least one internal figure to oversee ESG topics. Even without creating a formal role, assigning responsibility improves coordination with suppliers and helps maintain consistency in applying environmental standards.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
Given the solution's inherent sustainability limitations, the lack of a responsible figure further increases the risk of misalignment or poor adoption. Without someone to assess trade-offs or communicate with suppliers, critical issues — such as recyclability in local contexts or material compliance — may remain unaddressed.

Recommendation
In the absence of internal ESG leadership, the company risks mismanaging a solution that already presents sustainability challenges. Assigning clear ownership — even informally — is a first step toward identifying risks, engaging with packaging providers, and supporting compliance efforts.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
Given the solution's inherent sustainability limitations, the lack of a responsible figure further increases the risk of misalignment or poor adoption. Without someone to assess trade-offs or communicate with suppliers, critical issues — such as recyclability in local contexts or material compliance — may remain unaddressed.

Recommendation

In the absence of internal ESG leadership, the company risks mismanaging a solution that already presents sustainability challenges. Assigning clear ownership — even informally — is a first step toward identifying risks, engaging with packaging providers, and supporting compliance efforts.

Driver	Question #6	Answer
Environmental and social sustainability	Is the introduction of sustainable packaging seen as a lever for corporate reputation and brand awareness?	Sustainable packaging is mainly seen as a compliance or operational matter, with little or no attention to its potential impact on corporate image and brand positioning.

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
Despite having a packaging solution aligned with key environmental standards, treating sustainability merely as a compliance issue may lead the company to miss significant brand-building opportunities. The underuse of a low-risk, high-performing solution in communication can limit differentiation and reduce stakeholder recognition of the company's environmental efforts.

Recommendation
To enhance the value of a low-risk packaging solution, the company may consider incorporating its environmental benefits into brand messaging. Using fact-based claims — such as recyclability or certified materials — can strengthen consumer trust and help position the company more clearly in sustainability-conscious markets.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
When a solution's sustainability claims rely on partial or context-dependent features, a purely operational framing may be insufficient to support its value. Without a strategic communication approach, the company may inadvertently overstate or misalign expectations, especially in markets that increasingly reward transparent and substantiated sustainability narratives.

Recommendation
When dealing with packaging that may rely on context-dependent claims, it is recommended to assess how benefits are communicated. Verifying recyclability in local conditions or clarifying limitations through simple disclaimers can reduce the risk of overstatements and align brand messaging with actual product attributes.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
When a solution's sustainability claims rely on partial or context-dependent features, a purely operational framing may be insufficient to support its value. Without a strategic communication approach, the company may inadvertently overstate or misalign expectations, especially in markets that increasingly reward transparent and substantiated sustainability narratives.

Recommendation
When dealing with packaging that may rely on context-dependent claims, it is recommended to assess how benefits are communicated. Verifying recyclability in local conditions or clarifying limitations through simple disclaimers can reduce the risk of overstatements and align brand messaging with actual product attributes.

Driver	Question #7	Answer
Environmental and social sustainability	Has the company defined metrics to monitor the environmental or social performance of its packaging (e.g. % recyclable material, CO_2 savings, ethical sourcing)?	Yes, key sustainability indicators are tracked.

Answer Risk Level: Low

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
The solution under evaluation falls into a low sustainability risk category, as it is certified recyclable (e.g., Cyclos) and supports post-consumer recycling within existing infrastructure. Its design aligns with circular economy principles and can contribute to extended producer responsibility goals. Although compostability is not featured, the use of standardized, recyclable structures reinforces its environmental positioning in diverse waste management systems.
The presence of defined sustainability metrics (e.g., CO_2 savings or recycled content share) allows the company to quantitatively assess the packaging's impact. This combination strengthens the ability to demonstrate tangible benefits to stakeholders and enables reliable integration into reporting frameworks or marketing claims.

Recommendation
Even with a low-risk solution and clear sustainability metrics already in place, the company can further improve by regularly updating indicators to reflect evolving regulations and stakeholder expectations. Incorporating dynamic KPIs (e.g., lifecycle CO_2 impact or supplier ESG ratings) can enhance transparency and support continuous improvement efforts.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback

The solution under evaluation falls into a medium sustainability risk category, as it incorporates recycled content and compostable cellulose-based films like NatureFlex, which contribute to its circular profile. However, the absence of third-party validation or life cycle assessment weakens its environmental credibility. Its actual sustainability impact may vary due to infrastructure inconsistencies and limited consumer awareness of proper disposal practices.
Even when sustainability indicators are tracked internally, the interpretation of such metrics may be more complex in this context. The solution's benefits may require clarification or validation (e.g., recyclability thresholds, real-world biodegradability) to ensure consistency between internal assessments and external expectations.

Recommendation
When dealing with packaging solutions that fall into a medium sustainability risk category, it is recommended that the company refine its existing metrics to cover areas where the packaging may present limitations — such as partial recyclability or regional collection constraints. Introducing product-specific or material-specific indicators can support more targeted tracking and decision-making.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER falls into a medium sustainability risk category due to limited compostability and reliance on regional recycling systems.
Its use of 100% recycled PET supports circular economy targets and enables closed-loop potential. However, inconsistent recycling infrastructure and growing skepticism toward plastic-based formats may limit its overall sustainability performance.
Even when sustainability indicators are tracked internally, the interpretation of such metrics may be more complex in this context. The solution's benefits may require clarification or validation (e.g., recyclability thresholds, real-world biodegradability) to ensure consistency between internal assessments and external expectations.

Recommendation
When dealing with packaging solutions that fall into a medium sustainability risk category, it is recommended that the company refine its existing metrics to cover areas where the packaging may present limitations — such as partial recyclability or regional collection constraints. Introducing product-specific or material-specific indicators can support more targeted tracking and decision-making.

Driver	Question #8	Answer

Environmental and social sustainability	Has the company assessed the sustainability practices of packaging suppliers (e.g. environmental certifications, ethical standards, local sourcing)?	Some informal assessments exist.

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
Even if the packaging solution is inherently sustainable, the absence of formal ESG-based supplier checks may create gaps in traceability and consistency. Without structured oversight, the company risks underestimating potential supply-side issues that could compromise environmental integrity or compliance.

Recommendation
To reinforce supply chain accountability, the company may consider updating its ESG assessment criteria periodically. Collecting supplier certifications (e.g., FSC, PEFC, ISO 14001) or documentation on material sourcing can help confirm alignment with sustainability goals and support consistent claims.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
For packaging solutions with partially validated claims or local infrastructure dependencies, informal supplier assessments may not provide sufficient guarantees. This can weaken control over input materials and complicate the demonstration of responsible sourcing — a key requirement in markets moving toward greater transparency and chain-of-custody assurance.

Recommendation
When using packaging with a medium risk profile, it is advisable to strengthen supplier qualification protocols. Introducing structured tools like sustainability checklists, self-assessments, or third-party audit requests can improve traceability and reduce the risk of weak points in material origin or compliance.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
For packaging solutions with partially validated claims or local infrastructure dependencies, informal supplier assessments may not provide sufficient guarantees. This can weaken control over input materials and complicate the demonstration of responsible sourcing — a key requirement in markets moving toward greater transparency and chain-of-custody assurance.

Recommendation

When using packaging with a medium risk profile, it is advisable to strengthen supplier qualification protocols. Introducing structured tools like sustainability checklists, self-assessments, or third-party audit requests can improve traceability and reduce the risk of weak points in material origin or compliance.

Driver	Question #9	Answer
Packaging efficiency and quality	Does the company have personnel or dedicated roles responsible for monitoring the packaging quality (e.g. quality manager)?	No dedicated role, but packaging quality tasks are managed by existing staff on a part-time or informal basis.

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) integrates technical features that require precision during sealing and forming. Without formally assigned quality roles, critical variables such as sealing temperature or film stress response may be inconsistently monitored, increasing the risk of underperforming batches.

Recommendation
It may be advisable to delegate quality control to trained operators and implement clear protocols for checking seal resistance, package appearance, and shrink conformity during production.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
With only partial quality oversight, COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING's biodegradable structure may be exposed to inconsistencies in sealing and shrink-fit performance. Informal management could lead to uncontrolled film behavior, especially in humid conditions or varying fill volumes.

Recommendation
It may be advisable to formalize packaging quality roles during pilot and initial production runs, focusing on validating packaging reliability under storage and distribution simulations.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER's semi-rigid, multi-layer structure demands control over sealing and forming conditions. Without a dedicated quality role, oversight may be

inconsistent, increasing the risk of sealing failures or tray deformation during scale-up or material switching.

Recommendation
It may be advisable to formalize packaging quality responsibilities and implement targeted quality checkpoints to assess film adhesion, rigidity tolerances, and process repeatability across production runs.

Driver	Question #10	Answer
Packaging efficiency and quality	How important is the packaging (perceived quality, customization, etc.) in the brand indentity?	Packaging is primarily functional; its main role is to protect and display the product, with minimal attention to branding elements.

Answer Risk Level: Low

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) is primarily designed for barrier performance and high-volume compatibility, not for visual customization. In contexts where brand identity is secondary, its rectangular format and sealing efficiency offer practical functionality, though limited shelf appeal.

Recommendation
It may be advisable to focus HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) on utility-driven segments where protection and cost-efficiency outweigh brand visibility, minimizing the use of decorative or shape-specific packaging features.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING is optimized for sustainability and function, offering sufficient protection for short shelf-life products. In applications with minimal branding relevance, its compostable films and lightweight design fulfill their role efficiently without needing customization.

Recommendation

It may be advisable to limit the use of branding embellishments with COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING, focusing instead on clear sustainability labeling and material claims aligned with eco-conscious positioning.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER prioritizes product protection and shelf life through its rPET tray and vacuum-sealed film. When brand identity is not a key focus, its transparent structure and efficient format still offer functional benefits without requiring extensive customization.

Recommendation

It may be advisable to maintain the current configuration and consider only minimal brand integration, such as standardized labels or printed film, to preserve operational simplicity.

Driver	Question #11	Answer
Packaging efficiency and quality	How important is extending the shelf life of products in the company's packaging strategy?	Very important

Answer Risk Level: High

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback

Shelf life is a core function of HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) , which uses PA/PE structures to preserve food integrity in thermal processing and long-chain distribution. Any deviation in seal strength or oxygen ingress could jeopardize product stability.

Recommendation

It may be advisable to implement rigorous barrier validation, including OTR testing and post-retort seal audits, and align packaging setup with the company’s distribution and shelf-life goals across climate zones.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback

Where shelf life is a top priority, COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING’s compostable packaging may face performance constraints due to material fragility, sealing behavior, and oxygen permeability. These limitations could compromise food safety or brand trust.

Recommendation
It may be advisable to perform comparative barrier analysis of COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING against benchmark films, and if needed, develop enhanced coatings or hybrid structures to improve protection for longer shelf-life formats.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER is designed for high-barrier applications and shelf-life extension, with vacuum sealing and multi-layer compatibility. Without precise control, risks such as seal failure or material fatigue could compromise its protective function.

Recommendation
It may be advisable to implement comprehensive shelf-life validation protocols, including accelerated aging and seal integrity tests, to ensure RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER consistently delivers under long-term storage and complex distribution scenarios.

Driver	Question #12	Answer
Packaging efficiency and quality	How versatile does the company need its packaging to be to accommodate different product types?	Moderately versatile

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) supports a moderate level of versatility due to its flexible overwrapping compatibility and compatibility with thermoforming systems. However, retort-specific sealing parameters and multilayer films may limit rapid switching between product types or formats.

Recommendation
It is advisable to validate whether existing lines can manage format changes efficiently, and explore alternative film structures or tray sizes to increase adaptability without compromising performance.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING can support moderate versatility with its use of shrinkable cellulose-based films, but adjustments in shrink ratio, sealing response, and presentation may be needed across product types.

Recommendation
It is advisable to define acceptable format tolerances and run packaging simulations for each tray or flow-wrap configuration to ensure quality consistency across SKUs.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER can accommodate moderate format variation, but adjustments in thermoforming or sealing parameters may be needed. Its semi-rigid tray structure limits flexibility, particularly for deeper or irregular products.

Recommendation
It may be advisable to map all format variants that RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER needs to support, and validate machine settings and tray-film combinations across representative SKUs to minimize inconsistencies.

Driver	Question #13	Answer
Packaging efficiency and quality	Has the company specific quality standards required for new packaging materials (e.g., durability, integrity)?	Only few technical quality standards required.

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
The use of retortable films in HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) implies that a minimum level of sealing and thermal resistance is expected. If only general quality standards are in place, variability in laminate performance may go undetected.

Recommendation
It may be advisable to define essential mechanical and thermal validation criteria (e.g. seal burst, barrier stability post-retort) to guide material selection and supplier qualification.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback

When limited technical requirements are applied, such as for single-portion food service, COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING's cellulose-based film may suffice, although performance can vary with storage or sealing stress.

Recommendation
It may be advisable to prioritize validation for moisture barrier stability and seal strength under simulated transport or variable humidity conditions.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER's composite structure and vacuum-sealing film benefit from defined technical standards. Moderate requirements allow some control, but incomplete validation may lead to sealing inconsistencies or material misbehavior.

Recommendation
It may be advisable to define core performance metrics—such as seal strength, deformation resistance, and oxygen transmission rate—and periodically test RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER materials against these benchmarks.

Driver	Question #14	Answer
Regulatory compliance	Does the company have dedicated staff for compliance with packaging and food safety regulations?	Yes, but only partially or through consultants

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
The solution under evaluation falls into a high medium compliance risk category, reflecting its reliance on materials or configurations for which no clear EU harmonization currently exists. These solutions often involve a combination of materials that may be difficult to classify under existing regulatory frameworks, require complex testing to verify food safety or environmental compliance, and present a high risk of future non-compliance as legislation evolves.
When regulatory compliance is not fully overseen internally and instead depends on partial internal roles or external support, the adoption of such a solution may carry significant challenges. These include navigating fragmented legal requirements, managing extensive documentation, and ensuring alignment with both EU and national rules.
In this context, the limited internal capacity may result in higher exposure to regulatory delays or non-conformities, particularly during the integration and verification stages.

Recommendation

In the case of high compliance risk solutions, it is recommended to establish a more structured approach to compliance management. This may involve formalizing roles internally, selecting specialized consultants, or creating a documentation checklist tailored to the specific regulatory challenges of the packaging.
Whenever possible, companies should also consider engaging with industry associations or regulatory bodies to clarify compliance paths, especially in areas governed by national rules or where harmonization is limited.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
The solution under evaluation falls into a high medium compliance risk category, reflecting its reliance on materials or configurations for which no clear EU harmonization currently exists. These solutions often involve a combination of materials that may be difficult to classify under existing regulatory frameworks, require complex testing to verify food safety or environmental compliance, and present a high risk of future non-compliance as legislation evolves.
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Whenever possible, companies should also consider engaging with industry associations or regulatory bodies to clarify compliance paths, especially in areas governed by national rules or where harmonization is limited.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.
In this context, even when regulatory compliance is not fully managed in-house — and is instead addressed partially or through external consultants — the adoption of the solution remains relatively straightforward. Its limited exposure to complex or frequently changing regulations allows the company to navigate integration with a lower likelihood of compliance-related disruption.

The reduced regulatory sensitivity of the solution helps ensure that essential obligations such as documentation and food contact conformity are met, even without a fully dedicated internal compliance structure.

Recommendation
Even when the solution falls into a low compliance risk category, it is advisable to clarify how compliance responsibilities are distributed—whether managed internally or supported by external consultants.
Documenting roles and contact points can help streamline communication during implementation and facilitate alignment with regulatory requirements, even when oversight is not fully handled in-house.

Driver	Question #15	Answer
Regulatory compliance	Does the company regularly monitor regulatory changes (national and EU level) that could impact packaging materials, formats, or labelling?	Regulatory monitoring is occasional or informal; adjustments are made when major changes are identified but without a structured approach.

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
The solution under evaluation falls into a high medium compliance risk category, reflecting its reliance on materials or configurations for which no clear EU harmonization currently exists. These solutions often involve a combination of materials that may be difficult to classify under existing regulatory frameworks, require complex testing to verify food safety or environmental compliance, and present a high risk of future non-compliance as legislation evolves.
In this context, an informal or reactive approach to regulatory monitoring significantly increases the risk of non-compliance. The company may overlook emerging requirements or fail to act promptly on updates, potentially delaying market readiness or triggering corrective actions.
The lack of a structured monitoring framework makes it more difficult to anticipate and manage the legal obligations tied to this packaging solution's composition, end-of-life classification, or documentation needs.

Recommendation

When dealing with a packaging solution that falls into a high compliance risk category, the company should prioritize the development of a structured, recurring process for monitoring applicable laws and upcoming regulatory changes.
This may include identifying and subscribing to specific regulatory channels (e.g., EFSA updates, ECHA alerts, national food safety authority communications), and establishing periodic internal reviews. Involvement of external experts may be necessary to ensure a complete interpretation of complex or technical updates, especially where multiple frameworks intersect (e.g. compostability, safety testing, cross-border labeling rules).

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
The solution under evaluation falls into a high medium compliance risk category, reflecting its reliance on materials or configurations for which no clear EU harmonization currently exists. These solutions often involve a combination of materials that may be difficult to classify under existing regulatory frameworks, require complex testing to verify food safety or environmental compliance, and present a high risk of future non-compliance as legislation evolves.
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RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.
Given that the company currently monitors regulatory changes in an occasional or informal way, the overall risk of significant misalignment remains contained—thanks to the relatively stable and well-defined rules governing this type of packaging.

Nonetheless, without a structured internal system, the company may still face inefficiencies in adapting to updates in areas such as labelling requirements, documentation formats, or recyclability thresholds—especially as new regulations like the PPWR are introduced.

Recommendation
Even if the packaging solution presents a low compliance risk, it is advisable to move from an informal to a more structured approach in monitoring regulatory updates. This could involve assigning responsibility for periodically reviewing national and EU-level changes (e.g., PPWR, Reg. (EC) No 1935/2004), even within existing staff capabilities.
Creating a simple internal routine for capturing updates—such as through trade association newsletters, supplier alerts, or participation in industry events—can improve preparedness and prevent minor oversights, especially during packaging changes or label revisions.

Driver	Question #16	Answer
Regulatory compliance	Does the company regularly verify suppliers' compliance with local material, labour and traceability standards?	Yes, with a systematic procedure and formal documentation

Answer Risk Level: Low

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
The solution under evaluation falls into a high medium compliance risk category, reflecting its reliance on materials or configurations for which no clear EU harmonization currently exists. These solutions often involve a combination of materials that may be difficult to classify under existing regulatory frameworks, require complex testing to verify food safety or environmental compliance, and present a high risk of future non-compliance as legislation evolves.
Despite having structured procedures for supplier verification and documentation, the company may encounter complexities in validating supplier compliance — particularly when dealing with diverse international standards, country-specific requirements, or new material categories.
These factors increase the likelihood of encountering documentation gaps or inconsistencies that could affect regulatory alignment across the supply chain.

Recommendation
For high-risk solutions, it is important to proactively request and archive detailed documentation from suppliers, including conformity declarations, migration test reports (if applicable), and evidence of compliance with compostability or recycling standards.
When materials are new or less conventional, a verification process involving technical support or external consultation may help mitigate potential gaps and reduce exposure to regulatory disputes or delays during product placement.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback

The solution under evaluation falls into a high medium compliance risk category, reflecting its reliance on materials or configurations for which no clear EU harmonization currently exists. These solutions often involve a combination of materials that may be difficult to classify under existing regulatory frameworks, require complex testing to verify food safety or environmental compliance, and present a high risk of future non-compliance as legislation evolves.
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When materials are new or less conventional, a verification process involving technical support or external consultation may help mitigate potential gaps and reduce exposure to regulatory disputes or delays during product placement.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.
The presence of formal supplier verification procedures ensures that key aspects such as traceability, food safety compliance, and basic labour standards are consistently met.
This context allows for a relatively smooth integration of the solution within existing procurement and quality assurance processes, reducing the likelihood of compliance gaps along the supply chain.

Recommendation

It is advisable to keep supplier compliance documentation updated and easily accessible, especially for packaging materials subject to standard food contact and traceability requirements.
A periodic check — even annually — can help ensure that certifications or declarations of conformity remain valid and reflect current regulations.

Driver	Question #17	Answer

Technical feasibility	How flexible are the company's production lines to accommodate new packaging technologies?	Moderate flexibility, moderate upgrades needed.

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
Moderate production line flexibility aligns with HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) 's thermoformable and shrink-compatible structure, although some retort and shrink applications may require specific sealing conditions and calibration. Integration is feasible but will require careful planning to manage the variability in sealing and forming performance across machines.

Recommendation
It is advisable to evaluate compatibility of sealing and shrink settings across different machinery configurations and to consult packaging suppliers early to identify any required tooling updates. Planning for operator training and minor retrofits may help minimize transition time.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
With moderate flexibility, COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING adoption may require adjustments for cellulose films, including temperature or shrink calibration. Equipment designed for petroleum-based films may require fine-tuning to accommodate biodegradable substrates without compromising seal integrity.

Recommendation
Trial runs with test reels or short production cycles may help anticipate potential sealing variation. Engaging packaging vendors to simulate stress conditions (e.g. cold chain, moisture) could help refine implementation parameters.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
For production lines with moderate adaptability, the adoption of RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER may necessitate equipment calibration or tooling changes, particularly due to its semi-rigid PET format. While the design is optimized for horizontal form-fill-seal lines, semi-rigid structures typically require precise thermoforming conditions, and transitioning from more flexible substrates could trigger compatibility gaps. This may temporarily affect line efficiency or tray integrity, especially if sealing units are not configured for PET rigidity. Additionally, standardization benefits may be limited if production lines handle varied tray geometries or if film tension control systems are outdated.

Recommendation

To mitigate potential inefficiencies, it may be useful to run small-scale validation trials of RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER under controlled line settings before committing to full-scale rollout. Collaboration with equipment vendors or packaging technicians could help identify optimal heat and pressure ranges, reducing the risk of sealing inconsistencies. If tray deformation is detected, evaluate the possibility of adjusting forming temperatures or switching to reinforced PET grades with more stable tolerances.

Driver	Question #18	Answer
Technical feasibility	Has the Company evaluated how the adoption of a new packaging solution could impact the logistics performance (e.g., transport efficiency, storage requirements, distribution costs)?	No specific evaluation has been conducted regarding the impact of the new packaging solution on logistics performance.

Answer Risk Level: High

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
A lack of specific logistics evaluation could create uncertainty around HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) 's integration into the company's distribution chain. Despite its versatile form factor, risks exist regarding how shrink-bundled or thermoformed packs perform under transportation stress or shelf-stacking requirements, particularly if infrastructure is tuned to other material formats.

Recommendation
Initiating a basic impact analysis using mock-pallet testing or transport trials is advisable. Evaluating tray stacking height, vibration response, and storage footprint could clarify real-world performance and support future improvements.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
Without any structured logistics evaluation, COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING may expose the supply chain to packaging deformation, reduced pallet integrity, or inconsistent transport visibility. The format's environmental benefits may be offset by logistics inefficiencies, especially if compostable films lack the mechanical resistance needed for bulk distribution.

Recommendation
Basic volumetric and weight-based simulations are recommended to evaluate shipping performance. Shelf simulation and pallet loading tests using mixed-format scenarios can help assess potential trade-offs and define minimum viable packaging strength for logistics readiness.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback

Without a formal logistics assessment, the adoption of RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER—featuring semi-rigid rPET trays and biodegradable vacuum films—carries potential risks. The added rigidity and structured format offer benefits in shelf display and durability, but may pose issues in stacking efficiency, transport volume, or compatibility with existing warehouse flow. Given the composite nature and dimensional variability, unanticipated space inefficiencies or handling difficulties may emerge.

Recommendation

It may be advisable to initiate a small-scale pilot to test how RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER trays behave across the existing supply chain—from loading to shelf placement. Even informal trials with transport and storage staff can yield valuable insights into dimensional performance, stacking stability, and protective behavior under standard logistics conditions.

Driver	Question #19	Answer
Technical feasibility	Does the company have the ability to put in place remediative action in case of malfunctions to the packaging production lines?	Yes, through a combination of internal technical resources (for small malfunctions) and external suppliers (for relevant malfunctions).

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback

A dual reliance on internal and external resources may create moderate exposure to downtime risks with HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) . The solution's flexible structure supports various equipment, but retort and shrink-specific sealing profiles may require calibration that is not always manageable internally. Delays in accessing external technical expertise may extend machine stoppage duration.

Recommendation

It may be beneficial to expand internal capabilities with targeted training on shrink bundling and retort sealing technologies. Partnering with suppliers for preventive maintenance or developing SOPs for basic troubleshooting may reduce dependence on external service response times.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback

Partial internal capabilities may allow minor troubleshooting, but biodegradable films like NatureFlex can behave differently during sealing or shrinking. Without dedicated internal expertise, recurring faults such as delamination or misalignment may take longer to resolve.

Recommendation
Establishing internal training modules focused on compostable materials and investing in a troubleshooting checklist for shrink-wrap lines could reduce external service dependency. A shared FAQ or digital support tool may help internal teams manage urgent issues efficiently.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER's semi-rigid structure and thermoforming requirements can present integration challenges, especially during initial machine calibration or sealing adjustments. When technical support is split between internal teams for minor issues and external technicians for more complex faults, the risk of delays during downtime increases. This dual setup may require strong coordination, particularly when introducing vacuum sealing films or dealing with potential tray deformation.

Recommendation
To optimize readiness, it might be useful to establish clear response protocols for common failure modes (e.g., sealing misalignment, tray rigidity issues) and ensure that internal teams are trained to identify early warning signs. Pre-arranged service contracts with packaging equipment providers can also help reduce intervention lag.

Driver	Question #20	Answer
Technical feasibility	Does the Company have the capability and resources to plan and deliver staff training in case a new packaging solution is introduced?	Training could be organized if needed, but resources or processes are currently

		limited or would require ad-hoc adjustments.

Answer Risk Level: Medium

HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE)

Feedback
Partial readiness to deliver training may cause delays in familiarizing staff with the sealing and mechanical properties of HIGH-BARRIER MONO-MATERIAL PA/PE WITH RECYCLED CONTENT (RPA/RPE) . This is especially relevant for materials requiring specific sealing parameters under retort or shrink conditions, where improper handling may compromise pack quality.

Recommendation
Identifying internal champions familiar with shrink wrapping and flexible substrates could accelerate knowledge transfer. Preparing visual SOPs and hands-on learning sessions around new sealing profiles may help reduce risk during early implementation.

COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING

Feedback
When training resources are limited, adoption of COMPOSTABLE OR FULLY RECYCLABLE CELLULOSE-BASED FILMS WITH BARRIER COATING may result in inconsistency in sealing performance or packaging integrity, especially due to the film's sensitivity to temperature and mechanical stress.

Recommendation
Preparing a concise training package that includes film storage conditions, shrink profile tuning, and visual inspection of sealing performance can mitigate risk. Hands-on sessions with machine calibration protocols could ensure consistent execution.

RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER

Feedback
While RPET MONO-MATERIAL TRAYS WITH EVOH BARRIER introduces new material behaviors and sealing dynamics, the absence of a structured training process could create knowledge gaps during implementation. If training must be organized ad hoc, onboarding may be delayed or inconsistent, increasing risks of sealing defects or inefficient line operation due to misaligned tray handling.

Recommendation
It may be useful to pre-identify internal personnel with previous experience in thermoformed packaging and involve them in co-designing a focused training plan. External support from packaging or equipment suppliers could also be tapped to deliver short-format workshops for key operators.

11. Next Steps

Company 1 (Anonymised) can now access to the next steps, where you can:

- Evaluate the three proposed packaging concepts
- Select the most suitable option(s) for laboratory or production testing
- Receive a customized Sustainability Report for your chosen solution, which includes:
    - An overview of the EU and national regulatory frameworks on packaging sustainability.
    - A strategic roadmap, customized for your company, for its approach to EPD certification.
    - A comprehensive analysis of the alternative packaging solution, mainly focused on a comparative environmental assessment between the current and the proposed packaging solution.

This evaluation will be based on the analysis we're providing you, which takes into account technical, legal, economic, environmental, and social aspects, combined with an innovation risk assessment framework.

SUSTAINABLE PACKAGING PILOT REPORT

Phase 1

Company	Company 2 (Anonymised)
Country	Hungary
Sector	Dairy
Report Date	13.10.2025
Prepared by	Cevi Srl - Confindustria Verona (IT) CBHU Campden BRI Hungary Ltd (HU) L-LIT Lukasiewicz Research Network – Lódz Institute of Technology (PL) PricewaterhouseCoopers Business Services Srl (IT) PROMA-PACK Ltd - UCIMA (IT)

1. Project Scope and Objectives

This report has been developed as part of the D4PACK Pilot Action – Phase 1, following the online company interview held on Sept 16, 2025. The aim was to assess company's current packaging practices, sustainability priorities, and technical limitations in order to propose alternative packaging solutions for a selected product.

- As a participant in the pilot action, the company will receive:
- A tailored selection of three alternative packaging solutions

A sustainability briefing aligned with the company's goals and standards, including the potential to develop an Environmental Product Declaration (EPD)

2. Company Profile

Company 2 (Anonymised) is a Hungarian-based dairy processing company. The company originally operates as a chain of restaurants selling coffee, hot breakfasts, sandwiches, pastries, and producing a typical Hungarian dairy product. This product is called floating island, which is a vanilla cream drink topped with egg white foam ("birds"). The company distributing this product to the Hungarian markets.

3. Current Packaging Overview

Materials and Formats Used:

- Primary Packaging: Includes take-away plastic cups and plastic cup lids
- The lids come in two forms: one fully covered (ideal for food delivery) and one with a hole on the top for a straw.

Current Trends:

- Seeking improved or sustainable alternatives of plastic cups and lids
- The packed products are usually wrapped around with cling film to protect both the packaging and the product. This clinging foil packaging adds extra cost and resources.

4. Focus Product: Floating Island

- Packaging Challenge: All liquid products use the same method, which is a take-away cup with an external lid.
- Shelf Life: The typical shelf life for the take-away products is 3 days.
- **Current Solution:**
    - Plastic transparent cups and transparent lids
    - The cup lids are not connected to the cups and come in two forms: one fully covered (ideal for food delivery) and one with a hole for a straw.
- **Customer need**
    - Quality and Appeal: The packaging of these high-quality items must clearly communicate their superior quality.
    - The company wants environmentally friendly packaging that is suitable for liquid products, reflects high quality, and is important for its printability.

1 pic.: Floating Island in the packaging (with cup)

5. Production Line Compatibility

Company 2 (Anonymised) manually packs the Floating Island, using either a hot or cold application

6. Certifications and Sustainability Commitment

Company 2 (Anonymised) operates internal food safety systems, including the HACCP (Hazard Analysis and Critical Control Points) system, to ensure the quality and suitability of its processed dairy products for consumption.

7. Key Packaging Requirments

Area	Requirement
Barrier Properties	Must be suitable for storing liquid products.
Shelf Life	Typical shelf life of the product is 3 days for the take-away products.
Retail Preferences	
Sustainability	Environmentally friendly packaging. Biodegradability, recyclability, and easy-to-open features are highly favourable.
Consumer Expectations	Packaging must clearly communicate the superior quality: visually and printability
Machinery Compatibility	Manually packed

8. Proposed Alternative Packaging Solutions

1. Biobased PLA Cup with Paper Lid (Industrial Compostable) (Cup_03)

Cup made of PLA derived from renewable resources (corn/sugarcane), with a paper or fiber-based lid coated with bio-barrier.

Visually transparent or semi-transparent – retains premium aesthetic for the dessert presentation.

Sustainability & Compliance:

- 100% biobased and industrially compostable (EN 13432 certified).
- Complies with (EC) 1935/2004 and (EU) 10/2011 for food contact.
- Fully compliant with EU Single Use Plastics Directive (SUPD) for biobased plastics.
- Suitable for take-away and short shelf life (3 days).

Advantages:

- Good rigidity and transparency.
- Easy to print (branding on cup wall).
- Clear communication of sustainability to consumers.

Limitations:

- Not recyclable in mixed plastic streams.
- Requires proper industrial composting infrastructure.

2. Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream) (Cup_01)

Cup made of renewable paperboard laminated with a water-based or dispersion barrier, providing short-term resistance to liquids.
Ideal for cold desserts and drinks (3-day shelf life).

Sustainability & Compliance:

- Recyclable in the standard paper recycling stream (EN 643 compliant).
- No plastic lamination or PFAS.
- Complies with (EC) 1935/2004 and (EU) 10/2011 for indirect contact.
- Fully aligned with PPWR 2024 draft – recyclable, mono-material structure.

Advantages:

- Natural look and tactile feel (fits Company 2 (Anonymised) “artisanal” image).
- Printable with water-based inks.
- Lightweight, stackable, low CO_2 footprint.

Limitations:

- Limited heat resistance (>70°C).
- Barrier degrades in prolonged contact with liquids – best for takeaway.

3. rPET Cup (Recycled PET, Transparent, Food-Grade) Cup_02

Transparent recycled PET (rPET) cup, made from EFSA-approved food-grade material (≥50% post-consumer recycled content).
Closed with a compatible PET or paper lid

Sustainability & Compliance:

- 100% recyclable in the PET stream.
- Compliant with (EC) 282/2008 (recycled plastics for food contact) and (EU) 10/2011.
- Sourced from EFSA-approved rPET processes (e.g. Starlinger, Erema, Polymetrix).
- Low carbon footprint and circular design.

Advantages:

- Excellent clarity (ideal for layered dessert presentation).
- Same shape as current cups – no change in filling process.
- Recognizable by consumers, easy to recycle.

Limitations:

- Derived from fossil base polymer (PET), not biobased.
- Requires verified supplier certification (EFSA).

Summary table

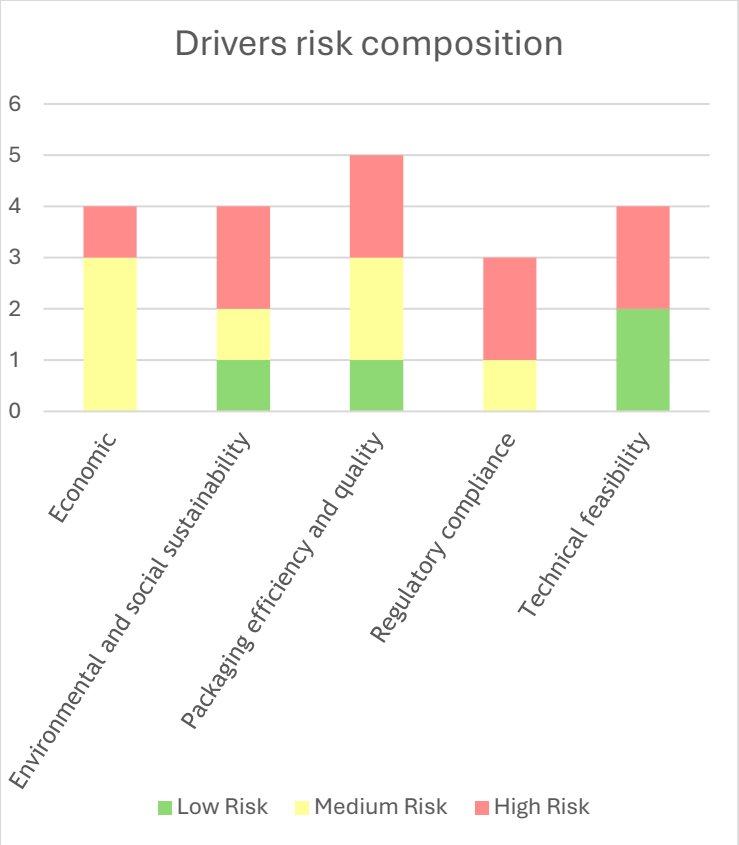
Solution	*Material*	*Barrier*	*Recyclable / Compostable*	*Shelf-Life Suitability*	*Food Safety*	*Visual Appeal*
PLA Cup + Paper Lid	Biobased PLA	Moderate	Compostable (EN 13432)	3 days	YES	High
Paper Cup (Dispersion Barrier)	Paperboard	Moderate	Recyclable	3 days	YES	Natural look
rPET Cup	Recycled PET	High	Recyclable	3 days	(EFSA food-grade)	Crystal clear

Recommendation:

- For short-shelf-life dairy desserts and takeaway service, the most balanced solution is Option 2 – Paper Cup with Dispersion Barrier, combining recyclability, printability, and compliance with EU PPWR.
- Option 1 (PLA) can serve as a premium eco-line, while Option 3 (rPET) offers transparency and mechanical strength for existing supply chains.

9. Risk Assessment – Dashboard Summary

This section contains the risk assessment summary, which gives an overview of the Company risk profile to a possible new packaging implementation, regardless of the possible packaging alternatives considered.



Radar Chart - Overview of Risk Levels

This chart provides a synthetic representation of the average risk level for each driver (Economic, Environmental & Social, Packaging Quality and Efficiency, Regulatory, Technical Feasibility).

- The underlying methodology is based on converting questionnaire responses into numerical scores (**1 = low risk, 2 = medium risk, 3 = high risk**) and calculating the **average score** for each driver.
- In the chart, this average is **translated into the distance from the center**: the further a driver extends outward, the higher the associated risk level.
- The **color gradient** supports interpretation: **green = low risk**, **yellow = medium risk**, **red = high risk**.

Bar Chart - Breakdown of Risk Levels

This chart provides a detailed view of the risk composition for each driver.

- For each driver, the total number of questionnaire responses has been calculated.
- These responses have then been classified according to the associated risk level (**low, medium, high**).
- Each bar therefore represents the distribution of responses across risk levels within the individual driver.
- While the radar chart offers a **synthetic overview**, the bar chart enables a more precise analysis of the **distribution of risk**.

10. Risk Assessment - Packaging related questionnaire

Driver	Question #1	Answer
Economic	To what extent has the adoption of a new packaging solution been integrated into the company's strategic plans, such as the industrial plan, sustainability strategy, or market expansion initiatives?	It is considered in strategic plans but not formally documented.

Answer Risk Level: Medium

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Considering that the solution is associated with a medium cost profile, its informal inclusion in company planning may limit the ability to fully align the initiative with other ongoing efforts. Medium-cost solutions typically require coordination across budgeting, scheduling, and resource allocation. When not clearly referenced in internal planning tools or timelines, there's a greater chance of misalignment, overlap, or delays—especially in environments with multiple priorities. This could make it harder to understand how the solution contributes to strategic goals, such as sustainability, competitiveness, or cost optimization.

Recommendation

To improve internal coordination, the company should document the planned adoption of the packaging solution, even in a simplified format, integrating it into any strategic plan (if present). Medium-cost initiatives often compete with other operational priorities; having a written reference allows the team to align timing, roles, and budget expectations, reducing friction during execution.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Given that the solution under evaluation is associated with a high cost profile, its current informal inclusion in strategic planning introduces a degree of uncertainty in terms of timing, coordination, and investment control.

High-cost solutions generally benefit from clear planning structures, especially when it comes to aligning budget cycles, resource availability, and return expectations. Without documented integration, there may be increased difficulty in ensuring consistent internal alignment and in tracking the solution's contribution to long-term objectives like market expansion or sustainability.

Recommendation

It is advisable to formalize the integration of the packaging initiative within the company's strategic documents (e.g., internal roadmaps, budget planning, or sustainability plans).

Given the high financial exposure, lack of documentation can lead to misalignment between departments, unclear priorities, and budget inefficiencies. Defining a shared plan helps ensure that the investment is properly timed, resourced, and monitored.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

As the solution under evaluation falls into a low cost category, the absence of formal planning references may have limited operational consequences, but it can still reduce visibility on how the solution connects to broader company goals. Even lower-cost initiatives can play a role in brand positioning, efficiency, or environmental efforts. Without at least minimal coordination with other projects or timelines, these potential benefits may be harder to capture or assess.

Recommendation

Although the investment is limited, it is still helpful to briefly outline the packaging adoption plan to make sure it aligns with ongoing projects.

Even a one-page summary or internal note can help track objectives and avoid missed opportunities for integration with sustainability or process improvement goals.

Driver	Question #2	Answer
Economic	Has the Company carried out any preliminary economic evaluation to assess the potential financial impact of adopting an innovative packaging solution (e.g. general business plan, market research, competitors benchmarking, ect.)?	Not yet, but will do in order to decide what packaging solution to implement.

Answer Risk Level: Medium

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Considering that the solution falls within a medium cost category, the lack of a formal evaluation may affect the company's ability to fully compare alternatives and forecast financial outcomes. Medium-cost packaging initiatives often involve balancing expected benefits with manageable investment. Without a structured assessment, it may be harder to identify the true cost-effectiveness of different options or to account for variables like supply chain stability, material availability, or future scalability. This situation may lead to slower or less confident decision-making.

Recommendation

To reduce uncertainty in selecting the right solution, the company should define key economic criteria—such as payback period, total cost over time, or impact on unit margins—before making a decision.

Medium-cost packaging initiatives can have different trade-offs; a clear comparison helps avoid delays and improves confidence in the final choice.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Given that the solution under evaluation is associated with a high cost profile, the absence of a completed economic evaluation introduces a significant level of financial uncertainty. For high-

investment packaging options, a detailed analysis is typically essential to estimate return on investment, break-even points, and resource requirements. Without this, it may be more difficult to align the decision with financial planning cycles or to anticipate the broader impact on cash flow, procurement, and supplier commitments. This can increase the risk of delays or cost misalignment during implementation, especially if assumptions remain unverified.

Recommendation
It is recommended to prioritize a structured financial evaluation before moving forward.
For high-cost solutions, working with even a basic business case—including cost estimates, timeline assumptions, and expected benefits—can help reduce the risk of cash flow strain or implementation delays. Using simple spreadsheet tools or external advice, if available, can support this effort.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

As the solution under evaluation is associated with a low cost profile, the absence of a complete economic evaluation presents limited financial exposure, but still introduces uncertainty regarding potential hidden costs or missed opportunities. Even with small-scale investments, not having a structured comparison can make it more difficult to select the most efficient or impactful solution. This could result in choosing an option that underdelivers or misaligns with operational needs, even if the overall financial impact remains minor.

Recommendation
Even for small-scale investments, it is useful to estimate basic costs and potential benefits before committing.
This can be done informally—through supplier discussions, past experiences, or quick simulations—but it helps ensure the selected option is the most efficient.
A simple comparison now can prevent future inefficiencies or regrets.

Driver	Question #3	Answer
Economic	Has the company identified how it would finance the adoption of a new sustainable packaging solution, considering both internal resources and external funding opportunities (e.g. grants, subsidized loans, partnerships)?	We have not yet evaluated how the investment would be financed.

Answer Risk Level: High

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Considering that the solution corresponds to a medium cost profile, the absence of a financing plan may lead to uncertainties that delay or complicate implementation. Medium-cost solutions often compete with other operational needs, and without an internal plan or fallback options, it may become difficult to allocate funds at the right time or with the needed flexibility. This may

reduce the company's ability to move forward confidently or take advantage of short-term opportunities such as supplier discounts or external funding programs.

Recommendation
To reduce uncertainty and ensure smooth adoption, the company should set a clear internal plan for how the investment will be funded, even if only at a basic level.
This helps prioritize the initiative within the broader business context and avoids interruptions or resource conflicts during execution.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback
Given that the solution under evaluation is associated with a high cost profile, the lack of a defined financing strategy introduces a high level of economic exposure. These types of investments typically require visibility on available resources, cash flow capacity, and potential external support. Without this clarity, the company may face serious delays, forced trade-offs, or an inability to proceed with the implementation. This situation may also disrupt planning across other business areas if the investment unexpectedly consumes more resources than anticipated.

Recommendation
It is strongly recommended to define a detailed financing plan before proceeding, including internal funding capacity, potential external sources (such as grants or subsidized loans), and estimated cash flow needs.
For high-cost solutions, having this structure in place is essential to prevent delays and protect overall business stability during implementation.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

As the solution under evaluation falls within a low cost profile, the lack of a financing plan may not cause immediate difficulties, but still creates uncertainty about when or how the adoption will occur. In the absence of basic financial clarity, even simple changes can be postponed, misaligned with production cycles, or deprioritized. This may lead to inefficiencies or missed chances to optimize processes through a timely implementation.

Recommendation
Even with a limited investment, it is advisable to identify how and when the adoption will be financed, especially if internal resources are tight or already allocated elsewhere.
A simple plan ensures the project is not forgotten or postponed and makes it easier to act if external funding becomes available.

Driver	Question #4	Answer
Economic	How much does the cost of the actual packaging averagely impact the selling price of your product(s)?	Packaging cost moderately affects profitability (it accounts for approximately 5-15% of the total product

		cost); any increase would need to be carefully assessed.

Answer Risk Level: Medium

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Considering that the solution corresponds to a medium cost profile, and packaging currently accounts for a noticeable portion of the product cost, the adoption may require careful balancing. Medium-cost solutions can offer added value, but if not managed properly, they may strain margins or reduce pricing agility—particularly for products with tight profitability thresholds. The financial impact is not critical but could become relevant over time if volumes grow or input prices rise.

Recommendation
To protect profitability, the company should conduct a basic simulation of how the new packaging will affect total product costs across different volumes.
Medium-cost solutions may appear manageable at first, but their cumulative effect across multiple product types or variants can put pressure on pricing flexibility.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Given that the solution under evaluation is associated with a high cost profile, and that packaging already represents a moderate share of the product's cost structure, adopting the new solution may significantly impact profitability. In this scenario, even small increases in material or supplier costs can reduce margins or limit pricing flexibility, especially in cost-sensitive markets. This raises the importance of evaluating how packaging expenses interact with product pricing, sales volume, and cost control over time.

Recommendation
It is recommended to evaluate the projected cost impact of the new packaging solution on product margins, especially for key product lines.
For high-cost options, even small percentage increases can significantly affect profitability if packaging already makes up a considerable portion of the total cost.
Reviewing cost structures early helps avoid margin erosion and supports informed pricing decisions.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

As the solution under evaluation falls into a low cost category, and packaging already moderately affects profitability, the new adoption is unlikely to cause major disruption. However, the cumulative effect of even low-cost changes—especially in large volumes—can gradually impact margin stability or complicate price-setting strategies. A basic understanding of how the new solution fits into overall cost dynamics remains important.

Recommendation

Even if the new packaging is low-cost, it is advisable to track cost per unit over time, especially if production volumes are high or margins are already tight.
Minor increases may go unnoticed at first but could become significant when multiplied across products or clients.

Driver	Question #5	Answer
Environmental and social sustainability	Does the company have personnel or dedicated roles responsible for Environmental and Social Sustainability topics (e.g. ESG manager, sustainability officer, or delegated internal function)?	No one in the company is currently responsible for environmental or social sustainability topics.

Answer Risk Level: High

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Biobased PLA Cup with Paper Lid (Industrial Compostable) may be perceived as a "green" solution due to its bio-based and compostable features, but without any internal sustainability responsibility, the company may lack the expertise needed to validate these claims or to assess whether they are meaningful in its operating context. This increases the risk of overestimating environmental benefits or miscommunicating them to customers.

Recommendation
The company should designate at least one internal contact for sustainability topics who can coordinate basic checks on Biobased PLA Cup with Paper Lid (Industrial Compostable)—such as reviewing compostability certificates and understanding local infrastructure. This will help ensure that the decision to adopt Biobased PLA Cup with Paper Lid (Industrial Compostable) is grounded in realistic environmental value rather than assumptions.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

The solution presents a solid sustainability profile, but the absence of internal accountability significantly limits the company's ability to oversee its implementation. Without a designated role, opportunities to engage with suppliers, validate claims, or track compliance may be lost, reducing the potential benefits of an otherwise high-performing solution.

Recommendation
To ensure proper integration of a sustainable solution, the company should designate at least one internal figure to oversee ESG topics. Even without creating a formal role, assigning responsibility improves coordination with suppliers and helps maintain consistency in applying environmental standards.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

rPET Cup (Recycled PET, Transparent, Food-Grade) presents opportunities to improve environmental performance via recycled content and compatibility with existing PET recycling streams, but also carries risks linked to single-use plastics and on-the-go consumption. Without any internal responsibility for sustainability topics, the company may struggle to assess these trade-offs or to confirm whether rPET Cup (Recycled PET, Transparent, Food-Grade) genuinely supports its long-term environmental goals. In this context, important elements—such as verifying rPET certification, understanding local recycling performance for cups, or assessing alignment with future PPWR targets—may be overlooked, reducing the effectiveness and credibility of the solution's sustainability contribution.

Recommendation

To ensure that rPET Cup (Recycled PET, Transparent, Food-Grade) is used in a way that supports environmental objectives, the company should designate at least one internal contact for sustainability topics, even if part-time. This person can coordinate basic checks with suppliers (e.g. recycled-content certification, recyclability guidance), monitor evolving regulatory expectations for single-use plastics, and help avoid unsubstantiated or misleading claims in customer communication.

Driver	Question #6	Answer
Environmental and social sustainability	Is the introduction of sustainable packaging seen as a lever for corporate reputation and brand awareness?	Yes, sustainable packaging is considered a strategic lever to strengthen the company's reputation and is actively integrated into marketing and communication plans.

Answer Risk Level: Low

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Biobased PLA Cup with Paper Lid (Industrial Compostable), with its bio-based PLA composition and industrial compostability, can be a strong visible element in a reputation-focused sustainability strategy—especially in cafés, events or food-service environments where cups are highly visible to consumers. Its certifications (e.g. BPI) and PFAS-free design can support clear, credible messaging. However, reputational benefits depend on honest communication: if compostability in practice is limited by infrastructure, marketing should reflect these constraints to avoid unrealistic expectations.

Recommendation

Marketing and sustainability teams should collaborate to define precise communication around Biobased PLA Cup with Paper Lid (Industrial Compostable)—for example, specifying that cups are compostable in industrial facilities where available and not suitable for home composting. Linking

claims to verifiable certifications and local conditions will strengthen trust while still leveraging Biobased PLA Cup with Paper Lid (Industrial Compostable) as a reputational asset.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

The solution under evaluation falls into a low sustainability risk category, characterized by strong alignment with recognized sustainable packaging standards — such as recyclability, use of renewable or biodegradable materials, or reduced packaging weight. (Specific answer based on Packaging solution charateristics) When sustainable packaging is integrated into brand and communication strategies, and the solution itself clearly supports environmental objectives, this alignment enhances the company's capacity to meet evolving consumer expectations and regulatory signals. It also supports the delivery of credible, verifiable messages regarding sustainability, which is increasingly valued by customers and stakeholders.

Recommendation

To strengthen the credibility of sustainability communications, the company may consider providing clear, fact-based information on the environmental benefits of the packaging — such as recyclability, bio-based composition, or material reduction. Including verifiable data (e.g., certification logos, percentages of recycled content) can further reinforce consumer trust without requiring complex messaging strategies.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

rPET Cup (Recycled PET, Transparent, Food-Grade) can visibly support the company's sustainability positioning: the use of recyclable PET and rPET, combined with transparent material and good printability, allows clear communication of environmental features (e.g. recycled content, recyclability) directly on-pack or at point-of-sale. When sustainable packaging is already integrated into brand and communication strategies, rPET Cup (Recycled PET, Transparent, Food-Grade) can become a tangible example of environmental commitment in out-of-home and takeaway channels. However, the reputational value depends on the accuracy of claims and on the company's ability to explain the practical conditions under which cups are actually recycled.

Recommendation

To strengthen credibility, the company should anchor rPET Cup (Recycled PET, Transparent, Food-Grade)-related communications in verifiable facts—such as percentage of rPET, certifications, or participation in dedicated collection schemes. Marketing and sustainability teams should coordinate to ensure that messages about recyclability and recycled content are precise, avoid overclaims, and reflect the realities of local waste management systems.

Driver	Question #7	Answer
Environmental and social sustainability	Has the company defined metrics to monitor the environmental or social performance of	Some indicators are considered but not yet formalized.

	its packaging (e.g. % recyclable material, CO_2 savings, ethical sourcing)?	

Answer Risk Level: Medium

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Biobased PLA Cup with Paper Lid (Industrial Compostable) is an ideal candidate for more structured monitoring, as its environmental value is highly dependent on actual end-of-life treatment. If indicators are only considered informally, the company may struggle to understand whether Cups_03 are mostly being composted, recycled incorrectly, or landfilled—limiting the ability to judge real-world impact.

Recommendation
Formalising a small set of metrics for Biobased PLA Cup with Paper Lid (Industrial Compostable)—such as volume sold into regions with industrial composting, estimated share correctly collected, or LCA-based benchmarks—would help move beyond generic assumptions and support evidence-based decisions about its role in the packaging portfolio.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

The solution shows strong sustainability potential, but the lack of formal tracking within the company reduces its ability to demonstrate concrete impact. Even for well-performing materials, unstructured monitoring may hinder the quantification of benefits, delaying the use of this data in reporting, compliance, or customer communication.

Recommendation
Formalizing the tracking of sustainability indicators — even with simple tools — can help quantify the benefits of the solution and align with evolving stakeholder expectations. Adding indicators like lifecycle CO_2 impact or % recycled content may strengthen internal monitoring and external reporting.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

rPET Cup (Recycled PET, Transparent, Food-Grade) is well suited to quantitative monitoring: data on rPET usage, material weight and cup volumes can be relatively easy to collect from suppliers and internal systems. However, if indicators are only considered informally, the company may struggle to demonstrate the concrete environmental benefits of adopting rPET Cup (Recycled PET, Transparent, Food-Grade) or to compare it consistently with other packaging options. This can reduce the visibility of improvements achieved and make it harder to respond to customer requests for documented sustainability information.

Recommendation

Formalising a small set of indicators for rPET Cup (Recycled PET, Transparent, Food-Grade)—such as % of recycled content, annual tonnes of PET used, and estimated CO_2 impact—would help the company track performance more systematically. Even simple spreadsheets can provide sufficient structure and create a reliable basis for future reporting or for evaluating further packaging changes.

Driver	Question #8	Answer
Environmental and social sustainability	Has the company assessed the sustainability practices of packaging suppliers (e.g. environmental certifications, ethical standards, local sourcing)?	No sustainability checks are made on suppliers.

Answer Risk Level: High

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Without sustainability checks on suppliers, the company has limited visibility on critical aspects of Biobased PLA Cup with Paper Lid (Industrial Compostable)—such as how agricultural feedstocks are produced, whether compostability claims are independently validated, or how emissions are managed in production. This weakens the credibility of environmental claims and may expose the company to reputational risks.

Recommendation
To protect both environmental performance and reputation, the company should introduce at least basic ESG requirements for Biobased PLA Cup with Paper Lid (Industrial Compostable) suppliers, starting with the collection of compostability certificates and declarations on PFAS and relevant contaminants. Over time, these checks can be expanded to cover broader sustainability topics as needed.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Despite using a reliable packaging solution, the company's failure to assess suppliers introduces weak links in the supply chain. Without validation of sourcing practices, environmental certifications, or ethical standards, the overall credibility of sustainability claims may be compromised.

Recommendation
To protect the credibility of an environmentally sound solution, the company should implement a basic ESG screening of suppliers. Requesting simple documentation (e.g., material origin, certifications) is often sufficient to reduce risk and strengthen claims in the eyes of partners and consumers.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

Despite rPET Cup (Recycled PET, Transparent, Food-Grade)'s potential sustainability advantages when rPET and recyclability are properly managed, the absence of supplier sustainability checks introduces a significant blind spot. Without basic information on sourcing, certifications or environmental practices, the company cannot be sure that the recycled content and PET used in rPET Cup (Recycled PET, Transparent, Food-Grade) meet expected standards. This may compromise the credibility of environmental claims, make it harder to comply with customer requirements, and increase exposure to reputational risks if issues arise in the supply chain.

Recommendation
To protect the credibility of rPET Cup (Recycled PET, Transparent, Food-Grade), the company should introduce at least a minimal ESG screening for suppliers, focusing on recycled-content verification, food-contact compliance and basic environmental management. Simple actions—such as requesting declarations, certificates and short self-assessment forms—can quickly improve visibility and reduce risk without requiring complex supplier-audit programs.

Driver	Question #9	Answer
Packaging efficiency and quality	Does the company have personnel or dedicated roles responsible for monitoring the packaging quality (e.g. quality manager)?	No one in the company is currently responsible for packaging quality topics.

Answer Risk Level: High

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Before Biobased PLA Cup with Paper Lid (Industrial Compostable) is introduced widely, the company should identify at least one person responsible for monitoring basic quality indicators and for collecting feedback from operations and customers. This will provide a structured channel to identify and correct issues early.

Recommendation
Without any designated responsibility for packaging quality, the adoption of Biobased PLA Cup with Paper Lid (Industrial Compostable) may expose the company to unnoticed issues such as cracking, stress whitening or occasional leaks, particularly in busy service environments. These problems can quickly affect customer satisfaction and waste rates.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream) requires structured quality oversight due to its novel material properties and potential sealing limitations. In the absence of designated personnel, the company may face difficulties in verifying packaging reliability or ensuring hygiene for regulated product categories.

Recommendation

It is advisable to introduce a defined quality responsibility to manage testing, performance monitoring, and documentation, particularly when deploying Sulapac for food applications in controlled retail environments.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

Without any clear responsibility for packaging quality, the adoption of RPET Cup (Recycled PET, Transparent, Food-Grade) may be exposed to undetected issues such as leaks, poor lid fit or cup deformation, especially in high-volume service environments. These problems can lead to product waste, customer dissatisfaction and inconsistent performance across sites.

Recommendation

Before scaling up RPET Cup (Recycled PET, Transparent, Food-Grade) , the company should appoint someone to oversee packaging quality, even on a part-time basis. This role should coordinate simple tests and feedback collection from operations and customers, ensuring that any issues are identified and addressed in a timely manner.

Driver	Question #10	Answer
Packaging efficiency and quality	How important is the packaging (perceived quality, customization, etc.) in the brand indentity?	Packaging plays a key strategic role; it is designed primarily to showcase the brand identity, values, and emotional positioning, even over the visibility of the product itself.

Answer Risk Level: High

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

For brands that rely heavily on packaging as a primary communication tool, Biobased PLA Cup with Paper Lid (Industrial Compostable) can serve as a canvas for high-impact graphics and sustainability storytelling. However, its clear and relatively simple geometry may need to be complemented with strong design elements to fully support emotional positioning.

Recommendation

If packaging is central to brand identity, the company should work closely with design and marketing teams to exploit Biobased PLA Cup with Paper Lid (Industrial Compostable) ’s print area and sustainability attributes, while ensuring that design choices remain compatible with compostability and legibility requirements.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream) may serve as a strong expression of sustainability-driven brand identity. Its compostable bio-based content and modern form factor can reinforce environmental narratives across marketing and packaging touchpoints.

Recommendation
It is advisable to ensure graphic design, structure, and messaging are fully coordinated across brand communications, maximizing the storytelling potential of Sulapac-based formats.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

For brands that rely heavily on packaging as a storytelling tool, RPET Cup (Recycled PET, Transparent, Food-Grade) 's clear, minimalist design may need to be enhanced to fully support emotional positioning. On its own, the cup prioritises product visibility and simplicity rather than bold or highly distinctive branding.

Recommendation
If packaging is central to brand identity, the company should explore advanced customisation of RPET Cup (Recycled PET, Transparent, Food-Grade) —such as high-impact graphics, special finishes or coordinated lid designs—while validating that these choices remain compatible with recyclability and line performance.

Driver	Question #11	Answer
Packaging efficiency and quality	How important is extending the shelf life of products in the company's packaging strategy?	Not important

Answer Risk Level: Low

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Biobased PLA Cup with Paper Lid (Industrial Compostable) is designed for cold, short-shelf-life applications such as beverages and ready-to-consume cold foods, where rapid turnover is expected. In scenarios where shelf life is not strategically important, its barrier profile and mechanical performance are likely sufficient.

Recommendation
The company should nonetheless verify that Biobased PLA Cup with Paper Lid (Industrial Compostable) maintains acceptable product quality across typical storage times and temperatures used in its operations (e.g. refrigerated display for one or two days).

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)'s shelf life preservation is supported by its barrier properties and rigid structure, but if this factor is not prioritized by the company, the format's benefits may remain underutilized in longer distribution channels.

Recommendation
It is advisable to evaluate whether existing or new markets could benefit from packaging that supports longer shelf life or greater distribution resilience.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

RPET Cup (Recycled PET, Transparent, Food-Grade) provides adequate protection for short-shelf-life or immediate-consumption beverages, where product turnover is quick and extended shelf life is not a strategic driver. In such contexts, its barrier profile and mechanical strength are likely to be more than sufficient.

Recommendation
Even if shelf life is not a priority, the company should verify that RPET Cup (Recycled PET, Transparent, Food-Grade) maintains product quality under typical storage and service conditions (e.g. chilled cabinets, transport between outlets), ensuring that consumer experience remains consistent.

Driver	Question #12	Answer
Packaging efficiency and quality	How versatile does the company need its packaging to be to accommodate different product types?	Moderately versatile

Answer Risk Level: Medium

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Biobased PLA Cup with Paper Lid (Industrial Compostable) can accommodate a variety of cold drinks and some cold foods (e.g. fruit salads, parfaits), making it suitable for portfolios that require moderate versatility within cold applications.

Recommendation
It is advisable to map which product categories are technically compatible with Biobased PLA Cup with Paper Lid (Industrial Compostable) and to validate performance for any new use that differs significantly from the original design intent.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream) can support moderate versatility across standard cup sizes and applications, especially where branding or visibility is prioritized over complex geometries.

Recommendation
It is advisable to validate the adaptability of Sulapac material across current and planned cup formats, particularly where different fill volumes or portion types are involved.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

RPET Cup (Recycled PET, Transparent, Food-Grade) can accommodate a reasonably diverse range of cold drinks and some cold foods (e.g. fruit salads, desserts), especially when used with appropriate lids. For companies with a moderately varied portfolio, this provides a useful balance between versatility and standardisation.

Recommendation
It is advisable to map which product categories are technically suited to RPET Cup (Recycled PET, Transparent, Food-Grade) and to set simple internal rules for when alternative packaging is needed—for example for hot-fill or strongly acidic products.

Driver	Question #13	Answer
Packaging efficiency and quality	Has the company specific quality standards required for new packaging materials (e.g., durability, integrity)?	Only few technical quality standards required.

Answer Risk Level: Medium

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Where only a few standards are in place—such as basic drop resistance or seal integrity—Biobased PLA Cup with Paper Lid (Industrial Compostable) can usually be qualified with limited testing. However, these standards should be clearly documented to avoid ambiguity.

Recommendation
The company should ensure that Biobased PLA Cup with Paper Lid (Industrial Compostable) qualification tests and acceptance limits are written down and shared internally and with suppliers, to support consistent application of the defined quality standards.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream) would benefit from reference technical parameters due to its novel bio-based structure. While only few standards may be defined, these can help guide performance expectations across use cases.

Recommendation
It is advisable to formalize minimal technical criteria for sealing, durability, and food safety to streamline the evaluation of Sulapac-based solutions across the packaging line.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

Where a limited number of technical criteria exist—such as seal integrity, wall strength or transparency—RPET Cup (Recycled PET, Transparent, Food-Grade) can generally be matched to these expectations through supplier specifications and line validation.

Nonetheless, if standards are not fully documented, there may still be ambiguity in how to evaluate alternative cup designs or to compare different suppliers.

Recommendation
The company should ensure that the most relevant quality criteria for RPET Cup (Recycled PET, Transparent, Food-Grade) are clearly described (e.g. test methods, acceptance limits) and shared with suppliers and internal teams. Even a short specification document can improve alignment and support more objective quality assessments.

Driver	Question #14	Answer
Regulatory compliance	Does the company have dedicated staff for compliance with packaging and food safety regulations?	No, currently unmanaged

Answer Risk Level: High

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback
The solution under evaluation falls into a medium compliance risk category, as it relies on materials that are regulated under existing food-contact and packaging standards, but whose regulatory framework is still evolving. In particular, the complexity of classifying composite, recyclable, or compostable materials introduces ambiguity in compliance pathways. These solutions often require additional documentation, material traceability, or specific functional tests to meet national and EU-level requirements — especially in the absence of harmonized recycling or biodegradability standards.
Without a structured compliance function, managing Biobased PLA Cup with Paper Lid (Industrial Compostable) is particularly challenging, as it involves not only standard food-contact requirements but also evolving rules on compostable and bio-based plastics, and potential national differences. The company may struggle to determine where and how compostable cups can be legally promoted and to maintain adequate documentation for authorities or customers.

Recommendation
Before adopting Biobased PLA Cup with Paper Lid (Industrial Compostable) at scale, the company should at least appoint an internal reference for packaging and food-contact compliance and seek

targeted external advice on compostable plastics. This will help build a minimum level of understanding of applicable rules and reduce the risk of non-compliant claims or use cases.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

The solution under evaluation falls into a high compliance risk category, typically involving complex or less-regulated materials, novel technologies, or packaging formats subject to multiple or fragmented legal frameworks. Given the complete absence of a structured internal compliance function, the implementation of such a solution would pose a substantial risk. The company may struggle to identify applicable regulations, perform conformity assessments, or liaise effectively with suppliers and authorities. This lack of oversight could result in non-compliance with essential requirements (e.g. migration limits, food contact materials declarations, traceability), regulatory delays, or even product recalls.

Recommendation

Given the complexity of high-risk solutions, introducing a defined internal compliance role becomes a priority. The company should establish a minimum internal capability for interpreting regulatory obligations, managing documentation, and assessing legal risks—especially in cases involving novel materials, multilayer structures, or national deviations. Where needed, this function can be supported by external experts, but internal coordination is essential to ensure consistency, traceability, and timely integration into packaging development processes.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.

Even though RPET Cup (Recycled PET, Transparent, Food-Grade) is based on a low-risk material family, the absence of an internal compliance function increases the chance of overlooking important legal obligations. Without designated personnel, activities such as reviewing suppliers' food-contact declarations, checking rPET process approvals or maintaining traceability documentation may not be carried out systematically.

This can create vulnerabilities during inspections or audits and may delay the detection of regulatory changes affecting PET cups, recycled plastics or environmental labelling requirements.

Recommendation

To reduce compliance risks associated with RPET Cup (Recycled PET, Transparent, Food-Grade) , the company should assign at least one internal reference person for packaging and food-contact legislation, even if part-time. This person can coordinate with suppliers, collect essential documentation, and liaise with external experts where needed, ensuring that the low inherent risk of RPET Cup (Recycled PET, Transparent, Food-Grade) is not undermined by gaps in internal governance.

Driver	Question #15	Answer
Regulatory compliance	Does the company regularly monitor regulatory changes (national and EU level)	Regulatory monitoring is occasional or informal;

	that could impact packaging materials, formats, or labelling?	adjustments are made when major changes are identified but without a structured approach.

Answer Risk Level: Medium

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

The solution under evaluation falls into a medium compliance risk category, as it relies on materials that are regulated under existing food-contact and packaging standards, but whose regulatory framework is still evolving. In particular, the complexity of classifying composite, recyclable, or compostable materials introduces ambiguity in compliance pathways. These solutions often require additional documentation, material traceability, or specific functional tests to meet national and EU-level requirements — especially in the absence of harmonized recycling or biodegradability standards.

For a solution like Biobased PLA Cup with Paper Lid (Industrial Compostable) , informal monitoring may lead to delayed reaction to new requirements—such as changes in where compostable packaging is permitted or what claims are allowed. This can result in periods where labelling, documentation or communication are not fully aligned with the latest rules.

Recommendation

The company should move from ad hoc monitoring to a simple, structured process where Biobased PLA Cup with Paper Lid (Industrial Compostable) is reviewed against major regulatory updates at least once or twice per year. Assigning this responsibility and keeping a brief change log will help maintain compliance without excessive administrative burden.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

The solution under evaluation falls into a high compliance risk category, meaning it may involve materials or claims governed by complex or overlapping EU and national regulations—such as compostability certifications, chemical migration limits, or packaging waste declarations.

In this context, an informal or reactive approach to regulatory monitoring significantly increases the risk of non-compliance. The company may overlook emerging requirements or fail to act promptly on updates, potentially delaying market readiness or triggering corrective actions.

The lack of a structured monitoring framework makes it more difficult to anticipate and manage the legal obligations tied to this packaging solution's composition, end-of-life classification, or documentation needs.

Recommendation

When dealing with a packaging solution that falls into a high compliance risk category, the company should prioritize the development of a structured, recurring process for monitoring applicable laws and upcoming regulatory changes.

This may include identifying and subscribing to specific regulatory channels (e.g., EFSA updates, ECHA alerts, national food safety authority communications), and establishing periodic internal reviews. Involvement of external experts may be necessary to ensure a complete interpretation of complex or technical updates, especially where multiple frameworks intersect (e.g. compostability, safety testing, cross-border labeling rules).

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.

For a low-risk solution like RPET Cup (Recycled PET, Transparent, Food-Grade) , occasional or informal monitoring may be sufficient in the short term, but it can still result in delays when important regulatory changes occur—such as the introduction of new PPWR provisions or stricter conditions for recycled plastics in food contact.

Without a structured process, the company may react only when prompted by suppliers or customers, which can compress implementation timelines and create pressure on internal resources.

Recommendation

To improve preparedness around RPET Cup (Recycled PET, Transparent, Food-Grade) , the company could formalise a simple monitoring routine—for example, assigning responsibility to a specific person to follow packaging-related updates via official sources or trade associations. This would support more proactive adjustments to RPET Cup (Recycled PET, Transparent, Food-Grade) specifications and reduce the risk of rushed changes in response to external alerts.

Driver	Question #16	Answer
Regulatory compliance	Does the company regularly verify suppliers' compliance with local material, labour and traceability standards?	No formal checks in place.

Answer Risk Level: High

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

The solution under evaluation falls into a medium compliance risk category, as it relies on materials that are regulated under existing food-contact and packaging standards, but whose regulatory framework is still evolving. In particular, the complexity of classifying composite, recyclable, or compostable materials introduces ambiguity in compliance pathways. These solutions often require additional documentation, material traceability, or specific functional tests to meet national and EU-level requirements — especially in the absence of harmonized recycling or biodegradability standards.

In the absence of formal supplier checks, the company has limited assurance that Biobased PLA Cup with Paper Lid (Industrial Compostable) meets all relevant food-contact and compostability requirements or that documentation would withstand scrutiny from authorities or major customers. This is particularly risky for a solution that relies on specialised standards and evolving regulation.

Recommendation

Before scaling up Biobased PLA Cup with Paper Lid (Industrial Compostable) , the company should establish basic supplier-verification practices, at least requiring current declarations of conformity and compostability certificates. Over time, this can be expanded to include further traceability and audit information as needed.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

The solution under evaluation falls into a high compliance risk category, typically associated with complex regulatory requirements, such as multi-layer materials, novel bio-based components, or non-harmonized packaging structures.

The absence of formal supplier verification significantly increases the likelihood of regulatory gaps—especially regarding traceability, conformity assessments, or compliance with labor and safety standards.

This gap may hinder the implementation timeline or even limit the solution's applicability, particularly if specific documentation (e.g., test reports, origin certifications) is required for compliance or market access.

Recommendation

Given the high compliance risk associated with the solution, the absence of supplier verification represents a significant vulnerability. It is strongly recommended to establish a documented, systematic process to assess supplier compliance with food safety, labor, and environmental regulations.

This may include requesting third-party certifications, signed declarations of conformity, migration test results, and traceability documentation.

In some cases, prioritizing suppliers that already meet recognized standards (e.g. ISO, BRC) can streamline implementation and reduce regulatory uncertainty during rollout.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.

The absence of formal supplier checks increases the risk that essential documentation for RPET Cup (Recycled PET, Transparent, Food-Grade) —such as food-contact declarations, rPET approvals or traceability data—is incomplete or missing. While PET/rPET itself is governed by clear regulations, failure to verify supplier compliance may undermine the low inherent risk of the material.

This can leave the company exposed in case of inspections or customer audits, with limited ability to demonstrate that appropriate due diligence has been carried out.

Recommendation

The company should establish at least a minimal supplier-compliance procedure for RPET Cup (Recycled PET, Transparent, Food-Grade) , requiring key documents such as declarations of conformity, confirmation of recycled-content processes and basic traceability information. Collecting and storing these documents in an organised way will help protect the company from compliance challenges and support more robust relationships with customers and authorities.

Driver	Question #17	Answer
Technical feasibility	How flexible are the company's production lines to accommodate new packaging technologies?	High flexibility, no or small upgrades needed.

Answer Risk Level: Low

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Biobased PLA Cup with Paper Lid (Industrial Compostable) is compatible with standard cold-cup dispensing and lid-application equipment. If lines are already flexible, only minor adjustments to settings or handling procedures are likely to be needed for its implementation.

Recommendation

The company should perform short line trials to fine-tune Biobased PLA Cup with Paper Lid (Industrial Compostable) parameters (denesting, stacking, lid fit) and then integrate the validated settings into operating procedures.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

The use of Sulapac-based cups in a low-risk production context suggests that the company's forming and filling lines are already adapted or highly compatible with rigid formats. This creates favorable conditions for adoption without major changes, allowing Sulapac cups to be integrated efficiently into existing operations. Line performance is likely to remain stable, supporting short changeover times and a high degree of repeatability.

Recommendation

It is recommended to leverage the existing infrastructure by focusing on optimization steps specific to Sulapac, such as fine-tuning heating and forming settings. The flexibility can also be used to test multiple Sulapac variants, identifying the most efficient in terms of formability, waste, and mechanical behavior.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

RPET Cup (Recycled PET, Transparent, Food-Grade) is designed to work with standard forming and sealing technologies for PET cups and lids. If production lines are already flexible and require little or no upgrade, integrating RPET Cup (Recycled PET, Transparent, Food-Grade) is likely to be straightforward in terms of settings and changeover routines.

Recommendation

The company should leverage this flexibility to test RPET Cup (Recycled PET, Transparent, Food-Grade) in different formats or volumes, confirming optimal sealing parameters and handling settings while minimising disruption to existing operations.

Driver	Question #18	Answer
Technical feasibility	Has the Company evaluated how the adoption of a new packaging solution could impact the logistics performance (e.g., transport efficiency, storage requirements, distribution costs)?	No specific evaluation has been conducted regarding the impact of the new packaging solution on logistics performance.

Answer Risk Level: High

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Without logistics evaluation, the adoption of Biobased PLA Cup with Paper Lid (Industrial Compostable) may lead to unforeseen issues such as cups deforming in hot storage, changes in pallet densities, or difficulties in stacking during transport.

Recommendation

Before rolling out Biobased PLA Cup with Paper Lid (Industrial Compostable) widely, the company should perform basic logistics trials, checking how the cups behave during transport and warehouse storage and adjusting packaging or handling practices accordingly.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

A lack of assessment suggests that the introduction of rigid Sulapac cups could lead to unanticipated logistical challenges. These might include inefficient palletization due to fixed shape, increased empty space during transport, or incompatibility with current case-packing or distribution models. Without prior analysis, the risk of operational inefficiencies and cost overruns increases substantially.

Recommendation

It is advisable to initiate a logistics feasibility assessment focusing on spatial performance, pack density, and potential implications for reverse logistics or customer handling requirements. Even a basic load simulation can reveal critical constraints that may not emerge during pilot runs.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

Without any logistics evaluation, the adoption of RPET Cup (Recycled PET, Transparent, Food-Grade) may have unanticipated effects on packing densities, pallet stability or required warehouse space. Although the cup is lightweight, its shape and stacking behaviour could still influence transport efficiency and handling.

Recommendation

Before large-scale implementation, the company should run basic logistics tests with RPET Cup (Recycled PET, Transparent, Food-Grade) —assessing pallet loads, case-fill ratios and stacking stability. These insights will support realistic cost estimates and help prevent operational issues once the cup is deployed.

Driver	Question #19	Answer
Technical feasibility	Does the company have the ability to put in place remediative action in case of malfunctions to the packaging production lines?	Yes, but through external suppliers only.

Answer Risk Level: High

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Relying solely on external suppliers for intervention can create delays if Biobased PLA Cup with Paper Lid (Industrial Compostable) generates recurring line issues, particularly in high-volume periods or across multiple facilities.

Recommendation
To decrease dependence on external interventions, the company should request targeted training from equipment or cup suppliers so internal staff can independently resolve common Biobased PLA Cup with Paper Lid (Industrial Compostable) -related malfunctions.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

Relying solely on external service providers may create a vulnerability when handling issues related to Sulapac-based formats. Since these materials may require highly specific forming temperatures and molding tolerances, any failure—whether tool misalignment or process drift—could halt operations until expert support is mobilized. This is particularly critical for SMEs with limited backup infrastructure.

Recommendation
It is advisable to evaluate the feasibility of developing a minimum level of internal technical capability for first-response diagnostics and setup verification. Where full internalization isn't viable, service contracts should include rapid response clauses and contingency plans tailored to high-variability materials like Sulapac.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback

Relying solely on external suppliers for troubleshooting can create vulnerabilities when adopting RPET Cup (Recycled PET, Transparent, Food-Grade) , especially if line stoppages occur outside normal service windows or in multiple locations. Minor issues—such as cup jams or sealing drift—may cause disproportionate disruption if internal staff are not empowered to intervene.

Recommendation
To reduce dependency on external support, the company should seek basic training from suppliers on RPET Cup (Recycled PET, Transparent, Food-Grade) handling and simple diagnostics, enabling

internal staff to manage routine malfunctions while keeping external experts for more complex cases.

Driver	Question #20	Answer
Technical feasibility	Does the Company have the capability and resources to plan and deliver staff training in case a new packaging solution is introduced?	Yes, the Company already has internal processes and resources ready to support staff training if a new packaging solution is adopted.

Answer Risk Level: Low

Biobased PLA Cup with Paper Lid (Industrial Compostable)

Feedback

Existing training capabilities provide a strong foundation for introducing Biobased PLA Cup with Paper Lid (Industrial Compostable) , ensuring that operators understand its cold-only nature, handling requirements and correct separation of compostable cups in waste streams.

Recommendation
Biobased PLA Cup with Paper Lid (Industrial Compostable) -specific modules—covering material limits, operational settings and disposal guidance—should be integrated into the standard training curriculum for production and front-of-house staff.

Paper Cup with Water-Based Barrier Coating (Recyclable in Paper Stream)

Feedback

The company's ability to internally organize training activities suggests a strong foundation to manage knowledge transfer during the introduction of Sulapac-based packaging. Given the novelty of the material and its specific forming requirements, the presence of established internal training systems can accelerate learning curves and help ensure process consistency across shifts or production cycles.

Recommendation
It is advisable to tailor internal training modules to cover Sulapac's material behavior, including thermal tolerances, forming speeds, and sealing quality. Training should also include process monitoring and maintenance best practices, especially if line adaptation or tooling changeovers are required during implementation.

rPET Cup (Recycled PET, Transparent, Food-Grade)

Feedback
Existing training processes provide a solid basis for introducing RPET Cup (Recycled PET, Transparent, Food-Grade) , ensuring that operators and quality staff understand cup

characteristics, correct handling and sealing requirements. This supports consistent performance and reduces the risk of operator-related issues.

Recommendation
RPET Cup (Recycled PET, Transparent, Food-Grade) -specific content—such as recommended settings, handling precautions and visual examples of defects—should be incorporated into standard training materials and onboarding for relevant staff.

11. Next Steps

Company 2 (Anonymised) can now access to the next steps, where you can:

- Evaluate the three proposed packaging concepts
- Select the most suitable option(s) for laboratory or production testing
- Receive a customized Sustainability Report for your chosen solution, which includes:
  - An overview of the EU and national regulatory frameworks on packaging sustainability.
  - A strategic roadmap, customized for your company, for its approach to EPD certification.
  - A comprehensive analysis of the alternative packaging solution, mainly focused on a comparative environmental assessment between the current and the proposed packaging solution.

This evaluation will be based on the analysis we're providing you, which takes into account technical, legal, economic, environmental, and social aspects, combined with an innovation risk assessment framework.

SUSTAINABLE PACKAGING PILOT REPORT

Phase 1

Company	Company 3 (Anonymised)
Country	CZECH REPUBLIC
Sector	Fruit and vegetables
Report Date	13.09.2025
Prepared by	• Cevi Srl - Confindustria Verona (IT) • CBHU Campden BRI Hungary Ltd (HU) • L-LIT Lukasiewicz Research Network – Lódz Institute of Technology (PL) • PricewaterhouseCoopers Business Services Srl (IT) • PROMA-PACK Ltd - UCIMA (IT)

1. Project Scope and Objectives

This report has been developed as part of the D4PACK Pilot Action – Phase 1, following the online company interview held on September 23, 2025. The aim was to assess company's current packaging practices, sustainability priorities, and technical limitations in order to propose alternative packaging solutions for a selected product.

- As a participant in the pilot action, the company will receive:
- A tailored selection of three alternative packaging solutions

A sustainability briefing aligned with the company's goals and standards, including the potential to develop an Environmental Product Declaration (EPD)

2. Company Profile

Company 3 (Anonymised) is a small company based in the Czech Republic which packages all meat and vegetables in jars/cans, including specific items like pickles, pepperonies, cherry peppers, and paprika The company is not part of a larger corporate group, but they are the second biggest company in their field.
The company distributing products to:

- Slovakia
- Czech Republic

Typical shelf life of the F&V products is 2-3 years, but it depends on the products and may differ in each type (pineapple: 3 years of shelf life)

3. Current Packaging Overview

Materials and Formats Used:

- The preferred material is Glass
- Plastic is a "no way option" for regulatory reasons, only being considered for HORECA customers

Current Trends:

- The packaging must have high temperature resistance (due to pasteurization) and maintain sterility over a defined period.

It must resist external factors like:

- Moisture
- Oxygen
- high temperatures

Retail Constraints:

The customers place particular emphasis on the price of the final product, so the packaging must not significantly increase this price, while at the same time they demand that it be practical and convenient to use.

4. Focus Product: Peppers in jars

Packaging Challenge:

Current production utilizes automated lines and the jars are packed in cardboard plus foils.

Packaging Issues:
The primary challenge affecting the product's condition is the critical need for the packaging to be hermetically sealed.

Critical Requirements:

- The most vital requirements are maintaining freshness,
- extending shelf life,
- preventing contamination/ensuring food safety,
- moisture/oxygen barrier and temperature control
- Shelf life is very important
- Quality standards are very high

Production Issues:
Main issues are related to the automated lines and workforce; there are no packaging material related issues.

- Shelf life: 2-3 years
- Current solution:
    - Glass jars
- Customer need:
    - Most critical packaging requirements for the vegetables in jars is to see what the product look like. Example of peaches sold in cans then changed in jars and their selling increased a lot, but this depends on country customers' preferences
    - the packaging must also be transparent, so the customer needs to see the product
    - Customer's expectation regards transparency, reasonable price to achieve large margin of the products price

Pic.1. Peppers in jars

5. Production Line Compatibility

They are using automated lines for the current solution. Jars are packed in cardboards.

They reuse the same jars so that they do not manufacture new ones (B2B jars returning). For these reasons, they are open to change it only of the alternative will be with the same characteristics, with no plastic.

- They would change the current packaging to reduce costs
- Functional requirements: products are processed or fresh and then processed, so packaging needs to be:
    - Sterility maintenance over a defined period
    - Microbiological cleanliness
    - Easy to open/close
    - Printability/visual attractiveness
    - High temperature resistance

6. Certifications and Sustainability Commitment

Company 3 (Anonymised) has designated responsible people and established internal processes to ensure compliance with regulations for packaging intended for contact with food. The system is managed within the framework of HACCP and IFS standards.

7. Key Packaging Requirements

Products are processed or fresh and then processed, so packaging needs to be:

- Sterility maintenance over a defined period
- Microbiological cleanliness
- Easy to open/close
- High temperature resistance

Area	Requirement
Barrier Properties	Sterility maintenance
Shelf Life	Maintain or exentend 2-3 years of shelf life
Retail Preferences	Extending the shelf- life without compromising safety and quality
Sustainability	Sustainable option complies with the ESG and IFS requirements
Consumer Expectations	Maintain freshness, transparency, glass preference
Machinery Compatibility	Maintain

8. Proposed Alternative Packaging Solutions

1. **Lightweight Glass Jar with 30% Recycled Content (PCR Glass) Jar_01**

Reduction of the glass weight by 10–15% while introducing at least 30% post-consumer recycled (PCR) glass.
Production can be done using standard molds, without affecting sealing or pasteurization performance.
Sustainability & Compliance:

- CO_2 emissions reduced by approximately 25–30%.
- Lower energy demand during glass melting.
- Fully recyclable in existing glass collection and recycling systems.
- Safe for direct food contact – remelting eliminates any contaminants.

Limitations:

- Slight decrease in transparency (light green hue possible).
- Requires agreement with the glass supplier regarding mechanical strength specifications.

Tag: GL 01-1-1-1 --- Recycled Glass Jar – Mono – No Barrier

2. Metal Can with Non-BPA Coating (Monomaterial Steel) Jar_02

Replacement of standard steel cans coated with epoxy-based lacquers (BPA) by non-BPA, epoxy-free coatings compatible with full steel recyclability.
Material: monomaterial steel with a natural oxygen barrier and no plastic laminate.
Sustainability & Compliance:

- 100% recyclable within the steel recycling stream.
- Fully compliant with REACH and PPWR regulations.
- No migration risk of BPA to food.
- Food-contact safe when the coating has a valid Declaration of Compliance (DoC) under Regulations (EC) 1935/2004 and (EU) 10/2011.

Limitations:

- Slightly higher raw material cost.
- Requires validation of coating performance after pasteurization.
  Tag: FE 05-2-1-1 --- Virgin Steel Can – Mono – No Barrier

3. Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept) Can_01

Replacement of traditional steel cans with lightweight aluminium cans featuring a thin oxide layer for protection instead of polymeric coatings.
Wall thickness reduced by 20–25% while maintaining resistance to sterilization and vacuum sealing.

Sustainability & Compliance:

- Weight reduction of around 25%.
- 30–40% lower carbon footprint compared with traditional steel cans.
- 100% recyclable in the aluminium recycling loop.
- Fully compliant with PPWR and food-contact safety regulations.

Limitations:

- Requires validation of barrier stability after sterilization (121–130 °C).
- Possible surface color variation (matte finish).
- Cooperation with the can supplier needed to optimize geometry and sealing

Tag: AL 04-2-1-1 --- Virgin Aluminium Can – Mono – No Barrier

Summary table

Solution	*Material*	*Co2 Reduction*	*Recyclability*
Lightweight glass jar with 30% PCR	Glass	- 30%	☑ Yes
Metal can with non-BPA coating	Steel	- 25%	☑ Yes
Thin-wall aluminium can (oxide barrier)	Aluminium	- 35/40%	☑ Yes

Overall Recommendations:

All three options are food-safe, EU-compliant, and technically feasible for Company 3 (Anonymised) products (vegetable preserves and sterilized foods).

Short-term implementation could focus on the lightweight glass option, while metal and aluminium cans represent mid-term strategies aligned with PPWR and circular economy goals.

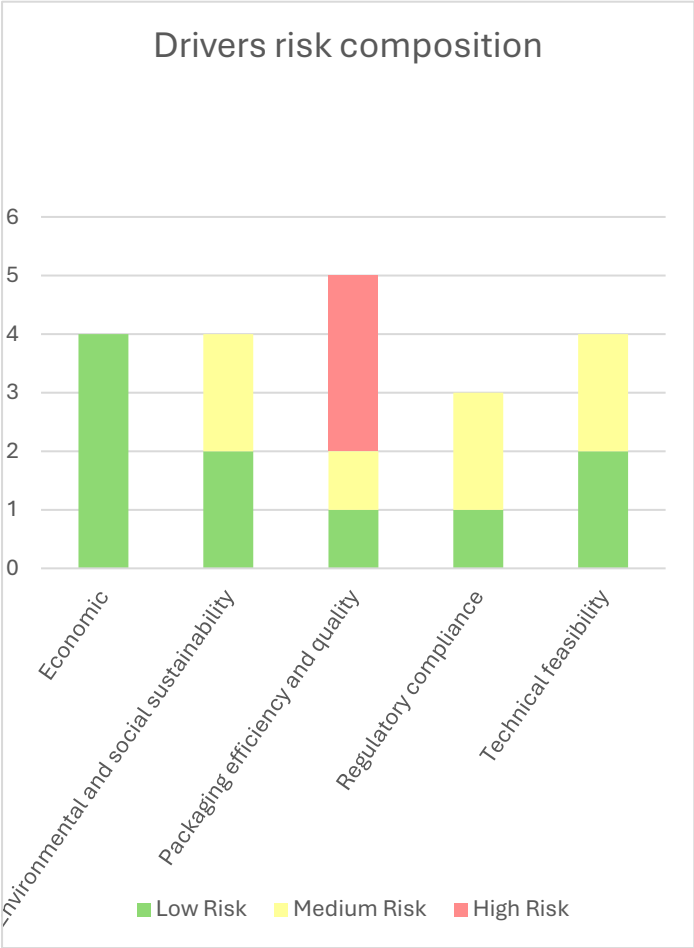
9. Risk Assessment – Dashboard Summary

This section contains the risk assessment summary, which gives an overview of the Company risk profile to a possible new packaging implementation, regardless of the possible packaging alternatives considered.

Radar Chart – Overview of Risk Levels

This chart provides a synthetic representation of the average risk level for each driver (Economic, Environmental & Social, Packaging Quality and Efficiency, Regulatory, Technical Feasibility).

- The underlying methodology is based on converting questionnaire responses into numerical scores (**1 = low risk, 2 = medium risk, 3 = high risk**) and calculating the **average score** for each driver.
- In the chart, this average is **translated into the distance from the center**: the further a driver extends outward, the higher the associated risk level.
- The **color gradient** supports interpretation: **green = low risk, yellow = medium risk**



Bar Chart – Breakdown of Risk Levels

This chart provides a detailed view of the risk composition for each driver.

- For each driver, the total number of questionnaire responses has been calculated.
- These responses have then been classified according to the associated risk level (**low, medium, high**).
- Each bar therefore represents the distribution of responses across risk levels within the individual driver.
- While the radar chart offers a **synthetic overview**, the bar chart enables a more precise analysis of the **distribution of risk**.

10. Risk Assessment - Packaging related questionnaire

Driver	Question #1	Answer
Economic	To what extent has the adoption of a new packaging solution been integrated into the company's strategic plans, such as the industrial plan, sustainability strategy, or market expansion initiatives?	It is fully integrated into official strategic plans.

Answer Risk Level:Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

Given that the solution under evaluation is associated with a high cost profile, its integration into the company's strategic plans is especially important. This alignment demonstrates that the organization is proactively managing significant investments in line with long-term business priorities.
High-cost packaging solutions typically require a multi-year financial commitment and can influence the company's capital structure, supply chain design, and pricing strategy. Their inclusion in strategic plans ensures that these implications are anticipated and managed across departments.
When such investments are aligned with broader objectives—such as sustainability leadership, premium market positioning, or expansion into new territories—they strengthen the company's strategic vision while ensuring coordination of resources, suppliers, and financial targets. This reduces exposure to financial risk and supports coherent, scalable growth.

Recommendation

Even if the packaging solution is already integrated into the company's strategic plans, it is advisable to schedule regular check-ins to ensure the investment remains aligned with business goals.
Given the resources involved, it's important that those managing operations, purchasing, and general oversight stay on the same page—monitoring costs, timelines, and actual results. If market conditions or regulations change, the company will be better prepared to adjust without major disruptions.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Considering that the packaging solution corresponds to a medium investment level, its inclusion in strategic planning reflects a well-balanced approach to innovation.
Medium-cost solutions typically require coordination across budgeting, scheduling, and resource allocation. Their integration in strategic documents—such as product roadmaps or sustainability initiatives—helps the company scale improvements in cost-efficiency and performance without requiring disruptive investment.
By aligning this solution with operational or market goals, the company strengthens internal coordination, ensures that cost impacts remain predictable, and maintains coherence with its medium-term financial and growth strategies.

Recommendation

To ensure the packaging solution remains effective over time, it's helpful to plan a regular review—perhaps every six months—to assess its consistency with business priorities and market needs.
Involving key people (e.g., the owner, production leads, sales) can help make small adjustments early, before inefficiencies or extra costs arise.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Considering that the packaging solution corresponds to a medium investment level, its inclusion in strategic planning reflects a well-balanced approach to innovation.
Medium-cost solutions typically require coordination across budgeting, scheduling, and resource allocation. Their integration in strategic documents—such as product roadmaps or sustainability initiatives—helps the company scale improvements in cost-efficiency and performance without requiring disruptive investment.
By aligning this solution with operational or market goals, the company strengthens internal coordination, ensures that cost impacts remain predictable, and maintains coherence with its medium-term financial and growth strategies.

Recommendation

To ensure the packaging solution remains effective over time, it's helpful to plan a regular review—perhaps every six months—to assess its consistency with business priorities and market needs.
Involving key people (e.g., the owner, production leads, sales) can help make small adjustments early, before inefficiencies or extra costs arise.

Driver	Question #2	Answer
Economic	Has the Company carried out any preliminary economic evaluation to assess the potential financial impact of adopting an innovative packaging solution (e.g. general business plan, market research, competitors benchmarking, ect.)?	Yes, with cost-benefit analysis and scenario simulations

Answer Risk Level:Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

Given that the solution under evaluation is associated with a high cost profile, the company's structured financial analysis—through cost-benefit evaluation and scenario simulation—provides a strong foundation for informed decision-making.
In this context, such evaluation helps clarify how a significant investment might influence long-term budgeting, financial stability, and adaptability in case of market or regulatory shifts.
High-cost solutions inherently carry strategic implications, such as tighter liquidity margins, greater dependency on accurate forecasts, and longer payback horizons, which require continuous internal alignment.

Recommendation

Even if the packaging solution is already integrated into the company's strategic plans, it is advisable to schedule regular check-ins to ensure the investment remains aligned with business goals.
Although a financial evaluation has already been carried out, it is recommended to keep a record of key financial assumptions and plan for regular internal reviews.
Given the size of the investment, changes in costs, supply conditions, or demand expectations could significantly impact profitability. Keeping the evaluation updated helps reduce the risk of financial mismatches over time.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Considering that the solution falls into a medium cost category, the company's use of cost-benefit analysis and scenario simulations shows a prudent and structured approach.
This type of solution often balances investment with expected returns, but still requires resource commitment and impacts planning cycles.
The evaluation supports risk awareness and budget alignment, yet medium-cost initiatives can introduce exposure to volatility in input prices, internal resource availability, or delays in expected benefits—factors that, while not immediately risky, may affect financial performance over time if underestimated.

Recommendation
To ensure that the investment remains aligned with company needs, it is advisable to review the evaluation at least once a year, especially if the market changes or if the company introduces new products.
For medium-cost solutions, even small changes in conditions or expectations can affect the return on investment.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Considering that the solution falls into a medium cost category, the company's use of cost-benefit analysis and scenario simulations shows a prudent and structured approach.
This type of solution often balances investment with expected returns, but still requires resource commitment and impacts planning cycles.
The evaluation supports risk awareness and budget alignment, yet medium-cost initiatives can introduce exposure to volatility in input prices, internal resource availability, or delays in expected benefits—factors that, while not immediately risky, may affect financial performance over time if underestimated.

Recommendation

To ensure that the investment remains aligned with company needs, it is advisable to review the evaluation at least once a year, especially if the market changes or if the company introduces new products.
For medium-cost solutions, even small changes in conditions or expectations can affect the return on investment.

Driver	Question #3	Answer
Economic	Has the company identified how it would finance the adoption of a new sustainable packaging solution, considering both internal resources and external funding opportunities (e.g. grants, subsidized loans, partnerships)?	Yes, we have already identified the funding sources and estimated the available budget.

Answer Risk Level: Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept

Feedback

Given that the solution under evaluation is associated with a high cost profile, having already identified funding sources and estimated the budget demonstrates a proactive and structured approach to financial planning.

In this context, the financial framework provides a critical foundation for navigating the complexity of a significant investment. It contributes to greater clarity on resource allocation, timing of expenditures, and overall feasibility.
However, high-cost solutions often involve longer financing timelines, exposure to funding delays, or stricter cash flow requirements—all of which may introduce risks if the financial plan is not closely aligned with real implementation dynamics.

Recommendation

It is recommended to closely monitor the alignment between the financing plan and the actual implementation timeline.
For high-cost solutions, delays in funding disbursement or unexpected cash flow demands can disrupt the project or impact other business areas. Maintaining updated cost tracking and comparing planned versus actual expenses can help mitigate these risks.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Considering that the solution falls within a medium cost category, the company's identification of funding sources and available budget indicates a sound and realistic financial approach.
This level of planning supports a smooth transition and ensures the investment is matched to current capabilities.
Nonetheless, medium-cost solutions may still require internal reallocation of resources, the use of partial external funding, or careful timing of payments—factors that could introduce operational pressure if underestimated.

Recommendation
To minimize financial pressure during implementation, the company should ensure that funding availability and project milestones remain coordinated.
For medium-cost initiatives, even small mismatches between expected and actual costs can affect liquidity or delay execution. A basic internal tracking system can help detect and address these issues early.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Considering that the solution falls within a medium cost category, the company's identification of funding sources and available budget indicates a sound and realistic financial approach.
This level of planning supports a smooth transition and ensures the investment is matched to current capabilities.
Nonetheless, medium-cost solutions may still require internal reallocation of resources, the use of partial external funding, or careful timing of payments—factors that could introduce operational pressure if underestimated.

Recommendation

To minimize financial pressure during implementation, the company should ensure that funding availability and project milestones remain coordinated.

For medium-cost initiatives, even small mismatches between expected and actual costs can affect liquidity or delay execution. A basic internal tracking system can help detect and address these issues early.

Driver	Question #4	Answer
Economic	How much does the cost of the actual packaging averagely impact the selling price of your product(s)?	The packaging cost has a low impact on profitability (it represents less than 5% of the total product cost); the product maintains healthy margins.

Answer Risk Level: Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept

Feedback

Given that the solution under evaluation is associated with a high cost profile, the current low impact of packaging on product profitability suggests that the company may have some margin flexibility to absorb higher packaging expenses.
However, integrating a higher-cost solution could alter cost structures significantly. Even with healthy margins, shifts in input costs or sales volume could reduce that buffer, making it important to consider how sensitive profitability is to packaging cost increases over time.

Recommendation

Since the adoption of a high-cost packaging solution could increase the overall product cost, it is advisable to periodically monitor how packaging expenses affect profitability, especially if margins begin to tighten.
Even with initially healthy margins, changing raw material prices or shifts in sales volume could reduce flexibility over time.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Considering that the solution falls into a medium cost category, and the current packaging cost represents a small portion of total product cost, the company is likely in a favorable position to manage the transition.
This creates an opportunity to upgrade packaging without heavily impacting pricing or margins. However, any increase in packaging cost should be evaluated for its potential cumulative effect across volumes and product lines.

Recommendation
Although the product currently maintains healthy margins, it's recommended to evaluate the cost impact across product lines before fully adopting a medium-cost solution.

Even moderate increases in packaging cost can become significant when scaled across large volumes or multiple SKUs.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Considering that the solution falls into a medium cost category, and the current packaging cost represents a small portion of total product cost, the company is likely in a favorable position to manage the transition.

This creates an opportunity to upgrade packaging without heavily impacting pricing or margins. However, any increase in packaging cost should be evaluated for its potential cumulative effect across volumes and product lines.

Recommendation

Although the product currently maintains healthy margins, it's recommended to evaluate the cost impact across product lines before fully adopting a medium-cost solution.
Even moderate increases in packaging cost can become significant when scaled across large volumes or multiple SKUs.

Driver	Question #5	Answer
Environmental and social sustainability	Does the company have personnel or dedicated roles responsible for Environmental and Social Sustainability topics (e.g. ESG manager, sustainability officer, or delegated internal function)?	No dedicated role, but ESG/sustainability tasks are managed by existing staff on a part-time or informal basis.

Answer Risk Level: Medium

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept

Feedback

The solution under evaluation requires more active governance to ensure its benefits are properly realized. Informal ESG roles may lack the authority or capacity to validate claims and manage potential trade-offs in material performance or recyclability. In this scenario, gaps in oversight may lead to delays or reputational risks during implementation, especially if suppliers require technical adaptation or certification follow-up.

Recommendation

Given the solution's moderate complexity, the company may benefit from formally designating someone to oversee sustainability efforts. This role could help assess supplier information, verify sustainability claims (e.g., recyclability, bio-based content), and coordinate with external advisors when needed to ensure reliable adoption of the packaging.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Lightweight Glass Jar with 30% Recycled Content (PCR Glass) offers a structurally robust sustainability profile thanks to glass's inert nature and infinite recyclability, further enhanced by lightweighting. However, when sustainability responsibilities are handled informally, the company may not fully capture or communicate the environmental value of this solution.
Without a clearly defined role, topics such as recycled content, local recycling performance or CO_2 reduction from weight savings risk being monitored only sporadically. This can limit the company's ability to integrate Lightweight Glass Jar with 30% Recycled Content (PCR Glass)
into its sustainability narrative or to anticipate regulatory and market expectations around circular packaging.

Recommendation
Even without creating a formal ESG position, the company could designate an internal contact person for sustainability topics, with specific responsibility for packaging.
Assigning this role the task of liaising with jar suppliers, tracking basic indicators (e.g. glass recycling performance, average weight per unit), and consolidating information for management would help translate Metal Can with Non-BPA Coating (Monomaterial Steel)'s potential into visible, measurable results.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Metal Can with Non-BPA Coating (Monomaterial Steel) offers a strong sustainability profile thanks to the high recyclability of aluminium and steel and the use of lightweight designs to reduce material and transport impacts. When sustainability responsibilities are only handled informally, however, the company may not fully capture or communicate these advantages.
Without a clearly defined role, important topics such as recycled content, end-of-life performance in different countries or supplier environmental practices may be monitored only occasionally. This can limit the company's ability to use Metal Can with Non-BPA Coating (Monomaterial Steel) as a visible lever in its sustainability roadmap or customer discussions.

Recommendation

Even without creating a formal ESG position, the company could designate one internal contact person for sustainability, with specific responsibility for packaging.
This role could coordinate basic data collection on metal packaging (e.g. recycled content, recycling rates, supplier certifications) and act as a reference in discussions on Metal Can with Non-BPA Coating (Monomaterial Steel) with management, sales and procurement, helping to turn its sustainability potential into concrete actions and messages.

Driver	Question #6	Answer
Environmental and social sustainability	Is the introduction of sustainable packaging seen as a lever for corporate reputation and brand awareness?	Yes, sustainable packaging is considered a strategic lever to strengthen the company's reputation and is actively integrated into marketing and communication plans.

Answer Risk Level: Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept

Feedback

The solution under evaluation falls into a medium sustainability risk category, meaning that while some environmental benefits are present (e.g., theoretical recyclability, partial use of recycled content), these features may depend on local infrastructure or lack third-party verification.
Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept shows positive sustainability aspects, particularly through its recyclability and compatibility with closed-loop systems, which can align well with Extended Producer Responsibility (EPR) frameworks and support circular economy objectives. The fact that the packaging is returnable also suggests potential for reuse and waste reduction.
However, its dependence on energy-intensive metal production processes and limited biodegradability signal environmental trade-offs. The sustainability value of the solution is also highly reliant on the existence and efficiency of industrial recycling infrastructure, which may vary significantly between regions. In addition, extraction and smelting impacts and the absence of compostability features reduce the robustness of the sustainability proposition, especially in markets shifting toward lightweight or bio-based alternatives. These factors place Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept in a medium risk tier from a sustainability standpoint.

In such cases, leveraging packaging as a brand value lever requires more careful communication, especially when sustainability claims are involved. The company may still benefit from this positioning, but it should ensure that its claims are substantiated, avoiding overstatements that might damage trust or expose it to greenwashing concerns.

Recommendation

When using packaging solutions that fall into a medium sustainability risk category, it is important to assess how sustainability benefits are communicated to avoid overclaims. The company may consider verifying the packaging's actual end-of-life performance or environmental impact (e.g., recyclability in local contexts) before promoting these features in brand messaging. Simple disclaimers or clarifications may help align marketing claims with actual product attributes.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Lightweight Glass Jar with 30% Recycled Content (PCR Glass) , as a lightweight glass solution with strong recyclability credentials, can materially support a positioning built around quality, naturalness and circularity. When sustainable packaging is already treated as a lever for brand reputation, this type of format fits well with a transparent and credible environmental narrative.
By aligning glass-based packaging with communication strategies—highlighting recyclability, reduced weight and inert contact with food—the company can strengthen trust with consumers and stakeholders who associate glass with safety and environmental responsibility.

Recommendation

To fully leverage Metal Can with Non-BPA Coating (Monomaterial Steel) as a reputational asset, the company could integrate concise, fact-based messages on pack or in digital channels, such as references to recyclability, recycled content or weight reduction versus conventional jars.
Where possible, linking these messages to broader ESG commitments (e.g. circular economy goals) can reinforce coherence between packaging choices and corporate communication.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Metal Can with Non-BPA Coating (Monomaterial Steel) , as a lightweight metal can solution that can be recycled repeatedly, offers a clear and recognisable sustainability story. When sustainable packaging is already used as a strategic lever for brand reputation, this format can support claims around circularity, food protection and reduced waste, especially in categories where shelf-life and product safety are critical.
Used coherently in communication, the combination of durability, protection and recyclability associated with aluminium and steel packaging can help reinforce brand values related to responsibility, quality and long-term commitment to the environment.

Recommendation

To fully leverage Metal Can with Non-BPA Coating (Monomaterial Steel) as part of the corporate reputation strategy, the company could integrate simple, fact-based messages about metal recyclability, use of recycled material and the long life cycle of aluminium and steel into packs and digital channels.
Linking these messages with broader ESG commitments—such as circular economy or resource-efficiency goals—can enhance the coherence and credibility of sustainability communication without requiring complex campaigns.

Driver	Question #7	Answer
Environmental and social sustainability	Has the company defined metrics to monitor the environmental or social performance of its packaging (e.g. % recyclable material, CO_2 savings, ethical sourcing)?	Some indicators are considered but not yet formalized.

Answer Risk Level: Medium

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept

Feedback

When sustainability indicators are missing or only partially tracked, and the packaging itself has some criticalities (e.g. mixed recyclability, lack of third-party validation), it becomes harder to validate performance. This can weaken trust in environmental claims and expose the company to requests for additional data from partners or regulators.

Recommendation

For solutions with less certain environmental benefits, it is advisable to expand and specify the metrics used. Material-specific indicators (e.g., recyclability by region, compostability performance) can improve visibility and help the company identify areas for improvement or confirm compliance over time.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Although Lightweight Glass Jar with 30% Recycled Content (PCR Glass) is inherently well-aligned with environmental objectives, the absence of formal packaging metrics reduces the company's ability to demonstrate and manage its benefits.
When indicators are only considered informally, improvements such as reduced glass weight, lower transport emissions or higher recyclability may not be fully captured. This limits both internal learning and the capacity to respond to external requests for data from customers, certifiers or financial stakeholders.

Recommendation
Formalising a small set of packaging-related KPIs—such as material weight per unit, percentage of recyclable packaging placed on the market, and approximate CO_2 savings from lightweighting—would make it easier to manage Metal Can with Non-BPA Coating (Monomaterial Steel) and similar solutions over time.
Simple spreadsheets or existing quality tools can be used initially; the important step is to stabilise definitions and responsibilities for updating these indicators.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Although Metal Can with Non-BPA Coating (Monomaterial Steel) is structurally aligned with circular-economy goals, the absence of formal packaging metrics reduces the company's ability to demonstrate its benefits or compare it consistently with alternative solutions.
When indicators are considered only informally, improvements such as higher recyclability, increased recycled content or reduced product waste due to better protection may not be fully captured and risk being underestimated in internal planning or external communication.

Recommendation

Formalising a limited set of packaging-related indicators—such as share of recyclable packaging, estimated recycling rates for metal cans in main markets, and average recycled content—would make it easier to manage and communicate the performance of Metal Can with Non-BPA Coating (Monomaterial Steel) .
Simple tools (e.g. spreadsheets or quality systems) can be used at first; what matters is clarifying definitions, responsibilities and update frequency for these metrics.

Driver	Question #8	Answer
Environmental and social sustainability	Has the company assessed the sustainability practices of packaging suppliers (e.g. environmental certifications, ethical standards, local sourcing)?	Some informal assessments exist.

Answer Risk Level: Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept

Feedback

The solution under evaluation falls into a medium sustainability risk category, meaning that while some environmental benefits are present (e.g., theoretical recyclability, partial use of recycled content), these features may depend on local infrastructure or lack third-party verification.
Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept shows positive sustainability aspects, particularly through its recyclability and compatibility with closed-loop systems, which can align well with Extended Producer Responsibility (EPR) frameworks and support circular economy objectives. The fact that the packaging is returnable also suggests potential for reuse and waste reduction.
However, its dependence on energy-intensive metal production processes and limited biodegradability signal environmental trade-offs. The sustainability value of the solution is also highly reliant on the existence and efficiency of industrial recycling infrastructure, which may vary significantly between regions. In addition, extraction and smelting impacts and the absence of compostability features reduce the robustness of the sustainability proposition, especially in markets shifting toward lightweight or bio-based alternatives. These factors place Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept in a medium risk tier from a sustainability standpoint.
Applying ESG criteria in supplier selection enhances the company's ability to identify and manage these potential weaknesses through partnerships with responsible providers.
This improves traceability and supports the gradual transition toward more robust and verifiable sustainability performance across the supply chain.

Recommendation

Given the moderate sustainability profile of the solution, the company may benefit from strengthening supplier qualification protocols to better address potential weak points (e.g., recyclability limitations, variable material origins).
Introducing formal documentation of supplier practices — such as sustainability self-assessments or third-party audit reports — can enhance reliability and help mitigate residual risks related to material integrity or environmental compliance.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Given Lightweight Glass Jar with 30% Recycled Content (PCR Glass) strong recyclability and the importance of glass manufacturing practices in determining its overall footprint, the application of ESG criteria in supplier selection is a significant advantage.
Systematic assessment of suppliers' environmental certifications, energy sources, recycled cullet usage and labour standards helps ensure that the sustainability benefits of lightweight glass jars are not undermined by upstream practices. This alignment supports credible external communication and reduces reputational and compliance risks along the supply chain.

Recommendation
To build on this positive foundation, the company could ensure that its ESG criteria explicitly cover glass-specific aspects—such as cullet content targets, furnace energy efficiency and proximity to key markets.
Regularly updating supplier information and documenting improvements will support continuous enhancement of Metal Can with Non-BPA Coating (Monomaterial Steel)'s environmental performance and provide robust material for ESG reporting or customer dialogue.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Given Metal Can with Non-BPA Coating (Monomaterial Steel) 's strong recyclability and the significant influence of metal production practices on its overall footprint, the application of ESG criteria in supplier selection is a major strength.
Systematic assessment of suppliers' environmental certifications, energy mix, recycled content strategies and social standards helps ensure that the sustainability benefits of metal cans are not undermined by upstream practices. This alignment supports credible external communication and reduces reputational and compliance risks along the supply chain.

Recommendation

To build on this positive base, the company could ensure that its ESG criteria explicitly address metal-specific aspects—such as minimum recycled content, commitment to energy-efficiency or low-carbon technologies in smelting and rolling, and proximity of production sites to key markets.
Regularly updating supplier information and using it in packaging and procurement decisions will help continuous improvement of Metal Can with Non-BPA Coating (Monomaterial Steel) 's sustainability performance.

Driver	Question #9	Answer
Packaging efficiency and quality	Does the company have personnel or dedicated roles responsible for monitoring the packaging quality (e.g. quality manager)?	No dedicated role, but packaging quality tasks are managed by existing staff on a part-time or informal basis.

Answer Risk Level: Medium

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

Given the technical demands of Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept—such as pressure resistance, material rigidity, and sealing behavior—relying on informal roles may result in inconsistencies that impact both production reliability and product safety. Metal packaging generally requires more precise monitoring than flexible alternatives.transition toward more robust and verifiable sustainability performance across the supply chain.

Recommendation

The company might consider clarifying internal responsibilities or assigning a point of contact to oversee quality checks specific to metal cans. This could support smoother integration of the format and prevent avoidable failures in early-stage implementation.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Lightweight Glass Jar with 30% Recycled Content (PCR Glass) depends on precise quality control of the glass container and its closure system to guarantee food safety and preserve product quality. When packaging quality is managed only informally or as a side task, there is a greater risk that subtle issues—such as dimensional tolerances, micro-cracks, or seal weaknesses—are detected late or inconsistently.
This can lead to variability in performance between batches, higher breakage rates or consumer complaints, especially when jars are exposed to thermal treatment, stacking or long-distance transport.

Recommendation
Even without creating a new role, the company could formalise packaging quality responsibilities for Metal Can with Non-BPA Coating (Monomaterial Steel) by assigning them explicitly to an existing function (e.g. QA or production).
Defining simple control plans for incoming jars and finished products, along with clear criteria for acceptance and escalation, would help ensure that glass-specific risks are identified and mitigated before they affect the market.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Metal Can with Non-BPA Coating (Monomaterial Steel) depends on reliable seam quality, internal coatings and overall can integrity to protect food and prevent corrosion. When packaging quality is managed informally or as an additional task, there is a risk that subtle issues—such as micro-leaks, coating defects or small deformations—are detected late or inconsistently.
This can lead to variability in performance between batches, higher rejection or complaint rates and potential waste, especially when cans undergo thermal processing or extended distribution.

Recommendation

Even without creating a new role, the company could formalise packaging quality responsibilities for metal cans by assigning them explicitly to an existing function (e.g. QA or production).
Defining simple control plans for Metal Can with Non-BPA Coating (Monomaterial Steel) —covering seam inspections, visual checks for coating integrity and monitoring of damage during handling—will help ensure that metal-specific risks are identified and mitigated before they impact the market.

Driver	Question #10	Answer
Packaging efficiency and quality	How important is the packaging (perceived quality, customization, etc.) in the brand indentity?	Packaging is primarily functional; its main role is to protect and display the product, with minimal attention to branding elements.

Answer Risk Level: Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

Relying on Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept primarily for product protection, without leveraging its branding potential, may result in missed opportunities for market distinction. While the metal format

is robust and functional, its standard appearance may not contribute significantly to consumer perception or differentiation.

Recommendation

It may be useful to explore whether subtle branding elements—such as color variations, textured finishes, or labeling styles—can be integrated into the can design without compromising functionality. These could strengthen brand recognition with minimal cost or complexity.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Lightweight Glass Jar with 30% Recycled Content (PCR Glass) offers a robust, functional glass format with good visibility of the product and straightforward labelling surfaces. In contexts where packaging is seen mainly as a protective component, this solution can reliably support product integrity and basic presentation requirements without adding complexity.
However, glass jars are also naturally associated with quality, tradition and authenticity. If these attributes are not considered within the brand strategy, part of the potential added value of using glass may remain untapped, especially in categories where packaging cues influence consumer choice.

Recommendation
The company may continue to use Lightweight Glass Jar with 30% Recycled Content (PCR Glass) primarily for its functional advantages, but it could also consider simple, low-effort ways to align the jar with brand identity—for example, consistent label design, clear communication of product quality on the jar, or basic visual elements that leverage the premium perception often associated with glass.
This allows the company to preserve a functional focus while gradually strengthening its visual presence on shelf.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Metal Can with Non-BPA Coating (Monomaterial Steel) provides robust, protective metal packaging with high barrier properties and a familiar can format. In contexts where packaging is viewed mainly as a functional component, this solution can reliably support product preservation and basic presentation requirements without adding design complexity.
However, metal cans can also convey perceptions of reliability, long shelf life and convenience. If these aspects are not linked to the brand strategy, some of the potential added value of using a high-performance metal format may remain unexploited.

Recommendation

The company can continue to use Metal Can with Non-BPA Coating (Monomaterial Steel) primarily for its functional advantages, while exploring simple ways to align the can with brand identity—such as consistent use of colours, typography and basic visual cues linked to quality or sustainability.
This allows the business to maintain a functional focus while gradually improving on-shelf recognition and perceived value.

Driver	Question #11	Answer
Packaging efficiency and quality	How important is extending the shelf life of products in the company's packaging strategy?	Very important

Answer Risk Level: High

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

Given that shelf life is critical, Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept is well aligned with this objective. Its robust barrier properties, inert metal structure, and compatibility with advanced filling techniques offer strong preservation. However, optimizing these advantages may require close monitoring of sealing performance and pressure resistance.

Recommendation

To ensure the packaging consistently delivers on shelf-life goals, it may be useful to establish performance benchmarks and collaborate with suppliers or machine providers for regular testing. Enhancing validation around pressure durability and closure integrity could support long-term reliability.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

In contexts where extending shelf life is a key strategic objective, Lightweight Glass Jar with 30% Recycled Content (PCR Glass) offers a solid technical platform thanks to glass's barrier properties and compatibility with technologies such as pasteurisation or sterilisation.
However, achieving ambitious shelf-life targets requires careful alignment between jar design, closure performance, product formulation and processing conditions. Lightweighting should be balanced with the need to ensure adequate mechanical strength under thermal and distribution stresses, and attention must be paid to cap selection, headspace management and potential interactions with closures or liners.

Recommendation
The company should work with quality, R&D and suppliers to define clear shelf-life targets for products packed in Lightweight Glass Jar with 30% Recycled Content (PCR Glass) and to validate that the jar–closure–process combination consistently achieves them.
This may include dedicated validation batches, monitoring of critical parameters during processing and storage, and, where needed, adjustments to jar weight, closure specifications or process conditions to ensure robust performance over the intended shelf life.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

In contexts where extending shelf life is a key strategic objective, Metal Can with Non-BPA Coating (Monomaterial Steel) offers a technically strong platform, as metal cans are widely used precisely for long-life products, including those subject to heat treatment.
However, achieving demanding shelf-life targets requires careful coordination between can specification, internal coating systems, closure integrity, process conditions and product characteristics. Lightweighting must be balanced with mechanical and corrosion resistance to ensure that performance is maintained throughout the intended shelf life.

Recommendation
The company should work closely with quality, R&D and can suppliers to define and validate shelf-life targets for each product packed in Metal Can with Non-BPA Coating (Monomaterial Steel) .

This may include dedicated trials for extreme conditions, monitoring of critical parameters (e.g. seam tightness, coating condition, corrosion markers) and, where necessary, adjustments to can specifications, coatings or process parameters to guarantee consistent performance over the full shelf-life period.

Driver	Question #12	Answer
Packaging efficiency and quality	How versatile does the company need its packaging to be to accommodate different product types?	Highly versatile

Answer Risk Level: High

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept's rigid structure and standardized shape offer limited flexibility when high format diversity is needed. Adapting to multiple product types with varying volume or presentation needs may be difficult without significant investment in tooling or machinery changes.

Recommendation

The company may benefit from evaluating whether alternative or hybrid solutions can complement Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept for segments requiring different volumes or visual positioning. Where cans remain essential, modular tooling or adaptable fillers could improve flexibility while maintaining existing infrastructure.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

In highly diversified product portfolios, relying on a single jar format like Lightweight Glass Jar with 30% Recycled Content (PCR Glass) may create constraints in terms of portion size, product type or processing requirements. While glass is inherently versatile and compatible with many foods, the specific lightweight design and closure used must be carefully evaluated across all intended applications.
Significant differences in viscosity, fill temperature, shelf-life requirements or consumer usage patterns may require more than one jar type or closure configuration to maintain performance and user experience.

Recommendation

Where high versatility is required, the company should conduct a structured assessment of how Lightweight Glass Jar with 30% Recycled Content (PCR Glass) performs across the full range of targeted products and processes, identifying any cases where a different format or additional jar variant is needed.
This may lead to defining a modular glass packaging platform—based on a limited set of jar families—that balances versatility with manageable complexity in sourcing, inventory and line setup.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

In highly diversified product portfolios, relying on a single Metal Can with Non-BPA Coating (Monomaterial Steel) format may create constraints in terms of portion size, product type, processing or consumer usage requirements. While metal cans are inherently versatile, the specific formats, opening systems and coatings in use must be carefully evaluated across all intended applications.

Significant variation in product viscosity, texture, required shelf life, convenience expectations or preparation methods may require multiple can types or opening technologies to maintain both technical performance and user experience.

Recommendation

Where high versatility is required, the company should carry out a structured assessment of how Metal Can with Non-BPA Coating (Monomaterial Steel) performs across its full range of target products and processes, identifying where additional can formats or opening systems are needed.
This may result in defining a modular metal packaging platform—based on a limited set of diameter families and opening options—that balances versatility with manageable complexity in sourcing, inventory and line changeovers.

Driver	Question #13	Answer
Packaging efficiency and quality	Has the company specific quality standards required for new packaging materials (e.g., durability, integrity)?	Yes, moderate list of specific technical standards required.

Answer Risk Level: High

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

A well-defined standard for material integrity aligns with Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept's strengths, but may reduce supplier flexibility or compatibility with newer formats (e.g., lightweighted or recyclable metals). Tight specs could also delay innovation in coating or seam design.

Recommendation

The company might consider periodically reviewing whether current quality standards still reflect evolving material capabilities. Collaborating with can manufacturers to test more sustainable or lightweight variants could help meet both performance and innovation goals.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

In contexts where the company has defined a moderate list of technical standards for new packaging materials, Lightweight Glass Jar with 30% Recycled Content (PCR Glass) can typically be aligned with these requirements, provided that glass-specific aspects are duly considered.
Detailed expectations regarding mechanical resistance, thermal performance, dimensional tolerance and compatibility with closure systems can help ensure that lightweight glass jars perform reliably in production and across the supply chain. The main challenge is to translate these standards into clear, testable criteria for suppliers and internal quality checks.

Recommendation
To ensure full alignment, the company should map its existing packaging standards against the technical characteristics of Lightweight Glass Jar with 30% Recycled Content (PCR Glass) and validate that all relevant criteria—such as breakage limits, seal integrity, thermal treatment compatibility and labelling adhesion—are covered.
Where necessary, test protocols and acceptance thresholds can be agreed with suppliers and integrated into incoming inspection or periodic validation, supporting consistent quality over time.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

In contexts where the company has defined a moderate list of technical standards for new packaging materials, Metal Can with Non-BPA Coating (Monomaterial Steel) can typically be aligned with these requirements, provided that the standards fully reflect the characteristics of metal cans.
Detailed expectations regarding seam quality, coating performance, mechanical strength and compatibility with filling and processing conditions help ensure that lightweight cans perform reliably in production and throughout the supply chain.

Recommendation
To ensure full alignment, the company should map its existing packaging standards against the technical characteristics of Metal Can with Non-BPA Coating (Monomaterial Steel) and verify that all relevant criteria—such as seam integrity, internal coating resistance, deformation limits and labelling adhesion—are covered.
Where appropriate, test protocols and acceptance thresholds can be agreed with suppliers and integrated into incoming inspection and periodic validation routines, supporting consistent quality over time.

Driver	Question #14	Answer
Regulatory compliance	Does the company have dedicated staff for compliance with packaging and food safety regulations?	Yes, but only partially or through consultants

Answer Risk Level: Medium

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

The solution under evaluation falls into a high compliance risk category, reflecting its reliance on materials or configurations for which no clear EU harmonization currently exists. These solutions often involve a combination of materials that may be difficult to classify under existing regulatory frameworks, require complex testing to verify food safety or environmental compliance, and present a high risk of future non-compliance as legislation evolves. When regulatory compliance is not fully overseen internally and instead depends on partial internal roles or external support, the adoption of such a solution may carry significant challenges. These include navigating fragmented legal requirements, managing extensive documentation, and ensuring alignment with both EU and national rules.
In this context, the limited internal capacity may result in higher exposure to regulatory delays or non-conformities, particularly during the integration and verification stages.

Recommendation

In the case of high compliance risk solutions, it is recommended to establish a more structured approach to compliance management. This may involve formalizing roles internally, selecting specialized consultants, or creating a documentation checklist tailored to the specific regulatory challenges of the packaging.
Whenever possible, companies should also consider engaging with industry associations or regulatory bodies to clarify compliance paths, especially in areas governed by national rules or where harmonization is limited.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.
For Lightweight Glass Jar with 30% Recycled Content (PCR Glass) , which relies on an inert, well-understood glass substrate, partial internal coverage supported by external consultants can be sufficient to manage key regulatory requirements. However, if internal ownership is limited, there is a risk that updates on topics such as labelling, traceability or the compliance of coatings and closures are handled reactively rather than proactively, especially when customers request specific documentation.

Recommendation
To reduce this risk, the company could designate an internal reference person for packaging and food-contact compliance, even if external consultants remain involved for complex cases.
Ensuring that this person maintains an overview of Lightweight Glass Jar with 30% Recycled Content (PCR Glass) -related documentation—declarations of conformity, test reports for coatings, information on closures—will support faster responses to customer requests and smoother integration of future regulatory changes.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.
For Metal Can with Non-BPA Coating (Monomaterial Steel) , which uses conventional food cans with standard coatings, partial internal coverage supported by external consultants can be sufficient to handle key regulatory

requirements. However, if internal ownership is limited, there is a risk that updates affecting coatings, migration limits or labelling are followed only reactively, especially when customers request specific documentation or when products are sold in multiple markets with differing expectations.

Recommendation

To reduce this risk, the company could designate an internal reference person for packaging and food-contact compliance, even if complex topics continue to be handled with external consultant support.
Ensuring that this person maintains an overview of Metal Can with Non-BPA Coating (Monomaterial Steel) -related documentation—declarations of conformity for metal, coatings and closures, test reports and traceability information—will support faster responses to customer and authority requests and smoother adaptation to regulatory changes.

Driver	Question #15	Answer
Regulatory compliance	Does the company regularly monitor regulatory changes (national and EU level) that could impact packaging materials, formats, or labelling?	Yes, regulatory monitoring is systematic and integrated into company procedures, with regular updates and adjustments to packaging operations.

Answer Risk Level: Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

The solution under evaluation falls into a high compliance risk category, reflecting its reliance on materials or configurations for which no clear EU harmonization currently exists. These solutions often involve a combination of materials that may be difficult to classify under existing regulatory frameworks, require complex testing to verify food safety or environmental compliance, and present a high risk of future non-compliance as legislation evolves.
Even with systematic internal monitoring, the adoption of this type of solution may require continuous attention to ensure alignment with fast-evolving or non-harmonized regulations — such as those related to compostability standards, multilayer material restrictions, or country-specific recycling obligations.
In this context, timely interpretation of legal changes and their operational implications becomes critical to maintaining compliance and avoiding potential disruptions during implementation or product placement on the market.

Recommendation

Given the complexity and rapid evolution of the regulatory framework, it is recommended to supplement internal monitoring with external sources, such as packaging compliance newsletters, regulatory consultants, or industry working groups.
Early identification of new rules affecting the solution — especially in areas like compostability standards or national labelling exceptions — can reduce the risk of delays or non-compliance during implementation.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.
For a solution like Lightweight Glass Jar with 30% Recycled Content (PCR Glass) , systematic regulatory monitoring ensures that any changes in rules affecting glass packaging—such as recycling targets under the PPWR, updates to food-contact principles or new labelling obligations—are detected and implemented in a timely way. This reduces the likelihood of non-compliance and supports smooth coordination between regulatory, quality and production functions when packaging specifications or labels must be updated.

Recommendation
To maintain this strong position, the company should continue to include topics relevant to Lightweight Glass Jar with 30% Recycled Content (PCR Glass) —such as packaging waste legislation, recycling targets for glass and any guidance on coatings or closures—in its monitoring routine.
Summarising key changes in short internal notes or briefings will help ensure that all teams involved in packaging remain aligned and ready to adapt when requirements evolve.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.
For a solution like Metal Can with Non-BPA Coating (Monomaterial Steel) , systematic regulatory monitoring ensures that any changes in rules affecting metal packaging—such as recycling targets under the PPWR, updated contaminant limits, or new labelling and extended producer responsibility obligations—are detected and implemented in time.
This reduces the likelihood of non-compliance and supports smooth coordination between regulatory, quality and production functions when can specifications, coatings or labels need adjustment.

Recommendation
For packaging solutions subject to evolving or partially harmonized legislation, it is recommended to identify specific regulatory areas to monitor more closely (e.g. recyclability criteria, use of composite materials, traceability).
Establishing a basic internal summary or checklist of applicable rules can support faster adaptation when changes occur.

Driver	Question #16	Answer
Regulatory compliance	Does the company regularly verify suppliers' compliance with local material, labour and traceability standards?	Yes, with a systematic procedure and formal documentation

Answer Risk Level: Medium

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

The solution under evaluation falls into a high compliance risk category, reflecting its reliance on materials or configurations for which no clear EU harmonization currently exists. These solutions often involve a combination

of materials that may be difficult to classify under existing regulatory frameworks, require complex testing to verify food safety or environmental compliance, and present a high risk of future non-compliance as legislation evolves. In such a scenario, the lack of a systematic supplier compliance verification process introduces substantial risk—particularly concerning conformity declarations, safety certifications, and traceability documentation.
The integration of this solution without a robust supplier control system may delay implementation, increase vulnerability during inspections, or result in non-compliance with food safety and environmental requirements. A thorough review of supplier practices and documentation will likely be needed to support regulatory alignment.

Recommendation

Given the higher regulatory complexity associated with the solution, the company should prioritize implementing a documented supplier compliance protocol. This could involve maintaining updated technical files, checking migration test availability, and clearly defining sourcing requirements. Even in the absence of dedicated compliance staff, involving key internal roles (e.g., purchasing or quality) in periodic checks can help prevent misalignments and support smoother regulatory integration during implementation.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.
In the context of Lightweight Glass Jar with 30% Recycled Content (PCR Glass), partial but unsystematic verification may be enough to manage major risks, yet it can leave gaps in documentation or visibility, especially when multiple suppliers are involved or when jars are decorated or combined with different closures.
Without a clear procedure, it may be difficult to guarantee that all relevant declarations of conformity, migration tests and traceability documents are up to date for each packaging component.

Recommendation

To strengthen control, the company should formalise a light but structured supplier verification process, specifying which documents are required for Lightweight Glass Jar with 30% Recycled Content (PCR Glass) (e.g. food-contact declarations for glass, coatings and closures, traceability information, certifications) and how often they should be reviewed.
Using a simple checklist for onboarding and periodic re-evaluation of suppliers will help ensure that compliance remains consistent across the glass packaging supply chain.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

The solution under evaluation falls into a low compliance risk category due to its alignment with established food-contact regulations, the use of widely accepted plastic materials, and the high degree of harmonization across EU legislation, meaning it generally aligns well with current packaging and food safety regulatory frameworks.
In the context of Metal Can with Non-BPA Coating (Monomaterial Steel) , partial but unsystematic verification may be enough to manage major risks, yet it can leave gaps in documentation or visibility, especially when several can suppliers are involved or when coatings or formats change.
Without a clear procedure, it may be difficult to guarantee that all relevant declarations of conformity, migration tests and traceability documents are up to date for each packaging component.

Recommendation

To strengthen control, the company should formalise a light but structured supplier verification process, specifying which documents are required for Metal Can with Non-BPA Coating (Monomaterial Steel) (e.g. food-contact declarations for metal and coatings, traceability information, certifications) and how often they should be reviewed.

Using a simple checklist for onboarding and periodic re-evaluation of suppliers will help ensure that compliance remains consistent across the metal packaging supply chain.

Driver	Question #17	Answer
Technical feasibility	How flexible are the company's production lines to accommodate new packaging technologies?	High flexibility, no or small upgrades needed.

Answer Risk Level: Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

The company's production infrastructure is highly compatible with rigid formats like Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept, minimizing the need for significant equipment upgrades. Its high integration with existing canning and labeling technologies ensures seamless incorporation of metal cans into the current workflow, supporting fast adoption and reliable output without major technical disruptions.

Recommendation

It is advisable to leverage this compatibility to explore deployment of metal cans in broader product lines. Continuous optimization of canning speeds and minor adjustments to accommodate SKU variation can help maximize efficiency.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Lightweight Glass Jar with 30% Recycled Content (PCR Glass) is designed to run on standard filling, capping and closing equipment used for glass containers. In environments where production lines are already flexible and can accommodate new jar formats with minimal adjustments, the technical integration of Lightweight Glass Jar with 30% Recycled Content (PCR Glass) is typically straightforward.

High flexibility in line settings—such as adjustable guides, capping heads and labelling systems—reduces the need for additional investment and helps ensure that the transition to lightweight jars does not compromise speed or efficiency.

Recommendation

To take full advantage of this flexibility, the company should plan structured but concise trials with Lightweight Glass Jar with 30% Recycled Content (PCR Glass), focusing on confirming filling accuracy, capping torque, breakage behaviour and labelling performance at standard line speeds.

Documenting optimal settings and any minor adjustments required will support fast, controlled roll-out across shifts and production sites.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Metal Can with Non-BPA Coating (Monomaterial Steel) is designed to run on standard filling, seaming and processing equipment widely used for metal cans. In environments where production lines are already flexible and can handle different can sizes or formats with minor adjustments, the technical integration of Metal Can with Non-BPA Coating (Monomaterial Steel) is typically straightforward.
High flexibility in settings—such as adjustable guides, seaming heads and labelling systems—reduces the need for additional investment and helps ensure that the transition to lightweight cans does not compromise throughput or efficiency.

Recommendation
To fully exploit this flexibility, the company should plan concise validation trials with Metal Can with Non-BPA Coating (Monomaterial Steel) , focusing on filling accuracy, seaming quality, can handling and labelling performance at target line speeds.
Documenting optimal settings and any minor adjustments required will support fast, controlled roll-out and ease of replication across lines or plants.

Driver	Question #18	Answer
Technical feasibility	Has the Company evaluated how the adoption of a new packaging solution could impact the logistics performance (e.g., transport efficiency, storage requirements, distribution costs)?	Yes, a structured evaluation has been carried out, considering transport, storage, and distribution implications of the new packaging.

Answer Risk Level: Low

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

If a structured logistics assessment has already been performed for Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept, the company is well-positioned to anticipate the operational impacts of introducing rigid, returnable metal packaging. The high durability and stackability of metal cans can enhance transport efficiency and reduce breakage losses. Moreover, understanding the spatial footprint and weight implications in advance can support accurate distribution planning.

Recommendation

It is recommended to continue using structured logistics evaluation tools when introducing new can sizes or product lines. Consider involving transport partners early to align on pallet configurations, weight thresholds, and reverse logistics arrangements if the returnable format is used.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

Lightweight Glass Jar with 30% Recycled Content (PCR Glass) has been specifically designed with reduced glass weight, which can improve transport efficiency and handling compared with conventional jars. Where a structured

logistics evaluation has been performed, the company is likely to have already assessed palletisation patterns, stacking stability, warehouse space use and potential impacts on transport costs.
This reduces the risk of unforeseen issues in distribution and supports informed decisions on how to best exploit the lightweight characteristics of the jar in the logistics chain.

Recommendation
To consolidate these advantages, the company should integrate the results of its logistics evaluation into standard operating procedures and packaging specifications, including recommended pallet configurations and handling instructions for Lightweight Glass Jar with 30% Recycled Content (PCR Glass).
Monitoring key indicators such as damage rates in distribution and transport cost per unit over time will help confirm that expected benefits are being realised.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

Metal Can with Non-BPA Coating (Monomaterial Steel) has been engineered as lightweight metal packaging while preserving mechanical strength and stackability. Where a structured logistics evaluation has been conducted, the company is likely to have already assessed palletisation schemes, stacking stability, warehouse space use and transport cost impacts compared to previous formats.
This reduces the risk of unforeseen issues in distribution and supports decisions on how to best exploit the dimensional and weight characteristics of the new cans in the logistics chain.

Recommendation
To consolidate these advantages, the company should integrate the findings of the logistics evaluation into standard specifications and procedures—for example, recommended pallet patterns, maximum stack heights and handling instructions for Metal Can with Non-BPA Coating (Monomaterial Steel) .
Monitoring damage rates, transport cost per unit and warehouse efficiency over time will help confirm that expected logistics benefits are sustained in practice.

Driver	Question #19	Answer
Technical feasibility	Does the company have the ability to put in place remediative action in case of malfunctions to the packaging production lines?	Yes, through a combination of internal technical resources (for small malfunctions) and external suppliers (for relevant malfunctions).

Answer Risk Level: Medium

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

When the company relies partly on internal staff and partly on external technicians, response times to production interruptions related to Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept may be slower and less predictable. Metal packaging lines typically involve specialized sealing, printing, or forming machinery, which may not be fully understood by general maintenance teams. While this hybrid setup may suffice for routine issues, it could struggle with unexpected mechanical failures or precision calibration needs.

Recommendation

To mitigate risks, it's advisable to expand internal knowledge by training selected operators on basic troubleshooting for canning systems. Meanwhile, external service contracts should be reviewed to ensure response times and spare parts availability align with the production schedule and minimize delays.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

A mixed model, combining internal technical staff for minor issues and external suppliers for more complex interventions, can be sufficient to support Lightweight Glass Jar with 30% Recycled Content (PCR Glass), provided that roles and response times are clearly defined.
However, if dependence on external support is high for adjustments related to glass handling, capping or labelling, there is a risk of longer downtimes during the early phases of adopting the lightweight jar, especially if modifications are needed on multiple lines or formats.

Recommendation
The company should identify the most common malfunctions expected with Lightweight Glass Jar with 30% Recycled Content (PCR Glass) —such as misaligned jars, cap application issues or breakage points—and ensure that internal technicians are able to manage these autonomously where possible.
At the same time, clear service agreements with external suppliers, including response times and scope of support, will help minimise disruption when more complex interventions are required.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

A mixed model, combining internal resources for minor issues and external suppliers for major interventions, can be adequate to support Metal Can with Non-BPA Coating (Monomaterial Steel) , provided that responsibilities and communication channels are clear.
However, if reliance on external support is high for adjustments related to can handling or seaming, there is a risk of extended downtime during the early implementation phase, when frequent tuning and troubleshooting may be required.

Recommendation
The company should identify the most frequent or critical malfunctions expected with Metal Can with Non-BPA Coating (Monomaterial Steel) —such as seaming defects, can jams or damage at specific transfer points—and ensure that internal technicians are trained to manage them autonomously where feasible.
At the same time, clear service agreements with equipment and packaging suppliers, including response times and scopes of intervention, will help minimise disruption when more complex technical support is needed.

Driver	Question #20	Answer

Technical feasibility	Does the Company have the capability and resources to plan and deliver staff training in case a new packaging solution is introduced?	Training could be organized if needed, but resources or processes are currently limited or would require ad-hoc adjustments.

Answer Risk Level: Medium

Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept)

Feedback

When training is possible but not fully structured, the company may face delays or gaps during the transition to Thin-Wall Aluminium Can with Oxide Barrier (AluLite Concept. Canning equipment can differ significantly from plastic or flexible lines, particularly in handling rigidity, pressure sealing, and labeling. Without a clear training plan, operators may struggle to adapt efficiently, increasing risks of operational errors, mechanical faults, or product inconsistencies.

Recommendation

It is advisable to define roles and resources for training delivery ahead of implementation. Training materials (e.g., videos, manuals) tailored to the specifics of metal can handling should be prepared in collaboration with equipment suppliers to support onboarding without major disruptions.

Lightweight Glass Jar with 30% Recycled Content (PCR Glass)

Feedback

When training is organised in an ad-hoc manner, the introduction of Lightweight Glass Jar with 30% Recycled Content (PCR Glass) may still be feasible, but there is a higher risk of inconsistent knowledge and practices between operators or shifts.
Without a structured approach, important aspects—such as safe handling of lightweight glass, correct response to breakage incidents or nuances in line setup—may not be communicated uniformly, which can affect efficiency and quality.

Recommendation
In this situation, the company should plan a focused, short training module specifically for Lightweight Glass Jar with 30% Recycled Content (PCR Glass), to be delivered to all relevant staff before and during its introduction.
Even using simple tools—such as quick-reference guides, checklists or short group briefings—can help standardise understanding of the new jar's requirements and reduce variability in day-to-day operations.

Metal Can with Non-BPA Coating (Monomaterial Steel)

Feedback

When training is organised on an ad-hoc basis, the introduction of Metal Can with Non-BPA Coating (Monomaterial Steel) may still be feasible, but there is a higher risk of inconsistent understanding and practices between operators or shifts.
Without a structured approach, important aspects—such as safe handling of lightweight cans, proper response to seam defects or nuances in line setup—may not be communicated uniformly, which can affect efficiency, waste levels and quality.

Recommendation

In this situation, the company should plan a focused, short training module specifically dedicated to Metal Can with Non-BPA Coating (Monomaterial Steel), to be delivered to all relevant staff before and during its introduction.
Even simple tools—such as quick-reference sheets at the line, short toolbox talks or brief group sessions—can help standardise knowledge on the new packaging and reduce variability in day-to-day operation.

9. Next Steps

Company 3 (Anonymised) can now access to the next steps, where you can:

- Evaluate the three proposed packaging concepts
- Select the most suitable option(s) for laboratory or production testing
- Receive a customized Sustainability Report for your chosen solution, which includes:
  - An overview of the EU and national regulatory frameworks on packaging sustainability.
  - A strategic roadmap, customized for your company, for its approach to EPD certification.
  - A comprehensive analysis of the alternative packaging solution, mainly focused on a comparative environmental assessment between the current and the proposed packaging solution.

This evaluation will be based on the analysis we're providing you, which takes into account technical, legal, economic, environmental, and social aspects, combined with an innovation risk assessment framework.

Examples of Packaging Alternatives and Rationale

Below is a non-exhaustive list of packaging alternatives identified across the analysed SMEs, together with the underlying rationale for their consideration.

The examples reflect practical, sector-relevant solutions assessed within the pilot activities, taking into account regulatory pressure, technical feasibility, production constraints, and sustainability objectives. All cases are presented in an anonymised and cross-sectoral manner.

1. Mono-material recyclable vacuum films (PE / PP-based)

Sector: Meat, Dairy, Fruit & Vegetables

Rationale:
Conventional PA/PE multilayer vacuum films provide excellent barrier properties but are difficult to recycle and increasingly penalised under EPR schemes. Mono-material PE or PP-based structures (optionally with thin EVOH layers) offer a transitional solution that preserves vacuum performance, sealability, and machine compatibility while significantly improving recyclability.

Why considered:

- Compatible with existing vacuum lines
- Lower environmental fees compared to composites
- Minimal disruption to production
- Recognised recycling streams in several EU markets

2. BOPE-based films with EVOH barrier

Sector: Dairy, Meat

Rationale:
BOPE (biaxially oriented polyethylene) films combine high mechanical strength with improved oxygen barrier when paired with EVOH, while remaining recyclable as a mono-material structure. They respond directly to regulatory pressure against complex composites without sacrificing shelf life.

Why considered:

- Maintains long shelf life (MAP & vacuum)
- Compatible with thermoforming and MAP equipment
- Reduced environmental footprint compared to PA/PE/EVOH
- Future-proof against PPWR requirements

3. Paper-based flow wrap with bio-coating

Sector: Meat

Rationale:
For products with short shelf life, paper-based flow wraps with bio-based or dispersion coatings allow significant plastic reduction while maintaining basic barrier and hygiene requirements. This solution aligns with SMEs prioritising minimal packaging and strong shelf branding.

Why considered:

- High consumer acceptance ("paper-first" perception)
- Excellent printability and branding
- Compostable or recyclable depending on coating
- Suitable for low-mechanisation environments

4. Molded fiber trays with compostable or cellulose films

Sector: Meat

Rationale:
Hybrid paper solutions using molded fiber trays combined with cellulose-based films enable visible plastic reduction while offering improved product presentation. They are particularly suitable for premium or flagship product lines rather than high-volume SKUs.

Why considered:

- Strong sustainability narrative
- Distinct shelf differentiation
- Reduced fossil-based plastic content
- Suitable for short shelf-life products

5. Recyclable cups for liquid dairy products (paper, rPET, PLA)

Sector: Dairy

Rationale:
Single-use plastic cups for dairy desserts face growing regulatory and consumer scrutiny. Alternative solutions balance liquid barrier performance, sustainability claims, and visual quality depending on the material choice.

Why considered:

- **Paper cups with dispersion barrier:** recyclable, natural look
- **PLA cups:** biobased, compostable (industrial)
- **rPET cups:** fully recyclable, high transparency, food-grade

Each option enables alignment with different sustainability strategies and price points.

6. Lightweight glass with recycled content (PCR)

Sector: Fruit & Vegetables (preserved)

Rationale:
For long shelf-life products requiring sterilisation, glass remains the most trusted material. Weight reduction combined with post-consumer recycled (PCR) content lowers CO_2 emissions while preserving full functionality and consumer trust.

Why considered:

- Maintains transparency and product visibility
- Fully recyclable with established infrastructure
- Compatible with existing automated lines
- Reduced energy use during production

7. Metal and aluminium cans with non-BPA or oxide barriers

Sector: Fruit & Vegetables (preserved)

Rationale:
Alternative rigid mono-material solutions such as steel or aluminium cans provide excellent barrier properties and long shelf life while aligning with circular economy principles. New coatings eliminate BPA-related concerns.

Why considered:

- Extremely long shelf life (2–3 years)
- High recycling rates in EU
- Strong regulatory compliance
- Lower carbon footprint versus traditional steel (aluminium options)

8. MAP half-tube films and seal-optimised structures

Sector: Meat, Dairy

Rationale:
Switching from traditional vacuum to MAP using half-tube films reduces seal failures and deformation issues, especially for irregular or bone-in products. This improves pack integrity while enabling alternative barrier structures.

Why considered:

- Improved sealing reliability
- Better shelf-life control
- Reduced product waste
- Compatible with advanced MAP lines