D2.5 Guidance booklet on the CE concepts for event organisers with a separate guidance document for event funding authorities

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Lead Beneficiary	**VTT**
Responsible Author	**Marjoriikka Ylisiurua**
Contributors	**Jan Bakke, Charlotte Forsberg, Teele Joost, Minna Kulju, Stein Cato Rosnes**

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Deliverable Contributors				
	Name	Organisation	Role / Title	E-mail
Deliverable leader	Marjoriikka Ylisiurua	VTT	WP2.2.5 leader, Senior scientist	marjoriikka.ylisiurua@vtt.fi
Contributing Authors	Charlotte Forsberg	OFK	Project manager	charlottf@ofk.no
	Teele Joost	TLN	Project manager	teele.joost@tallinnlv.ee
	Minna Kulju	VTT	Research scientist	minna.kulju@vtt.fi
	Stein Cato Rosnes	OFK	Administrator	steinro@ofk.no
Reviewer(s)	Jan Bakke	OFK	WP2 coordinator	janbakke@ofk.no
Final review and quality approval	Ugur Kaya	VTT	Project coordinator	ugur.kaya@vtt.fi

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Acronyms and abbreviations

Acronym	Full name
CE	Circular Economy
CEAP	Circular Economy Action Plan
CLIC	CLIC Innovation Ltd
D	Deliverable report
EGD	European Green Deal
EPR	Extended producer responsibility
EV	Electric vehicle
GA	Grant Agreement
ISO	International Organisation for Standardisation
KVC	Key value chain
KVC-DEMO	Key value chain demonstration
LCA	Life cycle assessment
NIF	Norwegian Sports Federation
NGO	Non-governmental organisation
OFK	Østfold fylkekommune
OODA	Observe, orient, decide, act -loop for decision making
PPWR	Packaging and Packaging waste regulation
R0	Circular strategy R0 – Refuse
R1	Circular strategy R1 – Rethink
R2	Circular strategy R2 – Reduce
R3	Circular strategy R3 – Reuse
R4	Circular strategy R4 – Repair
R5	Circular strategy R5 – Refurbish
R6	Circular strategy R6 – Remanufacture
R7	Circular strategy R7 – Repurpose
R8	Circular strategy R8 – Recycle
R9	Circular strategy R9 – Recover
SE	Stakeholder engagement
SE-DEMO	Stakeholder engagement demonstration
SUPD	Single-use Plastics Directive
TLN	Tallinna Linn (City of Tallinn)
UNEP	The United Nations Environment Programme
VTT	VTT Technical Research Centre of Finland Ltd
WFD	Waste Framework Directive

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Executive Summary

Whether large or small, events generate waste and consume substantial material resources. As such, they represent a promising yet underutilised opportunity to foster the circular economy (CE). By adopting circular practices, event organisers can reduce material use, promote reuse and recycling, and create new business opportunities. Moreover, events may serve as influential platforms for raising awareness and encouraging the expansion of circular behaviours into everyday life. Despite this potential, practical and adaptable frameworks to guide event organisers in implementing CE strategies remain scarce. This limits the ability of events to contribute to circular economy. The EU Horizon TREASoURcE project seeks to address this need.

This report presents the outcomes of WP2 subtask 2.2.5, “Circular Economy Practices in Events,” which aims to support event organisers and funders in applying circular economy (CE) principles. It introduces a comprehensive framework for circular event management, designed to accommodate diverse starting points and local conditions while meeting rising environmental standards. The report is structured using the OODA (Observe, Orient, Decide, Act) model. The report outlines the contextual factors that orient the selection of CE goals and opportunities, including event locations and categories, areas of protection, materials, and local event industry structure. Building on their developed understanding, the reader can next decide how to proceed in practice. The report aids in decision-making by outlining the guidelines that typically shape the available CE actions, and by summarising the ten circular strategies (Potting et al., 2017) before presenting ten recommended CE event practices.

The recommended ten CE event practices were identified collaboratively through a review of event literature, fieldwork at live events, and stakeholder interviews. Six practices focus on waste reduction (refusing giveaways, re-thinking meal and food packaging systems, communicating and requiring CE actions from event stakeholders, rethinking the use of single-use items, redesigning event hooks, and minimising food waste), three on reuse (re-using decoration, equipment and other items, facilitating item repair, and repurposing event materials), and one on recycling (making recycling easier). The report illustrates the application of these practices at four real-world events in Finland, Norway, and Estonia. The report also provides guidance on observing and evaluating the impact of CE event practices. The report concludes by offering practical recommendations for promoting CE in events, discussing limitations, and summarising key takeaways.

This report providers the reader with a structured, evidence-based approach to integrating CE principles into event management. The entertaining and voluntary character of events underscores circularity need not be burdensome or observed only for regulatory compliance. Instead, events can provide engaging, prominent, and entertaining citizen experiences while minimising waste and maximising the reuse of materials, guiding the audience towards everyday services and products that advance the circular economy. By equipping event organisers and funders with a framework illustrated with inspiring and actionable examples, the report supports the transition toward broader circularity. In doing so, it positions events as catalysts for environmental and social change.

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1. INTRODUCTION

In 2015, the European Union adopted its first Circular Economy Action Plan as a core European policy strategy for addressing the sustainability challenge. According to the European Commission (2015), a circular economy is one in which “the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimised.” Transitioning from the linear economy model of “take, make, waste” to a systemic circularity is perceived as essential for reducing environmental degradation, conserving resources, and fostering economic resilience.

Events are gatherings that bring people together for jubilation. This powerful ability of events to resonate with the participating collective is their strength. Events offer a unique and underutilised opportunity to engage local communities with the circular economy, to innovate alongside them, to demonstrate circular economy practices, and to accelerate systemic solutions for a circular economy. Yet, events invariably generate waste in a relatively short timeframe, thus underlining the linear nature of our current societal context. Indeed, it may be tempting to agree with Goldblatt (2011) in their provocative note that the greenest event is the one that didn’t happen. However, the events industry is not unfamiliar with the question of sustainability. While financial sustainability remains a core concern, the social and environmental impact of events is an increasingly necessary consideration (Getz, 2019). Public policy, industry standards, and stakeholder expectations are increasingly aligned around the imperative to reduce the environmental footprint of events (Goldblatt, 2012).

Despite these advances, the integration of circular economy principles into event planning and execution remains limited and often ineffective. Existing event sustainability frameworks emphasise a broad spectrum of issues, such as carbon reduction and energy efficiency, but lack specific guidance on how to implement CE strategies holistically. Events can thus serve as lampposts for the circular economy, but this requires rethinking how events are designed and delivered. While the potential for events to contribute to a circular economy is clear, there is a lack of practical, adaptable circular economy (CE) frameworks to guide event organisers in identifying their circular opportunities, implementing effective practices, and evaluating their impact. This gap is particularly significant for publicly funded events, which are increasingly expected to meet high environmental standards while remaining accessible and engaging. This report, the accompanying booklet (https://treasource.eu/publications/#reports) and the document for event funders ( ) address that gap by developing and testing a structured approach to circular event management. The approach illustrates how to identify event-specific hotspots, patterns, and opportunities for CE solutions, providing actionable guidance for organisers and funders. The work is situated within the EU Horizon TREASoURcE project, which initiates systemic change in broadly consumed and waste-generating key value chains (KVCs) of plastics, electric vehicle batteries, and biobased side and waste streams.

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This report presents the outcomes of TREASoURcE WP2 subtask 2.2.5, “Circular Economy Practices in Events.” Its primary aim is to support event organisers and funders in applying CE principles through a flexible, evidence-based framework. The report draws on fieldwork conducted at four face-to-face events in Finland, Estonia, and Norway, complemented by a review of relevant literature and stakeholder interviews (Annexe E), which provide quotes to illustrate the findings. The report focuses on CE practices related to plastics and biobased materials, as the electric vehicle batteries were found to be less applicable in the project demo event contexts. It introduces a process model based on the OODA loop (*Observe, Orient, Decide, Act*), originally developed by John Boyd (1996), to support iterative learning and continuous improvement in circular event planning.

The report is organised into eight chapters, each building on the previous one to guide the reader through the development and application of circular economy practices in events, ensuring continuity of circularity across multiple event arrangements. The report begins with Chapter 2, which introduces the conceptual OODA loop framework for circular event management. Chapter 3 then provides *Orientation* and explores the contextual factors that shape circular economy goal setting, such as event types, locations, materials used, and the roles of various stakeholders. Chapter 4 conceptualises event intervention contexts to help make *Decisions* on CE practices to be implemented and presents ten recommended CE event practices. Chapter 5 illustrates how these practices were *Acted* out in four real-world events across Finland, Norway, and Estonia, and Chapter 6 provides guidance on how to *Observe* and reflect the impact of circular practices. In our interpretation, the findings from one CE event shall support the next iteration of the event, assuming a new event design is considered every time. Section 7 offers practical recommendations for promoting circular economy principles in event planning and execution, and Section 8 concludes the report with a discussion of its limitations and key takeaways.

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2. OODA process for action design

Events are dynamic environments, prompting this report to utilise the OODA loop (Richards, 2020) as a general framework for their iterative decision-making process. The OODA loop is a conceptual decision-making tool introduced to help event organisers set goals for organising circular events and make decisions about CE actions during the event through four phases. These phases are *Observe*, *Orient*, *Decide*, and *Act*. The essence of the OODA loop is to continuously gather information, understand its meaning in the context of goals and the environment, make decisions based on this understanding, and then act accordingly. Applying the OODA process, therefore, involves continuously revising different steps based on insights gained throughout the assessment. The OODA loop is illustrated in Figure 1 below.

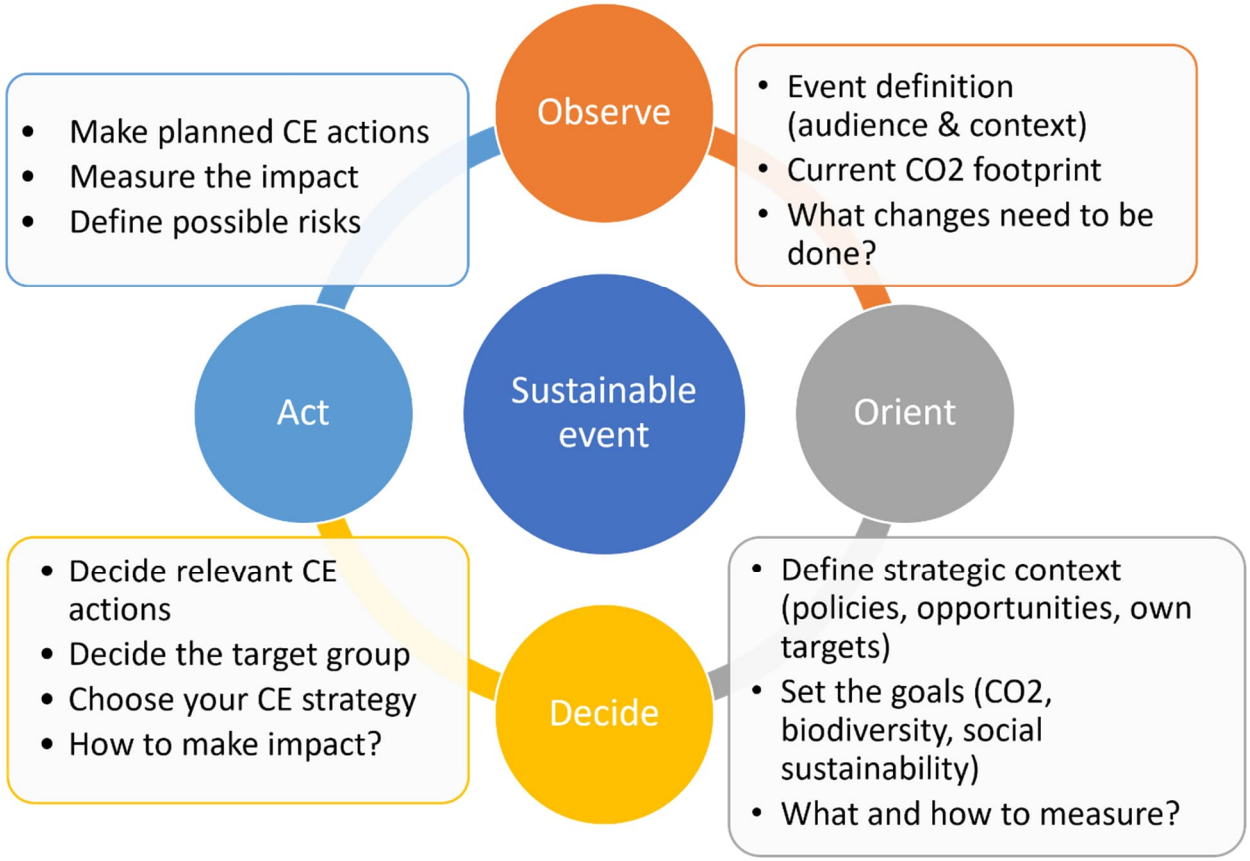

Figure 1. OODA loop for sustainable events (adapted from Boyd's (1996) OODA loop).

The OODA loop begins and ends with the **observation phase**, detailed in Chapter 6, where information about the event's effects on the environment and community is collected. This includes gathering comprehensive data on relevant aspects of the event, such as the behaviour of event participants, the sustainability profile of the event venue and facilities, guidance frameworks, and the event's procurement practices. Also, it is essential to monitor the flow of materials and identify areas where resources are wasted or underutilised. When possible, evaluating the event in a manner that enables the calculation of its environmental impact provides valuable information to further enhance the event's circularity.

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After the observation phase, the organiser has identified the baseline sustainability challenges of the event. Once the event's baseline is known, it is possible to measure and compare future performance to track progress in event circularity. After this, the organiser can then determine necessary changes and CE actions.

The **orient phase**, detailed in Chapter 3, involves analysing and reflecting on the event context, including event location, its scope, and the local event industry structure. It is important to analyse the context and set goals to determine the appropriate actions for the event. The observations help indicate the areas of the event to focus on for impact. Based on the observations, it is possible to establish where the event has a negative impact on the environment, such as through transportation emissions, or unnecessary high consumption of materials like plastic and paper. In this phase, event organisers form a vision of what they might achieve by their CE actions, thus setting environmental sustainability goals for their event. To help establish the impact of their actions later, the organiser should consider concrete targets and available measurement tools to evaluate their performance.

After the orient phase, the organiser has thus evaluated their operational space, their capabilities and their values, helping them prioritise goals and select key areas for improvement. A successful event has a clear vision and priorities, from the cultural purpose of the event to its role in its context, such as its economic and social impact (Bowdin et al., 2023). Similarly, establishing a CE goal to an event helps prioritise between actions. Once the organisers have agreed on the event objectives, deciding what to do in practice becomes more straightforward.

Addressing the **decision phase** of the OODA loop, Chapter 4 outlines the scope for potential and concrete actions available for an event organiser. It describes broadly the event governance context consisting of policies, certifications and guidelines. The Chapter also briefly presents the nine CE strategies (Table 1) to help event organisers reflect their practical CE implementation opportunities. For instance, an organiser may recognise that it is easier for them to reduce single-use materials than to establish a system for material reuse. The Chapter continues by presenting ten recommended CE practices, providing examples from literature and demo events along with illustrative interview quotes.

After the decision phase, an event organiser promoting the circular economy understands which CE strategies are most pertinent to the chosen objectives and what practices will be applied. These may include selecting food service partners dedicated to minimising single-use packaging, implementing entertaining waste management practices or reduction initiatives, or engaging with a local reusable cutlery business.

The attachment to this deliverable (Annexe A, "Guidance document for event funders") describes how, for the event funder, the possible scope of action concerns a more long-term and conceptual view. The funder may want to focus on one theme, like circularity, or arrange their sustainability efforts for programs where circularity represents one theme among others. To advance their program and strategy, event

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funders may finance multiple events, comparing each event's performance against its previous performance and the entire funding portfolio. In the case of novel applicants, an event organiser's plan and its viability can be compared with that of the incumbent recipients and their performance.

Chapter 5, concerning **action**, presents a group of demo events that chose to advance event circularity in three different Nordic European countries. The large multi-site international sports event, the mid-sized agricultural fair in Norway, the mid-sized social event in Estonia, and the small local sports event in Finland each showcase different opportunities and challenges for advancing the circular economy. Each event intervention was driven by a different circularity goal and planned for the local context using the resources available to the organiser. The Chapter illustrates how different events can implement different strategies through a collection of CE practices and encourages event organisers to perform their own actions in their event.

Conducting a detailed analysis of their implemented CE practices helps event organisers adjust their goals and update their practices. In the aftermath of an event, we thus close the OODA loop in Chapter 6 and return to the **observe** phase, where the organiser evaluates their event performance to identify and measure the changes that occurred as they pursued their chosen CE strategies. It is important to note that the OODA loop begins and ends with observation. To measure impact and improvement, a benchmark and a measurement device should be established in advance as a reference point. Especially when event CE evaluation is based on quantifiable measures, this requires an advance definition of the elements and parameters that are assumed to change when CE interventions are implemented.

After Chapter 6, the event organisers should be equipped to begin the practice of observations that start with so-called observations and quantitative measures, independent of their resources and degrees of freedom for measuring aspects of event performance. Chapter 6's goal is to prepare event organisers to advance CE in the long term by explaining why it is essential to strive for quantitative measures and work towards CE goals through repeated efforts. Establishing circular economy practices is not one game; it is a continuation of repeating tournaments.

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3. Orient: Defining the goal and scope of CE events

Participation in the circular economy is one of the ways events can be made more environmentally sustainable. However, as critical elements of our cultural fabric, events can also contribute more broadly by enhancing audience awareness and interest, which are among the greatest barriers preventing circularity (Kirchherr et al., 2018). Events can help steer their audiences towards an inclusive and just transition to CE, as they are social happenings that strive to engage, entertain, educate, and connect people, the event site, and its inhabitants. Our stakeholder interviews support the notion (IV) that events are harbingers of cultural change, "educators of the populace," who raise their own visitors (Cavagnaro et al., 2022; Getz, 2019). Events can raise awareness and facilitate pro-environmental behaviour that benefits the community after the event (Mair, 2014; Mair and Smith, 2022; Trendafilova and McCullough, 2018). They challenge our everyday behaviours, inviting us to become more sustainable.

Of course, the relationship between events and their audience runs both ways, and attendees have also come to expect sustainability from events. Event visitors, the patrons whose awareness and demands the organisers want to address, increasingly favour event sustainability (Goldblatt, 2011). However, participation in events is a choice, and popularity is the ultimate measure of an event's success. As events act from the premise of entertainment, they prefer to seduce their attendees instead of forcing them outside their comfort zone. In the words of our interviewees (V):

> *We are going by what recycling is proper at the individual level in the participant every day. We are thinking, how difficult can it be to engage in hobbies?*

However, it is challenging for a single event to address all sustainability issues simultaneously. Instead, it is preferable to focus on one or two key areas where you have influence (Bowdin et al., 2023). Reflecting the event CE orientation thus serves as the basis for defining the practical goal and subsequent CE actions for the event. The opportunity space for each organiser is different, and resources are almost always limited. Further, becoming greener is a process: the most critical area to work on is a moving goal, as events can constantly improve their sustainability. In the words of our interviewees (VI):

> *Many things depend on what happens in this society overall. Whatever kinds of technical innovations, circular economy innovations, or anything else we have to use, we will implement them.*

It is worth noting that applying circular economy strategies to improve event sustainability does not preclude considering other aspects of sustainability, including social sustainability and environmental goals such as minimising greenhouse gas emissions and promoting biodiversity (Bowdin et al., 2023; Goldblatt, 2011). For example, when our demo event, Tour of Scandinavia, devised a list of their preferred

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sustainability actions (Annexe B), they also included several actions addressing transportation. This illustrates how, in one era of an event's history, the transportation impact of the event can appear as the low-hanging fruit; later, food waste efficiency may seem the most pressing concern. The limits of resources, time, and focus dictate that prioritising chosen goals is necessary.

It is, therefore, a good idea to consider how the circular economy can support the other aspects of sustainability and think about possible drawbacks. Attempts at sustainability, such as CE practices, may induce a rebound effect (Castro et al., 2022; Lowe et al., 2024), where a well-meaning change in the system actually causes a negative outcome. For example, event attendees may increase their overall consumption if they prioritise products made from recycled materials, or new business models may introduce novel circularity issues (Bączyk et al., 2024; Castro et al., 2022; Lowe et al., 2024). Consequently, some of our interviewees (II) were concerned about the impact of replacing single-use event cutlery with washable cutlery due to the haul of plates from one place to another. The need to minimise waste should be met by a comprehensive effort considering multiple sustainability aspects.

Choosing an event CE goal describes the reason for carrying out the CE interventions. This reason may be framed in terms of the economic value of the outcome, such as cost savings from reduced waste management needs (IV), or the social value, such as engaging the community and future generations with sustainability (III, V). A well-defined goal should include the following:

- What circular economy actions are relevant? (1)
- In general, what materials and products are relevant? (2)
- Who is the event's target audience? Who are the other most salient stakeholders? (3)
- What circular economy strategies are pursued? (4)

Formulating a concisely defined goal through a detailed CE assessment necessitates some knowledge of the event's baseline in terms of its sustainability and circularity in general. Making the goal SMART (Specific, Measurable, Achievable, Realistic, Timely)[1] prescribes further knowledge about the specific event. Reaching a goal may thus require observation and at least discussions with the event stakeholders and CE experts. An example of a well-defined CE goal can be:

> *The Exemplary Sports Event is an annual women's (3A) sports event. As many other events in the country have already obtained the sustainable event certification (A, R), the goal is to prepare for and estimate the benefits of a sustainability certificate (S). The goal is to get the certification in five years (T). The measurable CE target (M) is to reduce the weight of mixed-waste materials (1) generated in the event by 20%. This will be achieved by improving the collection of plastic waste (2a) from snacks and fast-food packaging, as well as the collection of fast-food waste (2b). Assessing the progress towards certificate requirements supports the event organiser (3b) in their decision-making for next*

[1] Setting SMART Event Goals and Objectives

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year and will be communicated to the participating sports team organisations, the community, and sponsors supporting the tournament (3c). The goal is pursued through entertaining attendee support, and by introducing rewards for food vendors and event volunteers once a higher recycling rate of plastic and food waste is achieved (4).

In our example case, the goal of acquiring sustainable event certification is a specific goal. To assess whether the goal is achievable and realistic, the organiser can benchmark other events, such as events in the same industry or similarly sized events in other industries. To incorporate timeliness into the goal, the organisers could specify the year they aim to be certified and provide a measurable statement outlining the steps to achieve it, such as reducing the weight of mixed waste by 20%. From this goal definition, one can also derive the area of protection (reduced mixed waste), specific material and products (side and waste streams from food and its packaging, including wrappings, bottles and similar), the primary target audiences (visitors, food vendors, as well as the event organiser, and funders), and the circular economy strategies (refusal and im-proved recycling). Notably, the goal might be adjusted in later phases of the loop as it accommodates the event context, for example, that the most relevant stakeholders (such as food vendors) generating plastic waste might prefer to reduce other waste categories (such as food waste).

3.1 Areas of protection

Key environmental areas of protection in events include transportation, energy and water efficiency, sustainable and ethical cuisine, sustainable décor, and waste management (Jones, 2017). In event contexts, transportation is frequently the largest source of CO2 emissions because visitors, organisers and vendors need to travel to the location, sometimes from around the world (Goldblatt, 2011). For example, in music events like large concerts, the performer may be an international star who needs to travel long distances with an entourage. In sports mega-events, such as European basketball championship tournaments, the participating teams and the audience travel internationally. Also, our interviewees (I, VI) corroborate the overwhelming role of transportation in their environmental impact.

In contrast, the circular economy focuses on the circulation of materials, with waste management being a central topic. Consequently, the question of “sustainable” cuisine is primarily considered in terms of food waste (Alonso-Munoz et al., 2022). However, the circularity focus on materials doesn’t mean focusing only on recycling the event waste. For example, many events engage volunteers to work at the event, and organisers provide them with branded clothing to distinguish the event personnel from attendees. As these volunteer garments often lack reuse value beyond the event, our interviewee (VII) discussed volunteer garment designs that are easier to reuse after the event. This requires a method to print the event logos so that they can be washed away:

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We have volunteer clothes. One proposed model allows you to print event logos and all. Then, if you wash it in a certain laundry cycle, the print will disappear. The garment stays the same. This makes you think about how you could create ***de****signs so that they can be washed and the base material is always preserved.*

The example above illustrates how a circular economy in events is not just about waste management during events, but a fundamental shift in design, production, and consumption. While waste management focuses on the end-of-life stage of products, the circular economy encompasses the entire lifecycle and prioritises resource efficiency. Firstly, this involves rethinking product design to ensure durability, reparability, and recyclability. However, for events using these products, this also means designing for repeated reuse and refurbishment of items, promoting them, and creating systems that facilitate the sharing and leasing of products. Implementing a comprehensive waste management plan is essential for organising circular events, but efforts towards circularity do not need to end there.

3.2 CE event location

In practice, the scope of circularity often hinges on the events' temporal and spatial spread, as well as the participant profile. A fundamental categorisation that affects the scope of event circularity is the event location (Case, 2013). Location is connected to the degree of human modification in the venue; in some contexts, the event infrastructure is permanent, while in others, it is (semi)temporary. Location dictates the initial intactness, or the "naturalness" of the event, but it also determines the available transportation modes, water and energy efficiency, and waste management systems. Events are organised at temporary structures in complete wilderness, such as orienteering, or in permanent structures in the wilderness, like many Scouts International camps, or in manufactured environments, like a basketball tournament arranged in an urban sports facility. As a result, an event's target area of protection should be tailored based on what infrastructure must be taken as given and where it is possible to attempt a change.

Very often, events occur in a location that benefits from some regular infrastructure but may need to be complemented during an event. Cultural celebrations often take place in manufactured environments, but depending on the event's size, these may require additional structures, such as mobile toilets. Furthermore, the KopliFest cultural celebration in Tallinn demonstrates how the built environment can be adapted to support circularity through innovative policies and requirements. On the other hand, our demo event of Save Pond Hockey is an illustrative example of how the organiser has no agency to improve the wastewater system of the facilities operated by the City of Helsinki. As you will see in subsequent chapters, the event has focused its efforts on refusing and reducing plastics instead.

For an example of an event taking place in the wild, we have collaborated with the Tall Ships Races, an annual sailing event that occurs in various regions worldwide, with the anchor port and other ports hosting the event changing every year. The event attracts local audiences to a selection of ports where they can

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view the magnificent vessels in numbers, often making it the largest free event of the year in the hosting country. Nevertheless, the vessels spent the largest proportion of time sailing the hosting region's oceans during the event. The event draws the audience's attention to the fact that it is legal to discharge wastewater and food waste into the Baltic Sea (Jones, 2017). The environmental impact of Tall Ships Races and shipping in general could be reduced through improved waste management and recovery.[2] [3]

3.3 Types of materials and products

Our first-round observations in TREASoURcE demo events confirmed that event waste largely consists of various types of plastic products and materials, food waste, and other biobased materials, including sewage, water, timber, and fabrics. For example, digital solutions like social media and specific event apps have often replaced printed event materials. Other waste materials, including metals and novelty materials such as carbon fibre, were also detected. Considering the third TREASoURcE project value chain, electric vehicle (EV) batteries, and exploring future opportunities for their reuse, we observed that the first potential opportunity could be replacing elements of current electricity systems. We will now briefly discuss this key value chain (KVC).

Events have been electrified for a long time with the help of diesel generators, which are typically used to power the sound and lighting systems. Consequently, our interviews (IV, V, VII) indicated that the salient use case for EV batteries would be limited to events organised outside prebuilt infrastructures without electricity. However, as the main benefit of diesel generators is that they can be easily carried around, there were suspicions that the heavy EV batteries would not offer a similar benefit compared to products available on the market. In the words of our interviewee (VII):

> *I used to go to forest raves. Then we started to see electric power generators, so even though we were in the forest, we were able to bring that power with something other than diesel generators. It was a neat upheaval. So, these electric car batteries could probably be important when you think about forest raves. But you always wonder how you can get that thing there on the spot and how portable it is. And the batteries of electric cars are such lumps, it's pretty hard to get them anywhere. Maybe you can get them in the event by driving, inside the car, then maybe you can use them, or if there was an electricity distribution trailer. But this local company makes portable generators, Instagrid. They're hand-portable, not terribly big. There will certainly be a lot of demand for those.*

[2] Sewage from cargo ships turned into biogas - Baltic Sea Action Group

[3] Maritime Traffic - John Nurmisen Säätiö

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Regarding other novelty materials and products, for events to apply CE principles they need to increasingly select materials and products that minimise waste, maximise reuse, and reduce environmental burden. With perishable materials like food, donating or reselling surplus food can help event organisers decrease the environmental burden of their events. Concurrently, vendors can be required to use equipment and décor made from sustainable materials, such as recycled fabrics or wood, and to choose biodegradable and non-toxic products whenever possible. However, our interviewee (IV) also recognise that products that highlight the background narrative of their materials, such as the name of their previous (famous) owner, can be more interesting for the consumer than "historyless" virgin material items, contrasting the notion that low virgin material prices are a barrier to the advancement of the circular economy (Kirchherr et al. 2018). Clearly, use of circular materials can result in high-value products rather than low-value products.

3.4 Event scope

Most typically, events are categorised based on their size and scale, including the temporal span of the events (Bowdin et al., 2023; Getz and Page, 2019). The event size range thus begins from local community events lasting a couple of hours and initiated by semi-organised volunteers, like the hyperlocal Cleaning day flea market innovation in Helsinki[4] , to major international yet still niche events like our partner event Tour of Scandinavia[5], a premier annual female elite road cycling tour, and to hall-mark events that are large events with long history that has made them synonymous with their location, like the Estonian Song Festival in Tallinn, Estonia, which is a UNESCO Intangible Cultural Heritage event[6]. The event size range ends with international mega-events like the European Basketball Championships[7], which lasts weeks. The temporal scale affects the size of events, so that larger events attract hundreds of thousands of visitors, while smaller events, such as local scouting camps, may engage only a few dozen. Furthermore, the event's audience structure critically directs the practical CE actions and scope. For example, visitors to a children's festival, which include families with babies using diapers, will leave behind different types of waste than scouts.

Another way to classify events by their audience is by their content. The most typical categorisation is the trichotomy of cultural, sports, and business events (Bowdin et al., 2023). Cultural events are sometimes further divided into cultural celebrations and arts events to distinguish between events arising from the culture of the engaged community and events like arts and music festivals. Regarding sustainability, cultural events, especially musical festivals, are at the forefront of change (Mair and Smith, 2022; see also Trendafilova and McCullough, 2018; Werner, Griese, and Hoth, 2024). Arts and music events can highlight the local talent for their local audiences or bring international touring artists to perform for a live

[4] Sustainable Urban Culture at Cleaning Day 2024 in Helsinki
[5] Tour of Scandinavia
[6] Avaleht - XXVIII Laulu- ja XXI tantsupidu
[7] European Basketball Championships

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audience. Similarly, the size of cultural celebrations ranges from the hallmark event of Oktoberfest in Germany to smaller celebrations, such as the numerous European Christmas markets. During the project, we concentrated on the Estonian hyper-local event KopliFest, which celebrates one living quarter in the Estonian capital of Tallinn.

Sports events are another general type of event. The size of these events also ranges from international mega-events, such as the Summer Olympics, to national championship cycles and weekly junior basketball matches among teams from a particular geographical area. Like cultural events, sports tournaments can attract numerous participants and audiences, especially in sports where teams compete against each other and have a large fan base. The TREASoURcE project has investigated the circularity option space for communal types of sports events by focusing on the Finnish Save Pond Hockey tournaments. While many modern sports events are large, sponsored entertainment happenings with international fan attendance, Save Pond Hockey tournament serves as an example of a niche sports event that is so small that it falls under the local event management policy requirements. As we shall see, it relies entirely on the waste management and toilet systems provided by the venue owner.

In the third general event category, business events include business meetings, trade fairs, and exhibitions. For example, a global hallmark event, such as the World Economic Forum in Switzerland, targets global power wielders, and the Helsinki Slush event engages the tech startup community. In our project, the Markens Grøde fair in Rakkestad, Norway[8], is an event that offers numerous opportunities for the business community and farmers to connect while serving families with children and the public sector. The fair has a sustainability focus that emphasises sustainable practices and the circular economy, encouraging businesses to adopt more environmentally friendly practices.

3.5 Event management industry structure

The event management space is an industry that comprises various organisations, including public entities, commercial organisations, and citizen groupings, with varying degrees of professionalism and levels of organisation. Some organisers may be highly local and non-professional, such as a community of parents arranging a flea market and a coffee stand to raise funds for their children's class, or the event may be subsidised by support from company collaboration, public bodies or NGOs. On the other hand, it is customary for professional event organisers to be event-specific bodies or special teams within larger organisations, such as cities or municipalities. Both the literature and the interviewees (I, II, III, IV) note much variation in the character of event organisers (Bowdin et al., 2023). Consequently, event organisers need to understand their local event ecosystem in order to identify opportunities for advancing the circular economy.

[8] Markens Grøde

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The event management industry is marked by its collaborative character. Our interviewees (IV, VI, VII) corroborate the tradition of collaboration. Especially business organisations frequently outsource their event organisation to a professional event management company (Bowdin et al., 2023). Vendors, such as event industry suppliers and venues, are other typical examples of event industry stakeholders. For example, when events last more than a couple of hours, food is often served on the premises, or it may even be the central highlight of the event. Food service can be centralised (V), but it may also consist of a collection of businesses that rely on the event infrastructure provided, such as waste management and tap water (II). Furthermore, industry associations and their publications also play a crucial role in facilitating networking and communication (Bowdin et al., 2023). For example, at our Save Pond Hockey demo event, the national producer responsibility non-profit and a packaging recycling developer, Sumi, brought their mobile pop-up plastic waste collector to the event pro bono. Last but not least, governments, especially local governments, participate in the event management space in various roles, including venue owners, consent authorities, service providers, funding bodies, event organisers, and marketers (Bowdin et al., 2023). The result is a fairly collaborative and flexible value chain, which could be prescribed to support circularity endeavours (cf. Kirchherr et al., 2018; Suchek et al., 2021).

However, the central stakeholder in a position to advance circularity appears to differ in different event management domains. With business events, professional event managers have been among the first to adopt and support event organisers in adopting sustainability standards, for example, because it helps them differentiate themselves from the competition (Bowdin et al., 2023). On the other hand, in the Nordic tradition, the role of volunteers may emerge central, because many recreative sports clubs' main purpose is to organise regular physical activity for the members of a local community, who also engage as local volunteers to arrange competition events (Giulianotti et al., 2020). An example comes from our interviewed event organiser where the central organisation employs a small team that can support both large event arrangements (such as national events attracting around 10 thousand participants, powered by volunteers), but also provide regular guidance to the local-level volunteers who organise smaller events (around 100 participants, V). Based on our interviews, the position of volunteers as permanent fixtures in the event-organising community suggests they might hold a central role in recreational sports and cultural events (V, VI). In this model, CE practices spread through the central organisation's collaboration with the volunteer community.

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4. Decide: Circular economy actions

An event striving to improve circularity requires its organisers to decide the specific actions to perform. For example, reducing plastic waste involves selecting recyclable materials and products, encouraging visitors, and committing stakeholders to use fewer plastic products. In contrast, more efficient plastics recycling necessitates setting up effective bin systems and promoting recycling. In practice, the actions available are dependent on the operational context. Typically, practical decisions to make events more circular are directed through:

- Policy frameworks, such as the EU Packaging and Packaging Waste Regulation (PPWR, 2025/40), or national or local laws, such as in the city of Tallinn (Riigi Teataja, 2004),
- Standardisation, such as sustainable event management standards like ISO 20121:2024 (2024) and certifications like Eco-Lighthouse and Ekokompassi, are available in Norway and Finland, respectively.
- Advisory guidelines such as general circular economy strategies, guidelines by cities and venue owners[9], or those provided by event funders, including foundations[10].

4.1 A broad view on supporting policy frameworks governing event circularity

To begin with the most binding framework, many supporting policy frameworks that guide towards sustainability and circularity are already applicable at various levels of events (Case, 2013). At the international level, environmental policies are informed by recommendations from the United Nations and the UNEP (UNEP, 2024a). At the local level, each European country is developing and implementing national policies to promote circular economy practices. For example, Estonian circularity efforts rely on a Circular Economy White Paper at the national level, and locally, for instance, on the Tallinn Circular Economy Development Plan (Tallinn, 2024). In contrast, Finland created the world's first National Roadmap to a Circular Economy in 2016 (SITRA, 2016) and has since issued a Resolution on the Strategic Programme for a Circular Economy to achieve circularity by 2035 (Finnish Ministry of the Environment, 2021). This programme includes initiatives to promote sustainable consumption, enhance recycling infrastructure, and support circular business models.

At the regional level, the EU and EEA initiate binding policies for their member states. In the European Union context, the Waste Framework Directive (WFD, 2008/98) and the Landfill Directive (2018/850) establish legal frameworks for waste management, emphasising the waste hierarchy and reducing landfill use. The WFD mandates separate collection and recycling targets, while the Landfill Directive aims to limit municipal waste landfilling to 10% by 2035. In contrast, the Urban Wastewater Treatment Directive (2024/3019) requires urban wastewater collection and treatment, regulating industrial wastewater to

[9] E.g. Helsinki, Tallinn, Bergen
[10] E.g. Swedish Filminstitut or Danish Arts Foundation

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encourage the reuse of treated wastewater and sludge, with an emphasis on nutrient recovery and environmental protection. Furthermore, the EU Strategic Environmental Assessment (SEA) Directive (2001/42) on assessing the effects of certain plans and programmes on the environment requires an environmental assessment of plans and programmes that are likely to have significant environmental impacts. Concerning events, these plans include, for instance, waste management and tourism programmes.

Further policy instruments from the European Commission aim to harmonise policies across member states to promote circular economy, including regulations, directives, decisions, recommendations, communications, priorities, strategies, action plans, and standards. The deliverable D1.3 in the TREASoURcE project has mapped the EU legislative framework for value chains concerning plastics, biobased side and waste streams, and electric vehicle batteries (Ngo et al., 2024). Summarising the deliverable, several Directives mandate recycling in the biobased waste sector. Key initiatives include the Renewable Energy Directive (2023/2413), which sets sustainability criteria for biomass used in energy production. In contrast, the Sewage Sludge Directive (1986/278) regulates the treatment of sewage and its use in agriculture. Furthermore, the Fertilising Products Regulation (2019/1009) promotes the use of organic fertilisers derived from biobased waste streams, ensuring adherence to safety and quality standards.

Concerning plastics, the European Green Deal (EGD)[11] and the Circular Economy Action Plan (CEAP, 2020) especially emphasise transforming the plastics industry to achieve carbon neutrality by 2050. Key initiatives include the EU's plastics strategy[12], which targets issues such as microplastics and single-use plastics and aims for generally reusable or recyclable packaging by 2030. Consequently, the Directive on Single-Use Plastics (2019/904) focuses on reducing the environmental impact of certain plastic products, such as by setting collection targets for single-use plastic beverage bottles and establishing extended producer responsibility (EPR) schemes. Furthermore, the Ecodesign for Sustainable Products Regulation (2024/1781) promotes safe and sustainable circular practices, among other objectives. At the time of writing, the most recent introduction is the Packaging and Packaging Waste Regulation (PPWR, 2025/40), which addresses packaging and packaging waste, placing requirements on its manufacturing, composition, reusability, and recoverability.

4.2 Examples of event certifications

The event industry, especially its large and established members, often already apply sustainability self-regulation measures, such as third-party standards and certifications. Certifications enable organisers to benchmark their event's sustainability and communicate their adherence to beneficial practices. The trade-off, however, is the burden of compliance with certification requirements. For example, the ISO standard 20121:2024, "Event Sustainability Management Systems - Requirements with guidance for

[11] European Green Deal (EGD)
[12] EU's plastics strategy

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use," is the first international standard for event sustainability, launched in the summer of 2012 to coincide with the London Olympic Games (Case, 2013), a sports mega-event owned by the International Olympic Committee. In principle, ISO 20121 can be applied to all types and sizes of organisations in the event management industry. For example, in 2012, the Danish government certified its event arrangements during its European Union presidency, a responsibility that transfers yearly from one government to another, as the first international business event system to comply with the standard (Raj, Rashid, and Walters, 2017). In practice, the ISO 20121 standard may be too heavy to apply for events that are not international mega-events.

The ISO 20121 standard is designed to address the sustainability performance of an owner of the event (such as the International Olympic Committee), the event organiser (the local hosting organisation such as the city of London), and the suppliers to the event, ranging from caterers to service providers, venue owners and couriers. Clearly, ISO 20121 is the international gold standard that helps to provide cross-national assurance of the implemented sustainability measures. We recognise it is not viable for smaller events, but its principles trickle down (IV, VI) and inform other certifications and organisers, as it is always possible to benchmark certification requirements even without applying for them. Ultimately, in the words of our interviewees:

> *The value of the certificate, in my opinion, is that it makes it easier to communicate that we are doing smart things for event sustainability. We have authority and we collaborate to meet these requirements. In addition, its communicative value is immense. It's just empty words unless you can prove it.*

Following the principle of using certificates for stakeholder communication, many event organisers choose to follow lighter standards. A national certification can appear to be a more suitable choice for national event organisers. For example, Eco-Lighthouse certification (Figure 2, left) is the scheme that our TREASoURcE partner, Tour of Scandinavia Norway, employs. In Finland, an environmental management system, EkoKompassi (Figure 2, right), guides organisations, such as the City of Helsinki, in their environmental work. The benefit of a certification is that by meeting the standard requirements, the organiser now carries a "seal of approval." Certificates help enhance the event brand (VI), as they demonstrate that the organisers work systematically to improve event circularity and sustainability in a manner that is recognisable in the field.

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Figure 2. Examples of event certificates Eco-Lighthouse (left) and Ekokompassi (right).

Unfortunately, the certification route may not be available for all organisers. Unwillingness to acquire a certification may signal organisational hesitance (Kirchherr et al., 2018) and difficulties committing to circularity in practice. However, it may also reflect the practical problem of certification as a lengthy and resource-intensive process that typically requires professional knowledge, significant time investments, and financial resources to obtain the certificate. As a result, applying for certification may not be an option for non-professional or small and novelty event organisers. Without a certification, sustainable choices may remain relatively invisible to the audience. Familiarising with certifications and their requirements is recommended, as they provide a structured approach to event sustainability. Otherwise, organisers may miss out on valuable insights and ideas helping to improve their environmental performance.

4.3 Notions on guidelines for events

For event organisers of all kinds, the practical choices in the field are often dictated by guidelines, such as those from the city or municipality, the event venue manager, or the event funder. For example, event organisers may be offered support and training such as by the City of Helsinki or their central organisation (V, VI). Best practices, such as the example in Annexe C, can also be disseminated as a checklist. Our interviewees confirm the notion that the minimum best effort of event organisers concerns compliance with requirements such as city permissions and city waste management plans (VII). Guidelines are thus often complemented with “carrots” or rewards, and “sticks” or punishments to encourage performance beyond the minimum effort. For example, a city may allocate the most popular event locations to the organisers with immaculate record, charge lower fees when waste is separated instead of mixed (II, III), and even place specific requirements for large event organisers and vendors wishing to serve or participate in an event (II), checking compliance through random visits during events (II, III).

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However, in some situations, the non-binding character of guidelines becomes visible as they illustrate the remaining degrees of freedom. When renting an event venue, waste management arrangements are typically included as a standard feature. For example, events held in Helsinki must submit a waste management plan to the City of Helsinki Environmental Services (II)[13], and their venues are equipped with a basic waste management service and mixed bins. However, the plan is necessitated only if more than 500 people are expected to attend the public event, and our Save Pond Hockey demo event is so small that it falls under the radar of this policy.

Consequently, our partners and interviewees underline the crucial role of cities. Cities can wield a game-maker power through carrots, sticks and guidelines. As a downside, the existing city infrastructure may hinder circularity, such as during events organised in city premises where the waste management system is less developed, the electricity system is outdated (IV), or the venue's age or space limits the opportunities for venue circularity (II, III). The slow pace of changes supporting circularity reflects the slow pace of city planning and development processes.

Fortunately, events provide an encouraging example of enforcing a communal infrastructure change through the frequent challenge of event transportation. As mentioned, transportation can be a significant source of environmental pressure for a specific event. As infrequent yet highly coveted opportunities, international mega-events are a particular example that presents municipalities with pressure to redesign their transportation system. The anticipation of large audiences and tourists, along with the prescribed economic boost to the local community, may motivate communes to engage in urban regeneration and invest in the renewal of their transportation and communication systems (Case, 2013; compare Kirchherr et al., 2018). After the event, the improved public transportation system, built to cater to the needs of a large event audience, will benefit both the inhabitants and smaller event organisers alike. Also, our interviews reveal events cause further changes in city infrastructure, such as when temporary electricity or music stage infrastructures are made more permanent (I, IV). From the CE point of view, an especially beneficial infrastructure change concerns building storage facilities to store structures and spare parts between events (V). As the organisers of huge events (VI) already collaborate on their circularity goals with cities and the venue infrastructure management well in advance, the tie-up between large-scale events and the prescribed commercial boost could be supported to entice communities to invest in CE infrastructure on a broader scale.

It should also be noted that novelty domains, such as the circular economy, remain an innovative area where ingenuity often produces creative event practices (Goldblatt, 2011). In the words of our interviewee, innovations should be introduced continually (VII):

[13] Helsingin kaupunki - tapahtumien ympäristövastuu

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There should be proactivity so that event organisers will keep their eyes open when identifying opportunities for improvement. That is something that I don't think many do. This approach can lead to the development of unique strategies that enhance long-term sustainability. Everything that is done at festivals could probably be utilised, e.g. festivals could harness the energy generated by dancing and jumping attendees. There are numerous possibilities, and innovations should be introduced and tested each year.

In addition to following the ready-made checklists, guidelines, and standards, our experience and that of the interviewees (I, VII) thus suggest adaptation and brainstorming new ideas to create novel practices suitable for the local context. The history of sustainable events reveals that, in the past, it was an innovation to replace event promotional bags with reusable canvas bags, reduce printed brochures, and replace one-use items with little value with more valuable reusable items (Goldblatt, 2011). Today, this report recommends the complete rejection of giveaways and the adoption of printing instead. The innovations of today become the standards of tomorrow.

4.4 Circular economy strategies

Many established event sustainability pieces of advice are already concerned with circularity. For instance, of the “five first small steps for going green” recommended by Goldblatt (2011), going paperless and using non-plastic cutlery are concerned with the reduction of materials in circulation. Regardless of the event organiser's situation, when the circular economy is a focus of event sustainability, it is recommended to base the activities on CE strategies (e.g., Potting et al., 2017), as characterised in Table 1 below. The Table succinctly summarises the **reduction** strategies from R0 to R2 (Refuse, Rethink, Reduce), which decrease the consumption of natural resources and materials through smarter product use. In contrast, the **reuse** strategies from R3 to R7 (Reuse, Repair, Refurbish, Remanufacture, Repurpose) focus on extending the lifespan of a product or its components and retaining them in the economy for a longer period. Finally, the **recycling** strategies from R8 to R9 (Recycle and Recover) are the least circular, as they obtain energy or materials by processing products and have relatively little influence on production and consumption.

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Table 1. Circular economy strategies in relation to the events (adapted from Potting et al. 2017).

	CE Strategy	Meaning	Example
REDUCTION STRATEGIES: SMARTER PRODUCT USE AND MANUFACTURE	**R0** Refuse	Make a product redundant and offer an alternative. Avoid anything unessential.	Refuse giveaways and other knick-knacks.
	R1 Rethink	Make the product use more intensive. Consider what to purchase, how much to spend, and the types of products.	Minimise food waste by donating unconsumed food. Avoid single-use items in the event.
	R2 Reduce	Consume less by using resources efficiently and planning ahead.	Use digital tools instead of printed materials. Reduce the use of bottled water by offering tap water for refilling one's own bottles.
REUSE STRATEGIES: PRODUCT LIFE EXTENSION	**R3** Reuse	Avoid waste by planning and reusing event items for the same or different purposes.	Share or rent the needed materials and equipment. Reuse materials and products from previous events. Donate material or equipment to another user if it has no further use after the event.
	R4 Repair	Maintain the original function of the product.	Fix broken event equipment or décor for use in future events.
	R5 Refurbish	Restore and bring the product up to date.	Modernise and upgrade a product by introducing new fabrics, paints, or similar.
	R6 Remanufacture	Use parts in a new product with the same function.	Remanufacture event materials, such as fabric, wood, metals, plastic waste, or domain-specific waste, like ice hockey sticks or tents.
	R7 Repurpose	Use the product or part of it in a different function.	Event materials are reused or repurposed for another event.
RECYCLING STRATEGIES: CREATIVE MATERIAL	**R8** Recycle	Process materials to obtain the same or lower quality.	Organise a well-planned system with good visibility for event participants to sort, collect and recycle different materials.
	R9 Recover	Collect materials used for energy production.	Ensure that all waste is collected and handled properly.

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4.5 Top 10 recommended CE practices

During the TREASoURcE project (WP2.2.5), the participating partners rigorously evaluated a long list of recognised and suggested CE practices, ultimately selecting a top ten CE practices based on their suitability for the circular economy, where reducing, refusing, and efficiently recycling materials is paramount. The practices can be condensed into the following general recommendations:

- Refuse waste at your event in every possible manner. This includes giveaways, other knick-knacks, and waste highly specific to your event domain. Actively search for ways to repurpose your waste at other events or donate it to entrepreneurs.
- Consider the food-related practices, including the packaging waste generated in your event. How can you reduce, reuse, and recycle food waste and its packaging?
- Ensure that you help your visitors and vendors recycle properly. Communicate your CE goals and provide instructions, signage, and directions on how to sort them. Make sorting as easy as possible.
- Celebrate circularity by making it a memorable and entertaining part of your event!

While many events have already reduced their waste, we argue that there remain opportunities through the redesign of event elements where reducing material to oblivion is impossible. For example, it is sometimes necessary to print some materials for each visitor; business event name tags are a typical case. However, Goldblatt (2011) describes an event where the necessary printing paper has flower seeds embedded in it. Instead of a disposable utility name tag, such a choice can lengthen the time the event remains in the participant's mind as the seeds grow into flowers. Consequently, they can visualise the potential of circular economy and help the audience believe in it (cf. Goldblatt, 2010). While such actions may not be effective in terms of sustainability impact, they draw attention, increase awareness, and help position the event as green.

At a broader scale, the need for rethinking and redesign can be incorporated into events as they strive to distinguish themselves from others by incorporating one or two novel ideas that may draw the audience's attention (Case, 2013). We highlight the potential of creative and unforgettable actions incorporating circularity to draw the event audience's attention and raise awareness of the benefits of the circular economy. Over time, novelties can become norms, opening a space for new novelties. A good example is how, ten years ago, introducing the practice of cup deposit schemes was considered innovative. In this scheme, the audience pays a small additional fee for their first purchase of a beverage, which is refunded once they return the cup (Goldblatt, 2011). Today, in Tallinn, as of the 1st of June 2023, food and drinks may only be served in reusable containers and reusable cutlery in events. This requirement was extended to all public events in Estonia as of January 1, 2024 (Riigi Teataja, 2004). Consequently, the next novelty may be a practice that omits the packaging altogether. For example, Goldblatt (2011) mentions how a caterer served soup from an edible bread bowl in a gesture that demonstrated business savvy, environmental sensitivity, and appreciation of flavour. As the novelties still need to convey the idea of superiority, responsibility, economicality, stylishness and efficiency, the ideas need to be tested in events in practice.

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4.5.1 CE event practices – Reduction strategies (R0, R1, R2)

Let us now describe the recommended event CE strategies in greater detail. The first recommendation is for the organisers to **Rethink the hooks of your event (R1).** With this first suggestion, event organisers are encouraged to consider whether they might design (parts of) their event experience with circularity in mind. At a minimum, organisers can, for instance, place signs at the event and on the venue maps to inform visitors and vendors of the recycling points' locations. For instance, in our partner event Markens Grøde, an educational presentation on waste sorting was delivered to the audience. The program emphasised the significance of environmental stewardship and the implementation of efficient waste-sorting practices[14].

However, providing information on waste reduction or recycling rarely attracts event visitors to participate in the first place (Dodds, Walsh, and Koç, 2019). As detailed in the practical examples of Section 6, we argue that carefully planned CE experiences can be highly memorable and entertaining. Also, our interviewees (I, II) indicated that providing information to visitors is not enough; circularity needs to be an entertaining experience. For example, our interviewees recollect inviting artists to design a statue made of trash (I). In their words, entertainment is paramount at events (I):

> *You can move things forward by making decisions behind the scenes and enforcing them. However, it shouldn't appear as if you're ordering the event visitor. Otherwise, there might be a backlash among attendees when the teenager inside all of us says, "I probably won't do it" if you try to force them. It should be fun for them.*

Of course, the various event domains and everyday contexts strongly influence the expectations of visitors and vendors. An easy way to design novel event hooks is to emphasise circular activities already familiar in the event domain. For example, our interviewees (V) and demo event organisers recognise that many hobby communities already have a thriving market for equipment repair and resale. Highlighting this will valorise circularity, offer opportunities to learn skills like equipment mending, and for novelty businesses for repair services and material repurposing.

Refuse giveaways (R0). Some events gift items to visitors, participants, or presenters. These giveaways range from mementoes to thank-you gifts and sponsored products. The materials range from polyester-cotton event t-shirts for participants and volunteers (V, VII), to plastic trophies awarded to competition winners. At Save Pond Hockey, beverage bottles were originally distributed as a promotional giveaway. Instead, immaterial giveaways are recommended to reduce unnecessary material. For example, sponsors might donate the same amount of money to a chosen charity. Even awards can be immaterial, like planting a tree to commemorate a winner.

[14] Markens Grøde - waste sorting fun with Asgeir Borgemoen

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However, our interviewees (V) note that the physical giveaways may have a long history as status items with an element of collectability. Furthermore, if the audience has learned to expect giveaways (VI) or is accustomed to them being used to market the event or its sponsors, rethinking and reframing them, as well as the communication and marketing strategy, will require extra attention and effort. If the physical giveaway remains a must, it could be made of recycled materials, as described by one of our interviewees (VI):

> *I originally said that I want to give an immaterial gift, that we invest in the forest. But apparently something material must be given, so then I wonder what that material is, and think, OK, let's use the materials we have already used once. Let's make something out of them.*

Some produce less waste than others. Consequently, our interviewees (II, III, VI) also recommend foodstuff as giveaways. In that case, the circularity of the packaging should be considered. For example, our demo event, Save Pond Hockey, originally received bottled beverages as sponsor giveaways. As a result, the trash bins were overflowing with bottles during the event. Next year, the organiser arranged plastic bottle collection points and refused to accept sponsorship in the form of plastics. This represented an improvement material-wise.

A third example of practices increasing in popularity concerns **rethinking meals and food packaging systems (R1)**. Single-use plastics should be avoided in individually packaged goods, as well as in single-use crockery, glassware, and cutlery. Even if the event has one caterer serving food, our interviewees indicate little visibility into how food is packed and prepared before serving (V). Currently, some events organise a cutlery deposit system (I, III), encouraging visitors to bring their own containers, or the venue may provide on-site washing facilities for cutlery.

In anticipation of the Single-use Plastics Directive (SUPD, 2019/904) and the Packaging and Packaging Waste Regulation (PPWR, 2025/40), our partner city of Tallinn has already ceased serving food, additives and seasonings (e.g., salt, sugar, cream) in single-use packages and cutlery (III). Instead, bulk dispensers and reusable cutlery should be favoured. Nevertheless, our interviewees (II, III) noted that the performance of the deposit system in practice requires a smoothly functioning system – if there is too long a queue to return the cutlery, people will put the deposited cutlery into a bin instead of waiting to get their deposit back. As a result, the industry is still developing details and practicalities, such as what deposit fee is fair to the participants (III). In the words of our partner organisation in Tallinn:

> *But of course, the challenge for the event organiser is cost. It [deposit cutleries] incurs an extra cost for them. Because, of course, it is cost-effective to use single-use cutlery. In some events, they want [event] organiser to paying for the company [that organises the deposit system in the event]. In some events, responsibility is given to all vendors. Some events have solved it more and more popularly, so that end users*

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paying for using the cutlery. For example, if you buy a cup of coffee somewhere, you pay the service fee. I don't see it as a good thing, but it's one of our challenges here.

The advice to reduce single-use cutlery is increasingly binding. In February 2025, the European Union Regulation 2025/40 (Packaging and Packaging Waste Regulation PPWR) entered into force. This rule explicitly targets circularity, aiming to reduce primarily plastic packaging waste in general.

To continue with the theme of food, food waste is a costly issue. Whenever possible, event organisers are recommended to **minimise food waste (R2).** Food waste is often neglected, despite having substantial environmental consequences, as the decomposition of food in landfills produces greenhouse gas emissions (Alonso-Muñoz et al., 2022). This inefficiency can be mitigated through effective planning and a focus on the processes that generate food waste. For example, the healthy and good raw materials that do not enter the food value chain were in the spotlight of the Markens Grøde fair in 2024. During the fair, there were tastings of underutilised food resources, including laying hens, offal, food grains that are used for animal feed, fruit that rots, and vegetables that are ploughed under. In addition, professionals provided knowledge about the hidden parts of the food system[15].

Minimising food waste to oblivion may appear an insurmountable task. In the general consumer context, interventions aimed at reducing food waste have often been unsuccessful (Alonso-Muñoz et al., 2022; Ramos et al., 2024). As an example of a recent suggestion, the experience from the household context suggests that mere measurement (Ramos et al., 2024) can help reduce food waste, indicating that organisers might innovate in this field, such as attempting to show attendees how much food is left over.

Starting from the premise that some food will always be left over, a critical question is that food is a perishable good that cannot be stored too long. Especially in large events, food waste is the responsibility of the catering or food vendors; therefore, it is recommended that organisers direct some efforts to them. For example, when selecting vendors to serve food at an event, organisers can encourage them to arrange donations or sales of their surplus food. Also, the event personnel may be happy to take some food home (V). In some locations, it may be possible to make arrangements with local charities or food valorisation apps. To prevent food contamination and foodborne illnesses, these arrangements must be made well in advance.

Especially for larger event organisers (II, VI), a critical strategy is to scale out the message and **communicate and require CE actions from your stakeholders (R1)**, not just the organising team and visitors. While some stakeholders are willing to do more than asked (VI), organisers may need to monitor and guide them to reach the target (II, III). For instance, our interviewees (I) discussed the need for a sustainability checklist to help an event funding foundation enforce the principles down the supply chain. Many of our interviewees note that cities are uniquely positioned (IV), because they have visibility to

[15] Markens Grøde – Climate barn program

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international trends as they collaborate with large international events (VI), and at the same can enforce the learnings as requirements to smaller organisers through their own procurement and guidelines, in other words, sticks and carrots (II, III).

The opportunity to push for a requirement is sometimes reduced because the organiser has no leverage to impose requirements on an important stakeholder. One example is an international sponsor who is contract-bound to deliver a specific type of single-use water bottle to an event, even though these cannot be recycled in the local system (VI). Another example is when event visitors, organiser teams, or performers use a local food delivery service, resulting in uncontrolled waste (III). However, leverage is sometimes underutilised, as when our interviewees indicate that event organisers may advance sustainability without communicating this to the visitors. As noted earlier, some interviewees believe that audiences may react adversely to the feeling of enforcement (I, VI), but they also acknowledge that such debates are perhaps unavoidable.

Collaboration may lead to important learnings that benefit the entire CE ecosystem (I, VII). Our interviewees (I) indicate that their sustainability campaigns have allowed them to recognise problems in their practices, such as when different plastic qualities prevent material reuse. For example, they (I) recall a design collective that collected event plastic waste to assess whether it could be used to press LP records commercially but had to admit to the technical problem inherent in the variety of different plastic qualities. In the words of our interviewees (I):

That is how you learn and increase your knowledge.

Consequently, it is necessary to **rethink the remaining single-use items (R1)**, such as printed name tags, event schedules, or structures like canopies or scenery (I, III, IV, VI), taking into account the varying environmental burdens associated with different materials. For example, our interviewees (IV) recognise that metals used in event décor have a high environmental burden relative to their volume. Rethinking the items using CO2-intensive materials will bring an outsized benefit to the environment. If it is necessary to use single-use items and impossible to refuse completely, organisers can still strive to minimise the environmental footprint of the materials used.

For example, the organiser may reconsider what types of single-use scenery to use in the event. Instead of cardboard and metal, paper sheets or plain cardboard could be used in the design. For name tag plastic covers, organisers can offer visitors the possibility to return the tags at the end of the event (III). In event schedules, details like dates and schedules will vary, but rethinking printing is still not impossible. Our interviewees retell the story of a thrifty junior tournament organiser (VI) who can reuse the same tournament brand design and add a new date only when necessary.

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It is possible that reusing single-use items or avoiding the use of metal might result in noticeable visual effects. International events with strict brand guidelines (VI) are particularly bound to employ a specific style in décor and accept international sponsors to sell merchandise, despite their environmental footprint. Earlier, we provided an inspiring example of name tags infused with plant seeds; planting them in a pot after the event is a memory that will bloom even after a longer while. In our experience, organisers already try to capitalise on opportunities like making name tags multifunctional; they may serve as a venue map, a local public transportation ticket, a ticket to a conference dinner, or provide a feedback survey link.

4.5.2 CE event practices – Reuse strategies (R3, R4, R7)

Re-use decoration, equipment and items (R3) whenever possible. Many decorations can be used for multiple events. Audio, lighting, and furniture rental are standard at events. Our interviewees indicate that organisers already reuse their own elements (I, II, VI) and that event agencies are often self-sufficient in terms of furniture, either by renting or hiring services (IV). Reuse is further enhanced if banners, signs, and other materials, from an event are made of durable and sustainable materials, allowing them to remain reusable at other events, and if printing the dates on the banners is avoided (II, III). Yet, in general, our interviewees (I) do note that the event industry is already noted for frugality and re-use on many fronts:

> *Many items can be resold to smaller and more frugal organisers. In our city, equipment and items finally end up with the free art movement. They get all their equipment very cheap, if not free.*

However, when an organiser wishes to reuse their own equipment, our interviewees note (I, II, V, VI) the need to introduce a separate storage room to store event decorations, but this requires planning. For events held in different locations each year, the storage can be mobile, such as a truck that stores essential decorations between events and is hauled to the new location (VI).

The reuse strategy appears especially appealing in domains where equipment reuse is popular, even outside events, such as the broader ecosystem of our demo event, Save Pond Hockey. As ice hockey is an equipment-intensive sport, a second-hand market for used ice hockey equipment already exists, and existing businesses and sports teams alike are aware of the importance of donating equipment, especially to support youth. In less equipment-intensive domains (VI), reuse, second-hand and rental activities may have less traction.

Our next recommended practice, facilitating item **repair (R4),** helps to keep items in circulation by extending their lifespan from their original use. Because repair is a work-intensive activity, it often does not make sense for very cheap items; otherwise, the relative price becomes too high. Event organisers recognise their frugal tendency, especially when it comes to very expensive equipment like sound systems or lights (I):

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We fix things, especially equipment, for as long as possible. Even beyond repair!

Item repair is an area where events can also help spread the culture of circularity among attendees. The ethos of repair may be very high in some communities, especially those that value manual labour, self-reliance, and the environment (V, VI). For instance, our interviewees (V) recognise that relatively expensive domain items, such as camping tents and hiking shoes, are repaired and used year after year. However, repair requires skills, resources such as storage facilities, and time. Some materials, like hard plastic, are also nearly impossible to repair.

To help advance repair skills among event attendees, the organisers may consider inviting existing businesses to conduct a commercial repair course at the event, or host peer-to-peer workshops (V). Among the TREASoURcE project partner communities, Fredrikstad in Norway organised several fixing and repair workshops as part of their yearly cultural event, Culture Night. Students in local vocational schools carried out repair services through their own student-led companies, which were formed to build children's creativity and entrepreneurial skills. Alongside the event, attendees were presented with REbyME, a professional workshop that taught textile repair, turning the event into a learning opportunity.

Far from established, certain CE event practices require creative designs and collaboration to deliver high-quality products using pre-used materials (Kirchherr et al., 2018). **Repurposing (R7)** is a circular strategy that still requires much creativity. An organiser like a city that arranges multiple events in a year, may be able to repurpose an item for their next event swiftly. As an example of such internal event organiser repurposing, our interviewee (I) used surplus timber to build a sunshade for a summer event on an island venue with little tree foliage. After the event, the same structure was rebuilt for a sauna event. On the other hand, some event organisers may collaborate with an artisan, a business, or a charity in activities such as repurposing decorations, banners and other event waste materials. Though this is not yet very common, there is an interest in collecting event materials if it is clear what material has value (VI):

We could definitely go with this. We could do this if we knew in advance that some materials could be reused and needed to be collected separately during the demolition phase.

However, the value of materials used in repurposing may be highly context specific. For instance, our demo event, Save Pond Hockey, hosts a sales point for an industrial designer who collects discarded ice hockey sticks and uses them to craft household items, such as chairs, cheese slicers, and clothes hangers (Figure 3). Reflecting on the case, our interviewees (IV) recognise that this re-purposed merchandise has a story and thus has much more added value than items made of virgin material only. However, the interviewees also note that connecting artisans and designers with surplus materials, such as decorations, requires the creation of a chain to collect the waste material and remanufacture it into something

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else (V). From the organiser's part, reaching out and finding an entrepreneur or charity that can utilise their material requires extra effort.

Figure 3. Repurposing broken ice hockey sticks as clothes hangers.

It is also important to note that although the waste material may be donated for a commercial purpose, the collection, transportation, and effort still present a cost to the recipient. A recurring theme is that because the amount of repurposable material usually remains relatively small, it may be necessary to accumulate it before collection. For an artisan business interested in the materials, it may be more economical to pick them up only once a large enough quantity is available, resulting in a need for storage and associated costs.

4.5.3 CE sustainability practices – Recycling strategies (R8)

Advice that can't be repeated too often is to **separate valuable material for circulation (R8)**. Proper waste management should already be a fundamental overarching principle, but gaps remain, and not all material waste is being disposed of in bins. An event requires sufficient bins in suitable locations, accompanied by clear instructions and visual signs or labels indicating the types of waste that can be disposed of in each container. Our experience suggests that waste bins should be located where people pass by with trash at hand, such as near the restrooms, the grandstand/auditorium, the food stalls, and the exits. Still, events are occasions that reveal the broad spectrum of the current waste recycling guidelines. For example, our interviewees emphasised that event waste management services must cater to both attendees and vendors, often in very distinct capacities, as their waste requirements differ. This is particularly visible during events with numerous vendors (II, III). Additionally, the problems with waste sorting become exacerbated when the everyday context of waste sorting differs from what is required during an event (VII). The interviewees (II) highlight that it is especially challenging for food vendors to follow event rules that are stricter than what is required in their everyday business. The variety of rulesets and practices reveals that waste management remains far from harmonised at the system level.

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Unfortunately, the increasing value of certain materials may only add to the variety of guidelines. For example, our interviewees recognise that mixed waste, biowaste, deposit-subjected packaging, and other packaging (if generated at the event) should already be collected separately. However, even further materials might become valuable enough to collect. Two bio-based waste materials are explicitly mentioned in interviews: timber (I), which is used to build event structures or scenery, and frying fat (II), which can be used for biofuel and other products[16]. For example, timber may be reused in a different context (I, VI), and should be collected separately, as discussed in the previous subchapter.

Furthermore, it is essential to note that not all events generate waste in large volumes. Some waste materials may be highly context-specific, such as the plastic composite surfaces in the Save Pond Hockey ice hockey rink. Advancing circularity at events and reducing material use may result in even smaller waste volumes in the long term. For example, in our partner events, we recognised how a separate deposit plastic bottle collection bin encouraged attendees to pick up the waste from the bin to earn the deposit (III), thus reducing the volume of plastic collected. It appears essential to define event waste that may be valuable in smaller amounts. An example is the materials listed by the European Commission as indispensable in its Critical Raw Materials Act (2024/1252), such as copper and aluminium/bauxite. Recognising this, our interviewees query for support in a more circular use of metals, such as waste from event structures that include pieces of aluminium (IV):

> *Metal is significantly more energy-intensive and perhaps more valuable as a material. So, at our system level, we should also value the recycling of metal quite a lot more than cardboard, which is not such an emission-intensive product. [Event organiser x] has been able to recognise from the set materials that emissions drop if they try to do without metal parts in their sets. You are merciful to yourself if you choose actions that have a big impact. Those material grams are not comparable with each other, and aluminium is much more important than it is now.*

One of the reasons our interviewees recognise for the current problems is that, although newer venues hold certificates and are designed to fulfil sustainability requirements from the beginning, many venues are lagging behind as they require costly renovations and planned infrastructure changes to accommodate the changing sustainability standards (VI). Furthermore, many interviewees emphasise that it is too easy to put waste into the wrong or mixed waste bin. Indeed, many existing suggestions centre on making recycling easier through providing more information, such as presenting the specific goal of the event as a prompt at the recycling point (Park et al., 2022). A popular solution mentioned in the event context is to have a person advising at the point of waste sorting, but this requires human resources and is not always viable.

[16] See e.g. Suomen Kasviöljykierrätys

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4.6 Discussion: Circular economy strategy paths and how to advance them

This chapter continued to advance event organisers' practical implementation of their chosen CE goals in their local context by aligning them with current policy frameworks, guidelines, and available certifications, as well as general circular economy (CE) strategies. As global environmental declarations are translated into local waste management guidelines (UNEP, 2024b), the waste recovery strategy (R9) is the obvious minimum requirement at all events, and it should be adhered to: all waste belongs in the bin and not in nature. Beginning with the event organiser's goals and locally feasible interventions, the current policies and/or available certifications shape the spectrum of applicable CE practices to advance event circularity (cf. Woltjer, 2018). The specifics of each event's chosen CE goal and the subsequent decisions concerning CE strategy and practical actions are thus dictated by the context: the event organiser resources, the characteristics of the audience, the composition of local stakeholders, and the CE maturity and experience of the stakeholders. However, some general patterns can be observed.

As the economic opportunity from material recovery is often a precursor to starting CE activities in general (Stumpf, Schöggl, and Baumgartner, 2021), our collected evidence, and therefore, the proposed best practices underscore recycling (R8) as the next step towards a circular economy. Done correctly, recycling can result in savings, such as when cities or municipalities charge a higher waste management fee for mixed waste compared to sorted waste (II, III). Proper recycling would save resources if they were collected as one type, recycled and converted into raw materials[17]. However, the difficulties of material separation are highlighted during events, where visitors are in a hurry and focus on the event content rather than the different waste qualities.

Our suggestions also highlight taking the other direction, where the most accessible and economically attractive entry points for CE in events lie in the “lessening” strategies of refusal (R0), rethinking (R1), and reduction (R2) (compare Morseletto, 2023; Stumpf et al., 2021). Additionally, these strategies are not only cost-effective but also align with the circular economy by reducing the use of virgin materials. Especially for new events unfamiliar with the circular economy (VII), recycling and refuse strategies are a good starting point to accommodate circular economy practices. However, in this context, a particularly significant and novel insight is the identification of a “missing middle” in event CE implementation, the strategies of reuse (R3), repair (R4), refurbish (R5), remanufacture (R6), and repurpose (R7), which remain underutilized despite their potential to extend material lifecycles and reduce events' environmental impact.

The chapter thus suggests that while CE principles are increasingly acknowledged in event planning, their implementation remains skewed toward either upstream (refusal and reduction) or downstream (recycling and recovery) strategies. The mid-spectrum strategies, which are essential for closing material loops, are often overlooked. We argue that this pattern aligns with Marsden et al.’s (2018) concept of the “missing middle” through the distributed nature of the event industry, where small-scale stakeholders

[17] See e.g. Treasource webinar presentation on circular plastic session

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operate with limited infrastructure and coordination (compare Godfrey, Price, and Lusch, 2022; Seika and Kubli, 2024; Tukker, 2015). We emphasise the need to further address the inefficiencies and mismatches between waste generators, collectors, and potential exploiters in the distributed, networked systems that the event industry represents. These have direct implications for policymakers, municipal authorities, and sustainability entrepreneurs.

The question of CE inefficiencies has been addressed in previous literature. For example, inefficiencies have been attributed to the lack of policies addressing reuse (Sundqvist and Åkerman, 2024). Demonstrating the catalysing power of regulatory frameworks, a precursor to the EU Packaging and Packaging Waste Regulation that strives to prevent packaging waste further and promote reusability, refillability, and recyclability has been implemented by our partner City of Tallinn, Estonia, as a local policy that prohibits the use of single-use cutlery in public events (Riigi Teataja, 2004). This has resulted in the reuse of cutlery (R3) at public events through novel product-service businesses. Furthermore, it has been suggested that overlapping interests among stakeholders hinder the adoption of certain CE strategies. Illustrating a mismatch between competing industries within the reuse strategy sphere (R3), a focal tension remains between materials “sharing” and “valorisation” (Morseletto, 2023). As described by Morseletto, certain manufacturers could implement the reuse strategy based on their extended producer responsibility (EPR), which dictates take-back schemes. In the case of plastic bottles, other manufacturers have an incentive to improve the product quality (“valorisation”) so that they would last longer in circulation. As Stumpf and colleagues (2021) note, the manufacturers have been slow to introduce radical innovation in this area.

In contrast, an interesting opportunity in the circular economy of events lies in the highly specific and small-scale waste, such as aluminium used in event scenery, branded event banners, or broken sports equipment, whose industrial collection may not seem worthwhile, and where the observed CE entrepreneurs still struggle to establish profitable CE business models for the “missing middle” product life extension. Compared to previous CE literature that emphasises waste reduction and recycling (Morseletto, 2023; Stumpf et al., 2021), we extend the discourse by highlighting the structural and logistical barriers that hinder the adoption of product life extension practices. Our findings challenge the assumption that CE strategies are universally scalable, suggesting instead that the small-batch characteristics of highly domain-specific products may require life extension practices best served by artisanal or localised solutions. Our findings reveal one barrier in the lack of social and physical hubs, such as shared storage spaces and repair training, which can both expand the scale of waste collection and disseminate products across various contexts. In this context, we also wish to highlight the role of non-commercial motivations, such as donations and community engagement, in promoting CE practices. Mutual conviviality can be a powerful driver of circularity, at least if there is no material insufficiency or large-scale profit in sight (Llorente-González et al., 2025; Wijkman and Skånberg, 2015). Both our interviewees (V) and the event sustainability literature recognize the option of donating surplus event products and materials (e.g., Goldblatt, 2011). However, as our experience with Save Pond Hockey demonstrates, even novel CE businesses may emerge through event-specific waste donation. The next chapter illustrates these considerations with real-life examples of various CE strategy applications.

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5. Act: CE event demo examples

This chapter illustrates how various CE strategies can be implemented during the Act phase of the OODA loop. It is worth noting that circular economy practices are applied before, during, and after the event. In our CE demo event examples, described in detail below, the strategies are employed across a range of practices, from pre-event giveaway refusal to side events such as children's theatre and to post-event equipment reuse arrangements. Table 2 below summarises the circular strategies and recommended practices employed by our demo events during the project. KopliFest utilised the collection of three CE strategies (R1, R7, R8). Save Pond Hockey (R0, R3, R7, R8), Tour of Scandinavia (R1, R3, R8) as well as Markens Grøde utilised four (R1, R2, R3, R8). As the variety in combinations highlights the localised nature of practical choices, verbal explanations help frame the choices and their application in their local context.

Table 2. Recommended practices per strategy and their application in four demo events.

CE Strategy	Recommended practice	Save Pond Hockey	KopliFest	Tour of Scandinavia	Markens Grøde
R0	Refuse giveaways	X	X		
R1	Rethink meals and food packaging systems		X		
R1	Rethink the hooks of your event		X	X	X
R1	Communicate and require CE actions from your stakeholders so they rethink (R1)			X	X
R1	Rethink the remaining single-use items		X		
R2	Minimise food waste				X
R3	Re-use decoration, equipment and items	X		X	X
R4	Facilitate item repair				
R7	Repurpose	X	X		
R8	Separate valuable material for circulation	X	X	X	X

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5.1 Finnish Save Pond Hockey – Plastic circulation and repurposing

Name	Save Pond Hockey
Organisers	Save Pond Hockey team, volunteers
Date and location	11.2.2023 & 10.2.2024 & 8.2.2025
Type of event, description	The event unites the hockey community for climate actions to save pond hockey for future generations (https://savepondhockey.org/)
Number of participants	In the Helsinki tournament, 40 hockey teams and approximately 400 participants, mainly players but also some visitors, participated.
Key value chain	Plastics, (biobased = food)

5.1.1 Aim of the SE demo and involved stakeholders

The yearly Save Pond Hockey event in Helsinki was attended on 11 February 2023, 10 February 2024, and 8 February 2025. The event aims to increase knowledge about climate change and unite the hockey community to take climate action, thereby saving the sport of pond hockey for future generations. Approximately 400 players and visitors attended the event in Helsinki each year. For visitors, the event is free of charge. On the other hand, the hockey teams pay a small fee for their participation. The event is organised by volunteers, and all profits are donated to climate projects. Besides Helsinki, the tournament is also held in several other cities across Finland, Germany, and Canada.

During our first visit in 2023, we conducted an on-site assessment. An evident strength of the Save Pond Hockey event is that it is arranged at a central location utilising prebuilt structures in a sports facility managed by the city of Helsinki. This arrangement helps the event perform well in general sustainability categories, such as water management, catering, and transportation. However, it also means that the organisers cannot do much by themselves to improve the waste management infrastructure, the energy certification of the event, water efficiency, or catering specifics. As a result, our practical CE goal for the 2024 event was to focus on keeping the reusable bottles and plastic in circulation **(Separate valuable material for circulation R8)**. Before the 2024 event, the organising volunteers also refused sponsored beverage giveaways **(Refuse giveaways R0)**. During the event, it was also noted that the boards used for marking the playing fields were reused by attaching new, updated stickers to them (**Reuse decoration, equipment, and items R3)**. Furthermore, the 2024 event featured an artisan designer selling repurposed, broken hockey sticks as clothes hangers (**Repurpose R7**). This entrepreneur returned to the event in 2025, with event visitors turning to celebrate the items they had purchased the previous year.

During the 2024 event, our demo involved Save Pond Hockey organisers, City of Helsinki event management personnel, and Finnish Sumi Oy, an authorised extended producer responsibility organisation in Finland. In 2024, Sumi Oy offered their branded “Sumppu” plastic recycling bin to the event (TREASoURcE, 2024). During our last visit in 2025, we revisited the event to assess whether there was any continuity in the event practices, noting that the organisers had maintained the combination of refusing beverage giveaways and collecting plastic bottles separately.

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5.1.2 Practical preparations for the SE demo event

The detailed characteristics of the environmental performance for each event sustainability category are listed below.

Location category. The Save Pond Hockey event performs very well in this regard. The event is held at the Brahenkenttä (Bragu) ice hockey rink in Kallio, near Helsinki's city centre. The area is easily accessible by public transportation, with several bus and tram lines passing by, and it is also within walking distance of the nearest metro station. The central location presents further advantages, such as being proximate to several restaurants that serve event participants as part of their ordinary course of business. A great benefit is that Bragu is a fenced sports area managed by the City of Helsinki. This means the location has prebuilt structures for waste management, including toilets. However, our baseline observations showed that the waste recycling infrastructure is underdeveloped for the circular economy. Consequently, we made arrangements to enable visitors and organisers to sort their plastic packaging waste more efficiently using Sumi's Sumppu, a service designed for all kinds of short-term events organised in Finland for sorting packaging waste.

Energy category. The city of Helsinki owns the Bragu location, which does not have any energy certificates. In winter, the City of Helsinki maintains the ice rink frozen with cooling pipes, regardless of the weather, which can consume a significant amount of energy depending on the yearly climate. On the positive side, centralised location management means event organisers do not need to bring any generators to the location.

Water management category. The open-air sports location in the city centre, along with the pre-built structures, ensures free access to broad tap water. Our observations show that this structure is reasonably sufficient for the winter event. However, we did not observe any water-saving systems in the prebuilt structures, whether for potable or non-potable water.

Catering category. There is no specific catering service at the event. The City of Helsinki has a permanent contract with a small cafeteria located in Bragu that serves refreshments like coffee from paper cups, bottled soft drinks, pastries, and packaged candy.

Materials category. The materials category showed improvement from one event to the next. There was no printed information for the 2024 or 2025 event participants. All information was offered in posters on the locker room wall. In 2023, some promotional items were available for sale (such as t-shirts, hoodies, sweaters, beanies, and pucks), as well as promotional giveaways (Gatorade bottled drinks). However, after our discussions, the organiser removed these in 2024. However, the 2025 event reintroduced giveaways, this time in a less materially intensive form of stickers printed to commemorate the 10-year celebration of the event. All materials, such as the Save Pond Hockey tent, advertising blankets, and signs for numbering the rinks, were reusable.

Transportation category. The Save Pond Hockey event performs very well in this regard. The audience travel was limited thanks to the central location, which also did not allow private cars to be used, as there was limited parking space. In addition, most of the teams playing and visitors came from the Helsinki area.

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Waste management category. The waste management category improved between events, but the recycling options remain an issue. Following the 2023 baseline event, we recommended that the event organiser not provide any giveaways with packaging. In 2023, the waste produced was not adequately collected or recycled due to the event organiser's attempts to improve the situation, which were hindered by the use of too few and too small trash bins. After consulting with City of Helsinki representatives, we thus arranged the best-in-class recycling trailer for the 2024 event. Despite the signage, the trailer location was difficult to reach due to its considerable size for the sports facility, which required it to be placed in a suitable spot. In 2024, the organiser equipped each locker room with a plastic bag labelled with information to collect plastic package waste, but they disappeared during the event. In 2025, the trash bin situation again relied on the city of Helsinki's bins. Nevertheless, the organiser had arranged for plastic bottles to be collected separately next to the ordinary trash bins.

5.1.3 Method and engagement of demo event participants

Before the 2024 event, the organiser advertised the event and its sustainability on social media (Facebook and Instagram) and their website. During the event, a brief interview and survey were administered to a sample (N=52) of participants. The survey presented four questions related to CE in events, including whether the respondent knew what happened to different types of waste after collection and whether they sorted their waste at events, noticed that plastic packaging waste was collected separately at the event, or found it essential that waste is sorted at events. After the event, the interventions and the volume of collected plastic waste were communicated through the press, social media, and stakeholder blogs.

5.1.4 Feedback and room for improvement

The Save Pond Hockey event aims to raise environmental awareness, so it is no surprise that the qualitative feedback concerning the 2024 event and waste management was very positive. The questions about waste sorting and the importance of waste collection in the events received mainly positive answers, as 98% of respondents reported sorting their waste during the events. However, it is notable that sorting waste must be made easy so that people bother to do it. Additionally, 88 % of respondents indicated that waste sorting at the event was very important. Many attendees at Save Pond Hockey highlighted the significance of the bin’s accessibility and persuading design. Still, many attendees suggested that the plastic waste bin should be placed more centrally and appear to be intended for general audience use.

5.1.5 The outcome of the event and ideas for further development

During the seven-hour 2024 event, 20 kilograms of high-quality plastic package waste was collected in the Sumppu bin. Our rough approximation was that similar volunteer-organised events in Helsinki might generate almost a thousand kilograms of high-quality plastic waste yearly.

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However, the event organiser showed an interest in using the recycled plastic volume in their PR efforts and requested help to put the number in context. To make plastic recycling seem worthwhile for stakeholders, we suggest that communication on recycling does not centre around the economic value of collected waste, but rather focuses on saving plastic from entering the natural environment, an increasingly pressing concern. Collaboration with environmental NGOs:s might be an option to help underline the importance of event waste management in this manner.

For the 2025 event, we concluded that changes in the City of Helsinki's practices and requirements in the categories of catering, water, and waste management are necessary to advance the circularity of Save Pond Hockey. Energy certifications would also improve the overall sustainability of the event. We suspect that even minor measures might help illustrate the concrete impact of CE, such as plastic recycling, which is speculated to prevent wildlife deaths. Helping stakeholders, such as vendors, access contextual material to communicate the benefits of their efforts appears to be an interesting option, as this way, the organisers can increase their awareness reach. Even small victories can be motivating.

5.2 Norwegian Tour of Scandinavia – Mobile CE entertainment

Name	Tour of Scandinavia
Organisers	Ladies Tour of Norway - Tour of Scandinavia
Date and location	23.08.2023 - 27.08.2023
Type of event, description	The Tour of Scandinavia is a Scandinavian stage race for women at the World Tour level, the highest level, which passes through three countries: Denmark, Sweden, and Norway. https://www.battleofthenorth.eu/
Number of participants	A total of 19 professional teams with approximately 200 riders. 17 million TV viewers in total. 1400 Volunteers. A sustainability seminar was also organised in connection with the race, with over 75 participants.
Key value chain	Enhance waste sorting and increase people's awareness of circular solutions.

5.2.1 Aim of the SE demo and involved stakeholders

The Tour of Scandinavia, organised by the Ladies Tour of Norway, is a week-long event that integrates the cultural life of its host communities in Denmark, Sweden, and Norway. The Tour of Scandinavia moves from place to place daily, visits new municipalities and destinations, and relies heavily on its 1,400 volunteers. There is a significant audience at the start, and in and around the finish areas of the race. Additionally, the event audience along the route can attend several side events that generate waste. The event thus aimed to create economically and environmentally sustainable races while promoting cycling among children, youth, and adults.

The Tour of Scandinavia (Ladies Tour of Norway AS) became Eco-Lighthouse certified in 2022, thanks to the support of the TREASoURcE project partners. This certification encouraged stakeholders to reconsider their circularity actions and communicate their expectations for these actions. As part of their annual

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evaluation, together with TREASoURcE partner OFK (Viken/Østfold County Municipality), they decided to invest in building the world's first mobile waste sorting system, specially designed for significant events (**Separate valuable material for circulation R8**). To further engage the event audience around the circular economy, Asgeir Borgemoen, a well-known Norwegian children's TV personality, created an entertaining and informative program about waste sorting tailored to the trailer's location (**Rethink the hooks of your event R1**). The waste sorting fun was later showcased during a summer cycling school (Green Cycling Norway), the Get2gether day at the Square in Halden, the Tall Ships Races in Fredrikstad in 2023, and Markens Grøde in 2024. The waste sorting trailer has been utilised in over 30 different events since its development in 2023.

Figure 4. An entertaining show accompanies the waste-sorting trailer.[18]

5.2.2 Practical preparations for the SE demo event

Becoming Eco-Lighthouse certified means that Tour of Scandinavia (Ladies Tour of Norway AS) has fulfilled strict requirements within the following areas (see Annexe B):

- Waste management
- Energy efficiency
- Water management
- Catering: Sustainable procurement, including local foods, drinks and accommodation
- Materials
- Environmental transportation

[18] Link to the Waste Sorting trailer video, English subtitles: https://youtu.be/N8R71TbVAQw

5.2.3 Method and engagement of demo event participants

After becoming Eco-Lighthouse certified, it was natural for the Tour of Scandinavia to further its environmental efforts. In 2022, the focus was primarily on procedures and developing an environmental handbook, among other things. In 2023, the focus shifted to measures and concrete activities. Previously, garbage collection was conducted by having a cleaning crew at vulnerable points, often in collaboration with various municipalities. During the mapping phase, it was determined that a mobile solution, which moves from place to place where there are many people, is a significantly more effective way to sort waste where it occurs, that is, among the audience.

In collaboration with BK Hengeren, the event organisers spent the winter of 2023 discussing various solutions to meet the need for waste sorting in the first stage, and later to improve the design of the trailer to make it user-friendly and mobile for efficient transportation of waste on public roads. Significant emphasis was also placed on making the trailer environmentally friendly, including the use of solar panels to generate energy. The mobile trailer solution was designed in February 2023. The trailer was designed with specific branding elements, including its logo and colour scheme, along with the addition of sponsors and partners. The trailer was ready for launch at the end of June 2023, and it was first used during the Tall Ship Races in Fredrikstad and Haldendagen.

For the engaging side event targeted at children, a waste sorting trailer was accompanied by seating benches. In the Tour of Scandinavia program, the children's show was marketed as "Waste Sorting Fun with Asgeir Borgemoen." The response was enthusiastic, and several audience members working in local schools came up afterwards and expressed interest in presenting a similar program at their schools. For the reader's inspiration, the script is shared in the annexe (Annexe D).

5.2.4 Feedback and room for improvement

Given that several major sports events remain unsustainable, and the NIF (Norwegian Sports Federation) aims for sports to take greater social responsibility in developing and implementing health, environmental, and energy-saving measures in its long-term strategy, the Ladies Tour of Norway is actively initiating and participating in such projects. The Ladies Tour of Norway thus claims that their environmental certification process has had a significantly positive impact on the global cycling community. They have participated in several major congresses to discuss their certification process, and many other international organisers are interested in exploring their solution further.

The Ladies Tour of Norway also finds that having a mobile waste sorting system on the road makes a broader impact as it draws attention to sustainability and waste sorting among the audience and society, especially among the young. The mobile trailer effectively captures attention, allowing for engagement with the audience and other stakeholders, and conveying the project's focus on sustainability and the environment. Consequently, the waste sorting trailer received considerable attention, and its presence at various events throughout the summer of 2023 has made the mobile waste sorting solution very attractive

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for other events. The Ladies Tour of Norway provides the trailer for free; the only expense for the renter is their own resources for use during the event and emptying routines. Functionally, the trailer is designed to meet public requirements for sorting, and labelling solutions make it very easy to sort waste from the audience's side. Established emptying routines with the various municipalities also worked very satisfactorily.

However, the audience and other users of the waste sorting system require some adaptation. Many visitors still think a bit traditionally about how to dispose of their waste. Effective marketing and information, as well as a focus on preventive work in advance regarding the benefits of using a waste sorting system, is crucial for the future in terms of improving waste sorting by the audience. Furthermore, after multiple experiences have been gained from using the waste sorting trailer at various events, it is also recognised that the eight compartments for different types of waste need to be adjustable to make the trailer more flexible. For example, more compartments could be labelled for plastic better to match the varying amounts of waste at different events. It is also challenging to empty the trailer during large events because these events often occur in the evenings and on weekends when waste facilities are closed.

5.2.5 The outcome of the event and ideas for further development

The Ladies Tour of Norway is pleasantly surprised by the great attention the mobile waste sorting system has received. They experience high demand for using the trailer at various events in Norway and abroad. The board and management of the Norwegian Sports Federation have also taken an interest in the solution and wish to examine this project further, with the intention of implementing similar solutions at other major sports events in Norway. Close cooperation with events and actors in the waste industry, which continuously work to develop better and more efficient solutions, is vital for implementing and marketing the system, as well as further developing and adapting it to various target groups for the future (EnviroPac 2024). Consequently, the waste sorting trailer is now being marketed commercially.

Furthermore, Østfold County is developing an educational program for schools on recycling and various waste materials in collaboration with the regional science centre, Inspiria. The idea is for students to gain a theoretical and practical understanding of the circular economy and waste sorting through the use of a waste sorting trailer. The Ladies Tour of Norway will cease its operations in 2025, partly due to a more challenging sponsorship market. Inspiria Science Centre has taken over ownership and operation of the waste sorting trailer as of February 2025. This change in ownership is intended to support the ongoing operation and growth of the trailer's use, as well as to develop the concept further. Volunteer teams and associations in Østfold will continue to have access to the trailer for their future events.

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5.3 Estonian KopliFest – Targeting community culture

Name	KopliFest
Organisers	District government
Date and location	27.08.2023 & 25.08.2024
Type of event, description	Community event, district day, entertainment + catering Event link
Number of participants	About 3000 visitors
Key value chain	Plastics, (biobased = food)

5.3.1 Aim of the SE demo and involved stakeholders

Kopli is a unique and rapidly evolving district in Tallinn, Estonia, known for its industrial heritage, proximity to the port, and distinctive architecture. Once a working-class area with factories and housing for port workers, Kopli has transformed into a vibrant cultural and creative hub. Old buildings are repurposed as apartments, art studios and community spaces.

As part of the TREASoURcE project, we focused on KopliFest to transform it into an exemplary and inspiring model of circular economy practices for other Tallinn districts. The 2023 KopliFest took place on August 27, where we conducted on-site assessments and provided recommendations for making future events even more sustainable.

Our assessment was based on the Tallinn Environmentally Friendly Event Guide, a voluntary resource that provided valuable insights for evaluating and analysing the festival's environmental impact from multiple angles, including circular economy practices. The festival's primary goal is to bring people together to enjoy the atmosphere, culture, and unique offerings of Kopli. The TREASoURcE project aims to guide this community day towards greater environmental responsibility, minimising its ecological footprint while incorporating CE solutions wherever possible. An important secondary goal of the event (and the main goal from TREASoURcE's perspective) is to implement circular economy practices at KopliFest and gradually integrate a broad array of circular economy principles into people's daily lives, thereby increasing awareness and making these practices a natural part of everyday routines.

5.3.2 Practical preparations for the SE demo event

Location and Transportation Category. KopliFest locations have been chosen with accessibility and sustainable transport options in mind. In 2023, the festival took place in Kase Park, a welcoming green space in Kopli that was well-connected by public transport and accessible by bicycle. Although biking to the festival was convenient, there was no dedicated bike parking available that year. Additionally, there were no large parking areas near the event area, although some attendees still opted to arrive by car. In 2024, the event relocated to Kopli Kalasadam, a scenic seaside spot in Kopli that provided excellent access via public transportation and enhanced bike-friendly amenities, including several well-utilised bike parking areas around the festival grounds. Despite the limited car parking nearby, some visitors still chose

to drive. These location-related choices reflect KopliFest's focus on sustainable transportation while accommodating various visitor preferences.

Energy Category. In 2024, KopliFest's stage, lighting, and sound were powered by a stationary grid, with a portion of the energy sourced from renewable sources. Food vendors used biodiesel generators near the vendor area, resulting in some noise and odour. In 2023, the stage was also grid-powered, while vendors shared diesel generators (53 kW capacity) located near the food area. These setups reflect a trend toward sustainable energy but highlight areas for improvement in reducing the impact of generators.

Water Management Category. In 2023, the only way to access drinking water was to purchase bottled water from the vendors. However, in 2024, drinking water became readily accessible for attendees. Since the event took place on a very sunny and warm day, a lot of drinking water was consumed. A water tank on a car trailer allowed visitors to refill their bottles for free. The tank had a capacity of 500 litres and was emptied during the event. While some water was likely lost during the bottle refilling process, it can confidently be stated that this saved at least 700 plastic bottles of water from purchase **(Rethink meals and food packaging systems R1).**

Catering category. At the 2024 event, ten food trucks primarily offered grilled foods, but attendees could also purchase ice cream and soup from some vendors. Unfortunately, the vendor's menu options had not become more plant-based compared to the previous year. As was the case the previous year and in line with national regulations, public events are only allowed to serve food and beverages in reusable containers and to use only reusable cutlery **(Rethink meals and food packaging systems R1).** A challenge emerged with the collection of serving dishes; although a deposit fee was implemented, some of the dishes still ended up in mixed waste bins.

Waste Management Category. In 2023, KopliFest had three waste collection stations, each with separate bins for plastic and metal packaging, bio-waste, and mixed waste. These bins were labelled in both Estonian and Russian. However, on-site observations indicated that all waste types were mixed in each bin, suggesting that attendees had limited ability to sort waste. In 2024, the number of waste stations increased to accommodate the expanded area of the festival. Some stations also featured an additional bin for deposit containers, such as drink bottles and cans. While there were still instances of incorrect waste placement, visual assessments showed a slight improvement in sorting accuracy compared to the previous year, indicating a gradual increase in waste separation quality among attendees (**Separate valuable material for circulation R8**).

Materials category. In 2024, the festival strongly emphasised promoting CE principles and instilling these values among attendees. Festival goods were not sold, nor were free products or flyers distributed **(Refuse giveaways R0)**. Most single-use materials were generated in the food vendor area, where some dishes were served on paper trays or napkins **(Rethink remaining single-use items R1).** Additionally, beverage packages were available, for which a separate waste bin was provided at the festival venue for collection. Apart from the food vendors, several NGOs participated in the festival to showcase their activities. Workshops were also held, allowing attendees to create new jewellery from old pieces, paint on previously unused ceramic plates, and purchase second-hand clothing items (**Repurpose R7**). A waste sorting mascot was present to educate visitors about waste management, and the library bus introduced their possibilities **(Rethink the hooks of your event R1).**

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5.3.3 Method and engagement of participants

Since this is an annual event generally organised by the same people, the approach was organiser-centred. Several meetings took place before the festival to analyse previous festival experiences and identify opportunities to do things differently and better this time. After the festival, an organising committee meeting was held to reflect on what went well and what could be improved for next time.

At the event, the organisers interviewed twelve festival visitors focusing on product reuse. Firstly, the questions focused on the interviewees' perceived ease of use with the reusable container system, specifically whether they understood the system, knew where to place the dirty containers, and how to retrieve their deposit money. The second focus topic concerned their experience with second-hand clothes, inquiring whether they had bought second-hand clothes before, and how they felt about the experience of used clothes being sold at the festival.

5.3.4 Feedback and room for improvement

The atmosphere among festival visitors was positive, contributing to a favourable attitude towards food containers and reuse options. Many visitors acknowledged that using disposable food containers is more convenient since there's no need to pay a deposit or worry about returning them. Nevertheless, they admitted the importance of implementing the reusable container system. The response to second-hand clothing was also positive; all participants who entered the reused clothes market area noted that they hadn't encountered this option at the festival before but found it a fantastic idea. However, most respondents found the prices of second-hand clothing too high, as the great majority indicated that they could be more affordable.

5.3.5 The outcome of the event and ideas for further development

The KopliFest 2024 progressed compared to its 2023 iteration, demonstrating the festival's commitment to sustainability and community engagement. One of the standout outcomes was bringing the free drinking water refill station to the event venue, which was widely utilised by attendees, resulting in a noticeable reduction in bottled water purchases. This practice met the community's hydration needs during the sunny event and showcased an effective sustainability initiative.

Another key achievement was the involvement of NGOs, which introduced a variety of side activities that enriched the festival experience. The workshops, which focused on recycled materials and the sale of second-hand clothing, were particularly successful, receiving enthusiastic feedback from visitors who appreciated the opportunity. The absence of commercial vendors selling mass-market goods also contributed to a more authentic atmosphere, allowing local and environmentally friendly initiatives to shine.

While the 2024 festival made some progress, there are still areas for improvement. The most notable aspect is that the festival primarily offered grilled foods with limited plant-based options. Expanding the

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variety of vendors would widen the menu to include more vegetarian and vegan options, catering to a broader audience and aligning better with sustainable food practices. The second note is that the collection points for reusable containers must be made more visible to ensure better compliance. Clear and noticeable signage could facilitate this. Finally, although there has been some improvement in waste sorting, it still requires more structured organisation and further communication with attendees. Additional educational efforts and better labelling could significantly enhance waste management practices at KopliFest.

5.4 Norwegian Markens Grøde – Food waste awareness raising

Name	Klimalåven/The Climate Barn at the agricultural fair, Markens grøde ("The growth of the soil")
Organisers	Rakkestad næringsråd/Rakkestad Business Association and Markens Grøde fair
Date and location	Rakkestad municipality, Østfold county, August 9th to 11th 2024
Type of event, description	Agricultural fair and folk festival Markens Grøde – Velkommen til messe 9.–11. august 2024 (mgrode.no)
Number of participants	During the 3-day event, 10.000 visitors, 70 exhibitors, lectures in the Climate Barn: 15, activities at the main scene: 7
Key value chain	Biobased side and waste streams Recycling bins for 5 different fractions

5.4.1 Aim of the SE demo and involved stakeholders

During the Markens Grøde event, the aim of the county council's attendance was two-folded: first, to improve the waste sorting regime **(Separate valuable material for circulation R8)** and second, to raise awareness of the vast challenge of underutilised food (**Minimise food waste R2**). During the 2024 event weekend, the event attracted approximately 10,000 visitors, 70 exhibitors, and 15 lectures. We highlighted the importance and practical use of recycling bins in events to the visitors and the organising committee.

5.4.2 Practical preparations for the SE demo event

Location category. Outdoor agricultural fair in the summer season
Energy category. Low energy consumption.
Water management category. Fresh water taps available for exhibitors and visitors
Catering category. Local food and catering companies are the leading actors in this industry. The local women's farmers' union is the leading voluntary contributor in managing and planning food supply and consumption, overseeing two larger food service stalls in the food tent and the village yard. Additionally, two stalls offered simple ice cream, waffles, sausages, and soft drinks. Disposable items were used at the food service establishments. There is no evident sustainability focus on food service.
Internal travel category. Travelling by train and cars mainly, the majority of visitors are from the area.

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Waste management category. Waste management is well-organised, with several waste sorting points and containers for food, plastic, paper, deposit bottles, and residual (mixed) waste. The food service tent also had a recycling point for glass and metal packaging, with clear labelling and information/guidance on the individual types of waste. However, there could have been some volunteers to guide the visitors to correct sorting.

5.4.3 Method and engagement of demo event participants

The first goal concerning waste sorting in 2024 was addressed by supporting the organising committee in the transition from no recycling to collecting four different waste streams (**Communicate and require CE actions from your stakeholders so they rethink R1**). By doing so, we aimed to inform and nudge visitors of all ages about the importance of recycling waste and to do so. For this purpose, two things were introduced:

- The local waste collection company, Rakkestad Containerservice, designed and produced the waste collection bins. A graphic designer created a clear and visually appealing identity for information on posters printed by BS Montasje, a local print shop.
- The waste sorting trailer has been introduced to influence young people by making waste sorting fun (**Rethink the hooks of your event R1**). This is the same waste sorting trailer used for the 2023 Ladies Tour of Norway event (**Reuse decoration, equipment, and items R3**). The trailer involved a programme for local kindergarten children, made by the national artist Asgeir Borgermoen. He is widely known in Norway for his appearances on the Norwegian Broadcasting Corporation's programs. The show by the trailer was part of the fair's opening ceremony. The Minister of Food and Agriculture, Geir Pollestad, attended and held a speech for the audience in front of the trailer.

The second goal of the event intervention was to raise awareness of underutilised and lost food. The aim was to address today's society's challenge regarding "lost food", which is not even counted as food waste. I.e. hens that are slaughtered but not eaten, potatoes which have a size and shape which do not comply with the industry standard – then being left at the fields, wheat crops that do not reach the correct level of protein and are being degraded to animal feed instead of human consumption.

The awareness raising was aided by the Norwegian Minister of Agriculture, who attended the lectures by the keynote speakers on this topic, and through posters and screens inside the tent that provided information on the annual regional amount of lost food in different categories. In addition, we offered a varied buffet menu to all visitors, all of which was made from "lost food." Products were handed over to the Minister with a supportive message to continue this important topic.

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5.4.4 Feedback and room for improvement

Totalmiljø, a Norwegian consulting company that specializes in environmental management and sustainability services, considers that Markens Grøde has a solid foundation to present itself as a green and sustainable event. The event, which takes place outdoors in the summer, focuses on food production and has already implemented measures, such as the climate barn, that give the event an overall environmental character. In addition, they consider an Eco-Lighthouse certification of Markens Grøde entirely possible, but it is vital to have good plans, good communication, and a well-thought-out sustainability concept that can be carried forward from event to event. Essentially, it comes down to finding continuity and an anchor for an Eco-Lighthouse certification while also finding effective ways to measure performance from one event to the next.

5.4.5 The outcome of the event and ideas for further development

The Eco-Lighthouse environmental certification is being considered to further develop the event's circularity. To grasp that opportunity, Markens Grøde needs to establish a solid plan and organisation that works on a continual basis. If the event must be certified before its next implementation, thorough plans and preparations are necessary to provide a basis for certification. This includes how the event is followed up after implementation, such as the evaluation process and environmental reporting. Transferring experience from one biannual event to the next is crucial for maintaining continuity.

6. Observe: Establish event CE status and needed changes

Environmental management of events relies on continuous improvement (e.g. Getz, 2019). It is, therefore, crucial to continually evaluate and adjust goals and measures to ensure effective performance. Observation is, therefore, the first and last step in the process, closing the OODA loop (Figure 1). This phase involves identifying and gathering information about the current CE status of the event, as well as its environmental and community impacts. Assessing the success of events begins and ends with observation: to measure performance and improvement, the event needs to be analysed before and after the event. Based on this phase, the event organiser understands their event baseline CE situation, how it evolves, and what could be done next time.

A straightforward approach is to employ observation methods that help establish a performance baseline. Once an event's baseline is known, it is possible to measure and evaluate its CE performance to track event circularity in the long term (see also Barros et al., 2024; Trendafilova and McCullough, 2018). These include observing event participant behaviour, taking photos to assess the properties of the event venue and facilities, talking with stakeholders to understand the processes of waste generation and management, checking event energy use and water consumption measurements, or studying documentation on resource management. The baseline observation phase benefits from evaluating practices both before and after the event, such as procurement guidelines for reducing single-use items, as well as practices implemented after the event, including communication and event clean-up.

To compare the performance of utilised CE practices, it is necessary to analyse data collected during the event. In principle, the measurements need to be established in advance and followed by consistent routines, such as preparing waste statistics for different materials collected. An assessment framework can focus on a singular measure, such as the amount of plastic bottle waste collected during the event or engage a comprehensive range of indicators addressing various aspects of sustainability, including social, economic, market, environmental, and circular indicators, to reveal the trade-offs between indicator categories.

Finally, to ensure that CE efforts are effective in the long term and avoid unexpected environmental consequences, it is essential to interpret the event outcomes continually. By systematically assessing the outcomes of employed practices, organisers can identify areas for improvement, track progress over time, and make informed decisions that enhance the environmental performance of their event. This approach not only helps achieve immediate goals but also fosters a long-term transition to circularity, ensuring that events contribute positively to the environment for years to come.

6.1 Point zero: Observations and other first-line measurements

Initial observations and measurements are an elemental part of circular event analysis. As noted in Chapter 3, the field of event types is broad; however, certain evaluation methods remain consistent, regardless

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of the event type or size. In this project, we observed three selected demo events in 2023: Save Pond Hockey, Tour of Scandinavia, KopliFest, and Markens Grøde in 2024. Based on our pre-defined issues, such as key value chains and known circularity pain points in events, we focused on these areas during each event, taking photos and recording ideas and comments. The recorded issues concerned communication activities, materials used in the event, food and other beverages, waste management, energy use, transportation and premises. After a collaborative analysis of the issues, we agreed that each event presented both unique and common CE opportunities and determined the goals and interventions accordingly.

Our suggested all-purpose event evaluation method is, therefore, participant observation (Getz, 2018; Tull, 2022). It involves observing behaviours in the studied event and examining the setting and participants in varying detail over time. Notes are made in writing, photos, and/or film. Reporting and note-taking yield rich data, and systematically observing events of any type and size enables the assessment of what is happening in the field. While the observer may also engage in conversations and interviews with stakeholders, the observation can be recorded through multiple senses: listening, sensing, smelling, and viewing. Typically, the observer advances from a descriptive mode, centring on the general atmosphere of the event, to a focused observation, where predefined issues or emerging focal points come into the limelight. For instance, if the CE goal of the event is to reduce plastic use, this second phase would involve the observer seeking to identify and cover all the plastics used during the event. Finally, the observer can become selective. Instead of attempting to cover everything they see in the event, they can focus on the low-hanging fruit, i.e., the issues that are easiest to fix. For example, they may focus on the worst offenders to reduce plastic waste more efficiently, or they may identify best practices to ensure these are consistently performed and implemented efficiently.

We also recommend complementing observations with interviews, group discussions or surveys (Mair and Smith, 2022). These can help the event organiser understand the enablers and barriers, motivations, and logic behind the observed behaviours. Interview and group participants can range from visitors to suppliers, venue managers, and other professionals. The organiser team, including volunteers, can also be engaged through interviews and group discussions. Often, these social engagements vary in formality, and they do not require scientific studies. However, to add some robustness to the observations, we present a few rules of thumb (adapted from Goldblatt, 2011):

- When interviewing or surveying participants, avoid leading them; instead, try to remain neutral. For example, do not ask, “Do you find our sustainability practices excellent?” Instead, consider “How would you rate our recycling service on a scale of 1 to 5, where 5 is excellent and 1 is poor?”
- Furthermore, remember that it is easier to get a response to a brief and straightforward question. Instead of asking, “How many kilometres did you drive to get here,” or “Name the ten best things in our event”, you can ask, “Where did you travel from today, “or “What was the best thing here today.”

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- If necessary, you may ask a contextualising question, such as “Do you recycle at home?” or “What is your profession?” However, remember that these questions may be very delicate to some, offend them, or invade their privacy.
- Especially during the event, keeping surveys short (around five questions) ensures they are not too taxing; it is convenient if the participant can spend only a few minutes. Typically, surveys are administered while participants enter or exit the event; these types of surveys collect different insights than those gathered during the event itself.

The purpose of surveys, interviews, observations, and similar methods is to indicate to the organisers where to focus their attention. They help to understand the “why” behind an observed performance (Goldblatt, 2011). These methods are especially suitable in the initial observation phase, as they help establish the context's baseline, identify pain points, and reflect those in discussions over which protection areas to focus on. They also help to collect feedback and create insights for the next event arrangement.

6.2 Planning for further measurements

In contrast to observation and interviews, quantitative or numerical data help to show “what” is happening, facilitate comparisons, and observe change (improvement) concretely (Goldblatt, 2011). For events, several models have been proposed to assess general sustainability. Some of these models remain theoretical (see Maguire, 2022), while other evaluation models cater to events broadly. The most widely recognised framework for assessing a circular economy is the Life-Cycle Assessment (LCA). It is a standardised method for quantifying all stages of a service, including materials and energy (Neugebauer et al., 2020; Toniolo et al., 2017). LCA approaches support relative sustainability assessments, enabling comparisons and identifying whether one product life cycle has a greater or lesser impact than another. However, our interviewees find LCA highly resource-intensive and taxing (VI).

Additionally, there is still no universally accepted measure for circularity in general, and data collection requires specialised technical knowledge and can be resource-intensive (Barros et al., 2024; Corona et al., 2019). As described in Chapter 4, some of our project events applied for certifications that provide a measurement framework to establish the sustainability performance of events in general. Despite the lack of a standardised framework, measurements are strongly advised to advance CE in events. Ultimately, the key indicators to measure are based on criteria such as relevance, data availability, the available methods for data collection, accuracy and consensus. Adjustments can be made in the Orient phase, where specific indicators can be added or removed based on their relevance to the assessment goals.

To the best of our knowledge, there is no established framework to measure circularity at events. Consequently, the lack of data on the impacts of the circular economy is frequently cited as a barrier to its advancement, for example, because it prevents calculating the value of investments in the circular economy (Barros et al., 2024; Corona et al., 2019; Kirchherr et al., 2018). To establish intervention successes (and failures) in a robust fashion, data collection during the event needs to be planned in advance.

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To support the data collection, summarising the TREASoURcE project D7.1 concerning sustainability assessments, the following aspects are thus recommended for consideration when defining event CE measurements and indicators:

- **Goal.** Chapter 3 described how to select a CE goal that appears valuable and measurable in a specific event.
- **System Boundaries**. Our interviewees indicate that analysing environmental impact in numerical terms seems daunting because many effects accumulate throughout the event value chain, and their estimation is difficult (VI). Limiting the context to be analysed is thus recommended. One option offered is to remain within the immediate range of action possible at the event and its immediate stakeholders. For example, a food vendor can be asked to offer foodstuffs that are packaged with the least amount of plastic; however, they have much less agency to dictate whether a farmer transports their foodstuffs using diesel or an electric truck. Additionally, certain value chain activities and material flows might be purposefully excluded to simplify the assessment. For instance, the food vendor waste from packaging during or before the event might be excluded if it is not brought on-site, making its inclusion irrelevant or laborious.
- **Circular Strategies**. It is recommended to consider the mechanisms that drive and determine the behaviours in the event and how these may affect the effectiveness of circular strategies. For example, the generated food waste may appear different when food is purchased for entertainment (e.g. tasting novelty foods) than with food that is bought out of convenience (e.g. fast-food orders), or that is served by a centralised catering (e.g. breakfast catering at camping events) (II, V, VI).
- **Material Flows/Treatment Pathways**. Especially economic decisions are informed by the analysis of value chains at the level of individual unit volume. While mixed waste is the lowest-level waste type, several waste treatment options are typically available for disposed waste. If no other recycling technologies are available in the event location, only this one recycling pathway can be considered. However, to introduce new material collection points, it is necessary to estimate the proportions of distinct types of waste and the associated collection costs and benefits to decide whether it is economically viable to collect other types of waste.
- **Scenarios**. Scenarios are narrative descriptions, or imagined stories, that predict the development of an event over a longer period. For example, event waste may vary depending on the weather during the event; in the case of rain, single-use raincoats will be found in the event trash bins. In the case of sun, drinks and ice cream packaging will make up a more significant stream of waste. The assessment can consider these different scenarios and plan accordingly.

Our experience with plastic bottle collection illustrates the measurement process. In Tallinn, Estonia, the municipality has established methods to measure sorted waste at events. In contrast, at our first Finnish Save Pond Hockey event, we observed an overflowing collection bin for plastic bottles. Consequently, we defined a goal of reducing the kilograms of plastic bottles collected at the event. However, we concluded during our collaboration that the small volunteer organisation struggled to introduce measures to

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record how many kilos of plastic waste is collected per participant because the waste collection infrastructure does not differentiate between plastics and other types of waste, nor does it have a scale. At the same time, the volunteer-based event organisation has no leverage or time to advance plastic waste measurements and introduce a scale themselves - for them, it was easier to refuse the plastic bottle giveaways. To ensure accurate measurements during the second event observation round, we contacted Sumi, the official Finnish producer organisation for packaging, which is responsible for implementing statutory producer responsibility for packaging. The result was 20 kilos of plastic material, a small volume. This gave concreteness to the notion that efficient recycling of plastics does not result in significant amounts of material in an event of this size. To increase the collection volumes, material for recycling needs to be collected over a longer term. This is likely to require temporary storage for waste and material.

6.3 Measurements supporting long-term circularity

In the long term, measurements help communicate the successes of an event in sustainability, which can result in improved motivation for attendees and organisers to advance circularity, as they see a reward for their efforts. Measurements help establish the progress of sustainability and CE efforts, as they illustrate the changing performance of the event (Mair and Smith, 2022). However, the measurements need to be systematically recorded to make robust comparisons, as improving event circularity is a long-term endeavour. It may induce changes to the fundamentals of the linear economic system, making change appear slow. In the words of one interviewee, in the big picture, stamina is critical as it is easy to become discouraged (I):

> *It can be demoralising to think about how little a single measure reduces the total emissions. What good is this paper bag in comparison to the big things? When we still organise the event, the world-class star comes by plane, and the transport emissions are enormous because they must fly. But of course, something must be done.*

Systematic comparisons require systematic measurements. Selecting a universally applicable measure, such as kilograms of waste, enables the event to benchmark itself against other events while allowing for a comparison of an event's performance with its own history. As discussed above, the pursuit of certificates may motivate a comprehensive collection of numerical data on the concrete impacts and actions of the event. To compare current performance with historical performance, it is necessary to keep records of measurements. Benchmarks can be acquired by contacting other events and reviewing industry reports and news, as well as standards, guidelines, and policies.

Measurements can also help to distinguish the results of circularity efforts from the side effects of event evolution due to its maturing and possible growth. As the event matures, its management model may become more mature (O'Toole, 2010). Furthermore, increasing visitor numbers introduce a need for more professional management, as well as a potential for major sponsorship and tourism, which may require

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further sustainability measures and certifications (Wise & Maguire, 2022; Maguire, 2022). However, novel problems may emerge once an event gains popularity, and the previous solutions may no longer be effective (Goldblatt, 2011).

To conclude, measurements help establish new attempts at performance improvement in a never-ending loop. Evaluation and measurements should not be shunned for fear that attempts at event sustainability may prove unsuccessful (Case, 2013). For example, in our collaborator Save Pond Hockey event, the challenge of communicating the concrete impact of collecting 20 kilograms of plastic bottles suggested the option of collaborating with environmental NGOs who constantly translate this knowledge into audience-oriented communication. The example illustrates how continual commitment to circularity helps re-assess, adjust, and iterate circular practices through the OODA loop based on feedback and ongoing observations.

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7. Recommendations

To support the transition towards a sustainable circular economy, particularly in the domain of event management, we propose that the readers consider the following recommendations based on the findings.

Promote the reuse of materials: Event organisers might recognise opportunities to reuse or rent a wider variety of materials and equipment. Additionally, public awareness campaigns can highlight the benefits of reusing materials to foster a culture of sustainability and encourage innovative entrepreneurs, such as artisans, to devise new uses for these materials. For example, while circularity should not prevent event materials from remaining visually appealing, it is possible that the audience and organisers need to accept a more patinated look at events. Artisan ingenuity can help design this in an appealing way.

Support the "missing middle" CE strategies: Support for repair, refurbishment, remanufacturing and repurposing of equipment and materials is recommended. An important aspect is that the event assets must remain functional while adhering to safety regulations.

Standardise waste bin labelling and requirements across contexts: Our experience and interviewees alike note how difficult it is for event attendees and stakeholders to recycle, resulting in mixed waste. In general, standardisation reduces confusion and helps to make intuitive decisions on a daily basis. To facilitate more intuitive recycling, we recommend that stakeholders, such as cities, investigate how waste bin labelling could be standardised and how the waste requirements could be harmonised across different contexts.

Support mid-sized events with circularity self-monitoring: Lastly, this project exemplifies facilitating collaboration between cities or municipalities, and the event management industry to advance circular economy (CE) guidelines and practices. We acknowledge that while large commercial event organisers have the resources to focus on sustainability and may have dedicated personnel responsible for this, mid-sized events specifically appear to need support with their self-monitoring practices. To some extent, national and international collaboration can compensate for the limited resources and expertise available among small and mid-sized events in implementing effective sustainability measures. For example, in Finland, a nationwide industry body was established after the COVID-19 lockdowns to promote sustainability in events and help benchmark the ISO standard. In contrast, an international body like the European Basketball Association serves event organisers in several countries, providing guidelines and support to mid-sized institutions around Europe. Furthermore, event sustainability certifications appear to be serving this group of event organisers, but many of these do not specifically target circularity concurrently. To advance circular economy specifically, further measures should be considered.

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8. Conclusions

This report, “Guidance on the CE concepts for events,” aims to provide a comprehensive framework for implementing circular economy (CE) practices in event management. The key focus areas include waste generation and management strategies, as well as the related services and products offered at events. Using the OODA loop (Observe, Orient, Decide, Act) as a strategic decision-making model for dynamic environments, the report supports event organisers and funders with practical guidance to help integrate CE strategies into their planning and operations. Drawing on literature, stakeholder interviews, and field-work at four events in Finland, Estonia, and Norway, the report proposes ten actionable CE practices and highlights the contextual factors that influence their adoption using practical examples from industry, sports and cultural events. A key contribution of the report is its emphasis on the underutilised “missing middle” CE strategies: reuse (R3), repair (R4), refurbishing (R5), remanufacturing (R6), and repurposing (R7), which indicate untapped opportunities for circular economy in the event industry.

Our analysis suggests that event organisers are actively implementing novel practices within circularity strategies R0–R2 to reconsider and reduce material use, as well as to recycle materials (R8–R9). However, it reveals that there remains underutilised potential in the “missing middle” CE strategies (R3–R7). These strategies offer not only environmental benefits but also economic and social value. For instance, in youth sports, where equipment is expensive and children grow rapidly, item reuse, such as second-hand purchases and sharing of equipment, is already a common practice in many communities, suggesting an expansion of this practice to events. On the other hand, repair and maintenance practices, though less defined, are already incorporated in some communities as engagement and education. The report also highlights the currently limited but promising opportunity of refurbishing and remanufacturing event materials, providing examples of local innovation and enterprise. These insights are particularly relevant for event organisers, policymakers, event funders, and municipal authorities, but also the entire event industry seeking to align with the circular economy.

The report presents an evidence-based framework and provides practical examples for more circular event design, but it also has its limitations. The findings are based on a limited number of case studies from urban Northern Europe, which may not fully represent the diversity of European event contexts. Furthermore, the report primarily focuses on plastics, such as packaging and cutlery, and biobased materials, including food, timber, and fabrics. The report explores the third TREASoURcE value chain, electric vehicle batteries, passingly only, due to its lower perceived relevance in current and future event infrastructure in the observed situations. Additionally, the report does not provide a quantitative impact evaluation of the suggested and demoed CE practices, which would be valuable for benchmarking and policy considerations. These limitations suggest that, while the presented framework is adaptable, its application remains highly context-sensitive. Making the suggestions more robust requires establishing CE measurement frameworks that address the variety of event organiser contexts and resources, as well as designing and implementing continuous data collection processes, and fostering a more broadly embraced culture of measurement in the event industry.

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In the future, greater attention should be given to expanding the "missing middle" CE strategies in event contexts. Of these, the reuse (R3) strategy appears promising as the event industry is already familiar with reuse and rental services. It appears particularly effective in extending the lifecycle of novel materials and products from the event industry, thus introducing new business opportunities. However, the underrepresented strategies from repair (R4), refurbishment (R5), remanufacturing (R6), and repurposing (R7) remain crucial for prolonging the utilisation and lifetime of event equipment and materials. Event organisers, especially those already offering training and education, can benefit from toolkits and training programs that facilitate the practical implementation of these strategies. Further studies should explore the infrastructure, skills, and investment required to support circular reuse strategies at scale.

Events are more than temporary gatherings: they are cultural touchpoints that reflect and shape societal values. This report has suggested ten event practices that can be incorporated into event planning to inspire event organisers to transform these moments into catalysts for the circular economy. The report further contributes to the vision of a circular Europe by providing a practical and adaptable framework that empowers organisers and stakeholders to tailor circular economy strategies to their local conditions. As educators of their audience and as meeting points for a broad spectrum of community stakeholders, events can inspire broader reduction, reuse, and recycling of materials, making the circular economy visible, tangible, and engaging for communities across Europe.

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References

Scientific references for the main document

Alonso-Munoz, Sara, Fernando E. García-Muiña, María-Sonia Medina-Salgado, and Rocío González-Sánchez. 2022. 'Towards Circular Economy Practices in Food Waste Management: A Retrospective Overview and a Research Agenda'. British Food Journal 124(13):478–500.

Bączyk, Michał, Vivian Tunn, Ernst Worrell, and Blanca Corona. 2024. 'Consumer Behaviour in Circular Business Models: Unveiling Conservation and Rebound Effects'. Sustainable Production and Consumption.

Barros, Murillo Vetroni, Rodrigo Salvador, Marina Pieroni, and Cassiano Moro Piekarski. 2024. 'How to Measure Circularity? State-of-the-Art and Insights on Positive Impacts on Businesses'. Environmental Development 50:100989.

Bowdin, Glenn AJ, Johnny Allen, Rob Harris, Leo Jago, William O'Toole, and Ian McDonnell. 2023. Events Management. 4th edition. Routledge.

Case, Robert. 2013. Events and the Environment. Routledge.

Castro, Camila Gonçalves, Adriana Hofmann Trevisan, Daniela CA Pigosso, and Janaina Mascarenhas. 2022. 'The Rebound Effect of Circular Economy: Definitions, Mechanisms and a Research Agenda'. Journal of Cleaner Production 345:131136.

Cavagnaro, E., A. Postma, MP De Brito, and A. Herrewijn. 2022. 'The Sustainability Agenda and Events'. Pp. 251–85 in Events Management: an international approach. Sage.

Corona, Blanca, Li Shen, Denise Reike, Jesús Rosales Carreón, and Ernst Worrell. 2019. 'Towards Sustainable Development through the Circular Economy—A Review and Critical Assessment on Current Circularity Metrics'. Resources, Conservation and Recycling 151:104498.

De Giovanni, Pedro. 2023. 'Circular Economy Through Public Interventions'. In Strategies for the Circular Economy. Routledge.

Dodds, Rachel, Philip R. Walsh, and Burcu Koç. 2019. 'Environmentally Sustainable Lifestyle Indicators of Travelers and Expectations for Green Festivals: The Case of Canada'. Event Management 23(4–5):685–97.

Getz, Donald. 2018. Event Evaluation: Theory and Methods for Event Management and Tourism. Goodfellow Publishers Ltd.

Getz, Donald. 2019. 'Shifting the Paradigm: A Theory of Change Model'. Journal of Policy Research in Tourism, Leisure and Events 11(sup1):s19–26.

Getz, Donald, and Stephen J. Page. 2019. Event Studies: Theory, Research and Policy for Planned Events. Routledge.

Giulianotti, Richard, Hannu Itkonen, Arto Nevala, and Anna-Katriina Salmikangas. 2020. 'Sport and Civil Society in the Nordic Region'. Pp. 26–40 in Sport, Outdoor Life and the Nordic World. Routledge.

Funded by the European Union

Godfrey, D. Matthew, Linda L. Price, and Robert F. Lusch. 2022. 'Repair, Consumption, and Sustainability: Fixing Fragile Objects and Maintaining Consumer Practices'. Journal of Consumer Research 49(2):229–51.

Goldblatt, Joe. 2010. Special Events: A New Generation and the next Frontier. 6. Edition. John Wiley & Sons.

Goldblatt, Samuel deBlanc. 2011. The Complete Guide to Greener Meetings and Events. John Wiley & Sons.

Jones, Meegan. 2017. Sustainable Event Management: A Practical Guide. Routledge.

Kirchherr, Julian, Laura Piscicelli, Ruben Bour, Erica Kostense-Smit, Jennifer Muller, Anne Huibrechtse-Truijens, and Marko Hekkert. 2018. 'Barriers to the Circular Economy: Evidence from the European Union (EU)'. Ecological Economics 150:264–72.

Llorente-González, Leandro J., Josep Pinyol Alberich, Andrea Genovese, and Benjamin H. Lowe. 2025. 'Towards Radical Circular Economy Futures: Addressing Social Relations of Production'. Technological Forecasting and Social Change 213:123972.

Lowe, Benjamin H., Meletios Bimpizas-Pinis, Pierluigi Zerbino, and Andrea Genovese. 2024. 'Methods to Estimate the Circular Economy Rebound Effect: A Review'. Journal of Cleaner Production 443:141063.

Maguire, Kelly. 2022. 'Environmental Impacts of Events'. Pp. 41–61 in A Research Agenda for Event Impacts. Edward Elgar Publishing.

Mair, Judith. 2014. 'Events as Proenvironmental Learning Spaces'. Event Management 18(4):421–29.

Mair, Judith, and Andrew Smith. 2022. 'Events and Sustainability: Why Making Events More Sustainable Is Not Enough'. Pp. 1–17 in Events and sustainability. Routledge.

Marsden, Terry, Paul Hebinck, and Erik Mathijs. 2018. 'Re-Building Food Systems: Embedding Assemblages, Infrastructures and Reflexive Governance for Food Systems Transformations in Europe'. Food Security 10(6):1301–9.

Morseletto, Piero. 2023. 'Sometimes Linear, Sometimes Circular: States of the Economy and Transitions to the Future'. Journal of Cleaner Production 390:136138.

Nassanbekova, S. 2024. 'Influence of institutional factors on circular economy practices in emerging tourist destinations'. Geojournal of Tourism and Geosites, 56(4), 1589–1598.

Neugebauer, Sabrina, Maren Bolz, Rose Mankaa, and Marzia Traverso. 2020. 'How Sustainable Are Sustainability Conferences? – Comprehensive Life Cycle Assessment of an International Conference Series in Europe'. Journal of Cleaner Production 242:118516.

Ong, Faith, Hongxia Qi, Nanyi Nicole Yu, and Isabella Qing Ye. 2022. 'Greening Exhibition Events in China: Beyond Sustainability into Regeneration'. Event Management 26(4):813–29.

O'Toole, William. 2010. Events Feasibility and Development. Routledge.

Funded by the European Union

Park, Heelye Jason, Sojung Lee, Eunha Lena Jeong, and Eric D. Olson. 2022. 'Message Framing for Recycling Commitment in a Festival Setting: A Three-Way Interaction between Self-Efficacy, Goal Specificity, and Construal Level'. Event Management 26(8):1765–83.

Raj, Razaq, Tahir Rashid, and Paul Walters. 2017. 'Events Management: Principles and Practice'. SAGE Publications Ltd.

Ramos, Gabriel Jäger, João Augusto Rossi Borges, Carla Heloisa de Faria Domingues, and Erica van Herpen. 2024. 'Reducing Food Waste by Simply Measuring It: Insights from Interventions to Reduce Household Food Waste'. British Food Journal 126(2):812–33.

Richards, C. 2020. Boyd's OODA Loop. Necesse 2020, 5(1), pp. 142-165.

Seika, Juliane, and Merla Kubli. 2024. 'Repurpose or Recycle? Simulating End-of-Life Scenarios for Electric Vehicle Batteries under the EU Battery Regulation'. Sustainable Production and Consumption 51:644–56.

Stumpf, Lukas, Josef-Peter Schöggl, and Rupert J. Baumgartner. 2021. 'Climbing up the Circularity Ladder? – A Mixed-Methods Analysis of Circular Economy in Business Practice'. Journal of Cleaner Production 316:128158.

Suchek, Nathalia, Cristina I. Fernandes, Sascha Kraus, Matthias Filser, and Helena Sjögrén. 2021. 'Innovation and the Circular Economy: A Systematic Literature Review'. Business Strategy and the Environment 30(8):3686–3702.

Sundqvist, Henna, and Maria Åkerman. 2024. 'Creating Conditions for Sustainability Transformation through Transformative Governance – The Case of Plastic Food Packaging in Finland'. Journal of Cleaner Production 434:140296. doi: 10.1016/j.jclepro.2023.140296.

Toniolo, Sara, Anna Mazzi, Andrea Fedele, Filippo Aguiari, and Antonio Scipioni. 2017. 'Life Cycle Assessment to Support the Quantification of the Environmental Impacts of an Event'. Environmental Impact Assessment Review 63:12–22.

Trendafilova, Sylvia, and Brian P. McCullough. 2018. 'Environmental Sustainability Scholarship and the Efforts of the Sport Sector: A Rapid Review of Literature'. Cogent Social Sciences 4(1):1467256.

Tukker, Arnold. 2015. 'Product Services for a Resource-Efficient and Circular Economy – a Review'. Journal of Cleaner Production 97:76–91.

Tull, Jo-Anne. 2022. 'Event Evaluation'. Pp. 216–50 in Events Management: an international approach. Sage.

Werner, Kim, Kai-Michael Griese, and Laura Hoth. 2024. 'The Acceptance of Climate Adaptation Measures in the Event Industry: A Conceptual and Empirical Overview'. Event Management 28(1):105–27. doi: 10.3727/152599523X16896548396770.

Wijkman, Anders, and Kristian Skånberg. 2015. 'The Circular Economy and Benefits for Society'. Club of Rome 12–59.

Funded by the European Union

Legislative frameworks, programs and related news and reports

Boyd, John R. 1996. The Essence of Winning and Losing. Retrieved from: https://slightlyeast-ofnew.com/wp-content/uploads/2010/03/essence_of_winning_losing.pdf

Circular Economy Action Plan. 2020. A new Circular Economy Action Plan For a cleaner and more competitive Europe. Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:98:FIN

Critical Raw Materials Act (2024/1252). Regulation (EU) 2024/1252 of the European Parliament and of the Council of 11 April 2024 establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1724 and (EU) 2019/1020. Retrieved from: http://data.europa.eu/eli/reg/2024/1252/oj

Directive on Single-Use Plastics (2019/904). Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment. Retrieved from: http://data.europa.eu/eli/dir/2019/904/oj

Ecodesign for Sustainable Products Regulation (2024/1781). Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC. Retrieved from: http://data.europa.eu/eli/reg/2024/1781/oj

EEA. 2024. Circular economy country profile 2024 – Estonia. ETC-CE Report 2024/Estonia. Retrieved from: https://www.eionet.europa.eu/etcs/etc-ce/estonia_2024-ce-country-profile_final.pdf

EnviroPac. 2024. Mobil henger til kildersortering. 23.4.2024. Retrieved from: https://enviropac.no/blog/2024/04/08/transportabel-miljohenger-til-kildesortering-pa-arrangementer/

Fertilizing Products Regulation (2019/1009). Regulation (EU) 2019/1009 of the European Parliament and of the Council of 5 June 2019 laying down rules on the making available on the market of EU fertilising products and amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009 and repealing Regulation (EC) No 2003/2003. Retrieved from: http://data.europa.eu/eli/reg/2019/1009/oj

Finnish Ministry of the Environment. 2021. Strategic programme to promote a circular economy. Retrieved from: https://ym.fi/en/strategic-programme-to-promote-a-circular-economy

ISO 20121:2024. 2024. Event sustainability management systems — Requirements with guidance for use. International Organization for Standardization.

Landfill Directive (2018/850). Directive (EU) 2018/850 of the European Parliament and of the Council of 30 May 2018 amending Directive 1999/31/EC on the landfill of waste. Retrieved from: http://data.europa.eu/eli/dir/2018/850/oj

Ngo, T., Yli-Rantala, E., Joshi, A., Javanshour, F., Ritschkoff, A.-C., Tenhunen-Lunkka, A., Galteland, O., Simas, M., Vullum-Bruer, F., Berglund, N., Kärki, R., Valmari, S., Maijanen, A., Koivisto, J., Krenjova-Cepilova, J., & Eteläaho, P. 2024. 'Legislative and regulatory framework for target value chains (Deliverable D1.3 of TREASoURcE project)'. EU Horizon 2020. Retrieved from: https://treasource.eu/wp-content/uploads/2024/08/TREASoURcE-D1.3-Legislative-and-regulatory-framework-for-target-value-chains.pdf

Funded by the European Union

Packaging and Packaging Waste Regulation (2025/40). Regulation (EU) 2025/40 of the European Parliament and of the Council of 19 December 2024 on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC. Retrieved from: http://data.europa.eu/eli/reg/2025/40/oj

Potting, José, Marko Hekkert, Ernst Worrell, and Aldert Hanemaaijer. 2017. 'Circular Economy: Measuring Innovation in the Product Chain'. Policy report. 2544. The Hague, Netherlands: PBL Netherlands Environmental Assessment Agency. Retrieved from: https://www.pbl.nl/sites/default/files/downloads/pbl-2016-circular-economy-measuring-innovation-in-product-chains-2544.pdf

Renewable Energy Directive (2023/2413). Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652. Retrieved from: https://eur-lex.europa.eu/eli/dir/2023/2413/oj

Riigi Teataja. 2004. Packaging Act. Retrieved from: https://www.riigiteataja.ee/en/eli/ee/527122023010/consolide/current

Sewage Sludge Directive (1986/278). Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture. Retrieved from: http://data.europa.eu/eli/dir/1986/278/oj

Single-use Plastics Directive (2019/904). Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment. Retrieved from: http://data.europa.eu/eli/dir/2019/904/oj

SITRA. 2016. 'Leading the cycle – Finnish road map to a circular economy 2016–2025'. Retrieved from: https://www.sitra.fi/en/projects/leading-the-cycle-finnish-road-map-to-a-circular-economy-2016-2025/

Strategic Environmental Assessment directive (2001/42). Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment. Retrieved from: http://data.europa.eu/eli/dir/2001/42/oj

Tallinn. 2024. 'Tallinn launches Circular Economy Development Plan 2035'. Retrieved from: https://www.tallinn.ee/en/news/tallinn-launches-circular-economy-development-plan-2035

TREASoURcE. 2024. 'Ice Hockey for Climate Action: TREASoURcE Project Champions Plastic Recycling at Helsinki's 'Save the Pond' Event', 10.2.2024. Retrieved from: https://treasource.eu/project-champions-plastic-recycling-at-save-the-pond-ice-hockey-event-10-2-2024/

UNEP. 2024a. Policies and Strategies. UN environment programme. Retrieved from: https://www.unep.org/about-un-environment/policies-and-strategies

UNEP. 2024b. Global Waste Management Outlook 2024. Retrieved from: https://www.unep.org/resources/global-waste-management-outlook-2024

Urban Wastewater Treatment Directive (2024/3019). Directive (EU) 2024/3019 of the European Parliament and of the Council of 27 November 2024 concerning urban wastewater treatment (recast). Retrieved from: http://data.europa.eu/eli/dir/2024/3019/oj

Funded by the European Union

Waste Framework Directive 2008/98. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives. Retrieved from: https://eur-lex.europa.eu/eli/dir/2008/98/2024-02-18

Woltjer, Geert. 2018. Scenario Analysis for a Circular Economy. Deliverable. European Union: Ecologic Institute. Retrieved from: https://www.ecologic.eu/sites/default/files/project/2021/D5.1v2_Scenario-Analysis-for-a-Circular-Economy_FINAL.pdf

Desktop study references: Example event guidelines for Annexes

City of Adelaide. 2025. Sustainable Events: Measurement, Marketing & Engagement. Available at: https://d31atr86jnqrq2.cloudfront.net/docs/sustainable-events-checklists-measurement-marketing-engagement.pdf (Accessed: 28 May 2025).

City of Edmonton. 2025. Festivals & Events Micro Grant Program. Available at: https://www.edmonton.ca/programs_services/funding_grants/festivals-events-micro-grant-program (Accessed: 28 May 2025).

City of Helsinki. 2024. Development grants for culture. Available at: https://avustukset.hel.fi/en/information-about-grants/grants-for-culture/development-grants-for-culture (Accessed: 28 May 2025).

City of Helsinki. 2020. Siisti Tapahtuma (in Finnish). Available at: https://www.hel.fi/static/liitteet/kaupunkiymparisto/julkaisut/esitteet/siisti-tapahtuma-2020.pdf (Accessed: 28 May 2025).

City of Oulu. 2025. Kestävät Tapahtumat (in Finnish). Available at: https://oulu.com/kestavat-tapahtumat/ (Accessed: 28 May 2025).

European Commission. 2024. Not-for-profit European Sport Events – Erasmus+ Programme Guide: Key Action 2. Available at: https://erasmus-plus.ec.europa.eu/programme-guide/part-b/key-action-2/sport (Accessed: 28 May 2025).

Ekokompassi. 2025. Ekokompassi Opas (in Finnish). Available at: https://ekokompassi.fi/lataa-ekokompassi-opas/ (Accessed: 28 May 2025).

Eventify. 2025. Guide to Sustainable Events. Available at: https://eventify.io/blog/guide-to-sustainable-events (Accessed: 28 May 2025).

Events Industry Council. 2025. Sustainability Pledge. Available at: https://eventscouncil.org/Sustainability/Sustainability-Pledge (Accessed: 28 May 2025).

Finnish Ministry of Education and Culture. 2024. Seuratoiminnan kehittämistuki (Seuratuki) (in Finnish). Available at: https://okm.fi/-/seuratoiminnan-kehittamistuki-seuratuki- (Accessed: 28 May 2025).

Green Tallinn. 2025. Guide to Environmentally Friendly Events. Available at: https://greentallinn.eu/en/innovation/guide-to-environmentally-friendly-events/ (Accessed: 28 May 2025).

IEEE Meetings, Conferences & Events. 2025. IEEE Event Sustainability Guide. Available at: https://ieee-emce.org/planning-basics/ieee-event-sustainability-guide/ (Accessed: 28 May 2025).

Isla. 2025. Sustainable Events Made Easy. Available at: https://proseed.events/ (Accessed: 28 May 2025).

Funded by the European Union

Jones, C., McLachlan, C. and Mander, S. 2021. Super-Low Carbon Live Music: a roadmap for the UK live music sector to play its part in tackling the climate crisis. Tyndall Centre for Climate Change Research. Available at: Microsoft Word - Live Music Roadmap FINAL v3.docx (Accessed: 28 May 2025).

Royal Society of Biology. 2025. RSB Regional Events Grants Submission Guidance 2025. Available at: https://public.rsb.org.uk/RSB_Regional_Events_Grants_Submission_Guidance_2025.pdf (Accessed: 28 May 2025).

Singapore Tourism Board. 2025. Business Events in Singapore (BEiS). Available at: https://www.stb.gov.sg/licensing-support/grants/business-events-in-singapore (Accessed: 28 May 2025).

Welsh Government. 2024. Event Wales: Business Events Grant Scheme. Available at: https://www.gov.wales/event-wales-business-events-grant-scheme-html (Accessed: 28 May 2025).

Visit Bergen. 2023. Sustainable Events Guide. Available at: https://www.visitbergen.com/dbimgs/Sustainable-events-Bergen-v1-2023.pdf (Accessed: 28 May 2025).

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Annexe A - Guidance document for event funders

Introduction

Funding authorities can play an important role in advancing circular economy (CE) practices and strategies. Their involvement can be facilitated through various mechanisms, including direct financial support, providing training for event organisers, and promoting broader stakeholder engagement. Concurrent best-practise sustainability requirements often encompass key areas of application, such as event governance, energy use, travel and transport, food and drink, waste management, water usage, and overall influence on the community. While many event funders already address these general sustainability issues in their funding decisions, more detailed requirements for a circular economy can help bring concreteness to the current requirements. This document aims to inspire the event funders in that direction.

An event funder with a sustainability focus may want to focus on one theme, such as the circular economy, or arrange their sustainability efforts through programs where circularity represents one theme among others. To advance their CE strategy, event funders may finance several events, comparing each event's performance against its previous performance and the entire funding portfolio. In the case of novel applicants, an event organiser's CE plan and its viability can be compared with the earlier recipients and their performance. In the case of novel applicants, an event organiser's plan and its viability can be compared with that of the incumbent recipients and their performance. In each case, the event funder needs to establish criteria and tools to compare applicants both before and after funding has been awarded.

This document, as part of the EU Horizon project TREASoURcE deliverable D2.5, drafts guidelines for event funders to incorporate circular economy (CE) practices into their funding operations. Based on a global sample of existing event funder and event organiser guidelines (see References section in the TREASoURcE D2.5 deliverable, "Guidance booklet on the CE concepts for event organisers"), this document outlines the principles and a general application framework, providing an exemplary tool to help assess the circularity of an event. The goal is to support event funders in advancing the circular economy as a long-term, conceptual process.

A few words on the principles facing the applicants

To effectively support the transition towards a circular economy in events, it is essential for funding authorities to establish clear eligibility requirements for applicants seeking financial support. These requirements help to ensure that funding is directed towards initiatives that align with the mission and priorities of the funding authorities. The following checklist outlines some considerations for funders to communicate their eligibility criteria for the applicants:

- Foster a long-term circular economy by underlining when the grant must be used and whether it can be applied for more than once. Specify who and when is ineligible to apply for funding repeatedly, such as commercial applicants participating in multiple applications over a one-year period.

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- Describe how and when the grant will be paid and its reporting requirements. Clearly outline any expected, concrete CE impact and how it should be measured.
- Identify any specific credentials that applicants must demonstrate to be eligible, such as previously acquired event sustainability certifications.
- Detail the amount of money available (total and per applicant) and clarify if this affects the scope of requirements and reporting, e.g., “events with fewer than 500 visitors or applying for less than 2,000 euros do not need to provide a separate report on their CE impact”.

As described in the TREASoURcE D2.5 deliverable, the principles of the circular economy in events encompass a collection of strategies for reducing material use, promoting reuse and product life extension, and preventing waste from being released into the environment. Event funders should thus consider how to integrate these principles into their funding strategies and programs. For example, implementing incentives that promote circular products and services can accelerate the shift towards more sustainable practices (De Giovanni, 2023). In addition to grants, funding authorities might thus consider offering further kinds of support to event organisers who wish to adopt circular economy principles. Implementing training programs that highlight best CE practices, establishing social collaboration hubs, and physical circularity hubs, such as reuse and repair centres for shared event equipment, can raise awareness about the benefits and practices of the circular economy while fostering circularity in the event industry more broadly. As the circular economy in events remains a relatively novel focus domain, it is also recommended that funding authorities also provide support for their grantees to investigate and share new methods for implementing circular economy practices in events. In this fashion, funding authorities can encourage innovation and the adoption of cutting-edge solutions that help the entire events sector.

Application framework - example

Establishing clear and comprehensive frameworks and objectives (Nassanbekova, 2024) helps event funders in promoting CE practices. However, to evaluate applicants and their expected responsibilities requires understanding their role in their broader context. Event funders should pay specific attention to the size and scope of the applicants, placing stricter requirements while also providing support for events that are large enough to have the leverage and resources to apply CE principles independently, but that are too small to hire specialists within their organisation. TREASoURcE project deliverable D2.5, “Guidance booklet on the CE concepts for event organisers,” provides examples of CE practices applied in industry, sports, and cultural events across Finland, Norway, and Estonia. Based on a sample of existing event funder and event organizer guidelines, event funder evaluation and decision-making typically rely on the following information provided by the applicants during the application process:

- Basic information
- Mission alignment as defined in the project plan
- Description of the intended use of the funding and its focus
- The financial stability of the applicant
- Planned impact demonstration
- Communication plan.

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In addition to the basic information confirming the applicant's contact details and eligibility, which can be obtained through a web form, this information is largely provided in two documents: the applicant's project plan and the attached budget. When evaluating applications, funders apply their internal criteria. As an example, the documents can be evaluated against these criteria (#A, #B, #C, #D) as follows:

Basic information (eligibility criteria decided by the funder)

- contact information
- document indicating the account holder's name and account number
- applicant organisation type: nonprofit, educational, small business, individual, joint/consortium (#C)
- event size and audience including tourism CE impacts (e.g., tourists staying more than one night)
- event field: sports, culture, business, other
- geographic focus (for regional funding)
- audience focus: children, families, business travellers etc.
- event duration: timeline, start and end
- check for previous grants received to determine if the applicant is eligible to reapply
- other criteria (e.g., must prove membership in the funder organisation)

Mission alignment (project plan) (#A)

- funder-specified grant priority (e.g., CE focus selected from a list so the application is sent for review for different panels)
- how the CE initiative at the event serves its community (e.g., collaboration, equality)
- what CE problem does the event aim to solve
- what the event does in practice to solve the CE problem
- milestones, deadlines for CE initiative readiness
- past achievements and experience highlighting credibility in circular economy
- credible partnerships enhancing the CE initiative effectiveness and their roles (#C)
- letters of support from partners
- collaboration details

Funding type applied and focus (budget plan)

- capital required for repairs or building CE infrastructure (e.g., storage)
- operating costs (e.g., venue rent, catering, travel costs, equipment, professional services, content development, or salary for preparation)
- organisation of CE initiative at the event/side activities/volunteer training
- communication and marketing
- evaluation and legacy e.g. future CE initiative planning or certification application plan
- seed funding for new CE initiatives
- activities which may only be eligible for some (e.g., new CE initiatives funding for small applicants)

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Financial stability (budget plan) (#B)

- budget details
    - venue rental, CE-related infrastructure such as toilets
    - CE-focused catering, production and technical costs
    - marketing and communication concerning CE
    - entertainment and speaker fees addressing CE
    - decorations and equipment rentals, temporary CE infrastructures
    - organiser such as CE expert salaries, volunteer training for CE practises (e.g., on-site event recycling assistance)
    - permissions and city expenses (e.g., seeking subsidies due to best-in-class circularity effort)
    - logistics and transport related to CE (e.g., niche waste material recycling collection)
    - waste management and CE planning
    - insurance, safety and security, first aid, accessibility
- description of how the money will be utilised for transparency and justification of the costs
- matching funds (some % of costs covered by others)
    - CE-related vendor fees and similar expenses
    - diverse funding sources representing community support for the CE initiative (e.g., donations, sponsorships)
    - predicted ticket sales representing community support for CE
    - second-hand item raffles or auctions as part of the entertainment program
    - CE-related sales (e.g., income from sold waste/materials)
- most recent audited financial statements

Impact demonstration (project plan) (#D)

Applicants should demonstrate the (expected) impact of their events, such as in the following areas: economic impact of the CE initiative on the community, stakeholders, and the applicant (or the consortium)

- social impact (diversity, equality, equity)
- environmental and CE impact
- applicability of chosen CE actions and impact on the broader society
- the credibility of CE performance metrics illustrating the impact
- sustainable event scorecard checklist, or certifications
- short term vs. long-term impact

Communication (project plan)

While the funder will define the deliverable format for financial and other reporting and to indicate the closeout format and date, effective communication plans are essential and should include:

- plan to update the funder on the CE initiative progress
- plan to send the finances by a date
- agreement to allow a reviewer on location to review the CE practices during the event
- quarterly/annual/final report

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- data management plan and adherence to GDPR
- communication plan for vendors/visitors/other stakeholders (such as landowners or waste management)

When evaluating applications, funders apply their internal criteria during the review process. These criteria may include:

General criteria to consider:

- eligibility and alignment with the funder strategy (if need to participate in a program)
- established absolute scoring criteria, e.g. when the maximum is 60 points in five categories, the minimum requirement is 50 % of points awarded in each category

Relevance (#A)

- relevance to the funder's CE program
- relevance to the funder's CE goals
- relevance and complementarity to community CE initiatives
- innovativeness and novelty
- necessity of the grant for the realisation of the CE activity (e.g., the event does not charge the audience)

Quality of design and implementation (#A and #B)

- strength of the CE idea and the planned CE activities
- clear, complete and effective plan of intended CE actions
- cost-effective design
- feasibility, quality control, collaboration, professionality of the CE initiative
- risks recognised and planned for, such as CE rebound effect mitigation

Quality of partnerships (#C)

- the funder's desired attendee profile is in focus
- partnerships have the potential to grow the event organiser's CE capabilities, or the collaborative consortium adds value to the initiative
- an appropriate mix of participating organisations
- partner task allocation demonstrates a commitment to circularity from all necessary partners
- effective coordination of CE practices and communication mechanisms demonstrated

Demonstrated impact (#D)

- event size, scope and scale (e.g. too small/too large events can't apply; event must be public, not members only; etc.)
- concrete and logical steps to integrate the CE initiative results into the regular work of the applicant organisation
- potential to positively impact event participants and participating organisations' CE maturity, the wider community spirit, or specified different groups' CE awareness
- potential for the CE initiative to expand and be used outside the participating organisations during and after the event at a level relevant to the funder

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- appropriate plans and methods to evaluate the CE initiative outcomes
- concrete and effective steps to make the outcome of the event CE initiative known within the participating organisations, to share the results with other organisations and the public while publicly acknowledging the funding source
- concrete and effective steps to ensure the long-term impact of the CE initiative, its capacity to continue having an impact and produce benefits after the grant has been spent.

Finally, Table 3 below provides an example of a tool for evaluating CE and environmental impact in events. Note that the scoring points are for illustrative purposes only and, in the lack of established measures, are not based on any actual relative or absolute environmental benefit. Instead, it is recommended that the event funders establish their own preferred concepts and rate them accordingly.

Table 3. Example of event CE actions scorecard for funders

Sustainable Event Scorecard (for illustrative use only)		
General	**Points (illustrative use only)**	**Notes**
Circular Economy framework is referenced/used as a basis for the event planning:		
Local event guides	5	
National event guides	5	
Standards	10	Standard for sustainable events: ISO 20121:2024
The event organiser, place or vendors follow environmental programs/certificates	10	Certificates like EKOkompassi (FI), Eco-Lighthouse (NO), Green Key
Other, please specify		
Concept	**Points**	**Notes**
There is a concept for the Circular Economy actions in one or more of the following fields, including a description of the goals and the measures to achieve the goals:		The event CE practices should be designed in such a way that the following questions are answered: What is the initial situation of the event? Which CE criteria, format, or orientation are considered? Objectives should be specific, measurable, achievable, realistic and time-bound (SMART)
Communication	5	
Venue	5	
Transportation	5	
Food	5	
Water	5	
Catering	5	
Energy and technology	5	

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Materials	5	
Waste management	5	
Procurement	5	
The event organisers have assessed the environmental impact and CO2 footprint of their event and developed a concise concept to address the issue, including a description of the situation, the CE goals, and the measures to achieve these goals.	10	
Other, please specify		
Measures	**Points**	**Notes**
The CO2 emissions generated by the event are:		
measured	10	
compensated	20	
Participant management, including invitation, confirmation, advance notice, and on-site registration, is implemented digitally.	10	
Collected waste is measured:		
only mixed waste	5	
each waste type separately	15	
Collected food waste is measured	5	
Other, please specify		
Transportation	**Points**	**Notes**
During registration, participants are informed about offers for arrival and departure to the event by public transport.	5	
During the registration process, reference is made to the possibility of compensating for the CO2 emissions generated during arrival and departure.	5	
Public transport is used for all transport by organisers.	5	
The organisers offer a discounted public transport ticket or include a public transport ticket in the event ticket.	5	
The organiser offers a shuttle service to the event.	10	
Other, please specify		
Venue	**Points**	**Notes**
The event venue is accessible by public transport.	5	
The event will be powered by renewable energy.	15	

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Low-energy equipment (e.g., LED lighting) is used.	10	
Only reusable equipment (such as furniture and stands) is used.	15	
Waste management is organised for different waste types.	15	
Other, please specify		
Food & Catering	**Points**	**Notes**
The focus is on purely vegetarian, vegan, and organic catering.	10	
At least 50 per cent of the food used, based on the total cost of goods, comes from regional production and processing.	15	
The leftover food is offered for further use or donated to prevent food waste.	15	
Regional service companies are used for catering.	10	
Tap water/water tanks are used to provide drinking water.	15	
Only reusable crockery, cutlery and packaging are used.	20	
The standard range of food (e.g., sugar, milk, coffee cream, etc.) is not available in single-portion packaging.	10	
Other, please specify		
Communication	**Points**	**Notes**
Participants, service providers and the public are actively informed about the CE planning approach, measures**,** and impact of the event.	10	
Participants and service providers are consistently reminded and informed to separate waste during the event.	15	
Other, please specify		
Materials	**Points**	**Notes**
If printed articles, signs, banners**,** and displays are used, they have Eco-labels or meet their criteria.	10	
Giveaways are edible.	10	
There are no giveaways.	15	
Badges/name tags/lanyards are made of recycled materials, are collected and reused.	15	
Most of the equipment is rented / stored for further use.	15	
Other, please specify		

Annexe B: Event sustainability objectives

The following objectives were developed by Tour of Scandinavia during the Eco-Lighthouse certification process:

- Environmentally Friendly Infrastructure and Urban Planning
- Bicycle paths, safe school routes
- Encourage people to use bicycles as a means of transportation
- Initiatives at schools
- Bicycle parking for the public at the venue
- Resource Management
- Requirements for material selection and reuse of equipment
- Environmental policy for sponsors and suppliers
- Locally sourced sustainable food and beverages
- Zero tolerance for littering during the race
- Design a specialised trailer that ensures the efficient collection, sorting, and processing of waste generated during large-scale events.
- Dedicated agreements with waste stations and recycling partners
- Used for all stages during the event week
- For education and awareness about the environment, waste, and waste sorting in schools in the host cities
- Transport Solutions
- Zero-emission vehicles – internal logistics – 150 vehicles
- Optimize routes and transfers to reduce distances
- Electric cars
- TV Production
- Reduce the use of planes/cars/motorcycles
- New production model for TV
- RF planes replaced by the 4G network
- Logistics
- Use local suppliers as much as possible
- Focus on reusing materials/equipment

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Annexe C: Action planner idea bank for organisers

Table 4. Action planner for event organiser

Domain	Action & Scope	CE Strategy	Examples of measurements
Communication & audience awareness			
Pre-event communication	Communicate sustainability requirements and CE actions in advance to your team, suppliers, and visitors to guide and help them reach the event's CE target (e.g., increasing recycling and decreasing waste).	R1 – Rethink	Sustainability requirements / CE actions communicated (yes/no)
	Provide clear information on the types of products vendors can use at the event to enhance circularity.	R0 – Refuse	Information offered to vendors (yes/no)
	Engage the event website and social media to inform the audience about the topic of waste and sustainability, as well as CE actions during the event.	R1 – Rethink	Size of the audience reached, e.g., the number of Facebook likes
	Ensure that stakeholders, such as sponsors and vendors, agree on the shared CE goals of the event.	R1 – Rethink	Percentage of staff and attendees aligned with your goals
Communication in the event	Prepare an announcement or information sheet for recycling and CE options at the event.	R1 – Rethink	Announcement prepared (yes/no)
	Limit the items and amount that you print; i.e., do not use printed promotional materials. Instead, offer digital versions that are easily accessible.	R0 – Refuse	Digital material offered (yes/no); Number of printed material
	Offer measurement devices/information to visitors, vendors, etc., so they can see their personal waste generated and act accordingly: a scale at food waste bins, an electricity meter, a water meter?	R1 – Rethink	Information offered for relevant stakeholders (yes/no)
Post-event communication	Engage visitors and others about the event's success from a CE perspective, e.g., post the event's CE highlights on social media accounts.	R1 – Rethink	Number of visitors reached, number of likes on Facebook
	If sustainability measures are available (for waste, energy, CO2, etc.), analyse the results	R1 – Rethink	Event success/measures

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	and communicate them to your audience and relevant stakeholders.		communicated to the audience (yes/no)
Venue, energy & transportation			
Venue	Give preference to event locations that have environmental programs/certificates, e.g., Ekokompassi (FI), Eco-Lighthouse (NO), ISO 20121:2024.	R1 – Rethink	The event location has environmental certification (yes/no)
	Reduce harm to biodiversity. Avoid the impact of your event on water, soil, and plants. Any damage to the landscape must be rectified. Sound and light pollution related to the event must be minimal (e.g., instead of fireworks, use lighting installations and do not leave the event venue fully lit for the entire night).	R2 – Reduce	Any harm caused to biodiversity is rectified (yes/no); Noise pollution in dB; Fireworks replaced with other options (yes/no)
Energy	Request that the venue uses renewable or conserved energy resources, such as solar or electric vehicle (EV) battery systems.	R1 – Rethink	Percentage of renewable energy used in the event
	Ensure that vendors and venues are using energy-efficient devices.	R1 – Rethink	Percentage of vendors using energy-efficient devices and their energy consumption.
	Measure and follow the energy consumption during the event.	R1 – Rethink	Amount (kWh) of energy used during the event, percentage of the target if set
Transportation	Use a venue that is accessible by public transport and has safe walking or biking routes.	R2 – Reduce	Event venue accessible by public transport (yes/no); Percentage of passengers arriving by public transport/bicycle/foot
	Provide incentives to encourage visitors to use public transport, such as prioritising parking slots for bicycles and public transport, implementing parking fees, and offering shuttle services to the event.	R1 – Rethink	Incentives offered to favour public transport (yes/no); Shuttle service provided for the audience (yes/no)
	Require both staff and attendees to use sustainable transportation, i.e. public transportation instead of own cars.	R2 – Reduce	Number of audience/staff who used public transportation

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	Provide detailed information and maps for visitors to encourage them to use public transportation, bicycles, etc., instead of their own cars.	R1 – Rethink	Information about sustainable travelling options offered for audience (yes/no)
Food & Catering			
Water efficiency	Be more water-efficient, both in portable water use and greywater. Avoid water waste by not running water unnecessarily. Ensure there are no leaks (including those from portable tap water, handwashing, and toilet water).	R0 – Refuse	Amount of water used during the event; Estimated reduction of water in litres
	Refuse bottled water: ask the attendees to bring own water bottles or reusable utensils. Offer tap water or organise water tanks for bottle refill.	R0 – Refuse	Tap water available for audience (yes/no)
	Offer a reusable eco cup made from a sustainable material like bamboo or rice husk, either as part of your goodie bag or available for sale.	R1 – Rethink	Reusable cups available for event audience (yes/no)
Food	Prefer food made with organic and locally sourced ingredients. Favour veggies and food items that are in season in your event location.	R1 – Rethink	Number of vendors offering organic/local food; Proportion of vegetarian options at the event
	Minimise food waste by estimating the need for food as accurately as possible.	R2 – Reduce	The weight of food waste generated
	Donate food that you won't be able to consume. Plan where you can donate leftover food, and consider issues related to food preservation.	R2 – Reduce	Amount of leftover food donated
Catering	Recycle food packaging: rather than plastic or Styrofoam dishes, compostable tableware should be preferred, provided that proper composting is guaranteed (e.g., palm leaf and wheat bran tableware or tableware that complies with the EU standard EN 13432, i.e., it is suitable for industrial composting).	R2 – Reduce	Number/share of crockery and cutlery recyclable / recycled
	Reuse food packaging: avoid single-use crockery, glass, and cutlery. Organise a deposit system instead.	R1 – Rethink	Amount of tableware offered via deposit system
	Reduce food packaging: opt for bulk dispensers instead of individually packaged goods. Food, additives and seasonings (e.g. salt, sugar, cream) should not be served in small packages.	R0 – Refuse	Individually packed food is not offered in the event (yes/no)

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Waste management			
Planning	Ask vendors to provide their estimates of the type and amount of waste they produce, which will help better plan the number and type of waste containers needed.	R1 – Rethink	Number of vendors providing their estimation of waste type and amount of waste
Bins	At a minimum, mixed waste, biowaste, and deposit-subject packaging, as well as other packaging generated at the event, must be collected separately.	R8 – Recycle	Number of waste types gathered and bins for different waste types
	Ensure that there are sufficient recycling bins and trash cans and that they are placed in strategic locations, such as near food and beverage sales and consumption points where the audience spends time.	R8 – Recycle	Number of bins in the event; Quantity of waste generated
	Ensure that waste containers have easy access and good visibility so that visitors can locate them, both from a distance and up close.	R8 – Recycle	Evaluate the accessibility and visibility of the containers (excellent/good/bad)
	Control the filling of waste containers and ensure they are emptied when necessary.	R8 – Recycle	Number of overfilled containers
Guidance	Place clear signs at the event for efficient recycling. Provide instructions and visual labels indicating what waste should be placed in each container, using local and all necessary languages.	R8 – Recycle	Waste collection signs and instructions well organised (yes/no)
	Include recycling and waste collection points on the venue map to ensure more efficient waste management.	R8 – Recycle	Collection points exist in the venue map (yes/no)
	Utilise the waste management team and/or volunteers to assist the audience with recycling. They can also perform post-consumer sorting.	R8 – Recycle	Team/volunteers used to help in waste sorting (yes/no)
Material use			
Material	The design and choice of materials, such as vests in sports events, waste bin labels, event banners, decorations, training materials, and other items, should be reusable. The organisers should make the return and collection of these materials convenient and straightforward to all.	R2 – Reduce	Number/share of the reusable materials; Collection of the materials is organised (yes/no)
	Avoid using name tags/others. If they are used, please ask attendees to return the name tag	R2 – Reduce	Name tags not used (yes/no);

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	holders and any other materials at the end of the event.		Name tags collected (yes/no)
	Repair event materials instead of discarding them.	R4 – Repair	Repairing service is used (yes/no)
	Rent materials and equipment needed in the event, e.g., furniture, decorations and energy-efficient AV equipment.	R2 – Reduce	Material is rented (yes/no); Amount of rented materials (%);
Giveaways	Refuse material giveaways; instead, consider donating to a chosen charity.	R0 – Refuse	No giveaways (yes/no)
	Giveaways should be sustainable and recyclable. Offer edible items instead of consumable materials and check for plastic labels.	R1– Rethink	Edible items offered ad giveaways (yes/no); Giveaways have a sustainability label (yes/no)
Decoration	Use decorations, banners, signs, etc., made from durable and sustainable materials so that they can be reused in future or other events.	R3 – Re-use	Amount of material that is reused (%)
	Decoration and banners can be collected and remanufactured into items such as storage bags.	R7 – Repurpose	Material is given/donated for repurposing (yes/no)
Other			
Local economy	Support the local economy by hiring local labour. Reduce shipping costs by purchasing materials locally.	R1 – Rethink	Amount of local labour (%); Amount of material purchased locally (%)
Audience experience	Design an audience experience through refuse: design multi-purpose circular experiences, such as a mobile recycling trailer, which allows for sorting waste and spreading awareness of circular economy (CE) at the same time.	R0 – Refuse R1 – Rethink	

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Annexe D: Children's show for waste awareness

Example of the program structure from a Norwegian children's show:

- The artist Asgeir set up the "stage" and welcomed the audience.
- He discussed the Tour of Scandinavia (ToS) event and why they required a waste sorting trailer.
- He further explained that Viken County Municipality and ToS had developed this trailer and showed how it worked.
- He showed the audience that QR codes had been set up on the trees around the area, which the audience could scan to take a quiz and learn more about waste sorting.
- He talked about why it is important to focus on the environment and waste sorting and shared some hard facts:
    - A plastic bottle can be recycled and become a new bottle 7 times. An aluminium soda can can be recycled infinitely.
    - We recycle 92% of bottles in Norway. Still, 150 million are not recycled.
    - It takes 450 years for a plastic bottle to decompose.
    - Approximately one-third of all food produced worldwide is discarded. This means that 1.3 billion tons of food are thrown in the trash.
    - In Norway, 48% of food waste comes from households.
    - Each Norwegian throws away approximately 40 kg of edible food per year.
- Throughout Asgeir's program, the message was that everything can be used—but perhaps for something else. Even if food has expired, it may still be edible.
- He asked some children to come up on stage and help him determine if his food was good. They were asked to use their senses —"Smell, taste, and see" — to check if it could be eaten. They were given an apple, an orange, and a lemon and had to determine if they were edible. To the children's delight, he made a funny act of thinking the lemon was an orange and ate it.
- Apples, oranges, and hard-boiled eggs were used in a juggling course where the children were taught and tried juggling.
- He brought a tube, one end dipped in chocolate spread, to resemble a toilet tube. He explained that even an old toilet tube can be reused, for example, as an instrument. He demonstrated this by blowing on the toilet tube like a didgeridoo, using the wrong end.
- He asked some audience members to come up and participate in a waste sorting relay. They formed five teams and were given team shirts in matching colours. The blue team had to sort waste marked with blue, the orange team with orange, and so on. All the waste to be sorted was placed in the middle. The participants stood on one side, and opposite them were different bins for various types of waste. The task was to sort the waste marked with their colour into the correct bin as quickly as possible.
- One or two winning teams were announced after the contents of the sorting boxes were reviewed.
- The prizes were reused toys that Asgeir's children no longer played with.

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Annexe E: Interviewed event stakeholders

Interview Number	Interviewees	Organisation type
I	Event specialist	Mid-sized city organising several events per year
II	Senior event specialists & environmental specialist	Large city organising several events per year
III	Sustainability project manager	Large city organising several events per year
IV	Director	Industry alliance bringing together event stakeholders
V	Sustainability specialist	The national chapter of an international youth organisation
VI	Sustainability manager	A national sports association organising local and international sports events
VII	Event founder	Novelty urban event organiser targeting creative business and people

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