

Change(K)now!



Solutions for circular food delivery systems

CLUSTER II: EVENTS

Interreg
Baltic Sea Region



Co-funded by
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CIRCULAR ECONOMY

Change(K)now!

Solutions for circular food delivery systems

Cluster II: Events

May 2026

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This material was developed as a part of the Change(K)now! (#048) project, with financial support from the INTERREG Baltic Sea Region programme of the European Union.

The content of this material is solely the opinion of the authors, not that of the European Union

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1. Introduction

Events are occasions where people come together and find inspiration. At the same time, enormous amounts of waste are produced at events, causing considerable damage to the environment. Especially in the catering sector, when food and drinks are served with tableware and cups for quick consumption at an event, single-use packaging comes into play. What sounds simple in individual cases - choosing a container or cup that can be cleaned and reused - is a major challenge on a societal and systemic level. How can the transformation towards a circular economy using reusable packaging succeed? This document tackles this challenge, presents practical measures that support reuse at events and a whole mindset change towards a circular way of acting.

The project is focused on municipalities and municipal entities, event organizers and stand operators who serve food and drinks and, crucially, event attendees. These players can drive the circularity of event-type eating by adopting sustainable solutions and changing routines and behaviors.

The problem is that such options are dispersed, their applicability is not tested beyond a particular case, and they are not tailored nor mainstreamed widely enough to create acceptance by businesses and consumers.

The purpose of this document is, on the one hand, to provide theoretical information about reusable solutions in the context of events, to explain the reusable system, and to present practical implementation steps and best practices. These are intended to inspire, provide ideas, and encourage others to follow suit.

The special feature is the international cooperation of representatives from different countries in the Baltic Sea region, both with regional authorities and municipal networks.

The group of stakeholders that has been intensively involved in the development of the solution prototype consists of:

- PP2 Latvia, Riga, Riga City Council
- PP3 Latvia, Liepaja, Liepaja city municipality administration
- PP5 Estonia, Tallinn, Tallinn Strategic Management Office
- PP15 Germany, Hamburg, Green Events Hamburg
- PP20 Denmark, Copenhagen, Copenhagen Municipality

This document is structured to guide readers from context to action. It opens with an introduction to the Change(K)now! project and an overview of the pilot phase, before providing a system description of the event context in chapter 2. Chapter 3 examines the challenges and opportunities of reusable packaging at events in depth: environmental

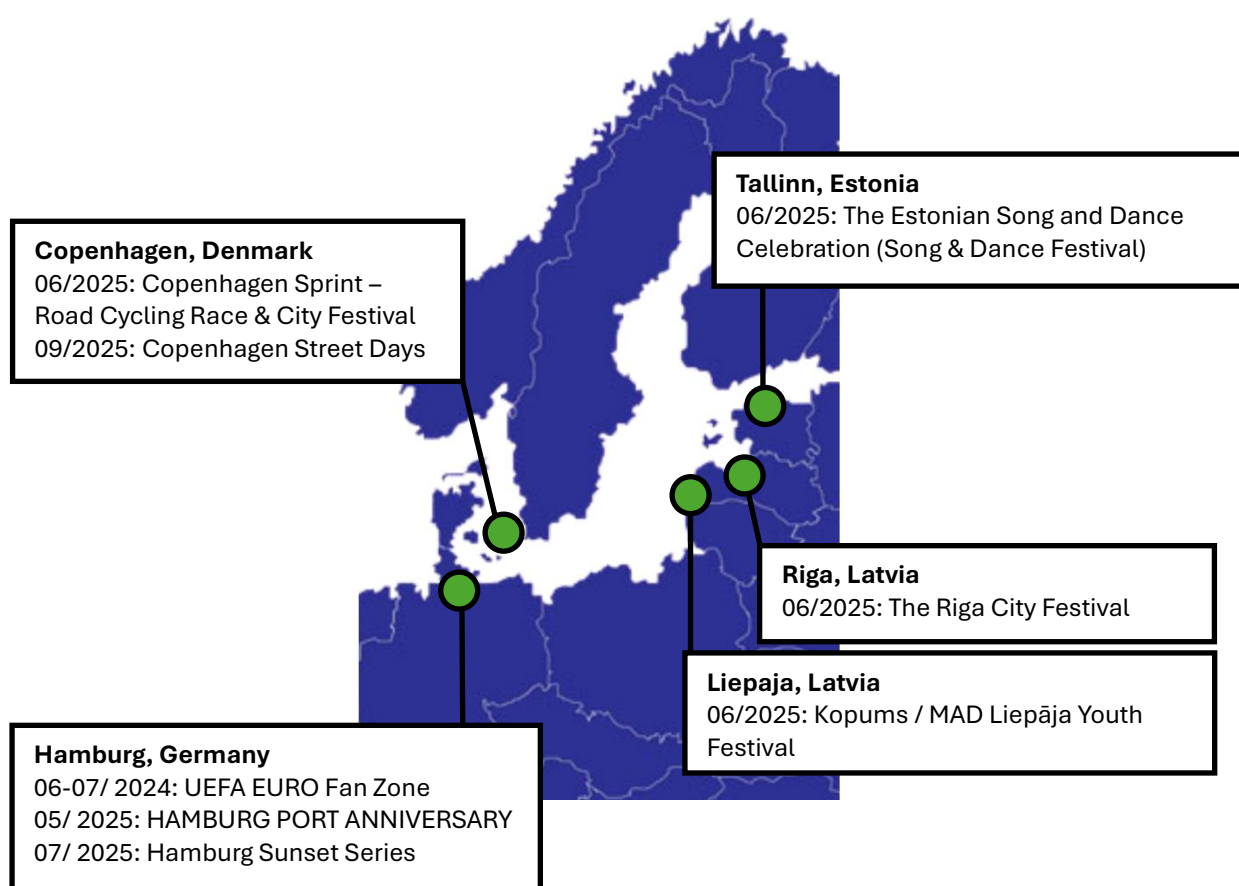
issues, regulatory frameworks at EU level, the role of municipalities, the reusable cycle, stakeholder roles, and a detailed breakdown of the ten system elements that together form a functioning reusable system. Chapter 4 translates this systemic understanding into practical action: it presents a comprehensive overview of reusable measures mapped to relevant stakeholders, followed by detailed descriptions of nine measures tested during the Change(K)now! pilot phase. The document closes with key takeaways for the two most influential actor groups: event organizers and municipalities.

1.1. Data source

In the first year of the project the data basis was essentially based on interviews, surveys and workshops. In total, findings from over 40 interviews, 25 participants in an online survey and over 100 participants in workshops/ discussions were incorporated into the initial project findings. The above-mentioned partners from Denmark, Latvia, Estonia and Germany carried out the data collection. Based on these findings, the pilot phase was launched and reusable solutions were tested.

1.2. Overview of the pilot phase

During the second year of the project, pilot activities took place in various cities across the Baltic Sea Region (BSR). Reusable solutions were systematically tested.



The pilot projects took place in a wide variety of event types and infrastructural and legal contexts. While all events were public in nature, they differed considerably in size, number of participants, and occasion—and so the reusable measures also differed considerably in their approach and scope of application. These ranged from a small running event to a culturally significant song and dance festival with over 100,000 participants and a Fan Zone during the UEFA EURO, where over 600,000 visitors used reusable products over the course of a month. The reusable measures were implemented partly centrally, partly decentrally, digitally and analog, sometimes with broad support from the city administration, sometimes with great reservations. These findings serve as the basis for the following report

2. System description: Eat-at-place/ events

Events are complex systems that differ widely depending on their type, size, duration, accessibility, financing and other factors. The diversity of events means that there are several possibilities as to which stakeholders are involved in the process and which problems arise when it comes to the transition from single to multi-use packaging. At the same time, the effectiveness of circular measures is also individual depending on the context of the specific event. First of all, it is therefore important to establish the scope of an event and the systemic assumption under which this document is to be read.

An event is either one-off or recurring and serves to bring together a specific group of people to achieve a common goal, exchange information or entertain.

This working group focuses on public events such as street festivals, music events or sporting events. Public events are characterized by the following factors:

- Public events are generally open to everyone. As a rule, participation does not require a personal invitation or special qualifications.
- The target groups of such events are often heterogeneous, which means that people of different ages, genders, social classes or interests can take part.
- Public events often take place in public places such as stadiums, parks, exhibition grounds, public squares or cultural centers in order to provide access to as many people as possible.
- The event size varies, but this project focuses on larger events (10,000 or more people).

The food and drinks on offer at events play a central role in the design of the event. The offer is usually provided either by caterers, food trucks, restaurants or food stands. The food and drinks are usually handed out together with crockery, cutlery and cups and

then consumed in the event area and are not taken home. This is called **event-type eating**.

3. Challenges and opportunities: reusable packaging at events

3.1. Environmental issues

Enormous quantities of waste are generated each year, significantly contributing to environmental pollution and climate change, and reflecting a highly inefficient use of valuable resources. Packaging waste - such as plastic, cardboard, paper, and glass constitutes a large portion of typical household waste (around 35% in Germany). All these materials carry a heavy environmental cost.

In 2023, the average EU citizen generated 177,8 kg of packaging waste. Over the past decade, this figure has risen by more than 20%. Germany's residents exceed this average significantly, producing 215 kg per person annually. In Denmark for example, similar trends are observed: packaging waste per capita increased from approximately 125 kg in 2010 to 187 kg in 2022 - on a level with the latest EU average of 186 kg.

The waste generated at events is part of the problem. Much of the waste is caused by the plates, cutlery and cups provided, which are often made from single-use plastics. Single-use plastics are expected to be thrown away by the user. With these plastics, convenience takes precedence over durability and reuse.

The production and disposal of plastic causes several gigatons of greenhouse gas emissions worldwide every year ([OECD 2022](#)).

“The plastics lifecycle is closely linked to climate change, as most primary plastics are fossil-fuel based. Fossil fuel extraction, plastics production and conversion contribute 90% of quantifiable plastics-related GHG emissions. Significant GHG emissions also come from the end-of-life stage.” ([OECD 2022](#))

If the packaging ends up in the environment, it pollutes animals, humans and the entire ecosystem. In terms of weight, single-use plastic makes up the largest proportion of plastic pollution in the sea. Up to 23 million tons of plastic waste end up in our oceans every year ([WWF 2024](#)). It becomes very clear that plastic pollution and measures to combat climate change go hand in hand.

To conserve resources and avoid waste, single-use plastics in particular must be reduced or avoided. A stronger focus on circular solutions, i.e. reusable packaging, is an important building block for this. So far, however, these have been used too little, especially at events ([WWF 2023](#)).

Furthermore, many types of single-use packaging are not considered in EU-wide or national legislation or the introduction of reusable models is circumvented in practice for various reasons. The fact that the regulation is not sufficiently effective is evident in the reusable quotas. For example, in 2023, only 7% of cups and only 0.3% of meals in the German food service industry were served in reusable packaging ([source](#)). The market-wide changeover to circular event catering is therefore still in the start-up phase.

3.2. Challenges in the context of events

The transition from disposable packaging to reusable solutions is progressing slowly, as the stakeholders involved are faced with a variety of challenges. Again, these challenges vary considerably depending on the event format, its funding and the national and/or local legislation. However, the main problems can be categorized as follows:

Technical Challenges:

The infrastructure for reusable service providers varies from region to region. While providers of reusable packaging can be found in most of them, specific services such as a range of varied reusable designs, (mobile) washing lines, vending machines for reusables and reliable online payment services are not always sufficiently available.

This means that the specific needs of a wide variety of event organizers cannot be adequately met.

Regulatory:

Overly lax legislation on the use of reusable materials at events or unclear long-term perspectives on how these will develop are slowing down the conversion of companies to offering reusable solutions. Event organizers are also irritated by the sometimes complicated legal requirements or circumvent them, as controls and sanctions are often not to be expected.

Financial challenges:

In most cases, the switch from single-use to reusable packaging is associated with additional costs in terms of procurement, logistics, storage, cleaning and communication. Additional personnel resources cannot yet be compensated for. The economic viability of circular measures in the event sector is an essential factor to evaluate. Although the long-term advantages of circular practices, such as lower waste management expenses and minimized environmental harm, are significant, the upfront costs can be substantial.

Knowledge & behavior:

Event organizers, stand operators and end users/ guests have knowledge gaps and uncertainties regarding the environmental impact of reusable packaging. In addition, there are gaps in the knowledge of all those involved in the process as to exactly how the reusable systems function and are handled. Many guests are used to the convenience of single-use packaging, which allows for easy disposal without the hassle of paying a deposit and returning the reusables. Changing this mindset towards a more sustainable option demands an increased awareness as well as incentives.

3.3. Opportunities in the context of events

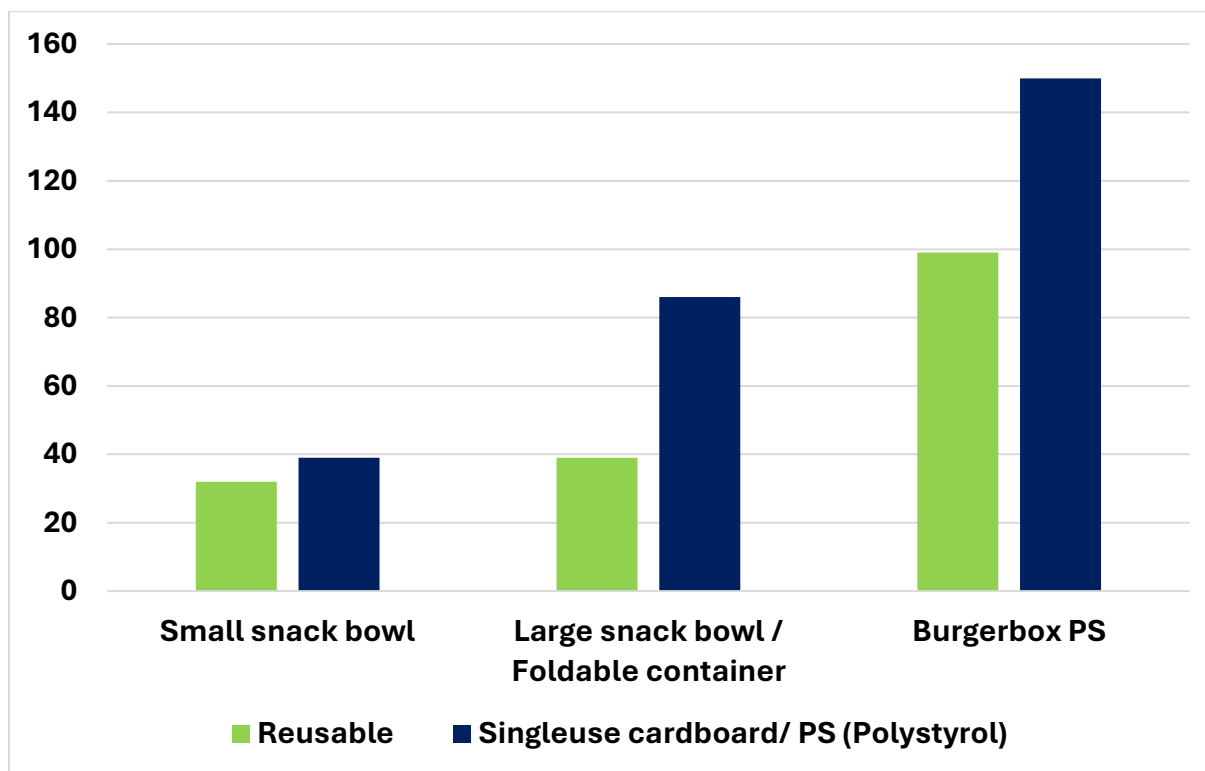
The reduction of CO₂ emissions:

Although the production of reusable tableware is initially more energy-intensive (due to the more robust material properties), the CO₂ balance improves significantly with every washing and usage cycle. In single-use systems, a new vessel must be produced, transported, and disposed of for every drink or meal. This linear process continuously causes high greenhouse gas emissions.

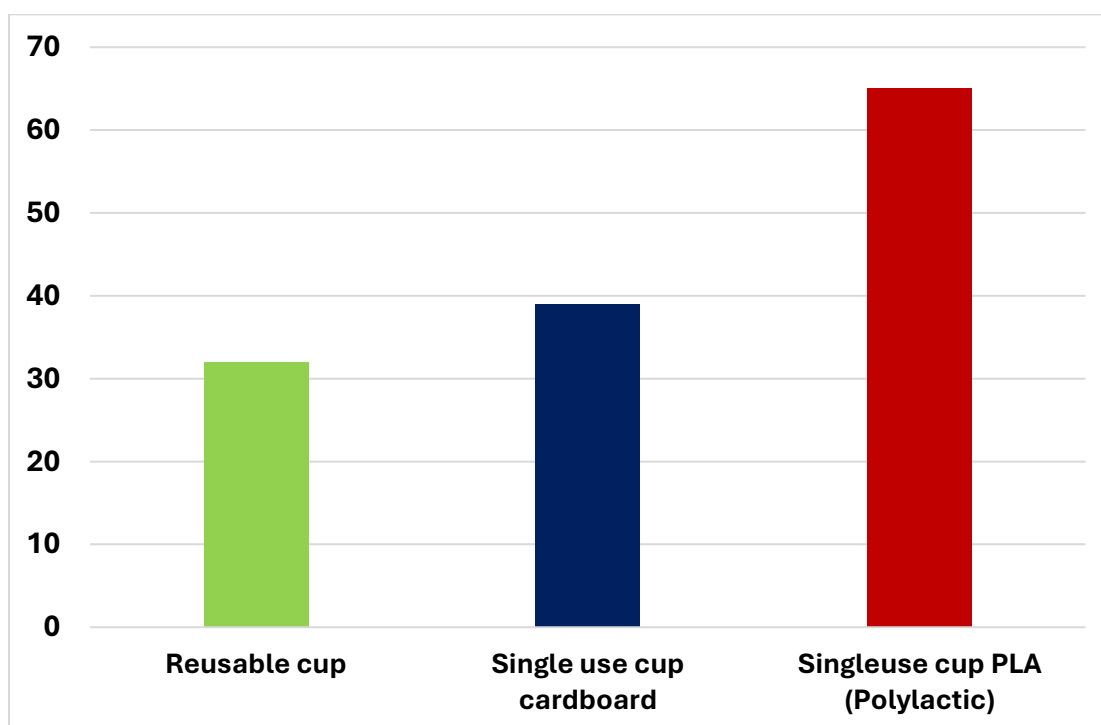
The Break-Even Point: Life cycle assessments show that reusable cups made of polypropylene (PP) are often more climate-friendly than conventional single-use PET or PLA cups after just 5 to 10 uses ([source](#)) According to a Life Cycle Assessment (LCA) by the Danish company New Loop, the reusable cup reaches its environmental break-even point after **only two uses** when compared to conventional double-walled paper cups ([source](#)).

The following chart illustrates a comparison of various food packaging and cups in terms of their environmental impact. The following assumptions are used: For reusable tableware, a service life of 50 cycles is assumed. One wash cycle (in an industrial dishwasher) is accounted for after each use. Transportation is not taken into account, and it is assumed that washing takes place on-site. Disposal (residual waste; thermal recycling in a waste-to-energy plant) after use/life cycle of single-use and reusable tableware was included. The results are rounded. A quantity of 5,000 cups is assumed ([source](#)).

Comparison of different food packaging materials in kg CO_{2e}



Comparison of different cup materials in kg CO_{2e}



Through regional dishwashing and optimized transport routes compared to the global raw material chain of single-use plastic, the ecological footprint per drink served decreases significantly.

The washing of reusable packaging also consumes very few resources. With 100 liters of water and 1.4 kilowatt-hours of electricity, 1,000 PP reusable cups can be fully cleaned after an event. In contrast, the production of 1,000 PET single-use cups requires 350 kilowatt-hours of electricity ([source](#)).

Waste reduction:

The use of reusable tableware has great potential to reduce the volume of waste at an event:

- Events can reduce waste by up to 30% and save many tons of lightweight packaging and paper waste. As described above, this not only has a major effect on resource conservation and a better climate balance but can also effectively save costs.
- By introducing a deposit system, the containers receive a monetary value. This prevents careless discarding ("littering") on the ground, which in turn minimizes cleaning efforts and local environmental pollution.
- Since less "mixed waste" is generated by food and drink residues in open trash cans, the remaining waste (e.g., napkins) is easier to handle.

Enhancement of the event experience:

In addition to ecological metrics, the psychological and haptic effect on the guest plays a decisive role in the quality of an event.

- A clean, waste-free event site increases the well-being of visitors. The absence of waste residues and overflowing trash cans ensures an aesthetically more pleasing environment and a better event experience.
- Single-use solutions (cardboard or thin plastic) can be perceived as unstable and inferior. Reusable tableware has a higher material thickness, which underlines the quality of the served food and drinks and improves the consumption experience.
- The use of reusables serves as a visible signal for the environmentally conscious positioning of the organizer. Guests may perceive this as an appreciation of the

environment and as part of the event quality, which strengthens identification with the event.

Events as places of transformation:

Events are occasions of inspiration and enthusiasm and are ideally suited as windows of transformation as they can be seen as a laboratory and place of experience. Guests can try out and live sustainability, and thus acquire the mindset and behavioral change towards reusability.

Events can be understood as temporary micro-societies or living laboratories. In everyday life, personal routines, established convenience habits, and a lack of immediate environmental feedback often prevent individuals from altering their consumption patterns. Attendees of an event enter a space characterized by openness, social interaction, and a shared collective experience. This positive, emotionally charged atmosphere significantly lowers the psychological barriers to behavioral change, making guests far more receptive to adopting and accepting new routines, such as navigating a reusable deposit system.

Finally, events act as vital socio-cultural levers because they attract highly heterogeneous target groups of different ages, social classes, and interests. They succeed in reaching individuals who might otherwise be disengaged from, or indifferent to, green initiatives or municipal climate campaigns. By embedding circular practices organically into cultural, sporting, and public celebrations, municipalities and organizers can effectively democratize sustainable lifestyles.

3.4. Regulatory framework

To address the issue of plastic waste, several regulatory instruments have been introduced at the EU, national and municipal level. This section provides an overview of existing EU-level legislation and outlines the regulations expected to be implemented in the near future. National laws of the various partner countries are not detailed here, as they are subject to rapid changes that exceed the scope of this static overview.

3.4.1. Waste Framework Directive (2008/98/EC)

This directive is the "fundamental law" of waste management. Its most important requirement for reusable systems is the five-step waste hierarchy:

1. **Prevention** (highest priority)
2. **Preparing for reuse** (this includes reusable systems)
3. **Recycling**
4. **Other recovery** (e.g., energy recovery)
5. **Disposal** (landfill)

Specific requirement: The directive obliges Member States to take measures to promote the reuse and repair of products. Legally, it places reusable systems at the top of the disposal chain, but it does not yet prescribe fixed percentages or quotas for companies.

3.4.2. Single-Use Plastics Directive (EU) 2019/904

In 2019, the European Parliament and the Council of the European Union adopted Directive (EU) 2019/904, also known as the "Single-Use Plastics Directive", which sets out specific measures that are mandatory for all EU Member States in order to reduce the environmental impact of single-use plastics. These apply to all events. The directive includes the following two points:

Ban on certain single-use plastic products: Some single-use plastic products for which alternatives exist have been banned since July 3, 2021. These include e.g. cutlery, plates and straws.

Reduction of single-use plastics: Member states must take measures to reduce the consumption of other single-use plastic products for which there are currently no alternatives. These include, for example, food containers and beverage cups.

The directive gives member states flexibility in choosing specific measures to achieve the set goals. This is why there are different legal approaches in the various EU member states ([EUR-Lex 2019](#)).

3.4.3. Packaging and Packaging Waste Regulation (PPWR, EU Regulation 2025/40)

The new Packaging and Packaging Waste Regulation (PPWR, EU Regulation 2025/40), which superseded the previous directive (Directive 94/62/EC on packaging and packaging waste) as of 11 February 2025 and applies from mid-2026. The new regulation applies directly and uniformly in all member states. From mid-2026, a restaurant or event organizer in Copenhagen will be subject to exactly the same rules as one in Berlin. This creates legal certainty for companies operating internationally.

For the first time, the PPWR sets **binding targets**, including for waste avoidance: compared to 2018, every EU member state is to achieve a per capita reduction in packaging waste of at least the following percentages:

- 5 percent by 2030
- 10 percent by 2035
- 15 percent by 2040

To achieve these goals, there are two significant new requirements for the event sector:

Ban on certain packaging formats (Art. 25 & Annex V, Art. 67)

As of January 1, 2030, single-use plastic packaging for food and beverages consumed on-site in the catering industry is prohibited.

Exceptions:

- Restaurants without access to drinking water.
- Furthermore, an exception for micro-enterprises applies to this ban. Whether this is designed like the exception rule for the mandatory reusable offer remains to be seen.

Single-use plastic packaging for individual portions of condiments, coffee creamer, sugar, etc., in the catering industry is also no longer permitted.

- Packaging issued together with takeaway food intended for immediate consumption.

The ban on single-use food and beverage packaging made of expanded polystyrene (Styrofoam) for on-site consumption in catering, which was already included in the Single-Use Plastics Ban Ordinance, is supplemented by the PPWR with a ban on the same packaging formats made of extruded polystyrene (XPS). Thus, the PPWR closes a legal loophole.

Good to know:

The included bans do not apply to composite packaging with a plastic content of up to 5 percent. Unlike in the Single-Use Plastics Directive, such packaging formats are not defined as plastic products in the PPWR. Accordingly, paper packaging coated with plastic can continue to be offered for on-site consumption despite the bans.

Mandatory reusable offer and refill obligation (Art. 32 & 33)

From February 12, 2027, catering establishments must allow consumers to take away food and beverages in containers brought by the customers. From February 12, 2028, customers must additionally be given the option to take away food and beverages in a reusable packaging provided by the business.

Furthermore, catering businesses should aim to offer 10% of their products in reusable packaging by 2030.

An exception rule will apply to small businesses.

Source: [DUH 2025](#)

3.5. The role of the municipality

The introduction of reusable systems at city events or events taking place in public spaces is a complex task that can hardly succeed on a large scale without active steering by the municipality.

Motivation: Why municipalities should act

The reasons for cities and communities to actively demand reusable solutions are diverse:

- Municipalities are under pressure to implement national climate targets and national legislation at the local level. Reusable systems are a measurable instrument to improve CO₂ balances and avoid packaging waste.
- As public-interest entities, municipalities have a signaling effect. By converting city events to reusable systems or requiring reusable tableware when allocating public spaces for events, municipalities demonstrate ecological credibility.
- Single use waste in public areas causes high cleaning costs and reduces the quality of stay. Avoiding waste directly at the source is an efficient form of urban cleaning management.
- Reducing the volume of single use containers offers significant financial relief for municipal budgets. For instance, data from Germany shows that **up to 20%** of the total waste volume in urban public spaces consists of single-use packaging. The disposal of single-use cups alone costs taxpayers in Germany approximately **120 million euros annually** ([source](#)). By transitioning to reusable systems, municipalities can directly lower these operational disposal costs and reallocate funds to other public services.

The municipals responsibility:

Within the implementation of reusable systems, the municipality plays a key role. It acts primarily as a regulator, licensing authority, and monitoring body. While the private organizer is responsible for operational logistics and costs, the municipality creates the binding framework to enforce sustainability standards across the board.

Regulatory framework:

The municipality has the legal authority to mandate the use of reusable systems via various instruments:

- In waste statutes or special market regulations (e.g., for weekly or Christmas markets), municipalities can regulate the use of single-use items or the requirement for reusables.

- Events on public ground require a permit. The municipality can attach conditions to this permit that oblige the organizer to use reusable solutions.
- When leasing city spaces or properties, reusable requirements can be anchored directly as a component of the contract.

Sustainability criteria for tenders:

When the municipality tenders spaces or concessions, it can make sustainability a decisive competitive factor:

- Compliance with reusable measures can be defined as a prerequisite for application.
- In the evaluation of applicant concepts, ecological criteria (e.g., waste avoidance concepts) can account for a significant portion of the total score. This motivates organizers to offer innovative solutions that go beyond the minimum requirement.

Monitoring and sanctions:

The role of the municipality does not end with the granting of the permit; it bears the responsibility for compliance with the rules:

- Organizers can be required to submit reports on quantities used, return rates of deposit systems, and the type of disposal.
- Regular checks (e.g., by the public order office) ensure that catering stalls implement the requirements in practice.
- To maintain the binding nature of the rules, the municipality has sanction options such as warnings, contractual penalties, or exclusion from future awards.

The supporting role of the municipality:

To ensure that reusable mandates are not perceived merely as a bureaucratic hurdle, the municipality takes an active role as an enabler. It supports organizers and stall operators in overcoming logistical and communication challenges.

The acceptance of a reusable system stands and falls with the information provided to the actors involved. The municipality acts here as a knowledge hub:

- Providing information materials and guidelines for stall operators (technical requirements, hygiene) and visitors (explanation of the deposit system).
- Providing ready-made templates for signage, social media graphics, or FAQs relieves the organizers and ensures a uniform, professional image of the city.

One of the tasks of the municipality can be establishing contact with specialized service providers and interest groups or NGOs. Since the city often has long-standing relationships with local actors.

Sustainability succeeds best through community. The municipality can act as an initiator for network meetings. Such formats serve to:

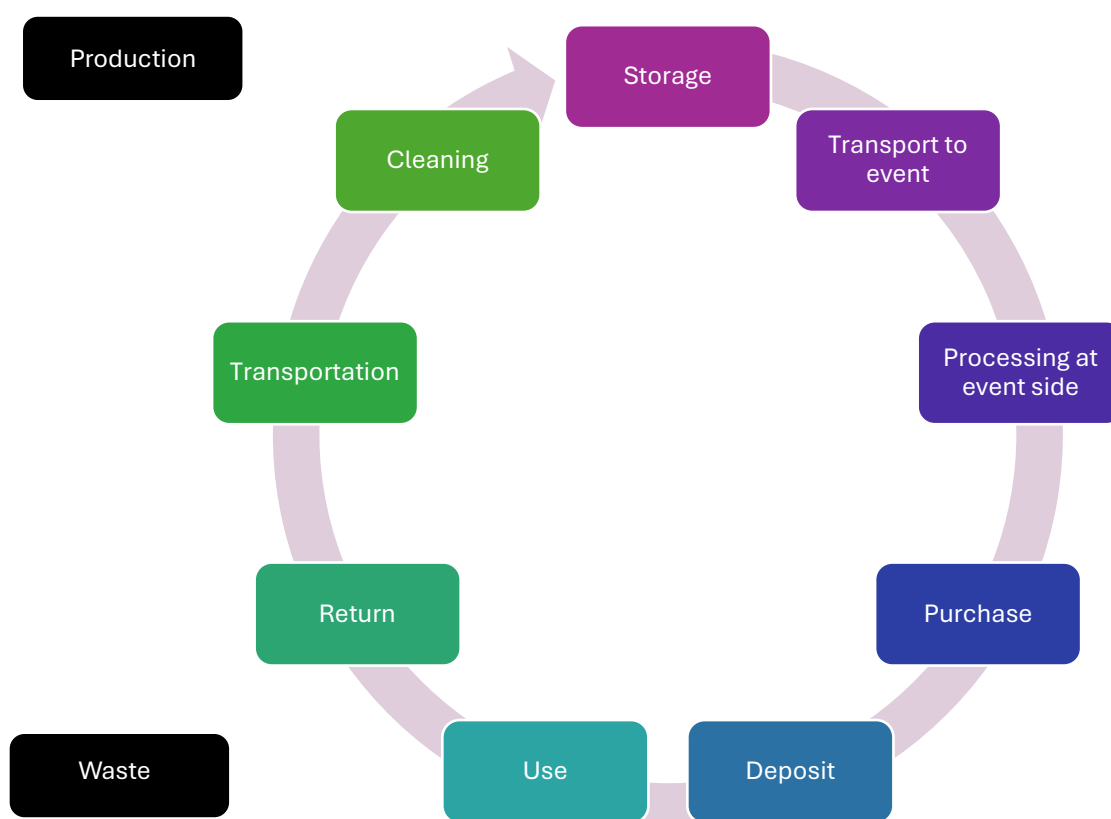
- Exchange best practices between different organizers.
- Find shared logistics solutions (e.g., several small events sharing a mobile dishwasher).
- Reduce barriers and strengthen identification with urban climate goals.

In its operational support, the municipality can also provide physical resources:

- Maintaining city equipment (e.g., mobile return stations or mobile dishwashers) that is lent to local clubs or organizers for a small fee.
- Allocation of strategically favorable locations for central return points in public spaces that can be used by several actors simultaneously

4. The reusable system in the context of events

4.1. The reusable cycle



The diagram describes a reusable circle of reusable packaging at events. The process is illustrated here generically and may vary depending on the type of event. The individual steps are as follows:

1. **Production:** Reusable packaging (e.g. cups, plates, cutlery) is produced.
2. **Transportation:** After production and sale, the reusable packaging is delivered to the buyer, e.g. a reusable service provider.
3. **Storage:** The packaging is stored in a warehouse until it is needed for the event.
4. **Transportation to the event:** The reusable packaging is transported to the event location.

5. **Processing at the event location:** The packaging is distributed to the stand operators and, if necessary, technical systems are provided for the deposit.
6. **Purchase:** Participants of the event receive the reusable packaging filled with food or drinks from the stand operator.
7. **Deposit:** They are issued against a deposit, which can be paid in cash, with an app or by bank transfer.
8. **Use:** The participants use the reusable packaging for consumption.
9. **Waste:** Containers break or get lost and are therefore no longer in circulation.
10. **Return:** After use, participants return the packaging to a return point and receive the deposit back.
11. **Transportation:** The cleaned packaging is transported to a washing station.
12. **Cleaning:** The reusable packaging is cleaned at the event area, in a mobile washing station or in a washing line to prepare it for the next use.

4.2. Stakeholders and their roles

The following stakeholders are typically the key players who need to be involved in the transition from single-use to reusables at events

Policy makers: Policy makers are usually representatives of public authorities, local administrations or government organizations that define framework conditions and guidelines for events (see chapter 3.5. Role of the municipality). Their role is crucial for the regulation and setting of standards that must be adhered to.

Beyond setting rules, policy makers are the only stakeholders with the authority to create binding obligations - such as mandatory reuse requirements for public events or procurement criteria that prioritize circular solutions. They can establish monitoring mechanisms and enforce compliance through sanctions. Municipalities in particular occupy a dual role: as regulators, they define what is required; as organizers or co-financers of public events, they can lead by example. Where national legislation is lacking or insufficient, municipal policy makers can act as pioneers and fill regulatory gaps at the local level. This makes them a key lever for systemic change, especially when voluntary action by other stakeholders has reached its limits.

Event organizers: Event organizers are in contact with all stakeholders and are responsible for the planning, organization and implementation of the event. They coordinate the various stakeholders and ensure that all necessary resources are available and manage the event budget. They work closely with service providers and stand operators, and plan events in line with local and national legislation while providing a good experience for participants.

As the central coordinating actor, the event organizer has a unique position in the reusable system: they decide which system is used, which service providers are contracted, and what requirements stand operators must meet. By anchoring reuse obligations in stand operator contracts, defining uniform deposit amounts and container standards across the entire event site, and integrating reusable systems into the overall event concept. Their early involvement of all relevant stakeholders — ideally during the planning phase, months before the event — is a decisive success factor. At the same time, event organizers bear the communication responsibility towards end users and must ensure that the reusable system is visible, understandable and easy to use on-site

Service providers: The offerings of system service providers vary considerably. Some offer a complete reusable system including delivery, rinsing, storage and logistics. Others specialize in a specific area, operating mobile or permanently installed industrial rinsing lines, or providing logistics services only. The role of providers is to implement infrastructure, operate the reuse system and advocate for its wider adoption. System service providers are the operational backbone of circular event catering. Without reliable and regionally available service providers, even the best-intentioned event organizer cannot implement a functioning reusable system. The range and capacity of providers therefore directly determines the feasibility of reuse at events in a given region. In many parts of the Baltic Sea Region, this market is still in an early stage of development: providers are few, their service portfolios are limited, and their pricing often cannot yet compete with disposable alternatives. Strengthening this sector — through public funding, clear regulatory signals and coordinated demand from event organizers - is therefore a prerequisite for scaling reusable systems. Providers who offer standardized, interoperable solutions (e.g., containers compatible with multiple rinsing systems or deposit schemes) contribute particularly strongly to systemic change.

Stand operators: Stand operators are mainly in contact with the event organizer and the end user. As entrepreneurs, they sell and serve food and drinks, hand out reusable containers, handle the deposit and explain the system to customers. They are also responsible for taking back the reusable products after use.

Stand operators are the point of direct interaction with the end user and therefore play a crucial role in how the reusable system is experienced in practice. A well-designed system can fail if stand operators are poorly briefed, unmotivated or understaffed during peak times. Conversely, well-informed and engaged stand operators can significantly increase return rates and user satisfaction. Their buy-in is closely tied to the perceived complexity and additional workload that a reusable system entails: handling deposits, managing returns, storing dirty containers and explaining the process to every customer adds operational pressure. Reducing this burden — for example through central return

stations, simple and uniform deposit rules, and thorough pre-event training — is key to gaining their cooperation. It is also worth noting that stand operators are often independent businesses operating within the framework set by the event organizer, which means their level of commitment depends heavily on the clarity of contractual requirements and the support they receive.

End users: End users are the participants and target group of the event. Their satisfaction and commitment are crucial to the success of an event. They consume food and drink on-site and play an active role in the reusable system by returning used containers correctly and committing to waste prevention.

Although end users are the final link in the reusable circle, their behavior is largely shaped by the conditions created by all other stakeholders. A system that is intuitive, well-communicated and conveniently accessible will naturally achieve higher return rates — regardless of individual environmental awareness. This means that end users should not be seen primarily as a problem to be solved through campaigns and behavioral nudges, but as actors whose behavior responds rationally to the system design they encounter. That said, awareness and motivation do matter: end users who understand why reuse is important and how the system works are more likely to engage actively, return containers even when it requires a small detour, and communicate positively about the experience. Pre-event communication, clear on-site signage and deposit systems that feel fair and simple all contribute to turning passive participants into active supporters of the circular system.

5. System elements of events

Reusable systems at events are complex by nature: they involve multiple stakeholders, tight operational timelines, varying infrastructural conditions, and a wide range of possible measures. To make this complexity manageable, the system can be broken down into functional elements that reflect the full lifecycle of a reusable solution – from strategic preparation to on-site operations and the structural conditions that determine long-term feasibility. Each element addresses a distinct set of challenges and decisions, while remaining closely interconnected with the others. The following chapter describes these system elements in detail, providing decision-making guidance, practical checklists, and – where applicable – insights from the Change(K)now! pilot phase. The structure follows three levels:

Strategic system elements

1. **Planning:** Strategic preparation of the event.
2. **System:** Selection and design of the reusable system.

3. **Communication:** Exchange with stakeholders and end users.

Technical system elements

5. **Tableware:** Requirements for the nature and functionality of the containers.
6. **Logistics & storage:** Transport, distribution, and storage.
7. **Distribution and return:** Operative handling of the deposit system on-site.
8. **Hygiene & dishwashing:** Cleaning processes (on-site or external).

Framework system elements

10. **Financing:** Cost structures and refinancing models.
11. **Infrastructure:** Regional availability of service providers and technology.
12. **Regulations:** Legal requirements and regulatory levers.

The following points are intended to help make a decision and should be viewed as a source of inspiration and guidance. Not all points are relevant to every type of event.

5.1.1. System Element: Planning

The foundation for a successful reusable system is laid during the planning phase. This involves more than just logistical preparation; it is a strategic fundamental decision: How can reusable solutions be integrated as broadly as possible and in a way that matches the character of the event? Core tasks in this phase include defining measurable goals (e.g., 30% waste reduction, resource conservation, or image gain) as well as a sound status quo analysis. This analysis determines which waste streams have occurred so far and which catering offers (e.g., finger food vs. soups) place which requirements on the containers. Since there is no universal solution, an assessment of individual framework conditions takes place here: event size and type, duration, target group, gastronomic offerings, accessibility, existing infrastructure, and the needs of stakeholders must be brought into harmony. Early involvement of all actors is crucial to create acceptance and to resolve operational hurdles (such as lack of space or time pressure during service) in advance.

Decision-making guide: Strategic course setting

To make planning efficient, organizers should weigh the following points:

- **Clearly define goals:** Should the system primarily avoid waste (ecological focus) or increase the quality of the event experience (high-quality tableware)? The answer influences, for example, the system (reusable service provider or own tableware), the scaling (partial area or entire event, only drinks, etc.), or factors such as the choice of material.

- **Involve stakeholders early:** Integrate caterers, gastronomes, and cleaning companies already in the conception phase. Only if the gastronomy supports the process (e.g., handling at the cash register) will the system work during the stressful moments of the event.
- **Formulate clear specifications in contracts:** For instance, anchor a "reusable mandate" in the stall operator contracts. Define **justified exceptions** (e.g., for food for which there is technically no reusable solution yet and which makes ecological sense, such as pointed paper bags for fries) to secure the cooperation of the vendors.
- **Plan a system that is as uniform as possible:** Plan a system with a uniform deposit amount and compatible containers across the entire site. This massively reduces complexity for the guest and increases the return rate.

Checklist: Planning

☐ **Status Quo Analysis performed?** Was it checked which tableware/cutlery was used previously and where the largest amounts of waste are generated? Which stakeholders are involved?

☐ **Roles and responsibilities distributed?** Is it clear who is responsible for procurement, who for logistics, and who for the final accounting?

☐ **Schedule created?** Have lead times of 4–6 months (especially for booking dishwashing capacities for large events) been taken into account?

☐ **Site planning completed?** Is there sufficient space planned on the site for the storage of clean and dirty dishes as well as for possible return stations?

☐ **Budget framework set?** Are the initial costs (rent/purchase) and the running costs (personnel, logistics, washing) reflected in the financial plan?

☐ **Waste law requirements checked?** Were municipal specifications or statutes (e.g., the city's reusable mandate) included in the planning?

☐ **Risk management:** Is there a Plan B for unexpectedly high crowds or system failures (e.g., IT failure for digital deposits)?

5.1.2. System Element: System

In this element, the operational "heart" of the circular economy is defined: the deposit and logistics model. The choice of system significantly determines how high the return rate of the dishes is and how much effort is required for the stall operators. The central insight here is: Convenience beats ideology. For a reusable system to work, it must be as

simple as possible (barrier-free) for the end user and as efficient as possible for the gastronome. A complex system that may be ecologically perfect but tedious in handling will meet with resistance. The system design must therefore create incentives that go beyond pure environmental considerations.

Decision-making guide: Choosing the right model

- **Central approach vs. individual system:**
 - Central (recommendation for large events): The organizer provides a uniform system for all stalls. Advantage: The guest can return the cup from Stand A to Stand B as well as to centrally organized return infrastructure. This massively increases the return rate and comfort.
 - Individual system: Each stall uses its own containers, which reduces the organizational effort. Disadvantage: The guest must return to the same stall.
 - Choice of deposit type: A uniform deposit amount (e.g., a flat rate of €2 on everything) across the entire site is a convenient solution for guests and staff. Tokens/deposit vouchers can help minimize cash handling and deposit theft.
- **Creating incentive systems:**
 - E.g. discounts on the stall fee for operators who use the central system in an exemplary manner.
 - A central ordering system for tableware relieves stall operators of their logistics concerns.
 - "Bring Your Own" discount: Reward guests who bring their own containers with small price reductions – this reduces the required circulation volume of the deposit system.

Checklist: System

[] **System decision made?** Is it clear whether a central reusable system or an individual system will be implemented?

[] **Deposit amount fixed?** Is the deposit amount high enough to provide a return incentive, but low enough not to inhibit the willingness to buy?

[] **Deposit refund established?** Weighing between cash, bank transfer, app solution, closed-loop systems (e.g., via festival wristbands with RFID/NFC chips).

[] **Incentive model communicated?** Do the stall operators know about discounts or the ordering system when the contract is concluded?

5.1.3. System Element: Communication

Communication is the link for the entire reusable system and a decisive success factor for its acceptance. It has a dual function: Internally, it ensures that all actors – from the stall operator to the service provider – know their role in the cycle and understand the processes (deposit amounts, return modalities). Externally (visitors), communication serves to convey the ecological added value and – even more importantly – to give clear instructions for action. Inadequate communication leads to confusion, delays in service, and frustrated guests. The goal is to explain the system so transparently that the process becomes intuitive for the guest ("Information at the right time in the right place").

Decision-making guide: Communication as a success lever

- Timing of communication (Pre-event vs. On-site): Pre-event: Use social media and the website to explain the "why" (e.g., CO₂ savings). This way, guests arrive at the site already with the "reusable" expectation. On-site: On-site, only efficiency counts. Communication here must be purely instructional.
- Incentivization through language: Use positive reinforcement instead of bans. Instead of "Disposable forbidden," communicate "We celebrate plastic-free".

Checklist: Communication

☐ **Briefing of stall operators completed?** Do all gastronomes know about deposit amounts, return rules, and accounting modalities?

☐ **Pre-event campaign started?** Were visitors informed in advance via channels such as Instagram, newsletters, or the website that a reusable system is in use?

☐ **On-site signage sufficient?** Are deposit symbols, return stations, and prices marked clearly and in large format?

☐ **Personnel trained?** Can the staff at the cash registers and return stations answer follow-up questions about the system (e.g., "Where do I get my money back?") quickly and competently?

☐ **Feedback channel established?** Is there a way for stall operators and guests to report problems in the system directly in order to make adjustments during the event?

☐ **Success report after the event?** Is it planned to communicate the amount of waste saved after the event (reinforcement of the target groups for the next year)?

5.1.4. System Element: Tableware

This element is about the physical component of the system: the selection of the appropriate containers. The tableware must not only be functional for the food and drinks offered (stackability, heat resistance, drying properties) but also economically and ecologically sensible. The central decision here is the origin of the tableware. Since reusable containers only play out their ecological and financial advantages over disposable ones through frequent reuse, the **circulation and return rate** plays the decisive role.

Decision-making guide: purchase vs. reusable pool system

- Purchase of own tableware: A purchase only makes sense if the tableware achieves very high circulation rates (e.g., at weekly events or in stationary businesses). Consider the follow-up costs: storage throughout the year, cleaning, inventory, and replacement of loss.
- Use of a pool service provider (recommendation): In most cases, cooperation with a pool provider is worthwhile. Here the tableware for the duration of the event is rented. Advantage: Payment for actual use, no storage costs, and the tableware remains in a professional cycle, which improves the ecological balance (through maximum utilization of the containers).
- Design & standardization: Choose standard shapes. The more exotic the design, the more difficult the industrial cleaning and the higher the danger that guests will take the tableware as a "souvenir," which increases the loss rate.

Checklist: Tableware

☐ **Needs analysis performed?** What types of food are offered (soups, finger food, cold drinks) and which containers are absolutely necessary for them?

☐ **Economic efficiency check completed?** Have the costs for purchase (including storage/replacement) been calculated against the rental fees of a pool system?

☐ **Material choice made?** Was a material chosen that is durable, shatterproof, and food-safe (e.g., high-quality polypropylene or polycarbonate)?

☐ Quantity planning including buffer carried out?

5.1.5. System Element: Logistics & storage

Logistics is the operational backbone of a functioning reusable system. It encompasses the physical pathways that the tableware travels across the event site, as well as its

secure storage. The goal is a seamless, circular material flow: clean tableware must be available at the booths in sufficient quantities at all times, while used tableware must be transported away quickly and efficiently to avoid hygienic issues or visual clutter on the grounds. Because storage space at events is usually scarce and delivery routes can be blocked by crowds, this element requires precise temporal and spatial synchronization.

Decision-making guide:

- Centralized logistics hub vs. decentralized booth storage:
 - Centralized hub (Recommended when booth space is tight): A central main storage area on-site (e.g., a secured container zone) holds the entire stock. Dedicated "runners" (replenishment staff) supply the booths based on real-time demand. Advantage: Maximum control over inventory and significant workload reduction for the booths.
 - Decentralized storage: Vendors store their entire daily requirement directly at their booth. Advantage: No internal transport routes required during event hours. Disadvantage: Only feasible if the booths possess exceptionally large, protected storage spaces.
 - "Just-in-Time": If the venue simply lacks space for large quantities, a Just-In-Time delivery by an external service provider can be selected. Here, tableware is freshly delivered at exact intervals multiple times a day, and dirty items are collected and hauled away in the same turn.
- Pre-event ordering system for stand operators: A structured online ordering system, made available to stand operators well in advance of the event, is a practical tool for improving quantity planning and logistics coordination. Operators specify their expected demand per container type, per day, and per delivery location. This data enables the organizer or service provider to plan delivery volumes, storage requirements, and transport schedules with much greater precision.

Checklist: Logistics & storage

[] **Storage areas defined and secured?** Are there designated, dry, and access-controlled areas allocated for storage?

[] **For the Just-in-Time option:** Time slots and routes contractually fixed? Are delivery schedules with the service provider precisely aligned with peak hours, and are alternative routes planned for traffic jams?

☐ **Transport containers standardized?** Are uniform, stackable transport boxes (e.g., Euro-boxes) used to optimize space in vehicles and warehouses?

☐ **Online ordering system in place?** Have stand operators been given access to a pre-event ordering tool with sufficient lead time, and have smaller batch size options been made available where possible?

5.1.6. System Element: Hygiene & dishwashing

This element focuses the hygienic safety of the entire cycle. The goal is to ensure that every container returns to the vending booth clean, germ-free, and completely dry. The central operational pillar is "Black-and-White Separation": Used items (black) and clean items (white) must be strictly separated, both physically and organizationally, to prevent any contamination of the clean stock during transport or storage.

Decision-making guide: Dishwashing infrastructure and safety

- Local washing center (external): Tableware is collected and transported to a professional industrial dishwashing center or line in the region (e.g., within the city). Advantage: Guaranteed industrial cleaning and drying according to the highest standards Disadvantage: Requires precise logistics for transport and a higher total quantity of tableware (buffer), as items are unavailable during transit.
- Mobile dishwashing unit (on-site): A specialized dishwashing trailer is placed directly on the event site. Advantage: Short distances and very fast availability of the tableware for the next use. Requirement: High-performance connections for electricity, fresh water, and wastewater must be available directly at the location.

Checklist:

☐ **Black-and-White separation guaranteed?** Are dirty and clean areas, as well as the respective transport boxes, clearly separated and marked?

☐ **On-site infrastructure check conducted?** If using a mobile unit, have all connections (water/electricity) been inspected and approved?

☐ **Logistics timing fixed?** For external washing, are delivery times planned so that booths never run out of clean tableware?

5.1.7. System Element: Distribution & return

The distribution and return process is the direct interface with the guest. Efficiency here determines service speed and perceived convenience. A key success factor is proactive

communication: guests should receive information intuitively and without having to ask for it.

Decision-making guide: Proven return models & communication

- Centralized return stations relieve the food stalls. Guests return items to highly visible "satellites," ensuring maximum service speed during sales.
- Reverse vending machines: A valid option for reducing staff workload and enabling digital accounting.
- If returns happen at the stall, a separate area or dedicated lane is essential to avoid blocking sales.
- Setting up clearly marked collection boxes for deposit donations (e.g., for social/ecological projects) has proven effective. It offers a convenient alternative for guests who wish to skip the line while reducing pressure on return stations.
- Staff must briefly and proactively explain the return process during the sale (e.g., "Return possible at all green stations"). The information is delivered directly to the guest.

Checklist:

[] **Return model and donation option defined?** Are locations for returns and donation boxes fixed in the site plan?

[] **Staff briefing conducted?** Does every employee know how to proactively and briefly explain the system to guests?

[] **Visibility guaranteed?** Are return points and donation boxes easily recognizable through clear signage (e.g., flags)?

[] **Refund system ready?** Is there enough change (for cash) or a stable internet connection (for digital) available?

5.1.8. System Element: Financing

Financing ensures the economic viability of the reusable system. Realistic budgeting requires a holistic approach that goes beyond the pure purchase or rental costs of the tableware. Although reusable systems are currently still more expensive than single-use solutions in most cases, the economic framework is changing dynamically: as reusable quotas increase and service providers handle larger volumes, the system becomes cheaper from year to year. For an accurate financial assessment, the direct savings at the event level must be calculated and offset against the system costs.

Decision-making guide: Holistic calculation and funding opportunities

- While reusables incur visible costs for rental, logistics, and washing, they significantly reduce the event budget in other areas. The following savings should be factored into the equation:
 - Due to the reduction in waste volume, disposal fees for the organizer drop.
 - Less litter on the grounds means less staff and time required for cleaning the venue during and after the event.
 - The costs for procuring single-use materials (cups, plates, etc.) are eliminated.
- Financial subsidies can be a option for co-financing. Organizers can investigate whether subsidies might temporarily be accessible on a local level (e.g., municipal environmental funds provided by the city) or on a national level (e.g., specific funding programs for sustainable innovations).

Checklist:

[] **Holistic budgeting conducted?** Have the expenses for the reusable system been offset against the savings in waste, venue cleaning, and material procurement?

[] **Funding pools analyzed?** Have both local (municipal) and national funding opportunities been reviewed and applied for well ahead of the project launch?

5.1.9. System Element: Existing infrastructure

This element describes the active assessment and evaluation of already existing external infrastructure surrounding the event. The goal is to smartly leverage available resources instead of building expensive, isolated solutions from scratch. This is a scouting and auditing task for the organizer, focusing on three core areas:

- Evaluating reusable service offerings: Are there already established pool providers or logistics companies in the region whose existing inventory and transport networks can be hired?
- Are there commercial kitchens, cafeterias, or industrial dishwashing lines nearby that have spare capacity and can be utilized for the event?
- Is there already a widespread, public reusable system (e.g., for local gastronomy) active in the city or region? If yes: Can the event plug into this existing network so that guests can return their items even after leaving the venue?

The guiding question for this element is: What is already out there, and how can we make use of it?

5.1.10. System Element: Regulations

This element involves the proactive identification and compliance with all statutory and municipal requirements. Just like with infrastructure, this is a purely preventative auditing and securing task in the run-up to the event to avoid legal pitfalls or issues with event permits. The focus is on three core areas:

- **Reviewing national guidelines:** What legal obligations apply at the national level. Is it ensured that the planned system complies with these requirements?
- **Reviewing local guidelines:** Are there specific municipal laws or regulations enforced by the respective city or local council for events on public land (e.g., a local ban on single-use items)?
- **Consistent compliance:** Are all actors on the team aware of these rules, and have they been legally integrated into vendor contracts to ensure they are fully followed on-site?

The guiding question for this element is: What are the legal ground rules at our location, and have we consistently accounted for and implemented them?

6. Circular measures for preventing and reducing food packaging

6.1. Reusable measures at events – overview

The following table provides a comprehensive overview of reusable measures that can be implemented at events. It is intended as a source of inspiration rather than a prescriptive checklist — not all measures are relevant for every event format. The appropriate selection will always depend on the specific context, including event size, infrastructure, regulatory framework, and the stakeholders involved. For each measure, the most relevant stakeholders are indicated. Measures that were tested during the Change(K)now! pilot phase are described in greater detail in the following chapter.

Measure	Policy makers	Event org.	Service prov.	Stand op.	End users
GROUP A PLANNING & STRATEGY					
1. Planning & System					
Status quo analysis (size, access control, infrastructure, catering offer, waste flows, stakeholders..)	●	●			
Define goals (Waste reduction, CO ₂ -reduction, event experience)	●	●			
Assess individual vs. central pool system	●	●	●		
Plan a uniform system for all stands (same deposit, compatible containers)		●	●		
Appoint a central contact person on the organizer's side		●			
Anchor mandatory reuse requirement in stand contracts, define exceptions clearly and with justification	●	●		●	
Incentives for stand operators: discount on stand fees for full reuse implementation		●		●	
Incentives for stand operators: bring-your-own discount for guests		●		●	●

Measure	Policy makers	Event org.	Service prov.	Stand op.	End users
Incentives for stand operators: reusable ordering system via organizer		●	●	●	
Monitoring & Evaluation					
Record and document return rates	●	●	●		
Measure CO ₂ and waste savings	●	●	●		
Visitor surveys on system acceptance		●			●
Post-event debrief: lessons learned, feedback collection, waste data review		●	●	●	
2. Communication					
Fact sheet / information sheet for stand operators (before and during event)		●		●	
Pre-event workshop / training for stand operators and volunteers		●		●	
Messenger-group / hotline for stand operators during the event		●		●	
Site inspection during the event (quality assurance)		●			
Pre-event communication for guests (social media, newsletter, video)		●			●

Measure	Policy makers	Event org.	Service prov.	Stand op.	End users
On-site signage (posters, pictograms, step-by-step visuals)		●	●		●
Volunteers as reuse ambassadors		●			
Multilingual communication (especially for international events)		●			●
GROUP B: OPERATIONAL MEASURES					
1. Tableware					
Pool system via external service provider (delivery, washing, storage, deposit clearing), Prefer regional service providers (improves CO ₂ balance via short transport routes)		●	●		
Purchase of own reusable tableware (worthwhile at high cycle rates)		●		●	
Use of existing tableware		●		●	
Standardized containers (uniform shape and size for all stands)		●	●		
2. Logistics & Storage					
Regional storage for reusable tableware	●	●	●		

Measure	Policy makers	Event org.	Service prov.	Stand op.	End users
On-site storage capacity for clean and dirty tableware		●		●	
Plan sufficient space for return stations in site layout		●			
3. Distribution & Return					
Avoid social friction: guests should not have to search, ask or take detours		●		●	
Proactive communication by stand staff when handing out items				●	
Bring-your-own: fill guests' own containers (where hygienically possible)		●		●	●
Water refill stations for guests' own bottles		●			●
Mobile reverse vending machines (RVM) – cash, card, or festival wristband refund		●	●		
Central staffed return station on the event site		●	●		
Decentralized return at the stand (recommended for small events only)				●	
Donation boxes as a return incentive (deposit donated to		●	●		●

Measure	Policy makers	Event org.	Service prov.	Stand op.	End users
charity or for investments in sustainable measures)					
Deposit on trust basis (no return system – suitable for access-controlled events)		●			
Bank transfer / SEPA refund		●	●		
Uniform deposit amount for all stands	●	●			
4. Hygiene & dishwashing					
Mobile washing line / washing truck on site		●	●		
Stationary washing infrastructure nearby (e.g. school kitchen, catering facility)	●	●	●		
Ensure food safety standards are met when filling guest-provided containers		●		●	
GROUP C: STRUCTURAL CONDITIONS					
1. Financing					
Check municipalities coverage of system costs (relieving burden on small operators)	●				
Check funding programs for reusable	●	●			

Measure	Policy makers	Event org.	Service prov.	Stand op.	End users
Refinancing through unredeemed deposits (deposit slippage) and donation revenues		●	●		
2. Infrastructure					
Build up regional pool service provider network	●		●		
City-owned mobile washing stations available for rent	●				
Establish city-wide reusable cup / container system	●		●		
Single point of contact / helpdesk for reuse system questions	●	●			
3. Regulations					
Prescribe a uniform deposit regulation for all stands	●	●			
Set sanctions for non-compliance (funding cuts, fines, no re-admission)	●	●			
Reuse as an award / application criterion for stand spaces	●	●			
Municipal reuse mandate for public events	●				
Clear definition of what counts as a reusable container	●				

Measure	Policy makers	Event org.	Service prov.	Stand op.	End users
Monitoring and enforcement mechanisms by local authorities	●				

6.2. Detailed description of tested measures

The following section provides a detailed description of 8 selected measures that proved to be particularly relevant during the pilot phase. It is important to emphasize that these descriptions each illustrate a proven method of implementation—depending on the event and the specific circumstances, there are of course numerous variations, adaptations, and different scopes for the measures. However, the purpose of this presentation is to provide you with practical tips and concrete guidelines for your planning.

6.2.1. Mobile Reverse Vending Machines (RVM)

Objective: Increase return rates by offering a convenient, automated, and fast return option that reduces waiting times and relieves stand operators of the return process.

Description: Reverse vending machines are automated units placed at strategic points on the event site. Visitors insert used reusable cups or food containers into the machine and receive their deposit back – via cash, card, SEPA transfer, or festival wristband. The machines can be programmed to recognize specific container types, including via RFID chips or QR codes. No app download or registration is required.

Pilot experience: Tested at the Copenhagen Sprint (4 RVMs + 7 small return boxes), Copenhagen Street Days (8 return stations), and Hamburg Port Anniversary (1 RVM by ÖKOR.A.S.T. At Copenhagen Sprint, 23,750 items were returned at a gross return rate of 87,54%.

Case studies:



[Testing automated cup returns at HAMBURG PORT ANNIVERSARY 2025](#)



[Closing the loop at Copenhagen Street Days](#)

Advantages:

- Fully automated return (reduces personnel costs)

- Operational 24/7; available at peak times when stand staff are overloaded
- Transparent, data-driven deposit tracking and monitoring
- Can accept containers from multiple service providers if standardized

Stakeholders involved:

- Event organizers: Selection, placement, and coordination of machines
- RVM service providers: Provision, programming, maintenance, and monitoring
- Reusable system service providers: Compatibility with container formats
- Stand operators: Informing visitors about the return option at point of sale, empty the RVM
- Visitors: Users of the return machine

Requirements:

- Infrastructure: Stable power connection and internet access at all machine locations
- Technical: Compatibility between machine and container formats (RFID/QR or shape recognition)
- Communication: Clear, intuitive signage on and around the machines (ideally multilingual and image-based, without lengthy text)
- Staff: On-site support team for regular emptying of machines and restocking of cash (if necessary), troubleshooting, especially during peak hours

Costs to consider:

- Machine rental or purchase
- Programming and configuration per event
- On-site support team during the event
- Logistics for emptying and cash replenishment
- Communication and signage materials

6.2.2. Donation boxes as return incentive and for charitable donations

Objective: Increase return rates by offering visitors an alternative to reclaiming their deposit in person – allowing them to donate it to a charitable cause or sustainable investment instead.

Description: In addition to standard return options, donation boxes are placed at visible locations across the event site. Visitors can deposit their used reusable containers into these boxes and simultaneously donate their deposit to a designated specified objective.

Pilot experience: Tested at Copenhagen Sprint and Street Days (operated by NewLoop), and at the Tallinn Song & Dance Festival. At Copenhagen Sprint, 21% of all returned items were donated; at Street Days, the donation share rose to 54%, generating nearly 16,000 DKK for the youth NGO GAME. At Copenhagen Sprint, donation boxes were found to be more effective when placed near exits. Boxes that were not prominently positioned had lower usage.

Case Studies:



[Copenhagen Sprint saves 1,111 kg of CO₂ through digital reuse systems](#)

Advantages:

- Lower barrier for return: Visitors who do not want to engage with a machine or queue can donate in seconds
- Generates additional benefit: Revenue from unredeemed deposits flows to social or environmental causes
- Positive communication effect: Reinforces the event's sustainability profile
- Reduces "deposit slippage" going to the organizer and redirects it with purpose

Stakeholders involved:

- Event organizers: Selection of charitable partner, placement of boxes, communication
- Visitors: Active participants and potential donors

Requirements:

- Placement: Donation boxes must be highly visible, ideally at exits, near food courts, and adjacent to return machines
- Communication: Clear messaging about who receives the donation and what for
- Settlement: Transparent accounting and public reporting on donation amounts

Costs to consider:

- Production and branding of donation boxes
- Administrative costs for donation settlement and transfer
- Communication materials

6.2.3. Pre-event workshop and training for stand operators

Objective: Ensure that all stand operators understand the reusable system in detail before the event begins, reducing confusion, miscommunication, and resistance on the day itself.

Description: Before the event, one or more workshops are held with all participating stand operators and, where relevant, service providers. The sessions cover the full process: how the system works, deposit handling, correct handout and return procedures, dealing with visitor questions, and the use of communication materials. The workshops also provide a space for stand operators to raise concerns, ask questions, and feel heard.

Pilot experience: Mandatory workshops were held in Liepāja ahead of the MAD Youth Festival. Two pre-event sessions were held, which the municipality identified as a key success factor. In Copenhagen, operator briefings were provided by the municipality and NewLoop. In Tallinn, pre-event training included caterers, volunteers, and school representatives. The evaluation noted that events where operators had prior experience (e.g., Copenhagen Street Days vs. Sprint) showed smoother operations and higher acceptance.

Advantages:

- Reduces operational errors and confusion during the event
- Builds trust and buy-in among stand operators
- Allows concerns to be addressed before they become problems on the day
- Operators who understand the system communicate it better to visitors, reducing the communication burden on other stakeholders
- Creates a shared sense of responsibility

Stakeholders involved:

- Event organizers: Planning and facilitating the workshops
- Municipality: Supporting or co-hosting workshops, providing regulatory context
- Reusable service providers: Explaining operational details, deposit processes, and logistics
- Stand operators: Participants – their concerns must be actively addressed
- Volunteers: Can be included for briefing on their supporting role

Requirements:

- Materials: Fact sheets, FAQ cards, step-by-step guides, and ideally visual checklists for use during the event

- Follow-up: A shared communication channel (e.g., WhatsApp group) should be set up at the workshop to continue support up to and during the event

Costs to consider:

- Staff time for planning, facilitation, and moderation
- Production of training materials and handouts

6.2.4. On-site communication

Objective: Ensure that all event visitors understand how the reusable system works – including where to return containers, how to get their deposit back, and why it matters.

Description: A multi-layered communication approach is deployed across the event site. This includes printed posters and step-by-step visual guides at stands and return stations, pictogram-based signage (ideally without lengthy text), and, where possible, digital communication via screens, social media, and the event website. Pre-event communication (newsletters, social media posts, event app) prepares visitors before they arrive. On-site, the system should be self-explanatory enough that visitors can navigate it independently.

Pilot experience: Applied at all pilot events in different forms. In Tallinn, the municipality designed pictogram-based communication including a video guide. At Hamburg's UEFA EURO Fan Zone, screens, "Green Volunteers", and website content were used. In Liepāja, live radio coverage and social media posts were used alongside posters. The evaluation consistently highlighted that poster-only communication was insufficient and that visual, intuitive, multilingual materials were most effective. At Copenhagen Street Days, approximately 50% of visitors read the instructions; staff support was needed for the rest.

Advantages:

- Reduces the communication burden on stand operators, who can focus on sales
- Reaches visitors before and during the event across multiple channels
- Multilingual formats increase accessibility for international visitors
- Consistent visual language across the site reduces confusion
- Intention-behavior gap can be narrowed through well-designed behavioral architecture

Stakeholders involved:

- Event organizers: Coordination of the overall communication strategy
- Reusable service providers: Technical input on process descriptions

- Stand operators: Display of materials at their stands
- Visitors: Target audience

Requirements:

- Design: Highly visual, minimal text, multilingual if necessary
- Placement: At stands, along walkways, at return points, and near exits
- Channels: Combine print, digital (social media, event website, newsletter), and personal
- Timing: Pre-event communication at least 1–2 weeks before the event

Costs to consider:

- Design and production of print materials (posters, stickers, banners, step-by-step visuals)
- Video production for digital/social media
- Digital advertising or newsletter distribution
- Translation costs

6.2.5. Mandatory reuse requirements

Objective: Ensure universal participation in the reusable system across all stands by making it a binding contractual requirement rather than a voluntary option.

Description: The event organizer or municipality anchors a clear reuse obligation in the contracts with all stand operators before the event. This includes specifications on which containers must be used, the deposit amount, return procedures, and, where applicable, the consequences of non-compliance. Exceptions are defined explicitly and narrowly. This creates a level playing field and prevents competitive disadvantages for operators who do adopt reusables.

Pilot experience: The UEFA EURO Fan Zone Hamburg is the clearest example: all vendors were contractually required to participate in the centralized reusable system. This was identified by all stakeholders as a key success factor. In Tallinn, the contract was with an intermediary rather than directly with vendors, which led to some stands using single-use packaging without consequence – a gap that was identified for correction. In Liepāja, participation was voluntary in 2025, but new regulations requiring mandatory participation are planned from 2026. The evaluation consistently showed that voluntary systems result in lower and uneven participation.

Case Studies:



[Mandatory reusable system at UEFA EURO Fan Zone Hamburg](#)

Advantages:

- Ensures a uniform system across the entire event site – critical for visitor clarity
- Eliminates the competitive disadvantage for operators who comply while others do not
- Creates legal certainty and a planning basis for service providers
- Enables enforcement through sanctions where necessary
- Sends a clear signal that sustainability is a non-negotiable part of the event

Stakeholders involved:

- Event organizers: Drafting and enforcing stand contracts
- Stand operators: Required to comply; should be involved in the design of rules
- Reusable service providers: Must be able to serve all contracted stands

Requirements:

- Legal: Clear legal basis at municipal or national level, or contractual authority of the organizer
- Exceptions: Clearly defined and justified; the fewer the better
- Sanctions: Must be specified in advance and actually enforced
- Support: Contractual obligation should be paired with practical and financial support for operators

Costs to consider:

- Monitoring and enforcement during the event
- Financial support measures for smaller operators (may be necessary to ensure compliance does not create hardship)

6.2.6. Pool system via external service provider

Objective: Enable event organizers and stand operators to implement a professional, fully operational reusable system without having to procure, store, or manage their own tableware.

Description: An external service provider takes on the full logistics of the reusable system: delivery of standardized containers before the event, collection of used items during and after, industrial washing, and redistribution. Stand operators rent the

containers for the duration of the event and pay a fee per item used. The organizer contracts the service provider centrally and passes on the participation requirement to stand operators.

Pilot experience: Pool systems were used at all pilot events. Service providers included NewLoop (Copenhagen), Sustable/FAIRPLATE Mehrwegsysteme GmbH (Hamburg Fan Zone and Sunset Series), Ringo Eco OÜ (Tallinn). Key success factors identified across pilots included proximity of the washing facility to the event site (Hamburg Fan Zone: Sustable's nearby facility reduced transport), flexibility in packaging options, and reliable logistics. Over-ordering by stand operators and limited experience with large events were recurring challenges for providers.

Advantages:

- Eliminates the need for stand operators to invest in or store their own tableware
- Provides professional-grade washing and logistics that meet hygiene standards
- Allows for centralized deposit clearing and quantity tracking
- Enables standardization across the entire event site
- Scales more easily than individually managed systems

Stakeholders involved:

- Event organizers: Selecting and contracting the service provider; coordinating with stand operators
- Reusable service providers: Core operational role – delivery, collection, washing, logistics
- Stand operators: Ordering containers, handing out and receiving back reusables at point of sale

Requirements:

- Regional availability: Service providers with sufficient capacity and a nearby washing facility
- Container range: Sufficient variety to meet the food and beverage offer of all stands
- Ordering system: Simple, accessible ordering platform for stand operators with realistic quantity guidance
- Logistics: Clearly planned pickup and delivery schedules, including contingency for peak demand
- Financial model: Flexible options for small operators (e.g., smaller batch sizes, post-event settlement)

Costs to consider:

- Per-item rental and service fee
- Transport and logistics costs (reduced with regional providers)
- Fee for opened boxes (potentially critical for small operators)
- Deposit clearing and administration

Case Studies:



[Reusable Revolution at UEFA EURO Fan Zone Hamburg](#)

6.2.7. Volunteers as reuse ambassadors

Objective: Provide on-site support for the reusable system by deploying trained volunteers to guide visitors, answer questions, monitor return points, and prevent incorrect disposal.

Description: Volunteers are recruited and trained before the event to act as active communicators for the reusable system on site. They are stationed at return points, near waste bins, and in high-traffic areas. Their role includes directing visitors to return stations, explaining the deposit and return process, preventing reusables from being thrown into general waste, and reporting operational issues to the organizer.

Pilot experience: Extensively tested at the Tallinn Song & Dance Festival, where volunteers supported both the performer catering area and the visitor food court. The volunteer program was identified as one of the strongest success factors. Practical learnings from Tallinn included: 4–5 hour shifts worked well; clear color-coded uniforms for different crew functions; name badges strengthened team cohesion; a brief introduction meeting at the start of each shift was essential. In Hamburg's Fan Zone, "Green Volunteers" also performed this role and were credited with identifying and addressing operational problems in real time.

Case Studies:



[Reusable Revolution at UEFA EURO Fan Zone Hamburg](#)

Advantages:

- Provides personalized guidance that signage alone cannot replace
- Actively prevents incorrect disposal, which directly improves return rates
- Humanizes the sustainability effort and creates a positive atmosphere

- Can respond flexibly to unexpected situations (e.g., machine failures, visitor confusion)
- Particularly valuable at major events where the system is new or the audience is unfamiliar with reusables

Stakeholders involved:

- Event organizers: Recruitment, training, scheduling, and coordination of volunteers
- Municipality: May co-organize or co-fund volunteer programs
- Reusable service providers: Briefing volunteers on system specifics
- Volunteers: Active participants with a defined, meaningful role
- Visitors: Direct beneficiaries of on-site guidance

Requirements:

- Training: Pre-event briefing covering system details, visitor communication, and escalation procedures
- Logistics: Clear shift schedules, sufficient numbers for the event size, identifiable uniforms or badges

Costs to consider:

- Volunteer coordination and recruitment time
- Training materials and sessions
- Uniforms, lanyards, or identification materials
- Catering or reimbursement for volunteers (where applicable)

6.2.8. Water refill stations / bring-your-own

Objective: Reduce the use of single-use beverage packaging by enabling visitors and performers to refill their own reusable bottles free of charge, encouraging a self-sufficient circular behavior.

Description: Drinking water stations are installed at multiple accessible points across the event site. Visitors and performers can fill their own reusable bottles for free at any time. The stations are clearly communicated before and during the event. Alongside water stations, a bring-your-own policy may be promoted: visitors are actively encouraged to bring personal containers and, where hygiene standards allow, stand operators fill them at a discount.

Pilot experience: Tested at the Tallinn Song & Dance Festival 2025. Water containers were set up at the main venue, where both visitors and performers could refill their bottles free of charge. The system was very well received. The evaluation noted that on warm days, more refill points would have been beneficial, and many people proactively brought their own bottles and used the stations regularly. The measure reduced both single-use cup consumption and the load on the deposit system.

Advantages:

- Zero-cost for visitors – eliminates the deposit barrier entirely for water consumption
- Reduces single-use cup volume, lowering the overall system load
- Promotes proactive sustainable behavior before and beyond the event
- Low operational complexity once infrastructure is in place
- Particularly effective at multi-day events and outdoor festivals

Stakeholders involved:

- Event organizers: Procurement, placement, and communication of water stations
- Visitors and performers: Active users; encouraged via pre-event communication
- Service providers: May supply and maintain stations

Requirements:

- Water access: Reliable connection to the water supply at the event site
- Placement: Stations must be numerous enough to avoid queues, particularly on warm days
- Communication: Pre-event messaging encouraging visitors to bring their own bottles

Costs to consider:

- Rental or purchase of water dispensing units
- Water connection and plumbing on site
- Signage and communication materials
- Maintenance and monitoring during the event

7. Implications for the set of sustainability criteria

The pilot projects in the events context were assessed based on three central criteria: feasibility, acceptability, and replicability/scalability. In addition, each case included a sustainability reflection based on concrete metrics – such as the reduction in single-use items, the increase in reusable items used, return and loss rates, as well as the participation rate among stands. This is described in detail in the Evaluation Report.

Overall, the tested measures led to a measurable reduction in single-use cups and packaging across all pilot cities. Since the production, transport, and disposal of single-use materials account for a substantial share of packaging-related greenhouse gas emissions, every avoided single-use item directly translates into lower CO₂ emissions. A reduction in single-use containers is therefore not only a contribution to waste prevention but also has a direct and quantifiable impact on an event's carbon footprint. This effect was particularly pronounced where organizers were able to clearly control the framework conditions – for example through access-restricted areas or binding contractual requirements.

Two pilots can provide a concrete example here. At the **Copenhagen Sprint**, the reusable measures implemented avoided 71 kg of waste and saved 1,111 kg of CO₂ overall. At the **Hamburg UEFA EURO Fan Zone**, around 384,000 disposable cups and 30,000 disposable food containers were avoided over the course of the event – corresponding to an estimated CO_{2e} saving of roughly 8.88 t for cups and 0.68 t for food packaging. These figures demonstrate that even at a single, time-limited event, reusable systems can generate substantial and measurable climate benefits when implemented at scale.

For reusable systems to actually realize their ecological potential, the return rate plays a central role: only if reusable containers are returned and reused sufficiently often does their carbon footprint fall below that of single-use alternatives – otherwise, reusables risk performing worse environmentally than disposables due to their more resource-intensive production. High return rates were achieved primarily where the system was well integrated into event logistics, clearly communicated, and combined with convenient return and deposit solutions. Mandatory reuse requirements proved to be the most effective lever for increasing both usage and return rates, thereby improving an event's waste volume and CO₂ balance alike.

At the same time, the evaluation makes clear that the ecological impact does not depend on the system alone, but is strongly shaped by operational execution, coordination among stakeholders, and visitor acceptance.

Beyond their immediate ecological impact, the evaluation also shows that events take on an important signaling and role-model function: as highly visible, publicly experienced spaces, they help anchor reuse in public awareness and gradually establish it as a social norm – well beyond the individual event itself.

8. Implications for target groups

The transition toward circular packaging solutions at events can only succeed if all involved actor groups work together.

Municipalities and public authorities

Municipalities take on a dual role: they set the regulatory framework while also acting as organizers or funders of events themselves. Sustainable impact is achieved primarily where reuse requirements are firmly embedded in municipal strategies, permitting processes, and award criteria – rather than relying on isolated pilot actions. Political backing and a clear, committed stance from the administration proved decisive.

Municipalities should also provide active support: through financial incentives, practical tools, networking among involved actors, and a gradual, context-sensitive rollout that gives organizations and visitors time to adapt.

Event organizers, stand operators, and service providers

This group carries operational responsibility and largely determines a system's practical success. It is essential that reusable solutions are integrated into existing workflows with as little additional effort as possible – simple, standardized processes and shared infrastructure reduce costs and lower entry barriers, particularly for smaller operators. Internal attitude also matters: where decision-makers regard sustainability as strategically relevant, willingness to invest and adapt is higher. Staff at the point of sale play a key role here, as their active communication strongly influences whether reusable options are actually used. Economically, reusable systems gain traction most readily where they are cost-neutral in the long run – though external support remains necessary, especially during the initial implementation phase.

Visitors / end-users

Visitors generally show openness toward reusable systems, provided they are easy to understand and use without friction. What ultimately drives actual usage is less an underlying environmental attitude than practical convenience: unclear return paths or additional effort reduce participation even among visitors who hold positive attitudes. Mandatory or default systems therefore tend to outperform purely voluntary ones. Repeated exposure to the system reduces initial hesitation and increases acceptance.

over time. Since visitors are not a homogeneous group, systems should be flexible enough to accommodate different needs, routines, and cultural backgrounds.

9. Key takeaways

For event organizers

- Plan early and involve stakeholders from the start. A reusable system that is added as an afterthought will likely fail. Logistics, storage, service providers, and stand operator contracts must be in place months before the event. Lead times of 4–6 months are realistic for larger events.
- Convenience determines success. Visitors will return containers when the process is fast, intuitive, and requires no detour. A well-placed, clearly signed central return station consistently outperforms a system that asks visitors to return to the stand where they purchased. If the system creates friction, it will fail – regardless of how environmentally motivated visitors are.
- Make it mandatory for all stands – no exceptions without justification. Voluntary participation leads to uneven implementation, competitive disadvantages for compliant operators, and visitor confusion. A binding reuse requirement in stand contracts, with clearly defined and narrow exceptions, is the most effective measure for achieving full-site coverage.
- The deposit system must be simple and cashless where possible. A uniform deposit amount across all stands eliminates confusion. Digital return options (card-based, without app or registration) are increasingly preferred. Cash refunds remain inclusive but create operational burdens and security risks. Donation boxes are a proven and popular complement that reduces pressure on return infrastructure.
- Train your stand operators – they are your most important communicators. Stand staff are the first point of contact for visitors. If they cannot explain the system quickly and confidently, the system breaks down at the point of sale. Pre-event workshops, FAQ cards, and a dedicated communication channel during the event are not optional extras – they are operational necessities.
- Communicate before, during, and after the event. Pre-event communication sets expectations; on-site signage must be visual, minimal in text, and multilingual. Post-event reporting on CO₂ and waste savings reinforces the value of the system for visitors, operators, and sponsors alike.
- Choose regional service providers with full-service logistics. A nearby washing facility significantly reduces transport costs and turnaround times. Service

providers who offer delivery, collection, washing, and deposit clearing in one package reduce the coordination burden for organizers considerably.

- Monitor and measure. Return rates, waste volumes, and visitor feedback are essential for improving the system year on year. Events that collected data – even imperfectly – were able to make targeted improvements for subsequent editions.

For municipalities

- Regulation is the most powerful lever available. Voluntary systems consistently underperform. Where municipalities have introduced binding reuse requirements for public events – as in Tallinn – participation rates and system quality are significantly higher.
- Don't pass full responsibility to event organizers and stand operators. Municipalities that hand over implementation responsibility without support create resentment and inconsistent results. The most successful pilots featured active municipal involvement: in contract design, financial support, communication, and monitoring.
- Build and develop regional service provider infrastructure. In cities where professional reusable service providers are established and competitive – as in Hamburg – implementation is easier and cheaper than in cities where this market is still nascent. Municipalities can actively support market development through public procurement, pilot funding, and long-term contracting signals.
- Compatibility with city-wide systems multiplies impact. Where a city-wide reusable system exists or is being developed, events should be able to plug into it – allowing visitors to return containers at public locations after leaving the event. This increases convenience, return rates, and public familiarity with reusable systems beyond the event context.
- Transnational exchange accelerates learning. The Change(K)now! project demonstrated that cities at very different stages of reusable system development can learn from each other efficiently. Cities with strong regulatory frameworks (Tallinn) and cities with strong service provider markets (Hamburg) offer complementary insights for cities still building their systems. Structured exchange – in both directions – compresses learning curves significantly

10. The role of transnational cooperation

The transnational cooperation within the Change(K)now! project proved to be fruitful and enriching. The participating partner cities and organizations brought with them very different infrastructural, legal, and organizational conditions, which enabled an intensive exchange of knowledge and diverse learning processes.

While, for example, there are currently only a few established system providers in Latvia and the legal regulations for reusable packaging are rather lax in cities such as Liepaja, Hamburg has a wide range of professional service providers and proven infrastructures. In Tallinn, on the other hand, the legal basis is already more advanced – there is a binding requirement for reusable packaging at events. This heterogeneity provided ideal conditions for learning from each other, comparing different approaches, and flexibly adapting measures to the respective national contexts.

Testing measures in a wide variety of event formats and sizes – from small sporting events to urban festivals and major cultural events – created a valuable basis for mutual inspiration and the joint development of a long-term vision. This diversity enabled the consortium to identify a wide range of cases and understand the factors that determine the success of reusable systems in different environments.

Regular exchanges within the transnational consortium – in the form of online meetings, workshops, and conferences – not only promote knowledge transfer but also a common understanding of sustainable event planning in the Baltic Sea region.

There are plans to scale the successful models transnationally. In particular, opportunities are being explored to establish city-wide reusable systems based on the insights gained and to extend the cooperation to other cities and regions. The transnational collaboration has thus not only led to concrete pilot solutions, but has also laid the foundation for a long-term, cross-border transformation towards a sustainable event culture.



Change(K)now! – 2026

Website: <https://interreg-baltic.eu/project/change-know/>



The Change(K)now! project is co-funded by Interreg Baltic Sea Region.

The project's main objective is a mindset change from single-use to circular or multiple-use of food delivery systems in cities and residents of the Baltic Sea Region.