Sustainable and inclusive transport for events and tours

Public Report

Project within FFI Accelerera omställningen till hållbara vägtransporter - hösten 2024
Author Hafdís Jónsdóttir and Klas Hedvall, Chalmers Industriteknik, Sweden
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Content

FFI in short

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1. Summary

Transport to and from events, such as concerts, festivals, and tours, is one of the most significant contributors to the climate impact of the events industry. At the same time, events play an important societal role by fostering community, energizing cities, and creating inclusive cultural spaces. To preserve this value while reducing environmental harm, the industry must develop more sustainable transport solutions. However, the transport ecosystem surrounding events is fragmented, involving a wide range of stakeholders with differing priorities, mandates, and constraints. This complexity makes coordinated action difficult but also opens up opportunities for innovation and collaboration.

This preparatory project was carried out by a consortium consisting of Chalmers Industriteknik, All Things Live, Rejlers, and the Swedish 2030-secretariat. The project combined literature reviews, benchmarking of international events, workshops and interviews with stakeholders from across the ecosystem, including event organizers, transport providers, municipalities, and service suppliers. The interviews revealed shared concerns and ambitions. Organizers have influence but lack long-term tools and resources. Transport providers are often ready to offer fossil-free options but face low demand. Public transport is essential but constrained by fragmented ticketing systems. Policy frameworks can enable change but are currently inconsistent. Many solutions, such as consolidated freight, fossil-free fuels, and behavioural nudging, have been tested but remain in pilot form due to short project cycles and lack of standardisation.

The project identified a range of potential solutions, which were analysed and grouped into three categories: system-wide solutions suitable for large-scale demonstration, transition-supporting services with lower complexity, and quick-win solutions ready for short-term implementation. The analysis emphasized that transport for visitors should be the primary focus of future efforts in a large-scale demonstrator, given its high climate impact and complexity. Freight solutions are more mature and can be scaled through knowledge sharing and incremental change.

In conclusion, the project shows that sustainable transport solutions already exist but are not yet widely adopted in the event industry. Successful transformation will require cross-sector collaboration, economic viability, and attention to the visitor experience. Further research is needed to develop tools for designing and evaluating solutions, to situate transport within broader sustainability framework, and to explore how events can serve as platforms for testing and inspiring societal change.

2. Sammanfattning på svenska

Transporter kopplade till evenemang som konserter, festivaler och turnéer utgör en av de största källorna till klimat- och miljöpåverkan från dessa arrangemang. Publikens resor till och från evenemangsplatser, liksom logistiken för artister, personal och utrustning, spelar en avgörande roll för utsläppen. Samtidigt fyller evenemang en viktig samhällsfunktion genom att skapa gemenskap, vitalisera städer och regioner, och erbjuda mötesplatser som överbryggar sociala och kulturella gränser. För att bevara evenemangens sociala värde och samtidigt minska deras miljöbelastning krävs nya, mer hållbara transportlösningar.

Denna omställning försvåras av att transportsystemet kring evenemang är fragmenterat. Ett brett spektrum av aktörer som arrangörer, kommuner, transportleverantörer och besökare som verkar utifrån olika prioriteringar, affärslogiker och förutsättningar. Vissa fokuserar på lönsamhet och logistik, andra på hållbarhet, samhällsnytta eller regelverk. Denna mångfald skapar både utmaningar och möjligheter: utan samordning riskerar lösningar att bli kortsiktiga eller isolerade, men med strategisk samverkan kan evenemang bli testbädd för integrerade och skalbara transportinnovationer.

Mot denna bakgrund har projektet genomförts som en förberedande studie. Syftet har varit att lägga grunden för en framtida systemdemonstrator som kan bidra till hållbara, inkluderande och effektiva transporter kopplade till evenemangsbranschen.

Projektet har genomförts av ett konsortium bestående av Chalmers Industriteknik, All Things Live, Rejlers och 2030-sekretariatet. Tillsammans representerar dessa aktörer en kombination av systemkunskap, branschinsikt och teknisk kompetens. Denna sammansättning har möjliggjort ett tvärsektoriellt angreppssätt där både praktisk erfarenhet och forskningsbaserad kunskap har integrerats.

Metodmässigt har projektet kombinerat flera arbetssätt:

- Kartläggning av transportsystemets struktur och affärsekosystem
- Intervjuer med nyckelaktörer inom evenemang, transport, forskning och offentlig sektor
- Workshop för att utforska och formulera en gemensam vision samt en workshop för att kartlägga affärsekosystemet
- Omvärldsanalys baserad på litteraturstudier och benchmarking av internationella evenemang
- Framtagning och analys av en lösningsportfölj med konkreta förslag

En del av arbetet har varit att utforska och formulera en gemensam vision för framtidens transportsystem inom evenemang. Projektet har identifierat viktiga dimensioner såsom ambitionsnivå, geografisk räckvidd, målgrupper och tidshorisont. Ambitionen är att Sverige år 2035 ska ha tagit en ledande position i Europa inom hållbara transporter för

evenemang, satt branschstandarder och möjliggjort liveunderhållning för alla. Samtidigt har projektet belyst utmaningarna med att enas om en gemensam vision i ett komplext ekosystem där olika aktörer har olika mandat, resurser och ansvar. Att formulera en vision som både inspirerar och är möjlig att förankra kräver balans mellan långsiktiga mål och kortsiktiga realiteter.

Projektet har kartlagt transportsystemets struktur och dess koppling till ett större affärsekosystem. Genom intervjuer med arrangörer, transportörer, kollektivtrafikbolag, leverantörer och offentliga aktörer har vi identifierat centrala aktörer, deras roller, behov och samverkansmönster. En särskild fokus har lagts på publikens resor, som ofta står för den största klimatpåverkan, samt på arrangörernas möjligheter att påverka transportval genom kommunikation, biljettintegration och incitament.

Intervjustudien har synliggjort flera återkommande utmaningar:

- Arrangörer har begränsade resurser och incitament att prioritera hållbara transporter, trots goda ambitioner.
- Transportörer har tekniska lösningar redo, men efterfrågan från kunder saknas.
- Kollektivtrafiken är avgörande men fragmenterad, med kapacitetsbrister och biljettsystem med olika standarder.
- Policyramverk och upphandlingskrav är otydliga och varierar mellan regioner.

Samtidigt identifierades flera möjligheter:

- Starkt intresse för samverkan och pilotprojekt.
- Potential att påverka publikens beteende genom nudging, information och incitament.
- Existerande teknik och tjänster som kan skalas upp med rätt stöd och samordning.

En omvärldsanalys har genomförts med stöd av litteraturstudier och benchmarking av internationella evenemang. Den visar att transport är en av de mest utmanande hållbarhetsfrågorna, men också att det finns effektiva strategier såsom bättre kollektivtrafik, beteendepåverkan, digital information och incitament. Benchmarkstudien visar att flera festivaler och turnéer, exempelvis We Love Green, Boom Festival och Coldplays världsturné har lyckats minska sina transportrelaterade utsläpp genom strukturella lösningar, utnyttjande av data och genom att engagera publiken.

Projektet har även tagit fram en lösningsportfölj med ett urval av lösningar för mer hållbara transporter. Lösningarna har analyserats utifrån affärslogik, effektmål, mätbarhet, ansvarsfördelning och genomförbarhet. Lösningarna har prioriterats i tre grupper: systemövergripande och multidimensionella lösningar, omställningsstödjande tjänster och lösningar lämpliga för test, utvärdering och införande på kort sikt. En viktig slutsats är att den kommande systemdemonstratorn bör fokusera på transport av publik, där behovet av innovation och samverkan är som störst. För godstransporter finns redan många lösningar tillgängliga, och omställningen handlar främst om kunskapsdelning och stegvis implementering.

Projektet visar att det finns ett starkt engagemang och en bred vilja att ställa om transportsystemet kring evenemang, men att vägen framåt kräver samordning, tydliga krav och långsiktiga strukturer. Publikens resor utgör den största klimatutmaningen, samtidigt som arrangörer, transportörer och offentliga aktörer har både möjligheter och begränsningar i sin påverkan. Lösningar finns, tekniskt, organisatoriskt och beteendemässigt, men behöver skalas, testas och förankras i ett gemensamt systemperspektiv. Lösningarna måste vara ekonomiskt genomförbara och bidra till en positiv publikupplevelse. En balans mellan hållbarhet, affärslogik och kundvärde är avgörande för att skala upp och sprida lösningar. Projektet identifierar även behov av fortsatt forskning, särskilt kring verktyg för att designa och utvärdera lösningar, transportens roll i bredare hållbarhetsmål (t.ex. Agenda 2030), samt hur evenemang kan fungera som testbäddar och inspirationsplattformar för samhällsförändring.

3. Background

Transport related to events such as concerts, festivals, and tours is one of the most significant contributors to the climate and environmental footprint of these gatherings (AGF, 2023). Audience travels to and from venues, along with logistics for artists, staff, and equipment, plays a major role in emissions and environmental impact (Andersson et al., 2013). At the same time, events serve an important societal function by fostering community, energizing cities and regions (Arnegger and Herz, 2016) and creating spaces that bridge social and cultural divides. To preserve the social value of events while reducing their environmental burden, the industry must develop new, more sustainable transport solutions.

Achieving this transition is complicated by the fragmented nature of the transport ecosystem surrounding events. A wide range of stakeholders (organizers, municipalities, transport providers, mobility innovators, and visitors) each bring distinct priorities, operational logics, and constraints. While some actors focus on profitability or logistics, other prioritize sustainability, public engagement, or regulatory compliance. This diversity creates both challenges and opportunities: without coordinated efforts, solutions risk being isolated or short-lived, but with strategic collaboration, events can become testbeds for integrated, scalable transport innovations.

Several initiatives demonstrate that events can be powerful platforms for driving behavioural change. For example, Way Out West in Gothenburg reduced its ecological footprint by 24 percent by serving only vegetarian food, even as attendance grew by 19 percent (Andersson et al., 2013). At an event in Melbourne, 60 percent of participants reported increased commitment to sustainable behaviour, and 47 percent said they were more likely to use public transport (Harris, 2013). The Øya Festival in Norway has set a goal of achieving a fossil-free transport system by 2027 (Øya, 2024). Despite these efforts, there is still a need for system-wide studies and pilot projects to identify feasible

and scalable solutions that minimize the climate and environmental impact of both freight and passenger transport. A sustainable transition must also consider visitor experience and the financial realities of event stakeholders.

4. Purpose and method

The overarching goal of this project has been to lay the groundwork for a successful large-scale demonstration of sustainable transport solutions within the events industry. The preparatory phase has clarified which actors, solutions, and processes need to collaborate to ensure high quality, long-term sustainability, and maximum impact. This phase has focused both on understanding the current business ecosystem and on developing a shared vision to guide future development.

The project was based on a systematic mapping of the business ecosystem surrounding transport to and from events. Its aim was to identify the key stakeholders, their logic, needs, and current forms of collaboration, and to analyse the barriers and opportunities for a future system demonstrator with real impact. Insights from previous studies, pilot projects, and international best practices were integrated into the work.

Through the initiative *Cirkulär Live 2027* (www.cirkularlive.se/), the project aims to implement, test, evaluate and disseminate a portfolio of solutions, both existing and new, that together will enable significantly more sustainable and socially inclusive transport in connection with events and tours. The ambition is to:

- Meet transport needs for staff, goods, and equipment between and during events, as well as for visitor travel to and from venues.
- Ensure solutions are practically feasible, economically sustainable, and enhance competitiveness for system actors (e.g., through new business models).
- Deliver an audience experience that is equal to or better than current standards.
- Promote long-term behavioral change among visitors and stakeholders toward more sustainable practices.
- Address the needs and conditions of diverse target groups to support a more equitable transition.
- Maintain a system-wide focus that drives progress across the industry.

Data collection combined several methods. A review of literature, past projects, and international examples provided a knowledge base and inspiration. In addition, 16 semi-structured interviews were conducted with representatives from event organizers, project managers, public transport companies, transport and logistics firms, mobility service providers, municipalities, and suppliers. Interviewees included individuals in roles such as project managers, quality and sustainability managers, business developers, and strategic development leads, among others. The interviews were recorded, transcribed,

and analysed thematically using a coding framework that covered stakeholder roles, transport needs, business logic, sustainability focus, barriers, enablers, and potential solutions. This resulted in a detailed picture of stakeholder perspectives and their interactions.

Beyond the interviews, two workshops were held with project partners. The first workshop focused on developing a shared vision for the system demonstrator project. The second workshop focused on mapping and analysing the business ecosystem required to enable sustainable transport solutions within the events industry. We have emphasized interactive activities such as interviews, study visits and workshops to create collaboration, spread knowledge and accelerate the transition.

5. Objective

The overarching goal of the project was to clearly define what is required for the successful implementation of a large-scale system demonstrator project. To address this overarching objective, we applied a specific focus on the following areas:

- Map the business ecosystem, key stakeholders, their business logic, and current forms of collaboration.
- Based on this mapping, identify and mobilize the stakeholders who need to be involved in the system demonstrator to achieve full impact and high-quality results.
- Based on literature, previous studies/pilot projects, best practices, and the expertise of system actors, identify potential partial solutions, barriers/opportunities, and relevant regulations/policies.
- Develop a shared vision (including sub-goals) for the system demonstrator and identify appropriate metrics for evaluating areas such as environmental/climate impact, inclusion, visitor experience, and economic sustainability and competitiveness.
- Create a portfolio of potential partial solutions and gain insight into how these may interact or conflict with one another.
- Develop a plan for the design, implementation, and evaluation of the system demonstrator, including the structure of the consortium and potential financing strategies.
- Identify relevant stakeholders and based on their focus and needs, establish a plan for communication and knowledge dissemination.

6. Results and deliverables

This chapter presents the key outcomes of the project. It outlines the work undertaken to explore and shape a shared vision for the future, maps the transport and business ecosystem, highlights stakeholder insights, and outlines the proposed portfolio of solutions. Together, these deliverables form the foundation for a future system demonstrator that aims to transform transport within the event industry.

6.1 Vision

A shared vision is essential for aligning stakeholders and mobilizing collective action toward sustainable transformation. In the events industry the business ecosystem is complex, with diverse actors, needs, and interests. Without a common direction, efforts risk becoming fragmented, short-term, or even contradictory. A clear vision and set of goals provide a guiding framework that fosters meaning, identity, and commitment, while ensuring that tested solutions are relevant to the ecosystem's structure, challenges and opportunities.

Rather than arriving at a single, finalized vision statement, the project consortium engaged in a collaborative process to explore and define the dimensions that a future vision for sustainable event transport should include. This process allowed participants to reflect on ambitions, scope, time horizon, and target groups, laying the groundwork for a shared strategic direction.

- Focus and scope: The vision should apply nationally across Sweden, encompassing small towns, mid-sized cities, and metropolitan areas. It should focus on tours, festivals, arenas, and concerts, primarily within the cultural live entertainment sector.
- Time horizon: The vision is oriented toward 2035, with intermediate milestones identified to guide progress, such as a first concept is piloted through the Cirkulär Live tour in 2027, enabling real-world testing and learning.
- Target groups and impact: realizing the vision requires co-creation with a wide range of actors including event industry, transport sector, host destinations, visitors, municipalities and regions, and policymakers.

The discussion revealed a strong collective ambition for 2035, including the desire for Sweden to:

- Become the leading country in Europe for sustainable transport in the events and live performance sector.
- Set the industry standard across Europe.
- Enable live entertainment for all.

- Drive development through inclusion, purpose, and joy.
- Create ripple effects that positively influence other sectors of society.

In shaping a future vision for sustainable transport in the event industry, it is important to recognize that transport is not solely a matter of infrastructure, vehicles, and logistics. The vision should also include human, societal, and cultural dimensions. Transport solutions must be accessible and inclusive, ensuring that all groups in society have the opportunity to participate in and benefit from events. This means considering how transport can reduce climate impact while also enhancing participation, quality of life, and community connection.

While these aspirations were widely supported, the group also recognized the challenges of committing to a single vision, unified. In a multi-stakeholder ecosystem, each organization operates under different mandates, planning horizons, and resource constraints. Committing to a shared vision requires not only alignment in ambition but also the ability to stand behind specific goals and statements, internally and externally. This becomes particularly complex when the vision must reflect input from a wide range of perspectives. For many, the process of defining a vision is not just about agreeing on a desired future, but about navigating strategic priorities, reputational considerations, and operational realities. As such, the vision work must balance inspiration with credibility and leave room for adaptation as conditions evolve.

6.2 Transport system, business ecosystem, stakeholders and roles

Transport to, from, and withing events is not an isolated function, it is deeply embedded in a broader and complex business ecosystem. The transport system, its activities, and its actors are interdependent with a wide range of stakeholders, each with distinct roles, needs, and influence. To design a system demonstrator that reflects real-world conditions and can drive long-term transformation toward more sustainable, efficient, and inclusive transport, it is essential to understand this ecosystem in detail.

As part of the project, a central task was to map this ecosystem through literature reviews, interviews, and workshops. The goal was to identify the actors who directly or indirectly influence the transport system, understand their roles and decision-making processes, assess current collaboration patterns, and explore how they could contribute to change. This mapping provides a foundation for mobilizing the right stakeholders for a successful system demonstrator.

6.2.1 Structure of the transport system

The transport system consists of two primary flows: passenger transport and freight transport.

- Passenger transport involves both public and private actors, including public transit agencies, taxi companies, ride sharing services, and various forms of shared mobility.
- Freight transport is managed by logistics operators, trucking companies, and courier services.
- Support infrastructure, such as mobility hubs, parking facilities, and service-points, serves as the system's operational backbone.

Interviews revealed that the structure of the transport system is shaped by several infrastructural and organizational factors.

- Ticketing systems: The technical capacity and integration of ticketing platforms determine whether event tickets can be bundled with sustainable travel options.
- Public transport capacity: Especially during peak arrival and departure times, capacity is a critical factor for both system functionality and visitor experience.
- Charging infrastructure: The availability of charging stations is essential for scaling up electric solutions for both passenger and freight transport.
- Procurement and logistics routines: Established practices among buyers influence the choice of transport solutions, which can either hinder or enable the shift to more sustainable alternatives.

6.2.2 Key stakeholders and roles

To better understand the ecosystem, the project developed a typology of key stakeholder groups and their roles in relation to the transport system.

Audience

- Role: End users and demand drivers.
- Needs: Travel to and from events, often concentrated around specific time windows.
- Logic: Visitors typically arrange and pay for their own travel, influenced by cost, convenience, travel time, and access to public transport.
- Interaction: Indirect, via organizers and transport providers (e.g., bundled ticketing or travel information).
- Impact: Their choices shape demand and modal split, while they are also affected by infrastructure, ticketing integration, and communication.

Event organizers

- Role: Central coordinators of logistics and stakeholder interaction.
- Needs: Ensure smooth and timely transport for audience, staff, artists, and freight.
- Logic: Transport is often seen as a cost-driven issue. Sustainability is typically an ambition rather than a requirement.

- Interaction: In close dialogue with authorities, suppliers, and transport providers.
- Impact: Can be powerful enablers by integrating travel options into ticketing, promoting sustainable choices, and piloting new solutions.

Artists and agents

- Role: High-sensitivity users with tight schedules.
- Needs: Fast, reliable transport over short to medium distances, often involving both people and equipment.
- Logic: Transport is a critical part of the production chain, delays can jeopardize entire events.
- Interaction: Manage their own logistics but depend on organizers and transport providers.
- Impact: Affected by time pressure; some artists actively demand sustainable solutions.

Event staff

- Role: Operational enablers of the event.
- Needs: Travel to and from venues, often during late hours when public transport is limited.
- Logic: Cost and simplicity are key factors.
- Interaction: Partially coordinated by organizers, but often self-managed
- Impact: Dependent on the availability and reliability of public transport.

Suppliers

- Role: Executors of freight logistics for materials, food, and equipment.
- Needs: High-volume, time-sensitive deliveries within narrow time windows.
- Logic: Strongly cost driven, with a focus on minimizing logistics costs.
- Interaction: Operate through external transporters, creating chains of dependency.
- Impact: Influenced by organizer requirements and regulations; can affect emissions through logistics choices but have limited incentives to lead change.

Public authorities and interest groups

- Role: Enablers and regulators.
- Needs: Limited direct transport needs, but responsible for enabling others' mobility.
- Logic: Governed by laws, policies, and public mandates rather than market forces.
- Interaction: Work closely with organizers and public transport providers, as well as industry stakeholders.
- Impact: High influence through regulations, permits, infrastructure investments, and safety protocols; also affected by the scale and demands of events.

6.3 Needs, barriers, challenges and opportunities

Driving and accelerating transformation within a business ecosystem requires more than identifying key actors and their roles, it also demands a deep understanding of the underlying needs, barriers, challenges, and opportunities. The potential for a successful system demonstrator to catalyze change depends not only on the conditions of individual stakeholders, but also on the dynamics of the ecosystem as a whole. Each actor's operations and business model influence their capacity for change, while local and national policies define the structural boundaries of what is currently feasible.

The analysis of interview data revealed several recurring themes that highlight both the obstacles and the opportunities ahead:

Audience travel as climate challenge

- Nearly all organizers identified audience travel as the single largest contributor to event-related carbon emissions.
- Because visitors organize their own travel, direct influence is limited, but organizers and public transport providers can guide behavior through ticket integration, information, and incentives.
- Car dependency remains high, especially in the evenings when public transport options are limited.

Organizers as central actors with limited tools

- Organizers have the potential to influence both audiences and suppliers, but often lack the resources, incentives, and long-term frameworks to systematically address sustainability.
- While sustainability ambitions exist, short planning horizons and tight budgets often push environmental goals behind operational reliability and cost.
- There is a clear need for standardized industry requirements and support from public authorities or sponsors to cover the added costs of sustainable solutions.

Transport providers ready for change but waiting for demand

- Several transport and logistics companies already operate electric trucks and shared freight solutions.
- The main barrier is not technology, but the lack of customer demand. Organizers still tend to choose the cheapest option and do "business as usual".
- Cost remains a recurring issue: fossil-free solutions are more expensive, and few organizers are willing to pay the premium.
- Providers are calling for clearer requirements from organizers and suppliers to accelerate the transition.

Public transport: critical but fragmented

- Public transport operators want to be the first-choice option for event travel, but face challenges with peak capacity.
- There is no national standard for ticketing; regional systems vary widely, making integration difficult.
- Pilot projects exist, but most are still small in scale.

Policy and regulation: both barrier and enabler

- Municipalities and regions have significant influence through permits, traffic planning, and fossil-free zone requirements.
- Public procurement can set sustainability standards, but the lack of unified guidelines leads to fragmented implementation.

Innovation exists but remains in pilot form

- Many solutions have already been tested, including fossil-free fuels and consolidated freight transport.
- However, nearly all stakeholders report the same issue: these solutions are not yet scaled. The reasons include short project timelines, high costs, and lack of standardization.

6.4 External analysis and inspiration

To better understand the challenges and opportunities for sustainable transport in the events industry, an analysis was conducted consisting of two components:

1. A review of relevant literature and reports
2. A benchmarking study of international events

Together, these sources offer both insights and practical examples of how transport-related sustainability is being addressed across the sector.

6.4.1 Literature and reports

The literature confirms that transport is one of the largest contributors to the climate impact of events. Six recurring challenges were identified:

- High car dependency: Visitors often prefer cars for their flexibility and convenience (Collins et al., 2019), especially at rural events (Robbins et al., 2007).
- Limited public transport: Capacity constraints, irregular schedules, and poor coordination between modes reduces accessibility (Chirieleison et al., 2020).

- Travel habits and behavioral barriers: Even sustainability-minded visitors tend to default to car travel (Collins et al., 2019) and lack of experience and knowledge can discourage people from trying alternative means of transport (Martins et al., 2022).
- Insufficient incentives: Few examples exist of integrated ticketing or financial benefits for choosing sustainable transport options (Chirieleison et al., 2020; Collins et al., 2019).
- Travel time concerns: Public transport is often perceived as slower and less comfortable than driving (Martins et al., 2022), particularly for long-distance travel (Robbins et al., 2007).
- Lack of information: Many visitors lack clear, accessible guidance on sustainable travel options, both online and on-site (Martins et al., 2022; Chirieleison et al. 2020).

To address these barriers, the literature highlights several promising strategies:

- Improved public transport and ticket integration: Collaboration between event organizers and transit providers can offer discounted or bundled travel options, and temporary service boosts during peak times (Chirieleison et al., 2020; Robbins et al., 2007).
- Behavioral nudging: Psychological insights can be used to encourage sustainable choices, such as priority access for public transport users or campaigns that emphasize time savings and convenience (Martins et al., 2022; Collins et al., 2019).
- Digital tools and real-time updates: Mobile apps and signage can provide live data on transport options, parking, and sustainable alternatives (Chirieleison et al., 2020; Martins et al., 2022)
- Economic and practical incentives: Subsidized transit tickets, carpooling rewards, and parking discounts for electric or shared vehicles can shift behavior (Chirieleison et al., 2020).
- Local partnerships: Collaborations with hotels and local businesses can promote longer stays and reduce short, high-emission trips (Robbins et al., 2007).

6.4.2 Benchmarking of international events

The benchmarking study examined how international events are working toward sustainability across multiple domains, including transport, energy, waste, food, and social inclusion. Seven events were selected for in-depth analysis, see Table 6.1.

Table 6.1: Overview of the analysed events

Event name	Location	Type of event
Boom Festival	Portugal	Music and arts festival
Coldplay – Music of the Spheres	Global	World tour (music)
Jubilee Celebration	England	National celebration
Pohoda Festival	Slovakia	Music and arts festival
Way out West	Sweden	Music festival
We Love Green	France	Music festival
Øya Festival	Norway	Music festival

Transport was consistently identified as a major source of emissions. Several events have implemented targeted strategies to reduce both audience and logistics-related impacts:

- We Love Green reported that visitor transport accounted for over half of its total carbon footprint in 2023 (576 ton CO_2e). The festival responded with incentives to increase usage of sustainable transport, e.g., by collaborating with public transport actors, providing access to bike parking, and carpooling campaigns (We Love Green, n.d.).
- Coldplay's world tour achieved a 33% reduction in freight emissions compared to its previous tour, partly through logistics optimization and investment in sustainable aviation fuel. On the audience side, one-third of the attendees used public transport, and 4% arrived via zero-emission modes (Coldplay, n.d.).
- Boom festival organized dedicated bus lines that transported 20% of attendees in 2023, significantly reducing individual car travel and associated emissions (Boom Festival, n.d.).

Across these examples, three success factors emerged:

1. Data driven management: Measuring and tracking emissions (e.g., CO_2e per visitor or transport mode).
2. Structural solutions: Logistics optimization, partnerships with transport providers, and infrastructure for bikes and electric vehicles.
3. Audience engagement: Communication and incentives that influence travel behavior toward more sustainable choices.

6.5 Solution portfolio

The development of the solution portfolio was grounded in a combination of methods. The project team reviewed previous initiatives, conducted literature studies, analysed reports, and interviewed key stakeholders across the events and transport sectors. This approach provided a robust knowledge base that reflects both research and the practical experience of those working within the system. The result is a compilation of solutions that can contribute to reduced emissions, improved accessibility, and more efficient

transport. Table 6.2 provides an overview of examples of solutions identified and evaluated by the project.

Table 6.2: Examples of solutions identified and evaluated by the project

PROPOSED SOLUTION				
Solution	**Transport**	**Description**	**Business logic**	**Potential KPIs**
Transport policy (Organizer)	Visitors	Create a transport policy with clear info on travel options	Improves planning and accessibility. Costs covered by organizer	Implemented
Clear communication	Visitors	Timely and repeated info on transport options	Influences travel choices. Costs covered by organizer	Customer experience
Local suppliers	Goods	Use local suppliers to reduce transport distances	Reduces emissions, supports local economy	Number of local purchases
Ticket as a travel pass	Visitors	Include public transport in event ticket	Encourages public transport use. In collaboration with public transport provider	Reduced car traffic
Shuttle bus	Visitors	Organizer-provided shuttle services	Reduces car use, improves comfort. Visitors pay for this services additionally (not included in ticket price)	Number of passangers
Parking fee	Visitors	Charge for parking and fund sustainability	Discourages car use. Visitors pay the parking fee which can then be used for sustainable initiatives	Number of cars, revenue
Secure bike parking	Visitors	Provide safe bike parking near venue	Encourages cycling	Number of parked bikes
Bike Village	Visitors	On-site bike hub with repair services	Supports bike commuting. Unclear if visitor pays for the service. Visitor pays for eventual spare parts if needed	Number of users, repairs
Icentives for climate-smart travel	Visitors	Rewards for low-emission travel choices	Promotes sustainable travel. Inentives can e.g. be a free drink or and "early access" discount. Costs covered by sponsors	Number of participants
Prioritize digital meetings	Personnel	Replace travel with virtual meetings	Saves time and emissions. No extra costs	Number of digital meetings
Encourage staff travel choices	Personnel	Promote sustainable travel and meeting locations	Reduces emissions, supports local economy	Staff using sustainable transport
Promote carpooling	Visitors	Encourage carpooling when car travel is necessary	Reduces car use	Reduced car count
Sustainable supplier practices	Goods	Encourage sustainable delivery methods	Reduces emissions	
Transport impact analysis	Visitors, Goods	Analyze transport impact for better planning	Supports decision-making	Completet analyses, improvements
Mobility partnerships	Visitors	Partner with train and bus operators	Improves access	Number of partnerships
Travel planning tools	Visitors	Add travel planner to website/app	Costs for development/implementation are covered by organizer. Eventual sponsor from transport actors	User statistics
Real-time travel updates	Visitors	Provide live travel updates via app	Partnership with transport provider	Number of users
Off-peak deliveries	Goods	Schedule deliveries outside rush hours	Reduces congestion	Number of off-peak deliveries
Delivery coordination hub	Goods	On-site hub for supplier deliveries		Minskade transporter, antal leveranser via hubben
Last-mile electric/cargo bikes	Goods	Use electric/cargo bikes for final delivery leg		Number of bike deliveries
Fossil-free fuels	Goods, Personnel	Use only fossil-free fuels (e.g., HVO11)	Reduces climate impact	CO2 reduction, % fossil-free transport
Storage box solutions	Visitors	Provide storage for bags, helmets, etc.	Could be offered as a pre-bookable service and can be combined in a package deal	
Local/regional event ticket	Visitors	Special public transport ticket for local/regional travel	Could be offered as a pre-bookable service and be combined in a package-deal	% using integrated ticket
National/interregional event ticket	Visitors	Special ticket for long-distance public transport	Could be offered as a pre-bookable service and be combined in a package-deal	Number of long-distance trips
Arena transport policy	Visitors, Goods, Personnel	Venue owner sets transport requirements		% of events following policy
Municipal/regional transport policy	Visitors, Goods	Local government sets transport requirements for events		Number of events covered
Organizer goods transport policy	Goods	Organizer sets delivery requirements for venue		

6.5.1 Structure and evaluation criteria

The solutions were grouped into two main categories: passenger transport and freight transport. Most identified solutions relate to passenger transport, reflecting the fact that audience travel typically accounts for the largest share of an event's climate impact. Interviews with transport providers were particularly valuable in assessing the feasibility, practicality, and real-world applicability of the proposed solutions.

Each solution was described and evaluated using a set of parameters:

- Business logic – who bears the cost and how the solution is financed.
- Impact focus – such as fossil-free operation, efficiency, inclusion, and visitor experience.
- Measurability – indicators for tracking outcomes and effects.
- Application phase – when in the event lifecycle the solution is relevant (planning, preparation, execution, or follow-up).
- Responsibility structure – who owns, executes, and enables the solution.
- Implementation challenges – identified risks and barriers

This approach ensured that the portfolio is not just a list of technologies or services, but a structured analysis of how each solution can drive change, and under what conditions.

6.5.2 Prioritization and strategic grouping

Together with need owners, solution providers, enablers, and experts, the project team conducted a thorough review of the proposed solutions. Four key criteria guided the prioritization process: 1) Maturity, 2) System perspective, 3) Impact, and 4) Complexity. Based on this analysis, the solutions were grouped into three categories:

1. System-wide and multidimensional solutions suitable for inclusion in the system demonstrator.
2. Transition-supporting services with lower complexity but strong enabling potential.
3. Quick-win solutions that can be tested and implemented in the short term with limited effort.

A key conclusion from this process was that the upcoming system demonstrator should focus primarily on enabling sustainable, efficient, and inclusive travel for the audience. Audience transport represents the largest source of climate impact and involves high complexity, requiring cross-sectoral and interdisciplinary collaboration. In contrast, many solutions for freight transport are already available and well understood. Here, the challenge is more about knowledge sharing, piloting, and scaling existing practices through incremental changes.

The prioritized solutions selected for the system demonstrator are characterized by: 1) a high degree of maturity, 2) strong alignment with project goals, and 3) systemic complexity that justifies real-world testing. A strategic plan for testing and scaling these solutions will be developed in collaboration with the future demonstrator consortium. This plan will be refined over time to reflect new developments in technology. Policy, and stakeholder needs.

6.5.3 Short-term solutions for early implementation

In parallel with the long-term demonstrator strategy, the project identified a set of low-complexity solutions that can be tested, evaluated, and implemented in the near term. These "quick wins" require relatively modest resources but can still generate valuable insights and momentum. Examples include:

- Communication campaigns for visitors and staff about sustainable travel options.
- Coordination of freight transport before, during, and after events.
- Use of fossil-free fuels for event logistics.
- Secure bike parking to encourage cycling.
- Modular "box" solutions for bags and similar to reduce private car use.

A key takeaway is the importance of maintaining engagement among need owners and solution providers beyond the current study. Continued collaboration will be essential to move from planning to implementation.

7. Dissemination and publications

Our focus on communication and dissemination includes three different phases: 1) during the ongoing study, 2) reporting of results, and 3) continued interaction and engagement.

During the ongoing study:
Already during the project, we have worked actively and broadly to increase the business ecosystem's understanding of the potentials that exist for a sustainable transition of transport in connection with events. The communication has focused on increasing knowledge about the negative impact of transport, potential areas for improvement, the successful examples that have already been carried out by others, and interim results from the ongoing study. Through these activities, we have been able to increase the industry's knowledge, create increased momentum among need owners and solution owners, and engage potential project partners for the larger system demonstrator.
Among the activities carried out during the feasibility study are:

- Initial and broad communication through the project partners' (Chalmers Industriteknik, All Things Live, Rejlers, the Swedish 2030-secretariat) various

channels such as LinkedIn and websites (www.chalmersindustriteknik.se/projekt/cirkular-live-hallbara-transporter-for-framtidens-evenemang , www.cirkularlive.se).

- Panel discussion in connection with All Things Live's event "I'm in a brand" 2024 (www.allthingslive.confetti.events/iminabrand2024)
- Panel discussion in connection with the Swedish music industry's annual conference "Sweden Live Music Conference" 2025 (www.swedenlive.se/).
- Communication about the successful pilot for HVO100 in connection with Helen Sjöholm's and Tommy Körberg's tour during the summer of 2025.

Reporting of results

Results from the preparatory study will be reported and communicated through a number of different channels and initiatives, such as:

- Final report to Vinnova Accelerate
- Public report to Vinnova Accelerate (This report)
- Internal documentation for the upcoming system demonstrator.
- Press release, LinkedIn posts, Circular Live website

Table 7.1: Overview of dissemination and use of results

Dissemination and use	Comments
Increase knowledge in the field	The project contributes to a deeper understanding of the transport ecosystem surrounding events, including stakeholder roles, barriers, and opportunities. The results are intended to inform future research, policy decisions, and industry practices related to sustainable mobility.
Be passed on to other advanced technological development projects	Insights from the solution portfolio and system mapping can support future development projects focused on integrated mobility services, digital infrastructure, and logistics optimization within the events sector and beyond.
Be passed on to product development projects	Several identified solutions, such as ticketing integration, storage box solutions and digital communication tools, have potential to be refined and developed into market-ready products or services.
Introduced on the market	While the project itself is preparatory, the prioritized solutions are intended to be tested and scaled through a future system demonstrator. Solutions identified as quick wins, however, will be possible to implement in near time.
Used in investigations / regulatory / licensing / political decisions	The findings offer valuable input for municipalities, regions, and national authorities working on transport policy, public procurement, and sustainability standards for events. The project highlights areas where regulatory alignment and public support can accelerate transition.

Continued interaction and engagement

The conclusion of the preparatory study does not mean that the dissemination of knowledge stops. The overall Circular Live (www.cirkularlive.se) continues and offers a

powerful platform for dialogue and collaboration. At the same time, we continue to work in the interaction with committed actors and potential project partners in the system demonstrator for transport. Activities foreseen include:

- Continued collaboration with potential parties for the system demonstrator to ensure the highest quality of the application and the best possible conditions for the upcoming tests.
- Participate in industry-related seminars, panels and workshops, both in the event industry but also in the transport industry, the energy sector and public actors (e.g., municipalities, event companies, hospitality companies).
- Continued communication and dialogue in the project partners' (Chalmers Industriteknik, All Things Live, Rejlers, the Swedish 2030-secretariat) various channels.
- Work on concretizing potential related tests (quick wins) and possible spin-off projects in collaboration with actors.

8. Conclusions and future research

The overarching goal of this project has been to lay the groundwork for a successful large-scale demonstration of sustainable and inclusive transport solutions within the events industry. Drawing on the results of this preparatory study, we would like to emphasize three conclusions of specific interest for the industry, the public sector and scholars.

Potential solutions exist elsewhere but have still not been adopted
Transport of goods and people do not only concern a sector such as the event industry, on the contrary, transport is commonly performed for a wide array of purposes in the society. When striving for enhanced effectiveness and efficiency, better robustness and improved sustainability of transport, actors in a variety of sectors and industries have investigated and implemented solutions that enable a positive transformation of transport systems. Even if the event industry increasingly focuses on improved sustainability and showcase solutions addressing the negative effects from transport, existing solutions – many of them so called quick wins, still have to be more broadly adopted by actors in the event industry. In many cases, the transport service suppliers are already prepared and willing to offer more sustainable alternatives should the industry require.

Implications of the embeddedness in a wider business ecosystem
As becomes obvious when mapping the business ecosystem concerned by transport in conjunction to events, the sustainable transformation of transport systems requires a cross-industry collaboration among a wide range of actors. Successful implementation and scaling of solutions requires cooperation between actors in the event industry (planning for and purchasing more sustainable solutions), transport service suppliers

(developing sustainable and competitive offerings), actors offering enabling products and services (such as secure bike parking and storage solutions), and actors of the public sector (running arenas and developing policy, as examples).

Sustainability, economic viability and customer experience – an act of balancing
To disseminate and scale solutions, and by that accelerate the transformation of transport systems of the event industry, actors (buyers, suppliers, partners, etc.) must also be able to survive financially. For the industry to commit to the transformation required, the solutions to be implemented have to be adopted to the economic reality of the concerned industries. Furthermore, given the importance of the visitors, the solutions implemented should not deteriorate the customers' experience of the event. Taken together, for a successful and accelerated transformation of the transport systems for events, the potential solutions must address demands and needs concerning all three areas, sustainability, economic viability, and customer experience.

Although the focus of this preparatory study has been to lay the groundwork for a large-scale demonstration of sustainable and inclusive transport solutions, we have observed potential avenues for further research. Hence, to further develop knowledge in the area, and to support practitioners in their strive to transform the industry, we recommend further attention to the following areas.

- Concepts, guidelines, and tools supporting the industry to design, test and evaluate potential solutions with respect to sustainability, economic viability, and customers' experience.
- Situating transport in the wider scope of sustainability (ref. UN SDGs) for events to uncover interdependencies, conflicts and potential synergies among the various areas and solutions.
- Further our knowledge of how events may be used as platforms to evaluate sustainable solutions for subsequent scaling in the society, and how events could be used to inspire and motivate visitors to change their daily habits and way of living.

9. Participating parties and contact persons

The project was carried out in collaboration between four partners, each representing different but complementary parts of the ecosystem. The project was led by Chalmers Industriteknik (CIT), a research institute focused on innovation for a sustainable society. CIT contributed with expertise and experience in managing transition projects aimed at increased sustainability. All Things Live, a leading independent live entertainment company in Scandinavia, brought industry perspectives and practical insights related to event operations. The Swedish 2030-secretariat, a politically and technologically independent organization working to achieve climate targets, contributed expertise in sustainable transition. Rejlers, one of the Nordic region's leading engineering

consultancies in the built environment provided knowledge in technical solutions and system integration. Together, these actors formed a consortium that combines practical experience, research-based knowledge, and a system perspective. Through this project, they have laid the foundation for a future system demonstrator that can move the events industry forward and showcase how transport solutions can contribute to climate benefits, social inclusion, and enhanced competitiveness.

For more information regarding this study, or if you want to join our efforts to drive the sustainable transformation, please contact:

- Klas Hedvall, Chalmers Industriteknik, klas.hedvall@chalmersindustriteknik.se
- Hafdís Jónsdóttir, Chalmers Industriteknik, hafdis.jonsdottir@chalmersindustriteknik.se

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