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A Guideline to Implementing Reusable Packaging Systems in Businesses

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Introduction

Today's businesses face growing pressure to reduce single-use packaging waste amid rising environmental concerns and new regulations. In Europe, packaging waste reached a record high of ~189 kg per person in 2021 – and if no action is taken it is projected to increase by another 19% by 2030 (European Commission, 2024). Governments are responding with policies like the EU's new Packaging and Packaging Waste Regulation (PPWR) that will **require a shift toward reuse systems** (European Commission, (n.d.)). This presents a practical opportunity for companies to implement reusable packaging within their operations. Such systems can cut costs and environmental impact dramatically. For example, a recent UK analysis found that moving to 30% reusable packaging in grocery retail could reduce total system costs by 12–22% and cut packaging-related CO_2 emissions by ~95% (GoUnpackaged, 2024).

Equally important, consumers are increasingly receptive to reuse solutions – **77% of Europeans surveyed hold a positive view of reusable packaging** (Stora Enso, 2023). Major brands are beginning to pilot reusable or refillable offerings, and a whole industry of reuse service providers is emerging. In fact, the 2024 European Reuse Barometer report found that **80% of reusable packaging solutions have return rates above 75%**, and **65% of reuse systems in the retail sector are already operating profitably** (Zero Waste Europe, 2024). For businesses, this signals that well-designed reuse systems can be both sustainable and financially viable.

In Georgia, these global and European trends are highly relevant. The country currently generates around 900,000 tons of municipal waste per year, with packaging making up a growing share. Waste management infrastructure is still developing, and recycling rates remain very low, with most packaging ending up in landfills. At the same time, Georgia is aligning parts of its legislation with EU standards through its Association Agreement, including commitments on waste prevention and extended producer responsibility. This creates both challenges and opportunities: local SMEs and retailers are beginning to test reuse and refill models, often inspired by European pilots, while municipalities are exploring ways to reduce plastic leakage into rivers and the Black Sea. Surveys show that Georgian consumers, particularly in urban areas like Tbilisi, are increasingly aware of packaging waste and open to more sustainable alternatives, though convenience and cost remain decisive factors. (GIZ, 2024).

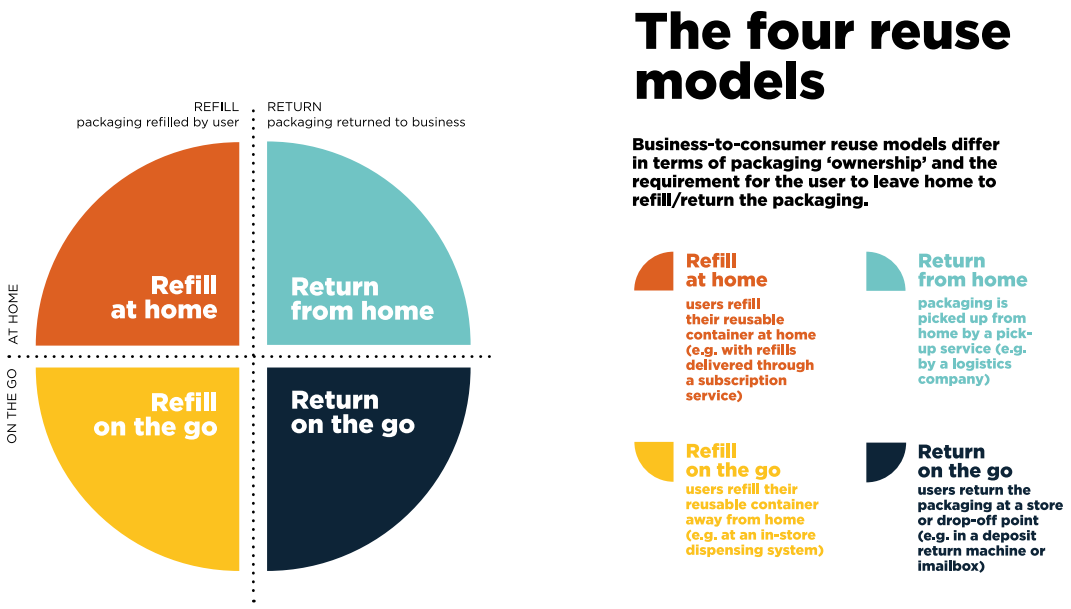
The purpose of this manual is to guide practitioners through implementing reusable packaging systems, from understanding the main models to overcoming common challenges, using insights, case studies, and data from recent reports and real-world pilots. By placing the European experience in dialogue with Georgia's emerging initiatives, the manual aims to provide a practical roadmap for companies, municipalities, and civil society actors to accelerate the shift from single-use to reuse. Reusable packaging is becoming a strategic opportunity to reduce waste, cut costs, and strengthen customer loyalty in a circular economy—both in the EU and in Georgia.

Chapter 1

Overview of Reuse Models & System Layers

1.1 Types of Reuse Models – Return vs Refill

Industry leaders including the Ellen MacArthur Foundation classify business-to-consumer reuse systems into four main models (The Ellen MacArthur Foundation, 2020). These differ by who refills the container (the user or the business) and where that happens (at home or on the go). Understanding these models helps a business choose approaches that fit its products and customers:



- **Return on the Go:** The business owns the packaging and provides it to the customer, who later returns the empty packaging at a store or drop-off point (e.g. a café counter, reverse vending machine, or designated kiosk). The business (or a third-party service) then cleans and redistributes the packaging. Deposit-return systems for beverage bottles or takeaway food containers are classic "return-on-the-go" models – customers pay a small deposit and get it refunded upon return of the package. This model fits on-the-go consumption and is very popular: in Europe, ~87% of reuse solutions surveyed in the 2024 Reuse Barometer use a return-on-the-go system. It also shows that these models can generate high return rates are achievable: one study notes that post-paid deposits (where customers are charged later if they don't return an item) yielded return rates over 95% in e-commerce and takeaway trials (Zero Waste Europe, 2024). Partnering with postal or courier networks also boosts returns: having customers send back empties via national mail by using pre-paid mailers, greatly improving convenience.

In Denmark, the municipality of Aarhus launched a citywide deposit system. Any business that provides takeaway food and drinks (e.g. cafés, restaurants), can offer reusable takeaway cups. Consumers can then bring them back to any of the 29 return points spread across the city. They are then cleaned in a central washing hub (TOMRA, s.d.).

- **Return from Home:** The packaging is picked up from the customer's location by a collection service (or during the next delivery), rather than the customer bringing it back themselves. In this case the customer's location can also mean location of the business. This model is common for e-commerce, subscription deliveries and business-to-business deliveries. For example, a grocery delivery service might drop off products in reusable boxes and collect empties from the doorstep on the next round. The business or provider retains responsibility for cleaning and reusing the packaging. Return-from-home systems prioritize user convenience – a crucial factor since about **22% of consumers say that having to return packaging is too much effort** (Stora Enso, 2023).

In Georgia, **CAMPA** is an example of Return from Home models: consumers use and hand back bottles or cups on site (e.g. cinemas, restaurants). They are then returned to the business in a central warehouse (Campa), after which it is cleaned and returned into the production cycle.

- **Refill on the Go:** Customers use their own container (or a provided reusable container) and refill it away from home, typically at a store, kiosk, or dispensing station. In this model, the customer is responsible for keeping and cleaning their container between uses. Bulk food stores and in-store refill stations for products like detergents, coffee, or cereals exemplify refill-on-the-go. This approach can enhance user experience by letting customers buy exactly the quantity needed (often at lower cost). Major retailers have piloted in-store refill stations – for example, dispensers for dry goods or liquid pumps for cleaners. While refill-on-the-go taps into a strong desire, it still requires consumers to change habits (bringing a container or using one provided): 83 percent of people wish they had access to more refillable products and 16 percent are currently are buying refills (Packaging Insights, 2019). Ensuring the process is convenient and hygienic is key, as concerns about cleanliness can deter uptake if not managed (in one survey, **78% of consumers** said they would worry about hygiene if a product came in a reused container) (Stora Enso, 2023). In the case of refill, as presented in section 4.1 of this report, the PPWR specifies that companies are entitled to require consumer containers to meet sanitary standards, and may lawfully decline to refill any container they judge to be dirty or unsafe. Though, companies "bear no liability for hygiene or food safety issues that arise from the use of containers provided by the end user". In practice, in Europe, these refill on the go models rely on the fact that "each container must be visibly clean" – the customer's responsibility – and routine visual checks by staff suffice.

In the UK, Lidl & Algramo allow customers to bring or borrow containers and refill household cleaning products and dry goods. The stations are integrated into store aisles, making the refill option permanent and accessible (Lidl, 2022).

- **Refill at Home:** Customers receive products in a form that allows them to refill a durable container at home. For instance, they might buy concentrated refills in lightweight pouches or cartridges (to pour into a permanent bottle) or exchange empty containers for full ones via delivery. The consumer manages the primary reusable container (keeping and cleaning it), while the business supplies the product refills. Common applications include concentrated cleaning product refills (add water at home), beverage syrup systems, or subscription models that deliver refill pods. Refill-at-home can significantly cut packaging waste and shipping volume – e.g. shipping just a concentrate or tablet instead of a full bottle of liquid. It also boosts customer loyalty through subscription convenience. However, businesses must ensure the refill packaging itself doesn't negate the environmental benefits (ideally refills use minimal or fully recyclable packaging). When done right, this model turns packaging into a

long-term asset owned by the user, with the company benefiting from repeat sales and a greener brand image.

> In the UK, Nivea EcoRefill (Beiersdorf) offers hand soap solid tabs that consumers use to refill their reusable durable dispenser at home. Avoiding the transportation of water and single-use packaging reduces the use of plastic and the impact of transportation. (Nivea, s.d.)

In practice, these models can be combined or offered in parallel. For instance, a grocery service might offer both a return-from-home option (collecting empties for some items) and refill-at-home products (like concentrate pods) in its lineup. Each model has advantages for different contexts: Return models place more responsibility on the business to retrieve and sanitize packaging, whereas Refill models shift more responsibility to the consumer. Companies should choose the model(s) that align with their product type, distribution channel, and customer behavior. All four have proven examples in the market – reuse now spans everything from beverage bottles and takeaway meal boxes to household product packaging. Georgia's businesses can draw from these global models to design a system that fits local infrastructure and consumer preferences.

1.2 System Layers & Key Decisions

Implementing a reuse system requires coordinating several operational "layers." We break these into seven core components (plus two optional layers), each of which can be managed in-house or outsourced to a partner:

1. **Reusable Packaging Production & Ownership:** These cover acquiring the durable containers (bottles, boxes, etc.) and managing their inventory. Businesses must decide whether to own the packaging or use a third-party's pool. **Ownership** means higher upfront costs but full control; **rental or pooling** can reduce capital outlay and leverage experts (in Europe some providers such as IFCO, IPP, CHEP, rent out standardized crates or containers for a fee per cycle). For example, in Europe and Georgia some companies might rent reusable steel beer kegs or crates from a pooling provider instead of purchasing them, to avoid high capital expenditure.

2. **Transportation Logistics:** Empty and full containers need to move between customers, collection points, washing facilities, and refilling sites. Efficient transport is critical to avoid erasing the environmental benefits. Options include using in-house delivery fleets, contracting courier/logistics companies,

or piggybacking on existing distribution networks. For example, a dairy company like the Modernmilkman in the UK might use its own trucks to retrieve milk bottles, whereas an e-commerce brand such as RePack might include a prepaid return label so the postal service brings back empties.

3. **Collection & Return:** This layer concerns how packaging get picked up and returned. In a B2C model, consumers can return their packaging to at retail counters (i.e., in cafes or stores) in automated reverse vending machines (RVMs), drop-off lockers or schedule home pickups. The ease and coverage of the return network directly affect return rates. In a B2B model, to ensure the efficiency of the transportation, a massification process can be needed, often requiring a storage space in the premises where the reusable packaging are collected.

4. **Cleaning & Reconditioning:** After return, reusable packaging must be cleaned (or sterilized) and checked before reuse. This can range from an industrial wash line, to sanitizing and refurbishing durable totes. Companies can invest in on-site washing equipment (common in breweries or large food operations) or outsource to a specialized wash service or a shared facility (common for companies willing to trial reuse). For example, in Europe, several startups now offer container-washing as a service, operating central facilities where collected items are washed and redistributed. A service which is not necessarily available in Georgia but certainly has the infrastructure in place to be able to do so. Quality control is vital here: removing labels or residue, inspecting for damage, and discarding any packaging that no longer meets safety standards. The company should ensure that when dealing with food and beverages, reusable packaging has a certificate to verify that the packaging is reusable and washable in accordance with the technical regulations about sanitary and hygienic norms for food-related packaging.[1]

   If the packaging does not come with a certificate clarifying its sanitation norms, the company is obliged to present lab test results for safety.

5. **Refilling & Restocking:** Once clean, the packaging is refilled and put back into circulation. This could be reintegrated with normal production lines (e.g. a brewery refilling returned kegs in-house) or outsourced to a co-packer. Ensuring compatibility of container design with existing filling equipment can be a challenge if the reuse packaging differs from single-use versions.

1 resolution of the Government of Georgia No. 72 of January 15, 2014 – Technical Regulations on Sanitary and Hygenic Norms for Food Related Packaging. EQCLfvbkTrdUJ1wfyNI9uOdcK30z1wbWWX060mrXBNwp-2Tse

6. **System Management & Coordination:** This layer involves the overall coordination of the reuse program – managing inventory levels, tracking where containers are, ensuring each layer (collection, cleaning, etc.) is functioning, and measuring performance. It also covers stakeholder management (e.g. keeping retail partners engaged or coordinating multiple vendors) and setting KPIs and procedures (a list of typical KPIs is presented in Appendix A). A company can choose to manage the system in-house, building the expertise and team to run it, or outsource management to a specialized operator.

7. **Life Cycle Assessment (LCA)** - When designing or scaling a reuse system, it is important to verify that reuse indeed delivers a lower environmental impact than single-use. A LCA helps to determine the break-even point (number of reuses required) and highlights the main impact drivers such as washing, logistics, or material choice. Running simplified LCAs or using online calculators can guide decision-making and build credibility with stakeholders. Useful tools include the KIDV CO_2 calculator (KIDV, 2024), the Food Packaging Forum UP Scorecard (Food Packaging Forum, s.d.), and other open-access resources that allow users to model packaging formats and compare scenarios.

8. **(Optional) User Deposits:** Deposits can be added to incentivise consumers to bring back empty packaging and thus increase the system's return rate. In Georgia, deposit-return models face two key barriers. First, there is no technology to track packaging and apply penalty-based charges if items are not returned. Second, tax rules around deposit transaction voids are unclear: companies must send an official request to the Revenue Service to gain approval. As a result, most pilots rely on trust-based approaches rather than formal deposits, highlighting the need for clearer regulation and digital tracking solutions.

9. **(Optional) Software & Tracking technology:** While not a physical layer, digital tools are increasingly crucial to tie everything together. This includes software for tracking items (often via QR codes or RFID tags on packaging), managing user deposits or fees, and analytics dashboards to monitor circulation and losses. Technology can be developed in-house or purchased as Software-as-a-Service.

1.3 Internal vs. External Execution

A fundamental strategic decision is whether to run each layer of the reuse system internally or to collaborate with external partners:

- **Internal (In-House):** This offers greater control over the process, the ability to tailor operations exactly to your needs, and potentially protect proprietary aspects (like unique packaging designs or customer data). In-house management can also enable faster iteration and direct quality oversight. However, it comes with higher upfront investment (equipment, staff, etc.) and a steeper learning curve. Few companies have all the needed expertise initially – you may need to develop new capabilities in logistics, washing, or IT.

- **External (Partnership or Service):** In Europe, outsourcing parts of the system can mean faster deployment, as you leverage specialists' established infrastructure. It often comes on a predictable fee basis (e.g. paying per container washed or per pickup), which can simplify costs. The trade-off is less direct control and reliance on partners' performance. For instance, a food brand could decide to have a third-party like Loop or a local reuse service **manage the entire model** – from providing standard containers to handling consumer returns and cleaning. This "reuse as a service" approach can be attractive for companies that lack the scale or desire to run the logistics themselves. The downside is that the business must align with the provider's system and trust their quality.

Context in Georgia: At present, there are no vendors that offer reuse-as-a-service in Georgia. Companies wishing to outsource elements of the system would need to establish partnerships with other local businesses that are willing and able to provide such services. This may require co-developing new capabilities or infrastructure, rather than plugging into an existing provider.

In practice, many reuse initiatives start with significant external support (to test viability without heavy capital investment) and later consider bringing certain functions in-house if scale grows.

1.4 Variety of Reuse System Configurations

The combination of **model type** (return vs refill), choices of **in-house vs outsourced** for each layer, and sector-specific needs leads to a wide variety of reuse system designs:

- **A fully internalized system** might be seen in large beverage companies: e.g. a brewery owning its kegs, collecting them via its distribution network, washing on-site, and reusing indefinitely. Coca-Cola's reuse of glass bottles in certain markets or large brewers' keg programs exemplify an almost 100% in-house approach where the company controls the loop end-to-end (often because they have the scale and infrastructure to do so).

- **A fully externalized system** is exemplified by nationwide deposit schemes (like Germany's beverage container DRS for single-use bottles). Here, the brand simply pays into a system that an external operator (often an industry consortium) runs: the collection (via stores and RVMs), sorting, cleaning, and even redistributing may be managed by that central system. Some companies provide integrated services: for example, in its pilot with Circolution in Germany, Nestlé rents standardized steel containers from the startup, which takes care of cleaning, reverse logistics, and ensuring the containers work with supermarket RVMs (Food Navigator Europe, 2023). The brand simply fills the provided reusable containers with product and lets the established deposit return infrastructure do the rest.

Between these extremes lies a spectrum of hybrid models. A business might handle collection but use a third-party wash facility, or outsource tech but keep logistics internal, and so on. When evaluating examples (like those in Chapter 3), it's helpful to note how they allocated these responsibilities. The key for any company is to assemble the mix of components that is feasible and cost-effective for them while still delivering a seamless experience to customers. What's consistent across successful models is that all layers are covered by someone – if you lack internal capacity for a layer, a partnership can fill the gap. In Georgia's context, companies may find it efficient to join forces (or work via industry associations or donor-funded programs) to collectively develop certain layers that might be inexistent like shared collection points or cleaning centers, thus easing the burden on each individual business.

Chapter 2

Benefits & Challenges of Reusable Packaging

2.1 Environmental Impact & Sustainability

Shifting to reusables can dramatically reduce packaging's environmental footprint. Each disposable package that is replaced by a reusable one (used many times) represents raw materials and waste avoided. Life Cycle Assessments (LCAs) generally show that after a certain "break-even" number of uses, a reusable item outperforms single-use equivalents on carbon emissions, energy, and often water usage (GoUnpackaged, 2024). The exact break-even point depends on factors like the material, weight, washing process, and transport distances. For example, a lightweight reusable plastic crate might need ~10 trips to offset its production impact, whereas a heavy glass bottle might need 15–20 rotations to beat a single-use glass bottle due to initial production energy. Reuse systems shine most when packaging is circulated many times.

Studies in specific contexts illustrate the potential gains:

- One analysis found 76% less energy use, 33% less water use, and 79% fewer greenhouse gas emissions for reusable glass bottles versus single-use, assuming an optimized reuse cycle (Deroche Consultants, 2009).

- In e-commerce, reusable shipping mailers have been found to cut carbon footprint by anywhere from ~40% up to ~85% after ~10 reuse cycles (Iria González Romero, 2024). For instance, a durable poly mailer or tote might break even on carbon after just 2–3 uses if replacing an equivalent cardboard box (because cardboard boxes are resource-intensive for one-time use).

- Stainless steel containers (for food or beverage) have a high production footprint, but they can endure hundreds of cycles and in factories they are less dangerous to handle than glass packaging as they will not break. Circolution's steel food canister showed that after ~5 cycles it matched the impact of a single-use glass jar and it can be reused ~80 times (Food Navigator Europe, 2023).

The environmental benefits of reusable packaging depends reuse rates (what percentage of packages come back) and rotation count (average number of times each package is reused before it's lost or retired). If a large fraction of reusables are not returned (or are damaged early), the benefits erode. When done successfully, the impact reductions are substantial. The UK modeling cited earlier projected about **95% less CO_2 emissions and 95% less virgin material usage** when just 30% of grocery packaging was converted to reuse (GoUnpackaged, 2024). In sum, for Georgian companies, adopting reuse could markedly advance corporate sustainability goals (carbon reduction, waste diversion) and align with global climate commitments.

However, it's worth noting that reuse isn't automatically "greener" in every case – careful analysis is needed. For very lightweight single-use packaging (like a thin film or sachet), a reusable alternative may struggle to break even if it's much heavier and the returns are low and in that refill might be prefered. Similarly, long transport distances for returns or very water/energy-intensive cleaning can offset some benefits. Therefore, optimization (lightweight durable designs, efficient logistics, renewable energy for cleaning) is crucial. Chapter 7 on KPIs will discuss tracking environmental metrics (like CO_2 saved) to ensure a reuse system is delivering on its sustainability promise.

2.2 Material Choices: Health & Environmental Considerations

Reusable packaging can be made from various materials – the most common being **glass, metals (like stainless steel or aluminum), and durable plastics**. Each has pros and cons in terms of environmental impact, durability, and health safety:

- **Glass:** Inert and safe for food contact (no risk of leaching chemicals), glass has a strong consumer perception of purity. It's also infinitely recyclable when it does reach end-of-life. Reusable glass bottles or jars can be washed at high temperatures without degrading much. However, glass is heavy and energy-intensive to produce. The weight means higher transport emissions per trip, so reuse of glass makes the most sense in localized loops (to minimize shipping distances). Glass can also break, so it requires careful handling and perhaps thicker walls for durability. Still, reusable glass systems (like beer bottle deposits) are well-established and can achieve dozens of rotations per bottle. The EU is actually considering standardized glass bottles for wine/beer to facilitate reuse.

- **Stainless Steel:** Extremely durable and resistant to corrosion, stainless steel is often used for vacuum-insulated reusable bottles, kegs, drink cups or food canisters. It can withstand hundreds of wash cycles and rough handling. Steel packaging is heavy (though usually lighter than glass for the same volume, because walls can be thinner) and has a high initial carbon footprint due to steel production involving mining and smelting. But because steel containers last so long, their per-use impact drops sharply with each reuse. They are fully recyclable at end of life (and have high scrap value). Health-wise, food-grade stainless steel is safe. Stainless containers often provide a premium feel (shiny, sturdy) which can be a brand plus. Cost is relatively high per unit, so typically a deposit or significant incentive is used to ensure return (e.g. coffee cup programs with steel cups often use ~$10 deposits).

- **Durable Plastics (e.g. PP, HDPE):** Plastics are popular for reusables because they are lightweight, can be molded into many shapes, and won't shatter.

Polypropylene (PP) or high-density polyethylene (HDPE) are commonly used for reusable tubs, cups, and crates. Their production impact per unit is lower than glass or steel, but each plastic container typically has a shorter useful life (dozens of uses before degrading or cracking, vs. potentially hundreds for steel). However, reusing plastic packaging, particularly for food that can develop scratches can pose health risks due to the breakdown of plastic materials over time.

- **Other Materials:** Some reuse models involve coated papers or composites (like reusable paper pallet slips or bulk bags), silicone (reusable food pouches), or textiles (cloth bags, etc.). These each require specific care; for instance, textiles need washing and can harbor bacteria if not dried properly. In food service, ceramic or melamine dishware can be part of a reuse system (like a cup library), which have their own durability profiles.

2.3 Economic Advantages & Cost Drivers

Beyond environmental benefits, reuse can unlock **financial advantages** for businesses in the right circumstances. The economics of reusable vs. single-use packaging can be understood by looking at cost drivers over the packaging's life:

- **Upfront vs. Ongoing Costs:** Single-use packaging is a continuous expense – each product sold has disposable packaging that you pay for. Reusable packaging flips some of that into an upfront investment: you pay more for a durable item, but then reuse it many times, so the cost per use drops over time. A detailed model for UK retail found that reusable packaging could generate 12 to 22% reduction in total packaging system costs compared to the status quo (GoUnpackaged, 2024). These savings come primarily from needing to purchase far fewer packaging units overall, and from opportunities to optimize (e.g. using standardized containers across brands improves efficiency). However, reuse also introduces new costs: collecting, sorting, washing, managing inventory, etc. The net savings emerge when economies of scale are achieved in those operations.

- **Avoided Fees and Taxes:** An increasingly relevant factor is the Extended Producer Responsibility (EPR) fees, plastic taxes, or waste fees that governments levy on single-use packaging. By switching to reusables, companies can avoid a lot of these per-unit fees. In the UK case, reuse was projected to save producers an average 94% on packaging EPR fees for each item switched to reuse (GoUnpackaged, 2024). Many jurisdictions are implementing or raising such fees on single-use packaging (to fund recycling or litter clean-up). In Georgia, while EPR is still developing, companies positioning early with reuse could pre-

empt future cost liabilities and possibly gain credits if EPR schemes recognize reuse. Reusables also help companies meet waste reduction mandates, avoiding potential fines or penalties.

- **Customer Retention & Loyalty:** Some reuse systems inherently bring customers back (to return items or claim deposits), giving businesses an extra chance to interact and potentially upsell. For instance, a café offering a reusable cup deposit might see the customer return sooner to get their deposit back – and maybe buy another coffee. Loyalty programs can amplify this (see Chapter 6). Moreover, reusable hot beverage cups often insulate better, improving customer experience (hot stays hot), which can indirectly encourage more sales or brand loyalty.

- **Breakeven and Volume:** One challenge is that the **breakeven point** for reuse often requires a certain volume and return rate. In early pilot stages, costs per use might be higher because scale is not yet achieved (e.g. investments in containers and wash equipment must be maid while only a small loop is running). Once volumes rise and processes streamline, the unit economics improve. Many analyses note that environmental breakeven is usually reached before financial breakeven. Nonetheless, after that breakeven point, each additional reuse is essentially free packaging, creating a competitive advantage if competitors are still paying for single-use packaging each time. Companies should plan for that crossover and this can be communicated as an investment that will pay back.

2.4 Consumer & Cultural Barriers

While surveys show consumers like the idea of reusable packaging, turning that into consistent behavior is a challenge. This "intention-action gap" is one of the biggest hurdles reuse systems face:

- **Inconvenience & Effort:** Many people find the concept of reusables appealing but are deterred by the effort required. About 1 in 5 consumers admit they might not return packaging because it's too much hassle (Stora Enso, 2023). Habits like tossing a package in the trash are deeply ingrained; asking customers to bring items back or store empties until next pickup is asking for a new habit. If the return process is even slightly complex (long queues, few drop points, having to clean the item oneself, etc.), a portion of users simply will not bother over time. Convenience is king – reuse systems must strive to be as easy as (or easier than) disposal. Chapters 4 and 6 will discuss how system design and messaging can mitigate this barrier (e.g. by providing many return locations, immediate deposit refunds, etc.).

- **Hygiene & Safety Concerns:** Consumers understandably worry about the cleanliness of reused containers. Stora Enso's survey across Europe found 78% of respondents would be concerned about hygiene if their product came in a reused container (Stora Enso, 2023). This is a significant trust barrier. Any highly publicized lapse (e.g. someone finds a dirty returned container by mistake) could severely damage a reuse program's reputation. Companies need to not only have rigorous cleaning protocols (industrial washing at high temps, quality checks) but also communicate this effectively to consumers (see Chapter 6.1). Sealing containers after cleaning or adding labels that say "Sanitized" can reassure users especially in sectors like food service or cosmetics. It's worth noting that in some cultures, reuse of certain items was historically common (glass soda bottle deposits, milkmen, etc.), so older consumers may be more familiar with it, whereas younger generations might have grown up only with disposables and find the concept novel or odd initially.

- **Low Awareness & Misconceptions:** Many consumers conflate "reusable" with "recyclable." 75% of consumers considered recycling to be a form of reuse (Stora Enso, 2023), indicating confusion about the concept. When people do not fully get how a reuse system works, they may not participate correctly (e.g. they might throw a reusable package into a recycling bin, thinking that's good enough). Education is needed to clarify: reuse means the same package is used again, whereas recycling is breaking down material to make new packages. Additionally, some might assume a "reusable" container means they personally should reuse it at home (like washing out a plastic tub for storage) – which is fine, but it's not the system approach that achieves scale. So clear instructions are needed: "Return this jar to us so we can refill it for another customer," etc. Building a culture of reuse requires marketing efforts (see Chapter 6) to shift norms. In Georgia, where reuse systems are just emerging, public awareness campaigns will be important so that consumers see returning packaging as the new normal, not an inconvenience.

- **Behavior Change & Habit Formation:** Even if consumers intend to return packaging, everyday life can interfere. People are forgetful – they might leave the reusable at home or in the car. Or procrastinate returns which leads to pileups of empties (and eventually some get tossed). The success of reuse often hinges on whether using and returning the packaging can be integrated into existing routines with minimal friction. Incentives like deposits help, but user-friendly systems help even more. It is also notable that first experiences matter: if a customer finds a reusable container to be dirty or leaky, they won't trust it again. If they can't easily find where to return it, they'll be annoyed. Early adopters tend to be motivated eco-conscious individuals, but to get mainstream adoption, the process must appeal to everyone.

- **Cultural Context:** There may be cultural factors in play. In some places, reusing containers (like bringing jars to a market) is already part of tradition; in others, disposables became a sign of modern convenience and cleanliness, so reuse might feel like a step backward unless reframed positively. Georgia has a history of bottle returns in the past. Leveraging that legacy could help culturally. Conversely, younger consumers globally are often more open to sustainability innovations, so tapping into that demographic's values (climate action, anti-waste) is powerful. A successful reuse initiative often nurtures a **community** feeling – users feel they're part of something good.

In summary, **consumer participation can make or break a reuse system**. The best-designed system fails if people don't return the packages. Common barriers include inconvenience, hygiene fears, and simple lack of awareness or habit. Companies must address these by system design (make it easy), assurance (make it safe and perceived as safe), and education (make it understood and valued). Chapter 6 will delve deeper into strategies to engage consumers. It's encouraging that those who do try reuse often become supporters – there is evidence that consumers who have used reusable packaging generally view it as a "responsible choice" and are willing to repeat it (Stora Enso, 2023). The task is to move them from intention to action, and then from one-time action to habit. Over time, as reuse becomes more visible and expected (for example, if regulations require restaurants to offer it), these cultural barriers will diminish.

Chapter 3

Case Studies & Best Practices

To illustrate how reusable packaging systems work in practice, this chapter presents several brief case studies from different sectors. These examples highlight real-world solutions, achievements, and lessons learned.

3.1 Retail – Circolution (Germany)

Circolution is a German start-up that provides **reusable packaging-as-a-service for food producers**. It supplies durable, food-grade stainless steel containers (brandable jars or canisters) to producers (for items like spreads, snacks, powders) and then manages the reverse logistics to get them back, washed, and reused. In a pilot with Nestlé Germany, Circolution's steel containers – designed to be compatible with existing supermarket **deposit return machines** – were used for Nesquik cocoa powder. Shoppers pay a deposit and can return the empty steel jar via the same machines used for bottles, receiving their deposit back. Circolution collects the returned containers from stores, inspects and industrially washes them, and redistributes them to the producer for refilling (Stora Enso, 2023). The system leverages standardization (one container format used by multiple brands) to achieve scale. The case concludes that **B2B partnerships and integrating with existing infrastructure** (like retailer networks and RVMs) streamline the logistics and ensure consumer convenience. Early results indicated strong return rates and significant packaging waste reduction. This case demonstrates how a third-party operator can enable reuse for retail products by handling the operational complexity on behalf of multiple brands.

3.2 Takeaway Food – Vytal (Europe)

Vytal operates a digital, **deposit-free** reusable container network for takeaway meals and beverages, now active in over 15 countries in Europe. It is app-based: users join the platform (providing a payment method) and can borrow reusable food boxes, bowls, or cups from any participating restaurant by scanning a QR code (WHU, 2024). After enjoying the meal, they return the empty container to any partner restaurant or drop-off point in the network. Because there's no upfront deposit, Vytal instead enforces return by charging a penalty fee if the item isn't returned within a set period (e.g. 14 days) – this acts as a **post-paid deposit** and has resulted in an impressive **return rate over 99%** for their containers. Behind the scenes, Vytal manages centralized sorting and cleaning hubs to which collected containers are sent, sanitized at high standards, and redistributed out to restaurants. The system is highly tech-driven: the app sends reminders, shows users their personal stats (e.g. disposables saved), and helps them locate return spots. Vytal's multi-country expansion and partnerships (including large caterers and even event venues) demonstrate the feasibility of large-scale, cross-border reuse. The key takeaway from Vytal is that **user convenience and smart technology can overcome barriers** – by making signup easy, returns flexible

(any location in the network), and using a digital incentive instead of a cash deposit, they removed friction for users. Their experience also shows that **an open pool model**, where many businesses share the same packaging pool, offers great flexibility and scale: a customer can take a lunchbox from one vendor and drop it at another across town or even in another country. Vytal's rapid growth and high compliance rates underline that if reuse is made simple and beneficial to customers, it can achieve broad adoption in the food service sector.

3.3 E-commerce – RePack (Nordics & EU)

RePack is a pioneering provider of **reusable mailers and shipping bags** for online retail. Based in Finland and operating across Europe, RePack offers lightweight, durable polybags and envelopes that can fold down for return shipping. When a customer orders from a partnering e-commerce store, their items arrive in a RePack packaging. The customer can then fold the empty bag and send it back via postal mail – typically using a prepaid label or by dropping it in a mailbox, free of charge. RePack's turnaround time for reuse is fast (often a matter of days): empty packages are consolidated, inspected, cleaned if needed, and redistributed to fulfill other orders. An LCA commissioned by RePack found an **environmental break-even at roughly 20 reuse cycles** for their mailers. Economically, RePack incentivizes returns by offering customers a discount code upon return (for use at participating stores), effectively functioning as a reward instead of a deposit. The case concludes that **reusable shipping packaging can be viable and even cost-saving** for online retailers, especially as parcel volumes grow and sustainability becomes a selling point. RePack's model highlights the importance of designing reusables that integrate into existing systems (postal service compatibility) and minimizing additional steps for consumers (the mail-back is simple). It also demonstrates a potential revenue model: RePack charges retailers a service fee, which can be offset by the retailer's savings on not purchasing disposable packaging for each order. Overall, RePack shows that in e-commerce – a sector notorious for packaging waste – a well-designed reuse system can align environmental and business benefits with up to ~80% reduction in carbon footprint after sufficient reuse cycles (Iria González Romero, 2024).

3.4 Transport Packaging – Pooled Crates in B2B Logistics

Reusable packaging isn't just for consumer-facing goods; it's long been used in B2B supply chains. One example is the **pooling of reusable plastic crates (RPCs)** in grocery distribution. Companies like CHEP or IFCO provide standardized, foldable plastic crates to suppliers, who fill them with fruits and vegetables and send them to retailers. After delivery, the empty crates are collapsed and picked up to be **cleaned and reused** for the next shipment. This system has replaced mountains of single-use card-

board and wood packaging in many markets. Studies by packaging associations have found that RPC pooling can **reduce packaging costs by >20%** compared to one-way corrugated boxes (CHEP, (n.d.)), thanks to the durability and space-efficient return of empties (they nest or fold, so transport back is made efficient). It also cuts waste disposal costs for retailers (no piles of soggy cartons to discard daily) and ensures steady supply of containers. A European analysis (NABU, 2022) of transport packaging indicated huge material savings potential – for example, using reusable crates for a quarter of certain logistics flows could cut packaging material consumption by thousands of tonnes annually. Key best practices here are **standardization and interoperability**: all producers and retailers agree on a few crate types, making the system efficient. Typically, an external pool operator owns and maintains the crates, sparing individual businesses the hassle. The crates themselves are designed for longevity (often surviving 100+ trips) and are fully recyclable at end of life. A takeaway from this case is that **closed-loop B2B systems can achieve extremely high reuse rates (near 100% return)** because the business partners have incentives and processes to return all packaging. For instance, a supermarket automatically gives back the empty crates to the delivery truck driver. The B2B context often avoids the unpredictability of consumer behavior, making it a logical starting point for scaling reuse.

3.5 Georgia Pilot Initiatives

In Tbilisi, two early pilots from the **Tbilisi Circular Lab** demonstrate both the potential and the challenges of reuse systems in Georgia:

- **Campa (Beverage Bottling):** Campa shifted from single-use to reusable glass bottles (250 ml and 750 ml). The company invested in industrial washing equipment and designed collection bins with cushioned bottoms to prevent breakage in cinema venues. Bottles are collected from partners such as Cavea Cinemas, Craft Shawarma, and community events organized by "Parki ar Minda," then transported to Campa's warehouse and washed for reuse. To incentivize returns, Campa introduced a 0.10 GEL reward per bottle, allowing partners to offset purchase costs while reducing waste. The system currently achieves several thousand bottles returned per month, although further scale-up depends on stronger logistics and more business partners.

- **Fabrika (Hospitality Venue):** Fabrika launched a reuse model with 10,000 × 500 ml and 5,000 × 400 ml durable plastic cups, rolled out on a trust-based system (no deposit). Seven washing machines were installed across its bars and resident spaces. Each bar is responsible for collecting, washing, and reusing the cups on-site, creating a decentralized system that ensures constant cup availability without complex logistics. Customers receive their drinks in reusable cups and are asked to return them at any of the restaurant/cafe space

within the courtyard. Security staff monitor entrances and exits to reduce cup leakage, as many guests move between Fabrika's courtyard and nearby clubs. The project initially tested a deposit system, but due to regulatory barriers around transaction voids and revenue service risks, deposits were discontinued. Instead, Fabrika continues with a trust-based approach, asking guests not to dispose of cups or take them away. Despite a 10–12% loss rate in the first weeks, staff report reduced waste volumes, cost-savings, fewer bins to empty, and generally positive customer acceptance.

Chapter 4

Legal & Logistical Considerations

4.1 Regulatory Frameworks & Compliance

The legal landscape for packaging is evolving quickly, especially in the EU, with implications for any company planning reuse systems. Key points include:

EU Policies (PPWR): The European Union's new Packaging and Packaging Waste Regulation (PPWR) sets the direction by establishing targets and definitions for reusable packaging (EUR-Lex, 2024). The PPWR aims to reduce packaging waste across EU. To do so, each country must reduce its packaging waste per capita compared to 2018: by at least 5 % by 2030, 10 % by 2035 and 15% by 2040 (Art. 43.1). Reusable packaging is one of the most effective tools to reduce this packaging waste per capita (among reducing our consumption and selling in bulk). Therefore, mandatory reuse targets have been set for 2030:

- Transport packaging (including e-commerce):
    - 40% reusable packaging for packaging used to transport or sell products (including e-commerce) (excluding flexible packaging in contact with food) (70 % by 2040) (Art. 29.1).
    - Packaging used for transporting products, within the territory of the Union, between different sites on which the operator performs its activity shall ensure that such packaging is reusable within a re-use system (Art. 29.2).
    - 10% of grouped packaging in the form of boxes must be reused (excluding cardboard packaging) (25 % by 2040) (Art. 29.5).
- Beverage packaging:
    - 10% of reusable packaging (excluding highly perishable products such as milk, spirits, wine) (40 % by 2040) (Art. 29.6).
- Exemptions (Art. 29.14), Member States may exempt economic operators for 5 years from the obligations under this Article under the following conditions:
    - the exempting Member State reaches 5 % above the targets for recycling of packaging waste per material to be achieved by 2025 and is expected to reach 5 % above the 2030 target;
    - the exempting Member State is on track to achieve the relevant waste prevention targets set out in Article 43 and can demonstrate to have reduced the packaging waste generated per capita by at least 3 % by 2028 compared to 2018;

For companies in Georgia that export to the EU or wish to align with global best practices, understanding PPWR is crucial. Georgian legislation is not yet as demanding, but proactive alignment can future-proof local businesses, especially as Georgia often gradually harmonizes regulations with the EU.

PPWR's Article 28 also sets specific rules concerning the use of refillable packaging. "Economic operators who offer the possibility to purchase products through refill shall inform end users of the following ('rules for refill'):

a. the types of containers that can be used to purchase the products on offer through refill;
b. the hygiene standards for refill;
c. the responsibility of the end user in relation to health and safety regarding the use of the containers referred to in point (a)."

Moreover, it is specified that "Economic operators may refuse to refill a container provided by the end user if the end user does not comply with the rules for refill communicated by the economic operator pursuant to paragraph 1, in particular if the economic operators consider the container to be unhygienic or unsuitable for the sale of food or drink. Economic operators shall bear no liability for hygiene or food safety issues that arise from the use of containers provided by the end user."

National/Local Regulations: Some countries and cities have introduced their own rules promoting reuse. For instance, since 2023 Germany's "Mehrwegangebotspflicht" requires food service businesses to offer a reusable container option for take-away (alongside single-use) (WHU, 2024). France forces PROs to dedicate 5% of budget to subsidising reuse systems. These rules can create markets for reuse services. In Georgia, Tbilisi city has waste reduction goals and strategies that mention supporting reuse pilots (Georgia Today, 2024). While there may not yet be binding reuse mandates, we see policy interest – the Ministry of Environment has highlighted reusable packaging as key for circular economy transition (Ministry of Environmental Protection and Agriculture of Georgia (MEPA), 2024). Companies launching reuse models should engage with regulators to ensure compliance with any existing health and safety rules (for example, there might be outdated health codes prohibiting refilling customer containers – such rules have been updated in many places to accommodate reuse safely).

In short, the regulatory trend strongly favors reuse, but compliance is complex. Businesses in Georgia should keep abreast of domestic policy developments (possibly driven by the National Waste Management Plan or municipal initiatives) and international standards if they operate across borders. Engaging with policymakers can be productive: many governments are looking for pilot examples to learn from. By sharing data from your reuse trials (return rates, waste reduction) with authorities, you can help shape sensible regulation that supports scale-up.

4.2 Standards & Materials for Health and Safety

Operating a reuse system means effectively becoming part of the food/consumer product supply chain repeatedly, so maintaining high standards for health and safety is paramount. Key considerations:

- **Food Contact Safety:** If packaging is used for food or beverages, it must be made of approved food-contact materials and remain safe through multiple use cycles. For example, EU and FDA regulations list permissible materials and any migration limits (e.g., how much of a chemical can leach into food). Companies should choose materials that comfortably meet these standards under repeated use. Glass and stainless steel are generally straightforward as they are inert. Plastics should ideally be virgin food-grade for the parts contacting food.

- **Banned and Concerning Substances:** Be aware of regulations on chemicals like BPA (bisphenol A) – many countries banned BPA in reusable baby bottles and other containers due to leaching concerns. Other substances to watch include phthalates, PFAS (per- and polyfluoroalkyl substances), and heavy metals.

- **Cleaning and Sanitization Standards:** Reusable packaging that contacts edibles essentially becomes a **food contact surface** similar to plates or silverware in a restaurant. Thus, cleaning protocols must meet food service standards. In the EU, this falls under general food hygiene regulations; for example, if you run a cleaning facility, it might need to be certified like a food processing facility. There are standards (like Hazard Analysis and Critical Control Points, HACCP) that should be implemented to ensure no contamination.

- **Design for Cleanability:** A safety consideration is that packaging design should allow effective cleaning. Containers with smooth surfaces, rounded corners, and easily removable or no labels will vastly improve hygiene outcomes (European Environment Agency, 2025).

- **Liability and Insurance:** Ensure you have clarity on liability. If using a third-party cleaning service, have agreements on responsibilities if something goes wrong (e.g. who is liable if a container was improperly sanitized). Many companies carry product liability insurance, which should be updated to cover the reuse scenario. The **legal liability** typically stays with the producer of the product if a consumer is harmed, but if the harm was due to packaging not being clean or leaching chemicals, that could loop in the packaging provider or reuse operator.

4.3 Reverse Logistics: Collection Systems for B2C vs. B2B

Getting empties back efficiently is one of the toughest challenges. Approaches differ between consumer-facing (B2C) and business-to-business (B2B) systems.

B2C Systems

- **Convenience first**: Return points must be as easy to access as purchase points, otherwise return rates fall. Low-density returns make collection costly, with trucks "chasing empties."

- **Logistics**: Options include in-store returns, deposit schemes, or mail-back (though postal costs add up). Route optimization and compact storage help reduce costs.

- **Incentives**: Retailers will need incentives (e.g. handling fees, regulation) to agree to take back containers they did not sell.

- *Case*: In the Netherlands, a reuse cup pilot showed that when collection was infrequent, venues faced storage issues and even hygiene problems (fruit flies). Increasing pick-up frequency improved acceptance (Mission Reuse, 2024).

B2B Systems

- **Operational integration**: Empties can be collected during deliveries, backhauled to distribution centers (clients collect and massify packaging in a distribution center where they are being picked-up), or managed by third-party logistics (a logistics provider is contracted specifically to handle empties movement usually for specialized handling is needed like refrigerated transport). Behavioral risk is lower since staff follow set procedures.

- **Challenges**: Businesses need storage space, agreements on rinsing/handling, and reliable pick-up schedules.

- **Standardization**: Lack of common crate or bottle types makes sorting burdensome; industry-wide formats ease adoption and cut costs.

- *Case*: In retail supply chains, standardized beer crates or pallets allow multiple suppliers to share infrastructure, avoiding the confusion seen in pilots where venues struggled with dozens of bottle types (NORSUS, 2023).

4.4 Asset Management & Tracking

In a reuse system, each package becomes a circulating asset that the business needs to keep track of. Robust tracking and asset management practices are thus vital:

- **Identification & Inventory**: Units marked with QR, barcode, or RFID enable tracking of usage, returns, and overdue items. A central system shows what is in circulation, cleaning, or storage, helping manage buffer stock and seasonal demand.

- **Loss & Maintenance**: Systems must log losses and retire damaged items after defined cycles.

- **Data & Insights**: Scan data supports KPIs such as return rates, cycle counts, turnaround times, and avoided emissions, highlighting bottlenecks or underperforming formats.

- **Technology & Finance**: Solutions range from spreadsheets to dedicated platforms. Integration with POS or apps automates deposit handling and refunds.

Proper asset management ensures the reuse loop keeps flowing without leaks. Losing too many containers or not having enough in the right place at the right time can cripple a reuse program. Modern programs leverage technology to avoid that. For Georgian companies starting reuse pilots, adopting even simple tracking (like unique QR codes and a scanning app, which can be set up quickly) will greatly enhance manageability. It can also provide transparency – you can tell partners or regulators exactly how many times your packaging was reused, etc., which builds credibility. In some cases, involving consumers in tracking can also engage them (for instance, an app could show "You returned Jar #1234, which has now been reused 8 times!").

In summary, treating reusable packaging as valuable inventory rather than disposable supply is a mindset shift that needs supporting tools. Good tracking and management reduce shrinkage, improve rotation efficiency, and ultimately cut costs and headaches in a reuse system.

Chapter 5

Financial Aspects & Business Models

5.1 Cost-Benefit Analysis & ROI

Implementing reuse requires careful assessment of both costs and benefits. Upfront capital expenditure (CAPEX) includes the purchase of durable containers, washing equipment, IT systems, and logistics infrastructure. Operating expenditure (OPEX) covers labor for collection and washing, cleaning materials, transport, repairs or replacements, and any partner fees. A good model spreads the initial investment across expected cycles: for example, a €10 crate used 50 times equals €0.20 per use, to which washing and logistics costs are added. This allows comparison with the unit cost of single-use packaging plus disposal fees.

Performance depends strongly on return rate and loop speed. High return rates (>90%) and fast turnaround generate more uses per container each year, reducing overall cost per cycle. Conversely, low returns or long retention times quickly erode the business case. Many systems therefore use deposits, reminders, or penalty fees to encourage timely returns. Economies of scale are also decisive: washing 1,000 containers per day is far cheaper per unit than washing 100, which explains why pilots often run at a loss but become viable once scaled.

Financial ROI should be considered alongside environmental ROI. Many systems achieve CO_2 and waste savings before reaching strict cost parity with single-use, and companies may justify reuse as part of compliance, corporate responsibility, or risk management (e.g. avoiding plastic taxes or exposure to volatile material prices). Other intangibles—brand reputation, customer loyalty, or reduced waste fees—also improve the case. To build credibility, businesses should define KPIs such as target cost per use, minimum loops per container, or maximum acceptable loss rates, and track real pilot data to refine assumptions. Subsidies or grants can also shorten payback periods by covering initial CAPEX.

For Georgian companies, additional drivers may include the high cost of importing disposable packaging and the likelihood of future regulation. A robust cost-benefit analysis that factors in these local conditions, supported by pilot results, will help secure management or investor buy-in and demonstrate when reuse becomes profitable at scale.

5.2 Funding & Investment Models

Unlike single-use, reuse requires upfront investment, so creative financing is key. To design and launch reuse systems, companies can tap into:

- **Internal funding** can come from R&D, innovation, or sustainability budgets, framed as a strategic investment with future cost savings or reputational benefits.

- **Grants and public support**: International donors (EU, GIZ, UNDP) and Georgian ministries have already financed pilots, such as the Tbilisi Circular Lab. Similar grants could subsidize container purchases, washing lines, or training.

- **Partnerships and shared facilities**: Georgian companies can pool resources to co-invest in wash hubs or container pools. Municipalities might support reuse infrastructure through waste budgets, while local recyclers could provide logistics or facilities in exchange for service fees.

- **Customer contributions** include deposits, subscriptions, or small rental fees. Deposits provide working capital, though reliance on unclaimed amounts is risky. Subscription or B2B fee models (e.g., restaurants paying per container use) provide steady revenue.

- **Investor capital:** Georgian companies can seek funds from impact investors or circular economy funds targeting emerging markets. As systems mature, banks or microfinance institutions could offer loans for container purchases, with the assets serving as collateral.

- **Diversified revenues:** Local opportunities include sponsorship from Georgian banks or telecoms, branding space on cups or crates, and offering clients verified data on CO_2 or waste avoided.

Early subsidies or grants often cover pilots, but long-term viability depends on operating revenues and scale. For Georgian firms, opportunities include EU-aligned waste reduction grants, corporate CSR sponsorships, or city-supported reuse hubs. A clear business plan and pilot data are essential to secure support and attract investment.

5.3 Pricing & Deposit Strategies

How to price reusable packaging is a delicate balance: too high deters use, too low risks losses or lack of perceived value. To encourage customer uptake of reusable packaging, the product's base price (excluding any deposit) should remain at least equal to, and ideally lower than, the price of the same item in single-use packaging. Demonstrating tangible savings when choosing reuse further strengthens consumer motivation.

- **Deposits** are the most common model. Customers pay a small sum when borrowing packaging and get it back on return. The amount should cover much of the replacement cost without creating a barrier. German bottle schemes set €0.08–0.25 depending on type, and in Georgia's Fabrika pilot, a ₾3 deposit (~$1) proved effective—noticeable but reasonable.

- **Post-paid models** avoid upfront cost by charging only if the item is not returned within a deadline. Systems like Vytal use this approach, reporting high compliance (European Reuse Barometer, 2024). It works best in cashless contexts and is difficult to implement in retail store, but could grow in Georgia as digital payments spread.

- **Service fees or subscriptions** charge per use or per month instead of a deposit. This can attract loyal customers but requires clear terms to handle non-returns.

- **Integrated pricing** builds packaging into the product price, refunded or discounted on return—similar to milk delivery schemes.

Key principle: keep consumer cost comparable to single-use. Subsidies, discounts, or loyalty rewards can further encourage adoption. Deposits also help cover losses; setting them too low raises costs for the operator, too high discourages participation.

To run a deposit scheme, a clear legal framework defining deposits as refundable securities and not as taxable revenue (as established in Germany's Pfand system and in France) must be in place. This means that they are excluded from VAT and income tax (WWF Deutschland, 2021);

This creates barriers for companies wishing to implement deposit-return. In the meantime, Georgian companies can apply to the Revenue Service asking for a preliminary decision and receive an individual administrative act with legal force. This will allow the company to avoid tax sanctions as long as it acts according to the act.

5.4 Sensitivity, Scalability & Risk Planning

Scaling reuse requires anticipating uncertainty and planning for different outcomes.

- **Uptake scenarios**: Not all customers adopt reuse at once. Financial models should test low- and high-adoption cases (e.g., 10% vs. 50% uptake in year one). Too few users lead to idle assets, while rapid growth may overwhelm washing or logistics. Defining clear scale-up triggers (e.g., when machines reach 80% capacity, invest in another) helps manage growth.
- **Return and loss rates**: Lower-than-expected return rates increase container replacement costs and weaken environmental benefits. Sensitivity analysis (e.g., creating models with 95% vs. 70% vs. 40% return rates) helps plan deposit levels, engagement efforts, or buffer stock. For instance, at high return rates (≈95%), deposit funds are mostly refunded, packaging loss is minimal, and only small buffer stocks are needed; at medium levels (≈70%), more replacement packaging must be purchased, logistics costs rise, and higher deposits or stronger engagement campaigns may be required; and at low levels (≈40%), the system risks becoming financially and environmentally unviable unless supported by very high deposits, strict enforcement, or subsidies. This type of analysis helps operators calibrate optimal deposit levels, design communication strategies, and size production or washing capacity to ensure system resilience under real-world conditions.
- **Policy changes**: Stricter hygiene or labeling rules could increase costs, while taxes on single-use or subsidies for reuse could improve ROI. Georgian businesses should monitor national policies and EU alignment measures.
- **Market dynamics**: Competitors may launch reuse systems, creating opportunities for shared infrastructure or pressures on price and service.

- **Exit strategy**: Containers should have salvage value if the system fails (e.g., resale or recycling of stainless steel).
- **Funding for scale-up**: Success at pilot level requires quick access to capital or partners for expansion. In Georgia, donors such as CENN, USAID, or GIZ could support scaling once results are proven.
- **Operational variables**: For advanced systems, fuel, water, energy, labor, and detergent prices can shift significantly. Designing energy- and water-efficient cleaning processes reduces exposure to utility costs.

Maintaining a risk register—tracking threats such as low return rates, equipment breakdowns, or competition—and launching a pilot to test and validate the assumptions will support business to adjust and transition from pilot to mainstream adoption.

Chapter 6

Communication & Stakeholder Engagement

6.1 Consumer Messaging & Awareness

Clear, motivating communication is essential to drive reuse adoption.

- **Simple, visual cues** such as icons, bold "Return for Reuse" labels, or distinctive container design remind consumers to return packaging and help overcome language barriers.

- **Supporting return** requires both deposits and positive reinforcement. Messages like "Please return me so I can be reused!" create norms, while loyalty rewards reinforce behavior.

- **Transparency on hygiene** can be a plus: explain washing standards (e.g., 85 °C sanitization), display "I've been washed" labels, or share behind-the-scenes videos to build trust.

- **Differentiate from recycling**: explain that reuse keeps packaging intact for multiple cycles, saving more energy and waste than recycling alone.

- **Multi-channel outreach**—social media, posters, staff reminders, or community events—maximizes visibility. Public progress updates and testimonials build social proof, encouraging wider participation.

In Georgia, linking reuse to national pride ("Help keep Georgia beautiful") and youth engagement (e.g., university ambassadors, TikTok campaigns) can accelerate cultural acceptance.

6.2 Digital Tools & Loyalty Platforms

Technology can make reuse systems seamless and attractive.

- **Mobile apps** can serve as the main hub: they enable account creation, show return points, scan QR codes, track deposits, and provide impact stats ("15 disposables avoided = 2 kg CO_2 saved"). Push notifications remind users to return containers. Vytal, for example, uses QR codes for checkout and return, combined with automated reminders (Zero Waste Europe, 2024).

- **Gamification and loyalty** drive engagement: points, discounts, or free products for repeated returns make reuse feel like a rewards program, especially for younger users.

- **Smart identifiers** like QR codes or RFID enable fast, accurate refunds. RFID can even allow drop-and-go returns in bins with automatic crediting, useful in busy venues.
- **Integration with existing systems** enhances adoption. Reuse can be tied to e-commerce apps, student cards, or banking apps, ensuring accessibility for Georgian consumers already using mobile wallets.
- **Digital communication**—emails, push messages, and social media—keeps reuse visible and encourages participation. Apps can also educate through FAQs, short videos, and direct support, building user trust.

Digital tools require investment but can start small (e.g., SMS confirmations) before scaling into full-featured apps or white-label platforms. For Georgia, where smartphone penetration is high, a sleek digital layer could make reuse mainstream and appealing, while maintaining manual options for non-digital users.

6.3 Internal Stakeholder Engagement

Launching reuse requires change management across departments.

- **Clear roles & responsibilities**: Assign ownership to operations (collection, cleaning), communications (customer messaging), IT (digital tools), and finance (tracking deposits). Dedicated cross-functional task forces help coordinate pilots, as seen in large beverage companies introducing reuse lines.
- **Training & education**: Staff at all levels must understand both operational procedures and the purpose of reuse. Training should cover handling of returns, hygiene protocols, and how to answer customer questions. Employee buy-in is critical; involving them with impact metrics (e.g., kg of plastic saved) fosters pride and engagement.
- **Workflow adjustments**: Procedures may need updating for storage, collection frequency, or washing. Clarifying responsibilities across departments prevents errors such as reusables being discarded.
- **Internal communication & culture**: Leadership should endorse reuse in newsletters and meetings, positioning it as a company priority. Sharing success stories and addressing workload concerns helps overcome internal resistance over time.
- **Empowerment & feedback**: Provide channels for employees to suggest improvements. Recognizing staff contributions encourages ownership.

- **Internal KPIs**: Track return rates, container losses, or app sign-ups per store or department. Recognition for teams hitting targets can motivate, but KPIs should balance efficiency with service quality.

Embedding reuse into company culture turns employees into ambassadors, ensuring long-term success. For Georgia, appealing to national pride and sustainability values can further strengthen engagement.

6.4 External Stakeholder Engagement

A reuse system depends on building alliances beyond the company itself.

- **B2B partners**: Contracts or MOUs with suppliers, distributors, retailers, and washing providers should set responsibilities, hygiene standards, and compensation. Supermarkets acting as drop-off points, for example, may require handling fees or co-branding agreements. Shared KPIs—such as return rates or cleaning quality—strengthen collaboration.

- **Municipalities & government**: Local authorities can provide return space, promotion, and policy support. Early engagement ensures alignment with health and safety rules and may open access to grants. Municipal endorsement also enhances credibility.

- **Community & NGOs**: Partnerships with environmental groups can boost awareness campaigns, provide data, and support lobbying. In Georgia, actors such as CENN or the Green Movement could amplify reuse initiatives and foster city-wide cooperation.

- **Industry coalitions**: In the long-run, collective action through associations helps standardize packaging formats, reduces complexity for consumers, and increases leverage in policy discussions.

- **Media & public relations**: Positive relationships with local media spread success stories and manage risks transparently if problems arise.

- **Scaling**: Strong external relations can open doors to new markets, municipalities, or franchise partners. Presenting clear impact reports supports expansion.

Effective stakeholder management builds trust, aligns incentives, and accelerates systemic change. For Georgia, cooperation with government, NGOs, and business associations can turn isolated pilots into city-wide or national reuse systems.

Chapter 7

Implementation Roadmap & Monitoring

7.1 Step-by-Step Launch Checklist

Launching a reuse program requires structured planning.

1. **Define goals & KPIs**: Set clear objectives such as waste reduction, cost savings, or return rates. Track KPIs like loss rate, cycles per container, and CO_2 savings.

2. **Map stakeholders & roles**: Form a cross-functional task force (ops, marketing, IT, finance) and assign responsibilities. Include external partners early.

3. **Check compliance**: Review health codes, labeling rules, deposit/refund regulations, and permits. Clarify VAT treatment for deposits.

4. **Select items & materials**: Start with durable, high-turnover containers (e.g., glass jars, steel boxes). Plan inventory: 3–4x daily circulation to cover use, wash, and storage.

5. **Design reverse logistics**: Plan return points, pick-up frequency, interim storage, and contingency for overflow. Piggyback on existing delivery routes where possible.

6. **Financial planning:** Conduct the cost-benefit analysis (projections of waste management savings, reduction in labour and transportation requirements). Once the benefits are clear, define how the system is to be financed.

7. **Prepare infrastructure**: Set up washing (in-house or outsourced), storage, and inspection protocols. Document procerudre and define handling of damaged units.

8. **Pilot & train staff**: Test in a small number of sites, train employees, and collect user feedback. Monitor return rates, losses, and customer satisfaction.

9. **Iterate, refine & expand gradually** : Adjust logistics, communication, or tech tools based on pilot results. Use data to secure further funding. Roll out in phases, monitor KPIs weekly, and address site-specific challenges quickly.

10. **Scale & optimize**: Invest in more efficient equipment, add new packaging types, and adapt to policy changes. Treat reuse as a continuous improvement program.

This structured approach reduces risk and supports Georgian companies in moving from pilot to city-wide adoption.

7.2 Key Performance Indicators (KPIs)

Monitoring performance is essential to improve and scale reuse. Below are some of the KPIs that can be worth tracking:

- **Return rate:** Share of containers returned; mature systems can aim for >90%.
- **Reuse rate / Loop completion rate:** Share of containers reused after a full cycle. Compared to the return rate it also takes into account the number of packaging discarded once returned because of not meeting the functionality or safety requirements to be redistributed.
- **Loss rate**: Share of missing or damaged items. Target <5% to minimize replacement costs.
- **Average cycle count**: Average number of times each container is reused. Indicates durability and system efficiency; low averages may reveal design or loss issues.
- **Cycle time**: Average time users keep containers. Helps adjust deposit deadlines or reminder strategies.
- **User engagement**: Number of active users, satisfaction surveys.
- **Cost per use**: System operating and capital costs divided by the number of containers reused.
- **Environmental impact**: Avoided single-use items, waste (kg), and CO_2 savings, based on LCA assumptions.
- **Asset management**: Inventory accuracy, maintenance, and damage rates, reflecting system reliability.

7.3 Monitoring Tools & Dashboards

To make KPIs actionable, companies need systems for collecting, analyzing, and displaying performance data.

- **Digital dashboards**: Even simple Excel or Google Sheets can track return rate, losses, active users, or CO_2 saved. Charts and segmentation (by site or container type) reveal trends and problem area.
- **Automated data capture**: Apps, QR codes, or RFID minimize manual entry and improve accuracy.
- **Alerts**: Set thresholds to trigger action—for instance, if weekly loss exceeds 10% or return rate at one site drops sharply. Automated alerts ensure quick intervention.
- **Regular reporting**: Produce weekly reports during pilots and monthly once stable. Share results with management and partners; integrate metrics into sustainability reports.
- **Continuous improvement**: Use dashboards in monthly review meetings to analyze root causes, plan corrective actions, and celebrate milestones (e.g., reaching 15 reuses per container).

Monitoring tools not only detect problems but also demonstrate success, helping secure buy-in and guide investment.

7.4 Continuous Learning & Scaling

A reuse program is an ongoing process that requires constant review and adaptation.

- **Post-launch reviews**: Hold regular retrospectives (e.g., quarterly) to identify successes and challenges, adjusting designs or handling procedures as needed.
- **Data-driven adaptation**: Use monitoring results to refine logistics, deposits, or communication. For example, adjust collection schedules if returns cluster on certain days, or target outreach in areas with low uptake.
- **Phased scaling**: Treat each expansion as a "mini-pilot." Consumer habits, transport distances, or stakeholder involvement may differ by region; adapt accordingly.
- **Feedback loops**: Enable easy input from customers and partners, through app functions or regular partner meetings. Such insights can guide expansion or service improvements.

- **Training & onboarding**: Institutionalize reuse training for all new staff and refresh existing employees to avoid “procedure drift”.
- **Innovation & alignment**: Stay updated on new technologies (e.g., washable RFID) and regulatory developments, and benchmark against peers to stay ahead.
- **Celebrating milestones**: Share achievements internally and externally (“100,000 reuses reached”) to build motivation and public trust.
- **Next-scale thresholds**: Pre-define conditions for expansion (e.g., >85% return and <5% loss sustained) to avoid premature or delayed scaling.

Continuous learning ensures reuse systems remain efficient, resilient, and ready to grow in the Georgian context.

Conclusion

Reusable packaging is not a new concept — it was common practice for decades before being displaced by single-use packaging and a focus on downstream waste management. Today, as the limits of recycling and waste management are evident, reuse is returning in the packaging policy and business strategy. Regulations such as the PPWR are setting binding reuse targets, while rising raw material costs can make reuse increasingly attractive from a financial perspective. For companies in Georgia, this manual provides a step-by-step guide to explore and implement reuse models, offering a pathway to align with global trends, reduce costs, and strengthen environmental performance.

Appendix

Appendix A - KPI Dashboard for Reusable Packaging Systems

Category	KPI	Definition / Metric
Environmental Performance	CO_2 emissions avoided	Kg CO_2e saved compared to single-use
	Waste avoided	# or kg of single-use items displaced
	Avg. reuse cycles achieved	Actual lifetime uses per container
	Water & energy per wash	L and kWh per item washed

Economic / Financial	Cost per use	€/item use including washing & logistics
	Cost savings	€ avoided from not buying single-use
	Deposit recovery rate (if used)	% of deposits successfully returned
	Profitability timeline	Years to break-even
Operational & Logistics	Return rate	% of distributed items returned
	Retention time	Avg. days until item is returned
	Loss/shrinkage rate	% of items not returned or broken
	Cleaning rejection rate	% rejected after washing
	Washing capacity use	% utilization of installed machines
Stakeholder & User	Consumer participation	% of customers choosing reuse
	User satisfaction	Survey score or % positive feedback
	Partner engagement	# of HORECA, retailers, event vendors onboarded
	Awareness reach	# people reached by campaigns
Policy & System-Level	Regulatory compliance	Alignment with bans / green event criteria
	Scalability	# of venues/events covered
	Jobs created	# of jobs in logistics, washing, mgmt.

Definitions

- **Return rate** (New ERA, s.d.) – % of reusable packaging returned by consumers at every cycle.

- **Retention time** (Zero Waste Europe, 2023) – The retention time is the average time measured in days a packaging needs to complete one rotation, thus unavailable for reuse as it is currently at another point in the use cycle (e.g., with the consumer, being washed, or being transported). The retention time can vary greatly, depending on the industry and geography of the reuse system. Retention times should generally be reduced to a maximum of 30 days in order to use reusable packaging effectively.

- **Reuse cycle / number of cycles** (EUR-Lex, 2024) – The cycle that reusable packaging accomplishes from the moment it is placed on the market together with the product it is intended to contain, protect, handle, deliver or present to the moment it is ready to be re-used within a re-use system with a view to it being supplied again to end users together with another product;
  N.B. A 'trip' can also be used as a synonym for rotation. A trip is defined "as transfer of packaging, from filling/loading to emptying/ unloading. A rotation is defined as a cycle undergone by reusable packaging from filling/loading to filling/loading" by the ISO 18603 (ISO, s.d.).
  The average number of rotations means the average number of cycles a single package actually undergoes during its lifecycle in a defined reuse system, under normal conditions of use.

- **Deposit system** (EUR-Lex, 2024)– A defined sum of money, not being part of the price of a packaged or filled product that is collected from the end user when purchasing such packaged or filled product, covered by a deposit and return system in a given Member State and redeemable when the end user or any other person returns the deposit bearing packaging to a collection point established for that purpose.

- **Standard** (EUR-Lex, 2024)– A technical specification, adopted by a recognised standardisation body, for repeated or continuous application, with which compliance is not compulsory, and which is one of the following:

- ‘international standard’ means a standard adopted by an international standardisation body;
- ‘European standard’ means a standard adopted by a European standardisation organisation;
- ‘harmonised standard’ means a European standard adopted on the basis of a request made by the Commission for the application of Union harmonisation legislation;
- ‘national standard’ means a standard adopted by a national standardisation body;

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