

Paper, Forest Products & Packaging Practice

Reusable packaging: Key enablers for scaling

Reusable packaging isn't new, but the concept is gathering renewed momentum as sustainability pressures grow. Four enablers could help leaders overcome current barriers and scale beyond the niche.

This article is a collaborative effort by David Feber, Felix Gruenewald, Jon Haag, Daniel Nordigården, Markus Pley, and Justus Spengler, representing views from McKinsey's Paper, Forest Products & Packaging Practice.



Refillable or reusable packaging¹ is likely the oldest packaging solution still in play. Since the emergence of single-use packaging, it has been widely displaced as the focus has switched to other areas, such as brand differentiation needs, convenience, and cost efficiency. Today, reusable packaging is mostly used in selective segments within a few countries: for example, refillable beverage bottles. However, global sustainability pressure from regulatory authorities and consumers is leading to renewed interest in reusable solutions within the packaging value chain. Several new start-ups and pilot solutions have been launched, but we have yet to see any significant scale beyond a specific segment or country. Without a change in trajectory, we forecast the global market to reach only 5 percent penetration or less by 2030, although this will vary by region and end use.

One simple explanation for this is that there are several limiting factors within the current packaging value chain, mainly linked to acceptance, lack of infrastructure, regulatory push for overall packaging reduction, product safety, and cost. Nevertheless, several accelerators could help reusability to scale significantly beyond current penetration and become a disruptor in packaging, fostering brand loyalty. These include increased consumer demand for truly circular solutions, regulation promoting reuse, and adaptation of products and stores to accommodate reusable packaging. Consequently, reusable packaging is currently at a crossroads, destined either to remain a niche solution or to go on to scale as the new standard for certain segments. In this context, we have identified four enablement areas that, if correctly addressed, could dramatically help to boost the penetration of reusable packaging over the next decade.

Reusable packaging undergoing a revival

It is easy to forget that reusable containers and bottles used to be the standard packaging format historically. Large refill systems were in place during the past century for milk, wine, and other beverages. As single-use packaging was introduced and optimized—becoming both a more cost-efficient option and a means of differentiation for brands—reusable packaging was displaced except in certain geographies (such as the Nordic countries, Germany, and Latin America, with deposit systems in place for bottles) and specific segments (for example, water and soft drinks). Now, with consumers' rising sustainability concerns² and regulatory pressure³ over single-use packaging (particularly for products with low circularity and high leakage into the environment), interest in reusable packaging has grown dramatically once again. In fact, several countries have started to impose national single-use bans, taxes, and quotas promoting the adoption of reusable packaging; examples include the following:

- **France.** Specific reuse targets have been introduced (5 percent by 2023 and 10 percent by 2027) with an increased focus on standardization of containers as an enabler; there will also be a ban on premises serving via single-use solutions from January 2023.
- **Germany.** Restaurants, bistros, and cafes that sell food or drinks “to go” are obliged to also offer their products in reusable packaging from 2023.
- **South Korea.** Disposable cup deposits for coffee shops and fast-food outlets were introduced in 2022.

In addition, we have observed a significant increase in the number of start-ups developing reusable

¹ Referred to as reusable packaging throughout the rest of the article.

² “Sustainability in packaging: Inside the minds of global consumers,” McKinsey, December 16, 2020.

³ “Sustainability in packaging: Global regulatory development across 30 countries,” McKinsey, February 7, 2022.

packaging, which is now being piloted—typically in food and food service end-use areas and also in new segments such as beauty and personal care (with refill pouches) and in e-commerce. Nevertheless, these introduced solutions remain niche and are typically linked to premium products.⁴ What, then, are the barriers to scaling, how large could reusable packaging become, and what enablers need to be in place? In the following sections, we address these questions and suggest key focal points for industry leaders to address if reusable packaging is to scale beyond current usage.

Current barriers and trajectory for reusable solutions

Reusable packaging can be divided into four different solutions⁵:

1. **Refill at home.** Users refill their reusable containers at home (for example, shampoo pouches and durable aluminum or glass bottles for refilling at home).
2. **Return from home.** Packaging is collected from home by a pickup service (for example, by a logistics company).
3. **Refill on the go.** Users refill their reusable containers away from home (for instance, at an in-store dispensing system).
4. **Return on the go.** Users return the packaging to a store or drop-off point (such as a deposit-and-return machine or mailbox).

However, all four concepts currently face several barriers mainly linked to cost, supply chain, acceptance, and food safety (for further details, see the sidebar “Reusable packaging solutions face multiple barriers”).

Given current barriers and pace of development, we project that reusable packaging as a base case would reach only 5 percent share or less of the global packaging market by 2030 within a handful of segments that offer a clear rationale for further penetration:

1. **Beverages.** Existing deposit-and-return systems form a basis for wider adoption of reusable glass or plastic containers.
2. **Food service.** Take-away food-standard container loops are in their infancy but have the potential to spread across large cities. Quick-service restaurants are reacting to sustainability pressures and running trial solutions (for example, this is becoming mandatory in Paris, France).
3. **Packaged food.** In particular, this applies to low-no-barrier property items like dry bulk products (such as rice, flour, and pasta).
4. **Home care.** Currently, there is limited uptake complementing refill/concentrate formats for standard bulk products (such as detergent).
5. **E-commerce packaging.** The rapid increase of e-commerce during the pandemic poses an extra focus on e-commerce packaging to be more sustainable and generate less waste in consumers' homes. Reusable packaging can be one route ahead.
6. **Retail secondary packaging/transport packaging.** Many food products could be delivered to retail stores in reusable crates (for example, SRS⁶ crates in Sweden that became a standard 20 years ago).

⁴ David Feber, Oskar Lingqvist, Daniel Nordigaarden, and Matthew Seidner, “2022 and beyond for the packaging industry’s CEOs: The priorities for resilience,” McKinsey, March 14, 2022.

⁵ *Reuse: Rethinking packaging*, Ellen MacArthur Foundation, 2019.

⁶ The Swedish Return System (SRS) is a shared system of reusable crates and pallets used by the country’s food industry.

Reusable packaging solutions face multiple barriers

Both reusable and refillable packaging face numerous barriers in terms of logistics; cost; hygiene, food safety, and quality; convenience; and acceptance in the supply chain.

Logistics

Reusable packaging

- Reverse logistics can be complicated.
- Food and beverage containers are often bulky to transport.
- In terms of total life-cycle assessment, long-distance transportation is high in CO₂ emissions.

Refillable packaging

- Rules on food safety for bulk-distribution volumes in retail apply.

Cost

Reusable packaging

- Reusable packaging is typically more expensive than single-use packaging.
- Investment—space and labor are needed for collecting and washing packaging.

- Brand owners desire packaging variety.

Refillable packaging

- Cost to consumer is lower, but margin acceptance by retailer is potentially in question.

Hygiene, food safety, and quality

Reusable packaging

- Recycled material must be food-grade for specific uses.
- Quality assurance and consumer trust are key.
- Food residues can attract pests and vermin at collection points.

Refillable packaging

- Food-grade refillable packaging is more difficult than, say, soap containers, requiring better containers and consumer education to use correctly.

Convenience

Reusable packaging

- There is a trend to smaller portion packs (given smaller households).

- Consumers' willingness to return is limited.

Refillable packaging

- It takes time and effort for refill, limiting broad scaling in all categories.

- This is only possible for certain product categories.

Acceptance in the supply chain

Reusable packaging

- Standardized packaging can conflict with brand differentiation.
- There is a lack of incentives for consumers and producers.

- The complexity of supply chains is increasing.

Refillable packaging

- Multilayer pouches fueling the current refill trend are not fully sustainable.
- Self-refilling requires efforts such as “bring your own container.”

Development up to 2030 remains uncertain, and a handful of accelerators—consumer demand, legislation, industry standards, packaged-goods adaptation, packaging innovation, logistics optimization, and data generation—will determine how the reusable packaging market will evolve (for more context, see the sidebar “Several accelerators will determine how the reusable packaging market

will evolve”). Brands might seize the opportunity to enhance customer loyalty by adding a switching cost for consumers for reusable packaging (to discourage brand substitution) while also offering consumers a better experience with more durable packaging that is consciously returned to do good for the environment. Beyond our base case, we see two further potential scenarios (exhibit).

Several accelerators will determine how the reusable packaging market will evolve

The following accelerators could affect the evolution of the packaging market:

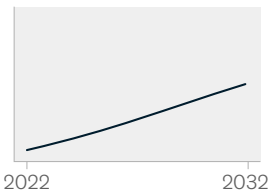
- **Consumer demand.** There could be increasing demand for reusable packaging in an effort to reduce personal footprint—a feeling of creating less “waste.”
- **Legislation.** Imposed regulations could include banning certain disposable packaging categories or offering incentives to sustainable producers.
- **Industry standards.** Industry standards harmonizing reusable packaging lead to network effects, facilitating widespread adoption and sharing of investments/costs.
- **Packaged-goods adaptation.** Some products are increasingly suitable for reusable packaging (for example, laundry powder instead of liquid detergent).
- **Packaging innovation.** Disruptive types of reusable packaging can overcome limitations in hygiene/food safety and are attractive to consumers.
- **Logistics optimization.** An optimized network of transport, processing/cleaning, and storage could result in reduced cost and increased convenience for consumers.
- **Data generation.** Creating and analyzing data that proves the benefit of reusable packaging can optimize use patterns at local/regional levels.

Exhibit

There are three different scenarios for how the reusable-packaging market will evolve.

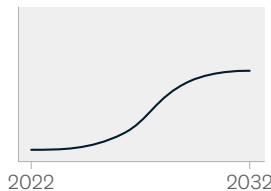
Possible scenarios for growth of reusable-packaging market, 2022–32

1
Gradual development along with customer preferences
 Base case: <5% penetration



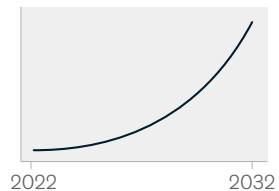
Key players in the industry respond to public pressure for sustainable packaging in EU and North America (spurred by increasing consumer awareness and demand). Most other players follow trend.

2
Regulation-driven step change
 8% penetration



EU significantly strengthens regulation in retail and service industries to reduce waste originating from single-use packaging (eg, ban, tax). Several other countries and US states soon follow suit.

3
Exponential scaling through disruptive innovation
 >10% penetration



Innovative players or start-ups disrupt the market by introducing innovative products and offerings (cost-effective, incentive-based, convenient, hygienic). Solution soon becomes industry standard.

Key enablers that need to be addressed proactively

Reusable packaging should aim to support four key end goals of sustainable packaging:

1. Decrease the amount of packaging leakage into the environment.
2. Use less packaging (that is, reduce the number of packages put on the market).
3. Increase the circularity of materials (such that all raw materials should be used as many times and for as long as possible).
4. Create fewer greenhouse-gas emissions (GHG) compared with single-use packaging.⁷

With these four end goals, the suitability and “true sustainability” of reusable packaging—compared with incumbent solutions—will very much depend on the use case considered. In some cases, single-use packaging will be more sustainable, and in other cases, reusable packaging will perform better. Industry leaders will need a rigorous approach to assess and understand suitability in the different end-use applications considered.

Considering the current barriers, four enablers would need to be in place for reusable packaging to scale and support these objectives:

- **Cost at par or lower than the incumbent solution.** For a consumer to bring back a container to a store or food service restaurant, there needs to be a clear incentive. In most cases, this would mean an expectation of lower costs, given that consumers will have to do more work than with a single-use-packaging format. Similarly, for brand owners and other players in the value chain, moving into reuse format will mean increased capital expenditures to upgrade filling and converting machinery. There will need to be a potential to reach cost parity or even

to lower cost by moving into a reuse system. Practically, this will mean developing a cost-efficient ecosystem with infrastructure across the entire value chain, from brands to converters, filling operations, and retailers—and with much greater harmonization and standardization of containers than there is today. There will also need to be cost degression (lower costs per unit) for at-scale systems, ensuring a sufficient (and proven) number of uses per container to reduce costs below the single-use alternative, including potential single-use fees or taxes. At the same time, brand owners and players in the value chain will need to ensure equal or lower GHG emissions compared with existing solutions. As a result, a price premium would be acceptable only when there are clear sustainability benefits for all in the value chain. A critical factor here will be data generation to help prove that reuse is better than single use for specific applications: for example, every operator, brand owner, or converter would need to know that each container is used at least 30, 50, or more than 100 times.

- **Balanced packaging and process harmonization.** Packaging plays a critical role in supporting the consumer decision journey and facilitating the consumer’s need for convenience.⁸ To scale, more standardized packaging and cross-utilization among different products, brands, or stores (or restaurants) will likely be required. This also means, if moving to a large-scale reuse solution with standardized containers, some of the differentiation that packaging offers today might be at risk for brands. We believe this will be a major challenge if not properly addressed. To manage this issue, we suggest that industry leaders should prioritize less highly differentiated products as frontrunners. Unique products that differentiate through distinctively shaped packaging could consider developing additional characteristics through labelling and late-stage customization

⁷ “True packaging sustainability: Understanding the performance trade-offs,” McKinsey, July 28, 2021.

⁸ David Feber, Lea Kobeli, Oskar Lingqvist, and Daniel Nordigården, “Beyond COVID-19: The next normal for packaging design,” McKinsey, July 15, 2020.

to communicate content, allergies, hazards, and best-before data, as well as differentiation (for instance, by using digital printing). These labels would also need to be fully washable to go back into the recycling stream.

— **Meeting product format and hygiene requirements.** Packaging plays a fundamental role in containing and protecting the product (for example, by helping to preserve food, to extend its shelf life, and to minimize waste). Moving to a reuse system will require retaining the same safety measures, which will determine suitability for refillable solutions. We see two areas that will be the frontrunners for higher adoption:

- nonperishable products and those with low barrier requirements (such as dry bulk items like rice or pasta, concentrates for at-home use, or high-acidity products with long shelf life not requiring sophisticated primary packaging)
- products with high insulation requirements that can be better met by (more expensive or material-heavy) reusable containers (such as home delivery of food)

— **Ecosystem and regulatory framework beyond country level.** For large-scale penetration of

reusable-packaging solutions, several factors will need to be in place beyond the solutions themselves—not least support for consumer education and, in particular, harmonized standards across country boundaries. Additionally, new business models might be needed to provide incentives to not only the consumer but also a number of partners within the reusable-packaging value cycle so as to harmonize more rapidly across nations. Having clarity on this will enable industry leaders to develop infrastructure for collection and central cleaning and quality control on a larger scale with higher system coordination among brands, converters, filling operations, and retailers.

Clearly, these areas will be complex for any individual player to address alone. Instead, partnership across the packaging value chain will be required for successful implementation.

Reusable packaging could scale to broader adoption within the packaging value chain as an alternative sustainable solution. However, industry leaders will need to overcome barriers ranging from reducing costs and finding ways to share investments to harmonizing beyond the country level for this to be successful.

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