Packaging Target Guidance

Pathways to the Circular Economy

June 2021

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1 Introduction

'Packaging' is any material used to hold, protect, handle, deliver and present goods. This includes packaging for raw materials right through to finished goods to be sold or being sold. For example, pallets, boxes, bags, tape for wrapping, rolls or tubes sold as part of the item.

Packaging fulfils several critical roles for businesses. It protects food and drink raw materials and finished products on their journey from producer to processor to consumer. Packaging reduces the amount of wastage through damage in the supply chain and in the home. Packaging reduces spoilage and increases shelf life for the customer and allows consumers to keep perishable items such as food and drink fresher for longer. Other key roles packaging plays include providing product information – often required by law, enabling easy handling, opening and re-closing, identifying product tampering and enhancing hygiene and safety of the contents.

The term 'packaging optimisation' essentially means using enough of the right type of packaging to deliver the product in the right condition to be accepted by the consumer. The aim is to reduce the amount and types of raw material used and/or simplify the construction and reduce wastes produced. This process increases the potential for a circular economy in packaging materials. However, few businesses consider the effect of their decisions on other businesses up and downstream, or the consumers of their product. The optimal packaging design for your business may reduce the fitness for purpose for others down the chain which may result in more material or processing being required in total. In a food and drink context, it is important to also ensure any change does not increase the potential to generate food waste by, for example, reducing shelf life.

Packaging optimisation makes perfect business sense; it translates into less impact on the environment (e.g., less transport and less waste), reduced operational costs and it avoids contamination of food, which all together improve competitiveness and enhance the benefits for consumers while promoting the image of the producer.

Fully implementing a packaging optimisation project which increases the sustainability of a product rather than simply reducing the cost is however often a complex task. There is a wide choice of different packaging materials, sizes and formats to choose from, as well as other factors to consider such as brand recognition, quality and competitors, delivery partners, and the options available to and behaviour of the consumer. It is important therefore to begin an optimisation project with as much knowledge of the options and permutations as possible.

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2 Packaging in your organisation

A critical first step is to begin to identify some basic aspects of packaging use in your organisation.

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2 Packaging in your organisation

A critical first step is to begin to identify some basic aspects of packaging use in your organisation. To scope your opportunities, you could use the following questions to populate a table which will help guide your decisions. Be as specific as possible and include weights of packaging materials where you have that information.

When considering these questions consider the following typical uses for packaging in a business as a starting point.

Questions

What packaging materials do you use?
Are you currently buying and combining several different materials, and do you have multiple suppliers?

How much packaging do you place on the market?
How much material do you incorporate into your products or use to protect them during shipping, and are you obligated under producer responsibility regulations?

What is each layer or material of packaging required to do?
Is it for physical protection, hygiene, branding, etc?

What are your main sources of waste generation?
Do you know how much waste packaging material your individual products or processes generate, or do you only have data for the company as a whole?

Do you have any products or processes which generate a disproportionate amount of packaging?

What are the possibilities for the materials after use?
Can they be reused or easily recovered?

Where is Packaging Used or Packaging Waste Generated in Your Business?

Goods in (raw materials from the supply chain)	Raw material storage
Internal material/product movements	Quality Control
Customer samples	Maintenance purchases/ activities
Product despatch	Final Product Storage/ Warehousing
Owned haulage (transit packaging)	Returns

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3 Packaging Management Hierarchy

The Packaging Hierarchy is a framework for prioritising the most preferable options for management and the circular economy and is at the heart of any packaging optimisation review.

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The Packaging Hierarchy is a framework for prioritising the most preferable options for management and the circular economy and is at the heart of any packaging optimisation review. Origin Green members that apply the management hierarchy to their decision making will optimise the use of packaging for their product's supply chain. Ireland's Waste Action Plan for a Circular Economy, published in 2020, is intended to support the achievement of the objectives set out in the EU's Second Circular Economy Action Plan and Ireland's Climate Action Plan. This embraces circular economy principles, in particular by improving packaging design and promoting reuse and recycling. The packaging hierarchy supports a more circular economy by creating a framework for identifying and evaluating opportunities for improvement.

+ *For more information on the Circular Economy and Packaging, see Repak's "Packaging and Design for the Circular Economy" guide.*

Packaging Hierarchy Level		General Considerations
High	**Eliminate**	*Is the packaging layer an intrinsic aspect of the product? Could one or more layers be combined without loss of function?*
PRIORITY	**Redesign**	*Can you use a renewable or fully recycled material? Can you use an alternative material which has similar properties but higher potential for recovery or reuse? Can you design your packaging to be reused by the consumer? Can you use a compostable material?[1]*
	Reduce	*Can the amount of packaging required be reduced without loss of function? Can existing packaging designs be amended to reduce wastage?*
	Reuse	*Can you introduce a reusable or returnable alternative to single use packaging?*
	Recycle	*Can you increase the recyclability of the packaging?*
Low	**Disposal**	*Choose materials which have the least potential for environmental harm following disposal. Disposal includes end of life waste management such as energy recovery/incineration and landfilling which is the least desirable choice.*

1 Note it is not always considered that a recyclable/compostable material will have a lesser environmental impact than a non-recyclable or compostable material over the life cycle of the material or product.

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4 Packaging Targets in your Origin Green Plan

Process to establishing an Origin Green packaging target within an Origin Green Plan.

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4 Packaging Targets in your Origin Green Plan

4.1 Setting Strategic Targets

An effective sustainability improvement plan will typically begin with an examination of the context in which the business is operating. A goal which is set without considering the wider context and putting in place a realistic plan to achieve it is far less likely to succeed than one which has a solid foundation.

By understanding the internal and external forces which shape their decisions a business can begin to understand what factors of success they influence and which they are influenced by. Important questions of context to ask when considering strategic goals are more open and focus on connecting the current operations to the vision of the business at a future date, such as:

· **What are the strengths and weaknesses of the business / business model?**

· **What resources do we have and are likely to have available?**

· **Where is the market moving toward?**

· **Are we exploiting existing technology fully and what new technologies might become available?**

· **Is it possible there will be changes to the regulations we operate under?**

An effective strategic plan will identify those external factors which the business is influenced by but has little influence over and reduce them. For example, a business may use a specific raw material which has begun to be recognised as environmentally damaging. The strategic plan will recognise there is little the business can do to reduce the harm or prevent wider understanding of it, and prompt a search for an alternative raw material.

With an understanding of the current context and the desired future status, a business can describe in practical terms the work which needs to be done to connect them. It will also be able to identify those aspects of their products, processes, location or community from which it can derive/provide most value. Selection of the targets and target initiatives should consider the impact of the packaging types and quantities of the business to ensure the most significant opportunities for improving packaging sustainability are prioritised.

4.2 Key Considerations from a Management Perspective

What is being packaged and what is required of the packaging?
Do you have a firm understanding of what the packaging is required to do, for how long and under what conditions?

Does the targeted change align with the business strategy?
If the proposed change does not align with your wider strategy it may have negative value in the longer term. For instance, high proportions of recycled glass may tint clear bottles, affecting the brand identity or market positioning. Environmental sustainability is important but the social and economic expectations of the business must be considered also.

Who will be responsible for the project?
Do they have the required authority, competence and resources (financial, human and/or technological) to manage the target and deliver on associated initiatives?

How will the change be managed, especially if the change is part of a wider programme?
What internal and external resources are required; have the effects been discussed (change management) across the business to look for potential risks or related opportunities; are there particular scheduling commitments or deadlines to be met?

How will you engage staff and management with the target?
How will you motivate staff and encourage ownership of the target and maximise the chance of success?

Who outside the business needs to be involved in the target or have the results communicated to them?
Do you need to consult certain departments, logistics or material suppliers, customers or other stakeholders to ensure the achievement of the target, or could you draw on their input and expertise as partners?

4 Packaging Targets in your Origin Green Plan

4.3 Ensure Targets are SMART

The SMART acronym encourages targets to be set appropriately and better enable achievement of sustainable outcomes.

S **Specific.** The target should be defined as clearly as possible, using simple terms and directed to products or materials which have most impact or potential for improvement. Good targets are unambiguous.

M **Measurable.** The means of monitoring (manual or automatic meter reading, bills) should be identified and the unit of the metric confirmed e.g., are you measuring in kilograms of packaging and normalising by tonnes of production output? This unit will be the basis of the established baseline. See 4.4 on selecting target metrics. Consider how savings from an implemented initiative could be calculated to understand its effectiveness and whether further roll out or review of the initiative is necessary.

A **Achievable.** An improvement target should be based on a sound understanding of your current solutions and the potential for change. The business should consider setting ambitious targets that motivate and inspire the company to demonstrate leadership in their sector, however this should be balanced by what is achievable. Where practicable the following approach is recommended to set an achievable target;

- Identify potential initiatives across the company discussing opportunities both incremental or radical where packaging is used and waste created, considering goods supplied to and produced by the business as well as during production. Include representatives involved with production, purchasing/finance, marketing, trusted suppliers of equipment etc. and consider how you capture 'ideas' from the wider workforce e.g., a suggestion box in the canteen.
- Calculate potential savings from these proposed initiatives making note of estimates, assumptions whilst being conservative with savings where uncertainty lies.

- Discuss with management what priorities are e.g., no/low cost initiatives in year 1, capex initiatives in year 2 with a simple payback within a desired period or larger capex investment projects where life-cycle cost analysis has been applied to obtain the true benefit over the lifetime of the change.
- Total the potential savings of all proposed initiatives for the plan to calculate your Plan target. Then consider annual milestone targets based on the likelihood of implementation of the initiatives across the Plan period.
- A quantified target such as a *10% reduction in the weight (kg) of packaging placed on the market normalised against production output (tonnes product) over a 5 year plan period* could either be split into 4% reduction each years one to five or based on planned initiative implementation e.g., 8% year one, 6% year two, 2% years three, four and five. You should not set an improvement target without a reasonable understanding of the initiatives you will undertake and how they will contribute to achieving the target.

R **Responsibility.** Assigning responsibility is critical to drive progress, reporting and changes where the target and/or initiatives are not being delivered as planned. Staff without sufficient authority or resources to drive change cannot be expected to achieve targets assigned to them. Delegating a responsible person per initiative is a requirement of the Origin Green Programme. If the company are lacking in available resource a training initiative may help resolve this issue.

T **Time-bound.** Every action in business should have a deadline. Progress towards a goal will be more consistent and likely if those responsible for it have a clear sense of the deadlines against which their progress will be assessed. Milestone targets for each Plan year are expected to ensure appropriate reporting and where necessary, corrective action is taken to get the target on track or revised. What is considered a reasonable amount of time to complete an initiative to balance resource capacity but drive improvements sooner rather than later?

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4 Packaging Targets in your Origin Green Plan

4.4 Changes to Packaging Targets

Targets and associated initiatives can be amended where clear justification is provided. For instance, a drinks manufacturer may introduce a new line in the premium market which bottled in glass rather than plastic. Their target of a 10% reduction in the weight (kg) of packaging placed on the market normalised against production output (tonnes product) over a 5 year plan period is potentially no longer achievable as glass is much denser than plastic and this new product may increase the weight of packaging per unit produced.

In other words the baseline and targeted performance may require amendment to remain a **SMART** target. The Member is encouraged to focus on the goal they wanted to achieve rather than focusing on achieving the original target. In this example the Member would be expected to demonstrate the effect of achieved and anticipated sales on their packaging output.

4.5 Selecting Packaging Target Metrics

It is a requirement that your Origin Green packaging target has an appropriate metric (a key performance indicator) which will allow your company to determine objectively whether your target is being met as planned. Typically packaging placed on the market is normalised against the main influencing factor (for Origin Green members this is most commonly production output units), rather than simply measuring absolute weights or volumes. This should ideally be production units rather than sales given produced units could be stored for a period before sold impacting the usefulness of the production based KPI. Improvements in packaging optimisation are typically include the following:

Key Performance Indicator	Typical Units
Reduction in weight of material used	Kg packaging placed on market per tonne of product produced.
Weight of reusable packaging used	Percentage of production in reusable container. Kg reusable packaging placed on market per tonne of product produced.
Weight of Recyclable packaging used	Percentage of recyclable material used in product produced. Percentage of range which has improved recycling information on it.

Once KPIs have been integrated into your M&T system the next step is to seek optimum performance for your packaging using this data and identify opportunities to optimise packaging performance.

4.6 Monitoring and Targeting (M&T)

M&T is a resource management technique that can be applied in any type and size of company. The purpose of an M&T system is to enable an understanding of your packaging consumption and production data. Identify factors which impact upon consumption and waste and set appropriate targets that will allow your company to review performance. Essentially, an M&T system will provide a baseline and ongoing performance analysis technique to support your resource management activities. The design of an M&T system should be based on the data collected during the scoping of your packaging use (see section 2) and will identify the major materials and uses as well as the areas of concern or opportunity for improvement.

Consumption data can be collected manually (from inventory or billing) or automatically (for example from throughput meters on flow wrap machines).

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5 Recommended Target Initiatives

Recommended packaging initiatives to deliver the desired packaging target results.

5 Recommended Target Initiatives

Reduce the complexity of packaging placed on the market

Packaging design:
Redesign packaging to reduce the number of materials used while maintaining product protection and quality levels.

Adhesives:
Reduce or remove the amount of sealants and adhesives used on secondary and tertiary packaging.

Remove separate labels:
Introduce direct print to remove adhesive labels which are considered a contaminant.

Reduce the amount of virgin material used to make packaging

Packaging design:
Redesign packaging to eliminate elements which are not critical to product protection or hygiene levels.

Recycled content:
Source packaging with increased quantities of certified recycled materials.

Lightweight packaging:
Reduce the thickness of materials or simplify designs to reduce the amount of material required to fulfil the physical specification.

Reduce the amount of material wastage in the packaging process

Gluing:
Introduce hot melt stabilisation to glue lines to reduce quality defects.

Packaging redesign:
Optimise packaging size and shape to reduce offcut, trimmings, etc. Engage packaging suppliers to increase the number of packaging units they can make from a given quantity of substrate through product redesign.

Packaging redesign:
Transition to shelf-ready packaging to eliminate secondary packaging layer.

Quality monitoring:
Identify and eliminate causes of defect in packaging.

5 Recommended Target Initiatives

Reduce likelihood of food waste arising

Resealable containers:
Offer a resealable package that increases the consumption window for items of more than a single portion.

Consumer information:
Highlight storage advice on label.

Substitute materials that have a low recycling potential for others with similar performance

Low value polymers:
Design out plastics such as Expanded Polystyrene (EPS) and Poly Vinyl Chloride (PVC).

Colour detection:
Specify plastic items are clear or coloured so as to be detectable with Near Infra-Red (e.g., move from black to clear or grey plastic trays and liners).

Reduce the costs of logistics

Pallet building:
Review pallet stacking patterns to increase loading height or density, or increase cycle rate.

Pallet material:
Consider plastic pallets. Though initially more expensive, plastic pallets give you more control over the condition of your pallets.

Mechanisation:
Train staff to use palletisation machines effectively to improve cycle rate, reduce rework and reduce resource use.
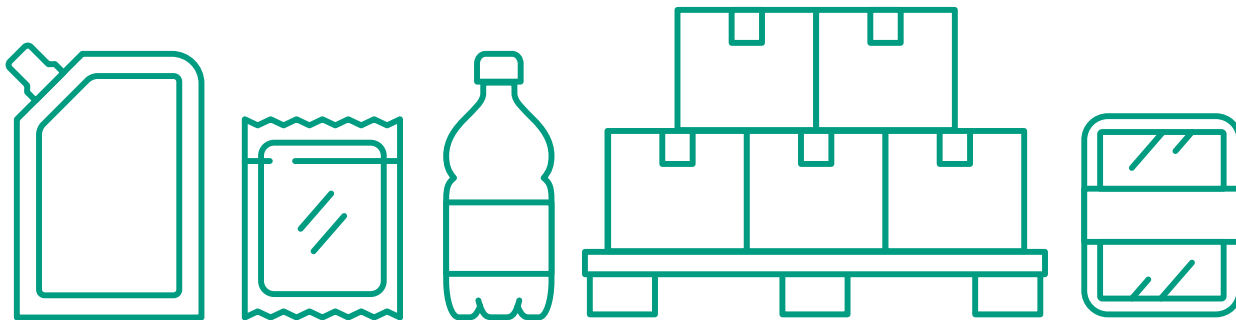
Mechanisation:
Install skid monitors to tension wrap correctly.

Material optimisation:
Optimise the thickness of pallet wrap for the weight of the load.

Reduce ullage:
Reducing empty space in primary, secondary and tertiary packaging increases the amount of product shipped per pallet.

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5 Recommended Target Initiatives

Support increased recycling on site

Waste Segregation:
Introduce segregation for different plastic polymers (PET, PP, films, etc.).

Waste Segregation:
Introduce segregation for different materials – paper, card, plastic and glass.

➕ *For more target initiative suggestions, see Repak's "Packaging and Design for the Circular Economy" guide.*

Support increased recycling or recovery among consumers

Detachable linings:
Design plastic linings or windows so that they can be easily removed from the carcass of the pack to improve purity of waste streams.

Salience of recycling information:
Make recycling information more salient on packaging to improve waste management.

Salience of recycling or recovery information:
Mark packaging clearly to encourage consumers to clean it before recycling.

Salience of recycling information:
Highlight the use of fibre from non-tree sources such as palm, bagasse or rice which may not be suitable for recycling in the same stream as paper.

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6 Further Support and Information

6 Further Support and Information

6.1 Repak & Repak Plastic Pledge

Repak offer a range of advice and support to members looking for ways to reduce the impact of their packaging, including the Prevent and Save Programme which includes:

· The opportunity for an on-site visit from an experienced team of packaging technologists to assess the business's packaging systems.
· A detailed survey and report on ways to optimise packaging, prevent waste and maximise recycling, which is tailored to the business including use of innovative, environmentally friendly or lighter weight packaging material.

Repak's Plastic Packaging Recycling Strategy 2018–2030 sets out a clear path of actions for Repak Members. A key action by Members is to commit to a Plastic Pledge which will make a significant contribution towards meeting Ireland's packaging recycling targets as set by the Circular Economy Package (CEP). The key plastic target areas are:

1. **Prevent Waste**: Focus on prevention of plastic packaging waste by minimising single use packaging and promoting packaging reuse where possible.
2. **Support Circular Economy:** Support Ireland to deliver the Circular Economy Package plastic recycling targets of 50% of all plastics by 2025 and 55% of all plastic packaging by 2030, as set by the European Commission.
3. **Simplify Polymers:** Reduce complexity within the plastic packaging supply chain by simplifying polymer usage and eliminating non-recyclable components in all plastic packaging by 2030.
4. **Used Recycled:** Help build a Circular Economy for used plastic packaging by increasing the use of plastic packaging with a recycled content.
5. **Avoid Food Waste:** Ensure the reductions in use of plastic packaging do not jeopardise our opportunities to achieve Ireland's goal of a 50% reduction in food waste by 2030 as set out in Ireland's food waste charter. Plastic plays a role in preserving a large number of food products.

Initiatives which support the Plastic Pledge targets have been included in **section 5.**

The new **Repak "Packaging & Design Guide for the Circular Economy"** provides Repak members with valuable information on the various stages involved in packaging recycling, and how the design of packaging impacts on those stages, potentially rendering materials non-recyclable.

This interactive guide takes you on the journey from collection of packaging material for recycling (paper, metals, plastics and glass) through to the reprocessing facility stage, where a brand new item may be made from packaging discarded in a recycling bin. The Guide also answers some of the most frequently asked questions about packaging design and recycling.

To further improve the recyclability of packaging placed on the Irish market and incentivise eco-design, Repak is also introducing Eco-modulation of fees for plastic packaging in July 2021. This is viewed as a key element of the new EU Waste Framework Directive in helping to achieve the ambition of the EU's Plastic Strategy for 100% recyclable packaging by 2030.

The Packaging and Design Guide outlines the plastic packaging categories under this new Repak Eco fee modulation structure, and lists the packaging items that are currently recycled and not recycled in Ireland.

➕ *View the full Repak Packaging Design Guide here.*

6 Further Support and Information

6.2 Pakman Awards

The Pakman Awards are the premier national environmental awards that recognise excellence in recycling and waste management among businesses, organisations, community groups and individuals in Ireland.

Key Pakman Award Target Areas:

· Reduction of single use plastics relate to the Single Use Plastics Directive.

· Lightweighting targets are based on what is normally reasonable as well as a stretch target of over 20%.

· Targets for plastics recycling rates relate to the Packaging Waste Directive.

· Movement from hard to recycle plastics/ composites.

· Recycled content aligns to the SUP directive and opportunities in relation to non-PET bottle packaging. Signatories to the EU's Circular Plastics Alliance may be most eligible for a gold award.

· Evidence must be shown of due diligence during packaging changes to ensure that food waste did not increase. Food waste charter signatories may be most eligible for a gold award.

6.3 ReCreate

ReCreate is a social enterprise and registered charity making art materials and educational supplies accessible and affordable to every sector of the community for all kinds of creative purposes. They work with local and national businesses to collect unwanted and surplus items, for use in early childhood education, schools, colleges, special needs groups & community centres, and by individuals for art, craft, theatre and creative projects of all kinds. ReCreate are inspiring tomorrow's inventors, engineers, and entrepreneurs by making unique and unusual open-ended materials freely available at a fraction of the price of high street art shops.

6.4 WRAP
Waste and Resources Action Programme

WRAP works with governments, businesses and communities to deliver practical solutions to improve resource efficiency. They provide a safe, non-competitive space where businesses can share best practice and collaborate to deliver change. Food and Drink and Plastics are priority sectors for WRAP, and they undertake extensive research into the economics, technology and behaviours that enable greater resource efficiency and a more circular economy.

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